

The
Physician's
Pocket Guide
to
Breastfeeding

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Introduction

Why Encourage Breastfeeding?

Texas Position Statement

The benefits of breastfeeding are outlined in an excerpt from the *Texas Position Statement on Infant Feeding* (October 1997):

Human milk and breastfeeding provides optimal nutrition and immunological protection for preterm, fullterm, and low-birthweight babies. Infants with special health and nutritional needs also benefit from receiving human milk. Increased risk of illness in individuals who are not breastfed during infancy has led to the U.S. Department of Health and Human Services *Healthy People 2010 Objectives* for infant feeding: "... to increase to at least 75 percent the proportion of mothers who breastfeed their babies in the early postpartum period, at least 50 percent the proportion who continue breastfeeding until their babies are 6 months old, and at least 25 percent who continue breastfeeding until their babies are 1 year of age."

American Academy of Pediatrics

More about the advantages of breastfeeding appears in an excerpt from the American Academy of Pediatrics' "Breastfeeding and the Use of Human Milk" (February 2005):

Introduction

Extensive research, especially in recent years, documents diverse and compelling advantages to infants, mothers, families, and societies from breastfeeding and the use of human milk for infant feeding. These include health, nutritional, immunologic, developmental, psychological, social, economic, and environmental benefits ...

Research ... provides strong evidence that human milk feeding decreases the incidence and/or severity of a wide range of infectious diseases including bacterial meningitis, bacteremia, diarrhea, respiratory tract infection, necrotizing enterocolitis, otitis media, urinary tract infection, and late-onset sepsis in preterm infants. In addition, postneonatal infant mortality rates in the United States are reduced by 21% in breastfed infants.

Some studies suggest decreased rates of sudden infant death syndrome in the first year of life and reduction in incidence of insulin-dependent (type 1) and non-insulin-dependent (type 2) diabetes mellitus, lymphoma, leukemia, and Hodgkin disease, overweight and obesity, hypercholesterolemia, and asthma in older children and adults who were breastfed, compared with individuals who were not breastfed. Additional research in this area is warranted.

Breastfeeding has been associated with slightly enhanced performance on tests of cognitive development. Breastfeeding during a painful procedure such as a heel-stick for newborn screening provides analgesia to infants.

Important health benefits of breastfeeding and lactation are also described for mothers. The benefits include decreased postpartum bleeding and more rapid uterine involution attributable to increased concentrations of oxytocin, decreased menstrual blood loss and increased child spacing attributable to lactational amenorrhea, earlier return to prepregnancy weight, decreased risk of breast cancer, decreased risk of ovarian cancer, and possibly decreased risk of hip fractures and osteoporosis in the postmenopausal period.

American College of Obstetricians and Gynecologists

In September 1994, the executive board of the American College of Obstetricians and Gynecologists issued the following position statement on infant feeding (amended and reaffirmed July 2003):

The American College of Obstetricians and Gynecologists strongly supports breastfeeding and calls upon its Fellows, other health professionals caring for women and their infants, hospitals and employers to support women in choosing to breastfeed their infants. All should work to facilitate the continuation of breastfeeding in the work place and public facilities. Health professionals have a wide range of opportunities to serve as a primary resource to the public and their patients regarding the benefits of breastfeeding and the knowledge, skills and support needed for successful breastfeeding.

Introduction

In 2000, the ACOG reiterated its position, stating, “educating pregnant women about breastfeeding is an integral part of good prenatal care and ideally should begin even before pregnancy” and dedicating the July 2000 *ACOG Educational Bulletin* for physicians to the support of breastfeeding. The bulletin reviewed the benefits of breastfeeding to the mother, infant, and society and discussed common obstacles to successful breastfeeding, suggesting management strategies to overcome them.

During the first 6 months of life, exclusive breastfeeding is the preferred feeding approach for the healthy infant born at term. It provides optimal nutrients for growth and development of the infant. The ACOG recommends that exclusive breastfeeding be continued until the infant is about 6 months old. A longer breastfeeding experience is, of course, beneficial. The professional objectives are to encourage and enable as many women as possible to breastfeed and to help them continue as long as possible.

The ACOG supports the goals established by the U.S. Public Health Service for Healthy People 2010.

American Academy of Family Physicians

As early as 1989, the American Academy of Family Physicians issued a statement encouraging members’ support for breastfeeding, a stance reiterated in 1994 and in a 2001 statement, which reads, in part:

Why Encourage Breastfeeding?

The American Academy of Family Physicians (AAFP) has long supported breastfeeding. All family physicians, whether or not they provide maternity care, have a unique role in the promotion of breastfeeding. Family physicians understand the advantages of family-centered care and are well positioned to provide breastfeeding support in that context. Because they provide comprehensive care to the whole family, family physicians have an opportunity to provide breastfeeding education and support throughout the life cycle to all members of the family.

Evidence shows that breastfeeding has profound effects on the developing immune system. Babies not fed human milk have higher rates of otitis media, allergies, respiratory tract infection, necrotizing enterocolitis, urinary tract infection, and gastroenteritis in infancy. Babies who are not breastfed have a higher risk of hospitalization in the first year of life due to serious bacterial illness. They have higher rates of type 1 and type 2 diabetes, allergic disease and asthma, lymphomas, and inflammatory bowel disease later in life. They develop lower antibody titers in response to immunization. Studies of intelligence and development have also shown lower IQ and lower developmental scores among children who were not breastfed.

Maternal health outcomes are also affected by breastfeeding. Mothers who do not breastfeed risk higher rates of anemia and closer child spacing. Women who have a significant lifetime history of breastfeeding have lower rates of ovarian, endometrial, and breast cancer compared with

Introduction

the general population. Lactation affects calcium metabolism, with increased bone density after weaning, and may decrease a woman's risk of postmenopausal osteoporosis.

Prenatal and Perinatal Periods

Lactation Assessment During Prenatal Period

First Prenatal Visit

When you examine the patient's breasts:

- Check for inverted nipples.
- Check for changes in the size of breasts.
- Check for severe asymmetry.
- Document prior breast surgery and location of any scars and incisions.
- Note all of the above in the patient's chart.
- Begin the discussion about breastfeeding on a positive note during the exam.
- Ask the mother if she has thought about breastfeeding.
- Tell her that you recommend breastfeeding because it is healthiest for her and the baby.
- Give her information about breastfeeding.

As Pregnancy Progresses

- Periodically ask about breast changes and note increases in size, since increases are a good indication that the breasts are preparing to make milk.
- Whenever possible, reinforce the health benefits of breastfeeding. Display positive breastfeeding posters and pamphlets in your waiting rooms and exam rooms.
- Use available resources in your community to augment your efforts:
 - Department of State Health Services breastfeeding literature, which can be ordered free of charge at <<http://www.dshs.state.tx.us/wichd/bf/bfpubs.shtm>>;
 - breastfeeding classes;
 - WIC clinics;
 - Texas Lactation Support hot line at 1 (800) 514-6667;
 - La Leche League support groups; or
 - other breastfeeding support groups.
- Discuss the mother's concerns about returning to work or school and breastfeeding (see pages 95–98). Encourage the mother to discuss pumping with her boss or school officials and to work out the details before returning to work or school.

Lactation Assessment During Prenatal Period

- Stress the importance of colostrum. Encourage the mother to breastfeed within 1 hour of birth and to nurse frequently (every 1½–2 hours or whenever the baby shows hunger cues) in the hospital.
- Discourage the mother from having too many visitors at the hospital so that she can get to know her baby and learn how to breastfeed before she is discharged.
- Encourage the mother to room in with her baby so that she will learn to recognize when her baby is hungry.
- Teach the mother early hunger cues, such as when the baby:
 - sucks on his lips, fingers, or fist;
 - roots (turning head from side to side in search of food); and
 - fidgets.
- Encourage the mother to undress her baby down to his diaper and to hold him next to her chest (skin-to-skin). Explain to her that this will get her baby interested in nursing and will help her to get to know her baby.
- Discuss family concerns about breastfeeding. Give her positive breastfeeding information to show to the baby's father and the grandparents.
- Discuss her support system. Help her identify whom to call if she has questions about breastfeeding.

Lactation Success During Perinatal Period

Preterm Delivery

Preterm infants may or may not be able to suckle directly from the breast. Ideally, the infant's intake should be supplemented with his mother's own expressed breastmilk. The mother should:

- Begin pumping with a hospital-grade electric breast pump within 12 hours of delivery, if possible.
- Pump 8–12 times per day or every 1½–3 hours.
- Pump around the clock the first 2 weeks. After 2 weeks, she can sleep through the night.
- Pump both breasts for about 10 minutes each session, even if she only gets a few drops. Once her full milk supply comes in, she should pump until her flow stops.
- Follow guidelines for breastmilk handling and storage provided by the neonatal intensive-care unit.
- Be pumping 750 ml per 24 hours by day 14 to ensure a good supply for the baby.

If the mother is unable to provide her own milk, donor human milk is the next best alternative. Donor human milk can be obtained from the Mother's Milk Bank in Austin by calling (512) 494-0800.

Term Delivery

Observing a Feeding

The mother should be observed breastfeeding her infant and encouraged to feed frequently — every 1½–3 hours or whenever the baby shows hunger cues.

Is she having problems with sore nipples? If so, counsel her on ways to prevent and manage the problem (see pages 33–39), or refer her to a lactation consultant.

Tell the mother about signs that indicate whether the baby is getting enough milk:

- at least 6 very wet diapers per day;
- at least 3 stools per day (after the third day) until the baby is about 1 month old; and
- weight gain of at least ½ ounce per day in the baby’s first month or so.

See the mother within 72 hours of discharge to assess feeding.

Prior to Discharge

Appointments should be made:

- for an office or home visit, within 2 days, by a physician or a physician-supervised, breastfeeding-trained, licensed health-care provider.
- for the mother’s 6-week follow-up visit to the obstetrician or family physician.

Additional visits for the mother and infant are recommended until all clinical issues are resolved (e.g. weight gain is well established, jaundice resolving). A routine preventive-care visit should occur when the child is 2–4 weeks of age.

Expected Growth of Newborns

Some weight loss occurs in both breastfed and formula-fed infants after birth. Expect a return to birthweight by 7–14 days of life.

Weight should not differ from standard growth curves between 3 weeks and 3 months of life for either breastfed or formula-fed infants. Some studies suggest slightly lower gains in breastfed infants after the age of 3 months.

All breastfed infants should be examined after the first 5–7 days of life to evaluate breastfeeding adequacy. Excessive weight loss and delayed regain of birthweight may indicate delayed lactogenesis, low milk intake, or both.

Delayed lactogenesis can be caused by retained placental fragments (may be indicated by passing blood clots), by excessive blood loss during delivery, or by some drugs.

However, low milk intake most frequently results from inadequate lactation management, including:

- insufficient feeding frequency;
- insufficient feeding duration;

Lactation Success During Prenatal Period

- ineffective latch-on; or
- ineffective suckling techniques.

A wide variety of infant characteristics and maternal behaviors may contribute to the inadequacy of latch-on and suckling.

Diagnosis Codes Commonly Used in Lactation Counseling (Reimbursement Information)

To facilitate insurance reimbursement, the following diagnosis codes can be used in lactation counseling and treatment:

- Abscess, breast — 675.1
- Abscess, nipple — 675.03
- Abnormal reflex — 796.1
- Abnormal tongue position — 750.1
- Abnormal weight loss — 783.2
- Aerophagi — 787.9
- Agalactia — 676.44
- Anomaly of tongue — 750.10
- Apnea — 770.8

- Breast anomaly — 757.6
- Breast augmentation — 676.34
- Breast milk jaundice — 774.39
- Breast pain — 636.34
- Breast reduction — 676.34

- Cleft lip — 749.10
- Cleft palate — 749.00
- Cleft palate with cleft lip — 749.20
- Colic — 789.00
- Complications from labor or delivery — 669.94
- Cracked nipple — 676.1

- Dehydration — 276.5
- Dehydration (neonatal) — 775.5
- Dermatitis (contact) — 692
- Disorder of lactation — 676.94
- Down syndrome — 758.0
- Drug dependency — 304.90
- Drug withdrawal — 779.5
- Dysphagia — 787.2

- Ecchymosis of breast or nipple — 676.34
- Eczema of breast or nipple — 692.9
- Engorgement, breast — 676.2

- Facial palsy — 767.5
- Failure to thrive — 784.4
- Feeding difficulty
 - infant — 783.3
 - newborn — 779.3
- Food allergy — 693.1
- Fractured clavicle — 767.2

- Galactocele — 676.84
- Galactorrhea — 676.64
- GE reflux — 530.81

- Hyperactive gag reflex — 478.29
- Hypertonicity — 779.8
- Hypertrophy of tongue (macroglossia) — 750.15
- Hypoglycemia
 - IDM — 775.0
 - maternal — 251.2
 - neonatal — 775.6

Prenatal and Perinatal Periods

- Hypoplasia of tongue (microglossia) — 750.16
- Hypothyroidism — 244.9
- Hypotonia, hypotonicity, hypotony benign congenital
 - 358.8
 - benign infantile muscular — 359.0
- Induced lactation — 676.34
- Infantile hemiplegia — 343.4
- Insufficient glandular tissue — 757.6
- Jaundice/hyperbilirubinemia — 774.6
- Jaw clench — 315.4
- Lactation toxicity — 760.79
- Large for gestational age — 766.1
- Mastitis
 - non-purulent — 675.24
 - purulent — 675.14
- Micrognathia — 524.00
- Milk allergy — 579.8
- Motor retardation — 315.4
- Multiple birth — V37.0
- Necrotizing enterocolitis — 777.5
- Neonatal *Candida* infection — 771.7
- Nipple
 - anomaly — 757.6
 - cracked or fissured — 676.14
 - infection — 675.04
 - thrush — 112.3 trauma — 676.34
 - ulceration — 676.34
- Nonpurulent mastitis — 675.2

- Oral motor dysfunction — 315.4
- Other and unspecified disorder of breast — 676.3
- Other disorders of lactation — 676.8
- Other specified infection of breast and nipple — 675.8
- Other transitory neonatal — 775.5
- Painful nipple (no trauma) — 676.34
- Papilloma — 217
- Polyfibrocystic breasts — 610.1
- Polygalactia — 676.84
- Preeclampsia
 - mild — 642.44
 - severe — 642.54
- Prematurity, feeding problem — 779.3
- Prenatal breast disorders — 611.9
- Rapid weight loss — 783.1
- Rehospitalization (mother or neonatal) — use specific admission diagnosis
- Relactation — 676.54
- Respiratory distress syndrome — 769
- Retracted or inverted nipple(s) — 676
- Slow feeder — 779.3
- Slow weight gainer — 782.4
- Small for gestational age — 764.0 plus fifth digit for specific gram weight (refer to ICD-9 book)
- Stasis, breast — 676.84
- Suck reflex abnormal — 796.1
- Suppressed lactation — 676.5
- Teething syndrome — 520.3

Prenatal and Perinatal Periods

Thrush in newborn — 771.7

Tongue tie or ankyloglossia — 750.0

Twin pregnancy postpartum condition or
complication — 651.04

Ulceration of oral mucosa
non-traumatic — 528.2
traumatic — 528.9

Unilateral mastectomy — V10.3

Unspecified breast disorder — 676.34

Unspecified infection of the breast and nipple —
675.9

Unspecified lactation disorder — 676.9

Reprinted from *Medela Rental Roundup* (1997)

Lactation Fundamentals

Growth and Development of Breastfed Infants

Expected Growth in Best Circumstances

- Weight loss of about 5 percent of birthweight or less.
- No further weight loss after day 3–5 of life.
- Regaining of lost birthweight by day 7–14 of life.
- Steady weight gain after lactogenesis, stage II.

Faltering Early Growth

Early growth faltering, sufficient to warrant consideration of supplementation with artificial baby milk, is indicated by:

- Weight loss greater than 10 percent of birthweight.
- Continued weight loss after day 10 of life.
- Failure to regain lost birthweight by 3 weeks of age.

Management of Early Growth Faltering

- Ad libitum ABM or expressed breastmilk until catch-up growth is complete. (Use soft feeder, finger feeder, or cup if parents are compliant.)

Lactation Fundamentals

- The mother should empty her breasts thoroughly by pumping or nursing with breast massage at least 8 times per 24 hours.
- The infant should be fed EBM in lieu of ABM, when available.

Normal Growth

Although there are no differences in gains in head circumference, the normal growth of breastfed infants may differ slightly from that of ABM-fed infants after 3 months of age.

- Weight gain in breastfed infants may be moderately slower, especially between 3 and 6 months of age.
- Breastfed infants are leaner than ABM-fed infants, with the difference in fatness most evident at 9–12 months.
- The greater degree of fatness of ABM-fed infants might persist well into childhood and beyond.

Use of National Center for Health Statistics Growth Charts for Breastfed Infants

If the infant drops through a full percentile on 2 successive measurements at least 2 weeks apart:

- Evaluate for underlying illness.
- Increase maternal milk production.
- Ensure infant intake of complete maternal production (if necessary, feed expressed milk).

- Monitor the infant's growth.

If the infant is healthy, and growth faltering continues in spite of intervention so that the infant is in danger of falling below the third percentile:

- Continue efforts to bring up maternal milk supply.
- Consider temporary ABM supplementation for infants younger than 6 months. Discontinue ABM supplementation when catch-up growth is complete.
- For infants older than 6 months, consider supplementation with ABM or with calorie-dense weaning foods.

Normal, Slower Growth

Infants who grow slowly without dropping through growth percentiles are normal. This is generally a reflection of genetic potential. Smaller parents will have smaller children who track along lower growth percentiles regardless of the type of infant feeding.

The 2000 NCHS Growth Chart reference population includes data for both formula-fed and breastfed infants, proportional to the distribution of breastfed and formula-fed infants in the population. During the past two decades, approximately one-half of all infants in the United States received some breastmilk and approximately one-third were breastfed for 3 months or more. A working group of the World Health Organization is collecting data at 7 international study centers to develop a new set of international

growth charts for infants and preschoolers through the age of 5 years. These charts will be based on the growth of exclusively or predominantly breastfed children.

Growth Faltering and Failure to Thrive

Infants who fall through growth percentiles on NCHS curves should be evaluated. Some crossing of percentiles is normal — particularly for breastfed infants between 6 and 12 months of age. However, continued declines may indicate inadequate caloric intake or underlying illness.

Uncorrected growth faltering can result in failure to thrive with serious health or developmental complications. Frequent medical evaluation should be provided for the infant who drops to the tenth percentile for weight, fails to gain weight, or continues to lose weight after the tenth day of life. For additional information on failure to thrive, see pages 79–81.

Hunger Cues

Early Hunger Cues

- The baby's head moves toward the mother's voice, and the baby's mouth opens.
- The baby smacks its lips and sticks out its tongue.
- The baby's hands seemingly move at random.
- The baby's fists find its mouth.

- If not attended, the baby makes even more exaggerated motions.
- The baby begins to fuss.

Late Hunger Cues

- The baby furrows its brow.
- The baby opens its mouth wide, and its head moves frantically from side to side.
- The baby clenches its fists, seeking its mouth with them.
- The baby starts crying, which is a *very* late hunger cue.

Positioning

In all positions, the mother should be comfortably situated. She may need a pillow under her supporting arm, a footstool, or both. The baby should be placed so that his tummy faces her, level with the breasts. When the baby is well positioned for nursing, generally his nose will be in line with her nipple before the baby opens and extends his head. The baby's ear, shoulder, and hip will form a line. The chin should indent the breast and the nose may lightly touch or tip away from the breast.

Cradle Hold

If the mother is feeding from the right breast, her right arm supports the baby, and her left hand supports her breast. The baby is lying across the mother's front. This is reversed when she feeds from her left breast.



Figure 1. Nursing mother holding infant in a cradle hold.

Cross-Cradle Hold

If the mother is feeding from the right breast, her left arm supports the baby, and her right hand supports her breast.



Figure 2. Nursing mother holding infant in a cross-cradle hold.

Football Hold

If the mother is feeding from her right breast, her right arm supports the baby. The baby is on the mother's side, under her arm. The baby's tummy is pressed against the side of her body. The infant is positioned, flexed at the hips, with feet tucked up, not pressing against a chair or bed. If the baby's feet touch a surface, the infant may push off, possibly causing the mother to think that her baby doesn't want to nurse and making it difficult to maintain latch-on. Flexing the baby at the hips also encourages the baby to relax his jaw and open his mouth.



Figure 3. Nursing mother holding infant in a football hold.

Side-Lying Hold

If the mother is feeding from her right breast, her right arm supports the baby, and her left hand can support her head. The baby lies on its side with the mother's hand, arm, small pillow, or a rolled-up towel behind the baby's back for support. The baby faces the mother, mouth in line with her nipple, chin indenting her breast. Extra pillows behind the mother's back and between her knees are also helpful.



Figure 4. Mother and baby demonstrating the side-lying hold, nursing from left breast.

Other Holds

Whatever hold that works for the mother and baby is fine, as long as the baby is getting plenty to eat and the mother's breasts are not sore.

Encourage the mother to feed the baby whenever the baby exhibits early hunger cues.

Latch-On

Latch-On Sequence

- The baby faces the mother, with its nose opposite the nipple and neck slightly extended.



Figure 5. Beginning latch-on sequence.

- When the baby is brought to the breast, the baby's mouth should touch the nipple and will gape if the infant is ready to feed.



Figure 6. Baby's mouth touching nipple.

- When the baby's mouth is open wide, the mother should aim her nipple toward the roof of the baby's mouth, bringing the baby swiftly to her breast with a firm but gentle movement.



Figure 7. Baby achieving latch-on.

- When the baby is first latched on, the sucks will be fast, short bursts interrupted by pauses which trigger the mother's let-down reflex. As milk flow is established, the sucking rhythm changes and becomes slow, deep, and continuous. Swallowing is usually heard.

Lactation Fundamentals

- If the baby is well positioned, the lips will be flanged, and the chin will indent the breast.



Figure 8. Baby's chin pressing into mother's breast.

- When finished, the baby will usually come off the breast spontaneously. (If not, a finger inserted into the baby's mouth will gently break the suction seal.) Instruct the mother then to burp the baby and to offer her other breast.



Figure 9. Gently breaking suction seal.

- At the next feeding, start with the breast offered last at the previous feeding.

Signs of Bad Latch-On

- The baby's cheeks are sucked in.
- The baby's mouth moves rapidly, like a flutter.
- The baby's lips are sucked in (especially the bottom one).
- The baby's head moves continuously.
- The baby makes clicking, sucking noises at the breast.

Signs of Good Latch-On

- Flanged lips.
- Tongue visible when bottom lip is pulled down.
- Ears wiggling.
- Circular movement of jaw.
- Audible swallowing.
- Visible breast compression.
- At least 1 inch of the areola is in the baby's mouth.
- Chin is buried in breast, nose may lightly touch or tip away from breast.

Probable Bad Latch-On

- The baby is poorly positioned at the breast.
- The mother's nipple is distorted after it is released from the infant's mouth.
- The mother has sore, cracked nipples.

Lactation Fundamentals

- The baby acts hungry regardless of time at the breast.
- The baby falls asleep after a few sucks.
- The baby is not gaining weight.

Management Issues

Nipple Care

Sore Nipples

“Sore” Nipples May Be Caused by

- changes in nipple sensitivity associated with pregnancy.
- trauma or abrasion.
- infection.

Changes in Nipple Sensitivity

Innervation of nipple and areola increases in pregnancy. Sensitivity of the nipple to tactile stimulation peaks at about 4 days postpartum. It is normal for women to be more aware of sensations and may report this as pain or soreness — even in the absence of tissue damage or infection.

Potential Causes of Nipple Trauma

- Poor latch-on.
- Incremental latch-on; the baby slurps onto the breast.
- Traction on the nipple.
- Unrelieved negative pressure; the suck is too strong, and the baby is removed from the breast without first breaking suction.
- Baby’s lips are tucked in.

Management Issues

- The baby's tongue is improperly positioned.
- The baby clamps down on the breast.
- Prolonged intervals between feedings.
- Infection (bacterial or fungal) of the nipple and areola.
- Tongue tie (ankyloglossia).

Signs of Nipple Trauma

- Pain at latch-on and throughout feeding.
- Pain between feedings.
- Cracks, blisters, bleeding, and scabs.
- Discomfort when anything, such as clothing or a towel, touches the nipple.
- Spasmodic vasoconstriction and nipple blanching.

Consequences of Nipple Trauma

- When the integrity of nipple tissue is disrupted, the risk of infection increases.
- Severe trauma to the nipple can result in spontaneous episodic pain and vasospasm.

Signs of Infection

- erythema
- ulceration
- extreme sensitivity to touch
- itching or burning
- white patches (thrush)

Treatment of Nipple Trauma

Assess to determine the cause of soreness:

- Poor positioning or latch-on is the most common underlying cause; the first priority is to improve positioning and latch-on.
- Give the mother support, and help with positioning, latch-on, and relaxation techniques.
- If unresolved in 24 hours, the mother needs to be seen and may need to be referred to a lactation consultant.
- The infant needs to be seen if a suckling problem or inadequate intake is suspected.
- In cases of mildly sore nipples with no skin breakdown or candidiasis, the mother can rub her own milk into her nipples after feedings and allow her nipples to air dry.
- In cases of severely traumatized nipples, temporary cessation of breastfeeding may be indicated. Although it may be necessary to temporarily stop placing the baby to the breast in order to treat sore nipples, it is *important* to maintain lactation using hand expression or a gentle pump. If the trauma is due to poor latch-on and positioning, the patient can usually resume breastfeeding with little or no pain once latch-on and positioning are corrected and the nipples are healed.

If skin integrity is broken:

- Wash nipples once a day with non-antibacterial, non-perfumed soap.
- Rinse after each nursing with mild saline solution, pat dry with clean paper towel, and air dry for 10 minutes.
- Consider prophylactic topical antibiotic-antifungal cream such as an all-purpose nipple ointment, which can be mixed at a compounding pharmacy.

All-Purpose Nipple Ointment

- Mupirocin ointment 2%: 15 g.
- Betamethasone ointment 0.1%: 15 g.
- Add miconazole powder so that the final concentration of miconazole is 2%.

(Newman 1998)

Positioning and Latch-On Checkpoints

- Larger breasts are supported with fingers well back from the areola.
- The baby is supported at breast level throughout the feeding.
- The baby has a wide-open mouth, with lips curled out.
- The mother is comfortable and brings the baby *to* her instead of leaning her body toward the baby.
- The baby's chin is indenting the mother's breast.

Feeding Techniques

- Continue frequent feedings (at least every 1½–2 hours).
- Offer the breast as the baby begins to show early hunger cues.
- Begin feedings on the side that is less sore.
- Use different positions.
- Look for signs that the baby is nearing the end of feeding.
- Allow the baby to release the breast spontaneously or break suction before removing him from the breast.

Comfort Measures

The mother:

- should use warm compresses and hand express before feedings to soften the areola and begin the milk flow.
- should change nursing pads frequently, as soon as they become wet. Avoid pads that are lined with plastic.
- should wear cotton bras and pads.
- may use shells with holes for ventilation for short periods to keep clothing off the nipple.

Remember: although it may be temporarily necessary to stop nursing the baby from a breast with sore nipples, it is *important* to maintain lactation by pumping or hand expression of milk.

Leaking

Considerations

- Leaking may be more pronounced with the first baby.
- Leaking is heaviest during the early months of feeding.
- Leaking may act as a safety valve against engorgement.

Treatment

- Reassure the mother that the leaking will resolve in time.
- Change pads frequently.
- Breast shells may increase leaking because of the constant pressure they exert on the areola.
- Leaking may be inhibited by pressing firmly against the nipples.

Bloody Nipple Discharge

Considerations

- It may occur in third trimester due to physiologic changes.
- It is temporary and usually resolves in 3–7 days with the onset of lactation.
- Early in lactation, trauma may be a cause that can be corrected with proper positioning.

Evaluation

- If it persists or is from a single duct, evaluation is required. The most common cause is intraductal papilloma. Intraductal carcinoma is rare; however, the presence of a mass increases this possibility.

Breast Care

Engorgement

Signs and Symptoms

- Can affect the body of the breast, the areola, or both.
- Can be in one or both breasts.
- Breasts feel heavy, hard, possibly lumpy, and warm to the touch.
- The mother may have a slightly elevated temperature (99°–100° F; 37.2°–37.8° C).
- The skin is stretched.
- Nipples may flatten.
- Leaking may not occur.
- Getting the baby latched on can be difficult or impossible.
- Engorgement can be associated with significant discomfort or pain.

Considerations

- *Important:* the severity of breast engorgement is related to feeding management.
- The onset is on day 3–5, although it can be later.
- Engorgement is temporary but can lead to more serious problems, such as plugged ducts or mastitis.
- The duration can range from 1 to 10 days.

- Women have widely varying patterns of engorgement.
- Resolution does not mean that milk supply has decreased.
- There is no need to limit the oral fluid intake of the mother.
- If pain medication (such as Motrin or Tylenol) is prescribed by the health-care provider, the baby will receive only a minute amount of the medication through his mother's breast.
- Unresolved engorgement may lead to involution of alveoli and to poor milk production.

Treatment

- Bed rest for both the mother and the infant.
- Warm showers with the nozzle directed onto the mother's back between her shoulders; she should lean forward slightly and massage her breasts, hand-expressing milk until she is comfortable.
- Before feedings, the mother can apply warm, moist compresses to her breasts, or she can immerse her breasts in a basin of warm water.
- Gently massage the breasts before and during feedings.
- Gently hand-express milk to soften the areola.
- Feed the baby frequently — every 1½–2 hours during the day, every 3–4 hours at night.
- *Do not* limit the length of feedings.

Management Issues

- Use different positions to empty all areas of the breasts.
- Apply cold compresses after feedings.
- Green cabbage-leaf compresses can be applied to the breasts for 10–20 minutes to reduce swelling. Limit use to four applications. Lactation consultants report that cabbage leaves used for extended periods of time (24 hours) may dry up a milk supply.
- Wear a comfortable bra that supports the breasts but is not too tight.
- Wear breast shells 30 minutes before feedings; expect some leaking.
- If engorgement is not relieved by the above measures, use an electric pump (which can be rented) on low suction to help soften the breast before feedings. Use the pump every 3 hours.
- The Women, Infants and Children (WIC) program loans electric breast pumps, free of charge, to women enrolled in the program.
- Short-term pumping to relieve engorgement will not excessively increase milk supply.

Plugged Ducts

Causes

- Constriction of the ducts, such as that caused by too-tight clothing, a purse strap, etc.
- Missed feedings.

- Inadequate emptying of the breasts with feedings, expression, and pumpings.
- Changes in the baby's or mother's schedule.
- Anatomical variations.

Signs and Symptoms

- The condition develops gradually.
- Mild, localized pain.
- Sometimes, a palpable lump.
- The lump will usually decrease in size with removal of milk.
- Sometimes, there is a white plug at the opening of a duct on the nipple (milk bleb).

Treatment

- Bed rest is beneficial.
- Continue to breastfeed often.
- Begin feedings on the affected breast.
- Apply moist heat to the breast before feedings.
- Massage the breast before and during feedings.
- Soak the affected breast in a basin or tub of warm water.
- Experiment with some unusual positions; change positions.
- Point the baby's nose or chin toward the plugged duct.

Management Issues

- See a physician if swelling and tenderness do not improve within 2–3 days, or if a fever develops.
- For repeated plugged ducts, 1 tablespoon/day of lecithin may help

Mastitis

Causes

Patients who are extremely fatigued or immunologically depressed will not fight infection as well as a healthy breastfeeding mother.

Physicians and lactation consultants report that an abrupt change in feeding frequency sometimes leads to engorgement, plugged ducts, and mastitis. Other causes of mastitis can include:

- Cracked nipples.
- An unresolved plugged duct.
- Constriction.
- Untreated engorgement.

Signs and Symptoms

- Sudden onset.
- Fatigue.
- Breast tenderness.
- Headache.
- A flu-like feeling.

- Muscle aches.
- A fever of 101° (38° C) or higher, or no fever.
- A hot, reddened area or red streaks on the breast.
- Nausea, vomiting, or both.

Treatment

- Frequent rest, preferably with the baby.
- Increased fluids for the mother.
- Improving the mother's diet.
- Efficient and frequent milk removal, using an electric pump between feedings if necessary.
- Working on getting good latch-on.
- When fever is present with mastitis symptoms, the mother needs to be evaluated to rule out possible abscess.
- Use of appropriate antibiotics for a sufficient period (10–14 days).
- Frequent feedings.
- Use of a broad-spectrum antibiotic with coverage for penicillin-resistant *Staphylococcus aureus*. Recommendations: dicloxacillin, cloxacillin, cephalexin, vancomycin for methicillin-resistant *Staphylococcus aureus*, erythromycin or azithromycin for penicillin-allergic patients.

Recurrent Mastitis

Causes

- The mother has discontinued antibiotics as soon as she felt better and before the full treatment has ended.
- The course of antibiotic treatment was too short (e.g., less than 10 days; 10–14 days is usually needed).
- An inappropriate antibiotic was used.
- Unresolved predisposing factors, such as poor latch-on or nipple trauma.
- Consider potential bacterial infection relating to fissures. Staph may be responsible for delayed healing.
- Secondary fungal infection.
- Underlying breast disease (a cyst or a tumor).

Treatment

- Reevaluate latch-on if nipple trauma is present.
- Bed rest is beneficial in fighting infection.
- Do midstream culture and antibiotic sensitivity tests of bacteria from the milk.
- If the patient follows the complete course of treatment with an appropriate antibiotic and the mastitis continues to recur, long-term, low-dose antibiotics may be considered for the duration of lactation (Lawrence 1999b: 281).

- Antifungal treatment, if indicated by presence of *Candida* in the infant's mouth or diaper area or evidence of *Candida* on the mother's nipple or areola.
- If the mastitis lacks typical systemic characteristics such as pain or fever, consider a diagnosis of malignancy (Paget's disease or inflammatory breast cancer).
- Medical evaluation of the breast (needle aspiration or biopsy) if a mass or a cyst is present.

Breast Abscesses

Predisposing Factors

- Existing mastitis; 5–11 percent of patients with mastitis develop an abscess.
- Delayed treatment of mastitis.
- Inadequate or inappropriate antibiotic treatment of mastitis.
- Unresolved breast infection.

Treatment

- Antibiotics are required.
- A small abscess may be drained by fine-needle aspiration using ultrasound guidance.

Management Issues

- More than one aspiration at 48-hour intervals may be required while using antibiotics.

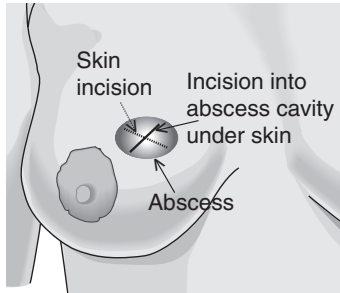


Figure 10. Skin and cavity.

- With a larger abscess, or when the abscess persists after repeated aspirations, consider surgical drainage.
- Rest and adequate hydration are recommended.
- Breastfeeding may continue.
- Keeping the breast empty is essential.
- When incision and drainage are performed:
 - Make the skin incision parallel to, but away from, the areola edge (for a better cosmetic result).
 - Make the incision into the abscess cavity in a radial fashion (for less ductal damage).
- For best incision and drainage results:
 - Use blunt separation.
 - Have meticulous hemostasis.

- Avoid closing deep layers, causing damage to ducts.
- Avoid postoperative engorgement.
- Milk fistula may rarely occur after an incision and drainage with continued breastfeeding (less than 10 percent incidence).
- If milk fistula occurs, it is self-limited and will usually resolve in time, with weaning.

Breast Masses

Diagnosis

- The incidence of malignancy is 1:3,000 to 1:10,000 in women who are pregnant or lactating.
- Three percent of breast cancers are diagnosed in pregnancy or lactation.
- Diagnosis is often delayed in a woman who is pregnant or lactating (the time from when she first notices the lump to when she informs her doctor is increased, as is the time from when the doctor is told until evaluations are performed).
- Mammography is safe during lactation. A normal mammogram should not be definitive in the woman who has a mass on examination.
- Ultrasound provides further information if a mass is present on examination.

Treatment

- Fine-needle aspiration can be done in a doctor's office without disrupting lactation (with or without ultrasound guidance).
- Excisional biopsy can also be performed without disrupting lactation.

Breast Surgery

General Considerations

- Insufficient lactation is more common with prior breast surgery.
- The risk increases if a periareolar incision was used.
- Follow the infant's growth more closely.

Augmentation

- Less of a concern than breast reduction. Implants are not a contraindication to breastfeeding.
- Breastfeeding is usually successful unless the reason for implants was absolute lack of mammary-gland tissue, not just small breasts.
- Silicone implants are compatible with breastfeeding.

Reduction

- More of a concern because surgery disrupts nipples, nerves, and ducts.
- Breastfeeding success is possible, but follow the infant's growth closely.

- You may need to talk to the mother about her goals for lactation, closeness, etc.
- Consider use of a lactation aid at the breast for supplemental nutrition.

Candidiasis (Thrush)

Predisposing Factors

- Antibiotic treatment of the mother or the baby.
- Diabetes in the mother.
- Use of steroids or estrogen by the mother.
- Warm, non-breathable, moist environment in perineum (wet bathing suits, nylon panties, pantyhose).
- A hot, humid climate.
- Vaginal infection in the mother at the end of her pregnancy.
- Immune suppression.
- Wearing bras made of synthetic fabric (nylon, lace).

Signs and Symptoms

- Sudden nipple soreness after weeks of comfortable nursing.
- Burning or itching of the areola.
- Shooting pains in the breast.
- Pain increasing at the end of a feeding and immediately after.
- The nipple and areola may or may not appear normal, perhaps having become deep pink, shiny, and with a round demarcation.
- Exquisite pain during feedings.

- Cracked nipples that won't heal.
- Nipple pain while using a usually comfortable pump.
- Fussiness in the baby.
- The baby may have diaper rash or white patches in the mouth.
- The mother may have a vaginal yeast infection.

Treatment

- Candidiasis must be treated promptly and with an adequate course of medication.
- *Recommendation:* fluconazole (Diflucan) — 200–400 stat., then 100–200 mg/day for 2–3 weeks.
- The mother and baby must be treated simultaneously.
- Treatment must continue for at least 2 weeks.
- The inside of the baby's mouth may be rinsed with water after every feeding.
- The mother's nipples may be rinsed after each feeding with a solution of 1 tablespoon vinegar in 1 cup of water.
- The mother should apply an antifungal cream to the nipple and areola after each feeding.
- Antifungal liquid medicine should be swabbed in the baby's mouth after every feeding.
- Hot water should be used for laundry.
- Boil pump parts every day, including rubber nipples and any baby toys.

Management Issues

- Do not freeze breastmilk for later use because the yeast is not killed by freezing.
- After the treatment period, discard all pacifiers and bottle nipples, and replace them with new ones.
- Air-dry breasts, avoid pads if possible, and wear cotton.
- Brief sun exposure on nipples can be helpful.
- Wash the hands frequently.

Infant Care

Growth Spurts

Definition

- The infant is rapidly growing.
- The infant is constantly hungry.
- The infant's constant nursing helps build the mother's milk supply.

Management

- Nurse frequently.
- Switch sides often.
- The infant does not need supplemental water or ABM.
- The mother's milk supply will increase within 48–72 hours.
- Growth spurts usually subside within 5–7 days.

Evening Fussiness: Colic

When Babies Cry

- Overtired.
- Overstimulated.
- Lonely.
- Uncomfortable.

Evidence of Colic

- Intense discomfort, tense body, and clenched fists.
- Apparent abdominal pain, legs pulling toward abdomen, and screams.
- Usually beginning at about 2 weeks of age.

If Nursing Doesn't Help

The mother should:

- Burp the baby.
- Change the diaper and check the baby's clothing.
- Take a warm bath together.
- Give a massage to the baby.
- Rock the baby or carry him in a sling.
- Lay the baby across her lap, tummy down, and rub his back.
- Drape the baby face down across her forearm with the baby's head toward her elbow and the baby's tummy over the heel of her hand.
- Place the baby's back against her chest or lay the baby on his back. Bend his legs so his knees are completely bent and his thighs are pressed toward his chest.

Mother's Needs

- Help her with her other responsibilities.
- Help soothe the baby.
- Reassure her of her mothering abilities.

- Assure her that colic usually passes at about the age of 3 months.
- Assess the mother's diet for possible allergens, especially if family history is present.
- Have the mother avoid milk products for two weeks to see if the baby is reacting to milk protein.

Normal Night Waking

- How to handle it is a family decision.
- Ideally, parents share the care for the awakened baby.
- Supplements don't help.
- Most babies don't sleep through the night until they reach at least 8 to 12 weeks of age or, often, much later.

Milk Supply

Oversupply Syndrome and Strong Milk-Ejection Reflex

Definition

- Some mothers have overabundant milk supply.
- The baby receives too much lactose-rich foremilk and too little fatty hindmilk.
- A strong milk-ejection reflex often accompanies breastmilk oversupply.

Signs and Symptoms in Baby

- Noisy nursing — gulping, choking, coughing.
- Breast refusal, won't stay latched on, won't suckle strongly.
- Severe gas.
- Green, frothy, explosive stools.
- Irritated diaper area, often severe.
- Poor weight gain.

Signs and Symptoms in Mother

- Forceful let-down.
- Sore nipples.
- Breasts never feel comfortable or refill very quickly.

- May have intense pain with the first let-down reflex.
- May have frequent or recurrent breast infections.

Treatment

- Before feeding, express milk just until forceful flow subsides.
- Break suction at let-down, and allow milk to flow into a cloth.
- Nurse the baby “uphill”; the mother lies on her back with the baby nursing lying on top of her (place a towel under the mother).
- Use only one breast per 2–3-hour period, then switch to the other breast for the next two to three hours.
- If the unsuckled breast becomes too full, express just enough milk to achieve comfort.
- Monitor the adequacy of the infant’s intake.
- Continue treatment for at least one week.

Low Milk Supply

Considerations

- Perceived low supply is much more common than actual low supply.
- Objectively document the infant’s growth pattern.

Treatment

- Suggest moist heat to be applied 3–5 minutes prior to feeding. This will improve perfusion to the area and enhance the milk-ejection reflex (let-down).
- Massage the breast during a feeding.
- Feed frequently, whenever baby shows early hunger cues — about 8–12 times per day.
- Include night feedings.
- Avoid long intervals between feedings, no more than one 5–6-hour interval in 24 hours.
- Encourage relaxation.
- Pump or hand-express between feedings.
- The frequency of feedings is more important than their duration.
- If these treatments do not increase milk supply, medications can be used in conjunction.
- *Recommendation:* metoclopramide (Reglan) — 10 mg, t.i.d. A prolactin stimulant; may cause severe depression — be cautious if mom has history of postpartum depression; discontinue use after 3 days if no results are seen, as some women do not respond.

Supplemental Nursing Systems

- If a supplement is medically indicated, use alternative feeding methods such as a supplemental nursing system.



Figure 11. Supplemental nursing system.

Relactation and Induced Lactation

- Reestablishing a milk supply for a baby after the milk supply has been reduced or after complete weaning has taken place.

Induced Lactation

- Creating a milk supply for an adopted baby.

Partial Induced Lactation

- Increasing an existing milk supply to feed an adopted baby while still feeding a toddler.

Expectations

Discussing Mother's Goals and Obligations

- Find out why she wishes to relactate or induce.
- What are her other obligations? Does she have the time to make this commitment?
- Does the mother have any medical problems, or is she taking any medications that may affect her milk supply?

Setting Realistic Goals

- A mother with an actively nursing older child may find it easier to increase her milk supply fairly rapidly.
- A mother who has not nursed in months or years may need extra time to produce milk. It's possible that she may not produce a full milk supply. Responses are highly individual.
- An adoptive mother who has never given birth may find it difficult to produce a substantial quantity of milk.
- If she has had a pregnancy that went past 16 weeks, she may have enough development of the breast to produce milk.

Mothers' Feelings

- Mothers who focus on the nurturing aspects of breastfeeding report higher satisfaction with induced lactation.
- Most mothers who have relactated felt it to be a positive experience, regardless of how much milk was produced.

Babies' Feelings

- Some babies are more responsive than others.
- Younger babies are more willing to take the breast.
- Older babies may have more difficulty adapting to a different method of feeding.

How-To Tips

- Offer the mother as much information as available. It is important that she make her decisions based on an understanding of the commitment she is making and of her chances of success.
 - Refer the mother to a lactation consultant, where available. Otherwise, advise her to call Mom's Place at 1 (800) 514-6667. Mom's Place is a breastfeeding resource center in Austin with lactation consultants on staff to answer calls.

Infant Medical Conditions

Protocols for Infant Medical Conditions

Hypoglycemia

Definition

The definition of hypoglycemia varies among physicians:

- Some consider blood-glucose concentrations of less than 40 mg/dl as the guideline.
- Others suggest that 30 mg/dl be the guideline during the first day of life and 40 mg/dl during the second day.
- Plasma and serum levels are higher than whole-blood levels.

Academy of Breastfeeding Medicine Guidelines

- For management of hypoglycemia, review the Academy of Breastfeeding Medicine's Clinical Protocol Number 1 (1999) — available online at <<http://www.bfmed.org/>>.

Causes

- Occurs when the body's rate of use of glucose is greater than the rate of glucose production, causing the blood-glucose concentration to fall.
- Usually due to delayed or inadequate feeding, but there may be inherited abnormalities of glucose metabolism whose first symptom may be low blood sugar.
- If hypoglycemia persists, possible causes should be investigated.

Risk Factors

- Infant: low birthweight, small for gestational age, large for gestational age, discordant twin, post-asphyxia, erythroblastosis fetalis, polycythemia, presence of microphallus or midline defect; Beckwith-Weidmann Syndrome; cold stress or hypothermia; or other stresses such as respiratory distress; sepsis, etc.
- Mother: diabetes.

Signs and Symptoms

- Mild to moderate: The baby may be asymptomatic.
- As hypoglycemia increases in severity: the baby may become lethargic, limp, sweating, or jittery; have tremors; refuse to eat; experience feeding difficulties; develop rapid respiration; and show pallor.

Monitoring

- Routine monitoring of blood glucose in asymptomatic, term neonates is unnecessary.
- Measure blood-glucose concentrations only in at-risk infants and those with clinical symptoms compatible with hypoglycemia.
- Bedside screening tests must be confirmed by true laboratory glucose measurements.
- Monitoring should begin within 30 minutes of age for infants of diabetic mothers and no later than 2 hours for infants in other risk categories.
- At-risk infants should be monitored every 2 to 4 hours prior to a feeding, until a normal blood-glucose concentration is observed after serial measurements while receiving feedings.

Treatment

- Ten to 12 feedings per day from birth stabilize blood-glucose levels.
- Skin-to-skin contact of mother and infant will maintain normal infant body temperature and reduce energy expenditure while stimulating suckling and milk production.
- Feeding glucose water to the baby is discouraged because it causes a sudden rise in blood-glucose levels and then a sudden drop due to increased levels of insulin in the blood.

Jaundice

Physiologic Jaundice

For a more comprehensive review on jaundice, see Gartner and Lee 1999.

- Onset at 2–3 days after birth. Peaks at 3–5 days.
- Occurs in more than 50 percent of all infants.
- Peak bilirubin level averages 5–6 mg/dl and is usually less than 15 mg/dl at 3–4 days of age in white infants and black infants. However, the mean peak in Asian infants is 8–12 mg/dl on days 4–6 and exceeds 20 mg/dl in 2 percent of Asian infants.
- Nearly all of the bilirubin is of the unconjugated or indirect-reacting type.
- Duration of hyperbilirubinemia is about 10 days in artificially fed infants. In one-third of breastfed infants, clinical jaundice continues for up to 3–6 weeks. In the remaining two-thirds of breastfed infants, hyperbilirubinemia may persist at low levels for up to 2–3 months (see “Breastmilk Jaundice,” pages 69–70).
- Causes of physiologic jaundice in all infants include immature liver function, increased bilirubin production due to red-cell load (short life span of red blood cells, high hemoglobin concentration, and high blood volume), and increased intestinal bilirubin absorption.

- Exaggerated jaundice may be due to delayed intestinal emptying (especially of meconium) due to inadequate feeding, hemolysis, internal bleedings (bruising), or inborn errors of metabolism.
- Feedings with water do not lower bilirubin levels. Adequate feedings with human milk or ABM promote more stooling and thus more bilirubin excretion in stools and less intestinal bilirubin absorption. Exaggerated physiologic jaundice in inadequately breastfed infants (“breastfeeding jaundice”) may also be called “lack-of-breastmilk jaundice.” The condition is usually due to infrequent nursing or inadequate milk production. Such babies may have infrequent stools and urination. (By days 3–4, infants should produce at least six wet diapers and three stools per day.)
- Jaundice in the first day of life is never physiologic and always requires evaluation.

Breastmilk Jaundice

- Onset at 5–10 days after birth.
- Kernicterus has rarely been reported.
- Most reports of severe jaundice are in infants less than 37 weeks gestation.
- If severe or prolonged jaundice occurs, the baby must be evaluated for hemolysis, liver disease, hepatic obstruction, and infections.
- Breastfeeding in healthy term newborns should not be interrupted for treatment of jaundice, unless levels exceed 20 mg/dl.

- Continued and frequent breastfeeding, at least 8–12 times a day, should be encouraged.
- Supplemental feedings of water or glucose water does not lower bilirubin levels in jaundiced breastfeeding infants.
- In more severe cases (total serum bilirubin in excess of 20 mg/dl), phototherapy, supplementation with ABM, and/or temporary interruption of breastfeeding with replacement ABM-feeding may be needed.

Prematurity

Considerations

- Human milk offers the optimal nutrition and the best immune protection for low-birthweight infants.
- Breastmilk protects against necrotizing enterocolitis (NEC) and various other infections.
- Preterm infants unable to suckle directly from the breast should receive the mother's expressed breastmilk.
- If the mother is unable to provide enough of her own milk, donor human milk is the next best alternative and can be provided through the Mother's Milk Bank at Austin by calling (512) 494-0800.
- On average, the suck reflex in premies is present by 28 weeks of gestation, and the suck-swallow reflex is coordinated by 34 weeks of gestation.

- Maternal medications and infections may be important issues.

Treatment

- Human milk fortifier will be needed for all very low-birthweight infants (those born at less than 1500 g, also referred to as “VLBW infants”).
- Careful nutritional monitoring is required; growth curves and metabolic (blood-chemistry) parameters need to be studied.
- Skin-to-skin nursing, or “kangaroo care,” is beneficial for the mother and baby and increases the mother’s supply of milk.
- Early initiation of nonnutritive breastfeedings, offered before each bottle-feeding, is beneficial for the premature infant to learn how to nurse. Nonnutritive feedings provide an opportunity for the infant to suckle at the breast but, because of the weak suck, the baby may not receive a significant quantity of breastmilk.
- Double breast pumping with a hospital-grade electric pump is mandatory for maintaining milk supply.
- Pump 3–4 times a day until due date.

Use of Donor Human Milk

- The Mothers’ Milk Bank at Austin follows strict guidelines to ensure the safety of banked human milk.

Infant Medical Conditions

- Potential donors complete a health form and blood tests, similar to the screening process used by blood banks. Donated milk is then pooled and pasteurized to kill any bacteria or viruses.
- Before the pasteurized milk is dispensed, bacteriological testing is done to ensure its safety.
- There has never been a documented case of an infant being harmed by donor milk in the more than 40 years of modern milk banking in the United States.
- To learn more about donor milk processing or how to obtain donor milk, call (512) 494-0800 or visit <http://www.mmbaustin.org>.

Infant of a Diabetic Mother

Considerations

- High risk for hypoglycemia.
- High likelihood of other morbidity (prematurity, respiratory distress, hypocalcemia, macrosomia, intrauterine growth retardation).
- Higher risk of jaundice.
- Initially, at risk for poor feeding and sleepy baby.
- Poor tone; initially, these babies may act developmentally immature.

Treatment

- Early and frequent breastfeedings are required.

- If the newborn's blood-glucose level after breastfeeding is not greater than 40 mg/dl in the first 24 hours of life, it is necessary to provide supplementation with expressed breastmilk or with ABM. If the infant's blood-glucose level remains at less than 50 mg/dl after the first 24 hours of life, supplementation should continue. (See "Hypoglycemia," pages 65–67.)

Intrauterine Growth Retardation

Considerations

- High risk for hypoglycemia.
- High risk for cold stress (and associated hypoglycemia).
- These babies tend to be voracious feeders.
- May be depressed or hypotonic (e.g., due to hypermagnesemia) if the mother has received magnesium-sulfate therapy for pregnancy-induced hypertension.

Treatment

- Early and frequent feeds are required.

Down Syndrome (Trisomy 21)

Considerations

- Breastfeeding is permitted and is beneficial for both baby and mother.

- The baby is often premature, may be very ill, or may require surgery.
- Associated cardiac or intestinal malformations are present in 30–50 percent of cases.

Effects on Nursing

- Feeding difficulties are to be expected; poor suck and uncoordinated suck and swallow are typical.
- Generalized hypotonia affects positionings for nursing.
- Babies with congenital heart disease rarely have the strength to nurse adequately or to nurse enough to gain weight consistently.

Cleft Lip and Palate

Considerations

- Breastfeeding is permitted and beneficial.
- It is easier to successfully nurse an infant with a cleft lip than one with a cleft palate, though nursing one with a cleft palate is easier than nursing an infant with malformations of both lip and palate.
- The baby may do better with the breast than with stiff, artificial nipples.
- A Haberman feeder is helpful because it allows milk flow that does not depend on the baby's ability to suck.

- If there is concern about milk transfer, weigh the baby before and after breastfeedings in order to determine the quantity of a feeding.



Figure 12. Haberman feeder.

Requirements

- An individualized care plan is mandatory, depending on the type of malformation.
- A highly motivated, patient mother is required.

Neurological Problems

Considerations

- Any condition associated with neurological abnormality, such as birth asphyxia or neonatal seizures, will negatively affect feeding behavior.
- Infants can show absent or depressed rooting reflex, gagging reflex, sucking reflex, or swallowing reflex.
- Birth trauma — especially cephalhematoma, brachial palsy, and bruising — may increase the likelihood of other complications, such as jaundice.

Treatment

- Skin-to-skin contact between mother and baby.
- The mother may need to express colostrum and milk.

- Colostrum can be placed in baby's mouth as an incentive.
- Tube-feeding devices can be used to supplement hindmilk at the breast.
- The Dancer hand position, which stabilizes the jaw, supports the masseter muscles, and increased intraoral negative pressure, can be used. The mother creates this position by supporting her breast with the third, fourth, and fifth fingers so that the thumb and index finger can form a U-shaped cup on which the baby's chin rests.

Diarrhea

Considerations

- Incidence of diarrhea in children younger than 3 years is estimated to be 1.3 to 2.3 episodes per child per year.
- Infants fed human milk can be nursed safely during episodes of diarrhea, says the American Academy of Pediatrics. The AAP also recommends breastfeeding whenever the baby wants, alternating with oral rehydration solution if necessary.

Treatment

- Continue breastfeeding throughout the diarrhea.
- If the infant becomes dehydrated, rehydrate initially for eight hours (breastfeeding is permitted if vomiting is minimal).

- Resume usual breastfeeding after 8 hours, plus provide additional rehydration fluids to keep up with ongoing fluid losses from diarrhea.

Rehydration Fluids

- Rehydration fluids available for use:
 - World Health Organization solution — designed for patients with cholera-like diarrhea; contains the most sodium.
 - Pedialyte — a good solution for maintenance but usually not enough sodium for rehydration phase.
 - Rehydralyte — contains a little more sodium than Pedialyte and is more appropriate for viral diarrhea, such as rotavirus diarrhea.

Upper-Respiratory-Tract Infections

- May breastfeed.
- Keep the baby's nose clear with a bulb syringe so that he can nurse.
- Hold the baby so that congestion can drain, with the baby's head higher than his body.

Inborn Errors of Metabolism

Phenylketonuria

- Breastfeeding is permitted if serum levels of phenylalanine are carefully monitored.
- Specialized ABMs are usually required.

- Breastfeeding usually provides only partial nutrition to such babies, providing them only the small amount of phenylalanine that they need for growth.

Galactosemia

- This condition is an *absolute contraindication* to breastfeeding!
- Galactosemia is an inborn error of metabolism; it is caused by the inability of the baby to break down galactose, which is a component of the milk sugar lactose (found in both human milk and some ABMs).
- Affected infants *must* be given lactose-free ABM and then remain on a lactose-free diet *for the rest of their lives*.
- Galactosemia differs from lactose intolerance, in which just *some* lactose cannot be broken down only in the gastrointestinal tract.

Cystic Fibrosis and Meconium Ileus

- Breastfeeding is permitted and beneficial.
- Most infants will need exogenous enzymes (for digestion) and vitamins.

Multiple Births

- Many mothers of twins and triplets successfully nurse their babies, often nursing 2 at a time.
- Milk supply will increase to meet the demand.

- For breastfeeding to be successful, planning is essential. A lot of family support is necessary.
- Suggest that the mother get help.

Failure to Thrive vs. Slow Weight Gain

- Failure to thrive: the infant is apathetic and cries, with poor tone, poor skin turgidity, few wet diapers, strong (concentrated) urine, few stools, fewer than 8 feeds per day, and no let-down, with weight loss or no weight gain.
- Slow gainer: the infant is alert and healthy, with good tone, good skin turgidity, many wet diapers, urine pale and diluted, many stools, more than 8 nursings per day, good let-down, and positive weight gain ($\frac{1}{2}$ ounce or more per day). If the baby's growth is following the growth curve, this apparently slow weight gain may in fact be normal growth for the individual infant.

Considerations

Infant

- Assess for possibility of poor suckling due to cleft lip or palate, short frenulum, micrognathia, macroglossia, or choanal atresia.
- Contributing medical conditions include anoxia or hypoxia, neonatal jaundice, prematurity, trisomy 21, trisomy 13–15, hypothyroidism, neuromuscular dysfunction, and central-nervous-system impairment.

Infant Medical Conditions

- Maternal analgesia or anesthesia can diminish the infant's alertness and ability to suck.
- Assess for malabsorption, vomiting, diarrhea, and infection.
- Assess for mother-infant separation, pacifier use, water or juice supplementation, or early introduction of solid food.
- Observe a breastfeeding; check the weight before and after feeding.

Mother

- Mismanagement of breastfeeding is the most common cause of slow weight gain or failure to thrive.
- Mismanagement includes improper positioning, low frequency or duration of feedings, rigid feeding schedules, absence of night feedings, not allowing infant to finish the first breast first ("switch nursing"), and unrelieved engorgement.
- Refer to an International Board Certified Lactation Consultant or include one in the care team.
- Parents should document feeding frequency, wet diapers, and stools.
- Supplementation at the breast may be necessary, using expressed breastmilk or artificial baby milk in a supplemental nurser.
- Possible referral to an occupational or speech therapist for suck and swallow evaluation.

- Assess mother for insufficient glandular development (little to no breast changes during pregnancy and postpartum; possibly marked differences in shape and size between the breasts).
- Assess mother for infection, hypothyroidism, untreated diabetes, Sheehan's syndrome, pituitary disease, mental illness, retained placenta, fatigue, and emotional disturbance.
- Medications that can affect milk supply include estrogen (oral contraceptives) and estrogenic medications, progestin-only contraceptives before 6 weeks postpartum, antihistamines, sedatives, diuretics, and large doses of vitamin B₆.
- Assess mother for severe diet restriction, smoking and alcohol use, history of breast surgery, and pregnancy.

Contraindications and Medications

Contraindications to Breastfeeding

- Galactosemia.
- An infant whose mother uses illegal drugs.
- An infant whose mother has untreated, active tuberculosis should not directly breastfeed. The mother should be separated from her infant but can provide expressed milk. Once treatment has begun and the mother is allowed to be with the infant, she can resume breastfeeding.
- An infant whose mother has been infected with the human immunodeficiency virus.
- An infant whose mother is being treated with certain radioactive isotopes (see pages 85–86), cancer chemotherapy agents, and a small number of other medications.

Medications and Breastfeeding

Only medications absorbed into the mother's bloodstream can enter breastmilk. Many medications bind to proteins and therefore do not pass into the breastmilk.

General Rules

Choosing Medications

Whenever possible:

- Choose a medication that will not affect the breastfeeding infant or the mother's milk supply.
- Prescribe short-acting medications, since breastfeeding can be timed to result in lower milk levels. They also do not tend to build up in the baby's system over time.
- Determine if the baby can easily clear the medication from his system. Beware of medications that babies have trouble removing from their systems. Older infants (4–18 months) can tolerate medications much better than newborns.
- Choose a medication that binds to protein. Such medications are more often held in the mother's bloodstream and do not transfer to the milk and the baby.
- Avoid medications that affect the brain. These medications often get into breastmilk in higher levels simply due to their composition (high

lipid solubility). If the medication causes sleepiness or depression in the mother, it may get into the milk and cause similar effects in her baby.

- Encourage breastfeeding mothers to stay away from street drugs (as with all patients).
- Anything applied to the nipple (e.g., vitamin E oil) is likely to be absorbed by the infant. Remind nursing mothers to be very cautious. Many reports suggest that excessive use of these oils can harm babies.

Instructions to Mothers

- Tell mothers to breastfeed first, then take the medication. Thus, the next time she feeds, the plasma level of the drug will be lower.
- With radioactive compounds, and for any dangerous medication, have the mother wait to breastfeed until the medication has cleared her system (generally 5 times the half-life of the drug). She can pump and throw away her milk to maintain her milk supply while she is waiting for her system to clear. If there is ample time before the procedure, encourage her to pump and store her milk so that she can give it to her baby while the radioactive compounds or dangerous medications are in her system. Detailed information about the activities of radiopharmaceuticals is available at <http://neonatal.ama.ttuhscc.edu/lact/>.

Contraindications and Medications

- Radiocontrast agents: Typical iodinated agents include Omnipaque, Conray, Cholebrine, Telepaque, and Optiray. Typical gadolinium agents include Magnevist and Prohance and have gadolinium ions instead of iodine. All that have been reviewed have low oral availability and low milk levels. Taken together, they do not normally pose a problem for a breastfeeding infant.

Medications Definitely Contraindicated During Lactation

- Cabergoline (Dostinex)
- Ergotamine tartrate
- Bromocriptine mesylate (Parlodel)
- Anticancer agents (Brief interruption is required for some)
- Some radioisotopes such as I-131 and I-125
- Iodide salts such as SSKI, etc. (provide iodine douches)

Information Sources

Publications

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- Hale, Thomas. 2002 (updated biennially). *Medications and Mothers' Milk*. Amarillo, TX: Pharmasoft Medical Publishing. 1 (800) 378-1317.
- Lawrence, R. 1999. *A Review of the Medical Benefits and Contraindications to Breastfeeding in the United States*. Maternal and Child Health Technical Information Bulletin. Washington: U.S. Department of Health and Human Services, Public Health Service.

Non-Toll-Free Hot Line

- University of Rochester Medical Center, Dr. Ruth Lawrence Lactation Study Center & Hot Line. (585) 275-0088.

Online

- Hale, Thomas. "Breastfeeding Pharmacology." <<http://neonatal.ama.ttuhsu.edu/lact/>>.
- Rocky Mountain Poison and Drug Center. <<http://www.rmpdc.org>>.

Birth Control

Lactation Amenorrhea Method

The lactation amenorrhea method (LAM) of birth control uses breastfeeding to prevent pregnancy. It is based on the hypothalamic-pituitary-ovarian feedback system. Suckling at the breast sends neural signals to the hypothalamus, mediating the level and rhythm of the secretion of gonadotropin-releasing hormone (GnRH).

GnRH influences pituitary release of follicle-stimulating hormone and luteinizing hormone, the hormones responsible for follicle development and ovulation. Breastfeeding results in decreased and disorganized follicular development.

LAM guidelines are extremely safe. Of the criteria listed below, the return of menses is the most important indication of the return of fertility.

Extensive research has emphasized the importance of exclusive breastfeeding while depending on LAM for birth control. Lowered feeding frequencies and supplementation increase the chance that ovulation will precede menses.

LAM is 98 percent effective as birth control, as long as the following criteria are met:

- The mother is exclusively breastfeeding, and the baby is receiving no other food or drink, including formula or water.
- The mother's period (menses) has not returned.
- The baby is younger than 6 months old, and solid foods have not been introduced.
- The mother is breastfeeding throughout the day and night with no time period between feedings longer than 4–6 hours.

If any of the above criteria are not met, advise the mother to begin using a complementary family-planning method and to continue breastfeeding.

Complementary Family-Planning Methods

- First choice: a nonhormonal method such as LAM, condoms, a diaphragm, spermicides, intrauterine devices, natural family planning, vasectomy, or tubal ligation.
- Second choice: a progestin-only method such as mini-pills or Depo-Provera. Progestin-only methods of birth control should be initiated after 6 weeks postpartum to avoid the delay or prevention of lactogenesis, which depends on the dramatic natural decline in progesterone postpartum.

Hormonal Methods and Milk Supply

Birth-control methods containing estrogen, such as combined oral contraceptives, are less desirable, since these choices have been shown to decrease the mother's milk supply. Avoid estrogen-containing methods such as combination oral contraceptive pills, or the estrogen-containing patch (Ortho Evra) or vaginal ring (Nuva Ring). If a product containing estrogen is used, choose the lowest estrogen dose available (e.g., 20 µg pills).

Clinical reports indicate that any hormonal birth-control method may reduce the quantity of breastmilk produced if given before lactation is well established. For example, Depo-Provera given within the first week postpartum can permanently reduce milk supply in some mothers.

Hormonal methods of birth control have the least impact on lactation if initiation is postponed until after 6 weeks postpartum.

Lifestyle and Nutrition

Breastfeeding Misconceptions: Truth vs. Myth

Your patient and her family may have questions about breastfeeding. Below are some of the questions you may be asked.

Pain

Does breastfeeding hurt?

Hurting is a sign that there may be a problem with the way the mother is holding her baby or the way the baby is latched on to the breast.

Some women feel a bit of discomfort in the early days when the baby first latches on and they are getting used to nursing. But that feeling should not continue during the whole feeding and should not happen at all after the first week or two.

If neither positioning nor latch-on is the problem, hurting may be a sign of a yeast infection or skin irritation.

Food Reactions

Can a breastfeeding mother eat chocolate (or beans or jalapeños or garlic)?

Mothers from all over the world eat lots of different foods and continue to successfully breastfeed their babies.

Advise mothers to start out eating whatever foods they enjoy and to watch their baby. If they see signs of a reaction to certain foods, such as splotches on the skin, fussiness, or diaper rash, they should avoid that food for several days and check the baby's reaction to its absence.

If a certain food bothers the baby, tell the mother to wait a few weeks and to then try it again to see if the baby's digestive system has matured enough by then to handle the food.

Size of Breasts

Does a mother have to have big breasts to breastfeed?

No. Women with breasts of all sizes can make plenty of milk for their babies. Milk supply is not associated with breast size, which is related to the amount of fat in the breast.

Shape of Breasts

Does breastfeeding make a mother's breasts get out of shape?

There is no evidence that breastfeeding changes the shape of the breasts.

Once the initial fullness passes (usually in about 2–4 weeks), the breasts soften, and the swelling goes down.

However, pregnancy — as well as gravity and aging — may cause some changes in the shape and size of the breasts.

When to Wean

Is it time to wean when a baby gets a tooth?

The best time to wean is when either the mother or the baby decide it's time. This time can vary a lot, and many women nurse babies who have teeth.

Sometimes, babies with teeth can bite by mistake or in play. Tell the mothers to stop nursing for a few minutes or to remind the baby to be gentler.

Mother's Milk Intake

Does a mother have to drink milk to make milk?

No. The actual foods a mother drinks and eats aren't what makes breastmilk. However, milk is one of the best sources of dietary calcium. If the mother

avoids all milk and milk products, she will need to have her calcium needs met through other foods rich in calcium or with a calcium supplement.

Anger or Anxiety

Can being angry or anxious make a mother's milk go bad?

Feelings don't affect the taste of breastmilk. However, the baby may sense the mother's anger or anxiety and may not relax until the mother relaxes.

It is true that being anxious or nervous can make it harder to pump breastmilk. Tell mothers, when pumping, to try to relax and to focus their thoughts on the baby. That can make pumping easier.

Breastfeeding Protocol for Women Working or Attending School

During Pregnancy

- Ask about the mother's planned feeding choice or how long she plans to breastfeed.
- Encourage the parents to attend a breastfeeding class, read breastfeeding information, and watch breastfeeding videos.
- Suggest early exploration of day-care options.
- Encourage the mother to postpone her return to work for as long as possible.
- Share stories of successfully employed breastfeeding mothers.

Learning Strategies for Mothers

Encourage mother to:

- introduce the bottle after breastfeeding has been well established for two weeks or more. This is often more successful if someone other than the breastfeeding mother offers the bottle.
- choose a breast pump, keeping in mind —
 - cost
 - efficiency
 - ease of use
 - quality
 - the effort required

- comfort
- frequency of use
- convenience
- the time required
- consult with friends or volunteer groups such as La Leche League for recommendations of quality brands of breast pumps.
- practice milk expression; it can begin whenever the mother is ready.
- begin storing milk. The easiest times to pump are in the early morning and whenever the baby takes only one breast.
- finalize day-care plans.

Tips for Success

The mother should:

- start storing milk at least two weeks before returning to work.
- build up her milk supply by frequently breastfeeding before her return to work.
- have a trial-run day.
- return to work in the middle of the work week instead of on a Monday.
- return to work part-time for as long as possible.
- nurse just before work and as soon as the workday is over.

- express milk in the morning after the baby has nursed on one breast or pump one breast while the baby nurses on the other.
- try nursing the baby at his day-care center.
- nurse frequently in the evenings and on weekends.
- reduce commitments.
- express often — do not wait for breasts to feel full.

Facilitating Pumping

To obtain the most milk, the mother may want to:

- take a warm shower or apply warm compresses to the breasts.
- drink a warm beverage.
- look at pictures of the baby.
- drape a baby blanket with the baby's smell around her neck.
- practice relaxation techniques, such as listening to soothing music.
- massage and stroke the breasts before and during pumping.
- start the pump on low suction with the nipple centered.
- pump until the milk flow significantly diminishes.

If Milk Supply Decreases

The mother should:

- nurse and express milk more often, and for longer durations.
- pump both breasts at the same time.
- massage the breasts before and during pumping.
- nurse during the night.
- try to increase rest.
- focus on the relationship with the baby instead of the number of ounces of milk collected.

Handling and Storing Human Milk

Milk Storage

- Use a clean, airtight container.
- Mark the container with the date when the milk was collected.
- Store in amounts anticipated for feedings:
 - 2–4 ounces for a 6-week-old.
 - 4–6 ounces for a 3-month-old.
 - 5–8 ounces for 6-month-old.
- After chilling in a refrigerator, freshly expressed milk can be added to a container of frozen milk expressed earlier. This is sometimes called “layering” the stored milk.
- It’s all right to add freshly expressed milk directly to a container of chilled milk which had been expressed earlier and refrigerated.
- Allow room in the container for expansion of the contents due to freezing.
- At work, store milk in a refrigerator or in an insulated container with a plastic block of “blue ice.”

Storage Guidelines

- Guidelines on how long it is safe to store human milk for healthy, full term babies:
 - Refrigerator — 5 days.
 - Freezer — 3 months.
 - Deep freeze — 6 months.
- Store milk in the back of the refrigerator or freezer.
- Frozen milk should be kept in a freezer that is cold enough to keep ice cream firm.

Storage Considerations

- Transport milk packed in ice, in an insulated container, or both.
- If no refrigeration is available, fresh milk can be safely kept at room temperature (70°) for 6 hours — or an insulated container with frozen ice packs for up to 8 hours.

Thawing Milk

- To thaw milk, place the container of frozen milk in warm water or in a refrigerator.
- Do not boil the frozen milk.
- Do not microwave the frozen milk.

Preparing Stored Milk for Feeding

- Place the container of thawed or refrigerated milk into a bowl of warm water.
- Shake the container gently to mix the creamy portion which separates during storage with the more watery portion.

Long-Term Nursing

Teething

- Give the baby lots of things to teethe on.
- Use a cold compress for relief of sore gums.
- Watch for any change in the sucking pattern. After the period of nutritive sucking is over, break the suction and move the baby to the other breast.
- Stay alert for sensing when the infant draws his tongue into his mouth.
- Keep a finger handy to break the suction if the baby gets that playful, pre-biting look.
- If the baby does bite, say “no” and stop the feeding.

Nursing Strikes

Characteristics

- A strike is a sudden refusal to nurse, lasting 2–4 days.
- Nursing strikes usually occur in babies younger than 1, and the mother knows intuitively that the baby is not ready to stop breastfeeding.
- The baby seems unhappy.
- Check for possible illness.
- May be misinterpreted as readiness to wean.

Possible Causes

- The baby has an ear infection, nasal congestion, or a urinary-tract infection.
- Teething.
- Thrush.
- A food or drug sensitivity.
- A recent injection, such as a vaccine or inoculation.
- Change in taste of milk.
- Developmental changes.
- Reaction to a perfume or a detergent.
- Stress in the family.

Treatment

- Try to find the cause.
- Express milk and give it to the baby in a cup.
- Take a bath with the baby.
- Try nursing when the baby is drowsy.
- Try different positions.
- Provide skin-to-skin contact.
- Rock or walk the baby.

Nursing During Pregnancy

- There are no reported cases of harm.
- If the mother has a history of premature labor, vaginal bleeding (placental previa or abruption), she may need to avoid breastfeeding in her third trimester.

Lifestyle and Nutrition

- Milk supply decreases; the taste changes.
- Sore nipples are common.
- If the pregnant mother is experiencing vaginal bleeding, she may need to avoid breastfeeding.
- The mother may feel restless.
- If the child is younger than 1 year, monitor his intake of milk.
- Some mothers or babies decide to wean during pregnancy.

Tandem Nursing

Definition

- Nursing a younger baby and an older infant or child.

Considerations

- Tandem nursing balances the needs of the mother, the older child, and the baby.
- The mother may feel ambivalent.
- There is no known reason for concern for either the infant or the mother.
- Many mothers report improved sibling adjustment.
- Nutritional needs of the newborn should be met prior to feeding the toddler.

Introduction of Solid Foods (Weaning Management)

Signs of Developmental Readiness

- Ability to sit up (body and head control).
- Acquisition of appropriate tongue movements.
- Ability to chew.
- Ability to put food in the mouth (functional upper extremities).

Abrupt Weaning

- Not recommended.
- Can cause emotional stress for both mother and baby.
- High risks of mastitis and abscesses are associated with abrupt weaning.
- Mothers may use hand expression or minimal pumping to relieve engorgement.
- Oral contraceptives may decrease engorgement.
- Lactation consultants are reporting success in applying cabbage leaves to the breasts to reduce engorgement.
- They also report that sage tea or capsules may be ingested to reduce milk supply.
- Feed baby with ABM instead of cow's milk or goat's milk if the baby is less than 1 year old.

Planned Weaning

- Planned weaning is easier on both mother and infant than abrupt weaning.
- Tips:
 - At first, replace one nursing session with one ABM-feeding, then more.
 - Don't offer the breast to the infant, but don't refuse the breast when it is requested.
 - Change routines.
 - Shorten or postpone nursing sessions.
 - Be flexible.

Natural Weaning

- Occurrence varies with the baby (usually occurs between the ages of 1 and 4 years).
- Can be child-led or collaborative with parents.

Nutrition During Lactation

Nutritional Needs and Body Fat

Lactating women should be encouraged to obtain their nutrients from a well balanced, varied diet rather than from vitamin and mineral supplements. Nutrition information should be culturally appropriate.

Lactating women should be encouraged to follow dietary guidelines that promote a generous intake of nutrients from fruits and vegetables, whole-grain breads and cereals, calcium-rich dairy products, and protein-rich foods. A woman whose eating patterns lead to very low intakes of one or more nutrients should be counseled on an appropriate diet, or nutrient supplementation should be recommended (especially for vegetarians or those with lactose intolerance).

- The nutritional needs or requirements of a specific woman are related to the amount of milk she produces daily.
- During pregnancy, 2–4 kg of body fat is stored.
 - This fat supplies a portion of the energy needed for lactation after the baby's birth.
 - It is estimated that storage fat provides 100–200 kcal/day to the mother during the first 3 months of lactation.

Nutritional Guidelines

Considerations

- The Institute of Medicine's Subcommittee on Nutrition During Lactation (1991) recommends that breastfeeding mothers consume about 500 extra calories a day. However, research has shown that these recommendations may be too high for many mothers (Goldberg 1991; Illingworth 1986).
- Other studies have found that nursing mothers actually consume less than that and experience a safe, gradual weight loss (Butte 1984; English and Hitchcock 1968).
- Breastfeeding mothers who do not restrict their diets of any major food groups should simply be told to eat to hunger and drink to thirst.

If Diet Does Not Meet Nutrient Needs

- The mother's body will draw on nutrient stores to meet its needs.
- Recommend that the mother improve her diet to meet nutrient needs.
- If food allergies or food dislikes are present, recommend nutritional supplements.
- If the mother is a complete vegetarian who avoids all animal foods including meat, fish, dairy products, and eggs, she is at risk of becoming deficient in vitamin B₁₂. Advise intake

of a regular source of vitamin B₁₂, either through supplemented plant products or through a 2.6- μ g vitamin B₁₂ supplement daily.

- If the mother avoids vitamin D–fortified foods, such as fortified milk or cereal, combined with a limited exposure to ultraviolet light, recommend 10 μ g of supplemental vitamin D per day.

Daily Serving Recommendations

The following recommendations are based on the *Health Guidelines for Americans 2005*. The amounts recommended meet a requirement of 2000 calories per day and may vary depending on the calorie needs of the individual.

- nine servings (4½ cups) of fruits and vegetables
- six servings of grains — at least three servings should be whole grain
- five and a half ounces (or equivalents) of lean meats and beans
- three servings of lean or nonfat dairy

Weight Loss

Considerations

- Most lactating women gradually lose weight (1–2 pounds/month), but not all lactating women lose weight. In one study, about 22 percent actually gained weight during breastfeeding.
- Liquid diets and weight-loss medications are not recommended while breastfeeding.
- Although not recommended, fasts lasting less than a day have not been shown to decrease milk volume.
- The impact of dieting in the early weeks postpartum is not known; therefore, dieting during that time is not recommended.

Recommendations

- Weight loss of up to 4.5 pounds/month is not likely to affect milk volume. The infant's weight gain should be monitored. Rapid weight loss is not advised.
- Encourage energy intake appropriate to the weight-for-height and the level of physical activity. Mobilization of fat stores usually subsidizes the energy requirements by about 100–150 kcal/day. Intakes of less than 2,000 kcal/day are not recommended for fully lactating women.

Exercise

Considerations

- Regular exercise appears to be compatible with production of an adequate volume of milk.
- Vigorous exercise may cause a change in the taste of milk due to lactic acid; it is not a problem for women doing light to moderate exercise.
- Quinn and Carey (1999) found that lactic acid in the milk remained elevated for 30 minutes following a 30-minute maximum-intensity exercise session. No change was seen in the lactic-acid level following 30 minutes of moderate exercise.
- Exercise increases prolactin release, stimulating milk production and increasing the potential for leaking to occur.

Advice to Mothers

- Balance food intake with physical activity to maintain or improve weight.
- The skin may taste salty; if the mother gets sweaty, suggest she wipe off or shower before nursing.
- Encourage the mother to drink lots of water to replace fluids lost during exercise.

Drug and Alcohol Use

Alcohol

- Avoid alcohol during pregnancy to prevent fetal-alcohol effects.
- Limit alcohol when breastfeeding. If the mother has a drink, she should wait to breastfeed until she no longer feels the effect of the alcohol.

Smoking

Nicotine

In *Breastfeeding: A Guide for the Medical Profession*, author Ruth Lawrence, M.D., addresses concerns about nicotine (Lawrence 1999b):

- The amount of nicotine in the mother's plasma is directly correlated with the amount of nicotine in the milk she produces.
- It interferes with let-down but does not appear to disrupt lactation once lactation is initiated.
- It is associated with poor milk supply.
- It causes decreased growth in the infant.
- It causes earlier weaning.
- It is significantly associated with colic.
- It increases the incidence of sudden infant-death syndrome. Breastfed infants of smokers have a SIDS rate equal to that of bottle-fed infants of nonsmokers.

Lifestyle and Nutrition

- Nicotine increases the incidence of respiratory disease. However, this is improved if the infant is breastfed.

Counseling

Discourage mothers from smoking.

- Smoking stimulates release of epinephrine, which can inhibit oxytocin release.
- If the mother cannot stop smoking, encourage her to smoke low-nicotine cigarettes.

Discourage smoking around the infant.

- It appears that the rapid and complete absorption of nicotine in the respiratory tract from secondhand smoke is greater than the absorption of nicotine from human milk.
- If the mother is unable to quit smoking, advise her to avoid smoking for 2½ hours before feeding.

Clove Cigarettes

- Clove cigarettes contain 60–70 percent tobacco and 30–40 percent clove.
- Exposure to tar, nicotine, and carbon monoxide is twice that from regular cigarettes.

Marijuana

- Marijuana does not apparently affect the neurobehavioral outcome of breastfed infants.

- The infant will drug-screen positive for marijuana, but the effect of the mother's marijuana use is minimal.
- Impairment of judgment and behavioral changes may affect the mother's ability to care for the infant.
- If the mother smokes while nursing, the infant not only ingests the drug through the milk but also inhales the smoke in the environment.

Caffeine

- Limit, but don't necessarily eliminate, intake of caffeine-containing products.
- Watch the baby for signs of sleeplessness, jitteriness, etc., and reduce intake if necessary.

Supporting Evidence for Breastfeeding

Need

The American Academy of Pediatrics' policy statement of February 2005, "Breastfeeding and the Use of Human Milk," adheres to the position that breastfeeding ensures the best possible health as well as the best developmental and psychosocial outcomes for the infant.

The AAP encourages mothers to continue breastfeeding their infants for at least the first 12 months of life and thereafter for as long as mutually desired. The AAP bases this recommendation on research — conducted in developed and developing countries of the world, including middle-class populations in developed countries — that provides strong evidence that human-milk feeding decreases the incidence and/or severity of a wide range of infectious diseases including bacterial meningitis, bacteremia, diarrhea, respiratory-tract infection, necrotizing enterocolitis, otitis media, urinary-tract infection, and late-onset sepsis in preterm infants. In addition, postneonatal infant-mortality rates in the United States are reduced by 21% in breastfed infants.

Support for Breastfeeding

The AAP points out that studies suggest decreased rates of sudden infant-death syndrome in the first year and reduction in diabetes mellitus, lymphoma, leukemia, and Hodgkin disease, overweight and obesity, hypercholesterolemia, and asthma in older children and adults who were breastfed. Additional research is warranted.

The AAP also notes that breastfeeding has been associated with slightly enhanced performance on tests of cognitive development and that breastfeeding during a painful procedure such as a heel stick for newborn screening provides analgesia to infants.

“The Texas Position Statement on Infant Feeding” — developed in 1997 by the predecessor of the Department of State Health Services, several Texas health-related organizations, consumers and professionals — states that human milk is the only substance available to provide complete nutrition and immunologic protection to the human infant. Infant health outcomes from receiving human milk correlate with immediate and lifelong effects on children’s lives.

Physical and psychological benefits for the lactating woman are further positive outcomes. Also, lactation and breastfeeding have the potential to save money for families, taxpayers, employers, and the health-care system.

Statistics

A study by the United States Department of Agriculture, *The Economic Benefits of Breastfeeding: A Review and Analysis* (Weimer 2001), found that

a minimum of \$3.6 billion would be saved if breastfeeding were increased from current levels (64 percent in-hospital, 29 percent at 6 months) to levels recommended by the U.S. Surgeon General (75 and 50 percent). The report stated this figure is likely an underestimation of the total money saved because it represents the saving from the treatment of only three childhood illnesses: otitis media, gastroenteritis, and necrotizing enterocolitis.

Supportive Organizations

- Texas Association of Family Practitioners
- Texas Association of Obstetricians and Gynecologists
- Texas Hospital Association
- Texas Medical Association
- Texas Nurses Association
- Texas Osteopathic Medical Association
- Texas Pediatric Society
- La Leche League of Texas
- International Lactation Consultant Association Affiliates

Breastfeeding-Friendly Environments

Physician's Office

- Promote breastfeeding as the healthiest way to feed an infant.
- Remove all ABM products from your patients' view.
- Consider removing all pamphlets, posters, prescription pads, pens, mugs, etc. provided by ABM companies. Replace them with posters, pamphlets, mugs, and prescription pads that promote breastfeeding or which come from a nonprofit entity.
- Attend a breastfeeding training.
- Hire a lactation consultant, or send an office nurse to breastfeeding-management training.
- Show breastfeeding-motivation videos in your waiting room.
- Try to maintain the breastfeeding relationship of mothers and babies, even if the mother or baby has problems or is on medication.
- If the mother and baby are separated, encourage the mother to pump her milk.
- Refer the mother to lactation-support groups.
- Make your office mother-friendly for your staffers who are breastfeeding by providing a pump room.

Getting Certified as a Texas Ten Step Hospital

The Texas Ten Step Hospital program designation indicates that your hospital supports the health of future Texans and provides care that is sensitive to the needs of the breastfeeding family. You can use the Texas Ten Step designation when you advertise your hospital's maternity services.

The program, developed by the Texas Hospital Association and the Texas Department of Health (currently known as the Department of State Health Services), certifies “breastfeeding-friendly” hospitals, which provide breastfeeding services and promote breastfeeding as the best nutritional choice for the infants and mothers they serve. Certification, which is voluntary and based on self-reporting, is awarded for exhibiting 85 percent compliance with the program's model-hospital policies. There are no external audits or site visits.

Based on the globally recognized WHO/UNICEF “Ten Steps to Successful Breastfeeding,” the Texas Ten Step Hospital program has three objectives:

- to help hospitals support breastfeeding mothers before, during, and after delivery;
- to encourage hospitals to identify breastfeeding resources for the mother after she is discharged from the hospital; and

- to encourage hospitals to reach the Texas Breastfeeding Initiative's goal of having 75 percent of their mothers breastfeeding at hospital discharge.

Texas Ten Step Model Hospital Policy

Step One: Fundamentals

- Breastfeeding is the preferred method of newborn and infant feeding, and human milk is the optimum form of newborn and infant nutrition. All interventions and care plans directed toward the newborn, infant, or lactating woman will protect this valuable resource.
- The decision to interrupt breastfeeding or to withhold human milk from a newborn or infant should be based on a physician's order and may include appropriate references or rationale to indicate the necessity of this action. (Currently, breastfeeding is not recommended for mothers who are HIV-positive, mothers who are undergoing chemotherapy, and infants with galactosemia.)
- The hospital's policy should be communicated to all appropriate hospital staff, both upon employment and on a regular basis.

Step Two: Training

- Hospital employees who care for mothers, newborns, and infants should receive breastfeeding training consistent with hospital policy within 6 months of their employment, with regular updates.
- This training should include material on the advantages of breastfeeding, the anatomy and physiology of breastfeeding, how to solve common breastfeeding problems, and the impact of introducing ABM and artificial nipples or pacifiers before breastfeeding is established. Training should also include supervised clinical experience, acquaintance with a system of referral to breastfeeding specialists after hospital discharge, and access to a list of community resources.
- The Department of State Health Services has resources, including a model curriculum, to help facilitate the training. These resources can be accessed at <http://www.dshs.state.tx.us/wichd/lactate/> or by phoning the DSHS breastfeeding-promotion staff at (512) 458-7111.

Step Three: Encouraging Breastfeeding

- Although most mothers' decisions about breastfeeding are made before admission, the hospital should present breastfeeding as the feeding method of choice to all mothers.

Supporting for Breastfeeding

- Hospitals offering prenatal classes should develop a policy that includes information about the benefits of breastfeeding, its management, and how to maintain lactation even if the mother is separated from her newborn or infant.

Step Four: Early Bonding

- Hospital policy should encourage newborns to breastfeed within an hour of birth, with 30 minutes being the ideal. The hospital policy should address derivations from this ideal for mothers delivering by cesarean section or with complications.
- Because early skin-to-skin contact between mother and newborn is an important factor in the initiation of breastfeeding, mothers should be given an opportunity to remain close to their newborns regardless of the type of delivery, as long as the health of the mother and newborn remains uncompromised.

Step Five: Breastfeeding Assistance

- The hospital policy should address showing mothers how to breastfeed and how to maintain lactation even if they are separated from their newborns.
- Breastfeeding should be assessed within 6 hours of birth and once per nursing shift.
- There should be staff with training beyond the basic level in lactation management who will assist mothers with unusual management

concerns. These persons include physicians, International Board Certified Lactation Consultants where available, or nurses with additional training.

- The hospital policy should address coordination of follow-up care after hospital discharge, as well as the provision of appropriate community referrals.

Step Six: Caution with ABM

- The hospital policy should support the decision of mothers to breastfeed.
- Newborns should be given supplementary ABM only if specifically ordered by the physician for a clinical condition, or upon parental request.
- Before giving ABM to breastfed newborns, parents should be advised of the effects of introducing ABM to the newborn.

Step Seven: Keeping Mother and Baby Together

- Hospital policy should address rooming in. Mothers and newborns should be encouraged to remain together both day and night, except for periods of up to an hour for hospital procedures or if separation is medically indicated.
- The nurse should help the mother and family plan for periods of rest and sleep, both day and night.

Supporting for Breastfeeding

- If, despite encouragement to room in, the mother requests that the newborn stay in the nursery at night, the newborn should be brought to the mother to nurse when hunger cues are evident, or every 2–3 hours (whichever is sooner).

Step Eight: Breastfeeding as Priority

- The hospital policy should encourage mothers to breastfeed their newborns without restriction. Breastfeeding during the first day should take priority over other routine events such as newborn bathing, pictures, and visitors.
- Mothers should be instructed to recognize hunger cues, assess an adequate feed, and monitor wet and soiled diapers as signs of sufficient intake.

Step Nine: Supporting Breastfeeding

- The hospital policy should discourage the use of artificial nipples or pacifiers for normal newborns. Pacifiers mask hunger cues. Artificial nipples may interfere with the establishment of breastfeeding.
- If supplementation is necessary, alternate methods such as a cup or a supplemental feeding device should be explored first, using expressed milk.
- Breastfeeding mothers should not receive hospital discharge packs that include ABM or ABM advertisements, unless requested by the mother.

Step Ten: Follow-Up Support

- The hospital policy should address support for breastfeeding mothers following hospital discharge.
- This support may include telephone follow-up, lactation clinics, in-home visitation, telephone hot line, space for breastfeeding, mother-to-mother group meetings provided on a regular basis, and referral to community support groups, such as La Leche League. Other resources include local WIC agencies and the statewide toll-free breastfeeding help line at 1 (800) 514-MOMS (514-6667).
- The hospital is also encouraged to support its own staffers who are breastfeeding by providing a place and time for them to pump.

Guidelines for certification in the Texas Ten Step Hospital program can be obtained through the DSHS Web site at <<http://www.dshs.state.tx.us/wichd/lactate/bf1.shtm>> or by calling the DSHS breastfeeding-promotion staff at (512) 458-7111.

Texas Ten Step Hospital certification can also be a step towards becoming recognized as a “baby-friendly” hospital by Baby Friendly USA. For more information on certification by Baby Friendly USA, see <<http://home.onemain.com/~ct1008688/bfusa.htm>> or contact the organization at (508) 888-8092 or <info@babyfriendlyusa.org>.

Breastfeeding Resources

Hot Lines

- Family Health Services Information and Referral Line: a toll-free hot line that provides information about services affecting babies. 1 (800) 422-2956.
- Texas Lactation Support hot line: a toll-free hot line at the Mom's Place Lactation Resource Center in Austin for mothers and health-care providers to get information and help with breastfeeding questions. 1 (800) 514-6667.
- National Women's Health Information Center Breastfeeding Helpline: the NWHIC information specialists have been trained by breastfeeding experts to respond to general questions, offer practical advice on breastfeeding, and provide information and printed materials to make breastfeeding easier for new parents. 1 (800) 994-9662.
- La Leche League Hot Line: a toll-free hot line that refers callers to the La Leche League groups in their area. 1 (800) 525-3243.
- Lactation Study Center: A federally funded program at the University of Rochester Medical Center that encourages and promotes human lactation and breastfeeding through physician education and support via an extensive database

of information. There is a cost for the long-distance call, but the information is free.
(585) 275-0088.

Web Pages

- American College of Nurse-Midwives position statement on breastfeeding: <<http://www.midwife.org/prof/display.cfm?id=116>>.
- American Dietetic Association position statement on breastfeeding: <http://www.eatright.org/Public/GovernmentAffairs/92_18356.cfm>
- Lactational Pharmacology (Tom Hale, Ph.D.): <<http://neonatal.ttuhs.edu/lact/>>.
- Department of State Health Services breastfeeding Web page: <<http://www.dshs.state.tx.us/wichd/lactate>>.
- Department of State Health Services position statement on infant feeding: <<http://www.dshs.state.tx.us/wichd/lactate/position.shtm>>.
- Department of State Health Services tip sheets for patients: <<http://www.dshs.state.tx.us/wichd/bf/protocol.shtm>>.

Materials

- To order free breastfeeding materials from the Department of State Health Services: <<http://www.dshs.state.tx.us/wichd/bf/bfpubs.shtm>>.

Lactation-Management Courses

The following continuing-medical-education courses are available for physicians:

- Department of State Health Services, “Clinical Management of Breastfeeding in the Modern World: An Update for Physicians.” Accredited for 4 CME units. For more information, visit <<http://www.dshs.state.tx.us/wichd/lactate/courses.shtm>> or call (512) 458-7111. Other courses also are available for nurses and office staff.
- “On-Line Breastfeeding Course” by Case Western Reserve University. CME credits are available. For more information, visit the Web page at <<http://www.cwru.edu/med/breastfeeding>>.

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