BREASTFEEDING MEDICINE
Volume 11, Number 10, 2016

DOI: 10.1089/bfm.2016.29031.egb

ABM Clinical Protocol #10: Breastfeeding the Late Preterm (34–36 6/7 Weeks of Gestation) and Early Term Infants (37–38 6/7 Weeks of Gestation), Second Revision 2016

Eyla G. Boies, Yvonne E. Vaucher, and the Academy of Breastfeeding Medicine

A central goal of the Academy of Breastfeeding Medicine is the development of clinical protocols for managing common medical problems that may impact breastfeeding success. These protocols serve only as guidelines for the care of breastfeeding mothers and infants and do not delineate an exclusive course of treatment or serve as standards of medical care. Variations in treatment may be appropriate according to the needs of an individual patient.

Highlights of New Information Since the 2010 Revision Include

1. Increased risk for breastfeeding-related problems in the early term infant similar to those of the late preterm infant.
2. Importance of proactive lactation management strategies for many late preterm infants and some early term infants.
3. Importance of early expression of colostrum within the first hour after delivery.
4. Role of hand expression with or without mechanical expression in the initial postpartum hours and days.
5. Risk for iron insufficiency and iron-deficient anemia in the late preterm breastfed infant.
6. Increased risk for long-term developmental problems in the late preterm infant.

Purpose

The purpose of this protocol is to:

1. Assist the late preterm and early term infant to breastfeed and/or breast milk feed to the greatest extent possible.
2. Heighten awareness of difficulties that late preterm and early term infants and their mothers may experience with breastfeeding.
3. Offer strategies to anticipate, identify promptly, and manage breastfeeding problems that the late preterm and early term infant and their mothers may experience in the inpatient and outpatient settings.
4. Prevent problems such as dehydration, hypoglycemia, hyperbilirubinemia, hospital readmission, and failure to thrive in the late preterm and early term infant.

Background

The initial Academy of Breastfeeding Medicine protocol was written for the ''near term infant'' born from 35 0/7 to 36 6/7 weeks of gestation. In 2005, the National Institute of Child Health and Human Development designated infants born between 34 0/7 and 36 6/7 weeks of gestation as *late preterm* to establish a standard terminology and to emphasize the fact that these infants are really ''preterm'' and not ''almost term.''[1]

Over the past 10 years, a growing body of literature has documented an increased risk of morbidity and mortality in the late preterm infant that is often related to feeding problems, especially when there is inadequate support of breastfeeding. In addition, hospital readmission of these infants within the first 7–10 days after hospital discharge is almost always due to feeding-related problems (hyperbilirubinemia, failure to thrive, hypernatremia, and/or dehydration).[2,3]

Establishing breastfeeding in the late preterm infant is often more difficult compared with the full-term infant born at ≥39 weeks of gestation. Because of their immaturity, late preterm infants are less alert, have less stamina, and have greater difficulty with latch, suck, and swallow than full-term infants. The sleepiness and inability to suck vigorously may be misinterpreted as sepsis, leading to unnecessary separation, investigation and treatment, as well as poor nutrition. Conversely, some infants appear deceptively vigorous, and physically large preterm newborns (e.g., infants of diabetic mothers) are often mistakenly thought to be more developmentally mature than their actual gestational age. As a result, these infants may receive less attention than they need. Although some infants appear to have a good latch, suck, and swallow, they often do not transfer adequate breast milk volume when checked with test weights.

Department of Pediatrics, University of California, San Diego, California.

Late preterm infants are at greater risk for a number of transitional and breastfeeding-related morbidities (Table 1).

Late preterm infants are often separated from their mothers for evaluation and treatment and are discharged home before secretory activation (lactogenesis II)[4] is fully established. Problems with latch and milk transfer are often not identified or adequately addressed. Furthermore, mothers of late preterm and early term infants are more likely to give birth to multiples or have medical conditions such as diabetes, pregnancy-induced hypertension, chorioamnionitis, or a Cesarean-section birth that may adversely affect the onset of lactation and the success of breastfeeding.[5] Parents may go home without adequate knowledge and appropriate expectations regarding establishing breastfeeding.

It is now recognized that some early term infants, born between 37 0/7 and 38 6/7 weeks of gestation, are also at higher risk compared with term infants, born between 39 0/7 and 41 6/7 weeks of gestation, for problems including hyperbilirubinemia, hospital readmission, and reduced breastfeeding initiation and duration.[2,6] Early term infants, especially when born via elective Cesarean section, are also at increased risk for respiratory problems, Neonatal Intensive Care Unit (NICU) admission, sepsis, and hypoglycemia requiring treatment.[7–9]

Although term infants have a greater chance of successfully breastfeeding when hospitals adhere to the Ten Steps to Successful Breastfeeding of the Baby Friendly Hospital Initiative, these guidelines alone are insufficient to overcome challenges that late preterm and some early term infants and their mothers face in the immediate postpartum period and after discharge from the hospital.[10,11] Breastfeeding management of the late preterm and some early term infants requires a paradigm shift from that used with full-term infants, where an effective latch, suck, and swallow is the cornerstone for successful lactation and nutrition for the infant. Recognizing that effective suckling often takes some time to become established, management should ensure the infant is adequately nourished and that the maternal milk supply is developed and protected.[12–14] Breastfeeding adjuncts (e.g., nipple shields, supplementation, milk expression, breast compressions) are more likely to be required for the late preterm and even some early term dyads.

Given the increased risk of medical problems of the late preterm and early term infants compared with term infants, close observation and monitoring are required, especially in the first 12–24 hours after birth when the risk of inadequate adaptation to extra-uterine life is the highest. Late preterm infants born at 34 0/7 to 34 6/7 weeks of gestation have a 50% risk for morbidity during the birth hospitalization.[5,15] Transfer to a higher level of care for appropriate care and monitoring may be needed.

Late preterm and early term infants also require timely evaluation soon after hospital discharge. These follow-up services must be able to assist with breastfeeding problems or questions from the first post-discharge visit. For more complicated breastfeeding problems, mothers and infants should be seen by a lactation consultant, a breastfeeding medicine specialist, or a healthcare professional who is experienced with managing lactation issues as soon as possible.

Table 1. Morbidities of the Late Preterm Infant[2,3,5,8,9,15,57,59–63]

Hypothermia
Hypoglycemia
Excessive weight loss
Dehydration
Slow weight gain
Failure to thrive
Prolonged infant formula supplementation
Exaggerated jaundice
Kernicterus
Dehydration
Fever secondary to dehydration
Sepsis
Apnea
Re-hospitalization
Breastfeeding failure

Recommendations

Principles of care

These principles are guidelines for optimal care of the late preterm and early term infant and are presented to help guide policy development. Each provider and newborn unit should use these recommendations, where applicable to their institution and practice. All but principle #8 are applicable to both the in-patient and out-patient settings (Table 2).

Implementation of principles of care: inpatient

Initial steps

a. Develop and communicate in writing to hospital staff a standard feeding plan for late preterm infants that can be easily implemented and modified as needed.[16,17] (IV) (Quality of evidence [levels of evidence IA, IB, IIA, IIB, III, and IV] is based on levels of evidence used for the National Guidelines Clearing House[18] and is noted in parentheses.)
b. Facilitate extended skin-to-skin contact immediately after birth when the mother is alert to improve postpartum stabilization of heart rate, respiratory effort, temperature control, blood glucose, metabolic stability, and early breastfeeding.[19–21] (IV, I, and llA)
c. Determine gestational age by obstetrical estimate and Ballard/modified Dubowitz scoring.[22] (III)
d. Observe the infant closely for 12–24 hours after birth to rule out physiologic instability (e.g., hypothermia, apnea, tachypnea, oxygen desaturation, hypoglycemia, poor feeding). Where the infant is observed will depend on the local conditions, facilities and staffing available, and how the mother–infant dyad can be supported to breastfeed.[16,17,19] Close observation must be continued during skin-to-skin care, breastfeeding, and rooming-in.
e. Encourage rooming-in 24 hours a day, with frequent extended periods of skin-to-skin contact when the mother is awake. If the infant is physiologically stable and healthy, allow the infant to remain with the mother while receiving intravenous antibiotics or phototherapy.[20]
f. Allow free access to the breast, encouraging initiation of breastfeeding within 1 hour after birth.[23,24] (l, IIA) If the mother and infant are separated, the mother should begin hand expression of colostrum within the first hour of birth[25] (lB) and at ~3 hourly intervals. Some, but not all, studies demonstrate that hand expression is as good or

better than breast pump expression in establishing milk supply immediately after birth.[23,24,26–29] Even if the mother and infant are not separated, many of these infants will not effectively suckle when first offered the breast, so consider hand expression and feeding expressed colostrum to the infant with a spoon, dropper, or other device after the first attempted breastfeed.[26] (lll)

g. Encourage breastfeeding ad libitum and on demand. It may be necessary to wake the infant if he or she does not indicate hunger cues within 4 hours of the previous feed, which is not unusual in the late preterm infant.[12] (lV) The infant should be breastfed (or breast milk fed) 8–12 times per 24-hour period. Instruct and help initiate milk expression by pump or hand in mothers whose infant is smaller, sleepier, or unable to successfully latch in the first 24 hours. These infants, especially if they have intrauterine growth retardation (IUGR), may need supplemental feeds (preferably of expressed breast milk) for low blood glucose levels, or excessive weight loss.
h. Show the mother techniques to facilitate effective latch with careful attention to adequate support of the jaw and head.[30] (IV)

Ongoing care

a. Communicate any changes in the feeding plan to parents and hospital staff directly and/or in writing as appropriate depending on the local procedures and protocols.[16,17]
b. Evaluate breastfeeding, preferably within 24 hours of birth, by a lactation consultant or other healthcare professional with expertise in lactation management of late preterm and early term infants.[16,19]
c. Assess and document breastfeeding at least twice daily by two different healthcare professionals, preferably by using a standardized tool (e.g., LATCH Score, IBFAT, Mother/Baby Assessment Tool).[31–34] (lll)
d. Educate the mother about breastfeeding her late preterm infant (e.g., position, latch, duration of feeds, early feeding cues, breast compressions, etc.).[12,17,19] Provide written information as well as oral instruction about breastfeeding the late preterm infant.
e. Monitor vital signs every 6–8 hours, weight change, stool and urine output, and milk transfer.[16,17,19]
f. Monitor for frequently occurring problems (e.g., hypoglycemia, hypothermia, poor feeding, hyperbilirubinemia).[35] (l) Late preterm and early term infants should be followed closely with a low threshold for checking bilirubin levels. Many healthcare facilities determine bilirubin levels and plot them on an appropriate curve according to age in hours (e.g., Bhutani chart) before the infant is discharged.[6,36,37] (lV, lll, and lV) Some infants may need to be transferred to a higher level of care for medically appropriate management and monitoring.
g. Avoid excessive weight loss or dehydration. Losses greater than 3% of birth weight by 24 hours of age or greater than 7% by day 3 merit evaluation and may require further monitoring and adjustment of medical and breastfeeding support.[16,17,19]
   i. If there is evidence of ineffective milk transfer, breast compressions while the infant suckles may be helpful,[26,38,39] (lll, IV) and the use of an ultrathin silicone nipple shield could be considered.[12,39] If a nipple shield is used, the mother and infant should be followed closely by a lactation consultant or a knowledgeable healthcare professional until the nipple shield is no longer needed. (IV)
   ii. Consider pre- and post-feeding test weights daily or after some (but not all) breastfeeds to assess the quantity of milk transferred.[12,40] Infants are weighed immediately before the feed on an electronic scale with accuracy at minimum ±5 g, and then reweighed immediately after the feed under the exact same circumstances.
   iii. The infant may need to be supplemented after breastfeeding with small quantities (5–10 mL per feeding on day 1, 10–30 mL per feeding thereafter) of the mother's expressed milk, donor human milk, or infant formula.[16,17] Choice of methods of supplementation includes cup, syringe, supplemental device, or bottle and depends on the clinical situation, the mother's preference, and the experience of the healthcare professionals assisting the mother. Cup feedings have demonstrated safety in late preterm and term infants, with careful attention to appropriate technique allowing infants to ''lap up'' the feeding at their own pace.[41] (lV) Some investigators found that cup feeding takes longer with less intake compared with bottle feeds.[42] (lB) There is little evidence about the safety or efficacy of other alternative feeding methods or their effect on breastfeeding. A recent study, however, found no difference in weight gain, feeding times, and length of hospital stays in the cup versus bottle-fed infants; cup feeding was associated with a significant protective effect on any and exclusive breastfeeding at hospital discharge, 3 and 6 months post-discharge.[43] (lB) Smaller IUGR or immature late preterm infants may not have regular sleep/wake periods. For these infants, consider offering expressed breast milk (by bottle, cup, etc) when sleepy and breastfeeds when more alert.[12]
   iv. If supplementing with expressed breast milk or infant formula, the mother should express by pump or hand after breastfeeding at least six times per 24 hours to help establish and maintain her milk supply until the infant is breastfeeding well.[12,16,17,19]

Table 2. Principles of Care for the Late Preterm Infant

1. Develop specific policies/pathways for lactation management
2. Ensure communication among all care providers and parents
3. Assure appropriate assessment and reassessment of the mother and infant
4. Provide timely inpatient and outpatient lactation support
5. Avoid or minimize separation of mother and infant
6. Prevent and promptly recognize problems
7. Educate parents, nurses, lactation consultants, and physicians about vulnerabilities and challenges that are specific to the care of these infants
8. Develop specific discharge/follow-up guidelines
9. Monitor care through quality improvement projects

If the infant is not feeding at the breast at all, mothers should express at least 8 times per 24 hours. Milk production may be increased by hand massage of the breasts while pumping.[26]

h. Avoid hypothermia by using skin-to-skin contact, that is, kangaroo care[20] as much as possible when the mother is awake or by double wrapping if necessary and dressing the baby in a shirt and hat or cap. Intermittent use of an incubator may be required to maintain normothermia.[16]

Discharge planning

a. Assess readiness for discharge, including physiologic stability and intake exclusively at breast, or with supplemental feedings.[12,16,19,44] (IV) The physiologically stable late preterm infant should be able to maintain body temperature for at least 24 hours without assistance and have a normal respiratory rate. Preferably, weight should be no more than 7% below birth weight, although all aspects of the mother/infant dyad should be taken into account. Adequate intake should be documented by feeding volume (e.g., test weights) or infant weight (e.g., stable or increasing).[12,16]
b. Develop a discharge-feeding plan. Consider method of feeding (breast, cup, supplemental device, bottle etc.), type of feeding (i.e., breast milk, donor human milk, or infant formula), and volume of milk intake (mL/kg/day), especially if being supplemented. If required, determine the most practical and acceptable method of supplementation for the mother.[12,16,17,19]
c. Communicate the discharge-feeding plan to mother and the healthcare professional/s involved in following up the infant. Written communication is preferable.[16]
d. When breast milk transfer is low, it may be appropriate to send the mother home with a scale to do test weights to confirm milk transfer during breastfeeds, or arrange for the infant to have frequent weight checks.[12] Parents should also be asked to monitor and record urine and stool output.

Implementation of principles of care: outpatient or community follow-up

Initial visit

a. Although timing of the length of hospital stay may vary, late preterm and early term infants require close follow-up in the early postpartum period and the first follow-up appointment or home health visit should normally occur 1 or 2 days after hospital discharge.[17,45,46] (IV)
b. Relevant information, including prenatal, perinatal, infant, and feeding history (e.g., need for supplement in the hospital, problems with latch, need for phototherapy, etc.), should be recorded. Gestational age and birth weight should be specifically noted. Electronic medical record templates with breastfeeding-specific queries are useful in recording this information.
c. Review feeding since discharge with specific attention to frequency and approximate duration of feeding at the breast and if needed, method and type (expressed breast milk, infant formula) of supplementation. Obtain information about stool and urine output, color of stools, and the infant's behavior (e.g., crying, not satisfied after a feed, sleepy and difficult to keep awake at the breast during a feed, etc.). If the parents have a written feeding record, it should be reviewed.[17,46,47] (IV)
d. Examine the infant, noting state of alertness and hydration. Obtain an accurate infant weight without clothing. Calculate percentage change in weight from birth and change in weight from discharge. Assess for jaundice, preferably with a transcutaneous bilirubin screening device and/or serum bilirubin determination if indicated.[17,46]
e. Assess the mother's breasts for nipple shape, pain, trauma, engorgement, and mastitis. The mother's emotional state and degree of fatigue should be taken into account, especially when considering supplemental feeding routines. Whenever possible, observe the baby feeding at the breast, evaluating the latch, suck, and swallow.[46]
f. Review the mother's goals and expectations regarding breastfeeding her late preterm or early term infant. She may need encouragement and education regarding the process of transitioning from expressing and giving supplemental feeds to exclusive breastfeeding. Mothers should be cautioned not to taper expressing sessions too rapidly to ensure the maintenance of a generous milk supply that will allow for more effective milk transfer.[12]
g. Review with the parents where their infant is sleeping and educate about safe sleeping practices. Asking, ''where did you and your baby sleep last night?'' may give a more accurate picture of actual sleeping practice.

Problem solving

a. Poor weight gain (<20 g/day) is almost always the result of inadequate milk intake. The median daily weight gain of a healthy newborn is 28–34 g/day.[48] (IV) The healthcare provider must determine whether the problem is insufficient milk production, inability of the infant to transfer sufficient milk, or a combination of both. The infant who is getting enough breast milk should have at least six voids and three to four sizable yellow seedy stools daily by day 4, be satisfied after 20–40 minutes of breastfeeding, and have an age appropriate weight loss/gain.[46] Although a 10% weight loss may be acceptable in the larger, healthy late preterm or early term infant who is effectively breastfeeding and whose mother is achieving secretory activation, in many situations a maximum of 7% weight loss is more appropriate for the smaller and/or IUGR infant. The following strategies may be helpful to increase weight gain:
    i. The infant should be observed breastfeeding with attention to the latch, suck, and swallow. Test weights may be useful to evaluate the quantity of milk transferred (see 2gii).
    ii. Increase the frequency of breastfeeds.
    iii. Start supplementing (preferably with expressed breast milk or donor human milk) after breastfeeding or increase the amount of supplement already being given.
    iv. Offer the supplement if the infant is awake and not satisfied after ~30–40 minutes at the breast. Additional time suckling may tire the infant without significantly increasing intake. Newborns need to

rest between feeds rather than suckling continuously.
v. Institute or increase frequency of expressing (hand or pump), especially after a breastfeed if the breasts are not well drained. If already using a breast pump appropriately, switch to a more effective type (e.g., hand to mechanical, mechanical to hand, or a more efficient mechanical pump). Expressing more than six times a day may not be feasible for many mothers once their infant is home, whereas expressing eight or more times a day may be necessary to maximize milk removal. (IV)
vi. Explore ways for the mother to relax while expressing: Arrange for help with other chores and to get more sleep.
vii. Triple feeding regimens (breastfeeding, followed by supplementation and then expressing) for every feed are effective, but they may not be sustainable for some mothers, especially if they have limited support at home. The mother's ability to cope and manage breastfeeding and expressing must be taken into account when devising a feeding plan. (IV)
viii. In conjunction with the mother, consider the use of a galactogogue (a medicine or herb to increase her milk supply) if there is documented low breast milk supply and for whom other efforts to increase milk production have failed (see ABM Clinical Protocol #9).[49]
ix. Consider referral to a lactation consultant or breastfeeding medicine specialist.

b. For infants with difficulties in latching, the infant's mouth should be examined for anatomical abnormalities (e.g., ankyloglossia [tongue-tie], cleft palate), and it may be helpful for a digital suck examination to be performed by a suitably trained healthcare professional. The mother's nipples and breasts should be examined to assess breast development, anatomic configuration, plugged or blocked ducts, mastitis, engorgement, nipple trauma, or post-feeding nipple compression. A referral to a lactation consultant or breastfeeding medicine specialist or in the case of ankyloglossia, referral to a healthcare professional trained in frenotomy may be indicated.[50] (lll)
c. Jaundice and hyperbilirubinemia are more common in late preterm and early term infants. Although all risk factors should be considered, if the principal causative factor is lack of milk, the primary treatment is to provide more milk to the infant, preferably through improved breastfeeding or supplementation with expressed breast milk or donor milk. If home or hospital-based phototherapy is indicated, breast milk production and intake should not be compromised.[51,52] (IV) If the mother's own milk or donor milk is not available, small amounts of cow's milk-based infant formula should be used. Hydrolyzed casein formulas may be considered for this purpose, as there is evidence that these formulas are more effective in lowering serum bilirubin than standard infant formula.[53] (llB)

Ongoing care

a. Infants who are not gaining weight well and for whom adjustments are being made to the feeding plan must be evaluated by a suitably trained healthcare professional frequently (e.g., daily or every 2–3 days depending on the situation) after each feeding adjustment either in the clinic or in the office or by a home healthcare provider with feedback to the primary care provider. (III)
b. The late preterm infant should have weekly weight checks until 40 weeks of post-conceptual age or until he or she is thriving. Weight gain should average 20–30 g/day, and length and head circumference should each increase by an average of 0.5 cm/week.[48]
c. Breastfed late preterm infants are at increased risk for iron deficiency and iron deficiency anemia compared with term infants, and routine iron supplementation is recommended.[54–56] (lV, lll, and lB)
d. Late preterm infants are also more likely to sleep in unsafe situations as compared with term infants,[57] thus adding to the established increased risk of sudden infant death syndrome (SIDS) in preterm infants. Therefore, regular inquiry into sleep position and location is also warranted.
e. The diagnosis of late preterm birth should remain on the primary care giver's problem list for several years, as these children are at increased risk for pulmonary and mild neurodevelopmental problems.[8,58]

Multiples

a. Multiple gestations (twins, triplets etc.) more often result in preterm or late preterm birth. The issues of having enough breast milk for two or more infants and feeding two at the breast are more challenging than when managing a singleton dyad.
b. Supplemental feeds are more frequently required. Consider donor human milk if available, at least in the first few weeks of life, if the mother is not producing enough milk.
c. Help the mother of multiples in managing her time. This includes how best to use the help of family, friends, and even hiring help.
d. The mother of late preterm twins will usually not be able to feed them in tandem until they are older and are each effectively feeding at the breast alone due to their immaturity and need for more help with positioning, latch, and continued attention during a feed.
e. Some mothers will never produce enough milk to exclusively breastfeed more than one infant, and those infants will need supplementation with donor human milk or infant formula.

Recommendations for Future Research

1. Evaluation of care in the first 12–24 hours while the infant is transitioning to the extra-uterine environment, as there is no uniform approach at present.
2. Determination of discharge readiness and optimal post-discharge care.
3. Best practices for optimizing maternal breast milk volume.
4. Best practices for transitioning the infant to full breastfeeding.
5. Best practices for helping the mother cope with time-consuming pumping and breastfeeding regimens.

References

1. Engle WA. A recommendation for the definition of ''late preterm'' (near-term) and the birth weight-gestational age classification system. *Semin Perinatol* 2006;30:2–7.
2. Young PC, Korgenski K, Buchi KF. Early readmission of newborns in a large health care system. *Pediatrics* 2013; 131:e1538–e1544.
3. Ray KN, Lorch SA. Hospitalization of early preterm, late preterm, and term infants during the first year of life by gestational age. *Hosp Pediatr* 2013;3:194–203.
4. Pang WW, Hartmann PE. Initiation of human lactation: Secretory differentiation and secretory activation. *J Mammary Gland Biol Neoplasia* 2007;12:211–221.
5. Shapiro-Mendoza CK, Tomashek KM, Kotelchuck M, et al. Effect of late-preterm birth and maternal medical conditions on newborn morbidity risk. *Pediatrics* 2008;121:e223–e232.
6. Norman M, Åberg K, Holmsten K, et al. Predicting nonhemolytic neonatal hyperbilirubinemia. *Pediatrics* 2015;136: 1087–1094.
7. Tita ATN, Landon MB, Spong CY, et al. Timing of elective repeat cesarean delivery at term and neonatal outcomes. *N Engl J Med* 2009;360:111–120.
8. Seikku L, Gissler M, Andersson S, et al. Asphyxia, neurologic morbidity, and perinatal mortality in early-term and postterm birth. *Pediatrics* 2016;137:e20153334.
9. Reddy UM, Bettegowda VR, Dias T, et al. Term pregnancy: A period of heterogeneous risk for infant mortality. *Obstet Gynecol* 2011;117:1279–1287.
10. Eidelman AI. The challenge of breastfeeding the late preterm and the early-term infant. *Breastfeed Med* 2016;11: 99–99.
11. Philipp BL. ABM Clinical Protocol #7: Model Breastfeeding Policy (Revision 2010). *Breastfeeding Med* 2010;5: 173–177.
12. Meier P, Patel AL, Wright K, et al. Management of breastfeeding during and after the maternity hospitalization for late preterm infants. *Clin Perinatol* 2013;40:689–705.
13. Morton J. Perfect storm or perfect time for a bold change? *Breastfeed Med* 2014;9:180–183.
14. Neifert M, Bunik M. Overcoming clinical barriers to exclusive breastfeeding. *Pediatr Clin North Am* 2013;60:115–145.
15. Pulver LS, Denney JM, Silver RM, et al. Morbidity and discharge timing of late preterm newborns. *Clin Pediatr* 2010;49:1061–1067.
16. UC San Diego Health Supporting Premature Infant Nutrition (SPIN). Protocol for late preterm infants. 2016. Available at https://health.ucsd.edu/specialties/obgyn/maternity/newborn/nicu/spin/staff/Pages/late-preterm.aspx (accessed August 25, 2016).
17. California Perinatal Quality Care Collaborative. Care and management of the late preterm infants toolkit. 2013. Available at www.cpqcc.org/sites/default/files/Late Preterm Infant Toolkit FINAL 2–13.pdf (accessed August 25, 2016).
18. Shekelle PG, Woolf SH, Eccles M, et al. Developing guidelines. *BMJ* 1999;318:593–596.
19. Phillips RM, Goldstein M, Hougland K, et al. Multidisciplinary guidelines for the care of late preterm infants. *J Perinatol* 2013;33 Suppl 2:S5–S22.
20. Moore ER, Anderson GC, Bergman N, et al. Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database Syst Rev* 2012:CD003519.
21. Righard L, Alade MO. Effect of delivery room routines on success of first breast-feed. *Lancet* 1990;336:1105–1107.
22. Ballard JL, Khoury JC, Wedig K, et al. New Ballard Score, expanded to include extremely premature infants. *J Pediatr* 1991;119:417–423.
23. Becker GE, Smith HA, Cooney F. Methods of milk expression for lactating women. *Cochrane Database Syst Rev* 2015:CD006170.
24. Maastrup R, Hansen BM, Kronborg H, et al. Factors associated with exclusive breastfeeding of preterm infants. Results from a prospective national cohort study. *PLoS One* 2014;9:e89077.
25. Parker LA, Sullivan S, Krueger C, et al. Effect of early milk expression on milk volume and timing of lactogenesis stage ll among mothers of very low birthweight infants: A pilot study. *J Perinatol* 2012;32:205–209.
26. Morton J, Hall JY, Wong RJ, et al. Combining hand techniques with electric pumping increases milk production in mothers of preterm infants. *J Perinatol* 2009;29:757–764.
27. Ohyama M, Watabe H, Hayasaka Y. Manual expression and electric breast pumping in the first 48 h after delivery. *Pediatr Int* 2010;52:39–43.
28. Lussier MM, Brownell EA, Proulx TA, et al. Daily breastmilk volume in mothers of very low birth weight neonates: A repeated-measures randomized trial of hand expression versus electric breast pump expression. *Breastfeed Med* 2015;10:312–317.
29. Slusher TM, Slusher IL, Keating EM, et al. Comparison of maternal milk (breastmilk) expression methods in an African nursery. *Breastfeed Med* 2012;7:107–111.
30. Thomas J, Marinelli KA. ABM Clinical Protocol #16: Breastfeeding the Hypotonic Infant, Revision 2016. *Breastfeed Med* 2016;11:271–276.
31. Jensen D, Wallace S, Kelsay P. LATCH: A breastfeeding charting system and documentation tool. *J Obstet Gynecol Neonatal Nurs* 1994;23:27–32.
32. Matthews MK. Developing an instrument to assess infant breastfeeding behaviour in the early neonatal period. *Midwifery* 1988;4:154–165.
33. Mulford C. The Mother-Baby Assessment (MBA): An ''Apgar score'' for breastfeeding. *J Hum Lact* 1992;8:79–82.
34. Ingram J, Johnson D, Copeland M, et al. The development of a new breast feeding assessment tool and the relationship with breast feeding self-efficacy. *Midwifery* 2015;31:132–137.
35. Wight N, Marinelli KA. ABM Clinical Protocol #1: Guidelines for blood glucose monitoring and treatment of hypoglycemia in term and late-preterm neonates, revised 2014. *Breastfeed Med* 2014;9:173–179.
36. Bhutani VK, Stark AR, Lazzeroni LC, et al. Predischarge screening for severe neonatal hyperbilirubinemia identifies infants who need phototherapy. *J Pediatr* 2013;162:477–482.e471.
37. Maisels MJ, Bhutani VK, Bogen D, et al. Hyperbilirubinemia in the newborn infant > or = 35 weeks' gestation: An update with clarifications. *Pediatrics* 2009;124:1193–1198.
38. Morton J, Wong RJ, Hall JY, et al. Combining hand techniques with electric pumping increases the caloric content of milk in mothers with preterm infants. *J Perinatol* 2012;32:791–796.
39. Walker M. Breastfeeding the late preterm infant. *J Obstet Gynecol Neonatal Nurs* 2008;37:692–701.
40. Haase B, Barreira J, Murphy P, et al. The development of an accurate test weighing technique for preterm and high-risk hospitalized infants. *Breastfeed Med* 2009;4:151–156.

41. Lang S, Lawrence CJ, Orme RL. Cup feeding: An alternative method of infant feeding. *Arch Dis Child* 1994;71: 365–369.
42. Marinelli KA, Burke GS, Dodd VL. A comparison of the safety of cupfeedings and bottlefeedings in premature infants whose mothers intend to breastfeed. *J Perinatol* 2001;21:350–355.
43. Yilmaz G, Caylan N, Karacan CD, et al. Effect of cup feeding and bottle feeding on breastfeeding in late preterm infants: A randomized controlled study. *J Hum Lact* 2014;30:174–179.
44. American Academy of Pediatrics Committee on Fetus and Newborn. Hospital discharge of the high-risk neonate. *Pediatrics* 2008;122:1119–1126.
45. American Academy of Pediatrics Section on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics* 2012;129:e827–e841.
46. Neifert MR. Prevention of breastfeeding tragedies. *Pediatr Clin North Am* 2001;48:273–297.
47. Neifert MR. Breastmilk transfer: Positioning, latch-on, and screening for problems in milk transfer. *Clin Obstet Gynecol* 2004;47:656–675.
48. Grummer-Strawn LM, Reinold C, Krebs NF. Use of World Health Organization and CDC growth charts for children aged 0–59 months in the United States. *MMWR Recomm Rep* 2010;59:1–15.
49. Academy of Breastfeeding Medicine Protocol Committee. ABM Clinical Protocol #9: Use of galactogogues in initiating or augmenting the rate of maternal milk secretion (First Revision January 2011). *Breastfeed Med* 2011;6:41–49.
50. Geddes DT, Langton DB, Gollow I, et al. Frenulotomy for breastfeeding infants with ankyloglossia: Effect on milk removal and sucking mechanism as imaged by ultrasound. *Pediatrics* 2008;122:e188–e194.
51. American Academy of Pediatrics Subcommittee on Hyperbilirubinemia. Management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation. *Pediatrics* 2004;114:297–316.
52. Academy of Breastfeeding Medicine Protocol Committee. ABM Clinical Protocol #22: Guidelines for management of jaundice in the breastfeeding infant equal to or greater than 35 weeks' gestation. *Breastfeed Med* 2010;5:87–93.
53. Gourley GR, Kreamer B, Cohnen M, et al. Neonatal jaundice and diet. *Arch Pediatr Adolesc Med* 1999;153: 184–188.
54. Baker RD, Greer FR. Diagnosis and prevention of iron deficiency and iron-deficiency anemia in infants and young children (0–3 years of age). *Pediatrics* 2010;126:1040–1050.
55. Yamada RT, Leone CR. Hematological and iron content evolution in exclusively breastfed late-preterm newborns. *Clinics (Sa∼o Paulo, Brazil)* 2014;69:792–798.
56. Berglund SK, Westrup B, Domellöf M. Iron supplementation until 6 months protects marginally low-birth-weight infants from iron deficiency during their first year of life. *J Pediatr Gastroenterol Nutr* 2015;60:390–395.
57. Hwang SS, Barfield WD, Smith RA, et al. Discharge timing, outpatient follow-up, and home care of late-preterm and early-term infants. *Pediatrics* 2013;132:101–108.
58. Kugelman A, Colin AA. Late preterm infants: Near term but still in a critical developmental time period. *Pediatrics* 2013;132:741–751.
59. Leone A, Ersfeld P, Adams M, Schiffer PM, et al. Neonatal morbidity in singleton late preterm infants compared with full-term infants. *Acta Paediatr* 2012;101:e6–e10.
60. Loftin RW, Habli M, Snyder CC, et al. Late preterm birth. *Rev Obstet Gynecol* 2010;3:10–19.
61. Morag I, Okrent AL, Strauss T, et al. Early neonatal morbidities and associated modifiable and non-modifiable risk factors in a cohort of infants born at 34–35 weeks of gestation. *J Matern Fetal Neonatal Med* 2015;28:876–882.
62. Nagulesapillai T, McDonald SW, Fenton TR, et al. Breastfeeding difficulties and exclusivity among late preterm and term infants: Results from the all our babies study. *Can J Public Health* 2013;104:e351–e356.
63. Radtke JV. The paradox of breastfeeding-associated morbidity among late preterm infants. *J Obstet Gynecol Neonatal Nurs* 2011;40:9–24.

ABM protocols expire 5 years from the date of publication.

Content of this protocol is up-to-date at the time of publication. Evidence based revisions are made within 5 years or sooner if there are significant changes in the evidence.

The first and second versions of this protocol were authored by Eyla G Boies and Yvonne E Vaucher.

The Academy of Breastfeeding Medicine Protocol Committee:

Wendy Brodribb, MBBS, PhD, FABM, Chairperson
Larry Noble, MD, FABM, Translations Chairperson
Nancy Brent, MD
Maya Bunik, MD, MSPH, FABM
Cadey Harrel, MD
Ruth A. Lawrence, MD, FABM
Kathleen A. Marinelli, MD, FABM
Kate Naylor, MBBS, FRACGP
Sarah Reece-Stremtan, MD
Casey Rosen-Carole, MD, MPH
Tomoko Seo, MD, FABM
Rose St. Fleur, MD
Michal Young, MD

For correspondence: abm@bfmed.org

This article has been cited by:

1. Kellams Ann , 1 Harrel Cadey , 2 Omage Stephanie , 3 Gregory Carrie , 4, 5 Rosen-Carole Casey , 4, 5 and the Academy of Breastfeeding Medicine 1Department of Pediatrics, University of Virginia, Charlottesville, Virginia. 2Department of Family & Community Medicine, University of Arizona College of Medicine and Family Medicine Residency, Tucson, Arizona. 3Discipline of General Practice, The University of Queensland, Brisbane, Australia. 4Department of Pediatrics, University of Rochester, Rochester, New York. 5Department of OBGYN, University of Rochester, Rochester, New York. . ABM Clinical Protocol #3: Supplementary Feedings in the Healthy Term Breastfed Neonate, Revised 2017. *Breastfeeding Medicine*, ahead of print. [Abstract] [Full Text HTML] [Full Text PDF] [Full Text PDF with Links]