NUTRITION, PART III

BREASTFEEDING MULTIPLES

Section **Page**

ACKNOWLEDGMENT

The BCRCP would like to acknowledge and thank Linda G. Leonard, RN, MSN Associate Professor (E.) & Multiple Births Specialist, UBC School of Nursing for the development of this guideline. The author is grateful to Elizabeth Bryan, FRCPCH, MD, Founder of the *Multiple Births Foundation* (UK); Karen K. Gromada, MSN, IBCLC and breastfeeding of multiples specialist; and Diane Myers of *Multiple Births Canada* for their contributions to the guidelines.

EXECUTIVE SUMMARY

The benefits of breast milk feeding are well known. Current evidence indicates that full term and preterm multiple birth infants are breastfed for a significantly shorter duration and receive less breast milk than singleton infants. The recommended guidelines contained in this document suggest "best practices" for community and hospital-based health professionals and extend over the continuum of pregnancy to early childhood.

- Families should be **actively encouraged to breastfeed** their twins and higher-order multiples. This includes assisting families to become informed about the benefits of breastfeeding multiples, available resources, and effective strategies for breastfeeding preterm or term multiple birth infants.

- Families require **access to breastfeeding of multiples education and support resources**. Resources include printed materials, videos/CDs, *Multiple Births Canada,* multiple birth families that have breastfed, local multiple birth support groups, lactation consultants/counselors, telephone support lines, online support forums, and breastfeeding of multiples education sessions.

- **Infant/child care and home help** are critical to breastfeeding success. Families should be encouraged to seek out family members, friends, volunteers from the community, and individuals or agencies that provide infant/child care and home help. Health providers should be prepared to actively advocate for multiple birth families that have limited social support or financial resources.

- Families require ongoing assistance to develop a **workable breastfeeding plan** based on maternal goals and the changing needs of the mother, each of the infants, and the family as a whole. Patience and determination are needed, especially if there are challenges with feeding or breast milk production.

- Families require **evidence-based assistance with decision-making** and managing the breastfeeding of two or more full term or preterm infants. Multiples-specific help includes early breast milk feeding initiation, individualizing positions for feeding, consecutive/simultaneous feeding, approaches to establishing feeding times, maternal time management, and personal needs management of family members.

- There should be **minimal separation of a mother from her infants and the infants from each other**. This can be achieved through combined mother-infants' care when appropriate, co-bedding of multiples, placement of infants in the same hospital and neonatal nursery, and avoidance when possible of staggered hospital discharge of a mother and her infants' and among the infants themselves.

- **Regularly scheduled long term follow-up** is critical in order to assess how well a family is coping and to provide needed breastfeeding assistance. Breastfeeding support services should be provided in the home during the early months, particularly if the family has higher-order multiples.

- **Hospital and community policies and care practices** are required that truly support the breastfeeding of multiple birth infants. This includes education of health care providers, effective communication among the many care providers, and coordination and continuity of care over the entire continuum.

1. INTRODUCTION

Six general principles and corresponding guidelines for breastfeeding multiple birth infants have been developed for use by health care providers. The principles and guidelines are shaped by the *Declaration of Rights and Statement of Needs of Twins and Higher Order Multiples*[1], a document endorsed by *Multiple Births Canada* and *The Society of Obstetricians and Gynecologists of Canada*. The guidelines suggest "best practices" in hospital and community settings and are based on current findings from multiple birth and breastfeeding research as well as empirical and anecdotal evidence from health professionals and multiple birth families. The guidelines are in concert with the Canadian Baby-Friendly™ Initiatives,[2,3] national breastfeeding guidelines,[4] and the BCRCP guidelines for breastfeeding healthy term and preterm infants.[5,6] As the preterm birth rate for multiples born in Canada is approaching 60%,[7] practitioners are encouraged to also review the BCRCP Guideline: *Breastfeeding the Healthy Preterm Infant*.[6]

Multiple births represent 3% of all live births in BC and on average, three multiple birth infants are born each day.[8] One in every 36 live births in BC is a twin birth and 1/1090 a higher-order birth. Almost 65% of multiple births occur to women 30 years of age or older.[8]

In Canada, about 55% of twins and 99% of higher-order multiples are born preterm.[9,10] The mean gestational age at birth of a twin and triplet neonate is approximately 36 weeks and 33 weeks, respectively.[11,12] The birth weight of a multiple neonate may be considerably less than that of a singleton of the same gestational age, usually because of restricted fetal growth.[13,14] Fetal death of one or more of the multiples occurs at a rate of 1.5% or 3 times more frequently than in a single gestation.[7] In Canada, there is a trend toward induction of labour and Caesarean delivery for twins[10,14,15] with almost all higher-order multiples delivered by Caesarean section.

2. DEFINITIONS

The terms used to describe breastfeeding in this document are consistent with those developed by the World Health Organization and the Breastfeeding Committee for Canada.[16,17] *Breastfeeding and breast milk feeding are used interchangeably* and refer to the process whereby the child receives breast milk directly from the breast or as expressed breast milk (EBM). The proportion of breast milk received may range from exclusive to partial. Breast milk substitute (BMS) is a food (e.g., commercial infant formula) used as a partial or total replacement of breast milk. EBM and BMS may be provided for example, by bottle and artificial nipple, cup, or nasogastric feeding.

3. PREVALENCE OF BREASTFEEDING AND AMOUNT OF BREAST MILK RECEIVED BY MULTIPLE BIRTH INFANTS

The prevalence of breastfeeding in Canada was determined in 1998-1999.[10] British Columbia, as compared to the other provinces, recorded the highest rates for breastfeeding initiation (95.2%) and duration (70% of children less than 2 years of age had received some quantity of breast milk for 3 months or more).

Until recently, little was known about initiation and duration rates for breastfeeding multiples and the proportion of breast milk received by these infants, especially higher-order multiples. Caution is required when interpreting the results of the following studies as different sampling criteria and selection methods were employed, definition of breastfeeding was not consistent, and time of assessment varied.

3.1 BREASTFEEDING INITIATION

Multiple Births Canada in a 1993 survey of its members reported that 72% of 1,200 mothers of twins or triplets initiated breastfeeding.[18] A more recent US study indicated an 89% initiation rate for twins.[19] Other

studies have focused on breastfeeding rates at the time of maternal and/or infants' discharge from hospital.[20-26] Breastfeeding rates at time of discharge ranged from 62-100% with some studies providing rates for exclusive (5-58%) and partial (24-82%) breast milk feeding (See Table 1).

Table 1. Breastfeeding rates of multiples at time of infant or maternal discharge from hospital

Country & Researchers	Sample Character-istics	Time of Assessment	Breast Milk FeedingRate at Time of Assessment	*Exclusive Breast feeding*	*Partial Breast feeding*	Breast Milk Substitute only (Commercial Infant Formula)
Italy *Colonna et al.(1997)*[22]	VLBW twins	Infant discharge	62%	*38%*	*24%*	38%
Japan *Hattori & Hattori (1999)*[24]	Preterm & full term twins	Maternal discharge	Special protocol group: 100% Routine care group: 71%	*Not specified*	*Not specified*	Protocol group: 0% Routine care group: 29%
New Zealand *Liang et al. (1997)*[25]	Preterm twins	Infant discharge	89%	*Not specified*	*Not specified*	11%
New Zealand *Butler et al. (2004)*[21]	Preterm & full term twins	Infant discharge	Not specified	*28.6%*	*Not specified*	Not specified
Poland *Czeszynska & Kowalik (1998)*[23]	Twins & triplets	Infant discharge	87%	*5%*	*82%*	13%
Spain *Rozas et al. (2000)*[26]	Preterm & full term twins	Not specified	100%	*58%*	*42%*	0%
Sweden *Nyqvist (2002)*[20]	Preterm twins	Infant discharge	85%	*46%*	*39%*	15%

3.2 DURATION OF BREASTFEEDING

Researchers have also examined the duration of breast milk feeding at specific time periods and the proportion of breast milk received by term, preterm, low birth weight (LBW) and very low birth weight (VLBW) multiple birth infants (See Table 2). Of particular concern was the short duration of breastfeeding by LBW (<2500 gm) and VLBW (<1500 gm) multiples.[27,30,31] A few studies compared breastfeeding outcomes of multiples and singletons. Many researchers, [25,27,28, 30-32] but not all [29] noted that multiples were breastfed for a shorter duration and received a smaller proportion of breast milk than singleton born infants.

Table 2. Duration and proportion of breast milk feeding for multiples

Country & Researchers	Sample Characteristics	Time of Measurement & Proportion of Breast Milk Received
Canada: BC *Wooldridge & Hall (2002)*[28]	Moderately preterm twins & singletons	Received breast milk > 80% of time at 4 weeks post-hospital discharge: 23% of twins 67.5% of singletons
Germany *Killersreiter et al. (2001)*[29]	VLBW twins, triplets, singletons & Term twins & singletons	Received unspecified amount of breast milk at: 3 months: <20% VLBW multiples < 5% VLBW singletons 55% Term twins & singletons 5 months: <10% VLBW multiples 0% VLBW singletons 50% Term twins & singletons
Japan *Hattori & Hattori (1999)*[24]	Preterm & term twins	*Special protocol group* at 3 months: 100% exclusively or predominantly breastfed *Routine care grou*p at 3 months: 28% breastfed (received <20% breast milk)
Japan *Yokoyama et al. (2006)*[32]	Preterm & term twins/triplets & singletons	3-6 months: Exclusively breastfed 4% twins/triplets 45% singletons Partially breastfed 43% twins/triplets 53% singletons
New Zealand *Liang et al. (1997)*[25]	Preterm twins & singletons	Received breast milk at 3-3.5 months: 44% preterm twins 53% preterm singletons } 94% breastfed exclusively
Spain *Rozas et al. (2000)*[26]	Preterm & term twins	Average duration of breastfeeding: 3.3 months Received at least some breast milk at: 2 months: 45% twins 4 months: 26.5% twins
Sweden *Flacking et al. (2003)*[27]	LBW twins & singletons	Twins, as compared to singletons, less likely to receive breast milk at 2, 4, 6 months.
United States *Geraghty et al. (2004)*[30, 31]	Preterm & term twins, triplets & singletons	Average duration of breastfeeding: Term Multiples: 22 weeks; Preterm Multiples: 12 weeks Term Singletons: 24 weeks; Preterm Singletons: 19 weeks Exclusively breastfed at: 1 month 6 months Term multiples 37% 16% Preterm multiples 19% 2%
United States *Damato et al. (2005)*[19]	Preterm & term twins	Of those initiating breastfeeding, rates of: Exclusive/predominant breastfeeding Partial breastfeeding At 1 month: 43% 23% At 6 months: 17% 16%

3.3 HIGHER-ORDER MULTIPLES

Limited data are available about breastfeeding rates for higher-order multiples. The *Triplet Connection* collected data over several years from 10,000 of its US and international members.[33] Sixty-six percent of the mothers of triplets provided at least some breast milk, 40% for the short-term and 60% for the long-term (short and long-term not defined). The US organization *Mothers of Supertwins* surveyed over 1000 of its members and found that 74% of mothers of triplets, quadruplets or more initiated breastfeeding and that breastfeeding duration ranged from a few days to 28 months, with an average duration of 3.1 months.[34]

Another US study found that about 55% of triplets (n=42) received at least some breast milk in the first month, 15% received some breast milk at 6 months,[31] and that median duration of breast milk feeding was 3 months.[30] In BC, 5 of 9 women breastfeeding triplets reported that all three infants received breast milk exclusively or predominantly for 2-7 months (solid foods were introduced at 4-6 months).[35] Two single-case reports detailed successful outcomes for breastfeeding quadruplets.[36,37]

4. FACTORS INFLUENCING SUCCESSFUL BREASTFEEDING OF MULTIPLE BIRTH INFANTS

The majority of mothers of twins and higher-order multiples wish to breastfeed their infants. Most are capable of producing enough milk to meet their infants' nutritional needs either through exclusive breast milk feeding or a combination of breast milk and BMS feedings.[19,30,32,34-39] Some women describe breastfeeding multiple birth infants as convenient, timesaving, and relatively easy while at the other end of the spectrum, some find that it is time-consuming, stressful, and fraught with ongoing challenges and problems.[1,40-42,] Family members may be quite apprehensive about how they will manage breastfeeding two or more infants as well as protect the mother's health and cope with other family responsibilities.[43,44]

Consensus is lacking among parents and practitioners about what constitutes a "successful" breastfeeding of multiples' experience.[25,37,45] Numerous factors have been identified as influencing breastfeeding success with multiple birth children. These factors include: a positive maternal attitude and commitment, a breastfeeding support system, early breastfeeding initiation, frequent suckling (and/or breast milk expression), on-demand or modified-demand feeding, adequate home support/child care, maternal health, avoidance of BMS use, and luck.[20,32,33,36,45-52] In addition, there is strong evidence to suggest that breastfeeding of multiples' education and appropriate counseling, use of a special protocol, and skilled breastfeeding assistance are linked to improved breastfeeding outcomes for multiple birth infants (See Table 2).[23-26] Other researchers have found that mothers of multiples who received encouragement and skilled support in hospital and at home after discharge achieved relatively high rates of exclusive or predominant breastfeeding.[22,24,53] Mothers of multiples may give more than one reason for the premature cessation of breastfeeding, thereby reflecting the complexity of the breastfeeding process.[54] Common reasons include inadequate milk supply, time involved, fatigue, stress, and baby behaviours such as poor suck or latch.[20,25,32,40,54,55]

Hospital and community environments are needed that genuinely promote the breastfeeding of multiple birth infants.[56] A strong commitment on the part of health professionals, the multiple birth community, and other community sectors is necessary to optimize rates of breastfeeding initiation and duration, the proportion of breast milk received by multiples, and family breastfeeding satisfaction.[48,57]

5. SIX PRINCIPLES FOR OPTIMIZING BREASTFEEDING SUCCESS FOR FAMILIES EXPECTING AND PARENTING MULTIPLE BIRTH INFANTS

The following six principles, with supporting evidence and specific guidelines, should guide the care and optimize breastfeeding success for families expecting and raising multiple birth infants. The principles focus on the critical areas of: parent education and preparation, access to breastfeeding resources, early breastfeeding initiation, a breastfeeding plan, evidence-based assistance, and the health care delivery system. Five of the six principles extend over the continuum of pregnancy to early childhood.

The document also contains *Resources for Parents and Health Care Providers* (Appendix A), *Sample Infant Feeding & Care Record* (Appendix B), photographs of *Positions for Breastfeeding Multiples* (Appendix C) and *Feeding Pillows* (Appendix D).

5.1 FAMILIES NEED OPPORTUNITIES TO BECOME INFORMED ABOUT AND PREPARE FOR BREASTFEEDING TERM AND PRETERM MULTIPLE BIRTH INFANTS

A. Families appreciate knowing that the short and long term benefits of breastfeeding a singleton are amplified when a family delivers twins, triplets, or more.
   - Breastfeeding in the first hours of life may have a beneficial influence on the physiological course of adaptation of multiple birth neonates.[58]
   - Breastfeeding multiples facilitates maternal-infants' attachment[36,49,59] as it provides opportunities for the mother to interact with her babies, discover the qualities unique to each child[20] and to build a close relationship with each one. Parents need to be aware that maternal attachment to multiples, even if breastfeeding, may take longer than it would to a singleton infant.[57,59,60]
   - Breast milk feeding, especially in situations where the infants require complex neonatal care, enables the mother to claim the infants as her own.[61]
   - Feeding at the breast is a source of comfort and security to the infants, especially for those who are separated from their mothers and/or co-multiples.
   - Parenting multiples, irrespective of how they are fed, consumes substantial amounts of time and energy, two commodities in limited supply for most multiple birth parents.[62-64] Breastfeeding, especially if it is the only or predominant feeding method, reduces the need to spend time preparing infant formula and cleaning equipment.
   - The financial benefits afforded by breastfeeding multiples can be significant.[46,65,66]

B. Expectant and new mothers of multiples need to be aware that providing any amount of breast milk to their infants is advantageous.[37,56]

C. Health professionals may find that parents are unsure of what they need to know and what questions to ask about infant feeding.[63,67] Expectations about breastfeeding may be high, particularly if this has been a long awaited pregnancy.

D. All mothers should receive assistance in determining their breastfeeding goals, including how much breastfeeding they wish to undertake.[19,36,38,68,69] A mother should be encouraged to discuss her expectations with her partner.[63]

E. Prospective and new parents and their support persons need to know that multiple birth families can manage the breastfeeding experience in various ways:
   - Mothers of twins and higher-order multiples may provide breast milk exclusively, predominantly, or partially at the breast or as expressed breast milk (EBM).
   - Mothers may fully breastfeed all infants during parts of the day (or night) and offer EBM/pasteurized human donor milk/BMS at the other times.
   - Mothers may adopt a rotation system whereby one or two infants receive a full breastfeeding and the remaining infants a full BMS feeding. At the next feeding, the infant(s) who previously received a BMS feeding receives a full breast feeding. This pattern is commonly seen with higher-order multiples.
   - Mothers may provide some breast milk (at the breast or EBM) at every feeding to all infants and complement each baby's feeding with donor breast milk or BMS.
   - Breastfeeding may be of short or long term duration.
   - Maternal-initiated or infant-initiated weaning times may be very similar[31] or vary by several weeks among co-multiples.[35-37]

F. The nature and amount of breastfeeding information should be tailored to a family's individual needs. Relevant information may include:
   - logistics of breastfeeding multiple birth infants including pillow positioning, effective feeding/burping positions, feeding one or two and coping with a crying baby who is waiting to be fed (See Appendix C: Feeding Positions)
   - breastfeeding basics, particularly correct latching-on, concept of breast milk supply and infant demand, assessment of sufficiency of breast milk production and infant intake
   - infant breastfeeding behaviors. Mothers who deliver preterm, require knowledge about preterm infants' breastfeeding behaviors, effective breastfeeding techniques, and EBM. (See Appendix A: Resources)
   - feeding options (e.g., on demand, modified demand, and scheduled). (See 5.5.F: Approaches to feeding times)
   - breast milk expression techniques
   - impact of breastfeeding and caring for multiples and older children on the mother's physical and emotional health
   - effective strategies to preserve maternal health
   - value of being flexible with regard to feeding management decisions.[20,42,43,44,48,57,59]

G. The exact nutritional requirements for women breastfeeding multiples are unknown.[38] Nutritional needs appear to vary somewhat among mothers[35] and are influenced by the number of infants receiving breast milk and the quantity received by each.
   - To breastfeed multiples exclusively, a mother may require 300 kcal less than what is recommended to support her multiple pregnancy.[38] Dietary requirements should be adjusted accordingly for partial breastfeeding.
   - A mother may have insufficient time and energy to adequately meet her nutritional needs while breastfeeding. Ideas on nutritious snacks and meals that can be stockpiled in the freezer ahead-of-time may be appreciated.[38,70] Women who have special dietary considerations may require counseling from a Registered Dietitian/Nutritionist. (See Appendix A: Resources).

H. Sufficient home help and support is a critical ingredient for breastfeeding success. Expectant women and their partners need to be aware that parents usually underestimate the amount of time and work involved in caring for multiples and overestimate the amount of energy that they will have.[63,71] Expectant families may be unable to predict, afford, find or accept the type and amount of help usually needed by breastfeeding mothers of multiples. Families should be assisted during pregnancy and after the births to:
   - recognize the amount and kind of help they will require after the births, including ways to manage feeding sessions, secure adequate rest/sleep, and carry out family routines
   - explore types and sources of affordable household help: for example, family, friends, neighbours, postpartum doula, nanny, home support agencies, students enrolled in nursing and early childhood education programs, volunteers from church and other community organizations, and reliable high school students
   - identify sources of breastfeeding support in the community (See Appendix A: Resources)
   - determine if they qualify for financial aid or child-care subsidies from BC Ministry of Children and Family Development. (Families with very low income and insufficient social support may quality) NB: Health care providers may need to lobby government agencies on behalf of families who lack adequate resources
   - make arrangements during pregnancy for regularly-scheduled home and child care help beyond the immediate postpartum period
   - accept help when it is offered and ask for it when it is not offered

- if possible, arrange for a support person who plans to be with the family when the infants come home to be present in hospital during the infants' feeding sessions
- discuss breastfeeding goals and plans with potential helpers because extra help does not necessarily[19,35] result in increased frequency or duration of breastfeeding.[41,54,60,63,64,72-74]

I. A multiple birth mother may make an informed choice not to breastfeed or to discontinue breastfeeding. It is important to respect and support her in her decision.[46,68]

5.2 FAMILIES REQUIRE ACCESS TO MULTIPLES-SPECIFIC AND GENERAL BREASTFEEDING RESOURCES

A. Breastfeeding of multiples' resources include: books and other printed materials, videos, online information and support networks; women with breastfeeding of multiples experience; parents of multiples' support groups; breastfeeding of multiples' education sessions; health care providers with expertise in the breastfeeding of multiples and preterm infants; and telephone help lines. (See Appendix A: Resources).

B. Each family should have access to a list of multiples-specific and general breastfeeding resources, including those available in their community.[75] As resource availability varies within BC, families may require assistance locating resources.

C. The physical and emotional stresses associated with a multiple pregnancy and the demands of parenting multiple birth children may interfere with or delay a multiple birth parent's readiness to seek out or learn from available breastfeeding resources.[63,76] Exposure over time to information and support resources is advantageous.

D. As with parents of singletons, multiple birth parents have differing and preferred learning styles. Certain resources will better suit one family than another. Generally, multiple birth parents prefer resources that relate as closely as possible to their situation; for example, a woman expecting triplets usually prefers information on breastfeeding three versus twins.

E. Multiple birth families should be informed about breast pumps and the U-shaped pillow for feeding more that one infant at a time. There are a variety of pumps and pillows available and all parents do not find the equipment helpful. Parents are encouraged to investigate prior to purchase or renting. (See Appendix D: Examples of Feeding Pillows). Parents may appreciate a list of sources that rent or sell breast pumps and the pillows.
   - Pumping may be more effective when a mother uses a full-size electric automatic cycling breast pump with adjustable suction and double collection kit for pumping both breasts simultaneously.
     - Parents should be informed about the risks of renting or purchasing a used electric breast pump that is designed for a single-user versus one designed for multi-users. (There is a low risk of transmission of infectious diseases or improper function if any of the breast milk from the previous user has entered the pumping mechanism and if the internal diaphragm of the pump cannot be removed, replaced, or fully sterilized. Refer to: www.breastfeedingonline.com/pumps.shtml.)
   - Some women may prefer to hand express[35] or use a good quality hand pump.[77]

5.3 FAMILIES SHOULD BE SUPPORTED TO INITIATE LACTATION AND PROVIDE BREAST MILK TO THEIR INFANTS AT THE EARLIEST OPPORTUNITY

A. Mothers may prefer to initiate breastfeeding by feeding one infant at a time at the breast rather than feeding two infants simultaneously.[33,35-37,46] This enables the mother to become acquainted with each infant, assess the effectiveness of latching-on and suckling, gain confidence, and make any necessary modifications.

B. A mother may wish to breastfeed the firstborn twin prior to the vaginal delivery of the second infant if there are no medical contraindications. The release of oxytocin may stimulate uterine contractions and the birth of the second neonate.

C. A private, comfortable, and quiet environment in the post-delivery recovery area, mother's hospital room, and neonatal nursery enhance the initiation of lactation and attachment to each of the infants.[20,78]

D. A multiple birth mother whose newborns are at the bedside is unlikely to be able to respond on her own to the needs of two or more infants in the first days after delivery.
   - If possible, experienced staff should be available to the mother throughout the feeding sessions in these early days.
   - A support person should be encouraged to stay with the mother to provide her with additional assistance and support.

E. Breastfeeding is more challenging when the mother is separated from her infants.
   - When the infants' health and staffing resources permit, it is helpful if infants who are being cared for in the neonatal care nursery can be brought to the mother's bedside rather than expecting the mother to go to the nursery to breastfeed.[37]
   - Infants ready for oral feedings should be offered the breast first before introducing other feeding methods.[48,79]
   - Feeding times for the infants should not be scheduled at the same time in order to allow time at the breast for each infant.[52]
   - Consistent and sustained breastfeeding support is needed from all hospital and community personnel.[19,20,24,25,80]

F. Placement of co-multiples in separate neonatal nurseries or hospitals should be avoided whenever possible.[78]
   - Separation of the infants can be physically and emotionally exhausting for multiple birth parents as they try to get to know each infant and initiate breastfeeding.[49,60,81]
   - Also, the potential for exposure to conflicting breastfeeding policies and practices increases because of the large numbers of caregivers involved.[49]

G. Current research and empirical evidence suggest that breast milk production increases in mothers of full term and preterm multiples if feeding and/or pumping are:
   - initiated early (preferably within the first 6 hours after delivery)
   - done regularly (approximately same time each day/night)
   - done frequently (every 2-3 hours during the day with a 4-6 hour break at nighttime[59]) or an average of 8 times/24 hours.[46,82]
   - When expressing milk, it is best to use the method that is most effective and comfortable for the mother.

   If only one infant is able to feed at the breast, that infant can feed on one or both sides, after which both breasts can be pumped to provide milk for the remaining infant(s). (NB: Try to ensure that the infant at the breast receives foremilk and hindmilk).

H. Parents can be encouraged to practice kangaroo care (KC) or skin-to-skin contact with preterm and full term multiples. KC, also referred to as kangaroo mother care, involves skin-to-skin contact of the infant's front with the parent's chest. KC may foster earlier initiation of feeding, facilitate milk production, decrease infant crying, increase breastfeeding duration, and enhance parent self-confidence.[59,79,81,83] KC of multiples may take various forms: separate, sequential, or shared.[81,84]

I. Milk production in mothers of preterm multiples who are pumping may increase when:
   - each pumping session lasts 10-20 min (or slightly longer if milk production is high)
   - total 24 hour pumping time is 100-120 min[46]
   - gentle breast massage is used before simultaneously pumping of both breasts. An effective method of hand massage is to roll the knuckles downward over the breast, beginning at the ribs and working toward the areola).[86]

J. A mother of multiples who is pumping frequently during her hospitalization should have a pump for her sole use.

K. A mother who is pumping may require help in deciding which infant(s) receives the colostrum or breast milk if production is limited. She may prefer that it goes to the sickest or smallest infant or that the total amount be given to a different infant at each feed.

L. If a mother must continue to pump her milk for one multiple while another breastfeeds effectively, it may be more efficient and convenient for her to pump one breast at the same time as the effective feeder suckles at the opposite breast (i.e., milk-ejection reflex may enhance pumped milk volume).[46]

M. Co-bedding of preterm hospitalized multiples may help one or more of the infants stabilize physiologically, improve co-regulation of vital signs and temperature, foster growth and development, improve weight gain, and decrease stress levels. Most, but not all multiple birth infants appear to settle better after feeding when co-bedded. As one nurse usually cares for a co-bedded twosome, coordination of breastfeeding care may be easier. The cumulative effect may be improved feeding initiation and overall success.[87-91]

N. Breastfeeding may present different significance/challenge for the mother faced with the possible or actual death of one or more of the infants before or after the births.[92,93] For example,
   - Intense stress and grieving may have the effect of delaying or diminishing milk supply and weaning prematurely.
   - Using the mother's milk to feed or to moisten the lips of a multiple who dies may be of comfort to parents.[94]
   - Painful reminders may be triggered when breastfeeding occurs in the same room that a co-multiple died.[94]
   - Mothers and family members require sustained support while building a breastfeeding relationship with the survivor and mourning the loss of a non-surviving co-multiple.[95-97] When the breastfeeding relationship can be preserved, another loss is avoided.[93]

O. A number of mothers of twin and higher-order multiple infants, despite concerted lactation interventions, experience a delay in lactation or are unable to produce sufficient breast milk volumes to meet the entire nutritional needs of all of the multiples.[20,35,36,98] The prevalence and causes of persistent milk insufficiency in this population are unknown. Actions include:
   - Assess for possible reasons contributing to delayed/low production and introduce *realistic* strategies for an already time-pressed mother. It may take affected women as long as 9-15 weeks of intensive measures to achieve satisfactory milk production.[85]

- Limited success has been achieved when affected women:
  - increase the frequency of milk expression (infant at the breast or pumping)
  - limit each infant's breastfeeding session to a maximum of 15-20 minutes
  - use single-sided pumping with simultaneous gentle breast massage rather than double-sided pumping.[46,85]
- When milk insufficiency persists and standard measures to increase production are ineffective, a galactogogue (e.g., domperidone maleate, metoclopramide) or rotation of galactogogues, including herbal galactogogues such as fenugreek (Trigonella foenum-graecum) may be useful.[85,99] There are few data available on the safety and efficacy of domperidone use by nursing mothers to stimulate lactation. Domperidone is considered usually compatible with breastfeeding by the American Academy of Pediatrics.[144] Mothers and infants should be monitored for untoward side effects when any galactogogue is being taken. Further study of the efficacy of galactogogues is required.[99,100]
- Mothers will require sustained encouragement, especially those who are discouraged.[101]

P. Use of pasteurized human donor milk would be appropriate when:
- the mother's milk production is insufficient, especially when the infants are preterm, an intolerance to BMS exists, or an infectious disease is present
- prevention and treatment of necrotizing enterocolitis
- the mother's milk is deemed temporarily unsafe for the infants (e.g., specific maternal medications or infections).[102-104]
- Donor milk can be ordered from *Breast Milk Donor Bank* at Children's & Women's Health Centre of BC. (See *Appendix A: Resources).*

Q. Use of BMS should be limited to situations where it is medically indicated, when the mother has made the decision to supplement breastfeeding with a BMS, or she has made an informed decision not to breastfeed. Parents need to be aware of the association between supplementation with BMS and negative breastfeeding outcomes.[105] Use of BMS is associated with shorter duration of breastfeeding multiples.[50]

5.4 FAMILIES SHOULD BE ASSISTED IN THE ONGOING DEVELOPMENT OF A BREASTFEEDING PLAN THAT CONSIDERS THE NEEDS OF THE MOTHER, EACH MULTIPLE BIRTH INFANT, AND THE FAMILY AS A WHOLE

A. The mother and principal family members should be encouraged during pregnancy to take the first steps in developing a breastfeeding plan. Once the infants are born, the plan can be developed more fully with the assistance of health care providers and adjusted as changes in the infants and family occur.

B. An effective plan enables the family to organize care and have more control. It also increases the likelihood that breastfeeding assistance will be comprehensive and coordinated among the many caregivers, and continuous over time.[36,49]

C. A breastfeeding of multiples plan should:
- be based on the best evidence
- reflect the mother's wishes
- go beyond a singular focus on the mother and each of the infants to a coordinated family care plan[49,60]
- be modified as necessary
- be flexible and practical
- be informal or written according to the needs of the multiple birth family
- be understood and followed by all family members, helpers, and health care providers.

D. During development of the plan, consideration should be given to the following:
- mother's goals for feeding
- maternal health status and medical considerations (e.g., medications, previous breast reduction)
- number of infants to be breastfed
- status of milk production
- locations of each of the infants (e.g., with mother, in neonatal care nurseries, at home)
- infants' developmental and health status, feeding abilities, medical problems, handicaps, or anomalies[106] affecting feeding
- type(s) and method(s) of feeding, (e.g., at breast, EBM, donor milk, BMS, gavage, cup, bottle) for each infant
- frequency of feedings
- preferred positions for feeding
- consecutive and/or simultaneous feeding
- scheduled, modified-demand or demand (flexible) feeding times
- frequency of pumping
- nature of help required and available to assist mother in feeding
- provision for meeting maternal and paternal needs (e.g., sleep, rest, stress reduction).

E. A breastfeeding of multiples plan in a decision-tree format may be helpful to health professionals in deciding how to manage the complexities of breastfeeding multiples.[24] Adoption of a developmentally-focused framework of care, such as the Newborn Individualized Developmental Care and Assessment Program (NIDCAP®)[107] fosters the initiation and progression of feeding of preterm multiple birth infants. [92,108]

F. An infant feeding record for parent and helper use (hospital and home) helps to document each infant's well-being and reduce confusion for parents. (See *Appendix B*: *Sample Feeding & Care Record)*. To avoid "medicalization" of breastfeeding, the type of information, amount of detail, and duration of record keeping should be determined on an individual basis and kept to the necessary minimum.

G. The mother and her support persons should be helped to realize that patience, determination, and perseverance may be needed in breastfeeding twins or more; it may take three months or longer before the mother feels confident.[42,46,47,50,109] Breastfeeding duration may improve if the mother moves towards her goals at a self-set manageable pace.[20,36]

H. It is helpful for parents to know that it is common for families with multiples to experience guilt and frustration because they are unable to attend to the feeding and other needs of the infants at the same[41,64] time or as often as they would if it were a single born infant.[62]

I. Alterations in the feeding plan may be prompted when older children protest about diminished maternal attention[35] or women feel guilty or resentful because they are unable to attend personally to their older children's needs.[27,109,110] "Survival" tips may help parents cope with the infants' feeding and address the need of older children for attention.[42,111]

5.5 FAMILIES SHOULD RECEIVE EVIDENCE-BASED AND SKILLED BREASTFEEDING ASSISTANCE THROUGHOUT THE POSTPARTUM AND EARLY CHILDHOOD PERIODS

A. Combined mother-baby care (full or partial) with the infants for long periods during the postpartum hospital stage may or may not be desired by a mother of multiples.
   - In the days following delivery, many mothers report extreme fatigue, weakness, emotional exhaustion, pain, and not feeling well, especially if they have been on extended antenatal bedrest, experienced complications associated with multiple pregnancy (e.g., Caesarean delivery, postpartum hemorrhage, pre-eclampsia, gestational hypertension), or have given birth to triplets or more.[55,60,64,80,112-115]
   - Infants may be slow feeders thereby giving the parents minimal opportunity to rest and recover.
   - Assistance and support by family members and key support persons should be encouraged.
   - Maternal preferences should be assessed over time and personal care plans adapted.

B. A comfortable bed or chair in the mother's room that enables the father or other support person to "move in" and assist with feedings/infant care is often appreciated.[49]

C. It is usually not necessary to switch each infant from one breast to the other at every feeding. A mother may prefer to switch every 24 hours, to assign a breast to an infant, or in the case of triplets, place the third infant to feed on both breasts. Indications for rotation at the breast are: maternal preference (avoidance of asymmetrical breasts, wanting each infant to feed from both sides) and repeated poor breastfeeding attempts on one side.

D. Multiple birth women require skilled help to find comfortable and effective positions for consecutive and simultaneous breast and bottle feeding, to ensure that the latching and suckling technique of each infant is correct, and to interpret and respond appropriately to each infant's behavior cues. (See Appendix C: Feeding Positions). Women will likely require assistance with positions for burping the infants when feeding simultaneously.

E. Multiple birth mothers can feed their infants consecutively or simultaneously and may change options within a 24 hour period and over time.[35,42,48]

Consecutive Feeds

- Mothers of multiples may prefer to feed the infants consecutively for all or most feeds.[33,35,74] Reasons include:
  - mothers can ensure correct latching and suckling technique, feel more comfortable and less conspicuous, and can devote attention to one infant at a time
  - when feeding simultaneously, one or both infants may not cope with the milk ejection reflex or may become distracted
  - women may feel trapped feeding two at once, awkward, too conspicuous and dislike the sensation of two infants suckling simultaneously, but differently.[35,42,48,59]

Simultaneous Feeds

- Mothers may prefer to feed simultaneously for all or most feedings while others will reserve simultaneous feeding for special circumstances (two infants crying at same time, mother wants to feed in a shorter time, e.g., nighttime).[20,35,47,48,109]
- Indications for simultaneous feeding are:
  - infants are more skilled at latching and suckling
  - infant responds positively to a co-multiple feeding at the same time (e.g., copes with the milk ejection reflex, is not distracted by the other multiple)
  - the saving of time is important
  - the mother is more confident and comfortable with simultaneous feeding.
- When feeding simultaneously, sometimes it is best to start with the infant who is experiencing difficulties latching (mother has two hands free) followed by the infant who is more skilled at feeding. In other situations, the avid feeder who latches easily may be started first in order to establish the letdown (and even shape the areola/nipple correctly) for the infant having difficulty.

F. Three approaches to establishing feeding times are:
- flexible or on-demand (timing of each feed is based on the desire of each infant to be fed)
- modified-demand (the infant who wakes first determines when the others will be fed)[20]
- scheduled (feeding times for the group are fixed but change as their needs change).
  - Some mothers may switch approaches over time, even within a 24-hour period.[116]
  - Parents of higher-order multiples often prefer to follow a schedule in order to better manage parenting and other life demands.[40,74,117]
  - NB: One infant of a multiple grouping may thrive on a schedule and another may not. Parents may require assistance in selecting a new approach if an infant is not flourishing.

G. If the family uses EBM, donor milk, and/or a BMS, instructions will likely be necessary regarding preparation, use, storage, and cleaning of the feeding equipment (e.g., bottles, artificial nipples, breast pump parts etc.) and preparation of BMS.[2,46] In one study, 71% of mothers of term twins and 86% who delivered preterm terms pumped their milk at some point in the first six months postpartum. About 30% combined feeding at the breast and pumping for at least 6 months.[118]

H. Mothers and their support persons will require assistance if the infants have developed a preference for receiving milk by artificial nipples.[33,35,49]
- Evidence of "nipple or sucking confusion or nipple preference" in preterm twins is not universal, despite prolonged periods of using pacifiers and artificial nipples.[25]
- Further investigations are required to determine the most effective and realistic strategies for improving the transition to breastfeeding for preterm multiple birth infants who are not able to feed at the breast after birth.[79,119-126]

I. Separate Discharge from Hospital.
- If feasible, a mother and her infants should be discharged from hospital at the same time.[56]
  - When a mother is discharged prior to some or all of her infants, she is faced with new challenges that require ongoing assistance from her support system: making travel arrangements for frequent hospital visits, increasing breast milk production, helping the infants learn to breastfeed, getting EBM to the babies, learning to care for the infants, and attending to her personal needs.[49,127] The situation is more complex when long travel distances are involved or older siblings are at home.
  - If distance or traveling arrangements are problematic, and if it can be arranged, parents may welcome the opportunity to stay at or close to the hospital.[49]

- Staggered discharge of the infants should be avoided whenever possible.
  - Breastfeeding is more challenging when one infant is discharged from hospital before the other(s). Even more difficult is managing the breastfeeding of triplets (or more) when one infant is at home, the second is in one hospital and the third in another.[49]
  - Health care providers and parents should seriously consider feasible alternatives to staggered discharge or geographical separation of the infants from one another.[128]
  - Parents and health care providers may assume that leaving hospital with only part of the multiple grouping has certain advantages such as spending time with older children, settling in with the infant(s) at home, recovering from the pregnancy and delivery, and increasing milk supply through pumping.
  - Evidence suggests that staggered infant discharge may interfere with the breastfeeding relationship[49], does not necessarily help with parent adjustment,[128] and may increase the potential for parental favoritism, difficulties with maternal-infants' attachment and child self-esteem.[44,48,129,130]
  - If a multiple birth infant is discharged home before his or her siblings, a designated space, preferably near the neonatal care unit, enables parents to bring the already discharged infant(s) to hospital and breastfeed while being with and breastfeeding the hospitalized infant(s).[35]
  - When infant discharge is staggered, a mother may be unable to visit and breastfeed the infant who remains in hospital because of overwhelming demands at home and insufficient home help.[49,130] In such cases, every effort needs to be made by neonatal care and community health staff to be sensitive to the parents' life situation and to keep parents informed and emotionally connected with their hospitalized infants.[60]

J. It has been observed that women who exclusively breastfed their preterm twins in the first few weeks after the infants' discharge were able to maintain their breast milk production.[19,28,118] In one study, women who did not have adequate production in the first week were unlikely to achieve exclusive breast milk feeding by week four.[28] Mothers who wish to breastfeed exclusively, yet are having difficulties establishing sufficient production, will require added support.[19,35,54]

K. Propping of bottles and use of hands-free feeding devices are not recommended. When home support is inadequate, particularly in families with higher-order multiples, the propping of bottles is not uncommon.[46,47,55,74,117] Parents should be offered assistance to find a suitable alternative (e.g., simultaneous feeding positions that do not entail bottle-propping, adjusting the feeding schedule so that all infants are not fed at the same time, advocacy for more help). If bottle-propping is likely to continue, parents need to be fully aware of safety precautions and the infants' need for human body contact.[46]

L. Regularly scheduled telephone follow-ups and/or home visits by skilled and supportive personnel are essential components of breastfeeding care for multiple birth families.[24,26,28,35,53] Families with multiples may require ongoing professional support throughout the infants' first year of life.
   - Often, multiple birth families do not solicit breastfeeding assistance because of the overwhelming demands of parenting, exhaustion, and difficulty in asking for help.[35,131]
   - It is helpful if parents and their infants, especially higher-order multiple families, can receive postpartum breastfeeding support services in their homes.

M. There are critical periods when prompt and/or ongoing assessment, intervention, and encouragement are needed. These include but are not limited to:
   - inadequate nutrient intake by any of the infants
   - specific infant feeding problems
   - insufficient breast milk production, particularly if prolonged

- transition from alternative feeding methods to the breast
- infant/maternal illness or hospitalization
- infant growth spurts[35,52] and changes in infant feeding preferences
- soreness, pain, or infection of maternal nipples and/or breasts
- seriously compromised maternal sleep and nutrition[60] or maternal depression/anxiety
- inadequate child care/home support or abrupt loss of helpers
- sudden drop in milk production and large weight loss at about 3-4 months postpartum. A small number of women are affected, possibly due to exhaustion of pregnancy stores and insufficient rest and nutritional intake.[35,74]
- nursing strikes (sudden refusal to breastfeed after breastfeeding is established) and abrupt infant-initiated weaning. These events may be more common in multiples.[46,59]
- return of the mother to employment outside the home[132]
- weaning. Gradual weaning is recommended to lessen the chance of engorgement and the potential for plugged ducts and mastitis.[35,59]

N. In addition, prompt and appropriate action is necessary if the parents' well-being or the infants' safety are in question:
   - Mothers of multiples, particularly those with higher-order multiples and first-time mothers with a history of infertility may be at risk for high levels of parenting stress and poor physical and emotional well-being.[133-136] Marital discord is common during the early phase of parenting multiples.[64,72,135]
   - Postpartum depression (PPD) may affect as many as 20-45% of parents of multiples [64,134-136] and extend well beyond the first year.[135] It may be more common in mothers who have a history of infertility[137]or who have one or more multiples with a handicap.[136] PPD has been linked to early cessation of breastfeeding.[19,138]
   - Some multiple birth infants may be at risk for shaken-baby syndrome[139, 140] and protracted maternal attachment difficulties.[141]

5.6 FAMILIES SHOULD RECEIVE COORDINATED, COMPREHENSIVE, CONSISTENT, AND SEAMLESS BREASTFEEDING CARE THROUGHOUT PREGNANCY AND EARLY CHILDHOOD

A. Maternity care in the industrialized world is based primarily on a singleton model of care delivery. Health care policies and practices in hospital and community settings are not always compatible with or supportive of the breastfeeding needs of multiple birth families.[56]
   - A working environment for health care providers is needed that genuinely promotes the breastfeeding of multiple birth infants.
   - Health professionals must be prepared to advocate for multiple birth families and to participate as agents of change when health/social policies and care practices do not optimize breastfeeding of multiples outcomes.
   - Adoption of a partnership approach among key players is needed to implement evidence-based breastfeeding of multiples guidelines and to acquire or develop necessary breastfeeding resources.

B. Informal and formal health care providers influence a multiple birth family's breastfeeding experience. There is significant potential for fragmented, conflicting, and uncoordinated family breastfeeding education and assistance because of the vast number and ever-changing caregivers involved with a family over the perinatal and early childhood periods.[20,49,142] This is particularly true when maternal and/or fetal/infant health problems develop.

- Partners in care may include: family physician; midwife; childbirth educator; obstetrician/perinatologist; neonatologist/pediatrician; medical students and residents; antepartum, labour/delivery/postpartum, and NICU nurses; social and financial aid worker; community health nurse; occupational or physio-therapist; lactation consultant/counselor; community breastfeeding support persons; other multiple birth parents; family members; doula; home helpers; friends; and community volunteers.

C. Possible strategies to strengthen the delivery of care to individual families include:
   - a designated coordinator(s) of breastfeeding to work with the family and health care providers. Responsibilities would be to ensure that a workable breastfeeding plan for the short and longer term is in place and that breastfeeding issues are dealt with satisfactorily in hospital and at home.[36,49]
   - interdisciplinary and coordinated team approach to the planning, implementation, and evaluation of care, especially as it impinges on breastfeeding[44,142]
   - health care provided by the same personnel for as long as is feasible.

D. Health care providers are encouraged to link up with organizations and community groups to find ways of improving breastfeeding education and support services for multiple birth families. This could be achieved by:
   - connecting with the national organization *Multiple Births Canada*, local multiple birth support groups, social services, and home support agencies
   - supporting the development of local and national breastfeeding of multiples support and education networks
   - participating in the creation of programs such as *Good Beginnings* that provide hands-on, emotional and social support to families in their homes by trained workers and volunteers, particularly in the first few months after the births.[143]

E. Health care providers who have a role in breastfeeding education and breastfeeding support require breastfeeding of multiples' education that is evidence-based and practical. This might be achieved by creating/accessing a network of consultants (e.g., health professionals and multiple birth women) with breastfeeding of multiples experience/expertise.[23,36,49,51]

F. Multiples-specific breastfeeding research is needed that investigates:
   - factors that foster or hinder breastfeeding initiation and duration, including the proportion of breast milk received;
   - breastfeeding challenges faced by mothers of multiples from various cultures, including the adequacy of breastfeeding education and sufficiency of family support resources;
   - major contributors to premature breastfeeding cessation and preventive strategies;
   - reasons for and strategies to overcome breast milk insufficiency in multiple birth women;
   - influence on breastfeeding outcomes of specific policies and practices such as co-bedding, kangaroo care, coordinated breastfeeding care, geographical separation of infants from one another, and staggered hospital discharge;
   - needs of health care providers for education about breastfeeding multiples.[28,31,36,49,54]

SUMMARY

Concerted efforts are required of health care professionals, the multiple birth community, and other sectors to optimize the breastfeeding experience for multiple birth families. The six general principles with supporting guidelines give direction for providing evidence based education and support, implementing breastfeeding programs and support services, evaluating the effectiveness of care, and conducting needed research.

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APPENDIX A
RESOURCES FOR PARENTS & HEALTH PROFESSIONALS

MULTIPLE BIRTHS ORGANIZATIONS

Multiple Births Canada/Naissances multiples Canada (MBC)
PO Box 432, Wasaga Beach, ON L9Z 1A4
Toll-Free (in Canada) 1-866-228-8824; Tel. 705-429-0901; Fax 705-429-9809
E-mail: office@multiplebirthscanada.org Web: www.multiplebirthscanada.org
Breastfeeding Support Network: breastfeeding@multiplebirthscanada.org.

Local support groups for multiple pregnancy and parenthood in British Columbia.
See: *Twins, Triplets, & More! Resource Guide for Multiple Pregnancy and Parenthood* by L. G. Leonard.
Web: http://www.nursing.ubc.ca/pdfs/twinstripletsandmore.pdf

Mothers of Supertwins (MOST)
Families with triplets and more. PO BOX 951 Brentwood, NY USA 11717-0627
Tel: 631-859-1110 E-mail: info@MOSTonline.org Web: http://www.mostonline.org

Triplet Connection
Families with triplets and more. Janet Bleyl, PO Box 99571, Stockton, California USA 95209
Tel: 209-474-0885 E-mail: janet@tripletconnection.org Web: http://www.tripletconnection.org

Multiple Births Foundation (MBF)
Hammersmith House Level 4, Queen Charlotte's and Chelsea Hospital, Du Cane Road,
London, W12 0HS. UK Tel: 0208 383 3519 Fax: 0208 383 3041
E-mail: info@multiplebirths.org.uk Web: http://www.multiplebirths.org.uk

AGENCIES & PROGRAMS

Children's & Women's Health Centre of BC
Breastfeeding of Multiples Parent Education Session: 604-875-2169
Prenatal and Postnatal Nutrition Assistance for Multiple Birth Families: 604-875-2169
Lactation Support Service: 604-822-2282 Donor Breast Milk Bank: 604-822-2282

Dial-a-Dietitian
Information line staffed by Registered Dietitians-Nutritionists Mon-Fri 9 am-5 pm.
BC Lower Mainland 604-732-9191 Outside BC Lower Mainland 1-800-667-3438
Service in English, Cantonese, Mandarin, & Punjabi.
E-mail: dial@dialadietitian.org/ Web: http://www.dialadietitian.org.

Motherisk (Hospital for Sick Children, Toronto)
Helpline regarding medication safety during pregnancy & breastfeeding, substance & alcohol use, HIV, other situations: 1-800-436-8477 Web: http://www.motherisk.org.

Multiple Births Support Program
Linda G. Leonard, RN MSN; UBC School of Nursing, T 201 2211 Wesbrook Mall, Vancouver, BC V6T 2B5. Tel: 604-822-7486 FAX: 604-822-7466 E-mail: lgl@interchange.ubc.ca.

BOOKS & BOOKLETS

Australian Breastfeeding Association (ABA) (no date). ***Breastfeeding Twins; Breastfeeding Triplets, Quads and More.*** ABA Mother's Direct, 1818-1822 Malvern Rd, East Malvern VIC 3145 Australia ABN: 14 007 006 242 E-mail: sales@mothersdirect.com.au Web: http://www.mothersdirect.com.au/category8_1.htm#149

Gromada, K. K. (1999). ***Mothering Multiples: Breastfeeding and Caring for Twins or More!!!*** rev. ed., Franklin Park, IL: La Leche International Pub. *Karen Gromada (RN MSN, IBCLC) has extensive experience with breastfeeding and parenting multiples. Excellent reference.*

Gromada, K. K., & Bowers, N. (2005). ***Care of the multiple-birth family: Postpartum through infancy.*** White Plains, NY: March of Dimes. *Continuing Education Module (71 pages) for Registered Nurses and Certified Nurse-Midwives. Excellent resource for health professionals.*

La Leche League International (2004). ***The Womanly Art of Breastfeeding,*** 7th ed. Franklin Park, IL: Author *Chapter on breastfeeding multiples plus other sound breastfeeding information*.

Leonard, L. (2006). ***Twins, Triplets & More! Resource Guide for Multiple Pregnancy & Parenthood***. Vancouver, BC: Author. 35 pages. *For families and health professionals; updated twice annually*. Available: http://www.nursing.ubc.ca/pdfs/twinstripletsandmore.pdf.

Luke, B., & Eberlein, T. (2004). ***When You're Expecting Twins, Triplets, or Quads: Proven Guidelines for a Healthy Multiple Pregnancy****, Rev. ed.* New York: Harper Collins. *Barbara Luke RD ScD, renowned researcher and practicing dietitian, specializes in multiple pregnancy care.*

Lyons, S. (Ed.) (2001). ***Finding Our Way: Life with Triplets, Quadruplets, and Quintuplets.*** Toronto ON: Triplets, Quads & Quints Association. *Excellent articles by parents and professionals.*

Women's Health Centre of British Columbia (1998). ***Healthy eating for pregnancy and breastfeeding: Twins & triplets.*** Vancouver, BC: Author. 8 pages. *New edition underway.*

ONLINE BREASTFEEDING INFORMATION & SUPPORT

NB: Some provide consultations with International Board Certified Lactation Consultants (IBCLC).

Organizations

- Multiple Births Canada: Breastfeeding Support Network (e-mail, online forum, fact sheets, booklets etc.) http://www.multiplebirthscanada.org/english/breastfeeding.php
- La Leche League International: Breastfeeding Multiples http://www.lalecheleague.org/NB/NBmultiples.html
- La Leche League Canada http://www.lalecheleaguecanada.ca
- Australian Breastfeeding Association: Information http://www.breastfeeding.asn.au/bfinfo/index.html
- Mothers of Supertwins (MOST): Breastfeeding http://www.mostonline.org/faqbf.htm
- Sunnybrook & Women's College (Toronto): Women's Health Matters--Multiples http://www.womenshealthmatters.ca/centres/pregnancy/multiples/index.html
- Allaitement-Jumeaux et Plus (French + Italian) http://www.allaitement-jumeaux.com
- LACTNET (Lactation information and discussion for health professionals)

http://peach.ease.lsoft.com/archives/lactnet.html

- Human Milk Banking Association of North America, Inc
  http://www.hmbana.com

Other sites

- Breastfeeding.com (In *Search*, type in *twins, triplets* or…)
  http://www.breastfeeding.com/
- K.K. Gromada (RN, IBCLC, breastfeeding of multiples specialist)
  http://www.karengromada.com

Twin stuff (Breastfeeding essays: M. Vickers, IBCLC)
http://www.twinstuff.com/breastfd1.htm

- Breastfeedingonline
  http://www.breastfeedingonline.com/
- Fact sheets (Jack Newman, MD)
  http://www.breastfeedingonline.com/newman.shtml
- BabyCenter (breastfeeding special needs babies) http://www.babycenter.com/refcap/8481.html

VIDEOS/DVDS

A premie needs his mother: First steps to breastfeeding your premature baby (2002—USA. *Part 1*: 35 min. For expectant and newly delivered parents. *Part 2*: 21 min. View when baby is ready to be held.) VHS and DVD. English and Spanish. Author/producer: Jane Morton, MD Clinical Professor of Pediatrics, Stanford University Medical Center. Available: ($125.00 US) Videotransform, 930 Commercial St., Palo Alto CA 94303, Tel: 1-888-566-7866 Web: http://www.breastmilksolutions.com/index.html *Includes two sets of twins born at 29 weeks and follows them for 5 months. Very positive reviews from breastfeeding advocates/consultants.*

Breastfeeding twins (2003 Australia. 16 min.) $75.00 (AU) VHS PAL format. Mercy Hospital for Women. Tel: (03) 9270 2490 Fax: (03) 9270 2777 E-mail: kmcegan@mercy.com.au
Web: http://www.mercy.com.au In *Search,* enter name of video. *Three families with preterm twins are followed in hospital and at home. Definite strengths with a few omissions.*

Double duty: The joys and challenges of caring for newborn twins (1998 USA. 30 min.) $30 (US) VHS. Available: Breastfeeding Support Network, Inc. 2050 W 9th Ave. Oshkosh, WI USA 54904-8072, E-mail: CustomerService@momsboutique.com *Overview of care, breastfeeding and pumping.*

Side by side: Breast feeding multiples (1992—Canada. 16 min.) $25.00 (individual family use) or $125.00 (institution use). VHS. Available: Paul Rotzinger, Educational Production & Design; Calgary Health Region; N-114 3512-33 St. NW; Calgary, AB T2L 2A7. Tel. 403-210-9602; Fax: 403-210-9604; E-mail: Paul.Rotzinger@CalgaryHealthRegion.ca *Covers the basics very well.*

APPENDIX B
SAMPLE FEEDING & CARE RECORD FOR PARENT & HELPER USE

NB: Amount of detail to be determined on an individual basis and kept to necessary minimum.

There are several possible formats.

1. Each baby's information can be recorded on individual sheets, colour-coded to avoid mix-ups, and stored in separate looseleaf binders. The same information as presented in *Figure 1* can be listed on each record.
2. Or, the information for two and even three babies can be kept on one legal-size sheet (turn the sheet sideways) or on the left and right hand pages of a note book.

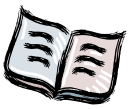


Figure 1: Consolidated record on 1 page or on opposite pages of a notebook

Date ……. Time ↓	**Baby A (Name)** ***Feeding*** At breast (Br) Expressed breast milk (EBM) Infant Formula (F). Amount EBM/F Quality of baby's feeding	Wet Diaper /Urine	Stool	**Baby B (Name)** ***Feeding*** At breast (Br) Expressed breast milk (EBM) Infant Formula (F). Amount EBM/F Quality of baby's feeding	Wet Diaper /Urine	Stool
0100 (1 am)						
0200 (2 am)						
0300 (3 am)						
etc.						
Daily Totals						
Weight						
Baby's Temperature						
Bath						
Medications & times given						
Notes about Babies e.g., sleep, crying period, reflux, rashes ...						
Notes about Mother e.g., sore nipples, pain, mood, …						

APPENDIX C
POSITIONS FOR CONSECUTIVE & SIMULTANEOUS FEEDING OF MULTIPLES

Consecutive Feeding: Cradle Hold

http://www.breastfeeding.com/helpme/helpme_images_twins.html

Consecutive Feeding: Burping

http://www.twinsmagazine.com/articles/nursing.html

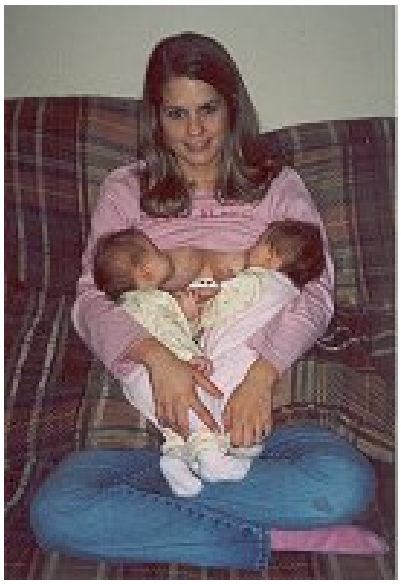
Double Clutch or Football Hold

http://www.infactcanada.ca/InfactHomePage.htm

Football position with mother's hands free

http://www.breastfeeding.com/art_gallery/art_images/album196/John.html

Positions for Infant Feeding, cont'd



V-hold

http://www.breastfeeding.com/art_gallery/Mom_photos_144. html

Football/Clutch and One-sided V Hold

http://www.breastfeeding.com/art_gallery/Mom_photos_117.html

Cross Cradle Hold 4 days old

http://www.breastfeeding.com/art_gallery/art_images/album135/Twins.html

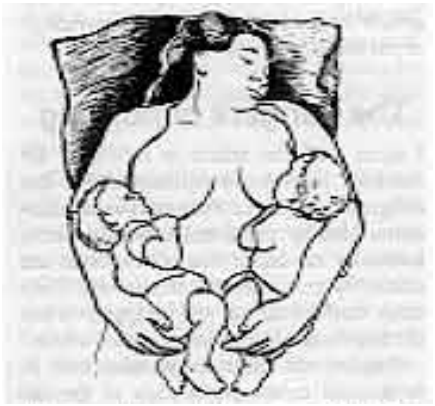
Criss-Cross Hold

http://members.tripod.com/~breastfeedingtwins/Pages/twinart.html

Positions for Infant Feeding, cont'd

Parallel Hold
http://members.tripod.com/~breastfeedingtwins/Pages/twinart. html

Simultaneous Feeding and Burping
http://www.eversotiny.ca/nursing.htm



Mother reclining or lying down: V hold
http://members.tripod.com/~breastfeedingtwins/Pages/twinart. html

Simultaneous Bottle feeding of Twins
http://www.doubleblessings.com/pillow.html#inflate

Simultaneous Breastfeeding of Two of Triplets
http://www.breastfeeding.com/art_gallery/Mom_photos_41.html

Simultaneous Bottle Feeding of Triplets
National Post 2000

APPENDIX D
EXAMPLES OF PILLOWS FOR FEEDING MULTIPLES

*NB***:** *Provided for information purposes only; not an endorsement of a particular brand of pillow)*

Two-at-a-Time Nursing Pillow

www3.sympatico.ca/kjkennedy/

The Twin Nursing Pillow

www.eversotiny.ca/

EZ-2-Nurse Twins™
Nursing and Bottle Feeding Pillow
"Family nutrition"

www.doubleblessings.com

EZ-2-Nurse Twins™
Nursing and Bottle Feeding Pillow with Back Support

www.doubleblessings.com