Protocol #9: Breast Refusal or Difficulty Achieving or Maintaining a Latch

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Breast refusal or difficulty achieving a latch can occur at any stage of breastfeeding and is not limited only to the early weeks of birth.

Observation and Assessment

Assess the baby for:

- Repeated inability to achieve or maintain a latch.
- Pushing away from the mother's breast with arms and legs.
- Arching and crying when brought to the mother's breast.
- Latching and sucking a few times, then letting the nipple slide out of the mouth.
- Refusal of one or both breasts.

Possible Contributing Factors or Causes

- Breast refusal or difficulty achieving a latch may be mother and/or baby related.

Early Breast Refusal

1. If the baby began refusing the mother's breast in the first 1–2 days after birth,

Assess the mother for:

- Ineffective positioning and latching techniques (*Protocol #2: Positioning and Latching*).
- Flat or inverted nipples, especially with a hard and non-compressible areola (*Protocol #8: Flat or Inverted Nipples*).
- Long or elongated nipples, especially if the baby is small.
- Birth interventions, trauma or stress that may delay Lactogenesis II or interfere with breast milk production, e.g., caesarean delivery, lengthy labour, intravenous therapy, pain (*Protocol #10: Ineffective Suck*).
- Breast edema related to intravenous therapy in labour.

Assess the baby for:

- Birth interventions, trauma, stress, and medications, e.g., bruising from a forceps or vacuum extraction delivery, nerve damage related to birth injury, anaesthesia, intravenous therapy, lengthy labour.
- Medical condition, e.g., jaundice, dehydration, hypoglycemia, sepsis.
- Neurological conditions affecting muscle tone, e.g., hypertonia, hypotonia, prematurity.
- Abnormal nasal, oral, or facial structure, e.g., narrowing or blockage of the nasal airway (choanal atresia), cleft lip/palate, other alterations in palatal structure, receding chin.
- Abnormal tongue, e.g., ankyloglossia, large or short tongue, tongue curling up to the roof of the mouth, tongue thrusting, decreased tongue peristalsis. With an abnormal tongue, the tongue may not be able to extend past the lower gumline and cup the areola during breastfeeding. This can be assessed by pulling back slightly on the baby's lower lip when the baby is at the mother's breast. There may also be dimpling of the cheeks or clicking/smacking sounds when the baby sucks. Any of these signs would indicate a latching or sucking problem due to the incorrect use of the tongue during breastfeeding (*Protocol #10: Ineffective Suck*).
- Swaddling that entraps the baby's hands and interferes with the baby's instinctive behaviours in finding the breast, triggering letdown and latching.

2. If the baby began refusing the mother's breast between the age of 2–4 days old,

Assess the mother for:

- Engorgement (*Protocol #5: Engorgement*).
- Breast edema related to intravenous therapy in labour.
- Birth interventions, trauma or stress that may delay Lactogenesis II or interfere with breast milk production, e.g., caesarean delivery, lengthy labour, intravenous therapy, pain (*Protocol #10: Ineffective Suck*).

- Forceful letdown or breast milk ejection reflex *(Protocol #13: Overabundant Breast Milk Supply/ Forceful Letdown or Breast Milk Ejection Reflex* .
- Delayed letdown reflex.
- Inappropriate parental response to infant behaviour and feeding cues.
- Stress.

Assess the baby for:

- Medical conditions, e.g., jaundice, hypoglycemia, sepsis.
- Swaddling that entraps the baby's hands and interferes with the baby's instinctive behaviours in finding the breast, triggering letdown and latching.

Later Breast Refusal

3. If the baby began refusing the mother's breast between the age of 1–4 weeks old,

Assess the mother for:

- Forceful letdown or breast milk ejection reflex (*Protocol #13: Overabundant Breast Milk Supply/ Forceful Letdown or Breast Milk Ejection Refle*).
- Delayed letdown or breast milk ejection reflex.
- Decreased breast milk supply.
- Missing or ignoring the baby's feeding cues.
- Change in the taste of her breast milk, from onset of menses, mastitis, medications, nipple creams, exercise, smoking, previously frozen breast milk, or consumption by the mother of new or strongly flavoured foods that the baby may dislike. Strongly flavoured foods may temporarily cause a baby to refuse the mother's breast. The baby usually returns to the mother's breast by 24 hours after the ingestion of the food (Lawrence, 2011). Most babies will accept a variety of flavours.
- Ingestion of a food or drug that the baby may be sensitive to, e.g., cow's milk, cigarette smoke, caffeine, or other drugs (see *Protocol #11: Crying and Colic in the Breastfed Baby* for information regarding sensitivity to cow's milk or cigarette smoke, and *Protocol #16: Drugs and Breastfeeding* for information regarding caffeine and other drugs).
- Stress – feeling overwhelmed, experiencing coping difficulties related to possible postpartum adjustment and/or breastfeeding difficulties.

Assess the baby for:

- Preference for an artificial nipple, i.e., nipple confusion when the baby has imprinted preferentially on the stimulus of an artificial nipple.
- Finger feeding and if the baby has imprinted preferentially on the stimulus of the finger.
- Medical conditions, e.g., jaundice, candidiasis, ear infection, dehydration, hypoglycemia, sepsis.
- Swaddling that entraps the baby's hands and interferes with the baby's instinctive behaviours in finding the breast, triggering letdown and latching.

4. If the baby began refusing the mother's breast after the age of 1 month,

Assess the mother for:

- Overly rigorous attempts to breastfeed the baby on a schedule and ignoring the baby's feeding cues.
- Decreased breast milk supply, due to regular bottle supplements, offering other foods or fluids before 6 months of age, medications (*Protocol #12: Insufficient Breast Milk Supply*).
- Missing or ignoring the baby's feeding cues.
- Forceful letdown reflex (*Protocol #13: Overabundant Breast Milk Supply/Forceful Letdown* or *Breast Milk Ejection Refle*).
- Use of a new soap, shampoo, hair spray, perfume, detergent, or other products that the baby may dislike or be sensitive to.
- Change in the taste of her breast milk from the onset of menses, mastitis, medications, nipple creams, exercise, smoking, or new or strongly flavoured foods that the baby may dislike. Strongly flavoured foods may cause a baby to temporarily refuse the mother's breast. The baby usually returns to the mother's breast by 24 hours after the ingestion of the food. Most babies will accept a variety of flavours.
- Ingestion of a food or drug that the baby may be sensitive to, e.g., cow's milk, cigarette smoke, caffeine, or other drugs (*Protocol #11: Crying and Colic in the Breastfed Baby* for information regarding sensitivity to cow's milk or cigarette smoke, and *Protocol #16: Drugs and Breastfeeding* for information regarding caffeine and other drugs).
- Pregnancy.

- The baby biting when the mother has responded by screaming at or startling the baby.
- Stress, emotional distress, feeling overwhelmed or experiencing coping difficulties related to possible postpartum adjustment or inadequate support.

Assess the baby for:

- Medical conditions, e.g., candidiasis, ear infection, gastroesophageal reflux.
- Oral discomforts, e.g., teething, cold sores.
- Discomfort when being held, after an injection or injury.
- Distractibility due to developmental changes; at 4–5 months babies may turn away from the mother's breast because they are developmentally more interested in looking at their surroundings.
- Emotional upsets, stress, or overstimulation, e.g., radical changes in daily routines, family crisis, baby frequently left to cry.

Suggestions

1. Assess for possible cause(s) of breast refusal or difficulty latching (see previous section on Possible Contributing Factors or Causes).

- The baby will need to be assessed by a primary health care provider for any possible medical condition, e.g., jaundice, candidiasis, ear infection, hypertonia/hypotonia, cleft lip/palate, tight frenulum.
- If the mother's breasts are engorged, refer to *Protocol #5: Engorgement*.
- If the mother's nipple is flat or inverted, refer to *Protocol #8: Flat or Inverted Nipples*.
- If the mother has a forceful letdown reflex, refer to *Protocol #13: Overabundant Breast Milk Supply/ Forceful Letdown or Breast Milk Ejection Refle* .
- If the baby is showing signs of incorrect tongue use during breastfeeding, refer to *Protocol #10: Ineffective Suck* for information on suck assessment and management, e.g., tongue does not extend past the lower gumline and does not cup the areola, dimpling of the cheeks, or clicking/smacking sounds when the baby sucks.
- If a tight frenulum is suspected and all other possible causes have been ruled out or corrected, the baby should be medically assessed to determine whether the frenulum needs to be clipped (frenotomy).

2. Provide the mother with suggestions to help persuade the baby to take her breast.

Before breastfeeding, encourage the mother to:

- Breastfeed in a quiet, relaxed place where she can be comfortable and well supported.
- Initiate breastfeeding before the baby is overly hungry or frantically crying. Breastfeed early when the baby is beginning to show early feeding cues and is calm, e.g., rapid eye movements under the eyelids, sucking/licking, hands to mouth, increased body movements, and making small sounds.
- Clothe the baby only in a diaper when breastfeeding to promote skin-to-skin contact (*Protocol #1: The Initiation of Breastfeeding*).
- Ensure that the baby is calm before each attempt to latch.
- Support the baby in a vertical position, chest-to-chest, with nose at the level of the mother's nipple, to facilitate the normal neonatal reflexes and baby-led self-attachment behaviours.
- Ensure that the letdown or breast milk ejection reflex is initiated. The natural stimuli for letdown are the baby's rooting, sucking, and hand movements at the mother's breast. If necessary, she may try using one of the following techniques:
    - Apply heat to her back and shoulders for comfort and relaxation.
    - Gently massage the breasts while applying moist or dry heat to her breasts for a few minutes or until the letdown reflex occurs. Heat may be applied with a warm wet towel or disposable diaper, a warm shower or bath, a bowl of warm water, a heating pad on low, or a hot water bottle. Then express some breast milk (*Protocol #19: Expressing and Storing Breast Milk*).
    - Gently roll the nipples between the index finger and thumb for a few minutes or until the letdown or breast milk ejection reflex occurs. Then express some breast milk (*Protocol #19: Expressing and Storing Breast Milk*).
- Try using reverse pressure massage to move some of the fluid away from the areola if there is breast or areolar edema (*Protocol #5: Engorgement*).

During breastfeeding, encourage the mother to:

- Use effective positioning and latching techniques (*Protocol #2: Positioning and Latching*).
- Try different breastfeeding positions. Some babies may prefer certain positions.

The football, cross-cradle, or biological nurturing positions may be particularly effective for latching the baby onto the mother's breast as they provide better support for the baby's neck and shoulders. When using the cross-cradle position, suggest that the mother try supporting her breast in the "U" hold instead of the "C" hold when latching the baby. Using the "U" hold with this position may help to make latching easier. See diagram of the "U" hold (*without* the index finger and thumbs bent slightly forward).

- Express some breast milk onto the mother's nipple to entice the baby to take her breast (*Protocol #19: Expressing and Storing Breast Milk*).
- Try breastfeeding in motion. Some babies accept the breast if the mother is moving, e.g., walking, rocking (Mohrbacher, 2010).
- Avoid stroking the baby's face after the baby is latched as this may elicit the rooting reflex and cause the baby to turn away from the mother's breast.
- Try the slide-over technique if the baby is able to breastfeed in the cross-cradle position on one breast but refuses the other side (Mohrbacher, 2010) i.e., after breastfeeding in the cross-cradle or cradle position on one breast, suggest the mother slide the baby over to the other breast without changing the side that the baby is lying on.
- Try the Dancer hand-hold position if the baby is able to achieve but not maintain a latch, (for babies with low muscle tone or weak muscle development).

For the Dancer hand-hold position, the baby is held in an upright sitting position facing the mother's breast. The mother first supports her breast in a variation of the "U" hold and brings her hand forward to support her breast with the first three fingers. She supports the baby's chin in the area of her hand between her thumb and index finger. See diagram of "U" hold. The mother then bends her index finger slightly so that it gently holds the baby's cheek on one side, while her thumb shields the other cheek. The mother uses gentle, steady, equal pressure while holding her baby's cheeks to avoid triggering the rooting reflex. This will provide steady support to the baby's jaws and chin to help maintain the latch (Lauwers & Swisher, 2011).

"U" hold with index finger and thumb slightly bent forward

Dancer hand-hold position

If the baby continues to have difficulty latchin onto the mother's breast after trying the above suggestions, encourage the mother to:

- Have someone drip expressed breast milk from a clean eyedropper, spoon, or syringe onto her nipple or in the corner of the baby's mouth while latching the baby to her breast.
- Consider use of a lactation aid on her breast, using expressed breast milk, if the baby is still unable to

maintain a latch (*Protocol #18: Alternative Feeding Methods*). If expressed breast milk is not available, an appropriate supplement should be offered (*Protocol #17: Indications for Supplementation or Cessation of Breastfeeding*).

- Consider offering expressed breast milk using another alternative feeding method, e.g., cup, spoon, syringe, or finger feeding (*Protocol #18: Alternative Feeding Methods*) if the baby is unable to latch using the lactation aid on the mother's breast. If expressed breast milk is not available, an appropriate supplement should be offered (*Protocol #17: Indications for Supplementation or Cessation of Breastfeeding*).
- Understand the possible benefits and risks associated with the use of a nipple shield if she inquires about using them for breast refusal or difficulty achieving a latch. Offer further assessment and refer for further support as needed (see notes in *General Principles*).
- Express each breast on a regular basis if breastfeeding is stopped for any length of time. Generally this is at least 8 times in 24 hours, with a minimum of 1 expression overnight, to mimic a normal feeding pattern. The mother may need to express more often if her breasts become uncomfortable or full (*Protocol #19: Expressing and Storing Breast Milk*).
- Continue to follow strategies to optimize breastfeeding.
- Hold her baby skin-to-skin, with or without attempting to latch.

A referral to a breastfeeding expert or breastfeeding clinic is recommended as soon as possible.

General Principles

Optimizing breastfeeding by following the principles of early and frequent feeding, feeding when the baby is calm and showing early feeding cues, ensuring effective positioning and latching techniques that include baby-led latching and skin-to-skin contact, and finishing the first breast first (Renfrew et al., 2004), will often prevent or help a mother to manage a latching difficulty or breast refusal before it becomes a chronic situation.

The mother may feel frustrated, rejected and/or inadequate when her baby refuses her breast. She will need support and encouragement to continue breastfeeding and to not take the baby's behaviour personally.

Breast refusal or difficulty achieving a latch can occur at any stage of breastfeeding and is not limited only to the early weeks after birth. The baby may have been breastfeeding well for a length of time and then suddenly refuse one or both breasts for no apparent reason; however, this is rare. The baby's age and the circumstances under which the baby begins to refuse the mother's breast can be helpful clues for determining the cause of breast refusal.

Birth Interventions and Breast Refusal or Difficult Achieving a Latch – The events experienced during birth can impact the breastfeeding process. The normal mechanical forces of labour on the cranial nerves and facial muscles can affect the baby's comfort and ability to achieve a latch, as well as his ability to suck, swallow and transfer breast milk, a situation that may be further complicated by forceps, vacuum, and surgical interventions (Smith, 2010 & 2007). A long labour can be stressful and tiring for both mother and baby, and may be associated with interventions such as intravenous hydration, analgesia, epidurals and instrumental deliveries. Caesarean deliveries may lead to stress and pain, as well as separation of mother and baby. IV fluids may be associated with breast or areolar edema, which can make it difficult for a baby to latch, although research has yet to establish the degree of association (Smith, 2010). Pain is stressful and can interfere with the mother's comfort as well as breast milk production (see *How the Breast Works*). Although research has not yet established a direct link between specific medications used for intrapartum pain management and breastfeeding initiation, practitioners continue to question whether medication may affect the baby's capacity to suck effectively. In addition, it is important to consider the impact of the birth process on the mother's breastfeeding self-efficacy.

- **Ankyloglossia (Tongue-Tie)** – A short or tight lingual frenulum can restrict infant tongue movement and may lead to breastfeeding difficulties. Although it may sometimes be associated with speech difficulties, the effect on speech has not been clearly determined (Lalakea et al., 2003). There are many variations in degree of tightness, amount and type of movement. Coryllos

describes four types of tongue-tie, ranging from the frenulum attached to the tongue tip; attached behind the tongue tip at the alveolar ridge; attached to the mid-tongue and mid-floor of the mouth; and attached at the back of the tongue (Coryllos et al., 2004). There may be a congenital association.

- ° There may be difficulty achieving a deep latch if the baby's tongue is unable to reach back towards the soft palate junction.
- ° Nipple pain and damage may occur if the tip of the baby's tongue rubs the hard palate and/or from reflexive biting.
- ° There may also be breast refusal and difficulty maintaining the latch.
- ° If the tongue has difficulty cupping the mother's breast, the infant may have difficulty managing a bolus of breast milk, putting the infant at risk of insufficient milk intake and poor weight gain.

Management is not straightforward. Disagreement may occur among health care providers regarding the management of ankyloglossia as there are many ways to describe and define ankyloglossia. In addition to Coryllos above, Walker includes descriptions of several assessment and management approaches (2011). Conservative management may be possible for breastfeeding with tongue-tie, depending on the degree of tongue movement and pain, through offering assessment and support to facilitate optimal positioning and latching (*Protocol #2: Positioning and Latching*).

- If the mother feels unable to continue breastfeeding due to persistent pain, and/or if the baby is at risk of insufficient breast milk intake and poor weight gain related to breast refusal or difficulty latching, refer to assess for a possible frenotomy (surgical clipping or snipping to release the frenulum) may be considered to relieve pain,and facilitate effective latching and breastfeeding. Geddes et al. reported less nipple compression post-frenotomy, associated with improved breastfeeding outcomes, better latching and breast milk transfer, and less maternal pain (2008).
  - ° Refer to a primary health care provider for further assessment. Not all cases of ankyloglossia will be assessed as appropriate for frenotomy, depending on the degree of tongue movement, infant well-being and breastfeeding difficulty, as well as access to a paediatrician who performs frenotomies.

(Protocol #2: Positioning and Latching; Protocol #10: Ineffective Suck; Protocol #12: Insufficient B east Milk Supply)

Nipple Shields – If the mother inquires about using a nipple shield to manage breast refusal or difficulty achieving or maintaining a latch, it is important to first explore with her any possible contributing factors related to the difficulty in achieving or maintaining a latch, as well as her breastfeeding self-efficacy related to the breast refusal or latching difficulties. It is also important to inquire about her previous breastfeeding history, current breastfeeding management and attempts to manage the difficulty in achieving or maintaining a latch, and then to offer suggestions to optimize basic breastfeeding management before adding further interventions such as nipple shields (see earlier discussion regarding management of flat or inverted nipples).

Although not the first strategy recommended to manage difficulty achieving or maintaining a latch, short-term use of the newer ultra-thin silicone shields has been positively associated with preserving the breastfeeding relationship while the pair learns to breastfeed (Meier, 2000; Wilson-Clay, 1996). Although a recent review of the literature reported that the current evidence does not yet demonstrate safe practices for the use of nipple shields (McKechnie et al., 2010), expert practitioners continue to report the use of nipple shields as a possible strategy to bring babies to the mother's breast who might otherwise refuse her breast. Causes for refusal may include flat or inverted nipples, prematurity, neuromuscular issues and/or imprinting (*Protocol #4: Sore Nipples; Protocol #8: Flat or Inverted Nipples; Protocol #10: Ineffective Suck*). Nipple shields may provide temporary relief for a mother who is stressed or overwhelmed and prevent introduction of bottle feeding, if she is supported appropriately by a lactation expert (Lauwers et al., 2011). Some mothers may wish to use nipple shields for longer periods; these situations should be periodically reassessed. Lawrence advises against use of a makeshift shield; nor should shields be altered for use.

A nipple shield is an artificial nipple and areola shaped like a floppy sun hat and made of a synthetic material like silicone. Some women may have success placing one of the newer ultra-thin silicone nipple shields over the breast to facilitate latching

and sucking. This has the potential to stimulate the baby's hard palate and thereby elicit the sucking reflex. It may be a familiar stimulus to coax a baby to the mother's breast who has already imprinted preferentially on the supernormal stimulus of an artificial nipple (Wilson-Clay et al., 2008).

Historically, there has been mixed evidence reported about nipple shields. Use of the older rubber or latex shields was associated with concerns of inadequate intake of breast milk that resulted in slow weight gain or failure to thrive (Woolridge, 1980). Recent evidence has demonstrated weight gain to be similar over 2 months in babies fed with shields as for babies fed without shields (Chertock, 2009).

To apply a nipple shield, it is important to use the correct fit and size. If the teat is too long for the baby's mouth it can cause gagging, but if it is too small it may not stimulate active sucking (Mohrbacher, 2010). The teat opening needs to be large enough to accommodate the mother's nipple comfortably; if it is too small it can slow the flow of breast milk or may create friction and sore nipples. Lauwers recommends starting with the smallest shield that accommodates both the baby's mouth and the mother's nipple. Wilson-Clay advises matching the shield size to the baby's mouth, and selecting the shortest available teat with the smallest base diameter (2008).

Clinicians and mothers may try varying methods to directly apply the shield. In one, the mother holds the rim of the shield between her thumb and fingers. Stretching the shield at the junction of the nipple and areola, she places the stretched shield over her nipple and releases the tension. As it releases and the shield returns to its normal shape, it draws the mother's nipple into the nipple cavity of the shield before the baby begins to suck. Some mothers may turn the top half of the shield inside out before placing it over the nipple. It is important to follow the manufacturer's instructions related to care and cleaning of the nipple shield. For further information see *Wilson-Clay, 2008, Lauwers, 2011, and Genna, 2008*.

Nipple shields should not be the first strategy recommended to manage flat or inverted nipples and they should only be initiated by a health care provider who has the breastfeeding expertise to thoroughly assess the potential effectiveness and risks of use for that breastfeeding dyad. The practitioner is also responsible for establishing a plan with the mother for the ongoing management and evaluation of the intervention. Practitioners who do not have the capacity, i.e., lactation expertise or time, to continue to support the dyad appropriately should refer the mother to a lactation expert or breastfeeding clinic. The baby's weight gain and the mother's breast milk supply need to be monitored closely. There must be a comprehensive plan that includes periodic reassessment of breastfeeding and the infant's intake of breast milk, plus a plan for re-establishment of feeding at the breast.

Flavours in Breast Milk – Mothers may be quick to blame breast refusal on something they have eaten or done. In fact, most babies will accept a variety of flavours in their mother's breast milk, reflecting the mothers' dietary choices (Beauchamp et al., 2011). Flavours from the mother's diet are transmitted to the amniotic fluid prenatally and later to breast milk. Mennella et al. (2001) suggest that prenatal flavour experiences enhance the acceptance and enjoyment of similar flavours after birth. Pregnancy, changes in sodium content related to mastitis, or elevated lactic acid levels related to exercise may also temporarily change the taste of breast milk. However, Wallace et al. (2002) found that moderate or high-intensity exercise did not impede infant acceptance of breast milk when consumed an hour post-exercise.

References

Beauchamp, G.K., Mennella, J.A. (2011). Flavor perception in human infants: Development and functional significance. *Digestion, 83*(Suppl 1), 1–6.

Chertok, I.R.A. (2009). Reexamination of ultra-thin nipple shield use, infant growth and maternal satisfaction. *Journal of Clinical Nursing*, *18*: 2949–2955.

Coryllos, E., Genna, C.W., Salloum, A.C. (2004). Congenital tongue tie and its impact on breastfeeding. *American Academy of Pediatrics Newsletter, section on breastfeeding, Breastfeeding: Best for baby and mother*, summer 2004. Electronic copy retrieved (2011) from: http://www.aap.org/breastfeeding/files/pdf/bbm-8-27%20Newslette .pdf

Geddes D.T., Langton D.B., Gollow I., Jacobs L.A., Hartmann P.E. Frenulotomy for breastfeeding infants with ankyloglossia: effect on milk removal and sucking mechanism asimaged by ultrasound. (2008). *Pediatrics*, 122: e188–194.

Genna; C. W. (2008). *Supporting Sucking Skills in Breastfeeding Infants.* Sudbury (MA): Jones & Bartlett Publishers.

Lalakea, M., Messner, A.H. (2003). Ankyloglossia: Does it matter? *Pediatric Clinics of North America*, *50*, 381–397.

Lauwers, J., Swisher, A. (2011). *Counseling the nursing mother: A lactation consultant's guide*. (5th ed.) Sudbury (MA): Jones & Bartlett Publishers.

Lawrence, R.A., Lawrence, R.M. (2011). *Breastfeeding: A guide for the medical profession*. (7th ed.) Maryland Heights (MO): Elsevier Mosby.

McKechnie, A.C., Eglash, A. (2010). Nipple Shields: A Review of the Literature, *Breastfeeding Medicine 5*(6): 309–314.

Meier, P. et al. (2000). Nipple shields for preterm infants: Effect on milk transfer and duration of breastfeeding. *Journal of Human Lactation*, *16*(2), 106–114.

Mennella, J.A. (2007). Chemical senses and the development of flavo preferences in humans. In Hale et al. *Textbook of Human Lactation*. Amarillo (TX): Hale Publishing, 403–413.

Mennella, J.A., Jagnow, C.P., Beauchamp, G.K. (2001). Prenatal and postnatal flavo learning by human infants. *Pediatrics, 107*(7), e88.

Mohrbacher, N. (2010). *Breastfeeding answers made simple*. Amarillo (TX): Hale Publishing.

Renfrew, M., Fisher, C., Arms, S. (2004). *Bestfeeding: How to breastfeed your baby*. Berkeley (CA): Celestial Arts.

Smith, L.J., Kroeger, M. (2010). *Impact of birthing practices on breastfeeding*. (2nd ed.) Sudbury (MA): Jones & Bartlett.

Smith, L. (2007). Impact of birthing practices on the breastfeeding dyad. *Journal of Midwifery & Women's Health*, *52*(6), 621–630.

Walker, M. (2011). *Breastfeeding management for the clinician using the evidence*. (2nd ed.) Sudbury (MA): Jones & Bartlett Publishers.

Wallace, K.S., Quinn, T.J., Carey, G.B. (2002). Infant acceptance of breast milk after maternal exercise. *Pediatrics, 109*(4), 585–589.

Wilson-Clay, B. (1996). *Clinical use of silicone shields. Journal of Human Lactation, 12*(4). 279–385

Wilson-Clay, B., Hoover, K. (2008). *The breastfeeding atlas*. (4th ed.) Manchaca (TX): BWC/KH Joint Venture.

Woolridge, M. (1980). The 'anatomy' of infant feeding. *Midwifery, 2*(4), 164–171.