



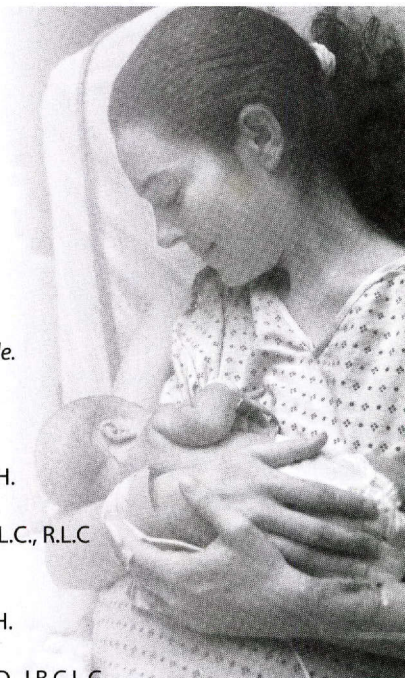
The Health Care Provider's
Guide to Breastfeeding



The Health Care Provider's Guide to Breastfeeding

Funded by
Department of State Health Services
P.O. Box 149347
Austin, Texas 78714-9347
<http://www.dshs.state.tx.us/wichd/bf/bf1.shtm>

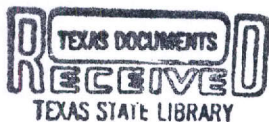
David L. Lakey, M.D.
Commissioner, Department of State Health Services



*Special thanks to all involved
in the development of this guide.*

Reviewers

Kristina Arrieta, I.B.C.L.C., M.P.H.
Pamela Berens, M.D., I.B.C.L.C.
Tracy Erickson, B.S., R.D., I.B.C.L.C., R.L.C.
Alice K. Gong, M.D.
Tom Hale, R.Ph., Ph.D.
Rebecca L. Huston, M.D., M.P.H.
Marguerite Kelly, I.B.C.L.C.
Kathleen Kendall-Tackett, Ph.D., I.B.C.L.C.
Tammy McConnell, M.D.
Patrick Pevoto, M.D.
Hellen Sullivan, R.N., I.B.C.L.C.



This institution is an equal-opportunity provider.
© 2011 Department of State Health Services. Nutrition Services Section.
All rights reserved. Stock no. 13-185 rev. 5/11



Contents

Protecting, Promoting and Supporting Breastfeeding

National Initiatives	1
Healthy People 2020 Breastfeeding Objectives.....	1
2011 Surgeon General's Call to Action	2
National Quality Forum	2
Joint Commission Perinatal Core Measure Set	2
Supporting Evidence	3
Agency for Healthcare Research and Quality.....	3
Cost Savings	4
Supportive Organization Statements	5
Texas Department of State Health Services	5
American Academy of Pediatrics	5
American College of Obstetricians and Gynecologists	6
American Academy of Family Physicians	7
American Dietetic Association	8

Prenatal Lactation Support

Lactation Assessment	9
Lactation Education	10

Hospital Lactation Support

All Infants	13
Skin-to-Skin Care	13
Infant Benefits	13
Maternal Benefits.....	14
Term Delivery	14
Teach Hunger and Satiety Cues	15
Normal Infant Feeding Pattern.....	16
Demand Feeding	17
Pacifier Use	18
Signs that Breastfeeding is Going Well	19
Preterm Delivery	20

Late-Preterm Delivery	21
Prior to Discharge	22

Lactation Fundamentals

Principles of Milk Supply	23
Prolactin Receptor Theory	23
Feedback Inhibitor of Lactation Theory	23
Storage capacity	24
Positioning and Latch	24
Positioning.....	24
Laid Back Nursing	25
Cradle Hold	25
Cross-Cradle Hold	25
Football Hold	26
Side-Lying Hold	26
Latch.....	26
Latch Sequence	26
Signs of Good Latch	28
Signs of Bad Latch	28
Probable Bad Latch.....	28

Postpartum Growth Monitoring

Expected Growth	29
Newborns	29
Beyond 3 Months.....	29
Early Growth Faltering	29
Managing Growth	30
Growth Charts	31
Normal, Slower Growth	32
Later Growth Faltering	32

Management Issues

Nipple Care	35
Nipple Sensitivity	35
Nipple Soreness/Trauma	35
Intervention.....	36

Treatment.....	37
Feeding Techniques.....	37
Comfort Measures	38
Leaking.....	38
Bloody Nipple Discharge	39
Breast Care	39
Engorgement	39
Plugged Ducts	43
Mastitis	44
Recurrent Mastitis	45
Breast Abscesses	47
Breast Masses	48
Breast Surgery	49
Augmentation	49
Reduction	49
Candidiasis	50
Infant Care	51
Growth Spurts	51
Infant Fussiness.....	52
When Babies Cry	52
Colic	52
Normal Night Waking	52
Oversupply and Overactive Milk-Ejection	52
Multiple Births	54
Low Milk Supply	54
Considerations.....	54
Causes	54
Treatment.....	55
Supplemental Nursing Systems	56
Relactation and Induced Lactation	56
Relactation.....	56
Induced Lactation	56
Postpartum Depression	58

Infant Medical Conditions

Hypoglycemia	61
Jaundice.....	65
Academy of Breastfeeding Medicine Guidelines	65
Physiologic Jaundice	66
Breastmilk Jaundice.....	69
Prematurity.....	69
Infant of a Diabetic Mother	71
Intrauterine Growth Retardation	72
Down Syndrome (Trisomy 21)	72
Cleft Lip and Palate	73
Neurological Problems	74
Diarrhea	74
Upper Respiratory Tract Infections	75
Inborn Errors of Metabolism	76
Galactosemia	76
Phenylketonuria	76
Maple Syrup Urine Disease	77
Tyrosinemia.....	77
Cystic Fibrosis and Meconium Ileus	77
Failure to Thrive vs. Slow Weight Gain	77

Contraindications and Medications

Contraindications to Breastfeeding	81
Medications and Breastfeeding.....	81
Choosing Medications	81
Instructions to Mothers	82
Contraindicated Medications	83
Lactation Risk Categories.....	83
Medication Resources	85

Lifestyle and Nutrition

Working or Attending School	87
Tips for Success	87
Pumping	88
Handling and Storing Human Milk	89

Nursing the Older Infant.....	90
Nursing Strikes	90
Breastfeeding During Pregnancy	91
Tandem Nursing	92
Solid Foods and Weaning.....	92
Natural Weaning	93
Planned Weaning	93
Abrupt Weaning	93
Family-Planning Methods	94
Nutrition and Exercise.....	96
Weight Loss	97
Physical Activity	98
Alcohol	98
Tobacco	99
Clove Cigarettes	100
Marijuana	100
Caffeine	100

Breastfeeding Statistics and Data

Centers for Disease Control and Prevention	101
Hospital Maternity Care Improvement and Recognition Programs	101
Ten Steps to Successful Breastfeeding.....	101
Baby-Friendly Designation	103
Texas Ten Step Program	103
Texas Ten Step Star Achiever Program.....	104

Breastfeeding Resources

International Board Certified Lactation Consultants.....	105
Lactation Courses.....	106
Physician Continuing Medical Education	106
Breastfeeding Education Materials.....	107
Breastfeeding Friendly Physician Office.....	108
Breastfeeding Management Resources	108
Patient Resources.....	109

Lactation Diagnosis Codes

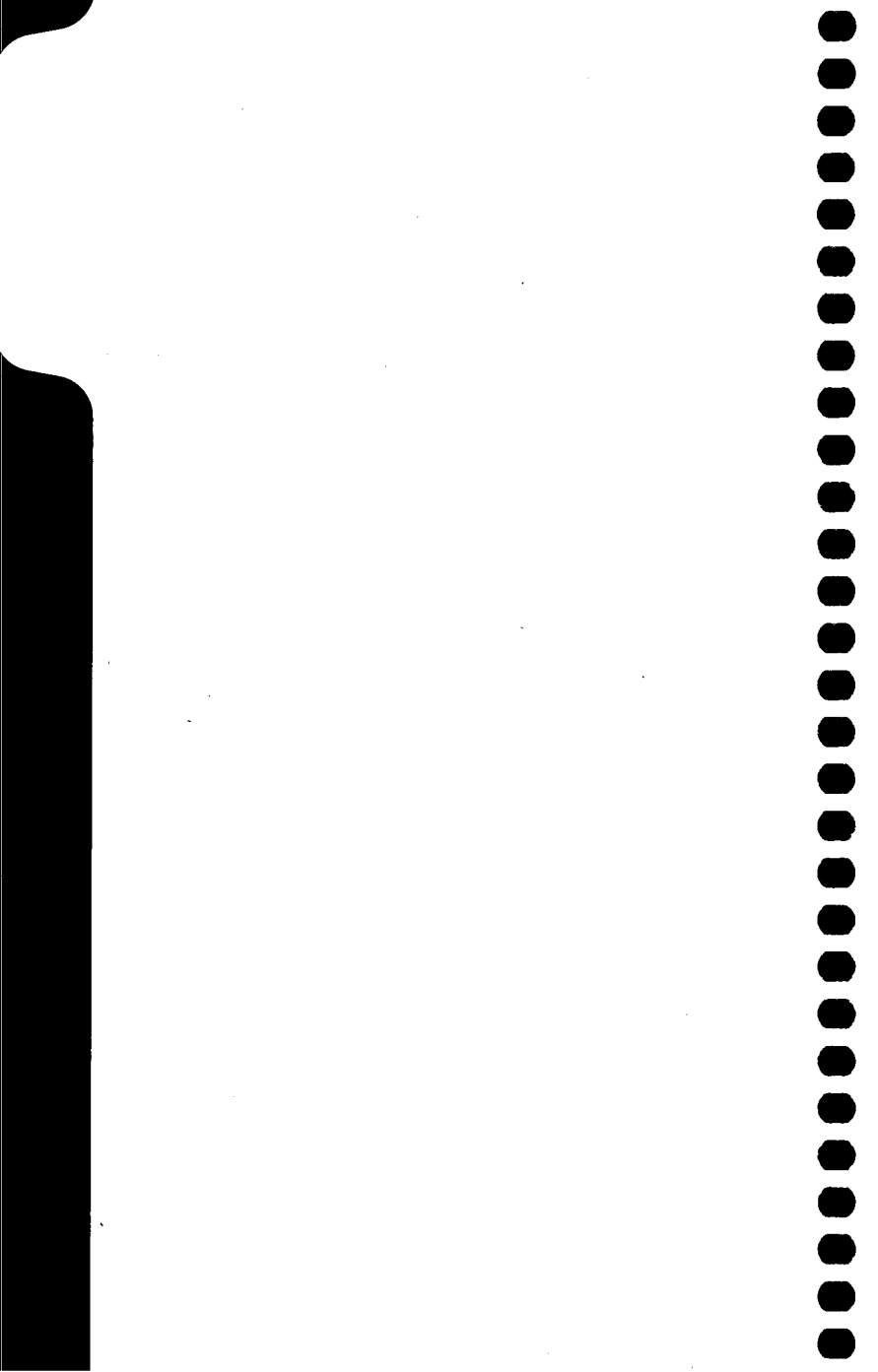
Commonly Used ICD-9-CM Codes.....	111
Baby.....	111
Feeding Problems.....	111
Jaundice.....	111
Weight and Hydration.....	111
Infant Distress.....	111
GI Issues.....	112
Mouth.....	112
Mother.....	112
Breast Issues.....	112
Nipple.....	112
Constitutional.....	113
Lactation.....	113
Obtaining Breast Pumps.....	113

References

References.....	115
-----------------	-----

Protecting, Promoting and Supporting Breastfeeding

National Initiatives..... 1
 Healthy People 2020 Breastfeeding Objectives..... 1
 2011 Surgeon General’s Call to Action 2
 National Quality Forum 2
 Joint Commission Perinatal Core Measure Set 2
 Supporting Evidence..... 3
 Agency for Healthcare Research and Quality 3
 Cost Savings 4
 Supportive Organization Statements..... 5
 Texas Department of State Health Services 5
 American Academy of Pediatrics 5
 American College of Obstetricians and
 Gynecologists 6
 American Academy of Family Physicians 7
 American Dietetic Association 8



Protecting, Promoting and Supporting Breastfeeding

National Initiatives

Healthy People 2020 Breastfeeding Objectives

Healthy People provides science-based, 10-year national objectives for promoting health and preventing disease. Since 1979, Healthy People has set and monitored national health objectives to meet a broad range of health needs, encourage collaborations across sectors, guide individuals toward making informed health decisions, and measure the impact of our prevention activity. Currently, Healthy People 2020 is leading the way to achieve increased quality and years of healthy life and the elimination of health disparities.

- Increase the proportion of mothers who breastfeed.
 - Ever breastfed to 82%
 - Any breastfeeding at 6 months to 61%
 - Any breastfeeding at 1 year to 34%
 - Exclusive breastfeeding at 3 months to 44%
 - Exclusive breastfeeding at 6 months to 24%
- Increase the percentage of employers who have worksite lactation programs to 38%.
- Decrease the percentage of breastfed newborns who receive formula supplementation within the first 2 days of life to 16%.
- Increase the percentage of live births that occur in facilities that provide recommended care for lactating mothers and their babies to 8%.

2011 Surgeon General's Call to Action

Outlines steps that can be taken to remove some of the obstacles faced by women who want to breastfeed their babies. Urges the health care system to:

- Adopt evidence-based practices as outlined in the Baby-Friendly Hospital Initiative.
- Provide health professional education and training.
- Ensure access to skilled, professional lactation care services.
- Reduce marketing of infant formula products.
- Increase availability of banked donor milk.

National Quality Forum

In 2008, the National Quality Forum endorsed 17 national consensus standards for quality metrics in perinatal care. New standards include the measurement of livebirths not discharged from the NICU who were fed by breast only since birth.

Consensus standards improve quality of care by standardizing measurement in care settings and encouraging accountability and public reporting. NQF is a non-profit, public-private partnership.

Joint Commission Perinatal Core Measure Set

The Joint Commission's Board of Commissioners replaced the Pregnancy and Related Conditions measure set with an expanded set of evidenced-based measures in 2010. A technical advisory panel comprised of experts in the perinatal care field was convened in February 2009 to select the replacement set of measures from among those endorsed for national use by the

National Quality Forum. This expanded measure set, now referred to as Perinatal Care, comprises the following measures:

- Elective delivery
- Cesarean section
- Antenatal steroids
- Health care—associated bloodstream infections in newborns
- Exclusive breast milk feeding (during the newborn's entire hospitalization) See <http://manual.jointcommission.org/releases/TJC2010B/MIF0170.html>.

Supporting Evidence

Agency for Healthcare Research and Quality

The Agency for Healthcare Research and Quality (AHRQ) is the lead Federal agency charged with improving the quality, safety, efficiency, and effectiveness of health care for all Americans. The AHRQ 2007 comprehensive systematic review and meta-analysis of breastfeeding outcomes in developed countries concluded that infants who are breastfed are at reduced risk for many childhood illnesses.

Risk is reduced by up to:

- 50% for acute otitis media (ear infection)
- 72% for hospitalization for severe lower respiratory infections
- 64% for non-specific gastroenteritis (diarrhea)
- 19-27% for type 1 diabetes
- 39% for type 2 diabetes
- 24% for obesity in adolescence or adulthood
- 27% for childhood asthma for children with no family history

- 40% for childhood asthma for children with a family history
- 42% for atopic dermatitis (a type of allergic skin disorder)
- 19% for acute lymphocytic leukemia (ALL)
- 15% for acute myelogenous leukemia (AML)
- 36% for sudden infant death syndrome (SIDS)

For maternal outcomes, a history of lactation was associated with a reduced risk of type 2 diabetes, breast, and ovarian cancer. Early cessation of breastfeeding or not breastfeeding was associated with an increased risk of maternal postpartum depression.

Cost Savings

A Pediatric Cost Analysis: The Burden of Suboptimal Breastfeeding in the United States found that if 90 percent of U.S. families could comply with medical recommendations to breastfeed exclusively for 6 months, the United States would save \$13 billion per year and prevent an excess of 911 deaths, nearly all of which would be in infants. The authors (Bartick and Reinhold, 2010) conducted a cost analysis for all pediatric diseases for which the Agency for Healthcare Research and Quality reported risk ratios that favored breastfeeding: necrotizing enterocolitis, otitis media, gastroenteritis, hospitalization for lower respiratory tract infections, atopic dermatitis, sudden infant death syndrome, childhood asthma, childhood leukemia, type 1 diabetes mellitus, and childhood obesity.

Supportive Organization Statements

Texas Department of State Health Services

- Exclusive breastfeeding for approximately the first six months of life and continued breastfeeding for one to two years and beyond is the physiologic norm and the optimal method of infant feeding.
- Breastfeeding has a mediating effect on the determinants of health by promoting optimal health for infants and mothers, reducing health disparities among population groups, and decreasing health care costs.
- Protection, promotion, and support of breastfeeding at multiple levels of society are indispensable strategies for improving public health and are integral to the Texas Department of State Health Service mission, to improve health and well-being in Texas.

American Academy of Pediatrics

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, post neonatal 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.

American College of Obstetricians and Gynecologists

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. Breastfeeding is the preferred method of feeding for newborns and infants. 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.

In addition to providing supportive clinical care for their own patients, obstetrician-gynecologists should be in the forefront of fostering changes in the public environment that will support breastfeeding, whether through change in hospital practices, through community efforts, or through supportive legislation.

The advice and encouragement of the obstetrician-gynecologist during preconception, prenatal, postpartum, and interconception care are critical in making the decision to breastfeed. Good hospital practices surrounding

childbirth are significant factors in enabling women to breastfeed. Health care providers should be aware that the giving of gift packs with formula to breastfeeding women is commonly a deterrent to continuation of breastfeeding.

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.

American Academy of Family Physicians

Breastfeeding is the physiological norm for both mothers and their children. Breastmilk offers medical and psychological benefits not available from human milk substitutes. The AAFP recommends that all babies, with rare exceptions, be breastfed and/or receive expressed human milk exclusively for the first six months of life.

Breastfeeding should continue with the addition of complementary foods throughout the second half of the first year. Breastfeeding beyond the first year offers considerable benefits to both mother and child, and should continue as long as mutually desired. Family physicians should have the knowledge to promote, protect, and support breastfeeding.

The AAFP encourages that hospital staff respect the decision of the mother who chooses to breastfeed

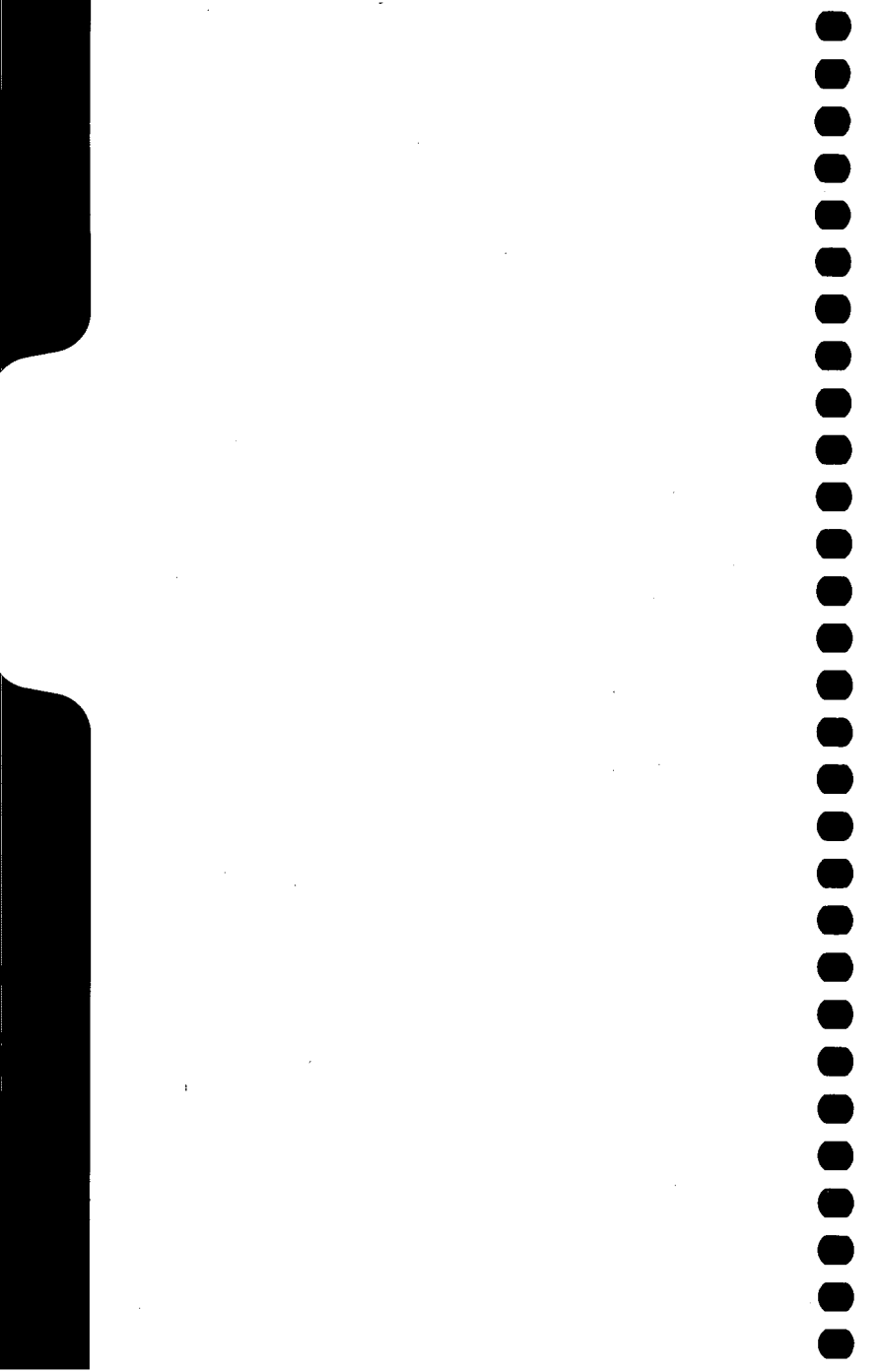
exclusively by not offering formula, water or pacifiers to an infant unless there is a specific physician order. The AAFP discourages distribution of formula or coupons for free or discounted formula in hospital discharge or physician office packets given to mothers who choose to breastfeed exclusively.

American Dietetic Association

Exclusive breastfeeding provides optimal nutrition and health protection for the first 6 months of life and breastfeeding with complementary foods from 6 months until at least 12 months of age is the ideal feeding pattern for infants. Breastfeeding is an important public health strategy for improving infant and child morbidity and mortality, and improving maternal morbidity, and helping to control health care costs.

Prenatal Lactation Support

Lactation Assessment 9
Lactation Education 10



Prenatal Lactation Support

Lactation Assessment

It is important that the obstetrical healthcare professional open dialogue with the patient about breastfeeding at this prenatal visit. The obstetric healthcare professional has a powerful impact on the patient's choice to breast-feed as well as the patient's success at exclusive breastfeeding. Research shows that 78 percent of women make their feeding choice by the end of the first trimester and that physicians are more influential than family in the infant feeding decision.

When you examine the patient's breasts:

- Check for nipple protractility.
- Check for changes in the size of breasts.
- Check for severe breast asymmetry.
- Check for lesions (herpes, yeast, dermatitis, etc.).
- Document prior breast surgery and location of any scars and incisions.
- 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 biological norm for the baby.
- Give her information about breastfeeding that is not formula-company based.

As Pregnancy Progresses

- Periodically ask about breast changes and note increases in size, since increases are a good indication that the breasts are preparing for lactation. Lack

of development of breast tissue, often presenting as tubular or widely spaced breasts could be an indicator for insufficient glandular tissue, a very rare condition.

Lactation Education

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 effort. See Resource section (pages 108-109).

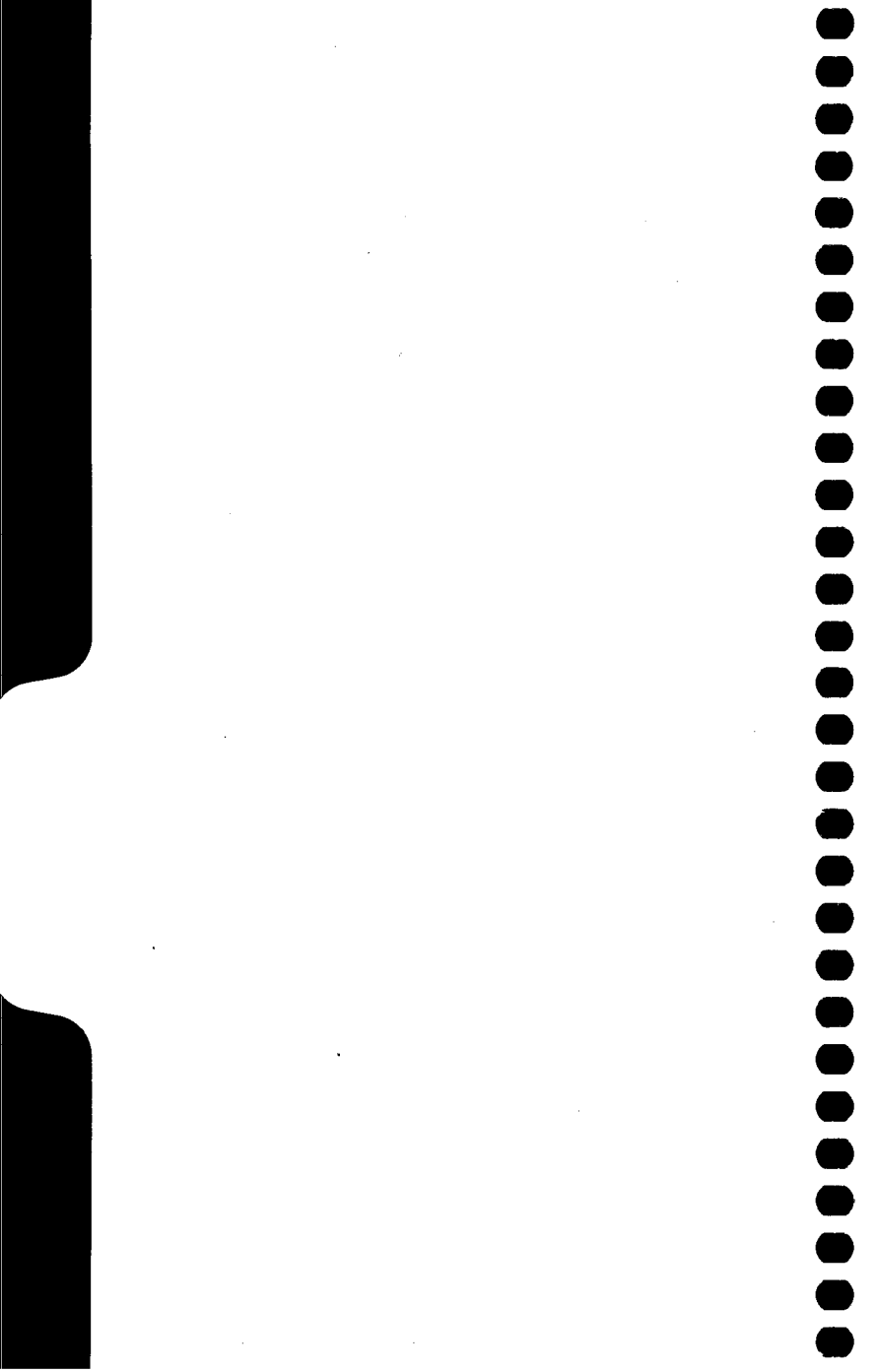
- Stress the importance of exclusively feeding colostrum.
- Newborn stomach capacity is 5-7 ml for a full-term infant. Assure the mother that the small amount of colostrum she produces will be enough.
- Encourage the mother to learn hand expression or pumping if the baby cannot breastfeed right away. Hand expression is ideal during the colostrum phase.
- Encourage the mother to breastfeed within 1 hour of birth and whenever the baby shows early hunger cues (see page 15) or every 1½-2 hours if her baby does not self-arouse).
- Discuss passage of meconium on first day with increased stooling each day thereafter.
- 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.
- Encourage the mother to engage in skin-to-skin contact with her baby. Explain that it stabilizes the baby and helps her learn her baby's cues.

- Discuss family concerns about breastfeeding. Give her positive breastfeeding information to share with the baby's father and the grandparents.
- Discuss her support system. Help her identify whom to call if she has questions about breastfeeding.
- Discuss the mother's concerns about returning to work or school and breastfeeding (See pages 87). Encourage the mother to discuss expression or pumping of breastmilk and storage with her supervisor or school officials and to work out the details before returning to work or school.



Hospital Lactation Support

All Infants.....	13
Skin-to-Skin Care.....	13
Infant Benefits	13
Maternal Benefits.....	14
Term Delivery	14
Teach Hunger and Satiety Cues	15
Normal Infant Feeding Pattern.....	16
Demand Feeding	17
Pacifier Use.....	18
Signs that Breastfeeding is Going Well	19
Preterm Delivery	20
Late-Preterm Delivery.....	21
Prior to Discharge	22



Hospital Lactation Support

All Infants

- All newborns should be inspected for cleft palates, ankyloglossia and other structural issues that may impact the success of breastfeeding.
- Skin-to-skin care is beneficial for all infants, especially preemies, and their mothers.

Skin-to-Skin Care

A Cochrane review of eight studies looking at early skin-to-skin (STS) contact—placing the naked baby prone on the mother's bare chest immediately or as soon as possible after birth and covering both with a blanket—found that mothers practicing skin-to-skin were twice as likely to be breastfeeding at 1-3 months than those who did not practice skin-to-skin, and that their infants breastfed an average of 42 days longer than those who were separated.

Infant Benefits

- Thermoregulation (Studies have shown that the baby needs less intervention to maintain temperature during STS.)
- Stabilizes heart and respiratory rate
- Improves oxygen saturation levels
- Promotes self attachment
- Reduced risk of nosocomial infection at 41 weeks corrected gestational age
- Fewer severe illnesses and lower respiratory tract infections at 6 months follow-up
- Gained more weight per day by discharge

Maternal Benefits

- Increases the mother's supply of milk
- Increased oxytocin release which helps with increased milk transfer/production
- Improves mother's confidence
- Decreases depression

Term Delivery

- All healthy, full-term babies should be dried and placed on their mother's chest, unwrapped, skin-to-skin, immediately, or as soon as possible in the first few minutes after birth, and held there in an unhurried environment for at least an hour. If the baby has not suckled by one hour after birth, a longer period of skin-to-skin contact is recommended.
- For Cesarean birth, babies should be placed skin-to-skin with their mother as soon as the mother is able to respond to her baby (within half an hour).
- Skin-to-skin contact should last for an unlimited amount of time, and never interrupted to carry out routine procedures. Should skin-to-skin contact be interrupted for any reason for clinical indication or maternal choice, it should be resumed as soon as feasible.
- Allow baby to start suckling when ready.
- When the baby starts to seek the breast, the baby can usually locate it on his own but the mother may need to move the baby closer to the areola and nipple to start suckling.
- Unnecessary washing of the breast or of the baby's hands may impede the newborn infant from using smell to locate the breast.
- Observe breastfeeding, adjust position and latch if needed.

- Mother and baby can be easily and safely transferred from the labor and delivery suite to the postpartum unit, either in a bed or wheel chair, while maintaining skin-to-skin contact.
- Unless indicated, keep breastmilk substitutes out of patient rooms, patient care, and public areas.

Early contact can have important effects on infant health, maternal behavior, and bonding. All mothers should be encouraged to hold their baby in skin-to-skin contact as soon as possible after birth in an unhurried environment, regardless of feeding intention.

Teach Hunger and Satiety Cues

Teach and encourage breastfeeding on demand, or whenever baby shows early hunger cues.

Early Hunger Cues

- Rapid eye movement under eyelids
- Small body movements (kicking)
- Small sounds
- Head bobs and moves toward mother's voice
- Lip smacking, sticking out tongue, mouth opens
- Hand to face/mouth movements

Late Hunger Cues

- Brow furrowing
- Frantic head movements
- Fussiness/crying; a very late hunger cue

“During the early weeks of breastfeeding, mothers should be encouraged to have 8 to 12 feedings at the breast every 24 hours, offering the breast whenever the infant shows

early signs of hunger such as increased alertness, physical activity, mouthing, or rooting. Crying is a late indicator of hunger.” – American Academy of Pediatrics

Teach mother to recognize satiety cues.

Satiety cues

- Suckling stops
- Spontaneous release of the breast
- Turning face from breast paired with relaxation of the hands and body

Normal Infant Feeding Pattern

- Under conditions of demand feeding, it is normal for infants to feed 8–12 times or more in a 24-hour period. Feedings occur at irregular intervals and last for varying lengths of time.
- A typical feeding lasts from 15–20 minutes, although lengths of feedings vary from feeding to feeding as well as from infant to infant.
- It is common for infants to cluster feed, with many frequent and closely spaced feedings during some parts of the day in combination with longer inter-feeding intervals in other parts of the day.
- Length of feeding should not be limited or prescribed.
- A newborn infant’s physiologic stomach capacity is estimated to be only ~7 mL at birth. By day two, the stomach capacity is estimated to be only 4 mL/kg body weight. The volume of a mother’s colostrum is well matched to this capacity. Explaining the small size of baby’s stomach to families can reinforce why frequent feedings are needed.

Demand Feeding

- Demand feeding—also known as “unrestricted,” “baby led” or “cue-based” feeding—is the practice of feeding an infant both whenever the infant signals hunger or the need to suck or whenever a mother desires to feed the baby based on the fullness of her breasts or other reasons.
- Twenty-four-hour rooming-in of infant in mother’s room is required for demand feeding to be successful. Rooming-in care is promoted by the American Academy of Pediatrics; the American College of Obstetricians and Gynecologists; the Association of Women’s Health, Obstetric and Neonatal Nurses; the International Lactation Consultant Association; the Academy of Breastfeeding Medicine; and other health organizations.
- Encourage unrestricted skin-to-skin contact to maximize feeding opportunities and to support maternal-infant bonding and infant’s physiologic stability and state organization.
- Demand feeding during the postpartum hospital stay ensures that maximal milk supply will be established, baby’s needs for nourishment will be fully met and that mother and baby will have ample opportunity to practice positioning, attachment and responsive interaction. Demand feeding also means that intake is self-regulated and overfeeding does not occur.
- Give newborn infants no food or drink other than breastmilk, unless medically indicated.
- Leave babies’ hands free (e.g. not swaddled) and avoid pacifiers and other artificial nipples so that babies can clearly signal hunger.
- Sleepy babies and reluctant feeders not showing hunger cues should be encouraged to breastfeed every 1½–3 hours.

Pacifier Use

- Use of pacifiers and artificial nipples with neonates can interrupt or reduce the frequency of breastfeeding sessions, can indicate that the mother or baby is having problems with nursing, and can interfere with establishing the mother's milk supply.
- Use should be limited to infants in which the benefit of use outweighs the risk. For instance, the use of pacifiers in premature infants may facilitate gastrointestinal development. It may also be appropriate to use pacifiers during painful procedures where skin-to-skin contact or breastfeeding cannot be feasibly used for pain management. In these instances pacifier use is appropriate and policies restricting pacifier use should incorporate this information. When used for procedural pain relief, pacifiers should be promptly discarded immediately following the procedure.

“Pacifier use in the neonatal period should be avoided. Research shows that pacifier use in the neonatal period was detrimental to exclusive and overall breastfeeding. These findings support recommendations to avoid exposing breastfed infants to artificial nipples in the neonatal period.”

–Academy of Breastfeeding Medicine

“Pacifier use is best avoided during the initiation of breastfeeding and used only after breastfeeding is well established.

- *In some infants early pacifier use may interfere with establishment of good breastfeeding practices, whereas in others it may indicate the presence of a breastfeeding problem that requires intervention.*

- *This recommendation does not contraindicate pacifier use for nonnutritive sucking and oral training of premature infants and other special care infants.*
- American Academy of Pediatrics

“Because introduction of a pacifier or bottle has the potential to disrupt the development of effective breastfeeding behavior, their use should be minimized until breastfeeding is well established. It is important to help mothers understand that substituting for or delaying breastfeedings may ultimately reduce milk supply because of the reduction in stimulation derived from infant suckling. Encouraging good breastfeeding practices should be the primary focus of counseling along with increasing the mother’s understanding that the use of pacifiers and bottles often has been associated with reduced breastfeeding.”

– American College of Obstetricians and Gynecologists

The AAFP recommends that physicians “*educate mothers about the risks of unnecessary supplementation and pacifier use,*” and “*encourages that hospital staff respect the decision of the mother who chooses to breastfeed exclusively by not offering formula, water or pacifiers to an infant unless there is a specific physician order.*”

– American Academy of Family Physicians

Signs that Breastfeeding is Going Well

Educate mother about signs that baby is getting enough milk when she gets home:

- at least 6 very wet diapers per day;
- at least 3 stools per day starting on the second 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 (after colostrum phase).

Important points of patient education

- Signs of hunger
- Signs of satiety
- Normal infant feeding patterns
- Signs that breastfeeding is going well

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 combined with hand expression within 12 hours of delivery, if possible.
- Pump/hand express 8–12 times per day or every 1½–3 hours.
- Hand express at least 5 times a day after pumping or use breast massage and compression while pumping.
- Pump or hand express both breasts for at least 10 minutes each session after milk flow has slowed, 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.
- Expect to pump an average of 750 ml per 24 hours by day 14 to ensure a good supply for the baby. (Research shows that pumping amounts vary from 451 ml to 1181 ml).
- Pump around the clock the first 2 weeks. After 2 weeks, if she has reached to goal of pumping 750

ml per day, she can increase her nighttime intervals between pumping up to 6 hours for sleep.

- Some woman may be able to solely hand express, though many women prefer the use of an electric breast pump.
- 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
 - Mother's Milk Bank in Austin, (877) 813-6455 or (512) 494-0800 or <http://www.milkbank.org/>
 - Mothers' Milk Bank of North Texas, (866) 810-0071 or (817) 810-0071 or <http://www.texasmilkbank.org/>

Late-Preterm Delivery

Because of the greater risk for re-hospitalization of the late-preterm infant, it is of vital importance to ensure that both mother and baby get off to a good start. According to The Academy Of Breastfeeding Medicine Protocol #10, the late-preterm infant is potentially at an increased risk for the following immediate morbidities such as hypothermia, hypoglycemia, excessive weight loss, dehydration, slow weight gain, failure to thrive, prolonged artificial milk supplementation, exaggerated jaundice, kernicterus, dehydration, fever secondary to dehydration, re-hospitalization, and breastfeeding failure.

- Mother and infant should be kept together as much as possible.
- Encourage skin to skin care with warm blankets covering mom and baby's body.
- Breastfeed at least every two to three hours, may need to be aroused if sleeping longer than 3 hours.
- Refer to a Lactation Consultant for a complete evaluation if infant is not transferring adequate amounts, falling asleep at latch, or not creating a good seal.

- Infant feedings must be monitored and supplementation may be needed.
- Weekly weight check until 40 weeks post-conceptual age or gaining well without supplements.
- Infant may have uncoordinated suck/swallow patterns until 40 weeks gestation; therefore, mom may need additional pumping until the baby reaches 40 weeks gestation.

Prior to Discharge

- Inform mother of community resources available for post-discharge breastfeeding support. Include:
 - Contact phone numbers, e-mail addresses and websites as available.
 - Local and national voluntary breastfeeding support groups and counselors offering after-hours help.
 - Community-based breastfeeding support resources, such as health clinics and nonprofit groups. These can often be located through WIC groups and La Leche League.
- Appointments should be made:
 - For an office postpartum hospital lactation support or home visit, within 2 days, by a physician or a physician-supervised, breastfeeding-trained, licensed health-care provider to assess breastfeeding.
 - For the infant's 2–4 week follow-up visit.
 - For the mother's 6-week follow-up visit.

Additional visits for the mother and infant are recommended until all clinical issues are resolved (e.g. weight gain is well established, jaundice resolved).

Lactation Fundamentals

Principles of Milk Supply	23
Prolactin Receptor Theory	23
Feedback Inhibitor of Lactation Theory	23
Storage capacity	24
Positioning and Latch	24
Positioning	24
Laid Back Nursing	25
Cradle Hold	25
Cross-Cradle Hold	25
Football Hold	26
Side-Lying Hold	26
Latch	26
Latch Sequence	26
Signs of Good Latch	28
Signs of Bad Latch	28
Probable Bad Latch	28



Lactation Fundamentals

Principles of Milk Supply

Prolactin Receptor Theory

Prolactin is the lactation hormone that helps a new mom make breastmilk. For the hormone to do its job, it need “receptor sites” in the breast. The prolactin receptor theory suggests that frequent milk removal in the early weeks will increase the number of receptor sites. More receptor sites means more prolactin can pass into the milk-making cells, thereby increasing milk production capacity.

- The more milk that is removed from the breast, the more receptors a mom makes. When a mom has more receptors, her lactation hormones help her body make as much milk as her baby needs.
- When a mom feeds a baby breastmilk substitute in the early weeks instead of sticking to breastmilk only, her body won't make as many receptors as she will need.
- When a mother gets off to a good start and feeds her baby only breastmilk, she will be able to make more milk and will have an easier time maintaining her milk supply for as long as she wants to breastfeed.

Feedback Inhibitor of Lactation Theory

Human milk contains a whey protein called Feedback Inhibitor of Lactation (FIL). The role of FIL appears to be to slow milk synthesis when the breast is full. Milk production slows when milk accumulates in the breast, and speeds up when the breast is emptier.

Storage capacity

The amount of milk the breast can store between feedings can vary widely from mom to mom and between breasts for the same mom and is not determined by breast size. A mother with a large milk storage capacity may be able to go longer between feedings without impacting her milk supply and her baby's growth. A mother with a small storage capacity will need to nurse her baby more frequently to satiate the baby and to maintain her milk supply.

Positioning and Latch

Positioning

In all positions, the mother should be comfortably situated, using pillows to support her back, arm and baby, when needed. The baby's ear, shoulder, and hip should be aligned. Generally, the baby should be placed so that his nose is in line with the nipple so the baby must extend his head to latch. Upon latch, the baby's chin should bury into the breast and the nose may lightly touch or tip away from the breast. Usually there is more of the bottom part of the mother's areola in the baby's mouth than the top.

Remember there is no exact way to hold and breast-feed a baby. Taking into consideration each mother/baby dyad's anatomy is very important to their comfort. 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 nipples are not sore.

Laid Back Nursing

Is a semi-reclined position that allows a newborn to have more control of his head and utilizes his stepping reflex. The mother may need several pillows behind her for support. Baby is positioned on top of mother and is allowed to search, crawl up, and self-attach to the breast.



Laid back nursing

Cradle Hold

Baby is placed on his side, tummy to tummy with mom. Baby's head rests on mom's forearm, with his nose in front of her nipple and his lower arm tucked under her breast. Mom uses her free hand to support breast if needed.



Cradle Hold

Cross-Cradle Hold

Same position as cradle hold except supporting arm and hand are reversed. The different hand angle of the supporting arm offers more head support for a newborn. Hand should be placed at base of infant's skull and not across the back of the head.



Cross-Cradle Hold

Football Hold

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 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 (stepping reflex), making it difficult to maintain latch. Flexing the baby at the hips also encourages the baby to relax his jaw and open his mouth.

Football Hold



Side-Lying Hold

The mother lies on her side facing the baby. 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. Extra pillows behind the mother's back and between her knees may also be helpful.

Side Lying Hold



Latch

Latch Sequence

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

- 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.
- 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.
- If the baby is well positioned, the lips will be flanged, and the chin will indent the 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.
- At the next feeding, start with the breast offered last at the previous feeding.



Latch Sequence

Signs of Good Latch

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

Signs of Bad Latch

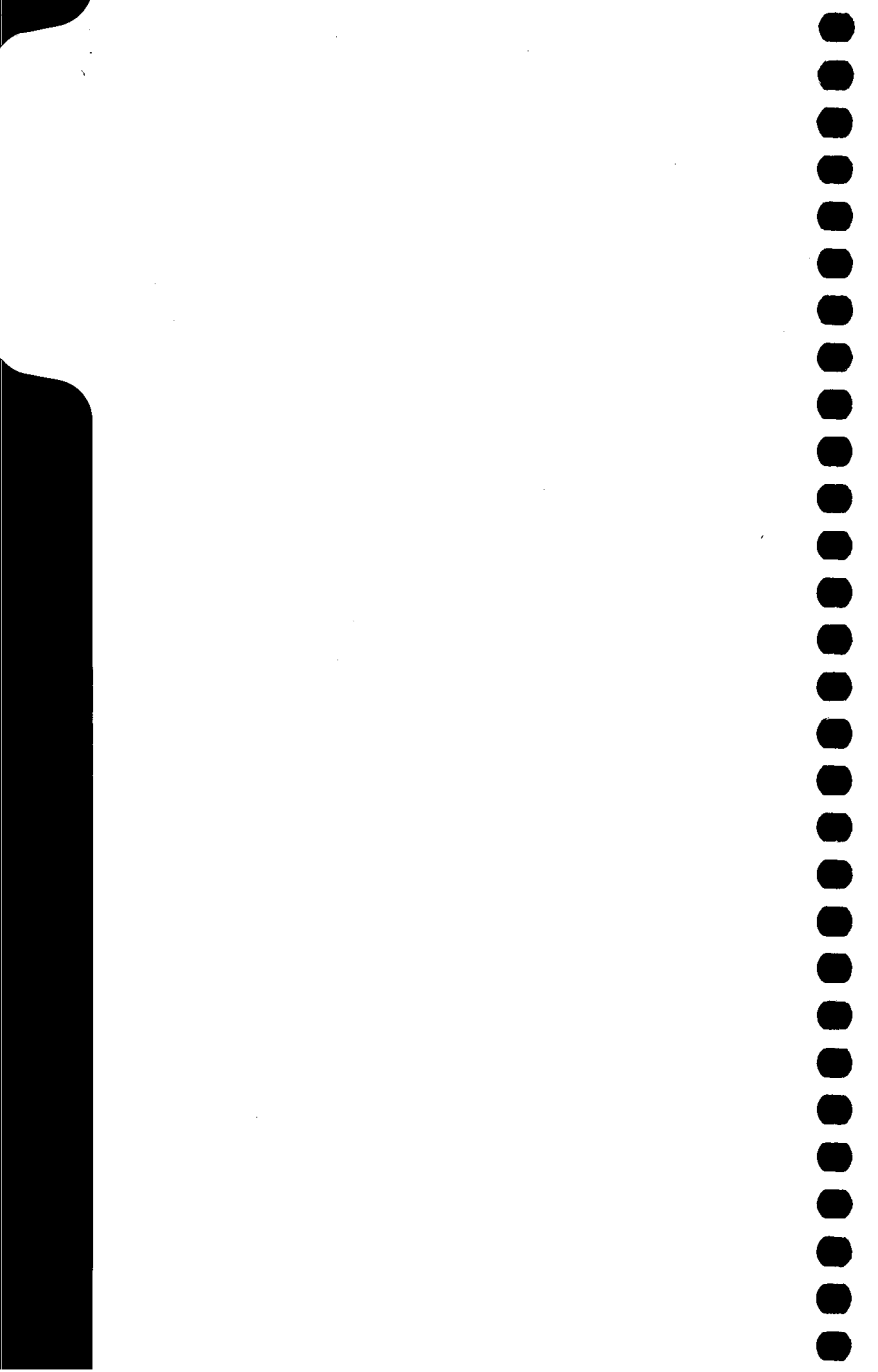
- Baby's cheeks are sucked in
- Baby's mouth moves rapidly, like a flutter
- Baby's lips are sucked in (especially the bottom one)
- Baby's head moves continuously
- Baby makes clicking, sucking noises at the breast

Probable Bad Latch

- Baby's ear, shoulder and hip are not in alignment
- Mother's nipple looks pinched or flattened after it is released from the infant's mouth
- Baby is not gaining weight
- Mother reports:
 - Sore, cracked nipples
 - Little or no breast changes after feeding
 - Inadequate stools and voiding for age
 - The baby acts hungry regardless of time at the breast
 - The baby falls asleep after a few sucks

Postpartum Growth Monitoring

Expected Growth29
 Newborns29
 Beyond 3 Months.....29
 Early Growth Faltering29
 Managing Growth.....30
 Growth Charts31
 Normal, Slower Growth32
 Later Growth Faltering.....32



Postpartum Growth Monitoring

Expected Growth

Newborns

- Weight loss of about 7 percent of birth weight or less.
- No further weight loss after day 3–5 of life.
- Return to birth weight by 7–14 days of life.
- Steady weight gain after lactogenesis, stage II.
- Weight should not differ from standard growth curves between 3 weeks and 3 months of life for either breastfed or artificially-fed infants.

Beyond 3 Months

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

- Slower growth among breastfed infants during ages 3–18 months is normal.
- Weight gain in artificially-fed infants may be abnormally faster, especially between 3 and 6 months of age.
- Breastfed infants are leaner than artificially-fed infants, with the difference in fatness most evident at 9–12 months.
- The greater degree of fatness of artificially-fed infants might persist well into childhood and beyond.

Early Growth Faltering

Excessive weight loss and delayed regain of birth weight may indicate delayed lactogenesis, low milk intake, or both.

A wide variety of infant characteristics and maternal behaviors may contribute to the inadequacy of latch and suckling; therefore, all breastfed infants should be examined after the first 2 days of life to re-evaluate breastfeeding adequacy.

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. Cesarean delivery is also associated with an increased risk of delayed lactogenesis (>72 hours after delivery).

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

- Insufficient feeding frequency
- Insufficient feeding duration
- Ineffective latch
- Ineffective suckling techniques

Early growth faltering, sufficient to warrant consideration of supplementation with donor human or breast-milk substitute, is indicated by:

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

Managing Growth

- Evaluate milk supply and milk transfer with pre- and post-feed weights.
- Ad libitum breastmilk substitutes or expressed breastmilk (EBM) until catch-up growth is complete. (Use supplemental nursing system, soft feeder, finger feeder, or cup if parents are compliant.)

- The mother should empty her breasts thoroughly by pumping followed by hand expression or nursing with breast massage at least 8 times per 24 hours.
- The infant should be fed EBM or donor human milk in lieu of breastmilk substitutes, when available.

Growth Charts

In 2006, Centers for Disease Control and Prevention, the National Institutes of Health, and the American Academy of Pediatrics convened an expert panel to review scientific evidence and discuss the potential use of the new World Health Organization growth charts in clinical settings in the United States. On the basis of input from this expert panel, CDC recommends that clinicians in the United States use the 2006 WHO international growth charts, rather than the CDC growth charts, for children age <24 months (available at <https://www.cdc.gov/growthcharts>). The CDC growth charts should continue to be used for the assessment of growth in persons age 2 to 19 years.

The recommendation to use the 2006 WHO international growth charts for children age <24 months is based on several considerations, including the recognition that breastfeeding is the recommended standard for infant feeding. In the WHO charts, the healthy breastfed infant is intended to be the standard against which all other infants are compared; 100% of the reference population of infants were breastfed for 12 months and were predominantly breastfed for at least 4 months. When using the WHO growth charts to screen for possible abnormal or unhealthy growth, use of the 2.3rd and 97.7th percentiles (or ± 2 standard deviations) are recommended, rather than the 5th and 95th percentiles. Clinicians should be aware that fewer U.S. children will be identified as underweight using the WHO charts,

slower growth among breastfed infants during ages 3 to 18 months is normal, and gaining weight more rapidly than is indicated on the WHO charts might signal early signs of being overweight.

<http://www.cdc.gov/growthcharts/>

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.

Later Growth Faltering

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

- Evaluate for underlying illness.
- Assess reasons for possible reduction in milk supply i.e. new meds, birth control, pregnancy etc.
- Optimize maternal milk production.
- Ensure infant intake of complete maternal production (if necessary, feed expressed milk).
- Evaluate milk supply and milk transfer with pre- and post-feed weights.
- 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 donor human milk or breast-milk substitute supplementation for infants younger

than 6 months. Discontinue supplementation when catch-up growth is complete.

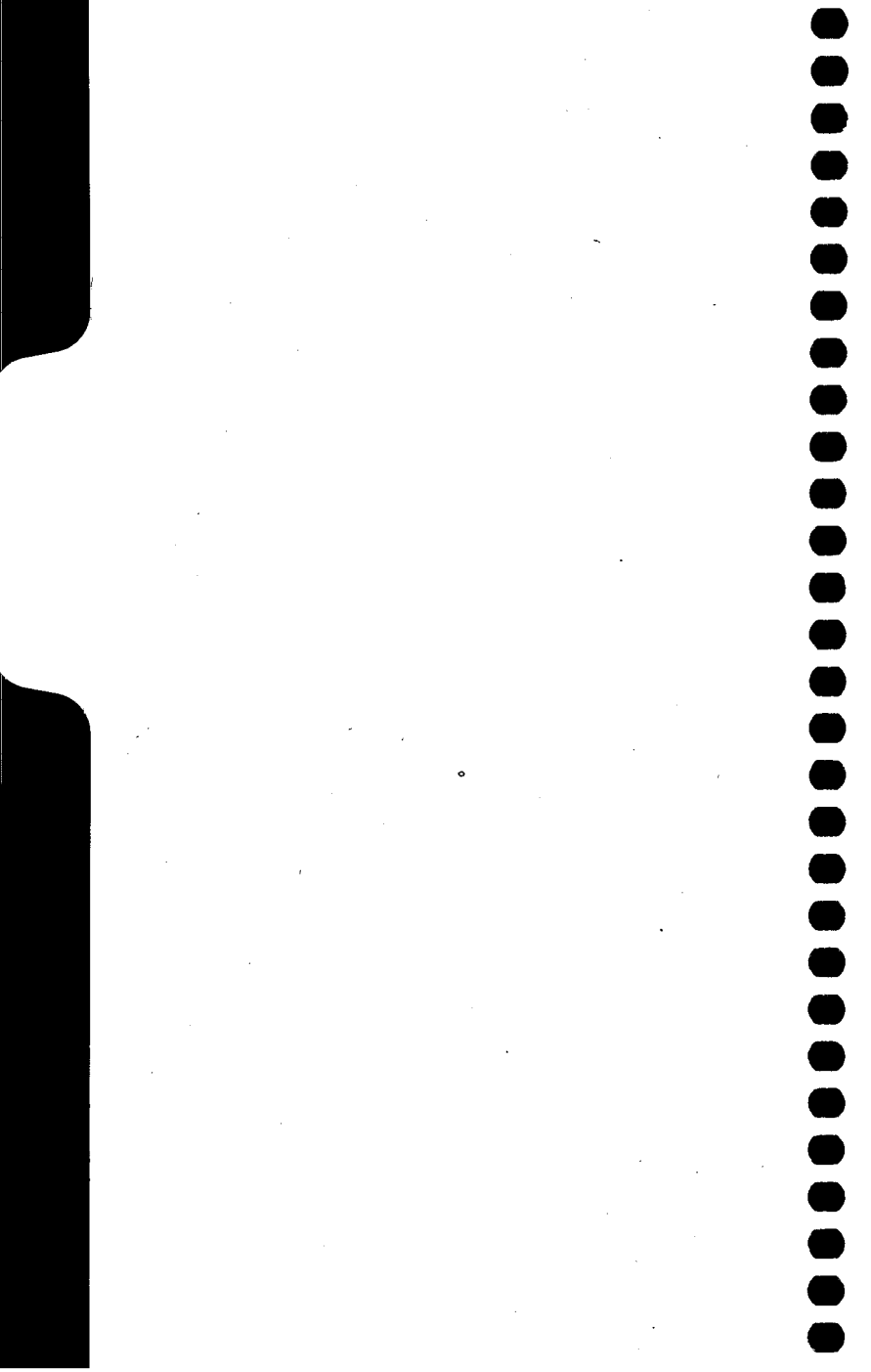
- For infants older than 6 months, consider supplementation with donor human milk, breastmilk substitute or with calorie-dense weaning foods.
- Infants who fall through growth percentiles on WHO growth charts or the NCHS curves should be evaluated. Some crossing of percentiles is normal—particularly 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 (FTT) 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 77.



Management Issues

Nipple Care	35
Nipple Sensitivity	35
Nipple Soreness/Trauma	35
Intervention	36
Treatment	37
Feeding Techniques.....	37
Comfort Measures	38
Leaking.....	38
Bloody Nipple Discharge	39
Breast Care.....	39
Engorgement	39
Plugged Ducts	43
Mastitis	44
Recurrent Mastitis	45
Breast Abscesses	47
Breast Masses	48
Breast Surgery	49
Augmentation	49
Reduction.....	49
Candidiasis	50
Infant Care	51
Growth Spurts	51
Infant Fussiness.....	52
When Babies Cry	52
Colic	52
Normal Night Waking	52
Oversupply and Overactive Milk-Ejection	52
Multiple Births	54
Low Milk Supply	54
Considerations.....	54
Causes.....	54
Treatment.....	55
Supplemental Nursing Systems	56
Relactation and Induced Lactation	56
Relactation.....	56
Induced Lactation	56
Postpartum Depression.....	58



Management Issues

Nipple Care

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.

Nipple Soreness/Trauma

Potential Causes

- Poor latch or positioning
- Incremental latch; 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
- 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)
- Dermatitis
- Biting (older child)
- Raynaud's syndrome

Signs

- Pain at latch and throughout feeding

- Pain between feedings
- Compression stripe across face of nipple
- Cracks, blisters, bleeding, and scabs
- Discomfort when anything, such as clothing or a towel, touches the nipple
- Spasmodic vasoconstriction and nipple blanching

Consequences

- 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 (yeast infection)
- fever
- warmth

Intervention

Assess to determine the cause of soreness:

- Poor positioning or latch is the most common underlying cause. The first priority is to improve positioning and latch.
- Give the mother support and help with positioning, deep latch, 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.

Treatment

If skin integrity is intact:

- Rub breastmilk into nipples at the end of feeds.
- Use hypoallergenic lanolin.

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)
- Ibuprofen or acetaminophen can be used as needed.

Feeding Techniques

- Continue frequent feedings (at least every 1½–2 hours).
- Offer breast as soon as baby shows early hunger cues.
- Begin feedings on least sore side.
- Vary positions.

- Allow baby to release breast spontaneously or break suction before removing baby from the breast.

Comfort Measures

- Use a warm compresses and hand express before feedings to soften the areola and begin the milk flow.
- Change nursing pads frequently, as soon as they become wet.
- Use cotton bras and pads and avoid pads that are lined with plastic.
- Consider using shells with holes for ventilation for short periods to keep clothing off the nipple.
- Nipple shields can be used temporarily until nipple tissue has healed.
- 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 hospital grade electric pump on low suction. If the trauma is due to poor latch and positioning, the patient can usually resume breastfeeding with little or no pain once latch and positioning are corrected and the nipples are healed. Refer to a lactation consultant for a complete evaluation immediately.

Leaking

- May be more pronounced with the first baby.
- Is heaviest during the early months of feeding.
- May act as a safety valve against engorgement.
- Breast shells may increase leaking because of the constant pressure they exert on the areola.
- Reassure mother that the leaking will resolve in time.
- Mother should change pads frequently.

- Leaking may be inhibited by pressing firmly against the nipples.

Bloody Nipple Discharge

Potential Causes

- Vascular engorgement
- Breast trauma
- Intraductal papilloma
- Fibrocystic disease

Usually temporary, evaluation is required if it persists.

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.

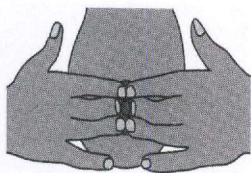
Considerations

- Important: the severity of breast engorgement is related to feeding management. Severe engorgement typically means the baby is not emptying the breast well due to poor latch, positioning, neurological impairments of the baby, or other reasons.
- Anticipatory guidance and good latch assessment is the key to preventive care in the mother.
- Health professionals report that mothers receiving large volumes of intravenous fluid therapy during the intrapartum may experience increased edema in the breast tissues during the early postpartum period. This interstitial fluid complicates engorgement, interfering with milk flow and effective latch.
- The onset is typically on day 3–5, although it can be later.
- Engorgement is temporary but can lead to more serious problems if not treated, such as plugged ducts or mastitis.
- 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.
- Unresolved engorgement may lead to down regulation of milk production.

Treatment

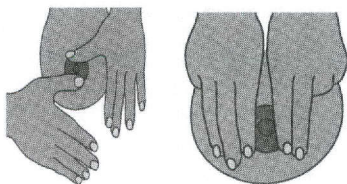
- Bed rest for both the mother and the infant.
- Ibuprofen or acetaminophen.
- Frequent feedings—every 1½–2 hours during the day, every 3–4 hours at night.
- Do not limit the length of feedings.

- Use different positions to empty all areas of the breasts.
- 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.
- Reverse pressure softening technique can be used to soften the areola and move interstitial fluid away from the breast tissue. Reverse pressure softening (RPS) is a simple intervention that has proven very helpful in the first 14 days postpartum. RPS uses gentle positive pressure to soften a 1-2 inch area of the areola surrounding the base of the nipple, temporarily moving some swelling slightly backward and upward into the breast. RPS may be applied by the health care provider, and/or taught to the mother/significant others, if necessary, over the telephone.



Multi-finger tip

Steady, gentle pressure inward toward the chest wall is exerted for a full 60 seconds or longer, focusing on the areola where it joins the base of the nipple.



*Flats of two
thumbs or fingers*

If the flats of two thumbs or fingers are being used, a more even distribution of interstitial fluid is obtained by alternating quadrants repeatedly for two or three 60-second applications each.

- Apply cold compresses after feedings for comfort.
- Cold green cabbage leaves can be helpful as a comfort measure. Replace leaves when wilted. Discontinue use when breasts soften.
- Breast shells can be worn for 30 minutes before feedings; expect some leaking.
- If engorgement is not relieved by the above measures, use a hospital grade electric pump on low suction, every 3 hours, to help soften the breast before feedings. Short-term pumping to relieve engorgement will not excessively increase milk supply.

For extreme or prolonged cases, consider (These agents have “limited” science to support them.):

- Serrapeptase® (Takeda Chemical Industries, Ltd., Osaka, Japan) (Danzen), an anti-inflammatory enzyme agent, 10 mg three times daily.*
- Enzyme therapy using a protease complex enteric-coated tablet containing 20,000 units of bromelain and 2,500 units of crystalline trypsin, another anti-inflammatory agent.*

*Academy of Breastfeeding Medicine Clinical Protocol #20

Plugged Ducts

Causes

- Missed feedings
- Inadequate emptying of the breasts with feedings, hand expression, and breast pumping
- Changes in the baby's or mother's schedule
- Anatomical variations
- Infant not emptying breast well due to congestion or other illness
- Pressure on a duct, such as that caused by clothing that is too-tight, a purse strap, restrictive bra, etc.
- Inflammation from an injury or infection

Signs and Symptoms

- There will be a palpable lump with mild, localized pain.
- The lump will usually decrease in size with removal of milk.
- Mom may express strings or grains of thickened milk.
- Area may remain reddened or tender for several days after resolution.
- Sometimes, there is a white plug at the opening of a duct on the nipple (milk bleb).

Treatment

- Nurse or empty breast frequently.
- Begin feedings on the affected breast.
- Apply moist heat to the breast before feedings.
- Massage the breast before and during feedings.
- Pump or hand express after feedings to assure complete emptying.

- Use cold compresses between feedings.
- Vary positions; experiment with unusual positions.
- For repeated plugged ducts, 1 tablespoon/day of lecithin may help.
- Take Ibuprofen or acetaminophen.

Mastitis

Mastitis is more common in older mothers, those who have had prior mastitis, and immunosuppressed mothers.

Causes

- Abrupt change in feeding frequency
- 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
- Warmth of the affected area

Treatment

- Rest frequently, preferably with the baby.
- Increase fluids for the mother.

- Increase breastfeedings, or use a hospital grade electric pump or manual expression between feedings if necessary.
- Assess latch and position.
- When fever and a lump are 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).
- 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.
 - Trimethoprim-sufamethoxazole (Bactrim, Bactrim DS, Septra, Septra DS) can also be considered for Methicillin-resistant *Staphylococcus aureus* (MRSA) in breastfeeding mothers of older infants (> 1 mo.)
- Consider culture of breastmilk (especially if symptoms are not significantly resolved 24 hours after beginning antibiotics).
- With a severe penicillin allergy, consider culturing the mother's milk to rule out possible resistances to erythromycin (MRSA).

Recurrent Mastitis

Causes

- Mother discontinued antibiotics before full treatment ended.
- The course of antibiotic treatment was too short (e.g., less than 10 days; 10–14 days is usually needed).

- Inappropriate antibiotic was used.
- Predisposing factors, such as poor latch, positioning, nipple trauma, or oversupply, were not resolved.
- Consider potential bacterial infection relating to fissures; staph may be responsible for delayed healing.
- Secondary fungal infection may exist.
- There may be an underlying breast disease (cyst or tumor).

Treatment

- Reevaluate latch and positioning if nipple trauma is present.
- Bed rest is beneficial in fighting infection.
- Do midstream culture and antibiotic sensitivity tests of bacteria from the milk or collect milk using sterilized pump equipment if available.
- Consider using a different antibiotic agent than that used to treat prior mastitis episodes in case a resistant organism is involved.
- If the patient follows 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 2011: 558).
- 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 (ultrasound, possible needle aspiration or biopsy) if a mass or a cyst is present.
- If oversupply symptoms are present, treat for oversupply (see page 52).

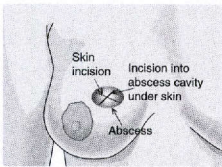
Breast Abscesses

Predisposing Factors

- Existing mastitis; 2.8 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.
 - Over 50 percent can be MRSA.
 - ANY abscess drainage should be cultured.
 - Trimethoprim-sulfamethoxazole (Bactrim, Bactrim DS, Septra, Septra DS) recommended.
- A small abscess may be drained by fine-needle aspiration using ultrasound guidance.
- Flush wound with needle.
- More than one aspiration at 48-hour intervals may be required while using antibiotics.
- Drainage catheter may be needed with larger abscesses.



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, which can cause damage to ducts.
 - Avoid postoperative engorgement.
- Milk fistula may rarely occur after an incision and drainage (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.
- 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 and make certain that the pediatric care provider is aware of the maternal history of breast surgery.

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 and saline 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.

- Ascertain type of reduction procedures which has been performed (nipple translocation procedure results in more tissue destruction than does the inferior pedicle technique).

Candidiasis

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) or against breast (plastic backed nursing pads)
- 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

- Erythema of nipple/areola may be present, with occasional satellite lesions at the periphery of the erythema.
- The baby may have a characteristic yeast diaper rash or white patches in the mouth.

Treatment

- Candidiasis should be treated promptly and with an adequate course of medication.
- The mother should apply an antifungal cream to the nipple and areola after each feeding. Excess cream can be gently dabbed off the breast prior to the next feed-

ing. The antifungal creams are poorly absorbed orally so avoid trauma that could result from meticulous cleaning of the nipple to remove all trace of medication.

- Antifungal liquid medicine should be swabbed in the baby's mouth after every feeding. Nystatin is typically recommended 4 times daily if the baby has thrush.
- Use hot water for laundry.
- Boil pump parts every day, including rubber nipples and any baby toys.
- 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.
- Wash the hands frequently.

Infant Care

Growth Spurts

The infant will seem constantly hungry during growth spurts.

Management

- Nurse more frequently and for longer periods of time.
- The infant does not need supplemental water or breastmilk substitute.
- The mother's milk supply will increase within 48–72 hours.
- Growth spurts usually subside within 5–7 days.

Infant Fussiness

When Babies Cry

- Overtired
- Overstimulated
- Lonely
- Uncomfortable

Colic

- Infant presents with intense discomfort, clenched fists, abdominal pain with legs pulling toward abdomen, and screaming.
- Colic is usually evident by 3 weeks of age.
- Colic is just as common in infants fed breastmilk substitute and switching to artificial milk can sometimes make it worse.
- Assess mother's diet for possible allergens, especially if family history is present.
- Have mother avoid cow milk products for three weeks to see if the baby is reacting to milk protein.
- If symptoms do not clear in three weeks, refer to International Board Certified Lactation Consultant or Pediatric Allergist to discuss an elimination diet for mom.

Normal Night Waking

- Supplements of breastmilk substitute 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.

Oversupply and Overactive 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 and sometimes painful 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
- May have intense pain with the first let-down reflex
- Sore nipples
- Breasts never feel comfortable or refill very quickly
- 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, then latch again.
- Nurse the baby “uphill”; the mother lies on her back or semi-reclined with the baby nursing lying on top of her (place a towel under the mother).
- Use only one breast per 2- to 3-hour period, then switch to the other breast for the next 2 to 3 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.

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.

Low Milk Supply

Considerations

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

Causes

- Infrequent breastfeeding
- Supplementation with breastmilk substitute or other liquids
- Lack of milk producing breast tissue
- Medications including: Estrogen-containing products, pseudoephedrine, methylergonovine, cabergoline, and possibly bupropion

Treatment

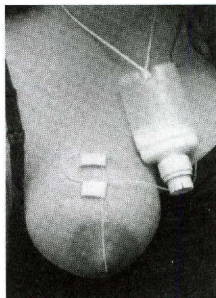
- Suggest moist heat to be applied 3–5 minutes prior to feeding. This will improve perfusion to the area and enhance the milk-ejection reflex (let-down).
- Use breast massage and compression during feedings.
- Feed frequently, whenever baby shows early hunger cues—about 8 to 12 times per day.
- Avoid long intervals between feedings, no more than one 5 to 6-hour interval in 24 hours, include night feedings.
- Encourage relaxation techniques.
- Pump or hand-express between feedings.
- The frequency of feedings is more important than their duration.
- If breast pumping, recommend manual expression immediately following pumping to increase stimulation and optimal breast emptying.
- Metoclopramide may be used to stimulate prolactin levels in some mothers; use 10 mg 3 times daily; discontinue use after 7 days if no results are seen, as some women do not respond and long term use is correlated with depression and tardive dyskinesia.
- Domperidone, although not available in the USA, may be used to stimulate prolactin levels in mothers and thus milk production. Use 10-20 mg 3 times daily; discontinue after 7-14 days if no results are observed. Side effects include: gut cramps, diarrhea, and headache.
- Fenugreek is believed effective at increasing milk supply in some women; ~2-3 capsules t.i.d (6 gm/day in divided doses).

For reliable information on medications and lactation, contact the InfantRisk Center at www.infant-risk.org or (806)352-2519 for more information.

Supplemental Nursing Systems

Supplemental nursing system

- If a supplement is medically indicated, use alternative feeding methods, such as a supplemental nurser cup or finger feeding with a syringe or supplemental nurser. For video examples of cup and finger feeding see:



<http://www.youtube.com/watch?v=x369pGYgBNQ&feature=related> and <http://www.youtube.com/watch?v=9TSfWiGYwfm&feature=related>.

Relactation and Induced Lactation

Relactation

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

Induced Lactation

Create a milk supply for an adopted baby or increase an existing milk supply to feed an adopted baby while still feeding a toddler.

Discuss Mother's Goals and Obligations

- Find out why she wishes to relactate or induce lactation.
- 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?
- What support system does she have?
- How does her partner feel about her decision?

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 an adequate amount of 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 she produced.

Babies' Cooperation

- 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 the Texas Lactation Support Helpline at 1 (800) 514-6667 which has lactation consultants on staff to answer calls.

*ABM Clinical Protocol #9: Use of galactagogues in initiating or augmenting maternal milk supply, 2004.

Postpartum Depression

- Approximately 15 to 25 percent of new mothers develop postpartum depression (PPD), anxiety, or posttraumatic stress disorder.
- Breastfeeding mothers have a lower risk of PPD, but still may experience it.
- Mothers with a history of childhood sexual abuse or sexual assault are at particularly high risk for PPD.
- Other causes for PPD include history of psychological trauma, lack of support, a difficult birth experience, prior childbearing loss, life stress, and infant health issues.
- Breastfeeding mothers are often told to either wean or supplement with artificial milk to help them recover from PPD. However, depressed mothers often report that breastfeeding is the only thing going well for them. Mothers who want to continue breastfeeding should be supported in that because it helps them recover and also protects their babies from the potential negative effects of PPD.

- Breastfeeding is particularly helpful in PPD because it down regulates the stress response and improves mothers' quality and quantity of sleep.
- Sudden weaning can worsen existing PPD because of a sudden drop in prolactin levels.
- While breastfeeding lowers the risk for PPD, breastfeeding problems, particularly pain, increase the risk and should be addressed promptly.

Screening questions

- Ask mothers how many minutes it takes them to fall asleep (more than 25 minutes is predictive of PPD).
- Ask if mothers are feeling anxious, worried or scared for no good reason. These symptoms are also predictive of PPD.
- Ask mothers if they have feelings of sadness, depression or are not experiencing pleasure. Symptoms that have persisted for two or more weeks indicate a possible postpartum mood disorder.

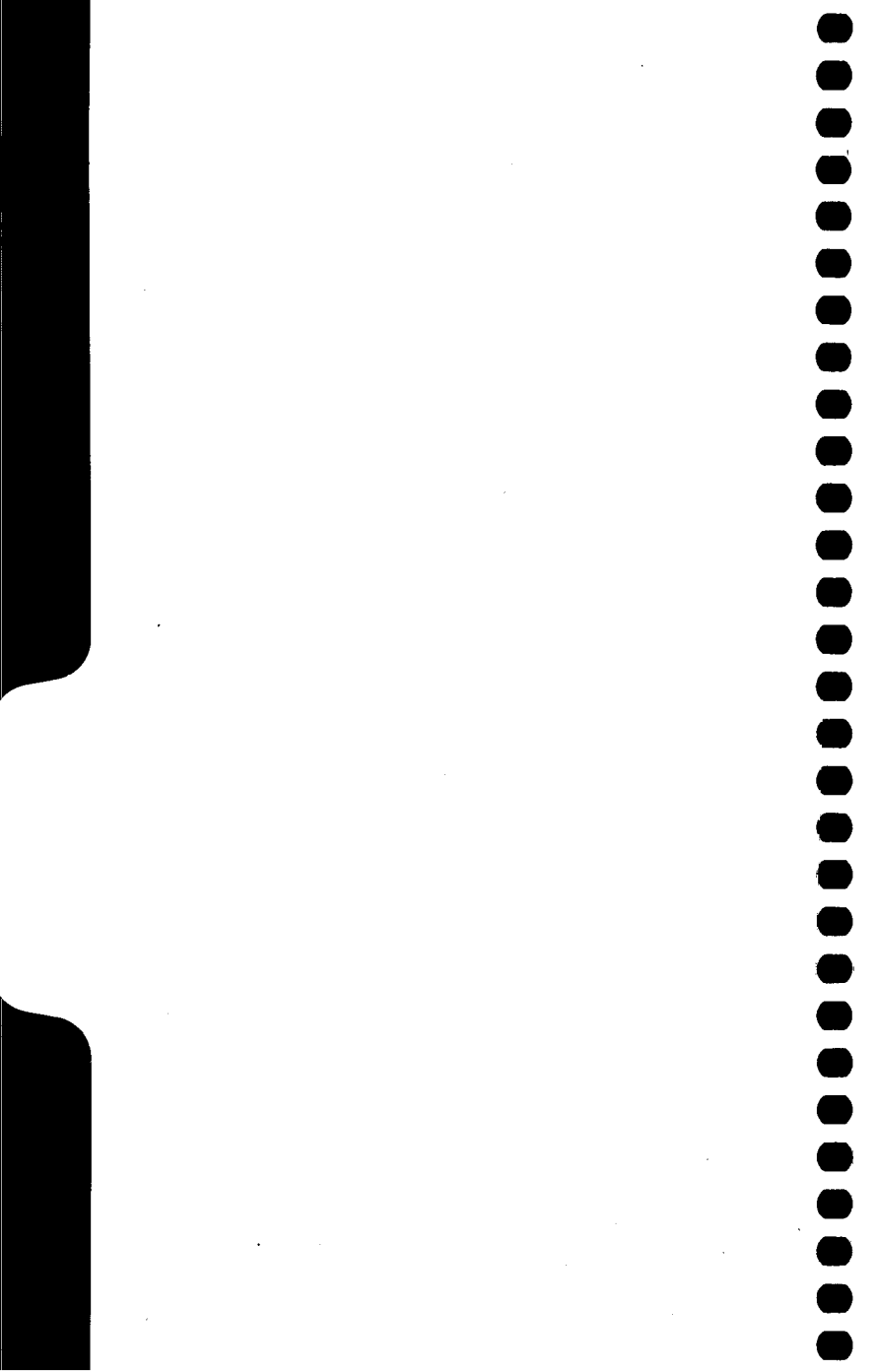
Treatments

- PPD has a serious impact on both mother and baby and should be treated.
- Treatments with demonstrated efficacy include medications, psychotherapy, long-chain Omega-3 fatty acids (EPA and DHA), exercise and St. John's Wort.
- All treatments for PPD are compatible with breastfeeding, except for the MAOI class of antidepressants.



Infant Medical Conditions

Hypoglycemia	61
Jaundice	65
Academy of Breastfeeding Medicine Guidelines	65
Physiologic Jaundice	66
Breastmilk Jaundice.....	69
Prematurity	69
Infant of a Diabetic Mother	71
Intrauterine Growth Retardation	72
Down Syndrome (Trisomy 21)	72
Cleft Lip and Palate	73
Neurological Problems	74
Diarrhea	74
Upper Respiratory Tract Infections.....	75
Inborn Errors of Metabolism	76
Galactosemia	76
Phenylketonuria	76
Maple Syrup Urine Disease.....	77
Tyrosinemia.....	77
Cystic Fibrosis and Meconium Ileus	77
Failure to Thrive vs. Slow Weight Gain	77



Infant Medical Conditions

Hypoglycemia

- Transient hypoglycemia with blood glucose concentrations as low as 30 mg/dL in the immediate newborn period is common, occurring in almost all mammals. In healthy, normal term human infants, even if early enteral feeding is withheld, this phenomenon is self limited, as glucose levels spontaneously rise within 2 to 3 hours.
- For management of hypoglycemia, review the “Clinical Report—Postnatal Glucose Homeostasis in Late-Preterm and Term Infants,” *Pediatrics* 2011;127:575–579 available online <http://aappolicy.aappublications.org>.

Causes

- The most common cause for hypoglycemia is hyperinsulinemic states.
- Hypoglycemia 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.
- Hypoglycemia is 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:

- Small for gestational age (SGA); <10th percentile for weight

- Large for gestational age (LGA); >90th percentile for weight*
- Discordant twin; weight 10% below larger twin
- Infant of diabetic mother, especially if poorly controlled
- Low birth weight (<2500 g)
- Perinatal stress; severe acidosis or hypoxia-ischemia
- Cold stress
- Polycythemia (venous Hct >70%)/hyperviscosity
- Erythroblastosis fetalis
- Beckwith-Wiedemann syndrome
- Microphallus or midline defect
- Suspected infection
- Respiratory distress
- Known or suspected inborn errors of metabolism or endocrine disorders
- Maternal drug treatment (e.g., terbutaline, propranolol, oral hypoglycemics)
- Infants displaying symptoms associated with hypoglycemia

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 healthy term infants is not only unnecessary, but is potentially harmful to the establishment of a healthy mother-infant relationship and successful breastfeeding patterns. This recommendation has been supported

by the World Health Organization, the AAP, and the National Childbirth Trust of the United Kingdom.

- Measure blood-glucose concentrations only in at-risk infants and those with clinical symptoms compatible with hypoglycemia.
- Bedside glucose tests may be used for screening, but laboratory levels must confirm results before a diagnosis of hypoglycemia can be made, especially in asymptomatic infants.
- 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.

TABLE 1. RECOMMENDED LOW THRESHOLDS:
PLASMA GLUCOSE LEVEL

<i>Hour after birth</i>	<i>≤5th Percentile PGL (mg/dL)</i>
1–2 (nadir)	28 (1.6 mmol/L)
3–47	40 (2.2 mmol/L)
48–72	48 (2.7 mmol/L)

Alkalay AL, H.B. Sarnat, Flores-Sarnat L., et al. 2006. Population meta-analysis of low plasma glucose thresholds in full-term normal newborns. *Am J Perinatol.* 23:115–119.

Treatment

Asymptomatic Healthy Term Infant

- Continue breastfeeding (approximately every 1 to 2 hours) or feed 3 to 10 mL/kg of expressed breast milk or substitute nutrition.

- Consider supplemental feeding at the breast as opposed to introducing a bottle at this early time.
- Skin-to-skin contact of mother and infant will maintain normal infant body temperature and reduce energy expenditure while stimulating suckling and milk production.
- Recheck blood glucose concentration before subsequent feedings until the value is acceptable and stable.
- If the neonate is unable to suck or feedings are not tolerated, avoid forced feedings (e.g., nasogastric tube) and begin intravenous (IV) therapy.
- If glucose remains low despite feedings, begin IV glucose therapy and adjust intravenous rate by blood glucose concentration.
- Breastfeeding may continue during IV glucose therapy when the infant is interested and will suckle. Wean IV glucose as serum glucose normalizes and feedings increase.
- Carefully document signs, physical examination, screening values, laboratory confirmation, treatment and changes in clinical condition (i.e., response to treatment).

Asymptomatic Late-Preterm and Term Infant in High Risk Categories

- Birth to 4 hours: Initial feed within 1 hour, Initial screen <25 mg/dL
 - 25 – 40 mg/dL, feed and check in 1 hour
 - <25 mg/dL, IV glucose
- 4 to 24 hours: Continue feeds q 2-3 hours, screen glucose prior to each feed, screen <35 mg/dL
 - 35 – 45 mg/dL, feed and check in 1 hour
 - <35 mg/dL, IV glucose

www.pediatrics.org/cgi/doi/10.1542/peds.2010-3851

Symptomatic Late-Preterm and Term High Risk Infant (plasma glucose levels <40 mg/dL)

- Initiate intravenous 10% glucose solution.
- Do not rely on oral or intragastric feeding to correct extreme or symptomatic hypoglycemia.
- The glucose concentration in symptomatic infants should be maintained ≥ 45 mg/dL.
- Adjust intravenous rate by blood glucose concentration.
- Encourage frequent breastfeeding after the relief of symptoms.
- Monitor glucose concentrations before feedings as the IV is weaned, until values are stabilized off intravenous fluids.
- Carefully document signs, physical examination, screening values, laboratory confirmation, treatment, and changes in clinical condition.

Jaundice

Academy of Breastfeeding Medicine Guidelines

For management of hyperbilirubinemia, review the Academy of Breastfeeding Medicine's Clinical Protocol #22: Guidelines for Management of Jaundice in the Breastfeeding Infant Equal to or Greater Than 35 Weeks' Gestation—available online at www.bfmed.org.

Risk Factors

Maternal

- Diabetes
- Rh sensitization

Infant

- Bruising
- Prematurity
- Late Preterm/Near Term
- ABO hemolytic disease

Physiologic Jaundice

- Onset at 2–3 days after birth. Peaks at 3–5 days.
- Occurs in more than 60 percent of all infants.
- Peak bilirubin level averages 5–6 mg/dl at 36 hours 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.
- 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, sepsis, respiratory distress, internal bleedings (bruising), or inborn errors of metabolism.
- Feedings with water do not lower bilirubin levels. Adequate feedings with human milk promotes intestinal motility and thus more bilirubin excretion in stools

and less intestinal bilirubin absorption. Exaggerated physiologic jaundice in inadequately breastfed infants may also be called “lack-of-breastmilk jaundice” or “starvation 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.
- 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, sepsis, respiratory distress, and infections.

Treatment

- Initiate breastfeeding in the first hour.
- Encourage exclusive breastfeeding.
- Feeding anything prior to the onset of breastfeeding delays the establishment of good breastfeeding practices by the infant and delays establishment of adequate milk production, increasing the risk of starvation and exaggerated hyperbilirubinemia.
- Avoid supplementing breastfed infants with water, glucose water, or breastmilk substitute.
- Supplementation with expressed breastmilk, banked human milk, or breastmilk substitute (in that order of preference) should be limited to infants with at least one of the following:
 - A clear indication of inadequate intake as defined by weight loss in excess of 10 percent after attempts to correct breastfeeding problems.
 - Failure in milk production or transfer adjusted for duration of breastfeeding and documented by pre-

and post-feeding weights after attempts to increase milk production and milk transfer.

- Evidence of dehydration defined by significant alterations in serum electrolytes, especially hypernatremia, and/or clinical evidence of significant dehydration (poor skin turgor, sunken fontanelle, dry mouth, etc.).
- Optimize breastfeeding management from the beginning.
- Assure ideal position and latch from the outset by having a healthcare provider trained in breastfeeding management (nurse, lactation consultant, lactation educator, midwife, or physician) evaluate position and latch, providing recommendations as necessary.
- Educate the mother about early feeding cues.
- Continued and frequent breastfeeding, at least 8–12 times a day, should be encouraged.
- In more severe cases (total serum bilirubin in excess of 20 mg/dl), phototherapy, supplementation with breastmilk substitute, and/or temporary interruption of breastfeeding with replacement artificial feeding may be needed.
- If baby needs to be supplemented, supplement first with mother's own milk, then donor human milk and then elemental (casein-hydrolysate) breastmilk substitute. Elemental breastmilk substitute helps to reduce bilirubin levels faster than other breastmilk substitutes because they prevent bilirubin reabsorption (Gourley et al., 1999).
- Encourage mother to use an at-breast supplementer when using an breastmilk substitute to help maintain her milk supply and keep baby practicing at the breast. Suggest pumping with a hospital-grade breast pump after every feeding to increase her milk supply.
- If temporary weaning is advised, then encourage the mother to pump with a hospital-grade breast pump

every 2 to 3 hours to establish and maintain her milk supply.

Breastmilk Jaundice

- Onset occurs 5 to 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.
- 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 breastmilk substitute, and/or temporary interruption of breastfeeding with breastmilk substitute 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 (512) 494-0800 or Mother's Milk Bank of North Texas (817) 810-0071.

- On average, the suck reflex in premature infants 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.

Protocol

- 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 care provides stabilization for the infant and bonding opportunities for mom and other family members.
- Transition infant to the breast while weaning from gavage feedings.
- If bottle-feeding is necessary, early initiation of non-nutritive breastfeedings, offered before each bottle-feeding, is beneficial for the premature infant to learn how to nurse.
- Non-nutritive 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 pumping with a hospital-grade electric pump is required for establishing milk supply.
 - The mother should begin pumping as soon as possible.
 - Recommend pumping within the first 6 hours.

- Baseline milk production on day 6–7 postpartum is highly predictive of adequacy of milk volume (defined as ≥ 500 ml/day) at 6 weeks postpartum.
- Pump every 2 to 3 hours the first 2 weeks postpartum.
- Highest milk volume is obtained with double pumping and massage, hand expression after pumping. (Morton et al 2009).

Donor Human Milk

- The Mother's Milk Bank at Austin and Mother's Milk Bank of North Texas human milk banks follow strict guidelines to ensure the safety of banked human milk.
- 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.
- To learn more about donor milk processing or how to obtain donor milk, call (512) 494-0800 or visit www.mmbaustin.org for Austin or (817) 810-0071 or www.mmbnt.org for the Fort Worth bank.

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.
- For treatment of hypoglycemia, see pages 61.

Intrauterine Growth Retardation

Considerations

- High risk for hypoglycemia
- High risk for cold stress (and associated hypoglycemia)
- Voracious feeders
- 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.

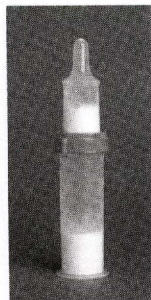
Effects on Nursing

- Feeding difficulties are to be expected; poor suck and uncoordinated suck and swallow are typical.
- Generalized hypotonia affects positioning 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.



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

- Implement skin-to-skin care.
- 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 increases 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.

- The AAP endorsed and accepted as its policy the following guideline: “Managing Acute Gastroenteritis Among Children: Oral Rehydration, Maintenance, and Nutritional Therapy from the Centers for Disease Control and Prevention” (MMWR Recomm Rep. 2003;52(RR-16):1–16. Available at: www.cdc.gov/mmwr/PDF/RR/RR5216.pdf).

Treatment

- Continue breastfeeding throughout the diarrhea.
- If the infant becomes dehydrated, rehydrate initially for 8 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

- 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

- The baby may breastfeed.
- Keep the baby’s nose clear with a bulb syringe so that he can nurse.
- Breastfeed with the baby’s head higher than his body, laid back or football hold, so that congestion can drain.

Inborn Errors of Metabolism

For a comprehensive reviews see:

- Newborn Screening Fact Sheets, Pediatrics Vol. 118 No. 3 September 2006, pp. e934-e963.
- Newborn Screening Expands: Recommendations for Pediatricians and Medical Homes—Implications for the System Pediatrics, Jan 2008; 121: 192 - 217.

Galactosemia

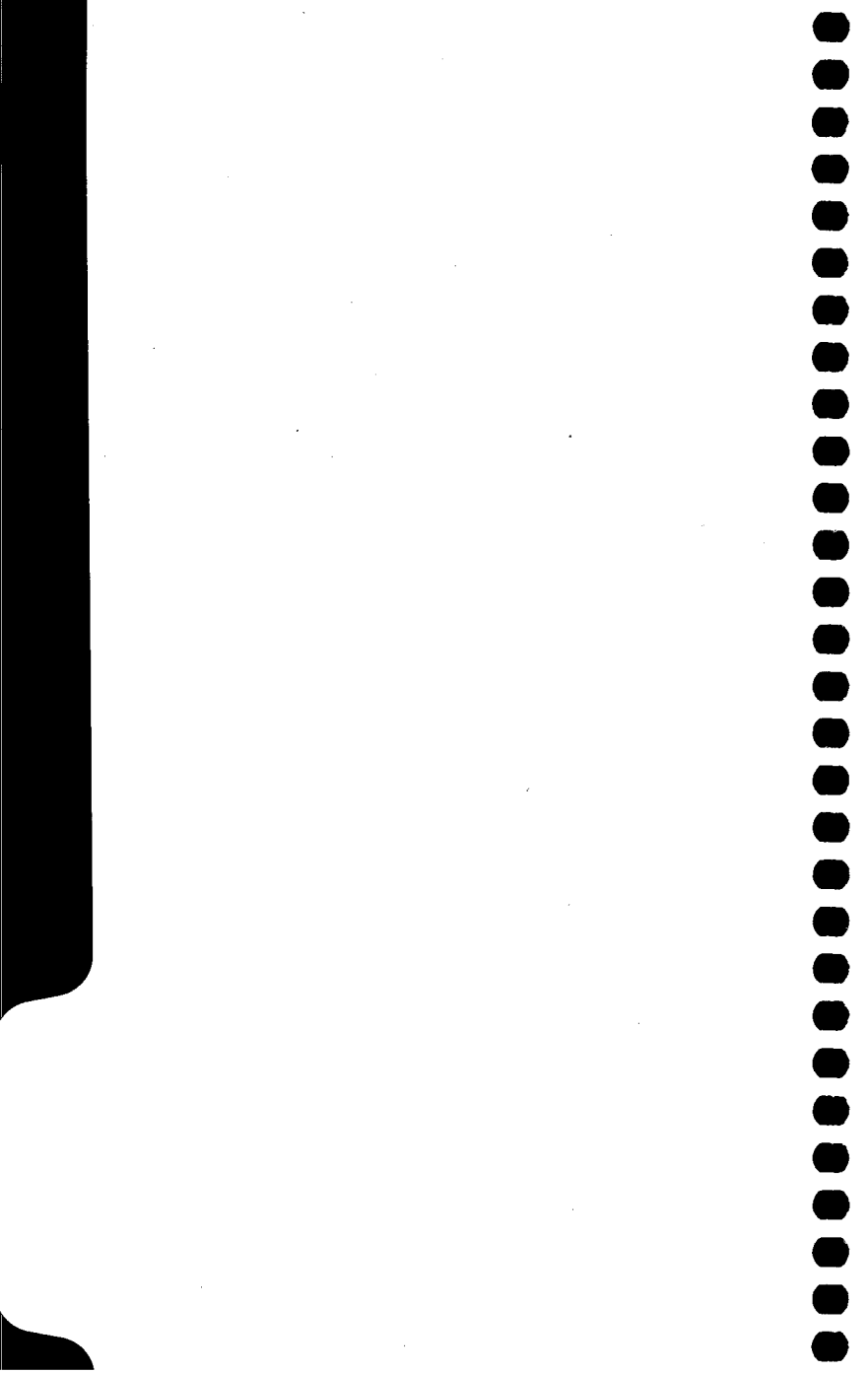
- Breastfeeding is contraindicated in infants with classic galactosemia (galactose 1-phosphate uridylyltransferase deficiency). According to the AAP, there are no other conditions of the infant for which breastfeeding is contraindicated. Galactosemia is caused by the inability of the baby to break down galactose, which is a component of the milk sugar lactose (found in both human milk and some breastmilk substitute).
- Affected infants must be given lactose-free breastmilk substitute 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.

Phenylketonuria

- Infants with Phenylketonuria (PKU) can be given breast milk along with Phe-free formula under the direction of a metabolic dietitian.
- Serum levels of phenylalanine must be carefully monitored.
- Breastfeeding usually provides only partial nutrition to such babies, providing them only the small amount of phenylalanine that they need for growth.

Contraindications and Medications

Contraindications to Breastfeeding	81
Medications and Breastfeeding	81
Choosing Medications	81
Instructions to Mothers	82
Contraindicated Medications	83
Lactation Risk Categories	83
Medication Resources	85



- The AAP endorsed and accepted as its policy the following guideline: “Managing Acute Gastroenteritis Among Children: Oral Rehydration, Maintenance, and Nutritional Therapy from the Centers for Disease Control and Prevention” (MMWR Recomm Rep. 2003;52(RR-16):1–16. Available at: www.cdc.gov/mmwr/PDF/RR/RR5216.pdf).

Treatment

- Continue breastfeeding throughout the diarrhea.
- If the infant becomes dehydrated, rehydrate initially for 8 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

- 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

- The baby may breastfeed.
- Keep the baby’s nose clear with a bulb syringe so that he can nurse.
- Breastfeed with the baby’s head higher than his body, laid back or football hold, so that congestion can drain.

Inborn Errors of Metabolism

For a comprehensive reviews see:

- Newborn Screening Fact Sheets, Pediatrics Vol. 118 No. 3 September 2006, pp. e934-e963.
- Newborn Screening Expands: Recommendations for Pediatricians and Medical Homes—Implications for the System Pediatrics, Jan 2008; 121: 192 - 217.

Galactosemia

- Breastfeeding is contraindicated in infants with classic galactosemia (galactose 1-phosphate uridyltransferase deficiency). According to the AAP, there are no other conditions of the infant for which breastfeeding is contraindicated. Galactosemia 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 breastmilk substitute).
- Affected infants must be given lactose-free breastmilk substitute 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.

Phenylketonuria

- Infants with Phenylketonuria (PKU) can be given breast milk along with Phe-free formula under the direction of a metabolic dietitian.
- Serum levels of phenylalanine must be carefully monitored.
- Breastfeeding usually provides only partial nutrition to such babies, providing them only the small amount of phenylalanine that they need for growth.

Maple Syrup Urine Disease

- Breast milk contains lower concentrations of protein than breastmilk substitute, so the onset of symptoms of MSUD among breastfed infants may not present until the second week of life.
- Symptoms tend to appear before days 4 and 7 in infants fed breastmilk substitute.
- Management by a metabolic dietitian, protein restriction and, in most cases, supplementation with a medical food product is required.

Tyrosinemia

- Most cases of tyrosinemia can be controlled by breastfeeding or by restricting protein intake.

Cystic Fibrosis and Meconium Ileus

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

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 letdown, 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 for Infant

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

Considerations for Mother

- The most common cause of slow weight gain or failure to thrive is mismanagement of breastfeeding, which includes improper positioning and latch, low frequency or duration of feedings, rigid feeding schedules, absence of night feedings, and not allowing infant to finish the first breast first.
- 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 breastmilk substitute in a supplemental nursing system.
- Possible referral to an occupational or speech therapist for suck and swallow evaluation.
- Assess mother for lack of milk-making tissue or insufficient glandular development. These moms typically have little to no breast changes during pregnancy and postpartum; possibly marked differences in shape of breasts (tubular shaped or widely spaced 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 containing products (e.g. oral contraceptives) and estrogenic medications, pseudoephedrine, methylergonovine, cabergoline, possibly bupropion, and progestin-only contraceptives before 6 weeks postpartum in some women.
- Assess mother for severe diet restriction, smoking and alcohol use, history of breast surgery, and pregnancy.



Contraindications and Medications

Contraindications to Breastfeeding

- Infant 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 HIV, HTLV-I, or HTLV-II
- An infant whose mother is being treated with certain radioactive isotopes, 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.

Choosing Medications

Whenever possible:

- Medications that have an L1 to L3 rating are generally preferred. Avoid drugs with L4 and L5 ratings. Choose a medication that will not affect the breastfeeding infant or the mother's milk supply.
- Avoid using estrogen-containing birth control preparations at any time.
- Avoid using progestin-only birth control preparations in the first 1-2 weeks postpartum.

- Always start with a progestin-only preparation and follow the mother closely.
- Be more cautious with medications in newborns and young infants. As the infant grows, it can tolerate and eliminate small amounts of drugs. Older infants (4–18 months) can tolerate medications much better than newborns.
- Preferably, choose a medication that has high protein binding, like 90-99 percent. Such medications are more often held in the mother's bloodstream and do not transfer to the milk and the baby.
- Encourage breastfeeding mothers to stay away from street drugs (as with all patients).
- Inform mothers with depression that antidepressants are generally considered safe for mom and infant. Untreated depression is dangerous for infants.
- Anything applied to the nipple (e.g., vitamin E oil) is likely to be absorbed by the infant. Use only minimal amounts. If she can see it, she has used too much. Remind nursing mothers to be very cautious.

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. Make sure to check the peaking time (T_{max}) as you do not want it peaking during the next feeding either.
- 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://www.infantrisk.org>.

- Radiocontrast agents: iodinated radiocontrast agents used for all CT scans are safe for breastfeeding mothers. These include: Omnipaque, Conray, Cholebrine, Telepaque, Optiray and many more. Contrast agents used for MRI scans are safe for breastfeeding mothers. These include: Magnevist and Prohance. They have gadolinium ions instead of iodine and do not enter milk. All contrast agents that have been reviewed have low oral absorption and low milk levels. Taken together, they do not normally pose a problem for a breastfeeding infant.

Contraindicated Medications

- Cabergoline (Dostinex) except in hyperprolactinemia
- Ergotamine tartrate
- Bromocriptine mesylate (Parlodel) except in hyperprolactinemia
- Anticancer agents (Brief interruption is required for some)
- Radioactive Iodine-131, Iodine-125
- Thallous Chloride Tl 201 (2 week cessation)
- Any potassium or sodium iodide salts such as SSKI, etc. (Betadyne or providone iodine douches)

Lactation Risk Categories

From Medications and Mother's Milk Thomas Hale, 2010 Fourteenth Edition

- L1 Safest: Drug which has been taken by a large number of breastfeeding mothers without any observed increase in adverse effects in the infant. Controlled

studies in breastfeeding women fail to demonstrate a risk to the infant and the possibility of harm to the breastfeeding infant is remote; or the product is not orally bioavailable in an infant.

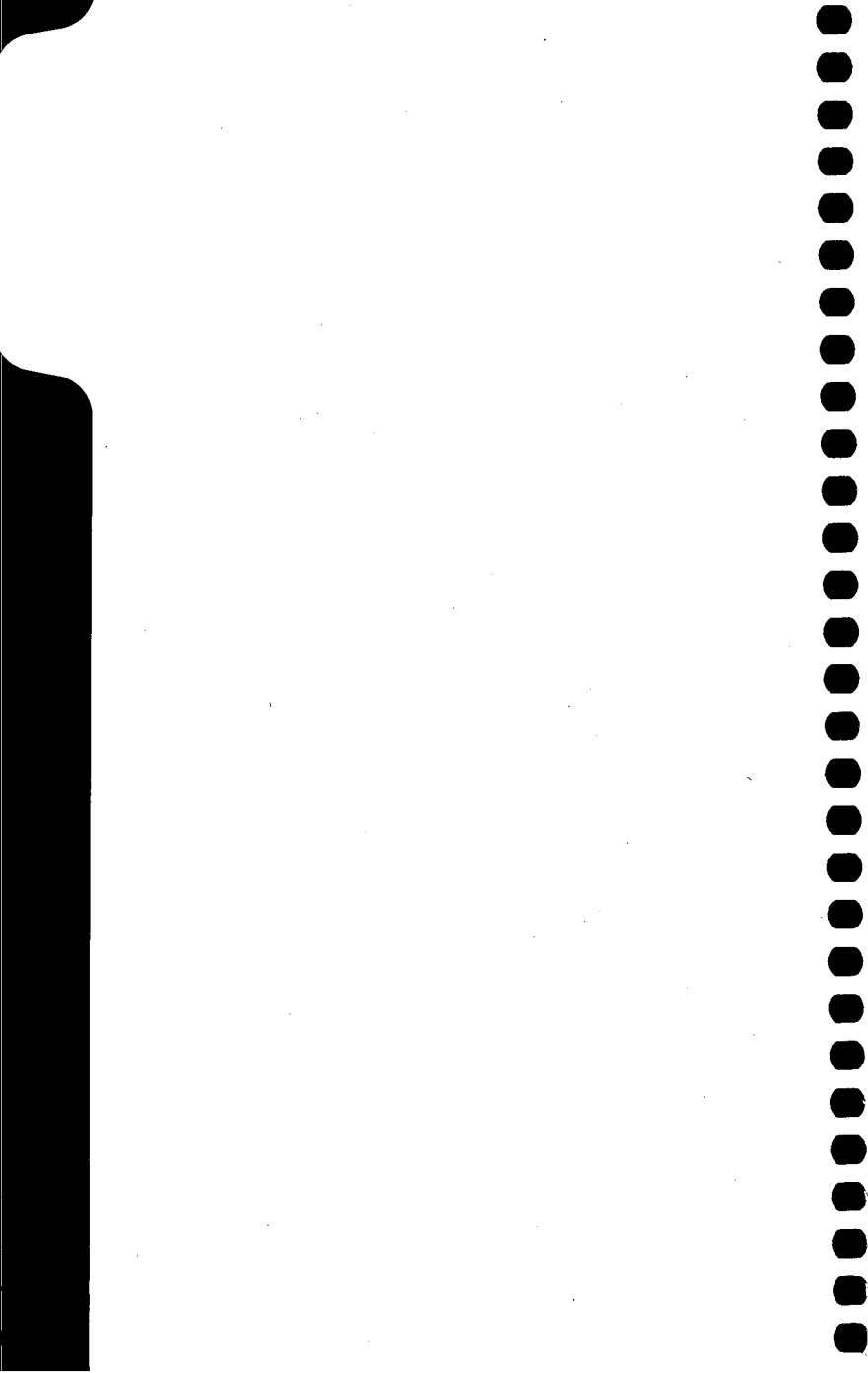
- L2 Safer: Drug which has been studied in a limited number of breastfeeding women without an increase in adverse effects in the infant. And/or, the evidence of a demonstrated risk which is likely to follow use of this medication in a breastfeeding woman is remote.
- L3 Moderately Safe: There are no controlled studies in breastfeeding women, however, the risk of untoward effects to a breastfed infant is possible; or controlled studies show only minimal non-threatening adverse effects. Drugs should be given only if the potential benefit justifies the potential risk to the infant. (New medications that have absolutely no published data are automatically categorized in this category, regardless of how safe they may be.)
- L4 Hazardous: There is positive evidence of risk to a breastfed infant or to breastmilk production, but the benefits from use in breastfeeding mothers may be acceptable despite the risk to the infant (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective.)
- L5 Contraindicated: Studies in breastfeeding mothers have demonstrated that there is significant and documented risk to the infant based on human experience, or it is a medication that has a high risk of causing significant damage to the infant. The risk of using the drug in breastfeeding women clearly outweighs any possible benefit from breastfeeding. The drug is contraindicated in women who are breastfeeding an infant.

Medication Resources

- InfantRisk Center: www.infantrisk.org or (806)-352-2519 Mon.-Fri. 8 a.m.-5 p.m.
- Rocky Mountain Poison and Drug Center. <http://www.rmpdc.org>. United States National Library of Medicine, Toxnet, LactMed, Drugs and Lactation Database - A peer-reviewed and fully referenced database of drugs to which breastfeeding mothers may be exposed. Among the data included are maternal and infant levels of drugs, possible effects on breast-fed infants and on lactation, and alternate drugs to consider.
<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>

Lifestyle and Nutrition

Working or Attending School	87
Tips for Success	87
Pumping	88
Handling and Storing Human Milk	89
Nursing the Older Infant.....	90
Nursing Strikes	90
Breastfeeding During Pregnancy	91
Tandem Nursing	92
Solid Foods and Weaning	92
Natural Weaning	93
Planned Weaning	93
Abrupt Weaning	93
Family-Planning Methods	94
Nutrition and Exercise	96
Weight Loss	97
Physical Activity.....	98
Alcohol	98
Tobacco	99
Clove Cigarettes	100
Marijuana	100
Caffeine	100



Lifestyle and Nutrition

Working or Attending School

During Pregnancy

- Encourage the mother to postpone her return to work for as long as possible.
- Suggest early exploration of day-care options.

Tips for Success

The mother should:

- Build up her milk supply by exclusively and frequently breastfeeding (or expressing) before her return to work.
- Introduce the bottle after breastfeeding has been well established for 2 weeks or more. This is often more successful if someone other than the breastfeeding mother offers the bottle.
- Consult with friends, the WIC program, or volunteer groups, such as La Leche League, for recommendations of quality brands of breast pumps.
- Begin storing milk at least 2 weeks before returning to work. The easiest times to hand express or pump are in the early morning when breasts are fullest and whenever the baby takes only one breast.
- Return to work part-time for as long as possible.
- Return to work in the middle of the work week instead of on a Monday.
- Nurse just before work, as soon as the workday is over and during her lunch break, if possible, at the child-care facility.
- Be prepared to pump at work on the same schedule and frequency in which the child nurses at home.

- Nurse frequently in the evenings and on weekends to maintain milk supply.
- Have a trial-run “work” day before actually returning to work. Mom can drop child off at child-care facility in the morning and run errands or work around the house, pumping when child usually nurses.

Pumping

To prepare for milk expression, 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 the breasts.

To maximize milk expression, the mother should:

- Start the pump on low suction with the nipple centered.
- Nurse and express milk frequently and thoroughly.
- Pump both breasts at the same time.
- Massage the breasts before and during pumping.
- Pump until milk flow significantly diminishes.
- Nurse during the night.
- 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.

Storage Guidelines (For healthy, full-term infants):

- Room temperature (up to 77°F): 6–8 hours
- Insulated cooler bag: 24 hours
- Refrigerator (39°F): 5 days
- Freezer/refrigerator (0°F): 3 months
- Chest or upright deep freezer(0°F): 6–12 months

Store milk toward the back of the refrigerator/freezer, where temperature is most constant. Milk stored for longer durations in the ranges listed is safe with regards to bacterial counts but nutrient changes may have taken place such as decreases in vitamin C levels and antioxidant properties.

Thawing Milk

- Place container of frozen breastmilk in warm water or in a refrigerator.
- Avoid boiling, which can break down nutrients.
- Do not microwave.
- Shake the container gently to mix the creamy portion, which separates during storage, with the more watery portion.
- Refrigerated milk can be warmed under running warm water, if baby or mother prefers.

Nursing the Older Infant

Teething/Biting Recommendation

- Use a cold compress for relief of sore gums.
- Break the suction and move the baby to the other breast after the period of nutritive sucking is over.
- Watch for any change in the sucking pattern. 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.
- May be misinterpreted as readiness to wean.

Possible Causes

- Illness, such as 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.
- Provide plenty of skin-to-skin contact.
- Try nursing when the baby is drowsy.
- Try nursing in warm bath with the baby.
- Try different positions.
- Express milk and give it to the baby in a cup.

Breastfeeding During Pregnancy

- Breastfeeding is safe in most cases.
- Some evidence suggests a small (15%) reduction in infant weight gain at one month of age in infants whose mothers breastfed during pregnancy.
- If the mother has a history of premature labor with a prior pregnancy she may need to avoid breastfeeding during the latter half of her pregnancy. If she experiences preterm labor during this pregnancy then breastfeeding is no longer recommended.
- If the mother has vaginal bleeding due to placenta previa or abruption she should not breastfeed.
- Milk supply decreases and the taste changes.

- Sore nipples are common.
- The mother may feel restless.
- If the child (nursling) is younger than one year, monitor his intake and growth.

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.
- 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.

Solid Foods and Weaning

Solid foods should be gradually introduced to the breastfed infant at around 6 months of age or when the infant is showing signs of developmental readiness.

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 (showing early pincer grasp skills)

Solid foods should merely complement breastfeeding and breast milk should remain the infants primary source of calories and nutrients throughout the first year.

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

Planned Weaning

Planned weaning is easier on both mother and infant than abrupt weaning.

Tips:

- At first, replace one nursing session with one feeding of breastmilk substitute, 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.

Abrupt Weaning

- Abrupt weaning is not recommended.
- Abrupt weaning can cause emotional stress for both mother and baby.
- It can suddenly worsen postpartum depression.
- 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.

- Green cabbage leaves applied to the breasts can provide relief from engorgement.
- Sage tea or capsules may reduce milk supply.
- Feed baby with breastmilk substitute (infant formula) instead of cow's milk or goat's milk if the baby is younger than 1 year old.

Family-Planning Methods

- First choice: a nonhormonal method, such as LAM, condoms, a diaphragm, spermicides, non-hormonal intrauterine devices (Paragard), natural family planning, vasectomy, or tubal ligation
- Second choice: a progestin-only method such as mini-pills, progesterone releasing IUD (Mirena) or Depo-Provera

Effect on Milk Supply:

- Progestin-only methods of birth control may be best initiated after 6 weeks postpartum to avoid the delay or prevention of lactogenesis, which depends on the dramatic natural decline in progesterone postpartum. ACOG recommends that combined estrogen-progestin contraceptives, if prescribed, should not be started before 6 weeks postpartum, and should be used only when lactation is well established and the infant's nutritional status is well monitored.
- 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). If a product containing estrogen is used, choose the

lowest estrogen dose available, such as 20 µg pills) or the vaginal ring (Nuva ring).

- Clinical reports indicate that any hormonal birth-control method may reduce the quantity of breastmilk produced if given before lactation is well established. Hormonal methods of birth control have the least impact on lactation if initiation is postponed until after 6 weeks postpartum.

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 and 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.

The following criteria must be in place for LAM to be effective:

- The mother is exclusively breastfeeding, and the baby is receiving no other food or drink, including breast-milk substitute 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.

Nutrition and Exercise

Lactating women should be encouraged to obtain their nutrients from a well-balanced, varied diet however mild to moderately malnourishment does not affect milk supply or quality. The mother's body will draw on nutrient stores to meet its needs.

Recommendations:

- Follow Dietary Recommendations for Americans 2010, found at www.eatright.org/public/.
- If food allergies or food dislikes are present, recommend nutrition supplements.
- For vegans, advise intake of B12, either through supplemented plant products or through a vitamin B12 supplement.

- If the mother avoids vitamin D–fortified foods, such as fortified milk or cereal, combined with a limited exposure to ultraviolet light, she should also be taking daily vitamin D-3 supplements.

Weight Loss

Pregnancy Fat Stores

- 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.

Considerations

- It is important that clinicians take patients BMI into account when making recommendations.
- Concerted efforts in dieting is not recommended as most lactating women gradually lose weight at a rate of about 1–2 pounds/months (after postpartum diuresis) for first 4–6 months.
- 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.

If mother is determined to diet

- 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.
- Intakes of less than 1,800 kcal/day are not recommended for fully lactating women.

Physical Activity

- Regular exercise, including vigorous exercise appears to be compatible with production of an adequate volume of milk.
- Exercise increases prolactin release, stimulating milk production and increasing the potential for leaking to occur.
- Data suggest that women should ideally lose their pregnancy weight gain by 6 months to 1 year post partum to avoid excessive later life weight retention.
- Sweat can make skin taste salty, possibly resulting in breast rejection; if this occurs, mother can shower before nursing.
- Encourage the mother to drink lots of water to replace fluids lost during exercise.

Alcohol

- Alcohol enters human milk.
- Its effect is dose dependent.
- Alcohol can produce lethargy and drowsiness in the breastfed infant.
- Heavy alcohol use by nursing mothers increased risk of retarded psychomotor development in infants at 1 year of age.
- Regular light alcohol consumption can result in slow weight gain and failure to thrive in the infant.

Counseling

Limit alcohol to light and occasional (not daily) consumption when breastfeeding. If the mother has a drink, she should wait to breastfeed until she no longer feels the effect of the alcohol or for approximately 2 hours after one drink.

- For ~135 lb woman, no more than (in 24 hours):
 - 2 oz of liquor
 - 8 oz of table wine
 - 2 cans of beer

This amount is considered compatible with breast-feeding by AAP if infant feeds ≥ 2 hours after mother is drinking. If alcohol is consumed in greater quantity then she should pump and dump until she no longer feels the effects of the alcohol.

Tobacco

- The amount of nicotine in the mother's plasma is directly correlated with the amount of nicotine in the milk she produces although only about 1% passes into human milk.
- Tobacco use is significantly associated with colic.
- Using tobacco 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.
- Nicotine increases the incidence of respiratory disease. However, this is improved if the infant is breastfed.
- The rapid and complete absorption of nicotine in the respiratory tract from secondhand smoke appears to be greater than the absorption of nicotine from human milk.
- Mothers who smoke breastfeed for shorter durations.

Counseling

Discourage mothers from smoking. If the mother cannot stop smoking:

- Encourage her to smoke low-nicotine cigarettes.
- Discourage smoking around the infant. The infant not only ingests the drug through the milk but also inhales the smoke in the environment.
- Advise her to smoke right after feedings rather than before.
- Advise her against co-sleeping with her infant.

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

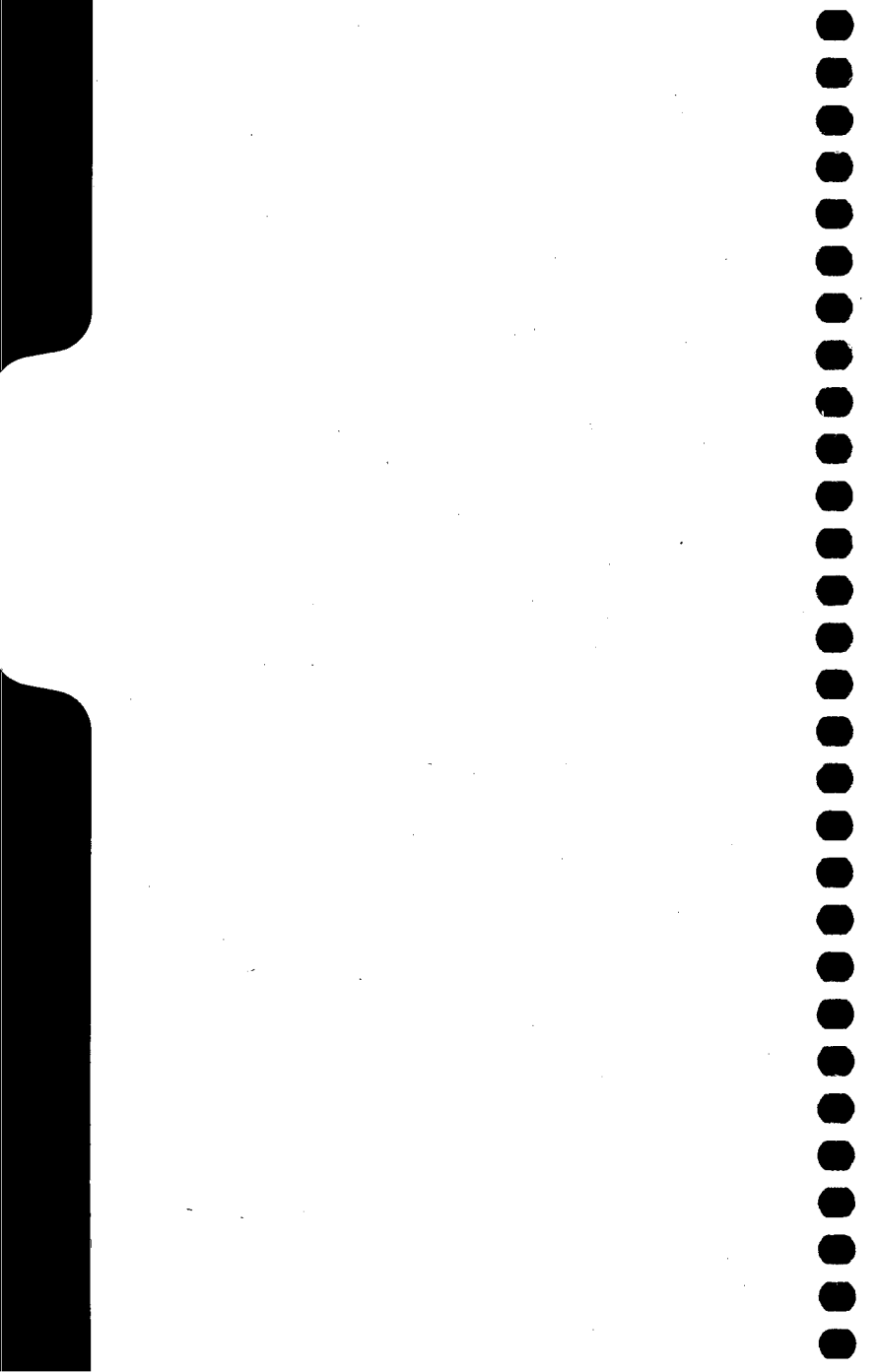
- Marijuana does not apparently affect the neurobehavioral outcome of breastfed infants.
- The infant will drug-screen positive for marijuana, but the effect of the mother's marijuana use is minimal.
- Impairment of judgment and behavioral changes may affect the mother's ability to care for the infant.
- Discourage the mother from smoking 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.

Breastfeeding Statistics and Data

Centers for Disease Control and Prevention.....	101
Hospital Maternity Care Improvement and Recognition Programs.....	101
Ten Steps to Successful Breastfeeding.....	101
Baby-Friendly Designation	103
Texas Ten Step Program.....	103
Texas Ten Step Star Achiever Program	104



Breastfeeding Statistics and Data

Centers for Disease Control and Prevention

- *Breastfeeding Report Card* - provides state-by-state data so health professionals, legislators, employers, business owners, community advocates and family members can work together to protect, promote, and support breastfeeding. The *Breastfeeding Report Card* indicators measure types of support in key community settings as well as the most current data on the Healthy People breastfeeding goals. <http://www.cdc.gov/breastfeeding/data/reportcard.htm>.
- Maternity Practices in Infant Nutrition and Care (mPINC) survey - a biennial National census of hospital and birthing facility maternity care feeding practices and policies; Texas scored a 58 (out of 100) in 2007 and a 62 in 2009; National and State reports available; State reports show strengths and area needing improvement; <http://www.cdc.gov/breastfeeding/data/mpinc/index.htm>.
- Other CDC breastfeeding resources: www.cdc.gov/breastfeeding.

Hospital Maternity Care Improvement and Recognition Programs

Ten Steps to Successful Breastfeeding

Evidence shows that several specific maternity service hospital practices can significantly impact breastfeeding initiation, duration, and exclusivity rates among women. The Ten Steps to Successful Breastfeeding is an evidence-based bundle of practices proven to support breastfeeding. The Ten Steps to Successful Breastfeeding are supported by Texas Medical Association and Texas

Hospital Association, and endorsed by the American Academy of Pediatrics.

The steps for the United States are:

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within one hour of birth. Keep moms and babies in skin-to-skin contact.
5. Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants.
6. Give newborn infants no food or drink other than breastmilk, unless medically indicated.
7. Practice “rooming in”— allow mothers and infants to remain together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no pacifiers or artificial nipples to breastfeeding infants.*
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

*The AAP does not support a categorical ban on pacifiers due to their role in SIDS risk reduction and their analgesic benefit during painful procedures when breastfeeding cannot provide the analgesia. Pacifier use in the hospital in the neonatal period should be limited to specific medical indications such as pain reduction, calming in a drug exposed infant etc. Mothers of healthy term breastfed infants should be instructed to delay pacifier use until breastfeeding is well-established usually about 3 to 4 weeks after birth.

Baby-Friendly Designation

Facilities that fully implement the Ten Steps to Successful Breastfeeding are eligible for designation as Baby-Friendly facilities. This competitive designation is considered the gold standard in lactation care. As of late 2010, only six Texas hospitals had achieved the prestigious Baby-Friendly status through Baby-Friendly USA. For a current listing, visit <http://www.babyfriendlyusa.org/eng/03.html>.

Texas Ten Step Program

The Texas Ten Step (TTS) program, developed by the Texas Hospital Association and the Texas Department of State Health Services (DSHS), requires breastfeeding training for all facility staff and outlines specific steps to ensure breastfeeding support, resulting in better outcomes for moms and babies. The TTS program, administered by DSHS, is considered a step toward Baby-Friendly designation as it is awarded for 85 percent compliance with the Ten Steps to Successful Breastfeeding.

The certification is entirely voluntary, and self-reporting. There are no costs, external audits or site visits. TTS facilities must be designated as a Mother-Friendly Worksite and recertify on an annual basis.

For listing of Texas Ten Step Facilities or information about the program, visit www.texastenstep.org.

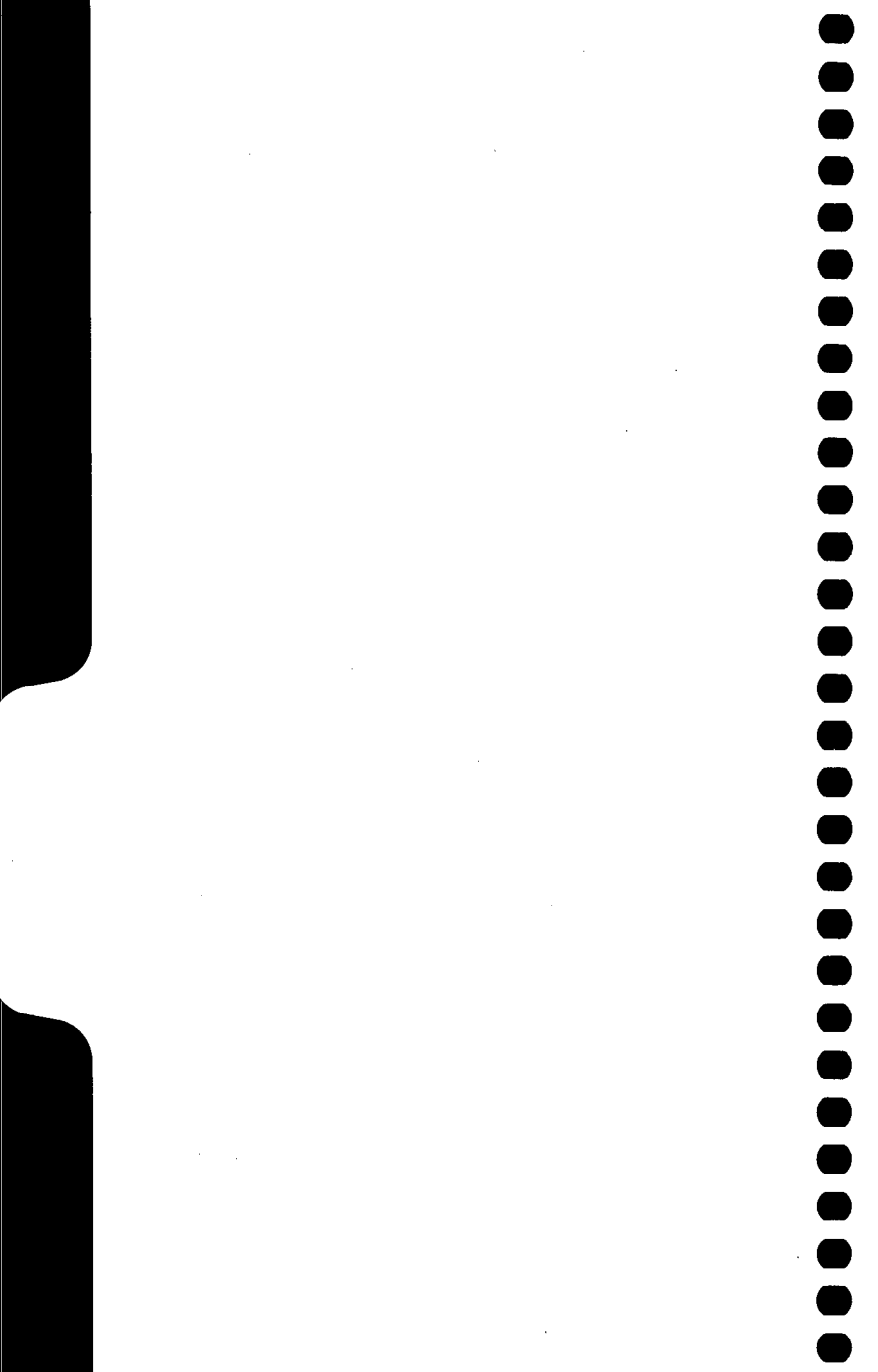
For listing of Mother-Friendly Worksites or information about the program, visit <http://www.dshs.state.tx.us/wichd/lactate/mother.shtm>.

Texas Ten Step Star Achiever Program

A DSHS technical assistance, quality improvement and training program to assist facilities as they work toward Baby-Friendly designation through Baby-Friendly USA. A limited number of TTS hospitals are allowed to participate in the Star Achiever Program each year. For more information, visit www.texastenstep.org, call 1-512-341-4592, or email texastenstep@dshs.state.tx.us.

Breastfeeding Resources

International Board Certified Lactation Consultants	105
Lactation Courses	106
Physician Continuing Medical Education	106
Breastfeeding Education Materials	107
Breastfeeding Friendly Physician Office	108
Breastfeeding Management Resources.....	108
Patient Resources	109



Breastfeeding Resources

International Board Certified Lactation Consultants

An International Board Certified Lactation Consultant (IBCLC) must meet defined eligibility requirements in education and experience, pass a board exam every 10 years at minimum and have continuing education. Among those who become IBCLCs are nurses, midwives, dietitians, physicians and experienced breastfeeding support counselors. IBCLCs work in a variety of settings including hospitals, clinics, physicians' offices, neonatal intensive care units, human milk banks and private practice.

The IBLCE Exam Blueprint specifies that the IBCLC shall demonstrate breastfeeding knowledge and management skills in disciplines that encompass the chronological spectrum from pre-conception through early childhood. The Clinical Competencies for IBCLC Practice outline the clinical knowledge, skills and attitudes expected of a practitioner who holds the IBCLC credential.

Guided by the Scope of Practice for International Board Certified Lactation Consultants and the Code of Ethics for International Board Certified Lactation Consultants, IBCLCs are expected to conduct themselves ethically and professionally. The purpose of certification is public safety and, therefore, IBLCE has established minimum Professional Standards for IBCLCs.

www.iblce.org

Lactation Courses

Department of State Health Services classes that can be provided free of charge at your facility:

- **Breastfeeding Management** - Following this 6 hour class, participants will be able to manage and support mothers and babies with normal breastfeeding experiences.
- **Breastfeeding the Compromised Infant** - Following this 4-hour class, participants will be able to assist mothers in establishing a good supply and transitioning to the breast.
- **Managing Breastfeeding Complications** - Following this 4-hour class, participants will be able to develop a plan of care based on scientific research to assist mothers in overcoming breastfeeding complications.

Continuing education provided by TNA, TDA and IBLCE. For more information or to request training, <http://www.dshs.state.tx.us/wichd/lactate/> or call (512) 341-4457.

Physician Continuing Medical Education

Lecture course

- Department of State Health Services, “Principles of Lactation Management.” Accredited for 13.75 CME units. For more information, visit <http://www.dshs.state.tx.us/wichd/lactate/> or call (512) 341-4457.

Online Courses

- **Promoting Breastfeeding One Step at a Time**, created specifically to support the implementation of the

UNICEF and World Health Organization Ten Steps to Successful Breastfeeding. Ten CMEs for Physicians; CE's also available for nurses.

<http://tensteps.jbpub.com>.

- Online Breastfeeding Course, Course Name and Number: N720 Human Lactation 3 college credit hours*. <http://janriordan.net/n720.php>.
- Health-e-Learning, "Breastfeeding Foundation for Doctors" course, <http://www.health-e-learning.com/courses/breastfeeding-foundation/18-breastfeeding-foundation-for-doctors>. Other courses also are available for nurses and office staff.
- American Academy of Family Physicians, <https://nf.aafp.org/Cme/CmeCenter/Default.aspx>.
- Breastfeeding Residency Program. This Web site is designed to help residency program directors and faculty incorporate breastfeeding education into existing curriculum through implementation and evaluation strategies, useful tools, and other trusted resources. It can be applied to pediatric, family medicine, preventive medicine, internal medicine, and obstetric/gynecologic residency programs. The curriculum has been organized based on the Accreditation Council for Graduate Medical Education Core Competencies. Included are goals and objectives as well as planning, teaching and evaluation tools, prepared cases and presentations, and suggested resources.
<http://www.aap.org/breastfeeding/curriculum/>.

Breastfeeding Education Materials

- Free Department of State Health Services (DSHS) breastfeeding materials can be ordered in English and Spanish (some are downloadable-only in Vietnamese). To order or download materials visit www.dshs.state.tx.us/wichd/WICCatalog/breastfeeding.shtm.

- Low-cost DSHS breastfeeding videos in English and Spanish, www.dshs.state.tx.us/wichd/bf/videos.shtm.

Breastfeeding-Friendly Physician Office

For guidance on how to create a physician's practice that enthusiastically promotes, support, and protects breastfeeding, see the Academy of Breastfeeding Medicine's Clinical Protocol #14: Breastfeeding-Friendly Physician's Office, Part 1: Optimizing Care for Infants and Children at <http://www.bfmed.org/Resources/Protocols.aspx>.

Breastfeeding Management Resources

- InfantRisk Center: Provide up-to-date evidence-based information on the use of medications during pregnancy and breastfeeding. Mon.-Fri., 8 a.m.-5 p.m., 1-800-352-2519. www.infantrisk.org.
- Rocky Mountain Poison and Drug Center. <http://www.rmpdc.org>. United States National Library of Medicine, Toxnet, LactMed, Drugs and Lactation.
- United States National Library of Medicine, LactMed, medications and lactation resource; <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>.
- American Academy of Breastfeeding Medicine, Clinical Protocols, www.bfmed.org.
- DSHS/WIC Lactation Resource and Training Centers provide lactation management guidance for health care professionals via International Board Certified Lactation consultants. The lactation centers also serve as a lactation resource for WIC breastfeeding families and as trainings facilities for health care professionals.
 - Mom's Place (Austin)- <http://www.momsplace.org/> 1-800-514-6667 (Texas Lactation Support Hot line).
 - The Lactation Foundation (Houston) - www.lactationfoundation.org, 1-877-550-5008.

- The Lactation Care Center (Dallas) – http://www.dallascityhall.com/housing/lactation_center/index.html, 1-855-550-6667.
- American Academy of Pediatrics, <http://www.aap.org/healthtopics/breastfeeding.cfm>.
- Texas donor human milk banks
 - Mothers' Milk Bank at Austin, www.mmbaustin.org
 - Mothers' Milk Bank of North Texas, www.texasmilkbank.org/

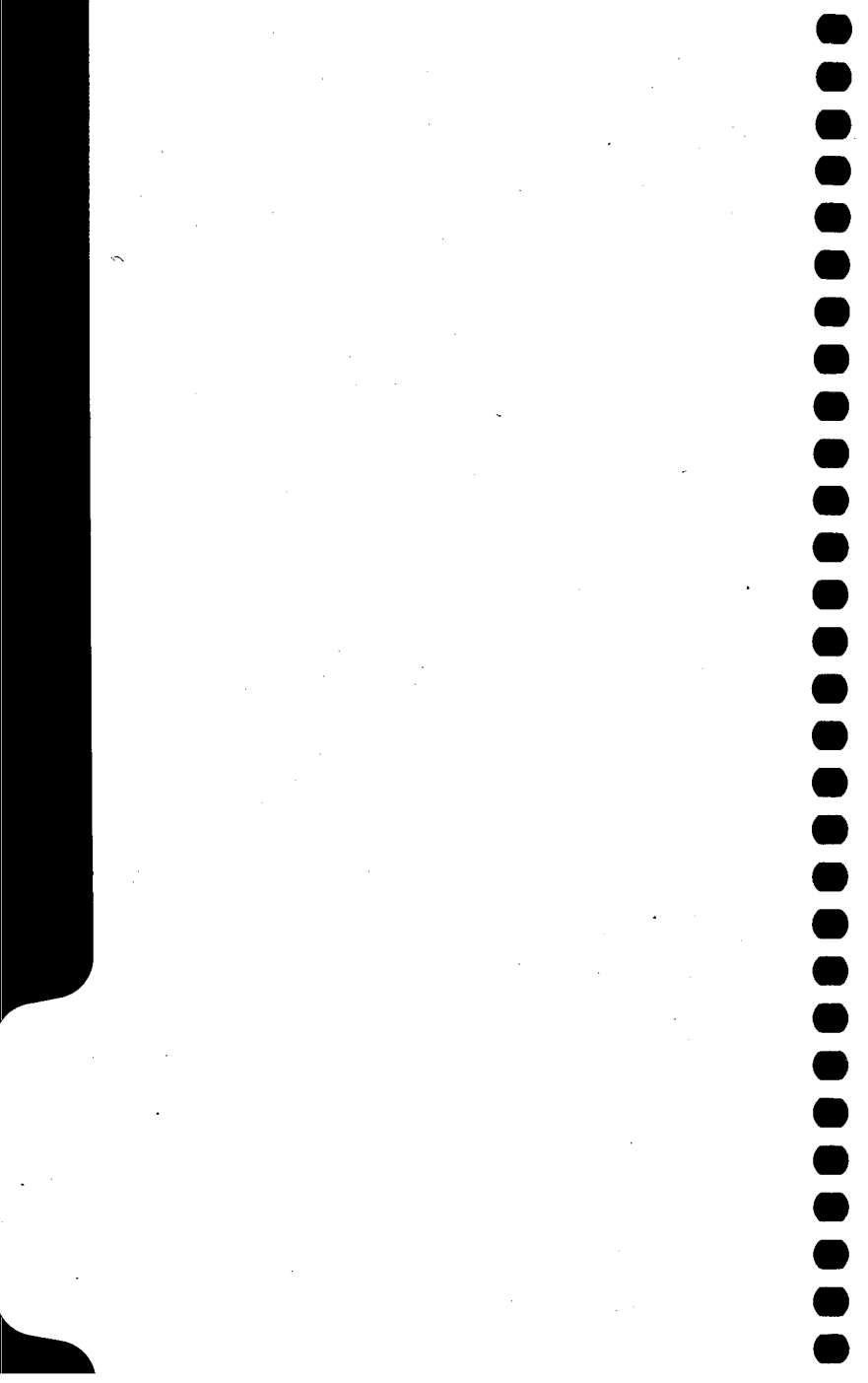
Patient Resources

- <http://www.breastmilkcounts.com/> - a one-stop, bilingual resource for breastfeeding families.
- Texas Lactation Support hot line: 1-800-514-6667.
- The Lactation Foundation: 1-877-550-5008.
- La Leche League International – breastfeeding resources for families in ten languages, forums and podcasts; <http://www.llli.org/resources.html?m=0>.
- La Leche League USA Help Line: 1-877-452-5324.
- National Women's Health Information Center Breastfeeding Helpline – 1-800-994-9662.
- Maternal & Child Health (MCH) Pregnancy, Parenting and Depression Resource List <http://www.dshs.state.tx.us/mch/depression.shtml>.
- Newman-Goldfarb Protocols for Induced Lactation http://www.asklenore.com/breastfeeding/induced_lactation/gn_protocols.shtml.



Lactation Diagnosis Codes

Commonly Used ICD-9-CM Codes.....	111
Baby.....	111
Feeding Problems.....	111
Jaundice.....	111
Weight and Hydration.....	111
Infant Distress.....	111
GI Issues.....	112
Mouth.....	112
Mother.....	112
Breast Issues.....	112
Nipple.....	112
Constitutional.....	113
Lactation.....	113
Obtaining Breast Pumps.....	113



Lactation Diagnosis Codes

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

Commonly Used ICD-9-CM Codes

Baby

Feeding Problems

- Feeding problem or vomiting, newborn 779.3
- Feeding problem, infant (> 28 days) 783.3
- Vomiting, infant (> 28 days) 787.03

Jaundice

- Breastmilk jaundice 774.39
- Neonatal jaundice 774.6
- Preterm jaundice 774.2

Weight and Hydration

- Dehydration, neonatal 775.5
- Weight loss 783.21
- Underweight 783.22
- Slow weight gain, FTT 783.41
- Rapid weight gain 783.1
- As well as all the diagnoses associated with size and maturity.

Infant Distress

- Fussy baby 780.91
- Excessive crying 780.92
- Infantile colic or intestinal distress 789.07

GI Issues

Change in bowel habits 787.99

Abnormal stools 787.7

Diarrhea 787.91

Mouth

Ankyloglossia 750.0

High arched palate 750.26

Other specified follow-up exam V67.59

(When the original reason for visit has resolved)

Mother

Breast Issues

Abscess, Breast 675.14

Blocked milk duct 675.24

Breast engorgement, ductal 676.24

Burning pains, hyperesthesia 782.0

Ectopic or axillary breast tissue 757.6

Galactocele 676.84

Mastitis, infective 675.14

Mastitis, interstitial 675.24

Other specified nipple/breast anomaly 757.6

Other specified nipple/breast infection 675.84

Nipple

Burning pains, hyperesthesia 782.0

Nipple infection 675.04

Nipple, cracks or fissures 676.14

Nipple, sore 676.34

Retracted nipple, postpartum 676.04

Impetigo (staph), nipple 684

Candidiasis, nipple or breast 112.89

Constitutional

Disrupted sleep cycle 780.55

Fatigue 780.79

Lactation

Agalactia, failure to lactate 676.44

Lactation, delayed 676.84

Lactation, suppressed 676.54

Other specified disorders of lactation 676.84

Other disorders of lactation with delivery with or without antepartum condition 676.81

Unspecified disorder of lactation 676.9

Supervision of lactation V24.1

Other specified follow-up exam V67.59

(When the original reason for visit has resolved)

For more detailed information about coding for breastfeeding management, please consult the AAP pamphlet *Supporting Breastfeeding and Lactation: The Primary Care Pediatrician's Guide to Getting Paid* www.aapdistrictii.org/BreastCoding.pdf.

Obtaining Breast Pumps

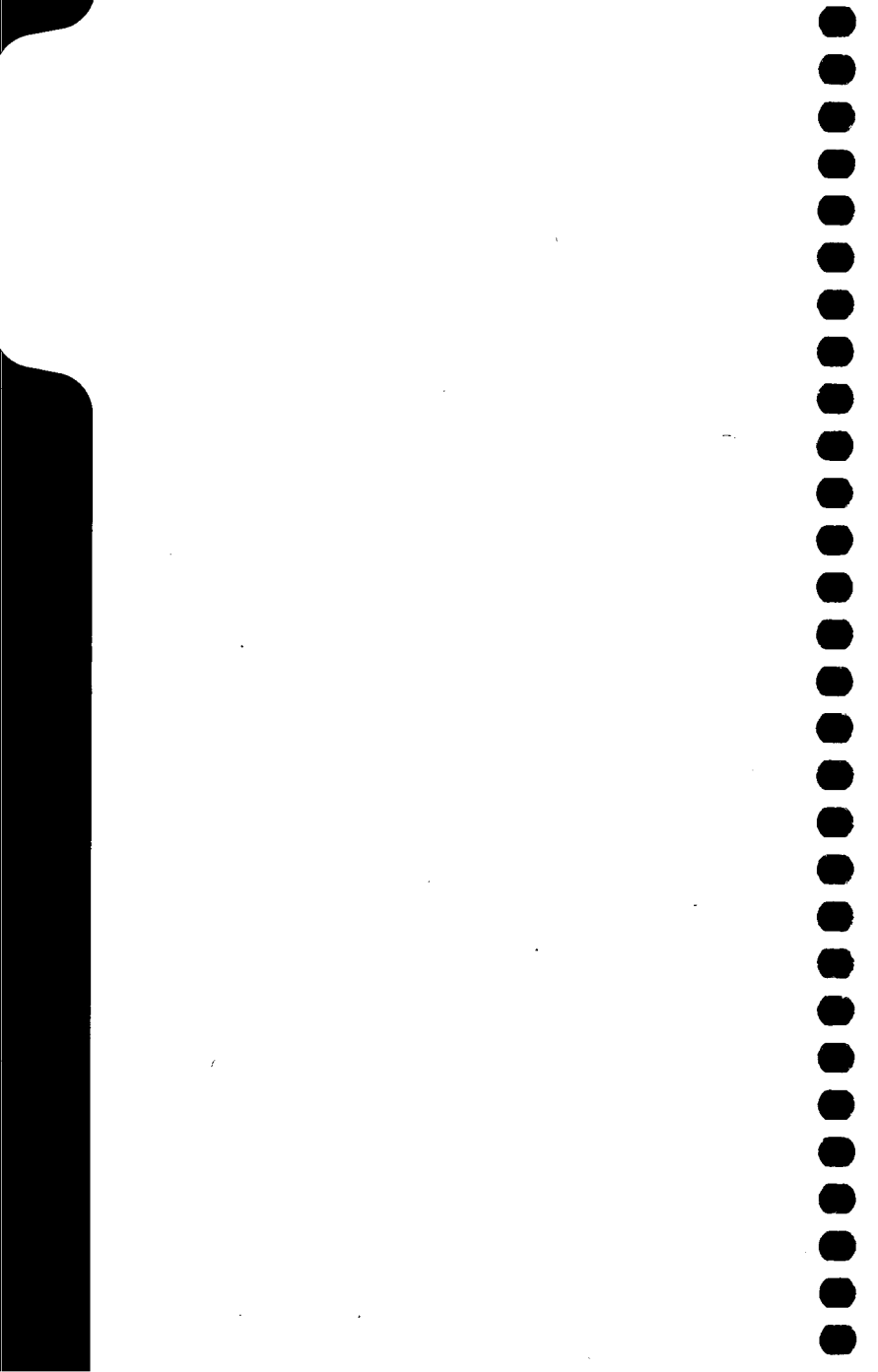
- WIC - The Special Supplemental Nutrition Program for Women, Infants, and Children, or the WIC Program, serves as the primary provider for hospital-grade double electric pumps regarding mothers enrolled in both the WIC Program and Medicaid.
- Medicaid - Provides pumps to members who are not currently enrolled or do not have access to the WIC program (ie. clinic closed on weekend) if ordered by a physician. Hospital-grade double electric pumps are included as medical equipment and appropriate for federal reimbursement under 440.70(b)(3).

- Breast pump reimbursement through Medicaid requires prior authorization.
- Provide prescription for a mother to rent a hospital-grade double electric pump.
 - ◆ Include medical necessity.
 - ◆ Duration of rental is not restricted.

For prior authorization:

1. Complete Home Health Services (Title XIX) DME/ Medical Supplies Physician Order Form or call 1-800-925-8957 for assistance.
2. Fax form to DME supplier of choice.
3. DME supplier sends to Medicaid who has 72 hours to approve.
4. If approved, instruct mother to pick the pump up from the DME supplier or have the supplier deliver the pump.

References



References

Academy of Breastfeeding Medicine (ABM) Clinical Protocol #1: Guidelines for Glucose Monitoring and Treatment of Hypoglycemia in Breastfed Neonates. Revision June 2006.

ABM Clinical Protocol #2: Guidelines for Hospital Discharge of the Breastfeeding Term Newborn and Mother: "The Going Home Protocol." Revision 2007.

ABM Clinical Protocol #3: Hospital Guidelines for the Use of Supplementary Feedings in the Healthy Term Breastfed Neonate. Revised 2009.

ABM Clinical Protocol #4: Mastitis. Revision May 2008.

ABM Clinical Protocol #5: Peripartum Breastfeeding Management for the Healthy Mother and Infant at Term. Revision June 2008.

ABM Clinical Protocol #6: Guideline on Co-Sleeping and Breastfeeding. Revision March 2008.

ABM Clinical Protocol #7: Model Breastfeeding Policy. 2003.

ABM Clinical Protocol #8: Human milk storage information for home use for healthy full-term infants. 2004.

ABM Clinical Protocol #9: Use of galactogogues in initiating or augmenting maternal milk supply. 2004.

ABM Clinical Protocol #10: Breastfeeding the near-term infant (35 to 37 weeks gestation). 2004.

ABM Clinical Protocol # 11: Guidelines for the evaluation and management of neonatal ankyloglossia and its complications in the breastfeeding dyad. 2004.

ABM Clinical Protocol #12: Transitioning the Breastfeeding/Breastmilk-fed Premature Infant from the Neonatal Intensive Care Unit to Home. 2004.

ABM Clinical Protocol Number #13: Contraception during Breastfeeding. 2005.

ABM Clinical Protocol #14: Breastfeeding-Friendly Physician's Office, Part 1: Optimizing Care for Infants and Children. 2006.

ABM Clinical Protocol #15: Analgesia and Anesthesia for the Breastfeeding Mother. 2006.

ABM Clinical Protocol #16: Breastfeeding the Hypotonic Infant. 2006.

ABM Clinical Protocol #17: Guidelines for Breastfeeding Infants with Cleft Lip, Cleft Palate, or Cleft Lip and Palate. 2007.

ABM Clinical Protocol #18: Use of Antidepressants in Nursing Mothers. 2008.

ABM Clinical Protocol Number #19: Breastfeeding Promotion in the Prenatal Setting. 2009.

ABM Clinical Protocol #20: Engorgement. 2009.

ABM Clinical Protocol #21: Guidelines for Breastfeeding and the Drug-Dependent Woman. 2009.

ABM Clinical Protocol #22: Guidelines for Management of Jaundice in the Breastfeeding Infant Equal to or Greater Than 35 Weeks' Gestation. 2010.

Alkalay, A.L., H.B. Sarnat, Flores-Sarnat L, et al. Population meta-analysis of low plasma glucose thresholds in full-term normal newborns. *Am J Perinatol* 2006. 23:115-119.

American Academy of Family Practitioners (AAFP). Breastfeeding. Family Physicians Supporting (Position Paper). [Internet]. Leawood (KS): AAFP. 2008. Available from: <http://www.aafp.org/online/en/home/policy/policies/b/breastfeedingpositionpaper.html>.

American Academy of Pediatrics and The American College of Obstetricians and Gynecologists. 2006. Breastfeeding Handbook for Physicians. AAP/ACOG.

American Academy of Pediatrics. Supporting Breastfeeding and Lactation: The Primary Care Pediatrician's Guide to Getting Paid. www.aapdistrictii.org/Breast-Coding.pdf.

American Academy of Pediatrics. Committee on Drugs. 2001. The Transfer of Drugs and Other Chemicals in Human Milk. *Pediatrics*. 100(6): 1035-39.

American Academy of Pediatrics. Committee on Fetus and Newborn, Adamkin DH. Postnatal glucose homeostasis in late-preterm and term infants. *Pediatrics*. 2011 Mar;127(3):575-9. Epub 2011 Feb 28.

American Academy of Pediatrics. Clinical Practice Guidelines. Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation. *Pediatrics*. Vol. 114 No. 1 July 2004. pp. 297-316.

American Academy of Pediatrics. Committee on Genetics. Newborn Screening Fact Sheets. *Pediatrics*. 2006. 118(3): e934-e963.

American College of Obstetricians and Gynecologists (ACOG). 2000. Breastfeeding: Maternal and Infant Aspects. ACOG Educational Bulletin 258.

American College of Obstetricians and Gynecologists (ACOG). Committee on Health Care for Underserved Women, ACOG Committee Opinion No. 361: breastfeeding: maternal and infant aspects. *Obstet Gynecol* 2007;109(2 Pt 1):479-80. Available from: <http://www.acog.org/departments/underserved/clinicalreview-v12i1s.pdf>.

Jones, J., and M. Kelly. 2011. Lactation Counseling and Problem Solving. Austin: Department of State Health Services.

Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN). 2000. Evidence-based clinical practice guideline: Breastfeeding support: Prenatal care through the first year. AWHONN: Washington, D.C.

Bartick, Melissa and Arnold Reinhold. DOI. A Pediatric Cost Analysis: The Burden of Suboptimal Breastfeeding in the United States. *Pediatrics*. published online. Apr 5, 2010. 10.1542/peds.2009-1616.

Berens, P., J. Hopkinson and H. Sullivan. 2010. Principles of Lactation Management. Austin: Department of State Health Services.

Bliss, M. C., J. Wilkie, C. Acredolo, et al. 1997. "The Effect of Discharge Pack ABM and Breast Pumps on Breastfeeding Duration and Choice of Infant Feeding Method." *Birth* 24: 90-97.

Briggs, Gerald, Roger Freeman, and Sumner Yaffee, eds. 2002. *Drugs in Pregnancy and Lactation*. 6th ed. Philadelphia: Lippincott, Williams and Wilkins.

Bhutani V.K., L. Johnson, E.M. Sivieri. 1999. Predictive ability of a pre-discharge hour-specific serum bilirubin for subsequent significant hyperbilirubinemia in healthy term and near-term newborns. *Pediatrics*. 103 :6 -14.

Buescher, E.S., and Susan W. Hatcher. 2008. Breastfeeding and Diseases. Hale Publishing, L.P. Amarillo, TX. Centers for Disease Control and Prevention. When should a mother avoid breastfeeding? Available from: <http://www.cdc.gov/breastfeeding/disease/index.htm>.

Carfoot, S., P. Williamson, R. Dickson. 2005. A randomised controlled trial in the north of England examining the effects of skin-to-skin care on breast feeding. *Midwifery*. 21:71-79.

Chen, Y-T. Defects in galactose metabolism. In: Behrman R.Ee, Kliegman R.M., Jenson H.B., eds. *Nelson Textbook of Pediatrics*. 16th ed. Philadelphia, PA: W. B. Saunders; 2000:413-414.

Christensen, A.F., N. Al-Suliman, K.R. Nielsen, I. Vejborg, N. Severinsen, H. Christensen. et al. 2005. Ultrasound-guided drainage of breast abscesses: results in 151 patients. *British Journal of Radiology*. 78(927), 1860188.

Committee on Health Care for Underserved Women; Committee on Obstetric Practice. Breastfeeding: maternal and infant aspects. *Int J Gynaecol Obstet*. 2001. Aug;74(2):217-32.

De Carvalho M., M.H. Klaus, R.B. Merkatz. 1982. Frequency of breastfeeding and serum bilirubin concentration. *Am J Dis Child*. 136 :737 -738.

English, R., and N. Hitchcock. 1968. "Nutrient Intakes During Pregnancy, Lactation and After the Cessation of Lactation in a Group of Australian Women." *British Journal of Nutrition*. 22: 615-24.

Food and Nutrition Board, Institute of Medicine. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington, DC: National Academy Press. 2002.

Gartner, L.M., and K. S. Lee. 1999. "Jaundice in the Breastfed Infant." *Clinics in Perinatology* 26: 431-45.

Gartner L.M., J. Morton, R.A. Lawrence, A.J. Naylor, D. O'Hare, R.J. Schanler, A.I. Eidelman. February 2005. Breastfeeding and the use of human milk. *Pediatrics*. 115(2):496-506.

Goldberg, G., et al. 1991. "Longitudinal Assessment of the Components of Energy Balance in Well-Nourished Lactating Women." *American Journal of Clinical Nutrition*. 54: 788-98.

Health Guidelines for Americans. 2010. U.S. Department of Health and Human Services and U.S. Department of Agriculture. Available on line at: <http://www.cnpp.usda.gov/DGAs2010-DGACReport.htm>.

Hale, Thomas W. 2010. Medications and Mother's Milk, Fourteenth Edition. Hale Publishing, Amarillo, TX.

Hale, Thomas W. and Peter E. Hartmann, 2007. Textbook of Human Lactation, First Edition. Hale Publishing, Amarillo, TX.

Hale, Thomas W. and Pamela Berens. 2002. Clinical Therapy in Breastfeeding Patients. Pharmasoft Medical Publishing, Amarillo, TX.

Hanson, Lars A. 2004. Immunobiology of Human Milk: How Breastfeeding Protects Babies. Pharmasoft Medical Publishing, Amarillo, TX.

Hurst N. Breastfeeding after breast augmentation. *J Hum Lact*. 2003;19(1):70-71.

Illingworth, P., et al. 1986. Diminution in energy expenditure during lactation. *BMJ* 292: 437-40.

International Lactation Consultant Association (ILCA). 1999. Evidence-based guidelines for breastfeeding management during the first 14 days [Booklet]. ILCA: Raleigh.

Ip, S., M. Chung, G. Raman, et al. 2007. Breastfeeding and maternal and infant health outcomes in developed countries. Evidence Report/Technology Assessment No. 153. AHRQ Publication No. 07-E007. Rockville, Md.: Agency for Healthcare Research and Quality.

Kaplan, Deborah L., and Kristina M. Graff. 2008. Marketing Breastfeeding—Reversing Corporate Influence on Infant Feeding Practices. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, Vol. 85, No. 4 doi:10.1007/s11524-008-9279-6.

Keister D., K.T. Roberts, S.L. Werner. July 2008. Strategies for breastfeeding success. *Am Fam Physici an*. 15;78(2):225-32.

Kendall-Tackett, K.A., 2008. Non-pharmacological treatments for depression in new mothers. Amarillo, TX: Hale Publishing.

Kendall-Tackett, K.A., 2010. Depression in new mothers: Causes, consequences and treatment options, 2nd Edition. London: Routledge.

K.M., C. Zandoh, M.A. Quigley, Amenga-Etego S., Owusu-Agyei S, B.R. Kirkwood. 2006. Delayed breastfeeding initiation increases risk of neonatal mortality. *Pediatrics*. ;117(3):e380-6.

Lactation Management Self-Study Modules, Level I, Wellstart International. 2009. <http://www.wellstart.org/Self-Study-Module.pdf>.

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.

Lawrence, R.A. and Robert M. Lawrence. 2011. Breastfeeding: A Guide for the Medical Profession, seventh edition. St. Louis: Mosby.

Maisels M.J., V.K. Bhutani, D. Bogen, et al. 2009. Hyperbilirubinemia in the Newborn Infant >35 Weeks Gestation: An Update with Clarification, *Pediatrics*. 124:1193-1198.

Maternal and Child Health Technical Information Bulletin. Washington: U.S. Department of Health and Human Services, Public Health Service.

Mizuno K., M. Mizuno, T. Shinohara, M. Noda. 2004. Mother-infant skin-to-skin contact after delivery results in early recognition of own mother's milk. *Acta Paediatr.* 93:1640-1645.

Mohrbacher, N. 2010. Breastfeeding Made Simple. First edition.

Moore E.R., G.C. Anderson, N. Bergman. 2007. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database of Systematic Reviews. Issue 3. Art. No.: CD003519. DOI: 10.1002/14651858.CD003519.pub2.

Newman, Jack. 1998. "Sore Nipples." Available online at: <http://www.breastfeedingonline.com/3a.html>. Accessed March 16, 2004.

Picciano, M.F., and Michelle K. McGuire. 2009. Use of dietary supplements by pregnant and lactating women in North America 1–4 *Am J Clin Nutr*;89(suppl):663S–7S.

Quinn, T. J., and G. B. Carey. 1999. “Does Exercise Intensity or Diet Influence Lactic Acid Accumulation in Breast Milk?” *Medicine & Science in Sports and Exercise* 30(1): 105–09.

Riordan, Jan and Karen Wombach. 2010. *Breastfeeding and Human Lactation*. Jones and Bartlett: Sudbury Massachusetts.

Rosenberg, Kenneth D., Carissa A. Eastham, Laurin J. Kasehagen, and Alfredo P. Sandoval. February 2008. Marketing Infant Formula Through Hospitals: the Impact of Commercial Hospital Discharge Packs on Breastfeeding. *American Journal of Public Health*. Vol 98, No. 2.

Saadeh, R., and J. Akre. 1996. “Ten Steps to Successful Breastfeeding: A Summary of the Rationale and Scientific Evidence.” *Birth* 23: 154–60.

Taveras, Elsie M., Angela M. Capra, Paula A. Braveman, Nancy G. Jensvold, Gabriel J. Escobar and Tracy A. Lieu. 2003. Clinician Support and Psychosocial Risk Factors Associated With Breastfeeding Discontinuation. *Pediatrics*.112;108-115.

Taveras, Elsie M., Ruowei Li, Laurence Grummer-Strawn, Marcie Richardson, Richard Marshall, Virginia H. Rêgo, Irina Miroshnik and Tracy A. Lieu. 2004. Breastfeeding Opinions and Practices of Clinicians Associated With Continuation of Exclusive. *Pediatrics*.113;e283-e290.

Truitt S.T., A.B. Fraser, D.A. Grimes, M.F. Gallo, K.F. Schulz. 2003. Combined hormonal versus nonhormonal versus progestin-only contraception in lactation. *Cochrane Database Syst Rev.* (2):CD003988.

Van der Wijden, C., J. Kleijnen, T. Van den Berk. 2003. Lactational amenorrhea for family planning. *Cochrane Database Syst Rev.* (4):CD001329.

Varendi H., R. Porter, J. Winberg. 1994. Does the newborn baby find the nipple by smell?. *Lancet.* 344:989-990.

Walker, Marsha. 2010. *Breastfeeding Management for the Clinician, Using the Evidence, Second Edition.* Jones and Bartlett: Sudbury Massachusetts.

Wardlaw, Gordon M. 1998. *Perspectives in Nutrition.* Washington: National Academy of Sciences.

Weimer, J. 2001. *The Economic Benefits of Breastfeeding.*

West, Diana and Elliot M. Hirsch, M.D. 2008. *Breastfeeding after Breast and Nipple Procedures: A Guide for Healthcare Professionals.* Hale Publishing, L.P. Amarillo, TX.

Widstrom A-M, J. Thingstrom-Paulsson. 1993. The position of the tongue during rooting reflexes elicited in newborn infants before the first suckle. *Acta Paediatr.* 82:281-283.

World Health Organization [WHO]. 1998. *Evidence for the ten steps to successful breastfeeding.* WHO: Geneva.

A Review and Analysis. 2009. ERS Food Assistance and Nutrition Research Report 13. World Health Organization. Acceptable medical reasons for use of breast-milk substitutes.

Pregnancy, Childbirth, Postpartum and Newborn Care - A Guide for Essential Practice. 2nd ed. 2006. Department of Reproductive Health and Research (RHR), World Health Organization. http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/924159084X/en/index.html.

Worthington-Roberts, B.S., and S.R. Williams. 1997. Nutrition in Pregnancy and Lactation. Madison, WI: Brown & Benchmark.

Yamauchi Y., and I. Yamanouchi. 1990. Breast-feeding frequency during the first 24 hours after birth in full-term neonates. *Pediatrics*. 86 :171 –175.









© 2011 Texas Department of State Health Services.
Nutrition Services Section.
All rights reserved. Stock no. 13-185 rev. 6/11

