First Steps Nutrition Modules

Module 8 – Breastfeeding Assessment and Support

Introduction

Over the past 25 years, research has repeatedly demonstrated the importance of breastmilk for infants. This is reflected in national and international initiatives to promote breastfeeding, including a Healthy People 2010 objective for 75% of mothers initiating breastfeeding, 50% of infants being breastfed by 6 months of age, and 25% at 1 year. Rates in the US are around 73% infants ever breastfed, 39% breastfeeding at 6 months, and 20% breastfeeding at 1 year. (In Washington State, the rates are 90%, 55%, and 26% respectively) (CDC, 2006)

The American Academy of Pediatrics calls breastfeeding "the ideal method of feeding and nurturing infants" and recommends human milk for all infants for whom breastfeeding is not specifically contraindicated. (AAP, 2005) Breastfeeding rates in the US are increasing, and the rates of breastfeeding are increasing among many of the groups which have historically had the lowest rates. These changes are likely a result of changes in education, routine maternity ward practices and social support, but that more is needed to increase rates to the Healthy People 2010 objectives. The Healthy People 2010 document identifies the following as necessary to continue to increase breastfeeding rates in the US:

- Education of new mothers and their partners
- Education of health providers
- Changes in routine maternity ward practices
- Social support, including support from employers
- Greater media portrayal of breastfeeding as the normal method of infant feeding

Many of these activities, especially related to education and support, can be carried out by nutrition professionals. This module is intended to provide the dietitian with the skills and tools to help support women who are breastfeeding, to identify problems with breastfeeding, and to suggest potential solutions.

Estimated time to complete this module: 60 minutes.

Learning Objectives

Participants will be able to:

- List the benefits of breastfeeding

- Describe normal lactation
- Identify common problems with lactation and describe potential solutions
- Identify conditions where breastfeeding is not recommended
- Refer clients to appropriate members of the First Steps team and/or community providers, as appropriate
- Offer information and support around returning to work or school for infants with some conditions that commonly occur during early infancy

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Why Breastfeed?

Benefits

The benefits of breastfeeding were briefly covered in Module 6, Nutrition and the Young Infant. A statement from the IOM's Nutrition Services in Perinatal Care, 2nd edition is restated below:

> *"Exclusive breastfeeding is the preferred method of feeding normal infants throughout their first 4-6 months. Breastfeeding provides the infant with a clean supply of milk, in an amount that is responsive to the infant's needs, and in a manner that promotes optimal interaction between the mother and infant. Human milk provides all essential nutrients in a form that is easily digested and absorbed and in amounts that allow normal growth and development. Moreover, human milk provides the infant with immunoglobulins and many other antiinfective substances, as well as anti-inflammatory substances, hormones, enzymes, and growth factors that appear to have important health-promoting effects." (IOM, 1992)*

Some of the benefits of breastfeeding are listed below: (AAP, 2005; Story, 2002)

- Protects against infectious diseases, including meningitis, gastroenteritis, otitis media, pneumonia, botulism, urinary tract infections, and necrotizing enterocolitis
- Prevents some chronic diseases, including type 1 diabetes, type 2 diabetes, Crohn's disease, ulcerative colitis, lymphoma, leukemia, asthma, and other allergic diseases
- Is associated with reduced rates of sudden infant death syndrome in the first year of life
- May help to prevent obesity
- Is associated with increased IQ and improved school performance
- Is associated with decreased hospitalizations, medical office visits, and medications use and thus, decreased health care costs (about $200 less for a breastfed infant than formula-fed) (Ball and Wright, 1999)
- Provides analgesia to infants during painful procedures (e.g., heel-stick for newborn screening)
- Promotes self-regulation of intake (compared with parents who bottle-feed, mothers who breastfeed appear to allow the infant to take an active role in controlling intake, possibly promoting feeding practices that can foster better self-regulation of energy intake as the child grows up)
- Exposes the infant to a variety of flavors and has an influence on taste preferences and food choices (exposure to "healthy" flavors may improve food acceptance after weaning)
- Increases time between pregnancies (delays the resumption of ovulation) and reduces the risk of prematurity in later pregnancies

- Is associated with maternal benefits (women who breastfeed have lower rates of ovarian cancer, premenopausal breast cancer, hip fractures, and osteoporosis)

The AAP recommends that health care providers provide parents with complete, current information on the benefits and techniques of breastfeeding. (AAP, 2005)

Figure: Breastfeeding

Barriers

The AAP has identified the following as barriers to the initiation and continuation of breastfeeding. Some of these issues can be addressed by the dietitian in the community setting and are addressed in more detail later in this module.

- Insufficient prenatal education about breastfeeding
- Disruptive hospital policies practices
- Inappropriate interruption of breastfeeding
- Early hospital discharge in some populations
- Lack of timely routine follow-up care and postpartum home health visits
- Maternal employment (especially in the absence of workplace facilities and support for breastfeeding)
- Lack of family and broad societal support
- Media portrayal of bottle feeding as normative
- Commercial promotion of infant formula through distribution of hospital discharge packs, coupons for free or discounted formula, and some television and general magazine advertising
- Misinformation
- Lack of guidance and encouragement from health care professionals

Breastfeeding is contraindicated for a small number of infants. See Module 6.

Read more about risks of not breastfeeding.

Among focus group participants (mothers who did and did not breastfeed), understanding the potential risks associated with not breastfeeding did not evoke guilt, but led to more informed decision-making. (Merewood and Hening, 2004)

Some of the risks associated with not breastfeeding include:

- *Increased risk for infectious diseases (for example, otitis media, diarrhea, and respiratory illnesses) and more visits to the pediatrician*
- *Increased rates of hospitalizations*
- *Higher postneonatal infant mortality rate*

Possible increased risk of sudden infant death syndrome (SIDS), higher rates of type 1 and type 2 diabetes, lymphoma, leukemia, Hodgkin's disease, overweight, elevated cholesterol, asthma

Normal Lactation

To support successfully breastfeeding, it is helpful for the clinician to understand the physiology behind normal lactation.

Some of the structures involved in lactation include (See Figure 1 below):

- **Alveolus** – the terminal glandular tissue that leads into the lactiferous ductules and ducts of the mammary gland
- **Lactiferous ducts** (~15-20 in each nipple) and sinuses store milk that has been produced by the acinar structures and transport milk toward the nipple.
- **Areola** – the circular pigmented area surrounding the nipple of the breast

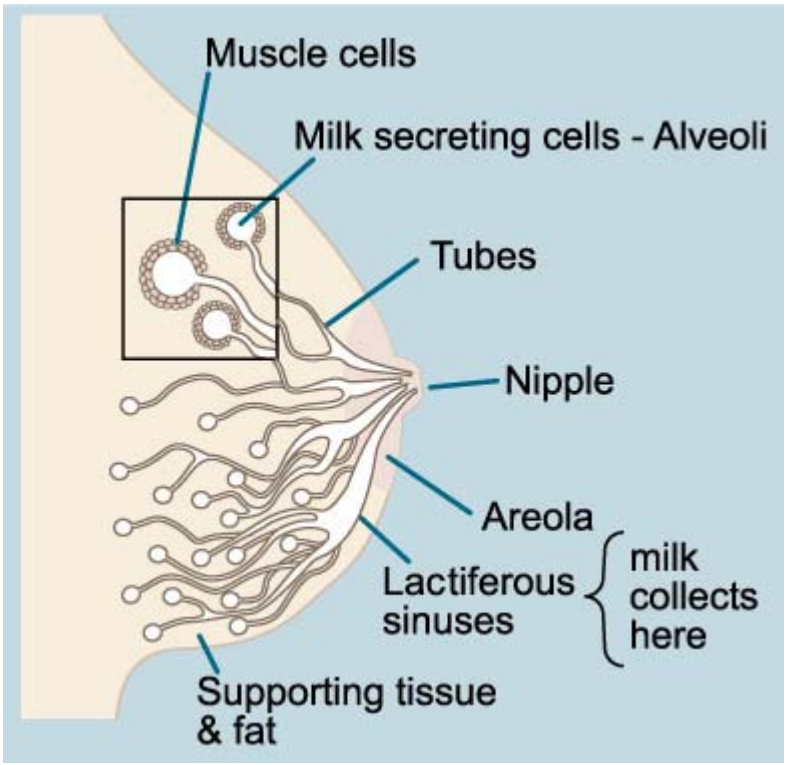


Figure 1

Two of the hormones involved in lactation include:

- **Prolactin** – a hormone secreted by the anterior pituitary, it promotes milk production by the alveolar cells. When the infant sucks on the nipple, a stimulus is provided to the hypothalamus; this stimulates the release of prolactin. It also stimulates the production of progesterone and estrogen.
- **Oxytocin** (or pitocin) – a hormone made in the hypothalamus and secreted by the posterior pituitary, it stimulates uterine contractions and the "let-down" reflex. Its

release can be inhibited by stress (e.g., anxiety, distraction). Oxytocin also lowers heart rate, blood pressure, releases insulin and cholecystokinin, and promotes social behavior.

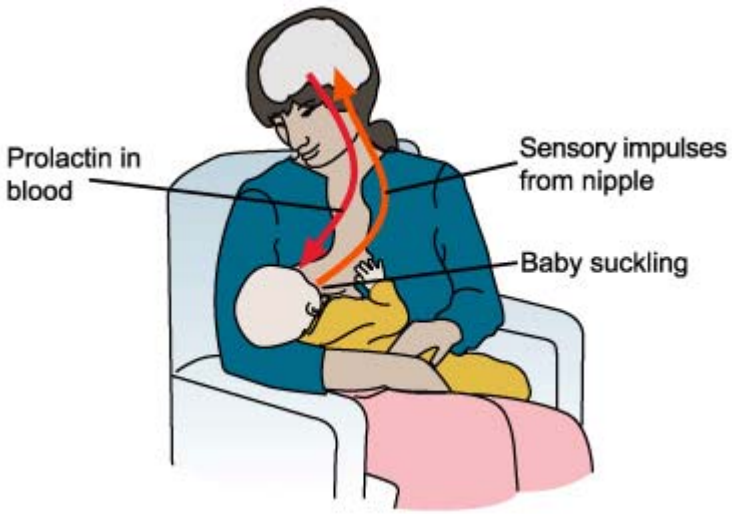


Figure 2

Estrogen and progesterone levels decrease during childbirth. This does not seem to have an effect on lactation, except that estrogen-progestin contraceptives taken in the immediate postpartum period may inhibit lactation. (Some dose-related decreases in the quantity of milk produced have been seen with extended use.)

Although breast development begins early in life, the breast is not prepared to secrete milk until pregnancy.

- During the first trimester, the beginnings of the acinar structures are created.
- During the second trimester, large lobules are formed as the acinar structures continue to develop. Milk production actually begins during this time, but is inhibited by hormones (including progesterone and estrogen) and prolactin-inhibiting factor.
- During the third trimester, structures further develop as milk-producing cells enlarge and adipose tissue appears to diminish.
- After delivery of the placenta, plasma progesterone levels fall and prolactin levels rise to levels that promote milk secretion. A small amount of colostrum is produced for the first 2 or 3 days of lactation.
- About 2-3 days after birth, full lactation begins.

The “let-down” reflex (or “milk ejection”) is a neuro-hormonal mechanism. Release of oxytocin is stimulated primarily by sucking on the nipple. Oxytocin causes cells around the alveoli to contract, pushing the milk along the duct system. The let-down reflex can also be triggered by environmental and emotional factors, including embarrassment, stress, or thoughts or sounds of the infant. Let-down is often indicated by:

- Milk dripping from the breasts before the baby starts nursing
- Milk dripping from the breast that is not being nursed
- Uterine contractions during nursing
- Tingling sensations in the breast

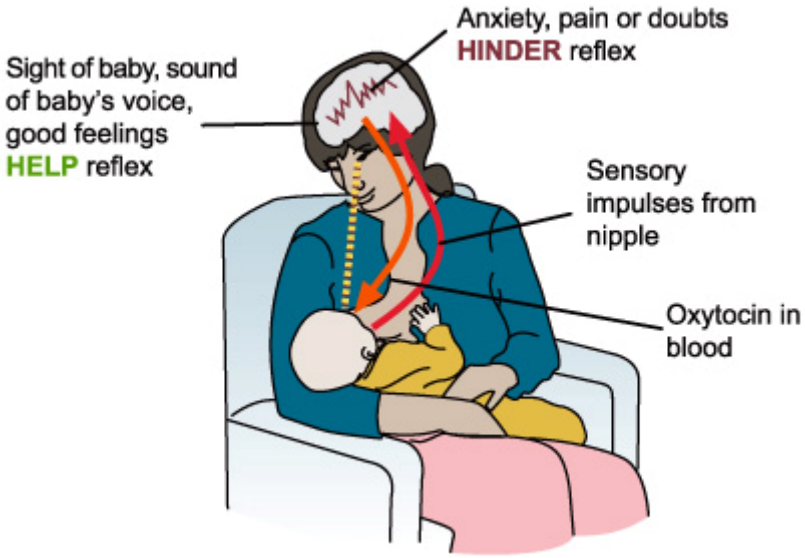


Figure 3

Initiating Lactation

It is agreed that the establishment of breastfeeding is most successful when it is initiated in the immediate postnatal period. Guidelines recognize this and call for "rooming-in" of mother an infant during the recovery and postpartum period, among other things. While the community dietitian will not be able to directly affect hospital policies, information about practices to promote successful breastfeeding initiation can be provided to clients who have decided to breastfeed.

Other recommendations and guidelines for successful breastfeeding initiation are summarized below (AAP, 2005; Story, 2002):

- Provide education to both parents before and after the infant is born. The father's support and encouragement can be very helpful.

- Avoid medications and procedures that may change the infant's alertness and feeding behaviors or that may interfere with breastfeeding.

- Breastfeeding is most successful when it is started within the first hour after birth. Healthy infants should be placed and remain in direct skin-to-skin contact with their mothers immediately after delivery until the first feeding is accomplished.

- Do not give supplements (water, glucose water, formula, and other fluids) to breastfeeding newborn infants unless a medical indication exists.

- For some infants, early pacifier use may interfere with establishment of good breastfeeding practices. Pacifier use for nonnutritive sucking and oral training of premature infants and other special care infants is not contraindicated.

- Mothers should breastfeed at least 8 to 12 times every 24 hours during the early weeks, whenever the infant shows early signs of hunger, such as increased alertness, physical activity, mouthing, or rooting. Offer both breasts at each feeding for as long a period as the infant remains at the breast. At each feed the first breast offered should be alternated so that both breasts receive equal stimulation and draining.

- Positioning and latching-on require some initial experimentation. A lactation expert can often identify problems in positioning and latching-on that can be easily corrected before unnecessary pain and nipple injury occur. See this website: http://www.breastfeeding.com/helpme/answer_latching_on.html for more information.

- Formal evaluation of breastfeeding, including observation of position, latch, and milk transfer, should be made by trained caregivers at least twice daily during each day in the hospital after birth. They may ask the mother to record the time and duration of each breastfeeding, as well as urine and stool output during the early days of breastfeeding in the hospital and the first weeks at home. Problems identified in the hospital should be addressed at that time, and a documented plan for management should be clearly communicated to both parents and to the medical home.

- All breastfeeding newborn infants should be seen by a pediatrician or other knowledgeable and experienced health care professional at 3 to 5 days of age. This visit should include infant weight; physical examination, especially for jaundice and hydration; maternal history of breast problems (painful feedings, engorgement); infant elimination patterns; and a formal, observed evaluation of breastfeeding, including position, latch, and milk transfer.

- Breastfeeding infants should have a second ambulatory visit at 2 to 3 weeks of age so that the health care professional can monitor weight gain and provide additional support and encouragement.

- Home visits by lactation consultants, nurses, dietitians, and/or physicians trained in breastfeeding can be very helpful in evaluating and correcting breastfeeding problems. Peer support groups (e.g., La Leche League) are also helpful throughout

infancy, especially when the mother is initiating breastfeeding and adapting to her new infant.

Continuing Lactation

The most effective means of maintaining lactation is widely accepted to be sucking stimulation. In the absence of the baby, milk expression (either manual or with a breast pump) is recommended to maintain breastmilk production, or to increase production. In general the lactation process is best maintained through a "feeding on demand" approach.

The AAP's policy statement on breastfeeding includes the following guidelines related to promoting the continuation of breastfeeding:

- The mother should be encouraged to put her infant to breast at the earliest signs of hunger (e.g., mouthing motions, hand-to-mouth movements, wide-eyed eagerness, cooing); crying is a late sign of hunger, and the infant will usually need to be calmed (Story, 2002; AAP, 2005)

- Mothers should breastfeed frequently (8 to 12 times every 24 hours), especially during the early weeks, and the infant allowed to feed at both breasts during each feeding session; frequent breastfeeding and complete "emptying" of both breasts will help prevent engorgement. Not all feedings will last the same length of time; as an infant matures the frequency of breastfeeding will decrease. (AAP, 2005; Story, 2002) If an infant does not show signs of hunger after the first breast is offered, the other breast should be offered at the beginning of the next feeding.

- In the early weeks after birth, infants should be aroused to feed if 4 hours have elapsed since the beginning of the last feeding; after breastfeeding is well-established, the frequency may decline to approximately 8 times per 24 hours, but the infant may increase the frequency again with growth spurts or when an increase in milk volume is desired (AAP, 2005)

- The adequacy of the infant's intake can be evaluated by an experienced health care professional: 1) weight – loss of no more than 7% of birthweight by 2-3 days after discharge from the hospital, and 2) diapers – 5 or more wet diapers and 3 or 4 stools per day by 5 to 7 days of age) (Story, 2002; AAP, 2005)

- Exclusive breastfeeding is sufficient to support optimal growth and development for approximately the first 6 months of life and provides continuing protection against diarrhea and respiratory tract infection. Breastfeeding should be continued for at least the first year of life and beyond for as long as mutually desired by mother and child. There is no upper limit to the duration of breastfeeding and no evidence of psychologic or developmental harm from breastfeeding into the third year of life or longer. The worldwide age of weaning is 4 years.

- Complementary foods rich in iron should be introduced gradually beginning around 6 months of age. (See Module 6). Some infants (e.g., those born preterm, with low birthweights, or with hematologic disorders) generally require iron supplementation before 6 months of age. Iron may be administered while continuing exclusive breastfeeding. Introduction of complementary feedings before 6 months of age generally does not increase rate of growth and only substitutes foods that lack the protective components of human milk.

- During the first 6 months of age, even in hot climates, water and juice are unnecessary for breastfed infants and may introduce contaminants or allergens.

- Mother and infant should sleep in proximity to each other to facilitate breastfeeding.

- Problems (including nipple pain and cracking and breast engorgement) should be addressed to ensure that breastfeeding is successful.

- Mixed feeding (i.e., introducing infant formula in addition to breastmilk) should be discouraged during the early weeks of breastfeeding because can interfere with the establishment of a good breastmilk supply.

- For mothers returning to work or school, breastfeeding can be effectively maintained by pumping about every 4 hours. This topic is covered in more detail later in this module.

Common Problems

Some common problems with breastfeeding are discussed in the next few pages, along with strategies to address them. In nearly all instances, the goal is to maintain milk production while correcting problem. Usually, continued breastfeeding will actually help to treat the problem as well. Referral to a lactation specialist may be indicated.

Engorgement

When breasts are engorged, they are swollen, hard, and painful. This makes nursing difficult because the nipples cannot protrude to allow the baby to latch on correctly. It is different from breast fullness, which is the gradual accumulation of blood and milk in the breast and a sign that milk is "coming in." The onset is usually 3-5 days postpartum. Patterns vary widely, but in general, engorgement can last 1-10 days.

Causes and Intervention

Engorgement is caused by inadequate milk removal, and treatment strategies should address why milk is not being removed adequately. If there is a problem with the infant's suck or ability to nurse, this should be evaluated quickly.

To relieve the discomfort associated with engorgement and to make nursing (and thus milk removal) easier, the following strategies have been suggested:

- Feed more frequently – put baby to breast more often and/or express milk before nursing before breast becomes so "full" that baby cannot latch on
- Manually express milk from before feedings to soften areola
- Expression between feedings, either manually or with a breastpump; manual expression in the shower can be helpful
- Apply warmth to the breasts (e.g., shower, warm wet compress before nursing or pumping)
- Apply cool compress after nursing/expression and between feedings
- Gently massage the breast during feeding to improve milk transfer
- Rotate positions during nursing to stimulate (and empty) all of the lobes
- The use of cabbage leaves has been suggested to alleviate engorgement. Studies about their effectiveness have mixed results. (Mass, 2004) One caution with the application of cabbage leaves is that they may also suppress lactation.
- Pain medication
- Referral to health care provider if engorgement does not resolve

Low Milk Supply

Low milk supply can occur for a number of reasons, and can have serious implications for the infant's health – adequate nourishment is critical. It can also affect the

continuation of breastfeeding – an infant requires supplemental feedings, demand for breastmilk is less, and production may decrease further.

Often, the perception of low milk supply (even when supply is adequate) leads to breastfeeding cessation. Signs of low milk supply identified by mothers include a "fussy baby," infant crying after a feeding, and poor weight gain. Other factors in the perception of low milk supply include maternal confidence, paternal support, maternal health, opinions of other family members, infant birthweight, baby behavior, and the use solid foods and formula.

Causes and Intervention

Some maternal conditions can affect milk supply. Examples include retained placenta, illness or medication, previous breast surgery, congenital insufficient glandular tissue, pituitary tumors, and hypothyroidism (not an exhaustive list).

When low milk supply is identified as an issue, it makes sense to evaluate potential explanations and address them:

- Infrequent and/or ineffective feedings – provide information about successful lactation, including the concept of frequent nursing; address individual problems (e.g., positioning, latching on)
- Stress/fatigue – address sources of stress and identify strategies to decrease stress and fatigue
- Maternal use of tobacco, alcohol, caffeine, drugs, oral contraceptives – decrease or eliminate, if possible
- Hormonal imbalances (e.g., elevated progesterone, elevated/decreased prolactin or oxytocin) – make medical referral if the client is not already receiving medical attention for this issue.

In some cases, it can be helpful to determine breastmilk production and infant intake. This can be estimated with "test weights" (weighing an infant before and after feeding to estimate intake – the best practice is to measure a series of test weights, and not base estimates on a single feeding) or by measuring the volume of expressed breastmilk (even with the use of a hospital-grade breast pump, this volume may not accurately reflect the amount of milk than an infant can extract).

When an infant is not gaining weight because of low milk supply and the cause of low milk supply is not one that can be quickly "fixed," supplementation with infant formula may be necessary. The primary goal is to ensure adequate infant intake.

Sore Nipples

Fear of sore nipples may deter the initiation of breastfeeding. Mothers who experience sore nipples often discontinue breastfeeding earlier than they had planned. The severity of sore nipples has a wide range – from tenderness that is normally associated with

compression of the breast tissue to severe skin breakdown. Prevention and treatment have several goals: to provide an adequate intake for the infant, to prevent infection, to promote continued breastfeeding.

Causes and Intervention

When sore nipples are identified as an issue, identify probable causes and provide solutions to alleviate the pain. (See Table)

Most causes of sore nipples can be prevented by teaching the mother how to latch her baby on to her breast and by providing education on how to prevent and treat engorgement when milk comes in. Prenatal nipple assessments can identify potential problems and can indicate the need for intervention for flat or inverted nipples.

Problem	**Intervention**
Normal tenderness that is related to the compression of breast tissue (typically lasts 30-60 seconds, does not last for the duration of the feeding, and goes away as infant gets older)	No intervention is necessary. Assure the mother that some tenderness is normal and that it should go away as the baby gets older.
Poor latch and positioning	Address the specific problem and/or refer to a lactation specialist. (a large portion of the areola should extend into the infant's mouth, and his/her lower lip should be rolled slightly outward)
Infant's oral structure	**Refer** to appropriate health care providers (e.g., lactation specialist; physical, occupational, or speech therapist with training and experience with breastfeeding and young infants)
Flat or inverted nipples (either anatomical or related to engorgement or peri-areola edema)	Treat the primary cause • If anatomical, nipple shields may help; refer to a lactation consultant who is trained to use them • If related to engorgement, alleviate engorgement (see section above)
Infection, including mastitis, candidiasis, and herpes	**Refer** to appropriate health care provider (e.g, physician, dermatologist)

Recommendations for prevention and comfort measures when there is injury include the following:

- Express a small amount of breastmilk before feeding
- Apply breastmilk (which contains lanolin and antibodies) directly to the nipple, to fight infection and promote healing
- Use comfort measures (e.g., moist compresses, ointments, hydrogel, breast shells)
- Air dry nipples with or without breast shells; avoid the use of soap on the nipples

Read more about mastitis.

Mastitis is marked by influenza-like symptoms (fever, chills, headache), firm, painful red area(s) on the breast, and poor emptying). Treatment includes application of heat, rest, emptying the breast, and antibiotics. Risk factors for developing mastitis include inadequate emptying of the breast, cracked nipples, and fatigue. It is not dangerous to the baby, so recommendations are to continue breastfeeding during treatment.

Jaundice

Jaundice is caused by high bilirubin levels, and is characterized by a yellow tinge to an infant's skin and eyeballs. In most infants, jaundice appears to be benign, but in some forms, kernicterus, or "acute bilirubin toxicity" occurs. Infants with acute bilirubin toxicity are lethargic, hypotonic, and suck poorly. An intermediate phase may be indicated by stupor, irritability, hypertonia, and a high-pitch cry. During the advanced phase, central nervous system damage can occur, including coma, seizures, and death.

Causes and Intervention

"Breastmilk jaundice" was previously thought to be rare, but it is now understood that the majority of breastfed infants have elevated bilirubin levels around the third week of life. (Neifert, 1998) No intervention is required, and the AAP recommends that breastfeeding continue if this is the cause of jaundice. (AAP, 2004)

In contrast, "breastfeeding jaundice" is caused by inadequate feeding, and is marked by excessive weight loss, infrequent stooling, and delayed onset of yellow "milk" stools. It has been suggested that this is more accurately called "lack-of-breastmilk jaundice." Treatment usually focuses on ensuring adequate intake, enhancing breastfeeding techniques and routines, and maximizing milk supply. (Neifert 1998)

A number of disorders can also cause jaundice. These include biliary atresia, ABO incompatibility, Rh incompatibility, galactosemia, glucose-6-phosphate dehydrogenase deficiency, infections and sepsis, and congenital infections (e.g., CMV, toxoplasmosis), and congenital hypothyroidism. (Medline Plus)

Depending on the reason for jaundice, treatment can also include phototherapy ("bili lights") to break down bilirubin in the skin, or an exchange transfusion.

Difficulty Latching on

Difficulty latching on can be caused by a number of problems (including infant state, positioning, infant's oral anatomy, and maternal breast anatomy), and can result in many of the issues described above.

Addressing problems with an effective latch-on includes evaluation of the problem and identification of a strategy to address the problem:

- Wait for (and enhance) optimal infant state
- Correct positioning
- Express drops of milk before offering the breast
- Tickle the infant's upper lip with nipple until he/she opens mouth
- Encourage non-nutritive sucking for 5 minutes before latch-on

In severe cases, referral to a lactation specialist may be required.

- ibreastfeeding.com http://www.ibreastfeeding.com – a website that includes continuing education opportunities, information about breastfeeding, and resources, including downloadable materials for families and information about medications and lactation

- breastfeeding.com http://www.breastfeeding.com - intended for mothers, this website includes information, graphics, and video about positioning, latch-on, and other practical issues related to breastfeeding

Assessment and Intervention

Assessment should include evaluation of feeding adequacy, positioning of the mother and infant, latching on, and frequency of nursing. Keep interventions and recommendations to a minimum (instead of a long list of "do's and don'ts"). This section focuses on assessment specifically related to breastfeeding. Refer to Module 5 and Module 6 for information about assessing the nutritional status of women in the postpartum period and young infants.

Mother

Providing the mother with information about what to expect with breastfeeding can be helpful. For example, she her breasts should feel "fuller" before feedings, and softer afterward.

The mother and infant share the same environment, thus, the mother can provide specific antibodies to viruses and bacteria to which both mother and baby are exposed. Likewise, maternal diet and environment can transfer substances which are not beneficial to breastmilk. Recommendations for maternal practices are summarized below:

Breastfeeding mothers should: (Story, 2002; IOM, 1991; AAP, 2005)

- Limit caffeine to 3 cups per day (although more research is needed to evaluate the effects of caffeine, this is the general consensus for a safe level)
- Avoid alcohol, especially less than 2 hours before breastfeeding
- Avoid smoking, especially in the infant's presence and less than 2.5 hours before feeding (cigarette smoking may adversely affect milk volume; nicotine is transferred to breastmilk)
- Discontinue breastfeeding if using illegal drugs (marijuana, heroin, and cocaine appear in breastmilk), and seek treatment
- Discuss concerns about heavy metal (e.g., lead, mercury) contamination with her physician, who can arrange for testing if indicated

Read more about alcohol intake and breastfeeding.

Alcohol is transferred to breastmilk. Excessive maternal alcohol intake is associated with failure to initiate the letdown reflex, changes in infant sleep patterns, decreased milk intake, and a risk of hypoglycemia in the infant. Some studies suggest it may also be associated with impaired motor development.

No alcohol intake during lactation is considered to be the safest approach. Although infants are able to detoxify alcohol, decreased liver dehydrogenase activity makes them less able to metabolize it than adults. A nomogram (estimated time to zero level of

alcohol in breastmilk) has been published, based on maternal weight/number of drinks/time. (Ho, 2001)

Red flags that indicate the potential for problems with breastfeeding include:

- Previous breast surgery (e.g., breast reduction or augmentation) – depending on the nerves affected by the surgery, this may or may not interfere with breastfeeding
- Inverted nipples
- Illnesses and/or medications
- Excessive alcohol intake and/or use of illegal drugs
- Smoking
- Exposure to heavy metals

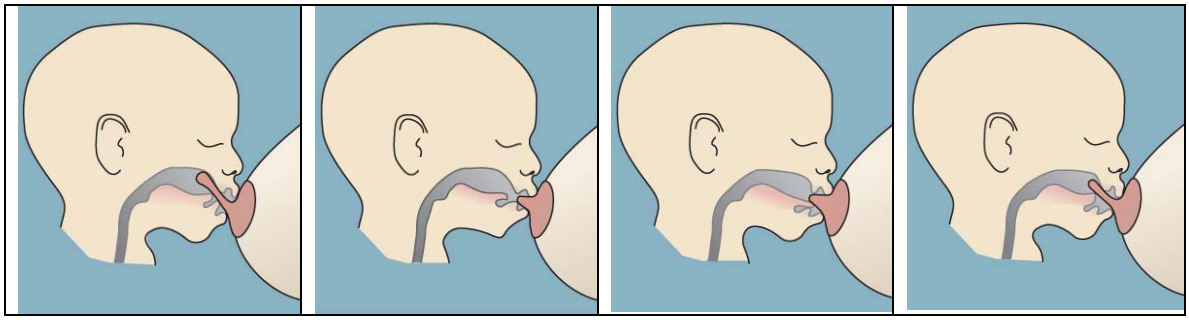
Infant

One of the primary indicators of breastfeeding success is the infant's weight. Expected weight loss and regain is covered in Module 6.

Red flags that indicate the potential for problems with breastfeeding include:

- Weight gain that is less than expected:
    - Neonatal period – weight loss >8%, weight gain that doesn't begin by 4-5 days of age, not to birthweight by 10-14 days
    - First 2 months – rate of weight gain less than expected
- Urine and stool:
    - Neonatal period – colorless/light <6-8 times per 24 hours; dark yellow or scant urine with "brick dust" appearance (urate crystals are not uncommon, however); no yellow stool by 4-5 days
    - First 2 months – colorless/light <6-8 times per 24 hours; dark yellow or scant urine with "brick dust" appearance (urate crystals are not uncommon, however); infrequent stools (after about 2 months, stools may be less frequent, even every 2-5 days) (AAP, 2005)
- Jaundice (although usually benign, jaundice requires medical evaluation because of the potential for serious complications)
- Illnesses and/or medications
- Oral anatomy that interferes with nursing, including protrusion (associated with low muscle tone), ankyloglossia (short frenulum), and clenched jaw.

Understanding the physiology of breastfeeding from the infant's perspective can be helpful in identifying problems (or potential problems). See the animated figure and text below for a brief overview. (Wolf and Glass, 1992)



- The infant's **tongue** is large and fills the oral cavity; structures are closely packed in. The large tongue and close proximity of oral structures (mainly because of a large amount of fat) make positive pressure more effective. (Most infants born prematurely do not have large tongues; this can cause difficulty with nursing.)
  The tongue stabilizes the nipple and creates a peristaltic wave. Liquid is channeled in a central groove, preparing the bolus for swallow.
- **Palate** – compresses the nipple (hard palate) and, with the tongue, creates a seal (soft palate); aim the nipple toward infant's palate
- **Cheeks** – fat pads provide stability and help to fill the mouth to create negative pressure
- **Lips** – with the tongue, the lips form a seal around the nipple, stabilizing the nipple in the mouth. They should be flanged out (use finger to flip lip out), with the nose resting against the upper breast and the chin against the underside of the breast
- **Jaw** – provides a base for movements of other structures, in addition to compressing the areola. A downward movement helps to create negative pressure, which helps to extract milk from the ducts

Milk extraction is accomplished with a combination of positive pressure (compression), which primarily involves the tongue and jaw, and a slight negative pressure (suction).

The infant's state also influences breastfeeding. In the first few days, the room may need to be darkened to allow the infant to open his/her eyes.

Breastfeeding Observation

Observation of a feeding can help the clinician to identify problems with breastfeeding. Positioning (e.g., use of pillows, stools, and chairs) should be adapted for each mother and infant, to allow the infant's mouth to approach the nipple in correct alignment. Latch-on problems occasionally require the use of silicone shields over the mother's nipple, with appropriate supervision by a trained lactation consultant.

Some common problems with positioning include:

- Infant not turned to face the mother
- Mother not supporting the breast
- Having the mother's fingers too close to the nipple
- Allowing the infant to grasp only the nipple and no surrounding areola

Signs of positioning problems include (Neifert 1998):

- Infant falling off the breast repeatedly
- A rapid, light, fluttering suck (instead of deeply and regularly)
- Inward tugging of the infant's cheeks
- Clicking or smacking noises

For more resources and more information, see:

- breastfeeding.com http://www.breastfeeding.com - intended for mothers, this website includes information, graphics, and video about positioning, latch-on, and other practical issues related to breastfeeding

Tools

Several tools to assess breastfeeding are available. One is the LATCH Breastfeeding Assessment Tool. It was developed by three nurses in Oregon and provides a validated, systematic method for evaluating breastfeeding effectiveness. Each letter corresponds to one aspect of lactation: L – latch; A – audible swallowing; T – mother's type of nipple; C – comfort of mother and baby while nursing; H – help needed by the mother.

The rating system is similar in format to the Apgar scoring grid – if the score is below 7, a consultation with a lactation specialist is recommended. It is intended to be used during an observation of breastfeeding, but guidelines also include questions when observation is not possible. These are included in the table below. (Jensen et al, 1994; Riordan et al, 1997; Adams et al, 1997)

L – Latch	"How easily did your infant grasp your breast? Did it take several attempts?"
A – Audible swallowing	"Did you hear your infant swallow? How frequently did you hear it?"
T – Type of nipple	"Do your nipples stand out or do they flatten easily?"
C – Comfort (breast/nipple)	"Are your nipples tender? Are your breasts becoming full and heavy?"
H – Hold (positioning)	"Did someone help you put the infant to breast? Would you like help with the next feeding?"

Herbs, supplements, foods

A number of herbs and other supplements are sometimes used during lactation, to primarily to promote milk production. These include (Belew, 1999; Hardy, 2000):

- Aniseed
- Black elder
- Blessed thistle
- Caraway
- Celery root and seed
- Fennel
- Fenugreek
- Goat's rue
- Raspberry
- Rauwolfia
- Verbena
- Vervain
- Vitex

Some herbs have been noted to reduce milk production, including (Hardy, 2000):

- Castor bean
- Jasmine flower
- Sage

As with all herbs, supplements, and complementary medicine, questions the dietitian should ask include:

- Is the product safe?
- Is there evidence to support the use of a supplement?
- Will this augment or replace conventional therapy?
- What are the possible harmful effects? (Nutrients being eliminated? In excess? Effect on food pattern? Expense?)

It can also be helpful to ask a client which foods are thought to increase milk. The food patterns of many cultures include purported galactogouges. For example:

- Japan – adzuki beans, rice gruel, soup and vegetables, lotus root
- USA – alfalfa, beer or brewer's yeast
- Netherlands, Sweden – anise
- Thailand – banana flower soup
- China – chicken soup, ginger, red plums
- Mexico – cotton seeds
- Pakistan – cumin, goat's stomach
- India – fried ginger, black pepper
- Africa – oatmeal gruel
- Korea – seaweed soup

Support

Strategies for Supporting Initiation of and Continued Breastfeeding

In addition to providing support about issues related to breastfeeding, the clinician can help to facilitate a discussion about making the decision to breastfeed. The following strategies may be useful during this discussion:

- Ask open-ended questions
- Validate the mother's feelings
- Provide information related to her specific concerns
- Provide contact information for resources (individuals or groups)

During this discussion, the clinician should be prepared to answer questions (or to know where to refer a client who has questions) about breastfeeding. These questions may include:

- What does it feel like? Does it hurt?
- How long should I breastfeed?
- What if the baby gets hungry in public?
- What about sex?

Breastfeeding is unique for every woman, and decisions about breastfeeding are based on a variety of factors, including societal, cultural, family, and economic influences. Identifying and addressing the concerns of the individual woman has been shown to increase breastfeeding rates, among a primarily low-income population. (Ryser, 2004) The "Best Start" breastfeeding education program includes a 3-step approach:

1. Open-ended questions about the client's perceptions of breastfeeding (e.g., "What do you know about breastfeeding?" instead of "Are you going to breastfeed?"), with targeted messages to address specific concerns.
2. Acknowledgement of the client's concerns and reassurance that her feelings are normal

3. Targeted educational messages to address specific negative attitudes and social norms

Returning to Work and School

In 1994, just under 10% of mothers returned to work within a week of birth, 60% before 2 months, and 90% before 4 months. (Galtry, 1997; Visness and Kennedy, 1997) Most women return to work while their infants are young.

Employment affects the number of women who continue to breastfeed at 6 months and has been identified as one of the major barriers to the continuation of breastfeeding. Some of the reasons for this include the following:

- lack of flexibility in work schedule, making regular pumping difficult
- lack of access to a private, clean area in which to pump and/or store expressed breastmilk
- decreased milk supply (often related to less frequent milk expression)
- fatigue and discouragement; inhibited let-down
- infant losing interest in breastfeeding

Some strategies to address these problems are listed below. Discussing these in the prenatal period, as well as in the time before the mother returns to work or school can help the mother to make plans to continue breastfeeding. (IOM, 1992; Zinn, 2000)

Strategies Related to Pumping

- Select a pump (or identify pump at the worksite) that meets the client's needs. For women who are working full-time, a double electric pump is probably needed.
- Identify techniques to help with relaxation during pumping (e.g., imagery of infant nursing, listening to a recording of the infant's voice, looking at photos).
- Wear clothing that is convenient for pumping, if possible.
- Drink extra fluids at work.
- Attempt to breastfeed exclusively on weekends.
- Infants may need to "learn" bottle feeding; there is no solid evidence about timing, but introducing the bottle 2-3 days before the return to work has been suggested.

Strategies Related to the Worksite

- Negotiate flexibility of schedule; assuring co-workers and supervisors that this need is temporary may be helpful.
- Schedule an adequate amount of time for lactation breaks; this will vary depending on the woman and available equipment – estimates are 10-15 minutes if using a dual pump, 20 minutes for single pump. Consider shortening lunch breaks so that adequate time for pumping can be used during other break times. Breastmilk supply is usually maintained by pumping about every 4 hours; some mothers may adapt to 6-8 hours with frequent feedings in the evening, after a few months.
- Once changes are in place, offer feedback and thanks to those who supported the changes.

- Returning to work midweek or planning to take a day off the first full week of work can help ease the transition to work (or school).

Expressed Breastmilk Storage

- Always wash your hands before expressing or handling breastmilk.
- Clean your breastpump and collection bottles after each use with hot, soapy water. Rinse well with hot water and air dry.
- Express breastmilk into clear glass or plastic bottles with caps.
- To avoid wasting breastmilk store it in 2-4 ounce quantities per container. Breastmilk can be stored in ziptop freezer bags.
- Label each container with your baby's name, the date expressed, and the number of ounces of milk.
- Refrigerate breastmilk or store with an ice pack or on ice until you're able to refrigerate or freeze; breastmilk storage guidelines:
    - Room temperature at 60° F for 24 hours, 66-72° for 10 hours, 79° for 4-6 hours
    - Refrigerator; fresh milk (32-39° F) for up to 8 days
    - Refrigerator; thawed milk (32-39° F) for 24 hours
    - Freezer compartment inside refrigerator for 2 weeks
    - Freezer compartment above, below or next to refrigerator for 3-6 months
    - Deep freezer less than 0° F for 6-12 months
    - Insulated cooler/ice packs (60° F) for 24 hours
- Thaw frozen breastmilk under warm running water or in a pan of warm water.

Adapted from Breastpumps and Milk Supply, the Breastfeeding Coalition of Washington, a program of WithinReach www.withinreach.org.

Read more about the Family and Medical Leave Act (FMLA)

Instituted in 1993, the Family and Medical Leave Act (FMLA) mandates guaranteed time off work for illness, to care for family illnesses, and for childbearing and childrearing. It allows 12 weeks paid or unpaid leave and applies to employees who work for companies with >50 employees and who work >20 hours per week (must have worked 1 full year, at least 1250 hours, to be eligible) – companies must continue benefits (health care, seniority) & return employee to previous or equal position. (Zinn, 2000; US Department of Labor)

Read more about advocacy activities health care providers can participate in

Health care providers can promote breastfeeding by providing information to employers and community groups (e.g., the local chamber of commerce, business and professional women's organizations, and church/community organizations). Information can be in the form of discussions or fact sheets and can include:

- *facts about breastfeeding*
- *AAP guidelines*

- *benefits of breastfeeding (e.g., decreased absenteeism and turnover, increased employee satisfaction)*
- *worksite needs (e.g., comfort, privacy, flexibility)*

Resource:

Working & Breastfeeding..."It's Worth It!" contains information about the importance and benefits of breastfeeding, for both mothers and employers. From the Breastfeeding Coalition of Washington and WithinReach, available for order or online: http://www.hmhbwa.org/forfamilies/breastfeeding/working.htm . In English and Spanish.

Feeding Devices

Some infants require the use of feeding devices to successfully breastfeed. A few are summarized below. (This is intended to be an overview to familiarize the clinician with these devises; use of these tools should be supervised by a lactation specialist.)

Shields
Generally made of silicone, these thin shields are worn over the nipple, to help when the infant is having trouble latching on; they may help when the mother has flat or inverted nipples.

Supplemental nursing systems
A feeding tube device that provides supplemental feedings while mimicking breastfeeding (e.g., for infants who tire easily or have a weak suck)

Other
Other special devices include the Haberman Feeder™, finger feeders (to help infants learn to suck), and cup feeders. These are generally for infants with medical conditions that make breastfeeding difficult.

Referral Flags and Resources

Consultation and collaboration will depend on what brestfeeding issues are present and how severe the issues are. Team members may include the following:

- Dietitian – to evaluate nutritional status of mother and infant and to provide guidance about lactation (depending on dietitian's level of expertise)
- Lactation consultant – to provide specialized information and intervention about issues related to lactation; lactation consultants may be found in hospitals, obstetrics offices, and some WIC offices. Some lactation specialists are nurses, dietitians, therapists, or other health care providers. More about the credentialing requirements for lactation consultants is online: http://www.iblce.org/old/role.htm.
- Nurse – to evaluate and provide care for the mother and infant and to provide guidance about lactation (depending on level of expertise)
- Physician – to evaluate medical issues in the mother and infant and provide guidance about lactation; also to treat infections (e.g., mastitis, candidiasis, herpes)
- Peer counselor – to promote breastfeeding among pregnant clients, to provide ongoing support and encouragement, and to help with normal breastfeeding issues. Peer counselors are trained to refer the mother to a lactation specialist or her physician for potentially serious problems.
- Physical and occupational therapists, speech therapists with training and experience with breastfeeding and young infants may also serve as lactation consultants

If the any of the following are identified, referral to a lactation specialist should be made for follow-up after delivery:

- Palpable lumps or cysts
- History of breast augmentation or reduction
- Significant breast size discrepancies
- No change in breast size during pregnancy
- Inverted nipples

Case Example: Laura and Audrey

Audrey is a 3-week old infant who is exclusively breastfed; Laura is her mother. Laura is concerned that Audrey is not getting enough milk. Breastfeeding has never been comfortable for Laura, and she is considering supplementing with formula, just to reassure herself that Audrey will get the nutrients she needs to grow. The dietitian notices that Laura seems uncomfortable holding Audrey while nursing and that Audrey seems to get tired before she is really full.

Is a referral indicated? If so, who could provide consultation?

Consultation with a lactation consultant may be indicated. A lactation consultant might be found in the First Steps program, WIC office, or hospital. A lactation consultant could help Laura and Audrey with any positioning problems as well as identify any other problems they might be having with breastfeeding.

The First Steps dietitian could provide education to Laura about the signs of adequate intake (e.g., number of wet diapers, weight gain). Open-ended question about Laura's comfort level and about why she is uncomfortable with breastfeeding could also provide valuable information.

Once problems are identified and addressed, regular weight checks could help to reassure Laura that Audrey is growing well.

Case Example: Cecile

Cecile is a 22-year old who has a 4-week old infant, Caleb. Cecile has been breastfeeding Caleb, but explains that she needs formula coupons, since she will be returning to work in 2 weeks.

What are some general strategies that the dietitian could use to facilitate a discussion about Cecile's decision to continue breastfeeding?

The dietitian could ask open-ended questions:

-
- What barriers to breastfeeding will work present?
- What other reasons do you have for wanting to stop breastfeeding?
- The dietitian should validate the mother's feelings:
- Those are real concerns.
- That would be a problem.
- The dietitian should provide information related to Cecile's specific concerns and provide contact information for resources:

- If Cecile would like some strategies for breastfeeding while working, the dietitian could provide some strategies specific to pumping, breastmilk storage, and the worksite

References and Resources

References

Adams D, et al. Maternal and professional assessment of breastfeeding. J Hum Lact. 1997;13(4):279-283.

American Academy of Pediatrics. Management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation. Pediatrics. 2004; 114:297-316.

American Academy of Pediatrics. Policy Statement: Breastfeeding and the use of human milk. Pediatrics. 2005;115:496-506. online: http://aappolicy.aappublications.org/cgi/content/abstract/pediatrics;115/2/496

American Academy of Pediatrics. The transfer of drugs and other chemicals into human milk. Pediatrics. 2001; 108(3):776-789.

Ball TM, Wright Al. Health care costs of formula-feeding in the first year of life. Pediatrics. 1999;103(4):870-876.

Belew C. Herbs and the childbearing woman: Guidelines for midwives. Journal of Nurse-Midwifery. 1999;44(3):231-252.

Breastfeeding Task Force of Greater Los Angeles. Media Outreach. Online: http://www.breastfeedingtaskforla.org/media/risks-of-not-breastfeeding.htm. Posted January 17, 2004; accessed 19 October 2006.

Centers for Disease Control and Prevention. Breastfeeding: Data and Statistics: Breastfeeding Practices — Results from the 2005 National Immunization Survey. Online: http://www.cdc.gov/breastfeeding/data/NIS_data/data_2005.htm. Accessed 25 August 2006.

Galtry J. Lactation and the labor market: breastfeeding, labor market changes, and public policy in the United States. Health Care Women Int. 1997;18:467-480.

Hardy ML. Hebrs of special interest to women. J Am Pharm Assoc (Wash). 2000;40(2):234-242.

Ho E, Collantes A, Kapur BM, Moretti M, Koren G. Alcohol and breastfeeding: calculation of time to zero level in breastmilk. Biology of the Neonate. 2001;80(3):219-222.

Institute of Medicine. Nutrition During Lactation. Washington DC: National Academy Press. 1991.

Institute of Medicine. Nutrition Services in Perinatal Care, 2nd edition. Washington DC: National Academy Press. 1992.

Jacobi AM, Levin ML. Promotion and support of breastfeeding. In: Worthington-Roberts BS and Williams SR, eds. Nutrition in Pregnancy and Lactation, 6th edition. Dubuque, Iowa: Brown and Benchmark Publishers. 1997.

James D, Dobson B. Position of the American Dietetic Association: Promoting and supporting breastfeeding. J Am Diet Assoc. 2005;105:810-818.

Jensen D, et al. LATCH: a breastfeeding charting system and documentation tool. J Obstet Gynecol Neonatal Nurs. 1994;23(1):27-32.

Mass S. Breast pain: engorgement, nipple pain, and mastitits. Clinical Obstetrics and Gynecology. 2004;47(3):676-682.

Medline Plus: Breastfeeding. Online: http://www.nlm.nih.gov/medlineplus/breastfeeding.html. Accessed 01 June 2006.

Merewood A, Hening J. Efforts to promote breastfeeding in the United States: Development of a national breastfeeding awareness campaign. J Hum Lact. 2004;20(2):14-145.

Neifert M. The optimization of breast-feeding in the perinatal period. Clinics in Perinatology. 1998;25(2).

Neifert M. Early assessment of the breastfeeding infant. Contemporary Pediatrics. 1996; 13(10:142-164.

Riordan JM, et al. Reliability and validity testing of three breastfeeding assessment tools. J Obstet Gynecol Neonatal Nurs. 1997;26(2):181-187.

Ryser FG. Breastfeeding attitudes, intention, and initiation in low-income women: the effect of the Best Start program. J Hum Lact 2004;20(3):300-305.

Shabert JK. Nutrition during pregnancy and lactation. In: Mahan LK, Escott-Stump S. Krause's Food, Nutrition, and Diet Therapy, 11th edition. Philadelphia, PA: Elsevier. 2004.

Story M, Holt K, Sofka D, eds. 2002. Bright Futures in Practice: Nutrition, Second edition. Arlington, VA: National Center for Education in Maternal and Child Health.

US Department of Labor Website. Accessed 06/01/2006. http://www.dol.gov/esa/whd/fmla

US Department of Heatlh and Human Services. womenshealth.gov. Health Risks of Not Breastfeeding. Online: http://www.4woman.gov/breastfeeding/index.cfm?page=519. Accessed 19 October 2006.

Visness CN, Kennedy KI. Maternal employment and breast-feeding: findings from the 1988 National Maternal and Infant Health Survey. Am J Public Health. 1997;87:945-950.

Wolf LS, Glass RP. Feeding and Swallowing Disorders in Infancy: Assessment and management. Tucson AZ: Therapy Skill Builders. 1992

Worthington-Roberts BS. Lactation: basic considerations. In: Worthington-Roberts BS and Williams SR, eds. Nutrition in Pregnancy and Lactation, 6th edition. Dubuque, Iowa: Brown and Benchmark Publishers. 1997.

Zinn B. Supporting the employed breastfeeding mother. J Midwifery Womens Health. 2000;45(3):216-226.

Resources

Community Resources

Local resources can include agencies and area hospitals; contact the postpartum unit or public health department.

Hospitals:

- Seattle Children's Hospital and Regional Medical Center Resource Line (206) 987-2500
- Providence Everett Medical Center Lactation Services (425-261-3744)
- Evergreen Hospital Breastfeeding Hotline (425-899-3494)
- University of Washington Medical Center Breastfeeding Hotline (206-598-4628)

Other agencies:

- Within Reach (formerly Healthy Mothers Healthy Babies) http://www.hmhbwa.org/
- La Leche League of Washington http://www.lalecheleague.org/Web/Washington.html
- Seattle King County Breastfeeding Coalition (206-789-0883)
- Public Health Seattle King County, Resources for Breastfeeding Support http://www.metrokc.gov/health/breastfeeding/resources.htm
- Great Starts (formerly Childbirth Education Association) provides prenatal classes, telephone counseling, and home visits http://www.greatstarts.org/breastfeeding.htm

Information for Mothers

Breastfeeding - Best for Baby. Best for Mom. A website maintained by the National Women's Health Information Center, US Department of Health and Human Services, Office on Women's Health. http://www.womenshealth.gov/breastfeeding/

Torgus J, Gotsch G, eds. 2004. The Womanly Art of Breastfeeding, 7th ed. Schaumburg, IL: La Leche League International. Available for order from: http://www.lalecheleague.org

Working & Breastfeeding..."It's Worth It!" contains information about the importance and benefits of breastfeeding, for both mothers and employers. From the Breastfeeding Coalition of Washington and WithinReach, available for order or online: http://www.hmhbwa.org/forfamilies/breastfeeding/working.htm . In English and Spanish.

Information for Professionals

Lawrence RA. 2005. Breastfeeding: A Guide for the Medical Profession, 6th ed. St. Louis, MO: Mosby-Year Book.

Briggs GG, Freeman RK, Yaffe SJ. 2005. Drugs in Pregnancy and Lactation, 7th ed. Baltimore, MD: Lippincott Williams and Wilkins.

Hale TW. 2006. Medications and Mothers' Milk, 12th ed. Hale Publishing, LP.

Riordan JM, KG. 2004. Breastfeeding and Human Lactation, 3rd ed. Boston, MA: Jones and Bartlett Publishers.

Medline Plus: Breastfeeding http://www.nlm.nih.gov/medlineplus/breastfeeding.html Website includes links to resources about breastfeeding

Academy of Breastfeeding Medicine http://www.bfmed.org Website includes guidelines for the care of breastfeeding mothers and infants; many of these guidelines are available in several languages. Topics include mastitis, including co-sleeping, hospital policies, milk storage, and galactogogues.

Shealy KR et al. CDC Guide to Breastfeeding Interventions. Atlanta: US DHHS, CDC, 2005." Online: http://www.cdc.gov/breastfeeding/pdf/breastfeeding_interventions.pdf (links to a pdf)

ibreastfeeding.com http://www.ibreastfeeding.com – a website that includes continuing education opportunities, information about breastfeeding, and resources, including downloadable materials for families and information about medications and lactation

breastfeeding.com http://www.breastfeeding.com - intended for mothers, this website includes information, graphics, and video about positioning, latch-on, and other practical issues related to breastfeeding

Quiz

1. One of the maternal benefits to breastfeeding is that breastfeeding is associated with lower rates of:

a. ovarian cancer
b. polycystic ovary syndrome
c. asthma
d. type 2 diabetes

2. Which of the following is NOT a benefit of breastfeeding:

a. protects against infectious diseases, including otitis media
b. prevents some chronic diseases, including chronic lung disease
c. is associated with reduced rates of sudden infant death syndrome in the first year of life
d. is associated with increased IQ and improved school performance

3. The _____ store(s) milk and transport the milk toward the nipple.

a. areola
b. alveolus
c. acinar structures
d. lactiferous ducts and sinuses

4. Full lactation begins about ____ after birth.

a. 24 hours
b. 2-3 days
c. 1 week
d. 2 weeks

5. The adequacy of an infant's intake can be evaluated by monitoring weight and diapers. The intake of a 5-day old infant who has lost 10% of birthweight and is having 3 wet diapers and 2 stools per day is likely ____.

a. adequate
b. inadequate
c. excessive
d. there is not enough information to evaluate

6. Strategies for minimizing problems with engorgement include all of the following, EXCEPT:

a. Feed more frequently
b. Manually express milk before feedings to soften areola
c. Apply cool compress to the breast before nursing or pumping
d. All are strategies to minimize discomfort associated with engorgement

7. When a breastfeeding mother complains of nipple tenderness that lasts about 30-60 seconds at the beginning of the feeding, the dietitian should:

a. Suggest the use of nipple shields
b. Assure the mother that some tenderness is normal
c. Refer the mother and infant to a lactation specialist
d. Refer the mother and infant to a dermatologist to rule out infection

8. Breastfeeding should be discontinued if the mother is:

a. using marijuana
b. drinking 3 cups coffee per day
c. drinking alcohol, but limiting it to 3 hours before breastfeeding
d. none of the above

9. Discussing strategies for breastfeeding while working can help the mother make plans to continue breastfeeding. One suggestion is to schedule an adequate amount of time for lactation breaks. Although this will vary from woman-to-woman, estimates (when using a dual pump) are:

a. 5-10 minutes
b. 10-15 minutes
c. 30-40 minutes
d. 60 minutes

10. During the first few months, breastmilk supply is generally maintained by pumping about every ___ hours.

a. 2
b. 4
c. 8
d. 10

11. Expressed breastmilk can be stored in a freezer (0 degrees F) for up to:

a. 48 hours
b. 2 weeks
c. 4 weeks
d. 3-6 months

12. Referral to a lactation specialist should be made for follow-up after delivery if risk factors are identified. The following are all risk factors, EXCEPT:

a. inverted nipples
b. palpable lumps or cysts
c. history of breast augmentation or reduction
d. significant change in breast size during pregnancy