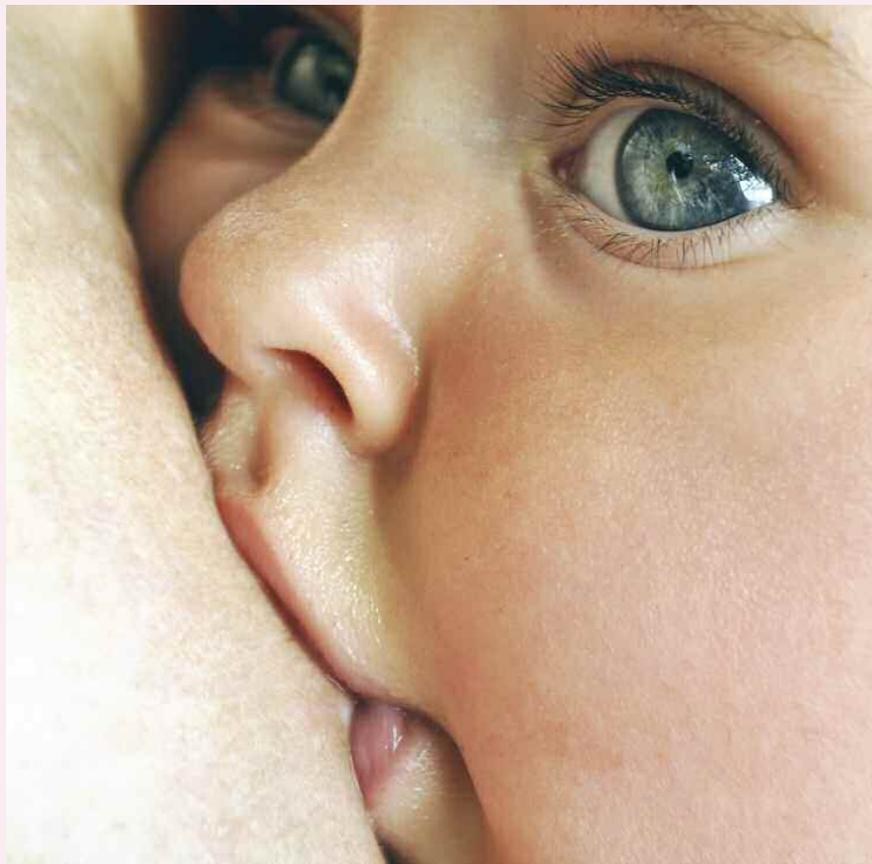


PHYSICIAN'S TOOLKIT
BREASTFEEDING

REFERENCE
MANUAL





www.babyfriendlynl.ca

INTRODUCTION

The Physician's Breastfeeding Toolkit: Evidence-informed Practice for Newfoundland & Labrador 2014 (Revised 2016).

This Resource consists of this Quick Reference Guide supported by a detailed Reference Manual. The toolkit is designed to assist physicians in providing optimal care and consistent information to breastfeeding families. The toolkit is based on current evidence and reflects global best practice in the care of the breastfeeding mother-baby dyad. Topics include initiating and sustaining breastfeeding, management of common concerns, medication safety, establishing a breastfeeding-friendly practice environment and local and national support resources.

Acknowledgements

The development of this resource was initiated by the Baby-Friendly Council of Newfoundland & Labrador in an effort to promote evidence-informed practices for breastfeeding. The Baby-Friendly Council of Newfoundland and Labrador acknowledges the contribution of the two consultants for this project, Dr. Amanda Pendergast, BSc (Hons), MD, CCFP, FCFP and Janet Fox-Bear BN, RN, IBCLC. Their professional knowledge, clinical expertise and commitment to this project are exemplary.

Thank you also to members of the advisory committee for their guidance in the development and review of the resources for the toolkit.

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Designed and Produced by Fonda Bushell Inc.



Baby-Friendly
Newfoundland & Labrador

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PROTECTING, PROMOTING & SUPPORTING BREASTFEEDING

Newfoundland and Labrador has one of the lowest breastfeeding initiation rates in Canada. Family physicians can play a positive role in influencing the breastfeeding culture of our communities. Direct counselling in a professional, supportive atmosphere, has a major impact on the infant feeding decisions of families. Because family physicians have an extended relationship with their patients before pregnancy, during pregnancy and in the postpartum, they have many opportunities to educate and encourage breastfeeding.

Infant feeding is a particularly important discussion topic during prenatal visits. Most families (50-70%) will make decisions early in pregnancy on how they will feed their babies. Family physicians should educate families on the importance of breastfeeding, as well as the risks of artificial feeding. The parents' goals for feeding and their concerns should be addressed. Infant feeding is also an important preconception counselling topic, as 30-50% of women decide how to feed their babies prior to pregnancy.

INITIATING BREASTFEEDING DISCUSSIONS

Health care professionals are sometimes reluctant to discuss breastfeeding, as they feel it may create maternal discomfort or unease. The topic of infant feeding must be approached with sensitivity and care. The provision of printed material alone does not influence breastfeeding initiation rates. The focus of discussion is to provide accurate information about the importance of breastfeeding and the risks and costs of artificial feeding. This process is important in supporting the family to make an informed decision.

**BREASTFEEDING
COUNSELLING PROVIDED
BY PHYSICIANS HAS A
MAJOR IMPACT ON
A FAMILY'S INFANT
FEEDING DECISION.**

"This would be a good time to start thinking about healthy infant nutrition. Do you have any thoughts on how you will feed your baby?"

"Your breastmilk is made specifically for your baby. It is the perfect food to protect baby and to help baby grow. Has anyone discussed the health benefits that breastfeeding can give your baby and you?"

"Your body has done an amazing job of nurturing your baby during pregnancy! By breastfeeding, you will continue to provide your baby with the best nutrition possible."

"You may have spent time considering baby names and preparing the nursery. Have you considered how you will feed your baby?"

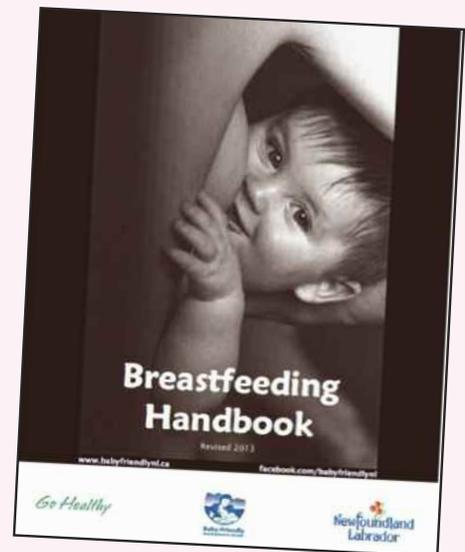


HOW TO SUPPORT A PARENT'S CHOICE FOR BREASTFEEDING

Parents benefit from seeing their breastfeeding decision supported and reinforced by the environment created by your office and practice. The American Academy of Pediatrics (AAP) "Ten Steps to Support Parents' Choice to Breastfeed Their Baby" outlines many helpful practices.

A Doctor should:

- Show a positive attitude and commitment to breastfeeding
- Keep up to date on research and the health benefits of breastfeeding for mother and baby
- Counsel families of childbearing age about breastfeeding
- Provide information that builds on their knowledge and skills
- Educate your office staff on how they can support breastfeeding families
- Encourage women to breastfeed in the waiting room, or provide a private place to breastfeed (if requested)
- Know your community resources
- Remove commercial logos that endorse formula from your office (notepads, pens, baby-scale paper, calendars)
- Store formula supplies out of view
- Encourage parents to participate in prenatal breastfeeding education
- Prepare families for success by promoting skin-to-skin contact, early and exclusive breastfeeding, rooming-in and cue-based, unrestricted feeding
- Identify mothers with lactation risk factors
- Manage common illnesses to avoid interruption of breastfeeding
- Provide information about expression and storage of breastmilk
- Be aware of the very few medical contraindications to breastfeeding
- Provide basic nutritional guidance to the breastfeeding mother, paying attention to mothers who have special nutritional preferences
- Support families in dealing with negative breastfeeding attitudes
- Encourage exclusive breastfeeding for six months and continued breastfeeding for two years and beyond
- Become skilled in assessing breastfeeding and troubleshooting problems
- Schedule early follow-up visits for all newborns
- Provide age-appropriate breastfeeding advice
- Counsel families about normal variations in breastfeeding patterns (e.g., growth spurts, sleep and behavior changes)



(Adapted from The American Academy of Pediatrics. "10 Steps to Support Parents' Choice to Breastfeed Their Baby.")

What other factors affect breastfeeding rates?

- Modesty
- Unfamiliarity with breastfeeding
- Lack of female role models
- Bottle-feeding culture
- Lack of support from partner and family
- Unrealistic expectations of parenthood
- Lack of maternal confidence to achieve feeding goals

REMEMBER!
DISCUSSION OF
BREASTFEEDING
IS AN IMPORTANT
COMPONENT OF
THE PRENATAL
RECORD.



See Quick Reference Guide for contact information for regional public health nurses and lactation consultants.

UNIQUE BIOSPECIFICS OF BREASTMILK

⋮

Breastmilk is species-specific and the normal choice for human babies. Any other infant food is sub-optimal.

Breastmilk is a complex, living fluid. It enhances immunity, destroys pathogens and delivers nutrients. As the baby matures, the composition of breastmilk adapts to the nutritional and immunological needs of the baby. In contrast, cow milk, used in infant formula, is meant for rapid muscle growth which occurs in young calves. The composition of breastmilk is also optimal for the accelerated brain development of human babies.

Breastfeeding is associated with a reduction in the risk of infant infection (especially gastroenteritis, severe pneumonia, and otitis media), sudden infant death syndrome, diabetes and childhood obesity. Breastfeeding enhances cognitive development. In addition, breastfeeding reduces rates of maternal diabetes, as well as ovarian and breast cancers. Ongoing studies demonstrate that breastfeeding offers some protection from multiple sclerosis, juvenile arthritis, atopy, irritable bowel disorders, childhood cancers and maternal osteoporosis.

WHAT DOES BREASTMILK CONTAIN?

Breastmilk contains a unique mixture of proteins, carbohydrates, lipids and anti-inflammatory factors.

The individual functions of each component are listed in the following table:

Component of Breastmilk		Benefit
Proteins	• Immunoglobulins	• Antibodies against infection • Secretory IgA prevents pathogens from invading gut mucosa
	• Lactoferrin	• Bactericidal • Carries iron
	• Lysozyme	• Bactericidal • Anti-inflammatory
	• Taurine	• Brain maturation • Retinal development
	• Casein	• Inhibits pathogen adhesion to mucous membranes
	• Amylase	• Facilitates digestion
	• Lipase	• Hydrolyzes fat • Bactericidal
Carbohydrates	• Lactose	• Brain growth • Enhances absorption of Ca, Mg, Mn
	• Probiotics (Bifidus Factor)	• Proliferates lactobacillus bifidus in gut
	• Oligosaccharides	• Binds to microbes and viruses in gut
Lipids	• PUFA: polyunsaturated fatty acids • AA: arachidonic acid • DHA: docosahexaenoic acid	• Visual acuity • Cognitive development
	• TG (triglycerides)	• Largest source of calories
	• FFA (free fatty acids)	• Anti-infective
	• Cholesterol	• Reduces young adult cholesterol levels
Anti-inflammatory Factors	• Prostaglandins (PGE1, PGE2)	• Cytoprotective
	• Cytokines	• Immunodulating
	• Growth factors	• Gut maturation
	• Macrophages	• Absorb pathogens • Release IgA
	• Lymphocytes	• Immunity • Antiviral protection

GETTING OFF TO A GOOD START: THE IMPORTANCE OF EARLY BREASTFEEDING INITIATION

All health care providers caring for pregnant women and childbearing families should follow the evidenced-informed practices of the WHO/UNICEF Baby-Friendly Initiative and the International Code of Marketing of Breastmilk Substitutes (the Code).

For more information about the Baby-Friendly Initiative and the Code see Appendix A.

The establishment of breastfeeding is facilitated by early and uninterrupted skin-to-skin contact between mother and baby in the first hour after birth. Research has shown that babies who are placed skin-to-skin and supported to initiate breastfeeding early after birth go on to experience fewer breastfeeding problems.

Skin-to-skin contact and early initiation of breastfeeding is associated with:



- Earlier establishment of effective suckling
- Improved cardio-respiratory and temperature stability
- Improved blood glucose levels
- Enhanced mother-infant interaction
- Less infant crying
- Improved breastfeeding outcomes

Average baby's stomach size

Day 1
holds 5-7 ml



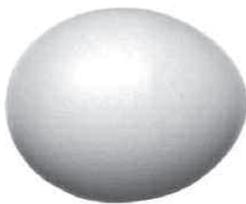
shooter marble

Day 3
holds 22-27 ml



ping pong ball

Day 10
holds 60-81 ml



large chicken egg

Early and frequent feedings, at least 8 or more times in 24 hours in response to infant cues, should be supported in the early postpartum to establish optimal milk production. Cluster feedings (several feedings close together) are common in the first 24-36 hours and assist in milk production. Ensure that all new mothers recognize the signs of adequate breastmilk transfer and intake. To facilitate easy access for breastfeeding and to recognize baby's early feeding cues, mother and baby should room-in together day and night. Artificial nipples, pacifiers, and nipple shields should be avoided.

Newborns typically lose about 7% of their birth weight, before starting to re-gain on days 4-5. The infant's stomach capacity at birth is small and variable (approximately 5-7 ml), which slowly increases to 22-27 ml by day 3, and 60-81 ml by day 10. As colostrum is concentrated and high caloric, early feeding patterns need to include small and frequent feeds. Feeding duration will vary. Human milk is the only nourishment a healthy term infant requires. Few healthy term infants require supplementation. See Appendix B for a list of the Acceptable Medical Indications for Supplementation.

THE VITAL LATCH

Achieving a correct latch is the most important skill a new breastfeeding mother must learn. Many breastfeeding difficulties, especially in the early weeks of breastfeeding, are due to a sub-optimal latch.

A proper latch will stimulate the release of oxytocin and prolactin, which are essential for lactation maintenance. A sub-optimal latch interferes with proper breast drainage and ultimately will decrease milk production. A sub-optimal latch may also cause trauma to the mother's nipples and breasts. This can result in pain with breastfeeding, nipple abrasions, candida and mastitis.

Helping a mother to achieve an optimal latch

Most babies learn to latch on effectively without much assistance. To facilitate an optimal latch, it should be led by the baby. Baby-led latching follows early infant feeding cues that build on baby's natural instincts to find the breast and nipple, latch on and suckle. The mother and baby should be calm and positioned comfortably with the baby tummy to mummy. Keep the baby's legs and feet tucked towards the mother's abdomen. Skin-to-skin contact promotes secure, coordinated, baby-led attachment and also stimulates the milk-ejection reflex. Gentle hand expression can be done prior to latching to help start the milk flow. See Appendix C for information on hand expression.

The infant's head and shoulders are supported and level with the mother's breast. The baby's nose should be aligned with the mother's nipple. The mother may gently stroke the nipple over the baby's top lip to stimulate the baby to open its mouth. Wait for the baby to open the mouth wide. The mother should aim the nipple high towards the roof of the baby's mouth. This will facilitate a deep latch and will prevent nipple trauma. Do not centre it in the baby's mouth. The areola is not a bull's eye. When latching the baby, the chin and lower jaw touch the breast first, the nose is free.

If the baby has a correct latch the **lips will be flanged out** to prevent friction and the baby will have a wide, gaping mouth to accommodate the areola and nipple. The latch will be **asymmetric** with more of the areola visible above the baby's top lip. The baby will be positioned comfortably, **tummy to mummy**, with baby's ears, shoulders and hip in alignment. The **chin will be touching the breast** with the nose free in a sniffing position. **Have a listen** and observe the baby for active suckling and swallowing. The baby should "milk" the breast, not suck on the nipple.

Achieving an optimal latch may take practice.

If the latch is sub-optimal or the mother finds the latch painful, advise her to insert her little finger in the corner of the baby's mouth to break the suction. The baby can then be re-latched. Refer for help if latching issues persist.

L
LIPS FLANGED OUT
{ Wide, gaping mouth to accommodate areola and nipple }

A
ASYMMETRIC LATCH
{ More areola visible above the baby's top lip }

T
TUMMY TO MUMMY
{ Baby's ears, shoulders and hips in alignment }

C
CHIN TOUCHING BREAST
{ Nose free in the sniffing position }

H
HAVE A LISTEN & WATCH
{ Active suckling and swallowing indicates milk transfer }





Early Feeding Cues:

- Making sucking sounds
- Rooting
- Sucking on fingers, fists or lips
- Bobbing head against mattress or mother's neck or shoulder

.....

Crying is a late feeding cue and can interfere with effective latching

The following table emphasizes the influence of latch on the mother's milk production and the outcomes for mother and baby. Note that if the latch is optimal, even a reduced milk production can lead to a healthy weight gain in the baby.

LATCH	Milk Production	Outcomes for Mother & Baby
Optimal	Optimal	<ul style="list-style-type: none"> • Excellent weight gain • Pain free feeding • Efficient feeding • Satisfied baby
Adequate	Optimal	<ul style="list-style-type: none"> • Good weight gain • Pain free feeding • Longer & more frequent feedings
Optimal	Adequate	<ul style="list-style-type: none"> • Good weight gain • Pain free feeding • Efficient feeding • Satisfied baby
Poor	Optimal	<ul style="list-style-type: none"> • Slower weight gain • Lower milk production • Longer feeds • Possible weight loss • Sore nipples
Poor	Adequate	<ul style="list-style-type: none"> • Slow weight gain • Longer feeds • Growth concerns • Fatigue (mom & baby) • Sore nipples



Facilitating optimal latch



Lips flanged out

.....

For further clinical scenarios of latch, see the following sites:

- www.breastfeeding.asn.au/bfinfo/attachment-breast
- www.newborns.stanford.edu/Breastfeeding/FifteenMinuteHelper.html
- www.breastfeedinginc.ca/content.php?pagename=videos

SIGNS OF EFFECTIVE BREASTFEEDING: FIRST 6 WEEKS

- Exhibits readiness to feed at least 8 or more times in 24 hours
- Suckles and swallows effectively to transfer milk and stimulate production
- Has alert periods
- Settles after a feeding
- Yellow, seedy bowel movements and clear urine (see stool & urine output chart)
- Back to birth weight by day 14
- Weight gain at least 113 grams (4 ounces) per week*
- No pain with breastfeeding

**BREASTFEEDING
SHOULD BE:**

EARLY & OFTEN

**EFFECTIVE
(OPTIMAL LATCH)**

**EXCLUSIVE
(NO SUPPLEMENTS)**

*It may be acceptable for a healthy baby to have a slower weight gain pattern.

INFANT STOOL & URINE OUTPUT CHART		
INFANT AGE	WET DIAPERS / DAY	STOOLS / DAY
Days 1 to 2 (colostrum)	1 - 2 clear or pale yellow	1+ meconium
Days 3 to 4 (milk coming in)	3+ clear or pale yellow	3+ green, brown or yellow
After 1st week (milk is in)	6+ clear or pale yellow	3+ soft, yellow, loose, seedy
After 4 weeks	6+ clear or pale yellow	Varies. 1 or more soft, large or may go several days without a BM**

**An occasional green stool is not unusual.

INFANT RISK FACTORS FOR LACTATION

Infants with Latching Difficulties

Multiple factors may contribute to latching challenges in the early postpartum. Factors or interventions which may occur during labour and birth (analgesia, I/V fluids, type of delivery, maternal/baby separation, stress) may affect the baby's immediate neuromotor coordination which can impair the baby's latch. Other factors such as gestational age, presence of jaundice or illness, genetic disorders or oral anatomical variations can also contribute to latching difficulties.

To facilitate a proper latch, the basic techniques of attachment are applied: semi-reclined mom and prone baby, skin-to-skin contact and asymmetrical latch around the areola. This position builds on baby's inborn instincts to find mother's breast and nipple, latch on and suckle. This permits a deep latch, optimal stimulation and effective milk transfer.

Latching difficulties require early identification and management. A common, early cause is breast engorgement. Interstitial fluid around the areola causes the nipple to flatten and the areola to become tight, making it difficult for the baby to achieve an effective latch. Engorgement can be relieved by using cold compresses, reverse pressure softening techniques, hand expression and non-steroidal anti-inflammatory medication. See p. 22 for more information and techniques on the management of engorgement.

Sub-optimal oral stimulation may contribute to latch issues for babies of mothers with flat or inverted nipples. The use of finger feeding as a strategy to elicit the sucking reflex can be helpful in establishing breastfeeding. Some parents may choose to use a nipple shield as a temporary tool for this purpose; however their use can carry risks as well as perceived benefits. If the nipple shield is not applied correctly, the baby may develop a habit of nipple sucking with a shallow latch which can diminish breast stimulation and milk supply. Weaning the baby from the shield can be a challenge as conditioning to the sensory triggers may mimic the type of nipple preference seen with bottle feeding.

INFANT Risk Factors for Lactation:

- Infants with Latching Difficulties
- Excessive Weight Loss (> 10%)
- Hypoglycemia
- Jaundice
- Preterm Babies
- Small for Gestational Age and Late-preterm Infants
- Multiple Births
- Slow/Inadequate Weight Gain
- Infants with Medical Conditions



Skin-to-skin contact enhances breastfeeding success



Adequate latch with nipple shield



Poor latch with nipple shield

It is important that nipple shields only be used under the guidance of a skilled lactation consultant or health care provider.

A complete history and physical of mother and baby are important when assessing a breastfeeding problem such as insufficient breastmilk intake or slow weight gain. Observation and evaluation of both mother and baby while breastfeeding is essential.

If baby is not able to effectively latch onto the breast, hand expression or mechanical pumping should be initiated (see Appendix C for information on hand expression). The expressed colostrum or breastmilk can be fed to the baby using a spoon, syringe, cup, finger feeding or an artificial bottle. If the baby is latching effectively and there is concern that the baby is not getting enough milk, a lactation aid at the breast may be warranted.

ALTERNATE FEEDING METHODS

METHOD	EQUIPMENT	WHEN	HOW	ADVANTAGES
 <p>Spoon Feeding</p>	Small clean spoon	Useful in early postpartum with a baby who is not showing interest in breastfeeding	Mom expresses milk into a clean spoon, spoons milk into baby's mouth or baby laps from spoon	Low cost, easy, clean, empowers mothers, emphasizes value of even small amounts of breastmilk, does NOT contribute to nipple confusion
 <p>Cup Feeding</p>	Small clean cup	Alert, awake newborn. Useful if baby has difficulty latching (flat nipples, engorgement)	Mom expresses milk into a clean cup and baby laps from cup	Low cost, easy, clean, empowers mothers, emphasizes value of even small amounts of breastmilk, does NOT contribute to nipple confusion
www.breastfeedinginc.ca/content.php?pagename=vid-cupfeed				
 <p>Finger Feeding</p>	5F feeding tube (Mother does not need to use a glove)	Baby with latching difficulty. Hypotonic, sleepy baby	Tube held between thumb/middle finger. End of tube placed in milk reservoir. Baby sucks on finger.	Low cost, sucking similar to breastfeeding, reinforces sucking
www.breastfeedinginc.ca/content.php?pagename=vid-notyet				
 <p>Lactation Aid</p>	5F feeding tube	Supplemental feeds	Latch baby to breasts until finished breastfeeding. Insert tube into corner of mouth while baby is latched.	Supports baby's instinct to breastfeed. Eliminates the introduction of an artificial nipple and bottle.
www.breastfeedinginc.ca/content.php?pagename=vid-lactaid				

If latch problems persist, some alternative positioning holds could be considered. For example, hypotonic babies may benefit from the Dancer's hold. This hold provides additional support to the baby's chin and jaw to maintain optimal latch and suckling.

Avoid the use of artificial nipples or pacifiers to prevent nipple preference, until breastfeeding is well established.

Anatomic variations of oral structure can pose challenges with latching. Infants with ankyloglossia (tongue tie) often slide off the breast, and the mother may report pain with latching. On assessment, the tongue can appear heart shaped, and have a midline notch. In addition, a high or bubble palate may be present. The infant's ability to lift, cup and lateralize the tongue should also be observed. A short or tight frenulum may prevent the tongue from extending over the lower gum line, which can cause a poor, painful or traumatic latch. If the restriction in lingual movement is significant, frenotomy can be performed. Frenotomy is performed by a pediatric dentist or otolaryngologist, or physician with appropriate training. There are other oral frenula that may impact breastfeeding, e.g., an upper or lower lip tie which may interfere with flanging of the lips. Contact a regional lactation consultant for assessment. See pages 29-33 in Quick Reference Guide. In areas where lactation consultant services are not available, email: info@babyfriendlynl.ca for further information.



Dancer's hold



Ankyloglossia

Palates may also be unusually high as a result of congenital causes (e.g., Turner Syndrome) or iatrogenic causes (e.g., long-term intubation). As with cleft palate, challenges exist with these babies as it is more difficult to create a strong vacuum with sucking. In these more difficult situations it is important to collaborate with a lactation consultant in the assessment and follow-up care.

Excessive Weight Loss (>10%)

Infants may lose up to 7% of their birth weight in the first three days of life. Infants store fluids, electrolytes and calories to provide for these initial days as breastfeeding becomes established. The newborn's stomach is small and is intended for concentrated colostrum and small, frequent feeds for these first few days. Infants who lose more than 10% of their birth weight or have not regained their birth weight by 14 days of age should be further assessed to rule out illness or breastfeeding difficulties.

The baby's feeding technique must be fully assessed, including the mother's milk production and transfer of milk to baby. Breastfeeding should ideally occur at least 8 or more times in 24 hours. Milk should be expressed post feeding to prevent milk stasis, which may inhibit breastmilk production. After the mother breastfeeds, supplementation with expressed breastmilk or a breastmilk substitute should occur until the baby is satiated. The infant requires daily weight assessment until improvement is noted. If a baby has had a challenging time initiating and establishing breastfeeding, it may take longer to regain the birth weight.

Supplementation may be avoided if the baby is closely monitored and breastfeeding technique is improving.

Hypoglycemia

For healthy term infants, colostrum feedings meet nutritional and metabolic demands. These low volume feedings in the first 48 hours are well suited to the size of the newborn's stomach. Transient hypoglycemia after birth is common, and usually resolves without intervention. Early and uninterrupted skin-to-skin contact between mother and infant enhances thermoregulation and stabilization of blood glucose. Early and exclusive breastfeeding, followed by frequent, unrestricted feedings at least 8 or more times in 24 hours, optimizes health outcomes.

Only infants at risk should be screened for hypoglycemia: those who are preterm, small for gestational age, large for gestational age, infants of diabetic mothers and infants who are unwell at birth (refer to the Canadian Pediatric Society screening and management guidelines). For asymptomatic documented hypoglycemia, increase breastfeeding frequency and, if medically indicated, supplement with expressed colostrum/breastmilk, pasteurized donor milk, or if necessary, a breastmilk substitute. Symptomatic hypoglycemia and infants who are unable to maintain normal glucose levels with feedings require intravenous dextrose therapy. Pregnant women with gestational diabetes or insulin dependent diabetes may address this proactively through prenatal expression of colostrum for intervention (if needed) after birth.

Early hand expression and feeding of colostrum to the baby can play a significant role in the prevention of hypoglycemia.

In addition to breastfeeding, colostrum can also be fed to the baby on mother's finger or by using a spoon.

Jaundice

Physiologic neonatal jaundice is common and may be visually apparent in up to half of healthy newborns. Bilirubin levels peak on days 2-5 postpartum. Fat soluble bilirubin is excreted through the intestines, so effective breastfeeding will help resolve jaundice. **There is no evidence to support supplementation with water or glucose water to reduce serum bilirubin, and there is no need to stop breastfeeding.**

The infant should breastfeed frequently, at least 8 or more times in 24 hours, and be awakened if necessary. Ensure that the latch and signs of milk transfer are adequate. Encourage skin-to-skin contact to promote frequent breastfeeding and to stimulate a sleepy or lethargic infant. If intake is inadequate, weight loss is excessive, or dehydration is present, the infant should be supplemented with expressed breastmilk, donor milk, or a breastmilk substitute post breastfeeding. Breastfeeding should not be interrupted.

Further assessment should be initiated in infants who:

- present with jaundice < 24 hours of age
- jaundice persists beyond 1-2 weeks
- appear ill or have a history suggestive of a pathologic process
- sleepy, not breastfeeding well, dehydrated (see urine and stool output chart, p. 8)

Small for Gestational Age and Late-preterm Infants

Small for gestational age (SGA) and late-preterm infants may have challenges initiating and establishing successful breastfeeding. Supportive measures would be similar to those outlined for the preterm baby. These infants may also have a higher risk for jaundice, dehydration and hospital re-admission.

Preterm Babies

Babies born at less than 37 weeks may have breastfeeding challenges related to immature neurological development and organization which may present as:

- uncoordinated suck-swallow-breathing feeding pattern
- ineffective feeding patterns that involve shortened periods of suckling with frequent pauses
- disorganized CNS arousal which may result in shortened or lengthened periods of sleep, impacting feeding frequency

These challenges may lead to insufficient milk transfer, which places these babies at risk for dehydration, insufficient weight gain, jaundice and hospital re-admission.

These infants may take a little longer to establish breastfeeding, and therefore proactive breastfeeding measures initiated after birth should be continued following discharge.

These include:

- skin-to-skin contact
- rooming-in, cue-based breastfeeding at least 8 or more times in 24 hours
- milk removal by hand expression and / or a hospital grade, double electric breast pump
- if medically indicated, supplementation with expressed breastmilk, donor human milk (if available) or a breastmilk substitute

Positional techniques such as the underarm (football) hold or modified cradle hold may be helpful in providing support for the baby's head and neck. Careful monitoring of weight gain every 2-3 days and observing for signs of dehydration and jaundice are advised. These infants should have an individualized breastfeeding care plan.



Preterm baby



Double electric breast pump



Hand Expression Advantages

- Free
- Always available
- No equipment
- Easy and quick
- Mother becomes confident and empowered
- Enhances mechanical pumping
- Efficient for stimulation and compression

For information on technique, visit: www.unicef.org.uk/BabyFriendly/Resources/AudioVideo/Hand-expression/

Multiple Births

Breastmilk production is regulated by the frequency and thoroughness of milk removal with each breastfeed. This autocrine regulation allows mothers of multiples to successfully breastfeed. However, multiple pregnancies can be associated with more antepartum and intrapartum complications, such as low birth weight and preterm delivery. The additional physical and emotional demands placed on the mother and babies during the delivery and postpartum period may impair lactogenesis.

Parents should be educated about the importance of breastfeeding and human milk, as breastfeeding can reduce the risk of neonatal mortality and morbidity. Separation of the mother and her infants should be minimized. The mother should be encouraged to have early and frequent skin-to-skin contact with her infants and to breastfeed every 2-3 hours. If the babies are not feeding effectively, the mother's breasts should be stimulated and milk removed by either hand expression or by using a hospital grade, double electric breast pump every 2-3 hours post feeding. Mothers feeding multiples can use a variety of positions at the breast. For example, twins can be held in the underarm (football) position; alternatively, one can be in the underarm (football) hold, and one in the cross-cradle. It may be easier for the mother to feed each baby separately and then experiment with positioning so eventually she can feed them both at the same time.



Usually, most twins feed well from one breast and the mother's milk production is ample for each baby. However, if one baby is a more effective feeder or gaining weight better, it may be prudent to alternate babies at the breast to compensate for the less effective feeder.

Slow/Inadequate Weight Gain

Weight gain is always variable and each baby follows its own pattern. However, most babies will have returned to their birth weight by two weeks if they are healthy and feeding is progressing well. If a baby has not regained its birth weight by two weeks, a thorough breastfeeding assessment and medical evaluation should take place. There are some babies who have a difficult first week of life initiating breastfeeding. These infants may take up to three weeks to regain birth weight. The physician should closely monitor progress with the aim of avoiding unnecessary supplementation if the baby is healthy and breastfeeding effectively. Emerging research suggests that increased intake of maternal intravenous fluids during labour and birth may falsely inflate birth weight and consequently result in a higher weight loss in the first 24 hours after birth.

Before determining if weight gain is actually slow, it is important to note that exclusively breastfed babies tend to gain weight more rapidly in the first 2-3 months and weigh less than formula fed babies at 6-12 months.

Most healthy breastfed babies gain approximately:

- 142-227 grams (5-8 ounces) a week for the first four months
- 85-113 grams (3-4 ounces) a week between 4-6 months
- 57-85 grams (2-3 ounces) a week from 6-12 months

Interventions for inadequate or slow weight gain include a thorough maternal and infant history and physical to rule out medical causes, assessment and improvement of breastfeeding technique (position and latch) and management of breastfeeding concerns. Helpful suggestions to improve milk production and transfer include: unrestricted cue-based feeding at least eight or more times in 24 hours, breast compression (see below) and switch nursing*, hand expression and/or pumping post feeding, and if medically indicated, supplementation with expressed breastmilk, donor human milk or a breastmilk substitute (formula). If the mother's milk production is compromised, then the use of a galactagogue may be warranted.

In 2006, the World Health Organization released revised infant growth charts to reflect the growth of breastfeeding babies worldwide. Previous weight growth charts were based mostly on the growth of formula-fed infants. The new growth charts were introduced in Newfoundland and Labrador in 2012. See Appendix E for the WHO Growth Chart Assessment and Counselling-Key Messages.

* Alternate each breast 2-3 times per feeding to optimize suckling and swallowing.



BREAST COMPRESSION is a simple technique that can enhance milk flow. The mother's hand applies gentle, but firm pressure to the breast as the baby is nursing (but not actively sucking and swallowing). This pressure can be applied using a C-hold hand position on the breast, close to the chest wall and away from the baby's lips and latch. The pressure is released when the baby stops suckling, and resumes with the baby's return to nursing. See Appendix E.

Infants with Medical Problems

Breastfeeding contributes to many positive health outcomes, including the promotion of maternal-infant attachment and optimizing the cognitive and neurodevelopment of the infant. This is important for all newborns and mothers, but it is crucial for infants with medical complications. Families should be educated on the importance of breastfeeding and be assisted to make an informed decision. Infants with medical complications are more likely to be separated from their mothers, and have higher cortisol and stress levels. They are also more likely to have met the criteria for medical supplementation with breastmilk substitutes. These babies may have been exposed to artificial nipples which can add to the challenges in establishing breastfeeding. Physicians should support families in working with hospital staff to decrease separation and optimize all attachment and breastfeeding opportunities.



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Breastfeeding involves coordination of sucking, swallowing and breathing. Hypotonic infants can have difficulties sealing their lips around the areola and positioning their tongue correctly. They are also at higher risk of milk aspiration. For babies with hypotonia, the baby can be positioned for optimal protection of the gag reflex by using a hold such as the underarm (football) hold. The latch for these babies can be supported with the Dancer hand position. Supplemental feedings or alternative feeding methods may also be medically indicated.

MATERNAL RISK FACTORS FOR LACTATION

Psychosocial Factors

Psychosocial factors play an important role in women's experiences with breastfeeding. For example, women without any exposure to a breastfeeding culture may lack confidence in their breastfeeding ability. They may not have understood the importance of breastfeeding for their baby or for themselves. They may not be aware of the risks and costs associated with feeding breastmilk substitutes. Some women may also lack a social support network, such as a supportive partner or mother. Older, first-time mothers may struggle with the changing roles, responsibilities and physical demands of a new infant. Younger mothers must also adjust to the realities of parenting and breastfeeding along with the normal desire for independence and freedom. A woman's cultural background may also influence her breastfeeding practices, such as the value of colostrum, her comfort with public breastfeeding, infant care practices, the role of male support, and the time of weaning.

To offer assistance, explore the mother's unique concerns and/or perceived barriers to breastfeeding. Provide education about the importance of breastfeeding, the risks of not breastfeeding and basic guidelines on initiating and establishing breastfeeding. Most women benefit from being connected with a mother-to-mother support group. Referral to a public health nurse and/or lactation consultant for additional support is advised.

ALL BABIES CRY!

Many parents have unrealistic expectations of parenthood. It is normal for babies to cry and formula feeding is not the solution.

MATERNAL Risk Factors for Lactation:

- **Psychosocial Factors**
 - Uncertain Feeding Goals
 - Maternal Age (< 15 or > 35)
 - Lack of Maternal Confidence
 - Lack of Supportive Partner/Family
- **Early Return to Work/School**
- **Medical Conditions**
 - History of Infertility
 - Perinatal Complications
 - Anemia
 - Infections
 - Thyroid Disorders
 - PCOS
 - Cesarean Birth
 - Delayed Lactogenesis
- **History of Breastfeeding Difficulties**
- **Hormonal Contraceptives**
- **Breast or Nipple Variations**
- **Breast Trauma or Surgery**
- **Inadequate Milk Production**
- **Breastfeeding Pain**
 - Nipple Pain**
 - Cracked Nipples
 - Nipple Bleb
 - Sebaceous Cyst
 - Nipple Abrasion
 - Nipple Vasospasm or Raynaud's Syndrome
 - Breast Pain**
 - Engorgement
 - Blocked Milk Duct
 - Mastitis
 - Breast Abscess
 - Candida
 - Overproduction
 - Breast or Nipple Dermatitis
- **Postpartum Mood Disorders**

Early Return to Work/School

In our society, many mothers return to work or school while their baby is still breastfeeding, and the majority of these mothers can continue exclusive breastfeeding. Most mothers will choose to breastfeed their child at home, and express milk while they are away. The milk can be refrigerated or frozen and used as needed. Many mothers have concerns about their abilities to express adequate volumes of breastmilk. The release of stress hormones can inhibit the milk ejection reflex. Early introduction of artificial nipples could also result in nipple preference or breast refusal.

To support continued breastfeeding, it is recommended that artificial nipples be used only after breastfeeding is well established (four or more weeks of breastfeeding). Breastmilk can be expressed and stored in the refrigerator or freezer. See Appendix F for information on the handling and storage of breastmilk.

The physician can provide support to the mother by linking her to a mother-to-mother support group such as La Leche League and/or referring to the public health nurse for additional support.



Maternal Medical Conditions

Maternal medical conditions and perinatal complications can decrease prolactin levels and delay lactogenesis. Illnesses that may create more challenges with breastfeeding includes thyroid disorders, polycystic ovarian syndrome, diabetes, obesity, anemia, postpartum hemorrhage, postpartum infection or gestational hypertension. Retained placental fragments can produce estrogens and progesterone, which can inhibit lactation. These mothers require close follow-up with appropriate investigation and medical treatment. Side effects of medications and their effects on breastfeeding, such as candida from antibiotics, should be anticipated. Breastfeeding technique, management and milk production needs to be closely monitored. Cesarean birth may also be associated with delayed lactogenesis and a delay in establishing breastfeeding. These mothers require more support in the early postpartum period as they are also recovering from surgery.



History of Breastfeeding Difficulties

A history of previous difficulties with breastfeeding may undermine the mother's confidence to initiate again. She may be worried that her next experience will also be problematic, and may be preoccupied with the possibility of failing her newborn. Anxiety will not directly cause a decrease in milk production, but it can interfere with the release of oxytocin, therefore inhibiting the milk-ejection reflex. A mother's lack of confidence can make common breastfeeding challenges seem overwhelming. Previous difficulties may also signal underlying medical complications (see above) which can interfere with breastfeeding. In these cases, the mother may require diagnostic interventions and treatment. Consultation with a lactation consultant is appropriate.



Hormonal Contraceptives

Estrogen contained in contraceptives may decrease milk production. Barrier methods can be used until six weeks postpartum, or until breastfeeding is established. Hormonal contraception can be initiated at six weeks postpartum, preferably with progesterone only methods. Avoidance of injectable hormonal contraception is prudent, as any potential effect on milk production is not easily reversible.

Breast or Nipple Variations

Certain variations in breast anatomy, such as mammary hypoplasia, widened intra-mammary space, and lack of breast hypertrophy with pregnancy, may indicate mammary insufficiency. In these cases, milk production must be monitored. Galactogogues or supplemental feedings may be indicated. It is important to remember that breast size is not an indicator of breastfeeding ability.



Inverted nipple

Women with flat or inverted nipples may find it challenging to achieve an optimal latch, especially if the early postpartum period is complicated by breast engorgement. It may be helpful to manually stimulate the nipples prior to feeding to help eversion. Reverse pressure softening (RPS) techniques can soften the area around the areola to facilitate latching, see p. 22. The baby should have a wide, gaping mouth and a deep latch, with the mouth covering most of the areola (this varies depending on the size of the areola), and not sucking on the nipple. Some parents may choose to use a nipple shield if the nipple is inverted and the baby continues to have latching challenges. If a nipple shield is used, a skilled health care provider or lactation consultant should closely supervise the use and weaning from the shield.

Breast Trauma or Surgery

The nipple and areola are stimulated by the 4th, 5th and 6th intercostal nerves. If these nerves are damaged, a reduction in milk production may occur. If the drainage pathways of the mammary ductal system have been damaged, milk transfer may be affected. Women who have had breast reduction surgery are susceptible to these concerns, due to mammary insufficiency. Women who have had breast augmentation are usually not affected and silicone from breast implants is not detected in breastmilk.



Breast reduction surgery

It is important that women who have had surgery or trauma be supported to achieve an optimal latch in order to maximize milk production. Galactagogues may be beneficial. Close follow-up, preferably by a lactation consultant, is recommended to ensure adequate milk production and infant growth. If full milk production cannot be established, the mother can still have a successful breastfeeding experience by supplementing with a lactation aid directly at the breast.

A resource for breastfeeding support following post-operative reduction surgery is available at the following website: www.bfar.org/index.shtml.

Inadequate Milk Production

The most common challenge reported by mothers is a perception that they are not producing enough breastmilk. In most cases, however, the baby is getting adequate breastmilk. The mother's perception of inadequacy of milk production can undermine successful breastfeeding. New mothers often lack confidence in their breastfeeding knowledge and skills. Lifestyle and cultural factors or restrictive feeding patterns may also interfere with lactation potential.



Wide intramammary space

Delayed lactogenesis can also affect milk production. Contributing factors include: analgesia during labour, cesarean birth, maternal obesity, separation of mother and newborn, maternal metabolic conditions and stress. Primary milk insufficiency or primary lactation failure is rare, and occurs in less than 5% of women. Insufficient mammary gland tissue may be noted in these women. The breasts may appear widely spaced and tubular. In these situations, women should be referred to a lactation consultant for a comprehensive breastfeeding assessment.

Mothers with inadequate milk production should be encouraged to practice skin-to-skin care, optimize latching techniques and follow unrestricted breastfeeding day and night. In between feedings, the mother should rest so that she can focus her energy solely on breastfeeding. Hand expression or pumping after feeding helps to increase milk production. Information on the principles of supply and demand of breastfeeding should be discussed. Management may include the use of a lactation aid at the breast and/or a galactagogue to optimize milk production.

Breastfeeding Pain

Pain with breastfeeding can be a source of anxiety, frustration and discouragement for mothers. Pain should always be investigated. Poorly treated breast pain can result in a mother's decision to discontinue breastfeeding prematurely. Breastfeeding pain can originate in the nipple, breast tissue or be associated with postpartum mood disorders. Treatment involves latch correction, analgesia, and treatment of the underlying etiology.



Compressed nipple

Nipple Pain

Cracked Nipples

Cracked nipples are related to nipple trauma, usually from a narrow, shallow latch or excessive vacuum pressure during feeding or pumping. The mother will complain of nipple pain. There may be a compressed nipple shape post feeding, along with erosion of the skin, nipple erythema and nipple edema. The nipple may blanch when the baby unlatches. There may also be co-existing bacterial and fungal infections.

Risk factors for cracked nipples include: engorgement, flat or inverted nipples and ankyloglossia.

As with any breastfeeding challenge, it is important to establish the source of the problem. Continue to support the mother to improve her latch and position techniques. Alternate positions at the breast to determine which position is most comfortable for the mother. Try, for example, changing positions from one feeding to the next to avoid placing pressure on the same area of the nipple and areola. After breastfeeding, the mother can express a few drops of breastmilk, gently rub it into the nipples. If needed, APNO* (all-purpose nipple ointment) can be used. A moist wound healing approach is warranted if there is trauma to the nipple such as cracks or fissures.

Nipple Bleb

A nipple bleb is a cyst-like, white, painful lesion on the nipple face. It is caused by calcified milk trapped under a blocked milk duct pore. If left untreated, a bleb may produce an inflammatory response that can escalate to mastitis.

A bleb is treated by applying warm, moist compresses before feeding to soften the bleb. It may also be helpful to gently rub the bleb with a clean, damp washcloth in an effort to dislodge the blockage. Warmed olive oil or vitamin E oil can be massaged into the area. Encourage frequent breastfeeding or expression. Following feedings, expressed breastmilk, or if needed, a topical antibiotic, can be applied to the bleb. Other options that may be helpful before feeding include the application of ice to the sore area, or use of analgesia. If required, a health care provider can break the epithelial skin with a sterile needle to release the plug.

Nipple pain

- Cracked Nipples
- Nipple Bleb
- Sebaceous Cyst
- Nipple Abrasion
- Nipple Vasospasm

Breast pain

- Engorgement
- Blocked Duct
- Mastitis
- Breast Abscess
- Candida
- Overproduction
- Dermatitis

Emotional pain

- Postpartum Mood Disorders



Cracked nipple



Nipple bleb

* APNO ALL PURPOSE NIPPLE OINTMENT

- Mupirocin 2% Ointment (15g)
- Betamethasone 0.1% Ointment (15g)
- Ibuprofen Powder 2%*
- Miconazole Powder 2%* *final concentration

- Apply sparingly to nipples post feeding
- DO NOT wash off before breastfeeding

Sebaceous Cyst

A sebaceous cyst can appear on the nipple shaft as a white, painful lesion. It is the result of accumulated oil and sloughed skin cells. Treatment involves warm, moist compresses and pressure to expel secretions. Expressed breastmilk or if needed, topical antibiotics can be applied.

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Sebaceous cyst

Nipple Abrasion

Nipple abrasions cause a painful latch as the nipple is erythematous with broken skin integrity. If a bacterial infection is present, there will be purulent discharge and exudate (honey coloured crusting). An abrasion can result from increased trauma to the nipple as a result of poor latch or from increased vacuum pressure during mechanical pumping. Prevention is key; in addition to supportive education and anticipatory guidance on effective positioning and latching.

Nipple abrasions can be treated by flushing the area with a normal saline wash after feeding. If the abrasion is minor, expressed breastmilk can be applied to the nipples. Medical grade manuka honey (sterilized) is also effective for the treatment of nipple trauma. Moist wound healing techniques are recommended for nipple abrasions, cracks and fissures.

If there is evidence of bacterial infection, topical 2% mupricin, 2% fucidic acid or APNO can be applied sparingly after feedings for 10 days. There is no need to remove the ointment prior to the next breastfeeding.

If the mother is using breast pads, they should be changed frequently and if they are sticking to the nipple, they should be removed carefully by moistening them with water. Mothers may also find using non-adhering pads such as Telfa pads helpful during the healing process.

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Nipple abrasion

Nipple Vasospasm

Nipple vasospasm produces a deep, shooting, stinging breast pain associated with feeding or exposure to cold air. The nipple blanches after feeding, and can progress to a blue, then a red discoloration. Nipple vasospasm is caused by the temporary constriction of nipple blood vessels due to ischemia. It is commonly triggered by the cold stress of unlatching the infant's mouth from the breast.

The risk factors for vasospasm include: poor latch, nipple trauma, nipple infection (bacterial or candida), cold stress and predisposition to vasoconstrictive episodes. Medications, such as oral contraceptives and fluconazole are associated with vasospasm, as are smoking and caffeine.

To treat nipple vasospasm, the latch must be corrected. Immediately following feeding, dry, warm compresses should be applied. The breast can be massaged to direct blood to the base of the nipple. If needed, ibuprofen, nifedipine 10 mg tid or nifedipine XL 30 mg od can be prescribed.



Nipple abrasion (severe)



Blanched, sore nipple

Breast Pain

Engorgement

Breast fullness is common in the first few postpartum weeks. The absence of fullness may predict lactation challenges. Intense, unrelieved engorgement may result in an inflammatory response which down-regulates milk production. Without regular milk removal from the breast, a feedback inhibitor of prolactin can accumulate and interfere with optimal milk production.



Engorgement

Engorgement typically occurs during days 3-5 after birth. The primary cause is milk stasis and breast edema. The mother presents with bilateral edematous, hard and shiny breasts. The nipples are flattened and the areolae are firm.

Risks for development of engorgement include delayed initiation of effective feeding, infrequent and/or time-restricted feedings. These risks may be exacerbated by pacifier use and supplementation (e.g., formula).

The best treatment for engorgement is prevention by ensuring frequent and unrestricted breastfeeding during the first few days after birth. If engorgement develops, warm compresses, a warm shower or gentle hand massage may be helpful just prior to breastfeeding. If the areola is taut and it is anticipated that it may be difficult to latch effectively, reverse pressure softening techniques and/or gentle hand expression (p. 13) can be effective in reducing edema and softening the areola.

Breast compression (see Appendix E) can be used to encourage the baby to breastfeed more effectively and to stimulate a natural milk let-down. If the breasts are still overfull after breastfeeding, gentle hand expression (p. 13) or careful pumping may provide comfort for the mother. Cold sources, such as cool compresses or chilled cabbage leaves, should be applied after and in between the feedings to provide comfort and reduce inflammation. If necessary, anti-inflammatory medications may be used. The mother's pain must be managed to promote oxytocin release and an effective milk-ejection reflex, thus aiding in breastmilk removal.

REVERSE PRESSURE SOFTENING (RPS)

1. Apply gentle, but firm, positive pressure inwards towards the chest wall, on the areola at the base of the nipple for 40-60 seconds prior to latching the baby.
2. Apply pressure with the fingertips moving around the circumference of the areola. This softens a 1 inch area of the areola, by pushing back interstitial fluids, reducing edema, and facilitating a deeper latch.



For a good description of reverse pressure softening visit:
www.nbc.ca/index.php?option=com_content&id=83:engorgement&Itemid=17

Blocked Milk Duct

A blocked milk duct presents with unilateral breast pain. There is a localized area of erythema, tenderness, and there may be a palpable lump with well-defined margins. Generally there is no fever. The baby may be fussy when breastfeeding on the affected side as the blocked duct may interfere with milk flow.

Risk factors for a blocked milk duct are numerous. Milk stasis can develop if there is incomplete removal of breastmilk. This can be a result of skipped or shortened feedings. Pressure on the breast from restrictive clothing, underwire bras, or shoulder straps, can impede the flow of milk and contribute to a blocked duct. Other contributing factors include poor nutrition, stress and fatigue.



Blocked milk duct

A blocked milk duct will usually resolve within 24-48 hours; however, the mother must be monitored to rule out a potential mastitis. Analgesia can be provided; anti-inflammatory medications (e.g., ibuprofen) are preferred. The baby should continue to breastfeed frequently, with feedings beginning on the affected breast. Warm compresses should be applied to the breast before feeding to facilitate milk flow. Another helpful tip is to apply gentle breast massage prior to and during the feeding, moving from the affected area to the nipple. Suggest that the mother try feeding while leaning over the baby so that gravity aids in dislodging the blockage. It may be useful to use a vibration over the plug. The flat end of an electric toothbrush or a hand held massager will work. Maternal rest and supportive care are also important. If the blocked duct does not resolve within 48 hours, it should be re-evaluated.

Blocked milk ducts may recur. Some physiotherapists use therapeutic ultrasound to relieve recurrent blocked ducts. Educating the mother in preventing recurrences is essential (e.g., non-restrictive bra, frequent feedings). Lecithin orally (15 ml tid-qid or 1200-2400 mg capsules tid-qid) may help prevent recurrences.

Mastitis

Mastitis is another cause of unilateral, localized breast pain. It is often associated with fever >38.5 degrees along with generalized malaise and flu-like symptoms. There is usually an associated reduction in breastmilk production on the affected breast. Mastitis is more common in the first few weeks postpartum. Mastitis mimics blocked ducts in symptomatology, but symptoms are more severe, do not improve after 24 hours, and are associated with a fever.



Mastitis

Risk factors for mastitis include: infrequent or time-restricted breastfeeding, oversupply, fatigue, stress, blocked ducts, engorgement, milk stasis, restrictive clothing, nipple trauma, illness in a family member and a past history of mastitis.

Treatment of Mastitis

First line antibiotics

Treat for 10-14 days

(These antibiotics are safe for use while breastfeeding)

- Cephalexin 500 mg qid
- Cloxacillin 500 mg qid
- Amoxicillin-Clavulanate 500 mg tid or 875 mg bid
- Trimethoprim-Sulfamethoxazole DS bid
- Clindamycin 300 mg tid

Mastitis should be treated with antibiotics if symptoms do not improve within 12-24 hours, or if the mother is acutely ill. First line antibiotics include: **Cephalexin 500 mg qid, Cloxacillin 500 mg qid, Amoxicillin-Clavulanate 500 mg tid or 875 mg bid, Trimethoprim-Sulfamethoxazole DS bid, or Clindamycin 300 mg tid. Treat for 10-14 days.** The breastmilk can be cultured if the mastitis is unresponsive to the first round antibiotic.

In addition to antibiotics, the mother should breastfeed or gently hand express/pump on both breasts, to enhance milk removal. Babies will sometimes refuse to breastfeed on the affected side due to decreased milk production, slower flow and a change in the taste of the breastmilk. Offering the least sore breast first will stimulate milk let down and make breastfeeding from the affected breast easier. Advise bed rest, fluids and nutrition, and supportive care at home. NSAIDs are helpful for relief of pain and pyrexia.

It is important that the underlying cause of the mastitis be addressed (e.g., cracked nipples, over production, poor milk transfer). If mastitis appears to be recurrent or does not respond to antibiotics, consider other causes, such as, inflammatory breast cancer or abscess.



Mastitis

Breast Abscess

A breast abscess is a mastitis-like condition that progresses to the formation of a purulent cyst within the breast tissue. An abscess, like mastitis, is associated with milk stasis. The symptoms are identical to severe mastitis; however, the infection does not improve with antibiotics. A breast abscess is a medical emergency. Treatment can involve ultrasound guided aspiration, or surgical drainage and aspiration. The abscess can be cultured to determine the appropriate antibiotic treatment regime. The mother should continue breastfeeding from the non-affected breast. If the mother is comfortable, breastfeeding may continue on the affected breast once the abscess has been drained and antibiotics initiated. It is important that the baby's mouth is not in contact with drainage or the incisional area. If direct breastfeeding is not possible, then expression of breastmilk by hand or pump is important to promote milk removal. The affected breast may leak milk, which will promote flushing and healing of the wound.



Breast abscess



Needle aspiration

Candida

Candida is a fungal infection which often originates from the nipples or areolae. The mother may complain of extremely sore, itchy nipples that have a burning sensation. On examination, the nipples may appear deep pink or red in colour and the areolae appear shiny and erythematous. The mother may experience burning and sharp, shooting pains during or after breastfeeding. The pain often develops after a period of pain-free nursing. It may persist or subside between feedings, and tends to be worse in the evenings.



Candida

The baby will often have white patches in the mouth (oral thrush) and/or shiny, beefy, red diaper dermatitis. The mother may report that the baby is fussy and gassy, and makes a "clicking" sound at the breast while nursing.

Risk factors for candida include: antepartum vaginal candidiasis, maternal diabetes, recent antibiotic use, nipple trauma, high sugar diet and inadequate hygiene. Candida often proliferates in moist, warm environments such as breast pads, artificial nipples, diaper areas, pacifiers, and vitamin D droppers.



Baby with oral thrush

Mother and baby need to be treated simultaneously. In resistant cases, the partner should also be treated. The latch needs to be corrected to prevent any nipple trauma.

Advise the mother to create an environment less favourable to yeast.

Sterilize artificial nipples, pacifiers and vitamin D droppers after each use to destroy pathogens. All linens, including bras and breast pads, should be washed in hot water and bleach. Instead of synthetic products, 100% cotton products should be used. If possible, the mother should air dry her nipples. Sun exposure for a few minutes a day can also help destroy candida.

An all-purpose nipple ointment (APNO) should be applied after each feeding, and not be wiped off prior to the next feeding. The ointment is used until the mother is pain-free for 3-4 days, then gradually tapered. NSAIDs can be given for pain control.

The infant should be treated with an oral antifungal, such as nystatin suspension 100,000 units/ml, 1 ml 4-6 times per day for 10-14 days. The suspension should be painted on the mucosa with a cotton swab. An antifungal cream to the diaper area may be needed. Plain water should be used when changing the diaper instead of commercial baby wipes and ensure that the diaper area is completely dry.

Treatment of Candida

First line:

- APNO (mother) See page 20.
- Nystatin suspension 100,000 units/ml, 1 ml 4-6 x per day for 10-14 days (baby)
- Antifungal diaper cream prn (Clotrimazole or Miconazole cream or in combination with Hydrocortisone cream) 4-6 x per day

Second line:

- Gentian violet to baby's mouth and mother's nipples/breasts (0.25-0.5% diluted with distilled water once daily for 4-7 days. See top of page 26)

Third line:

- Fluconazole (Diflucan) 400 mg od, then 100 mg bid, until pain free x 1 week (mother)

If the candida is not resolved after the above measures, gentian violet (0.25-0.5% diluted with distilled water) is added to the above regime. A clean swab is used to apply the gentian violet to the baby's mouth daily for 4-7 days. Infant mouth ulcers are a rare complication of gentian violet use. The mother can also paint her nipples with the gentian violet solution.

If there is no improvement with gentian violet, or if the pain extends deep into the breast tissue, fluconazole (Diflucan) is the next line of treatment. The mother is given a loading dose of 400 mg po, then 100 mg bid until pain free for a week.

To any of the above regimes, natural supplements, such as oral grapefruit seed extract capsules 250 mg 3-4 times a day, may be added.

*** APNO ALL PURPOSE NIPPLE OINTMENT**

- Mupirocin 2% Ointment (15g)
- Betamethasone 0.1% Ointment (15g)
- Ibuprofen Powder 2%*
- Miconazole Powder 2%* *final concentration

- Apply sparingly to nipples post feeding
- DO NOT wash off before breastfeeding

Overproduction

Women who produce an overabundance of breastmilk may report significant breast fullness, uncomfortable breasts, and sensitive nipples. They may also have a forceful milk ejection which causes the baby to choke, gag, and pull away from the breast. The infant may be gassy or fussy, but will usually continue to gain weight well. The stools can be explosive, frothy, watery and green. Overproduction may sometimes be caused by over pumping.



Overproduction

To help the infant deal with a forceful milk ejection, the mother can hand express breastmilk until milk flow slows. Vary nursing positions so that the baby is in a more upright position. The mother may also position herself supine or leaning back so gravity will decrease the milk flow. Until the production down-regulates, only one breast should be offered at each feeding. If the baby wishes to feed less than two hours after the previous feeding, the same breast should be offered. If needed, the unused breast can be hand expressed or pumped to relieve discomfort. **Caution the mother that this practice of feeding on one breast at a feeding is only recommended with significant overproduction.** In order to continue to produce an ample milk supply both breasts should be stimulated. The mother with an overabundant milk supply may be more prone to plugged ducts and mastitis.

Breast or Nipple Dermatitis

Irritants or atopy can lead to nipple dermatitis. Prolonged exposure to moisture from breast pads and friction from breast pumps can lead to breast irritation. Mothers will complain about patches of dry, scaling skin along with redness, oozing and pruritus. There may be a past history of eczema or atopy.



Nipple dermatitis

To treat, it is important to remove or avoid the irritant. Applying expressed milk and air drying nipples can be helpful. A topical corticosteroid should be applied thinly to the nipple and areola after each feeding. If there is chronic dermatitis, consider the possibility of a staphylococcus aureus infection. To decrease nipple irritation, breast pumps can be lubricated with olive oil or breastmilk.

Postpartum Mood Disorders

Postpartum blues occurs in 85% of women in the first few days after birth. It is transient and mild, and generally resolves within two weeks.

Postpartum depression is a mood disorder that is more severe and persistent. Up to 20% of women experience postpartum depression. The mother experiences a loss of hope and control as her life changes with the addition of a new infant. The occurrence of postpartum depression corresponds with the time period when the maternal-infant bond is being formed during the first three months of birth.

The symptoms are similar to depression, but the onset may be more abrupt. Symptoms include: sadness, despair, appetite disturbance, anxiety, fatigue, insomnia, lack of bonding with baby, crying and feelings of inadequacy, hopelessness and helplessness. It may be associated with recurrent thoughts of death or suicide. The mother's ability to care for her child and herself are hampered. Anxiety is common and can present as a preoccupation with the baby's health, or feeling she will inadvertently harm the infant.

Risk factors for postpartum depression include life stressors, lack of support (especially with partner), low self-esteem, separation from the infant, history of sexual abuse and history of previous postpartum depression. Some women who experienced sexual abuse may find the memories triggered by breastfeeding. Treatment includes psychological counselling and enhancing the social support network. The infant's safety must be evaluated. Skin-to-skin practices can help reinforce maternal-infant bonding and support breastfeeding. In women with a history of sexual abuse, supportive counselling can help these women develop coping strategies.

If symptoms persist for more than two weeks, or suicidal ideation is noted, antidepressants are warranted. Safe anti-depressants for use while breastfeeding include: sertraline, citalopram, escitalopram, fluoxetine, fluvoxamine or paroxetine. Lithium can be used if the infant is more than two months old. If mother is treated with mirtazapine or bupropion breastfeeding should be continued and the infant monitored for behavioural side effects and adequate growth. Prolonged or untreated postpartum depression has profound and lasting effects on the baby's development and family dynamics. Support for the breastfeeding mother with postpartum depression is critical. Referral to a mother-to-mother support group or connecting with other women who have had similar experiences is suggested. The public health nurse can assist in securing improved social support and physical help for the mother and infant.

Postpartum psychosis is a medical emergency, occurring in 0.1-0.2% of women following delivery. Postpartum psychosis has a more dramatic onset. Symptoms include mania, disorganized behaviour, insomnia, irritability, delusions and auditory hallucinations. The delusions and hallucinations often revolve around the baby being unhealthy, and hurting the baby. Risk factors for postpartum psychosis include a history of bipolar disorder. Treatment should be initiated in a hospital setting. This condition is associated with a higher rate of infanticide than postpartum depression.



APPENDICES

Appendix A

The WHO/UNICEF Baby-Friendly Initiative

The Baby-Friendly Initiative (BFI) is an international program that represents best practice in the care of mothers and infants, and protects, promotes and supports breastfeeding within the health care system. “The Ten Steps to Successful Breastfeeding” and “The International Code of Marketing of Breastmilk Substitutes” are the foundation of the BFI. Maternity facilities and community health services undergo a rigorous external assessment to achieve BFI designation. Facilities receive the BFI designation when they adhere to The Ten Steps and comply with The WHO Code provisions. In Canada, the National Authority for the BFI is the Breastfeeding Committee for Canada. The Baby-Friendly Council of Newfoundland and Labrador is the designated provincial organization to lead the implementation of the BFI. All regional health authorities in the province are striving to implement policies and practices that reflect BFI standards.

For more information about the BFI go to: www.breastfeedingcanada.ca and www.babyfriendlynl.ca

The Breastfeeding Committee for Canada Baby-Friendly Initiative’s Integrated 10 Steps for Hospitals and Community Health Services

Step 1 : Have a written breastfeeding policy that is routinely communicated to all health care providers and volunteers.

Step 2 : Ensure all health care providers have the knowledge and skills necessary to implement the breastfeeding policy.

Step 3 : Inform pregnant women and their families about the importance and process of breastfeeding.

Step 4 : Place babies in uninterrupted skin-to-skin contact with their mothers immediately following birth for at least an hour, or until completion of the first feeding, or as long as the mother wishes: encourage mothers to recognize when their babies are ready to feed, offering help as needed.

Step 5 : Assist mothers to breastfeed and maintain lactation should they face challenges, including separation from their infants.

Step 6 : Support mothers to exclusively breastfeed for the first six months, unless supplements are medically indicated.

Step 7 : Facilitate 24 hour rooming-in for all mother-infant dyads: mothers and infants remain together.

Step 8 : Encourage baby-led or cue-based breastfeeding. Encourage sustained breastfeeding beyond six months with appropriate introduction of complementary foods.

Step 9 : Support mothers to feed and care for their breastfeeding babies without the use of artificial teats or pacifiers (dummies or soothers).

Step 10 : Provide a seamless transition between the services provided by the hospital, community health services, and peer-support programs. Apply principles of primary health care and population health to support the continuum of care and implement strategies that affect the broad determinants that will improve breastfeeding outcomes.

Appendix A

The International Code of Marketing of Breastmilk Substitutes WHO/UNICEF, 1981 (“the Code”)

What is the Code?

The Code is a set of recommendations to regulate the marketing of breastmilk substitutes (e.g., infant formula), feeding bottles and artificial nipples. It also applies to foods marketed to infants under six months of age. The Code aims to provide safe and adequate nutrition for all infants and young children, and to protect breastfeeding. If babies are not breastfed the Code recommends that they are fed safely on the best available nutritional alternative.

The Code does not ban the sale of formula. The Code is a tool to support mothers to make an informed decision about infant feeding based on impartial information and free of commercial influences. The improper marketing and promotion of infant formula and related products can undermine breastfeeding and has contributed to a global decline in breastfeeding and in exclusive breastfeeding rates. The Code was enacted in 1981 and, since that time, subsequent WHA resolutions have been passed to strengthen the Code.

The College of Family Physicians of Canada endorsed the Code in the 2004 Infant Feeding Policy Statement : www.cfpc.ca/uploadedFiles/Resources/Resource_Items/Final_04Infant_Feeding_Policy_Statement.pdf

For detailed information about the WHO Code go to:
www.ibfan.org/issue-international_code-understant.html

What is my responsibility as a physician?

Much of the marketing of formula and related products is to health care providers, especially physicians. Physicians accepting free samples of products and displaying or giving them to parents, undermines the work of all those involved in educating people about the positive outcomes associated with breastfeeding, and sends a conflicting message to prospective mothers and their families.

Here are practical ways that you and your office staff can adhere to the Code:

- Assist your patients to make informed decisions about breastfeeding.
- Display posters, pamphlets, DVDs and local resources that promote breastfeeding as the norm for infant feeding.
- Eliminate the practice of accepting free samples of formula or related materials in your office.
- Discontinue the practice of distributing free formula and gift items (e.g., diaper bags, pacifiers, DVDs) from formula companies to parents.
- Do not refer pregnant women to formula company-run prenatal or postnatal classes, infant feeding seminars or websites.
- Ensure that your patient education materials do not advertise breastmilk substitutes, bottles, or artificial nipples, or display images of infants bottle-feeding.
- Do not accept gifts (including writing pads, pens, calendars, food) or personal samples from companies manufacturing infant formula, feeding bottles, or pacifiers.
- Avoid conflicts of interest by refusing to participate in formula industry-sponsored education (e.g., receptions and dinners at local restaurants) and research initiatives.

Appendix B

Acceptable Medical Indications for Supplementation

(Source: BCC Integrated Ten Steps Practice Outcome Indicators May 2012 Appendix 6.2: Medical Indications for Supplementation)

Whenever interruption or cessation of breastfeeding is considered, the benefits of breastfeeding should be weighed against the risks posed by the use of human milk substitutes and the need to intervene because of the presenting medical condition.

INFANT CONDITIONS

Infants who should not receive human milk or any other milk except specialized formula are those:

- with classic galactosemia-special galactose-free formula is needed
- with maple syrup urine disease-a special formula, free of leucine, isoleucine and valine is needed
- with phenylketonuria-a special phenylalanine-free formula is needed (some breastfeeding is possible, under careful monitoring)

Infants whom human milk remains the best feeding option but who may need other food, in addition to human milk for a limited period are those:

- born weighing less than 1,500 g (very low birth weight)
- born at less than 32 weeks of gestation (very preterm)
- who are at risk of hypoglycaemia by virtue of impaired metabolic adaptation or increased glucose demand (such as those who are preterm, small for gestational age or who have experienced significant intrapartum hypoxic/ischemic stress, those who are ill and those whose mothers are diabetic if their blood sugar fails to respond to optimal breastfeeding or human milk feeding)
- with a significant weight loss in the presence of clinical indications (mother's milk production not established)
- who fail to regain birth weight by two weeks after birth
- exhibiting clinical indications of insufficient milk intake (no bowel movements, or fewer than one a day [in the first two weeks of life], or meconium five or more days after birth)
- with an average weight gain of less than:
 - 115 g/week : 2 weeks-4 months
 - 85 g/week : 4-5 months
 - 60 g/week : 6-12 months

MATERNAL CONDITIONS

Mothers who are affected by any of the conditions mentioned below should receive treatment according to standard guidelines. Maternal conditions that may justify permanent avoidance of breastfeeding:

- severe illness that prevents a mother from caring for her infant (e.g., sepsis)
- herpes simplex virus type 1 (HSV-1) - direct contact between lesions on the mother's breasts and the infant's mouth should be avoided until all active lesions have resolved
- HIV (see below)
- maternal medication, including:
 - sedating psychotherapeutic drugs, anti-epileptic drugs and opioids and their combinations may cause side effects such as drowsiness and respiratory depression, and are better avoided if a safer alternative is available
 - radioactive iodine-131 is better avoided given that safer alternatives are available - a mother can resume breastfeeding about two months after receiving this substance
 - excessive use of topical iodine or iodophors (e.g., povidone-iodine), especially on open wounds or mucous membranes, can result in thyroid suppression of electrolyte abnormalities in the breastfed infant and should be avoided
 - cytotoxic chemotherapy requires that a mother stop breastfeeding during therapy

Maternal conditions during which breastfeeding can still continue, although health problems may be of concern:

- breast abscess - breastfeeding should continue on the unaffected breast; feeding on the affected breast can resume once treatment has started
- hepatitis B - infants should be given hepatitis B vaccine within the first 48 hours or as soon as possible thereafter
- hepatitis C
- mastitis - if breastfeeding is very painful, milk must be removed by expression to prevent progression of the condition
- substance use, including:
 - maternal use of nicotine, alcohol, ecstasy, amphetamines, cocaine and related stimulants; these have been demonstrated to have harmful effects on breastfed babies
 - alcohol, opioids, benzodiazepines and cannabis; these can cause sedation in both the mother and the baby

Mothers should be encouraged not to use these substances and given opportunities and support to abstain and apply harm reduction principles.

* In Canada, HIV positive mothers are advised to feed with a breastmilk substitute. In some countries management may be different when the use of a breastmilk substitute is not acceptable, feasible, affordable, sustainable and safe (AFASS).

Appendix C

Breastfeeding: Hand Expression

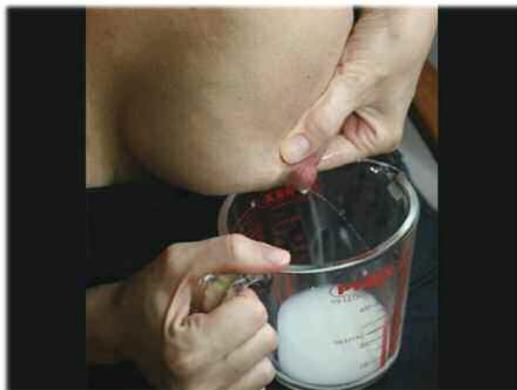
♥ **Learning how to express your breastmilk by hand is a valuable skill for you, as a new mother.**

- Hand expression is natural, easy to learn and convenient.
- No expensive equipment is needed.
- In the first few days of breastfeeding when milk production is not plentiful, it is often easier to remove colostrum or breastmilk with hand expression.
- Many women continue to use it as a way to express mature milk as well.

Hand expression of breastmilk should not hurt.

♥ **You may want to express breastmilk by hand to:**

- soften your breasts around the nipples if they are full and your baby is having difficulty latching on;
- entice your baby to breastfeed by giving a few drops of milk to taste;
- feed your baby colostrum or breastmilk when your baby is not able to feed directly from your breast;
- provide relief for overfull or uncomfortable breasts;
- apply milk to your nipples after a feeding to keep them healthy; and
- collect and store breastmilk when you are away from your baby.



Hand expression is natural, easy to learn and convenient.

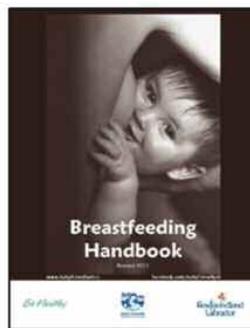
Here's how to get started:

- Wash your hands well. Find a comfortable place where you can feel relaxed and have your breasts uncovered.
- Gently massage your breast using the smooth ends of your fingers.
- Start at the top and move around the breast and down towards the nipple.
- Move the fingertips around in small circles to get the milk flowing.
- Lean forward.
- Have a clean bowl or wide cup ready to catch the expressed breastmilk. A small teaspoon works well to collect colostrum.
- Cup your breast or support it with your thumb above the nipple and the first two fingers below the nipple, forming the letter "C" about 1 - 1½ inches behind the nipple.
- Gently roll your thumb and fingers forward at the same time.
- Relax your fingers for a few seconds and then repeat, moving your thumb and fingers to express from the entire breast. The milk may come in drops at first and then as the milk starts to flow, it may spray.
- Continue expressing until the milk flow has stopped. Switch hands and breasts from time-to-time.
- You can feed your baby your expressed breastmilk using a cup, spoon or with a lactation aid at the breast.

Ask your registered nurse or lactation consultant to show you how to hand express your breastmilk the first time

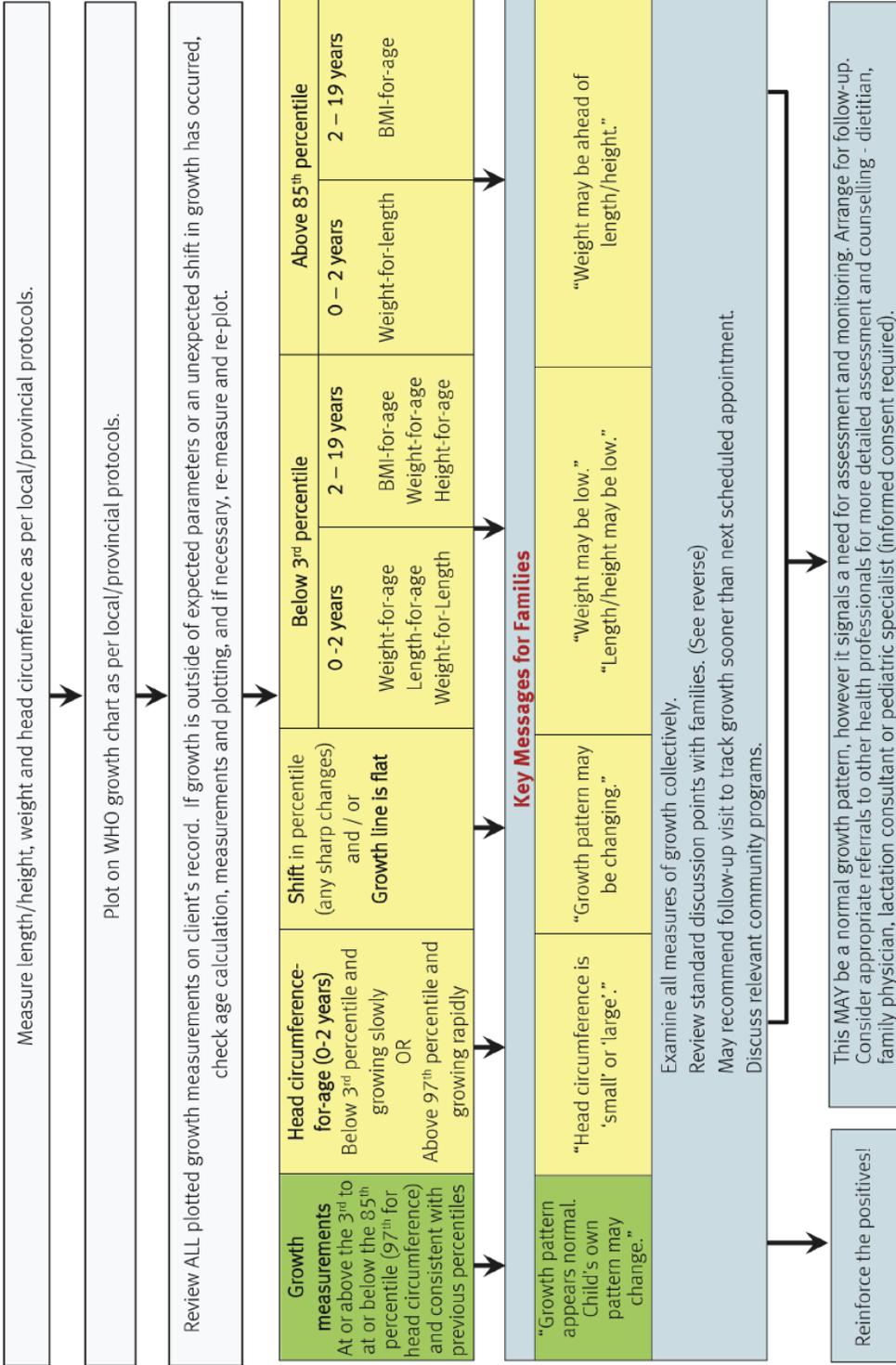
For more information on hand expression see the following video:
<http://newborns.stanford.edu/Breastfeeding/HandExpression.html>

For more detailed information on expressing and storing breastmilk refer to The Breastfeeding Handbook 2016





WHO Growth Chart Assessment and Counselling – Key Messages and Actions



CORE GROWTH MESSAGES

- Measurements are health SCREENING tools.
- Growth is one of the signs of GENERAL HEALTH.
- Growth patterns are assessed for the INDIVIDUAL.
- Growth may reflect FAMILY growth patterns.
- Growth pattern OVER TIME is more important than one single measurement.

COUNSELLING: STANDARD DISCUSSION POINTS

0-2 years	2-19 years
<ul style="list-style-type: none"> • BREASTFEEDING pattern and technique • Formula feeding – pattern; technique; preparation; etc. • Age-appropriate milk, beverages and introduction to solid foods • Child’s overall health • Presence or recent history of acute illness • Presence of chronic illness or special health care needs • Stress or change in child’s life • Family growth patterns • Family meal patterns • Sleep pattern 	<ul style="list-style-type: none"> • Intake of foods high in fat, sugar or salt • Body image issues • Disordered eating pattern • Eating well with Canada’s Food Guide • Feeding relationship • Family physical activity routines • Food and activity routines in child care or school • Screen time • Amount of juices and/or sweetened beverages • Food security concerns: availability and access to healthy foods

Recommended Cut-Off Criteria Using the WHO Growth Charts

Cut-off points are intended to provide guidance for further assessment, referral or intervention. They should not be used as diagnostic criteria.

Growth Indicator	0 – 2 years	2 – 5 years	5 – 19 years	Growth Concern
Weight-for-age	< 3 rd	< 3 rd	< 3 rd	Underweight
Height / Length-for-age	< 3 rd	< 3 rd	< 3 rd	Stunted
Weight-for-length	< 3 rd			Wasted
Weight-for-length	> 85 th			Risk of overweight
Weight-for-length	> 97 th			Overweight
Weight-for-length	> 99.9 th			Obese
Head Circumference	< 3 rd or > 97 th			Head circumference
BMI-for-age		< 3 rd		Wasted
BMI-for-age		> 85 th		Risk of overweight
BMI-for-age		> 97 th	> 85 th	Overweight
BMI-for-age		> 99.9 th	> 97 th	Obese
BMI-for-age			> 99.9 th	Severely obese



Resources available at www.whogrowthcharts.ca

- A Health Professional’s Guide to the WHO Growth Charts
- 2014 WHO Growth Charts Adapted for Canada
- BMI Tables and Calculator
- Self-Instructional Training Program on the WHO Growth Charts Adapted for Canada
- Is My Child Growing Well? Questions and Answers for Parents
- Tips to Help Your Child and Teen Grow Well

Other resources

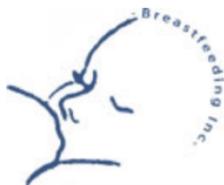
- Nutrition for Healthy Term Infants: Recommendations from Birth to 24 months available at <http://www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/index-eng.php>
- Find a Dietitian www.dietitians.ca/find
- Healthy eating/active living resources available at www.dietitians.ca, from Health Canada and provincial government web sites and local public health centres.



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Appendix E



breastfeeding inc.
Dr. Jack Newman & Edith Kernerman

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Breast Compression

The purpose of breast compression is to continue the flow of milk to the baby when the baby is only sucking **without** drinking. Drinking (“open mouth wide—pause—then close mouth” type of suck—see also the video clips at the website www.breastfeedinginc.ca) means baby got a mouthful of milk. If baby is no longer drinking on his own, mother may use compressions to “turn sucks or nibbling into drinks”, and keep baby receiving milk. Compressions simulate a letdown or milk ejection reflex (the sudden rushing down of milk that mothers experience during the feeding or when they hear a baby cry—though many women will not “feel” their let down). The technique may be useful for:

1. **Poor weight gain in the baby**
2. **Colic in the breastfed baby**
3. **Frequent feedings and/or long feedings**
4. **Sore nipples in the mother**
5. **Recurrent blocked ducts and/or mastitis**
6. **Encouraging the baby who falls asleep quickly to continue drinking not just sucking**
7. **A “lazy” baby, or baby who seems to want to just “pacify”. Incidentally babies are not lazy, they respond to milk flow.**

Compression is not necessary if everything is going well. When all is going well, the mother should allow the baby to “finish” feeding on the first side and **offer** the other side. How do you know the baby is finished the first side? When he is just sucking (rapid sucks without pause) and no longer drinking at the breast (“open mouth wide — *pause* — then close mouth” type of suck). Compressions help baby to get the milk.

Breast compression works particularly well *in the first few days* to help the baby get more colostrum. Babies do not need much colostrum, but they need some. A good latch and compression help them get it.

It may be useful to know that:

1. A baby who is *well latched* on gets milk more easily than one who is not. A baby who is poorly latched on can get milk only when the flow of milk is rapid. Thus, many mothers and babies do well with breastfeeding *in spite of* a poor latch, because most mothers produce an abundance of milk. However, the mother may pay a price for baby’s poor latching—for example: sore nipples, a baby who is colicky, and/or a baby who is constantly on the breast (but *drinking* only a small part of the time).
2. In the first 3-6 weeks of life, many babies tend to fall asleep at the breast when the flow of milk is slow, *not necessarily* when they have had enough to eat and not because they are **lazy** or **want to pacify**. After this age, they *may* start to pull away at the breast when the flow of milk slows down. However, some pull at the breast even when they are much younger, sometimes even in the first days and some babies fall asleep even at 3 or 4 months when the milk flow is slow.

APPENDIX E

Breast compression—How to do it (Use with *Protocol to Manage Breastmilk Intake*)

1. Hold the baby with one arm.
2. Support your breast with the other hand, encircling it by placing your thumb on one side of the breast (thumb on the upper side of the breast is easiest), your other fingers on the other, close to the chest wall.
3. **Watch for the baby's drinking**, (see videos at nbc.ca) though there is no need to be obsessive about catching every suck. The baby gets substantial amounts of milk when he is drinking with an "open mouth wide—pause—then close mouth" type of suck.
4. When the baby is nibbling at the breast and no longer drinking with the "open mouth wide—pause—then close mouth" type of suck, compress the breast to increase the internal pressure of the whole breast. *Do not roll your fingers along the breast toward the baby, just squeeze and hold.* Not so hard that it hurts and try not to change the shape of the areola (the darker part of the breast near the baby's mouth). With the compression, the baby should start drinking again with the "open mouth wide—pause—then close mouth" type of suck. **Use compression while the baby is sucking but not drinking!**
5. *Keep the pressure up until the baby is just sucking without drinking even with the compression, and then release the pressure.* Release the pressure if baby stops sucking or if the baby goes back to sucking without drinking. Often the baby will stop sucking altogether when the pressure is released, but will start again shortly as milk starts to flow again. If the baby does not stop sucking with the release of pressure, wait a short time before compressing again.
6. The reason for releasing the pressure is to allow your hand to rest, and to allow milk to start flowing to the baby again. The baby, if he stops sucking when you release the pressure, will start sucking again when he starts to taste milk.
7. When the baby starts sucking again, he may drink ("open mouth wide—pause—then close mouth" type of suck). If not, compress again as above.
8. Continue on the first side until the baby does not drink even with the compression. You should allow the baby to stay on the side for a short time longer, as you may occasionally get another letdown reflex (milk ejection reflex) and the baby will start drinking again, on his own. If the baby no longer drinks, however, allow him to come off or take him off the breast.
9. If the baby wants more, offer the other side and repeat the process.
10. You may wish, unless you have sore nipples, to switch sides back and forth in this way several times.
11. Work on improving the baby's latch.
12. **Remember, compress as the baby sucks but does not drink. Wait for baby to initiate the sucking; it is best not to compress while baby has stopped sucking altogether.**

In our experience, the above works best, but if you find a way which works better at keeping the baby drinking with an "open mouth wide—pause—then close mouth" type of suck, use whatever works best for you and your baby. As long as it does not hurt your breast to compress, and as long as the baby is "drinking" ("open mouth wide—pause—then close mouth" type of suck), breast compression is working.

You will not always need to do this. As breastfeeding improves, you will be able to let things happen naturally. See the videos of how to latch a baby on, how to know a baby is getting milk, how to use compression at nbc.ca

Questions? First look at the website nbc.ca or breastfeedinginc.ca. If the information you need is not there, go to *Contact Us* and give us the information listed there in your email. Information is also available in **Dr. Jack Newman's Guide to Breastfeeding** (called **The Ultimate Breastfeeding Book of Answers** in the USA; also available in French and Spanish); and/or our DVD, **Dr. Jack Newman's Visual Guide to Breastfeeding** (available in French or with subtitles in Spanish, Portuguese and Italian); and/or **The Latch Book and Other Keys to Breastfeeding Success**; and/or **L-eat Latch and Transfer Tool**; and/or the **GamePlan for Protecting and Supporting Breastfeeding in the First 24 Hours of Life and Beyond**.

To make an appointment online with our clinic please visit www.nbc.ca. If you do not have easy access to email or internet, you may phone (416) 498-0002.

Breast Compression, February 2009©
Written and revised (under other names) by Jack Newman, MD, FRCPC, 1995-2005©
Revised by Jack Newman MD, FRCPC, IBCLC and Edith Kernerman, IBCLC, 2008, 2009©

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WHO International Code on the Marketing of Breastmilk Substitutes (1981)
and subsequent World Health Assembly resolutions.

Appendix F

HANDLING AND STORAGE OF BREASTMILK

Breastmilk can be kept safe and nutritious with proper handling and storage.

Here's how to store breastmilk:

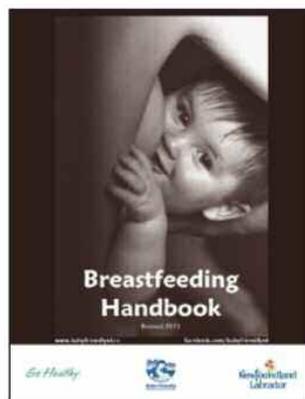
- Wash your hands thoroughly with soap and water.
- Pour freshly expressed breastmilk into a clean, glass container or a hard plastic container (that is bisphenol A free) with a well-fitting lid.
- Special freezer bags for storing breastmilk are okay for occasional storing. The fat droplets cling to the bag, however, and reduce the amount of fat the baby receives. Disposable bottle liners or plastic bags are not recommended.
- For longer storage it is best to freeze your breastmilk.
- If you are freezing breastmilk, pour it into a clean, glass or hard plastic container, or a special breastmilk freezer bag. Leave some space (1 inch) at the top of the container or bag since the milk will expand. Seal the container, mark the date on it and store it upright in the freezer.
- You can add freshly expressed breastmilk to a partially-filled container of frozen milk. First, cool the fresh milk in the refrigerator for 30 minutes. This keeps the fresh milk from thawing the top layer of the frozen milk. Do not add more than the amount of milk already in the container.
- Thaw frozen milk in the fridge.
- Milk can also be thawed quickly in a container of warm water (not to exceed 37°C). Make sure the water does not touch the lid. Once the milk is liquid, but still chilled, dry the bottle and refrigerate until use.
- Do not use the microwave to either thaw or warm breastmilk as it may destroy nutrients. Microwaved milk may be unevenly heated and could cause burns.
- Never let frozen breastmilk thaw at room temperature. Never thaw breastmilk in boiling water. Do not refreeze thawed breastmilk. Use milk within 24 hours after thawing.
- The cream in breastmilk rises to the top, so shake the milk gently before feeding it to your baby. Check that the milk is not too hot by shaking a few drops on the inside of your wrist.

BREASTMILK STORAGE GUIDELINES FOR HEALTHY TERM BABIES

	Fresh Breastmilk	Thawed Breastmilk
Room Temperature (19°C to 22°C)	6 hours	1 hour
Refrigerator (0°C to 4°C)	6 days	24 hours
Cooler with Frozen Ice Packs (15°C)	24 hours	24 hours
Freezer Compartment of Single Door Fridge (-15°C)	2 weeks	Never refreeze thawed milk
Refrigerator Style Freezer of Two Door Fridge (-18°C to -13°C)	3 - 4 months	Never refreeze thawed milk
Deep Freezer (-18°C)	6 months	Never refreeze thawed milk

- Always make sure your milk is stored in the coldest part of the fridge (at the back of fridge, not the door).
- If the fridge temperature goes above 4°C after three days storage, use the breastmilk that day or throw it out.
- In a well-used fridge (door is opened and closed often and the amount of food in the fridge varies from very full to near empty), your breastmilk should be used within three days.

For more information see the Breastfeeding Handbook



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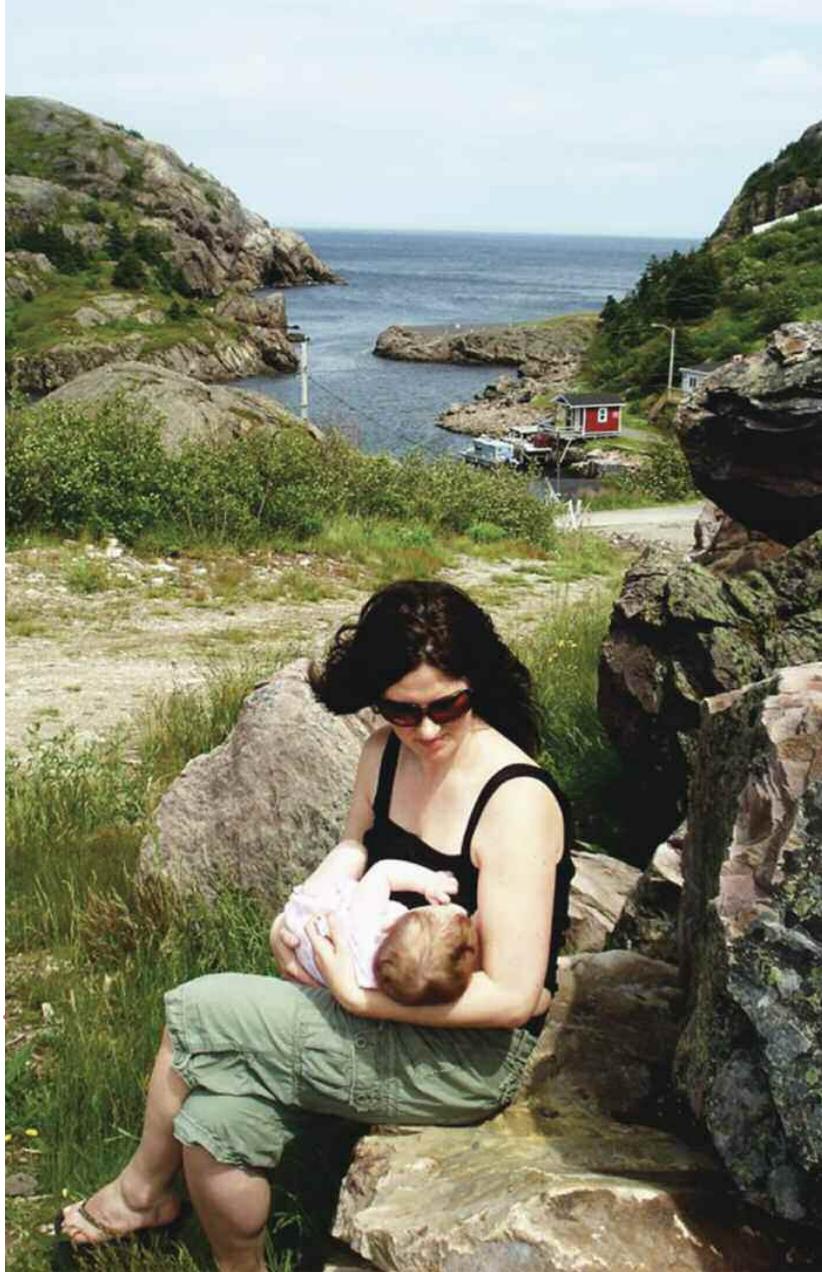
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