Prenatal Counseling and Preparation for Breastfeeding

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KEYWORDS

• Breastfeeding • Support • Prenatal care • Infant feeding • Breastfeeding education

KEY POINTS

- Patient education, peer counseling, lactation specialist care, and encouragement are effective strategies for promoting breastfeeding in the prenatal period.
- Patients with anticipated challenges may benefit from additional support including education about signs of adequate milk intake by the newborn, antenatal consultation with a lactation professional focused on identified challenges, antenatal colostrum harvesting, and emotional support.
- Most patients with medical comorbidities, history of breast surgery, and substance use disorders can breastfeed with education and support.

INTRODUCTION

Breastfeeding is the gold standard of infant nutrition, providing well-established dose-dependent benefits to both the breastfeeding individual and the child (**Table 1**). Most recent American Academy of Pediatrics (AAP) guidelines for optimal duration of breastfeeding recommend exclusive breastfeeding for the first 6 months, and continued, along with complementary foods, for 24 months and beyond as mutually desired by parents and their children.[10]

Obstetric care professionals are uniquely poised to make an impact on patients' feeding choices as most women make this decision before conception or early in their pregnancy.[11] Research shows that support delivered in primary care settings is effective in positively influencing breastfeeding rates.[12,13] Strategies for breastfeeding support may include any of the following: education and anticipatory guidance, psychological support, assistance in management of breastfeeding difficulties and obtaining supplies, and referral to community and professional services.

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Table 1
Breastfeeding benefits for children and their breastfeeding parents

Maternal Benefits of Breastfeeding	Child Benefits of Breastfeeding
Reduced risk of • Type 2 diabetes mellitus[1] • Ovarian cancer[2] • Breast cancer[3] • Obesity[4] • Cardiovascular disease including stroke, myocardial infarction, and coronary vascular disease[5,6]	Reduced risk of • Respiratory tract infections, otitis media, and gastroenteritis[7–9] • Sudden infant death syndrome (SIDS) (Hauck et al, 2011) • Asthma, food allergies (Ip et al, 2007) • Childhood obesity (Wang et al, 2016) • Childhood leukemia (Su Q et al, 2021) • Inflammatory bowel disease (Xu et al, 2017)

This section explores the current landscape of prenatal interventions to support breastfeeding in the Unites States, including strategies for special circumstances such as support for patients with anticipated challenges and those desiring to breastfeed without antecedent pregnancy.

DISCUSSION

What Are Patient and Provider Perspectives on Prenatal Breastfeeding Support?

Patient perspectives

Factors underlying patients' decisions to breastfeed or formula feed are complex and include age, marital status, income level, race, ethnicity, educational background, family influences, and prior personal feeding experiences of an individual.[14–16] Although many of these factors are non-modifiable, some, including patient perception of provider attitude toward breastfeeding, knowledge about health benefits of breastfeeding, prenatal breastfeeding intention, may be amenable to intervention.

Despite existence of potential opportunities for intervention, only 15% to 29% of patients reported discussing breastfeeding with their clinician.[17,18] In addition, many report feeling unprepared for the challenges of breastfeeding,[19,20] receiving inadequate support, or even being misled or misinformed.[21]

Provider perspectives

Breastfeeding has been consistently designated as one of the top public health priorities in the United States. This view is shared by physicians[22]; however, analyses of physician behaviors showed that breastfeeding discussions are infrequent, inconsistent, and often do not fulfill the recommendations from national guidelines.[17,18] A summary of breastfeeding support guidelines from Unites States Preventive Services Taskforce (USPSTF), AAP, and American College of Obstetricians and Gynecologists (ACOG) applicable to prenatal care is included in **Box 1**.

Among the reasons cited for this deficiency are lack of time, inadequate knowledge, and lack of confidence or skills to address common problems.[27] Surveys of physicians conducted over time also demonstrate that little progress in this area has been made over the past 20 years,[28] and a national survey of US pediatricians even demonstrated decreased belief that benefits of breastfeeding outweigh the difficulties.[29]

Although interventions to increase breastfeeding rates have largely focused on patients, research demonstrated that providing training to health care staff including physicians improves clinical outcomes related to breastfeeding and thus represents an important target for future studies.[30,31]

Box 1
National organization recommendations for breastfeeding support applicable to prenatal care

USPSTF[23]
- Provide 1-on-1 counseling
- Provide supplies
- Provide information about breastfeeding
- Provide psychological support
- Provide hands-on assistance with positioning, latching
- Promote formal educational programs for patients and family members

ACOG[24]
- Develop and maintain knowledge about lactation physiology, management of common problems
- Support each woman's right to breastfeed and decision regarding breastfeeding
- Ask about breastfeeding history
- Work with hospital staff to provide early frequent milk expression

AAP[25]
- Train clinic staff in skills to support breastfeeding, including via telephone
- If possible, use the International Board-Certified Lactation Consultant or another staff with training in breastfeeding
- Engage both parents and other family members
- Initiate conversations about breastfeeding early in prenatal care/ postpartum
- Schedule initial newborn visit by 24 to 48 hours post-discharge
- Refer parents to appropriate educational resources

Surgeon General's Call to Support Breastfeeding[26]
- Educate mothers on benefits of breastfeeding for babies and themselves
- Teach mothers to breastfeed
- Encourage mothers to ask for help with breastfeeding
- Develop systems that guarantee continuity of lactation care at discharge from the hospital
- Include support for lactation as an essential medical service

What Types of Prenatal Support for Breastfeeding Have Been Studied?

Emotional support and encouragement

Pooled analyses of US-based trials showed that individual-level interventions such as support and education increase breastfeeding rates.[12] Several studies from diverse patient populations have demonstrated positive effect of provider encouragement on breastfeeding rates; however, these studies are often limited by their retrospective nature and reliance on patient recall.[32–34]

Education and counseling

Educating patients about breastfeeding is one of the key strategies for increasing breastfeeding rates.[26] Three large recent cohort studies demonstrated the efficacy of breastfeeding education in increasing patient knowledge, breastfeeding intention, and in two of the three trials, breastfeeding initiation.[35–38] An older systematic review of 19 US-based studies showed a significant increase in breastfeeding initiation with prenatal education.[37] Timing of education delivery, educational content, and mode of education delivery vary significantly between studies, making it difficult to recommend one approach over another.

Knowledge about health benefits of breastfeeding also has a positive effect on breastfeeding practices.[16,33,39–42] Last, simply educating patients about the recommendations for breastfeeding may also affect patients' breastfeeding practices.[43]

Educational videos

The use of prerecorded breastfeeding education videos has become a popular choice for patient education. Theoretical benefits of video-based education include no

demand on provider time, patient ability to access videos at their convenience, and low cost. Data regarding the effect of this type of intervention on breastfeeding are limited.[44,45] The largest study conducted to date found no difference in breastfeeding initiation, exclusivity, or duration either during delivery hospitalization or in the first 6 months postpartum.[45] A study of prenatal video education on antenatal milk expression is currently underway.[46]

Peer support

Peer counselors are typically individuals with successful breastfeeding experience and cultural and socioeconomic background similar to individuals in the community in which they provide the service. Peer counseling interventions have been consistently associated with increased rates of breastfeeding initiation, duration, and exclusivity.[41,47,48] Given their demonstrated efficacy, peer counseling programs have been implemented by Special Supplemental Nutrition Program for Women, Infants and Children programs in many states and are endorsed by the Centers for Disease Control as one of the core strategies to increase breastfeeding rates.

Lactation specialist services

Lactation care may be delivered by practitioners with a range of titles, training, and scope of practice. The most rigorous designation is the International Board-Certified Lactation Consultant (IBCLC). These professionals provide a full scope of lactation care including management of complex cases with exception of prescribing medications except in cases where IBCLC also holds a degree granting them such privileges (eg, MD or APRN). Interventions delivered by lactation specialists have demonstrated efficacy in different patient populations, including those with traditionally low rates of breastfeeding.[49] Team approaches combining the care from a lactation specialist and physician perform better than interventions delivered by a physician alone, and such approaches are highly satisfactory to patients.[20,50]

Hospital policies

The Ten Steps to Successful Breastfeeding are maternity care practices endorsed by the World Health Organization and United Nations Children's Fund for promotion of breastfeeding (**Box 2**). Studies consistently demonstrate that breastfeeding outcomes improve with exposure to increased number of steps.[20,51–54]

Lactation Physiology and Implications for Clinical Management

Knowledge of basic physiology of lactation is important to be able to provide patients with evidence-based counseling, dispel myths, and inform management of some breastfeeding challenges. **Table 2** provides an overview of lactogenesis phases and suggested anticipatory guidance.

SUPPORT FOR BREASTFEEDING IN SPECIAL CIRCUMSTANCES

Breast Anatomy-Related Challenges

Adult breast shape and size vary significantly among individuals and have virtually no impact on ability to breastfeed. Breast examination at initiation of prenatal care and again in late second or third trimester provides an opportunity for identification of potential challenges related to anatomy and identification of other concerns such as lack of breast change over the course of gestation.

Congenital Breast and Nipple Anatomy and Related Challenges

Table 3 provides a description and suggested anticipatory management strategies for most common congenital breast anatomy variations.

Box 2
Ten steps to support breastfeeding (World Health Organization)

1 A. Comply fully with the International Code of Marketing of Breast-milk Substitutes and relevant World Health Assembly resolutions.

1 B. Have a written infant feeding policy that is routinely communicated to staff and parents.

1 C. Establish ongoing monitoring and data management systems.

2. Ensure that staff have sufficient knowledge, competence, and skills to support breastfeeding.

3. Discuss the importance and management of breastfeeding with pregnant women and their families.

4. Facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth.

5. Support mothers to initiate and maintain breastfeeding and manage common difficulties.

6. Do not provide breastfed newborns any food or fluids other than breastmilk, unless medically indicated.

7. Enable mothers and their infants to remain together and to practice rooming-in 24 hours a day.

8. Support mothers to recognize and respond to their infants' cues for feeding.

9. Counsel mothers on the use and risks of feeding bottles, artificial nipples (teats), and pacifiers.

10. Coordinate discharge so that parents and their infants have timely access to ongoing support and care.

Acquired Breast Anatomy Alterations and Breast Surgery

Acquired alterations of breast anatomy include breast surgery (augmentation, reduction, lumpectomy, and mastectomy), biopsies, piercings, and tattooing. Any of these alterations have the potential to interfere with breastfeeding through damage to glandular tissue, nerves, and ductal system of the breast. With the exception of complete mastectomy, none of these are indicative of inability to breastfeed.[58,59] However, women with prior breast surgery may have lower rates of breastfeeding initiation, duration, and exclusivity,[60] and in one study of patients with prior breast augmentation, up to 3.7% cited their implant as the reason for not breastfeeding.[60]

Supporting Lactation Without Antecedent Pregnancy

In some cases, such as with surrogacy or adoption, parents may desire to provide their breast milk to the infant without being pregnant. The induction of lactation in these circumstances is possible with a combination of pharmacologic treatment with hormones (usually with combined oral contraceptives containing estrogen and progesterone) and galactagogues (usually dopamine antagonists such as metoclopramide) as well as regular frequent breast stimulation. The detailed descriptions of available regimens, indications, and contraindications for their use are described in ABM Clinical Protocols #9 and #33. Lactation induction is best supervised by professionals with expertise in lactation and experience in use of the medications listed above.

Table 2
Phases of lactogenesis

Lactogenesis Stage and Timing	Physiologic Events	Clinical Findings	Anticipatory Guidance and Management
I (Secretory initiation) From 16–20 wk to 4 d postpartum	Final steps in breast development and maturation are completed during pregnancy under hormonal influence of estrogen, progesterone, and prolactin	Colostrum is produced and may be expressed manually or leak spontaneously	• Reassure patient that leakage of colostrum during pregnancy is normal; disposable or washable bra pads can be used if desired by patient • Help patients initiate of breastfeeding or pumping as soon as possible after birth and ideally within 1 h
II (Secretory activation) Usually within 48–72 h postpartum; may be delayed for up to 10 d	At the time of placental separation progesterone levels decline, and hormonal inhibition of copious milk product ion is removed.	Onset of production of large amount of milk aocompanied < l by color change from yellow to white.	• Patients may experience engorgement which presents as uncomfortable swelling and distention of the breasts associated with onset of stage II lactogenesis • Feeding infant on cue 8–12 times daily or expressing milk at similar time intervals may aid in prevention or reduction of severity of engorgement • Additional efforts to "empty" the breast should not be undertaken due to the risk of development of hyperlactation and worsening symptoms
III (Maintenance) Duration of breastfeeding	Oxytocin stimulates leading to contraction of myoepithelial cells and milk ejection for immediate feeding episode, and prolactin which acts to maintain lactation	Lactation is mainly maintained on supply and demand basis.	• If separation from infant is necessary, milk should be pumped at approximately the same frequency as feeding would occur (S-12 times per day)
IV (Involution) Cessation of breastfeeding	With reduced frequency of feeding, paracrine signals lead to decreased milk production	Breasts may show loss of volume, striae. Small amount of milk may be able to be expressed with pressure or spontaneously for years after lactation is complete.	Explore patient's reasons and feelings about cessation of breastfeeding

Table 3
Common congenital breast anatomy variations and recommended

Anatomy Description	Incidence	Clinical Findings	Management
Insufficient glandular tissue/breast hypoplasia/tuberous breasts	Unknown, likely secondary to absence of a precise/uniform definition[55,56]	Pubertal history of limited breast growth breasts do not increase in size or minimally increase in size during pregnancy. Breasts may be normal in shape or may be described as "tuberous," with narrow base, elongated shape, tissue displacement toward the nipple-areolar complex. Breasts may appear widely spaced and/or significantly asymmetric.	• Optimal management is unknown and breastfeeding outcome cannot be predicted prenatally. • Prenatal consultation with a lactation consultant should be considered. • Optimize conditions for effective lactogenesis • Consider prenatal colostrum harvesting if no contraindications exist (see section below).
Flat or inverted nipples	1%	Inverted nipples are the result of congenital tethering of the nipple to underlying fascia. With gentle pressure to edges of areolae, nipple retracts below the surface. Flat nipples neither retract nor protrude	• No prenatal intervention (breast shells, nipple shapers, exercises) has been shown to permanently alter nipple shape or impact breastfeeding success[57] • Most infants can latch and feed without any intervention • Nipple can be gently dra·wn out immediately before a breastfeeding session using suction from breast pump.
Polythelia (accessory nipples) with or without polymastia (accessory breast tissue)	1%	Extra nipple with or without breast tissue mound located along the milk like axilla to the inner thigh. Accessory breast tissue shows similar hormonal responses to normally located breast tissue and can develop similar disorders (eg, carcinoma)	• Accessory breast tissue may become enlarged during pregnancy and early postpartum period • Milk production is minimal, and tissue will regress in the absence of stimulation.

Approach to Patients with Anticipated Delay in Lactogenesis Stage II

Up to 44% of postpartum patients in the United States may experience delay in onset of lactogenesis stage II.[61] No uniform definition exists, but several studies defined "delayed" lactogenesis as that taking place more than 72 hours postpartum.[61–64] Risk factors for the delay include a broad range of medical and obstetrical conditions such as obesity, polycystic ovary syndrome (PCOS), pregestational and gestational diabetes, thyroid disease, insufficient glandular tissue, preeclampsia, cesarean delivery, postpartum hemorrhage, and retained placental fragments.[61–66]

Despite the high prevalence of this condition, no uniform approach to management of at-risk patients exists. In addition to receiving maternity care practices that optimize breastfeeding, patients with risk factors for delayed lactogenesis and/or lactation insufficiency may benefit from education about lactation physiology, dose-dependent nature of breastfeeding benefits, and assessment of adequate milk intake by the neonate. *Antenatal* consult with a lactation specialist may be useful to review these subjects as well as strategies for maximizing lactation. Emotional support and encouragement as well as intensive support postpartum are important.

Last, one specific practice that has been shown to be associated with decrease in delayed lactogenesis stage II and improved breastfeeding in the early postpartum period in patients with metabolic and obstetric risk factors is early initiation of breastfeeding or milk expression, ideally within 1 hour of birth.[67]

The Role of Antenatal Milk Expression

Antenatal milk expression refers to collection of breast milk during late pregnancy for storage and use in the early postpartum period. Among benefits of antenatal breast milk expression are reduced rates of formula feeding in the hospital, increased maternal confidence, and increased rate of exclusive breastfeeding in the first week of life.[68] Published regimens of antenatal milk expression vary widely in recommended duration and technique of expression. In most studies, participants started milk expression after 36 weeks of pregnancy; however, protocols initiating expression as early as 32 weeks have been published.[69] Although nipple stimulation has been associated with premature contractions, a scoping review of 20 recent studies demonstrated no increased risk of preterm birth.[69]

BREASTFEEDING AND NEONATAL CONDITIONS

Prematurity

Premature and medically complex infants may have difficulty with coordination of sucking and swallowing and may fatigue easily with attempt at oral feeding. Health benefits of breast milk are particularly advantageous in this group and include lower incidence of necrotizing enterocolitis, sepsis, improved gastrointestinal function, and earlier discharge from the hospital.[70]

Cleft Lip and Palate

Infants with structural abnormalities of the oropharynx such as cleft lip and palate may be able to feed directly from the breast with the use of special techniques and devices.[71] In addition to nutritive benefits of breast milk, breastfeeding promotes optimal growth and development of facial musculature, jaw, and palate, and this benefit extends to infants post-reconstructive surgery of these structures.[72–74] Infants who are unable to feed directly from the breast can be fed expressed breast milk via route most appropriate for their condition, which may involve the use of a regular or specialized bottle, syringe, or medicine cup.

Table 4
Management of select infectious diseases in pregnancy

Breastfeeding Contraindication	Condition	Breastfeeding Management
Breastfeeding or feeding of expressed breast milk contraindicated	Maternal HIV infection	Breastfeeding is contraindicated in settings where breast milk substitutes and sanitary ways of preparing the substitutes are readily available.
Breastfeeding or feeding of expressed milk can occur with appropriate treatment and/or precautions	COVID-19	Ongoing feeding is encouraged. Separation of mother and infant is not necessary. Wash hands thoroughly with soap and water. Cover mouth with cough and sneeze.
	Influenza	Ongoing feeding is encouraged. Separation of mother and infant is not necessary. Wash hands thoroughly with soap and water. Cover mouth with cough and sneeze.
	Active maternal tuberculosis	Expressed breast milk can fed to the infant by a healthy caregiver. Direct feeding from the breast may resume following 2 wk of appropriate antibiotic treatment when patient is no longer considered contagious.
	Herpetic lesions on the breast	Breastfeed from the unaffected breast. Herpetic lesions must be covered to avoid contact. Milk from the affected breast should be discarded. Hand hygiene and thorough cleaning of pump parts are necessary.
	Shingles	Breastfeed from the unaffected breast lesions must be covered to avoid contact milk from the affected breast should be discarded. Hand hygiene and thorough cleaning of pump parts are necessary.
No restrictions on breastfeeding	Hepatitis B	Breastfeeding is encouraged.
	Hepatitis C	Breastfeeding can continue. If bleeding or severe cracking of the nipple occurs, mothers have traditionally been advised to abstain from directly feeding from or feeding expressed breast milk from the affected side until complete healing occurs.

BREASTFEEDING AND MATERNAL CONDITIONS

Maternal Use of Medications

Individuals taking prescription medications may have concerns regarding medication safety with breastfeeding leading to self-discontinuation or alteration of the dose. Addressing medication concerns early in the course of prenatal care allows time to review safety of a particular medication as well as options for substitution for a medication with more acceptable risk profile when possible. Data regarding breast milk levels and safety of various medications are continually evolving and the most up-to-date information can be found in these resources.

- MotherToBaby
- LactMed
- Dr Thomas Hale's Medications and Mother's Milk
- E-lactancia

Infections

Concerns about transmission of infectious diseases can lead to decision to not breastfeed in patients who do not have a contraindication. **Table 4** summarizes the management guidelines for infections commonly encountered in the United States.

Table 5
Management of select substances and alcohol use in breastfeeding

Substance	Breastfeeding Management
Alcohol	Occasional moderate alcohol consumption defined as consumption of one standard drink per day, may be compatible with breastfeeding, particularly if the parent providing the milk waits at least 2 h before feeding or pumping breast.milk.[76] Heavy alcohol use is not compatible with breastfeeding and should be discouraged in these circumstances.
Tobacco (including e-cigarettes and vaping devices)	Patients who smoke can breastfeed but should never smoke while breastfeeding. Exposure to tobacco smoke prenatally and postnatally is a risk factor for SIDS.[77–80] Data regarding safety of nicotine replacement products (lozenges, gum, and so forth) are limited; however, the use of these products removes infant exposure to other harmful chemicals in smoke and may thus be preferable to ongoing smoking.[81,82]
Marijuana	No uniform guideline exists to guide breastfeeding management due to significant variation of THC content across different products. Accumulating data suggest long-term neurodevelopmental outcomes of THC exposure during pregnancy and lactat.ion.[82] Patient should be discouraged from marijuana use in all forms while breastfeeding.
Opioid use disorder	Accumulating evidence shows that levels of methadone and buprenorphine and their metabolites in breast milk are low, and breastfeeding reduces the severity of neonatal abstinence syndrome.[83,84]
Illicit drugs (amphetamines, PCP, cocaine)	Patients actively using illicit drugs generally should not breastfeed.[10]

Maternal Alcohol and Substance Use

Substance use among pregnant women has increased over the past decade.[75] Providing patients with accurate up-to-date information on risks and benefits of breastfeeding in their specific circumstances is important in helping them make infant feeding decisions and optimizing breastfeeding rates. See **Table 5**.

SUPPORTING LACTATION AT RETURN TO WORK OR SCHOOL

Parents returning to work or school will need to pump and store breast milk to maintain lactation and provide nutrition to the infant during separation. Patients should receive education regarding frequency of pumping which should approximate feeding frequency. Innovations in breast pump technology have led to the development of wearable and hand-free pumps for more convenient pumping. Federal law requires reasonable break time for an employee to express breast milk in the first year of a child's life.

SUMMARY

Exclusive breastfeeding in the first 6 months and continued with introduction of complementary foods for 2 years or longer is the gold standard of infant nutrition, with life-long benefits for children and their breastfeeding parents. Compelling evidence indicates that prenatal care providers can influence patients' infant feeding decisions and increase breastfeeding rates through education, counseling, encouragement, collaboration with lactation professionals, and referral to community resources. Further studies, particularly randomized control trials, are needed to compare prenatal breastfeeding support strategies to each other to identify those that are most effective for widespread implementation.

CLINICS CARE POINTS

- Address infant feeding plans early during prenatal care, ideally starting with the initial prenatal care visit.
- Prenatal care providers should engage the systematic structured learning about breastfeeding from reputable resources. Some recommendations include the breastfeeding curriculum from AAP, ACOG Breastfeeding Toolkit, and the Academy of Breastfeeding Medicine Education page. Links are provided below. If available, shadowing a lactation professional may provide additional insights and skills.
- Educate patients about breastfeeding. Suggested education subjects include breastfeeding as the recommended form of infant feeding, recommended duration of 24 months, health benefits to parent and infant, practical aspects, and realistic description of early breastfeeding.
- Best available evidence indicates that interventions to support breastfeeding are most effective when delivered in a longitudinal manner and incorporating multiple approaches (eg, lactation specialist consultation plus breastfeeding education from MD).
- Work collaboratively with lactation specialists and peer counselors.
- Provide patients with information about community resources for breastfeeding support.
- Inform patients about benefits available through their insurance and federal and state benefits.
- Review patients' medical history and medications and address any concerns regarding breastfeeding.

- Support patients with anticipated challenges by addressing possible problems and creating a proactive plan. When exclusive breastfeeding is not possible, educate patients about health benefits of any breastfeeding or human milk feeding.
- Promote implementation of Ten Steps to Successful breastfeeding.
- Help patients initiate breastfeeding or milk expression as early as possible and ideally in the first hour after birth.

LINKS TO SELECT EDUCATIONAL RESOURCES

AAP Breastfeeding Curriculum: https://www.aap.org/en/learning/breastfeeding-curriculum/.

ACOG Breastfeeding Toolkit: https://www.acog.org/topics/breastfeeding.

Academy of Breastfeeding Medicine Education Center: https://www.bfmed.org/education.

Breastfeeding Handbook for Physicians: https://publications.aap.org/aapbooks/book/428/Breastfeeding-Handbook-for-Physicians.

CONFLICTS OF INTEREST

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