Key Principles in the Management of Breastfeeding Problems

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Case 1: A four-day old breastfed infant with jaundice and excessive weight loss.

- In your office, the baby weighs 5# 3 oz. (10% below birth weight) and appears sleepy and noticeably jaundiced. Mom complains that her breasts are severely engorged. She has to awaken the baby to breastfeed every 4 hours, but the infant nurses for only a few minutes.
- The baby has 4 - 5 voids (sometimes with a "brick dust" color on the diaper) and 2 stools daily. He has not yet passed a yellow bowel movement.

Discussion points:

1. The importance of the 3-5 day “safety net” follow-up visit to screen for jaundice and evaluate the initiation of breastfeeding.
2. Signs of effective breastfeeding and adequate milk intake by the infant. Using a nipple shield.
5. The test-weighing procedure to measure milk transfer with breastfeeding.

Evaluating the Onset of Breastfeeding

- All newborns should be seen by a pediatrician or other knowledgeable and experienced health care provider at 3 to 5 days of age.
- Breastfeeding infants should have a second out-patient visit at 2 to 3 weeks of age to monitor weight gain and provide additional support and encouragement to the mother during this critical period.

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What to Expect--the Mother’s Breasts

- Milk has come in by 4 days postpartum and is flowing easily.
- Mother’s breasts feel full before feedings and softer afterwards.
- Any nipple tenderness that was present has dramatically improved by day 5. No open nipple wounds are present.
What to Expect—
Newborn Weight Loss and Weight Gain
- Initial infant weight loss stops after mother’s milk is in.
- Infant should not lose more than 8% to 10% of the original birth weight. Most infants—especially smaller babies—will lose less than this.
- By 4 - 5 days, expect baby to gain about 1 ounce each day for the first several months.
- Expect baby to be above birth weight by 10 – 14 days of age and to double her birth weight by 4 ½ months.

What to Expect—
Newborn Stooling Pattern
(after mother’s milk comes in)
“The Rule of 4”
- Yellow, seedy “milk stools” should occur within 24 hours after milk “comes in.”
- Breastfed newborns can be expected to pass 4 or more loose, yellow “milk” stools per day between about 4 days and 4 weeks.
- Transition stools, infrequent, or scant volume of stools suggest inadequate intake.
- Beginning around 1 month of age, stooling frequency gradually may diminish.

What to Expect—
Newborn Urination Pattern
(after mother’s milk comes in)
- Baby should pass colorless urine at least 6 to 8 times daily (typically after every feeding).
- “Brick dust” (urate crystals) after mother’s milk has come in, scant urine, or dark yellow urine suggest inadequate intake.

What to Expect—
Newborn Feeding Routines
- Feed 8 to 12 times each 24 hours for approximately 10 -15 minutes per breast.
  - Nurse every 1 1/2 to 3 hrs. with a single longer night interval of 4 - 5 hrs.
  - Expect periods of more freq. “cluster feeds”
- Use both breasts at each feeding; begin on alternate sides. Switch sides when infant’s sucking/swallowing slow down.
- Avoid non-nutritive sucking on a pacifier; wake non-demanding babies to nurse.

What to Expect—
Behavior During and After Feedings
- Infant gives regular feeding cues and can latch to both breasts effectively; infant’s sucking is rhythmic; and frequent swallowing can be heard.
- Baby acts satisfied after nursing and sleeps contentedly between feedings.
- Signs that an infant may not be getting enough milk:
  Seldom gives feeding cues, has difficulty latching, falls asleep shortly after latching, persistent crying or excessive need for a pacifier after nursing.

Infants At Risk for Inadequate Breastfeeding
“Finding the high-risk baby in the low-risk nursery”
- Late-preterm infants, and small or IUGR babies
- Twins or higher multiples
- Infants with neuromotor problems
- Infants with medical problems, such as jaundice, or cardiac, respiratory, or infectious illnesses
- Infants with oral abnormalities, such as cleft palate or severe micrognathia
- Infants with minor variations that can affect feeding, i.e. tongue-tie or high-arched palate
- Infants with latch-on problems
"Late-Preterm" Infants: A Population at Risk

- "Late-preterm" infants (34 - 36 weeks) are physiologically immature and have special health care needs compared to full term infants (37 - 41 weeks).
- The late-preterm infant’s neurologic immaturity, immature GI function, and low oromotor tone predispose to feeding difficulties, especially with breastfeeding. Breastfeeding may appear successful in the hospital, but not be sustained after discharge, resulting in decreased stooling, increased enterohepatic circulation, hyperbilirubinemia, and dehydration.

Breastfeeding Late-Preterm Infants

Late preterm infants often:
- Are sleepier, with fewer alert-awake periods
- Have poor muscle tone and less stamina
- Have difficulty attaching to the breast effectively
- Have weak intraoral suction pressures
- Have immature suck-swallow-breathe cycles
- Are unable to extract enough milk to maintain the mother’s milk supply

Common Reasons Lactation Professionals Recommend a Nipple Shield


- To help infants < 35 weeks gestation latch on and breastfeed; also may improve milk transfer in premature infants
- Help babies > 35 weeks who have difficulty latching and breastfeeding; may be used temporarily during postpartum engorgement
- Increase milk transfer in babies (such as late-preterm infants) who breastfeed ineffectively
- May enable mothers with sore nipples to breastfeed comfortably

Lactation Professionals’ Concerns about Using a Nipple Shield


- Inappropriate reasons for using a nipple shield
- Providing the appropriate nipple shield size
- Lack of follow-up to document milk transfer using the shield and monitor infant weight gain
- Risk of a diminished milk supply as a result of using a nipple shield
- Inconvenience of needing a breastfeeding “prop”
- Lack of support and guidance in helping a mom wean from using a nipple shield

Recommended Guidelines for Using a Nipple Shield

- Should not be used as a substitute for skilled latch-on assistance or as a first-line intervention.
- As soon as mother’s milk is in, use the test-weighing procedure to verify milk transfer with a nipple shield. Closely monitor the infant’s weight.
- Keep the mother’s milk supply generous by pumping after nursing (at least every other feeding). (A nipple shield is often used during the critical first weeks of establishing a milk supply).
- Provide ongoing follow-up and support to help mother wean from using the shield.

Strategies for Helping a Mother Wean from Using a Nipple Shield

- Emphasize that the nipple shield is a temporary, bridging tool; direct breastfeeding is the goal.
- Explain that maintaining a generous milk supply will make it easier for the baby to learn to latch directly to Mom’s breast and readily obtain milk.
- Encourage plenty of skin-to-skin contact.
- Once milk is flowing well while using the shield, mom’s nipple has been pulled out, and baby is eagerly nursing, mom can slide the shield off and quickly bring her baby back to the breast.
- Using the “cut-out” nipple shield provides more breast contact and may make weaning easier.
**Breastfeeding and Neonatal Jaundice**

- In most breastfed infants, the duration of physiologic jaundice is increased.
- Early inadequate breastfeeding can increase the intensity of jaundice.
- The cause of jaundice is often multi-factorial. The breastfed infant may have exaggerated jaundice due to underlying conditions, in addition to, or unrelated to, breastfeeding.
- The goal is to protect infants from the toxicity of hyperbilirubinemia, without undermining breastfeeding success.

**Mechanism of Breastfeeding Jaundice**

Breastfeeding jaundice is an exaggeration of physiologic jaundice of the newborn, as a result of inadequate caloric intake (due either to ineffective breastfeeding or suboptimal breastfeeding practices). It is the neonatal equivalent of the adult disorder known as starvation jaundice. One of the mechanisms involved is increased intestinal absorption of unconjugated bilirubin.


**Prevention of Breastfeeding Jaundice**

- Optimal breastfeeding management will minimize the risk of breastfeeding jaundice.
- Encourage early STS, early 1st feeding, rooming in, frequent cue-based feedings.
- Screen mothers and infants for lactation risk factors and provide appropriate intervention.
- Screen infants for clinical risk factors for severe hyperbilirubinemia. Perform TSB/TcB on all infants to identify those who require closer follow-up.

**Management of Breastfeeding Jaundice**

- Weighing the infant before and after nursing typically confirms ineffective breastfeeding and low milk transfer.
- In most instances, breastfeeding does not need to be interrupted. Treatment should include pumping after breastfeeding to maximize mother’s milk supply and ensuring that the infant receives adequate nutrition.
- Expressed breast milk and/or supplemental formula may be required temporarily until the infant is able to breastfeed effectively.

**Infant Feeding Test-Weighing Procedure**

The difference between the post-feed and the pre-feed weight represents the volume of milk consumed by the baby during the feeding.

Post-feed infant weight

Minus

Pre-feed infant weight

Equals

Volume of milk consumed

1 gram weight change = 1 milliliter milk

Approx. 30 grams weight change = 1 ounce of milk

- Use electronic balance accurate to 2 grams
- Baby must be identically clothed for pre-feed and post-feed weights.
- Do not change diaper during test-weighing procedure.
- Consider interval in hours since the breasts were last drained. Calculate hourly milk production.

**Between 2 - 3 weeks and 3 months, thriving breastfed infants drink about 788 ml (26 - 28 oz.) per day—approximately 1 oz. per hour**
**“Triple Feeding” Regimen for At-Risk Breastfed Newborns**

- Breastfeed (limit to 20 mins., sometimes less).
- Pump both breasts for 10–15 mins., using a highly effective double electric breast pump.
- Supplement the infant with expressed milk, plus donor milk/infant formula as required.
- As the milk supply increases and the infant nurses more effectively, the amount of supplement should decrease.
- Wean from pumping after baby is fully breastfed and gaining weight appropriately.

**Mechanism of Breastmilk Jaundice**

Breastmilk jaundice is a normal prolongation of physiologic jaundice caused by a yet unidentified factor in human milk which promotes intestinal absorption of unconjugated bilirubin in the newborn. Elevated serum bilirubin concentrations in healthy, thriving breastfed infants after the second week of life are so common as to be considered a normal developmental physiologic phenomenon.


**Management of Breastmilk Jaundice**

- Rule out hypothyroidism or other pathologic cause of jaundice. Obtain fractionated serum bilirubin levels and a CBC and smear.
- Temporarily interrupt breastfeeding (24-36 hrs.) for excessively high bilirubin levels (18-20 mg%).
- Feed infant formula while maintaining mother's milk supply using an electric breast pump. Hydrolyzed protein formulas (such as Nutramigen LIPIL, Pregestimil and Alimentum Advance) have been shown to be more effective than standard formulas in preventing intestinal absorption of bilirubin.
- Expect dramatic decline in bilirubin, with partial rebound after resuming breastfeeding.

**Case 2: A breastfed infant below birth weight at the two-week visit, and mother with severe sore, cracked nipples.**

- A 30 year-old P1 mother brings her 15-day old infant for her 2-week check. The baby's birth wt. was 8# 2 oz. At the 4-day visit, the infant's wt. was 7# 8 oz. (7.6% below birth wt.), and the baby was nursing at both breasts every 3 hours.
- At the 4-day visit, Mom did not mention that her breasts were painfully engorged and her nipples were cracked and sore. She thought discomfort was a normal part of early breastfeeding, and she was hesitant to talk with you about her breasts.

**Case 2: A breastfed infant below birth weight at the two-week visit, and mother with severe sore, cracked nipples.**

- The infant’s weight today is 7# 15 oz. (a gain of 7 oz. in 11 days). He voids with almost every feeding and has 2-3 yellow stools daily.
- Mom complains that, over the past 11 days, her nipples are not healing, the pain has worsened, and she “dreads” feeding her baby. She often tries to postpone feedings or shorten the duration, and is becoming discouraged and exhausted because her baby wants to nurse so often. She thought breastfeeding would be easier than this!
Case 2: A breastfed infant below birth weight at the two-week visit, and mother with severe sore, cracked nipples.

Discussion points:
1. Appropriate weight gain in breastfed infants.
2. An approach to maternal breast complaints.
3. Correct latch-on technique.
4. Bacterial infection of nipple wounds and the progression to mastitis.
5. The link between sore nipples and low milk transfer.
6. Temporary pumping as an option to heal damaged nipples.

Pediatricians’ Options for Handling Maternal Breast Complaints in Nursing Mothers

- Validate mother’s concerns and refer her to:
  - Her obstetrical care provider
  - A hospital-based or private lactation consultant (learn about and work with your local resources)
- Consider the potential impact of the mother’s complaint on the infant, i.e. infant weight gain
- Train an interested office nurse to serve as your on-site lactation consultant. Provide an electric pump in the office, i.e. for engorged mothers.
- Obtain permission to examine/inspect a mother’s breasts and nipples (consider using a chaperone).
- ???

“Asymmetric” or “Deep” Latch Technique
Lightly stroke the nipple against baby’s upper lip. When infant’s mouth opens wide, like a yawn, bring baby to the breast chin first. Aim baby’s lower lip as far from the base of the nipple as possible.

Common Latch-On Errors
- Placing the index finger too close to the margin of the areola
- Attempting to latch the infant before he opens his mouth WIDE
- Bringing the infant’s lower lip too close to the base of the nipple
- Settling for a “shallow” latch instead of ensuring that the infant grasps a large mouthful of breast
- Having the infant’s lips curled in, instead of flanged outward
- Assuming that discomfort is a normal part of breastfeeding

Signs of Effective Breastfeeding Technique
- Your baby’s eyes are open.
- Her jaw moves in wide, slow motions, as she sucks deeply and rhythmically.
- When she opens her mouth to the widest point while nursing, you see a pause as her mouth fills with milk. This pause in the movement of her jaw is a helpful sign that she is getting milk.
- You hear your baby swallow regularly (a soft “cuh,” “cuh,” “cuh,” sound when baby exhales).
- Breastfeeding is comfortable and milk let-down is triggered.

Temporary, Minor, Sore Nipples
- Early, mild nipple discomfort is very common among breastfeeding women.
- Transient nipple pain due to suction injury of the skin usually begins on the second postpartum day, increases between 3 and 5 days, then markedly improves after 5 days.
- No specific treatment usually is required, and feedings should be comfortable by the end of the first week.
Severe or Chronic Sore Nipples

- Severe nipple pain, cracks or visible wounds, discomfort that continues throughout a feeding, or pain not improving toward the end of the first week should not be considered a normal part of breastfeeding.
- Severe discomfort usually is linked to improper breastfeeding technique, which not only causes pain, but may limit milk transfer and lead to diminished supply and slow infant weight gain.
- Nipple wounds readily can become infected with bacteria and/or candida, delaying healing.

Common Causes of Sore Nipples

- Mechanical trauma: improper infant latch-on or dysfunctional suckling; improperly fitted pump flange, excessive suction
- Infected nipple wounds: bacteria and/or yeast
- Raynaud’s phenomenon: often secondary to nipple trauma
- Inappropriate nipple care: i.e. overdrying, wet breast pads
- Skin susceptibility: sensitive/dry skin, climate conditions, reaction to nipple ointments

Prevention/Treatment of Sore Nipples

- Ensure correct position, latch, suck.
- Try frequent, shorter feeds. Trigger let-down.
- Use moist wound healing (medical grade lanolin or hydrogel dressings).
- Wear breast shells; use synthetic oxytocin.
- Prescribe antibacterial/anti-yeast therapy.
- Use fully automatic electric breast pump. Ensure correct flange size.
- Think multi-factorial!

The Link Between Sore Nipples and Low Milk Supply

- Improper latch may result in poor milk transfer.
- Pain can inhibit the milk ejection reflex, thus limiting milk flow.
- Pain may cause the mother to postpone or restrict the length of feedings.
- Poor milk flow may cause the infant to nurse more often and more aggressively, which further traumatizes the nipples.

Bacterial Infection and Sore Nipples

Three factors make it very likely that a mother’s sore nipple is infected with pathogenic bacteria, requiring treatment: 1) The infant is less than 1 month old; 2) The mother complains of moderate to severe nipple pain; 3) The nipple has a visible crack, fissure, open wound, or drainage.

Livingstone, et al, Can Fam Physician 1996;42:654-659. Breastfeeding mothers who have a Staph aureus infection of the nipple have a high likelihood of developing mastitis within 7 days. Nipple wounds that are likely to be infected with bacteria should be treated with oral antibiotics to prevent mastitis.


Case 3. An expectant mother who would like to breastfeed her second baby, but needs to return to work at 10 weeks postpartum.

- A 23 year-old expectant Mom brings her toddler son for his 2 year, well-child visit. Although Mom did not breastfeed her older child, she would like to try breastfeeding the new baby, who is due in 6 weeks.
- Mom explains that she has to return to work as a cashier at 10 weeks postpartum and wonders whether short-term breastfeeding is worth the effort. She has heard that some women are able to continue breastfeeding after returning to work, but she doesn’t know how they do it.
Case 3. An expectant mother who would like to breastfeed her second baby, but needs to return to work at 10 weeks postpartum.

Discussion points:
- HCP affirmations for the decision to breastfeed.
- Prenatal preparation and optimal hospital initiation of breastfeeding.
- Establishing a plentiful milk supply.
- Using an effective, electric double breast pump to accumulate frozen stores of milk.
- Storing, handling, and feeding expressed milk.
- Breast storage capacity and the Magic Number (how often to drain the breasts each 24 hours to maintain a plentiful milk supply).

How Health Professionals Can Support Breastfeeding Mothers
- Give women the information they need to make an informed infant feeding decision.
- Congratulate women on their decision to begin breastfeeding, even if they have nursed before.
- Share your own breastfeeding experience and your strong belief in its value.
- Acknowledge mothers’ commitment to stick with breastfeeding: “Good for you.” “I’m proud of you.” “You are giving your baby the best.”
- Invite mothers to describe their commitment to breastfeeding in their own words: “What’s the best part of breastfeeding for you?”

Lactation Breaks for Nursing Mothers in the Patient Protection and Affordable Care Act
- Employers are required to provide “reasonable break time for an employee to express breast milk for her nursing child for 1 year after the child’s birth each time such employee has need to express the milk.”
- Employers also are required to provide “a place, other than a bathroom, that is shielded from view and free from intrusion from co-workers and the public, which may be used by an employee to express breast milk.”
- These requirements do not preempt State laws that provide greater protections to employees.

Breastfeeding and Employment
- According to the Bureau of Labor Statistics, half of mothers in the U.S. with infants < 1 year are employed, and one third are employed full time.
- Employment is associated with a decreased duration of breastfeeding. Most women wean before the end of the first month back at work.
- A short maternity leave and full-time employment are associated with a shorter duration of breastfeeding.
- Direct breastfeeding and/or regularly expressing milk during the work day are linked with a longer duration of breastfeeding. Pediatr 2008;122:S56-S62

Advice for Nursing Mothers Returning to Work
- Inform your employer of your breastfeeding plans. Identify where and when you will express milk (or breastfeed) at work. Enlist support from family, WIC staff, co-workers, and supervisor.
- While on maternity leave, consider pumping after one or two morning feedings, when the breasts usually are fuller, to establish a plentiful supply. Stockpile frozen stores of milk as a buffer against dwindling milk production after returning to work.
- Tailor a plan for how often to pump at work, based on your breast storage capacity, your baby’s age and usual frequency of breastfeeding.

Range of Options for Breastfeeding and Working
- Nurse baby at work site (research shows that having opportunities to breastfeed directly at work is linked with a longer duration of breastfeeding).
- Work part-time each day, without missing feedings.
- Pump and save expressed milk at the work place.
- Pump and dump (drain breasts w/o saving milk).
- Do not pump or breastfeed at work, and attempt to continue breastfeeding when mom is with her baby (research shows this strategy is linked with the shortest duration of breastfeeding).
Storage Guidelines for Expressed Breastmilk

<table>
<thead>
<tr>
<th>Storage Method</th>
<th>Ideal Storage Times</th>
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<tbody>
<tr>
<td>Room Temperature (66-78°F = 19-26°C)</td>
<td>4 hr. (Up to 6 hr. acceptable)</td>
</tr>
<tr>
<td>Insulated Cooler With 3 Frozen Gel Packs (59°F = 15°C)</td>
<td>up to 12 hrs.</td>
</tr>
<tr>
<td>Refrigerator (&lt; 39°F = &lt; 4°C)</td>
<td>72 hrs. (Up to 5 days acceptable)</td>
</tr>
<tr>
<td>Previously Thawed Refrigerated Milk</td>
<td>24 hrs.</td>
</tr>
<tr>
<td>Self-Contained Refrigerator Freezer Unit (0°F = -18°C)</td>
<td>3 - 6 mos.</td>
</tr>
<tr>
<td>Separate Deep Freezer (-4°F = -20°C)</td>
<td>6 - 12 mos.</td>
</tr>
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The Magic Number and Long-Term Milk Production


- The Magic Number represents a teaching tool to help breastfeeding mothers who are partially or fully expressing their milk calculate the number of times each day they need to remove milk by breastfeeding and/or pumping to maintain their milk production.

- Before returning to work, a fully breastfeeding mother should count how often her baby nurses each 24 hours. This daily total represents her magic number, or the number of times daily she needs to remove milk from her breasts by nursing or pumping.

Tips for Bottle-Feeding a Breastfed Baby

1. Instead of holding the baby in a semi-reclining position, position her nearly upright on your lap, supporting her back and shoulders with your hand. Or, hold baby in the crook of your elbow, while keeping her head supported and upright.

2. Use a slower flow nipple. A healthy, vigorous baby can take her feeding all too rapidly from a bottle, which can cause her to over-eat, swallow excessive air, or develop a preference for the ease of bottle-feeding over breastfeeding. A slower-flow nipple will allow her to pace the feeding at a more appropriate rate.

3. Hold the bottle as horizontally as possible—rather than vertically—to avoid excessive milk flow. Watch baby’s cues and pace the feeding accordingly. If baby begins to gulp milk, allow her to pause, rest, and catch her breath, just as she does with breastfeeding. You can twist and remove the nipple from baby’s mouth from time to time or tilt the bottle more horizontally so that less milk fills the nipple.

4. Pause to burp the baby part-way through the feeding to release swallowed air. The baby should be able to take her feeding by bottle within 15 - 20 minutes. If she takes longer than 20 minutes, the nipple flow may be too slow, which will frustrate her and cause her to work extra hard for her feeding.

Tips for Bottle-Feeding a Breastfed Baby

- Don’t over-feed the baby. The amount of milk you offer in the bottle will vary depending on the baby’s age and her typical feeding volume. Just as you interpret the baby’s hunger cues, it’s important to respect the signs that she is full. Don't encourage her to finish a bottle if she appears satisfied. If the baby regularly is fed larger volumes of milk when drinking from a bottle than she takes when breastfeeding, she may develop a preference for bottle-feeding. A typical feeding volume for a breastfed baby, depending on the frequency of feedings, is 3 - 5 ounces. Feeding larger volumes by bottle can cause a baby to become frustrated when resuming breastfeeding.

Tips for Bottle-Feeding a Breastfed Baby

- The Colorado Breastfeeding Coalition recently produced three YouTube videos designed to help employed moms continue breastfeeding (available in both English and Spanish).

1. Breastfeeding and working – real moms share their personal experiences breastfeeding and pumping milk at work
2. An employer’s perspective on accommodating breastfeeding employees

Colorado Breastfeeding Coalition YouTube Videos for Employed Breastfeeding Mothers

http://www.youtube.com/user/cobfcvideos