
Breastfeeding Rights of Multiple Birth Families and Guidelines for Health Professionals

Linda G. Leonard

School of Nursing, University of British Columbia, Canada

Increasing numbers of women wish to breastfeed their multiple birth children. Breastfeeding of preterm and fullterm multiple birth infants is complex and demanding for the families and presents distinct challenges for health professionals. Families require sustained assistance from health care providers who are encouraging, knowledgeable, skilled, and committed to the breastfeeding of multiple birth children. Seven breastfeeding rights of multiple birth families are presented for the continuum of pregnancy to early childhood and are in accordance with the *Declaration of Rights and Statement of Needs of Twins and Higher Order Multiples* (Council of Multiple Birth Organizations of the International Society for Twin Studies, 1995). Guidelines for each of the rights have been developed to assist health professionals provide “best practices” in community and hospital settings. The guidelines are based on the existing body of breastfeeding of multiples’ research, empirical findings, and consultations with parents and care providers with experience and/or expertise in breastfeeding multiples. The rights and guidelines suggest direction for providing assistance, implementing programs and services, conducting research, and evaluating the effectiveness of multiples-specific breastfeeding care during the prenatal, infancy, and toddlerhood periods.

Multiple births represent 2.7% of live births in Canada and 3% in the United States (US) (Martin et al., 2002; Statistics Canada, 2002). In the US, a twin birth occurs once in every 35 live births and a higher-order multiple birth (HOM) once in 555 live births (Martin et al., 2002). Increasing numbers of women who give birth to twins, triplets, or other HOM infants wish to breastfeed, either exclusively or partially. The process of breastfeeding and/or bottlefeeding multiples may be rewarding as well as demanding, complex, and stressful (Åkerman et al., 1997; Council of Multiple Birth Organizations of the International Society for Twin Studies [COMBO], 1995; Holditch-Davis et al., 1999).

There is mounting evidence that breastfeeding provides optimal nutrition and nurturing for multiple birth children who are born preterm or fullterm. Saint and her colleagues (1986) investigated the yield and composition of breast milk from eight exclusively or partially breastfeeding Australian mothers of twins and one mother of triplets. At 6 months postpartum, the breast milk yield of individual breasts of the fully breastfeeding mothers of twins ranged from 0.84–2.16 kg per 24 hours whereas the total

milk yield at 2.5 months of the mother who was exclusively breastfeeding triplets was 3.08 kg per 24 hours. The researchers concluded that women are capable of producing enough milk to adequately meet the nutritional needs of multiple birth infants who are breastfeeding. Evidence of satisfactory growth in exclusively or partially breastfed triplet or quadruplet infants is provided by Auer & Gromada (1998), Leonard (2000a), and Mead et al. (1992). Breastfeeding of multiples is strongly associated with the promotion of maternal–infants’ attachment (Auer & Gromada, 1998; Gromada, 1999; Leonard, 2002a) as it provides many opportunities for close maternal–infant contact and discovering the unique qualities of each child.

Initiation and duration rates of breastfeeding multiples have varied over time and within each country. A comparison of breastfeeding rates is made more difficult by the lack of consensus regarding what behaviors and outcomes comprise “breastfeeding”. Definitions of breastfeeding of multiples may vary according to the method used to provide the breast milk (e.g., at the breast versus expressed breast milk), amount of breast milk provided, number of infants from a multiple set receiving breast milk, and the duration of breastfeeding. In nation-wide surveys conducted by two multiple birth organizations, 72% of approximately 1200 Canadian mothers of twins and triplets and 74% of more than 1000 US mothers of HOM infants indicated that they started breastfeeding (Boyle & Collopy, 2000; Parents of Multiple Births Association, Canada [POMBA], 1993). A Polish study of 60 mothers of twins and triplets revealed that 87% of women provided breast milk, either exclusively (5%) or partially (82%), at the time of their infants’ discharge from hospital (Czeszynska & Kowalik, 1998). Liang et al. (1997) reported that 89% of preterm twins ($n = 18$) were breastfeeding with or without additional bottlefeedings when discharged from a New Zealand hospital. In a study of 17 Swedish families with triplets, an undisclosed number of

Address for correspondence: L. G. Leonard, Associate Professor, Multiple Births Specialist, School of Nursing, University of British Columbia, T 201 2211 Wesbrook Mall, Vancouver, BC, V6T 2B5 Canada. Email: leonard@nursing.ubc.ca

women expressed their breast milk and only three breastfed their babies by feeding one baby at each feeding session (Åkerman, 1999).

Few studies provide details about the duration of breastfeeding of some or all members of a multiples' unit. Macfarlane et al. (1990) surveyed women who had a HOM in the United Kingdom during 1980–1986 and found that 26% of the 174 women breastfed for over 2 weeks and 14% nursed their babies for more than 2 months. In a study comparing the rates of breastfeeding of preterm singletons and twins born in New Zealand, 66% of the 18 twin infants were being breastfed at 6 weeks and 49% at 14–16 weeks after birth, rates similar to the singletons (Liang et al., 1997). German researchers uncovered striking differences between duration of breastfeeding of twins and triplets who were born very low birthweight (VLBW) (< 1500 gm) and those born at term. Even though VLBW multiples ($n = 26$) received their mother's milk for significantly longer periods of time than VLBW singletons, less than 20% of VLBW multiples were still breastfeeding at 3 months of age. In contrast, approximately 50% of the 37 fullterm twins were still breastfeeding at 3 months with about 30% receiving breast milk at 6 months (Killersreiter et al., 2001). Of the 74% of US HOM women who reported that they breastfed ($n \geq 1000$), breastfeeding duration ranged from a few days to 28 months with a mean duration of 3.1 months (Boyle & Collopy, 2000). In a Canadian study of nine breastfeeding mothers of triplets, five reported exclusively or almost exclusively breastfeeding all three infants for 2–7 months (solid foods were introduced at 4–6 months) (Leonard, 2000a).

What does “successful” breastfeeding of multiples mean? There are several ways to define success as each family's and health professional's definition of what constitutes a successful breastfeeding experience differs (Mead et al., 1992; Molko, 2001; Regan, 1994). Factors linked to success in breastfeeding multiples include a positive maternal attitude and commitment, a breastfeeding support system, early breastfeeding initiation, frequent suckling (and breast milk expression), on-demand feeding, information about breastfeeding multiples, individualized breastfeeding assistance from health professionals, maternal health, and avoidance of infant formula use (Auer & Gromada, 1998; Biancuzzo, 1994; Bonnycastle, 2001; Czeszynska & Kowalik, 1998; Gromada & Spangler, 1998; Hattori & Hattori, 1999; Leonard, 2002a; Liang et al., 1997; Mead et al., 1992; Regan, 1994; Storr, 1989).

Specific infant characteristics can have a profound effect on the experience of breastfeeding multiples. Preterm birth is six times greater in twins and nearly 11 times higher in triplets as compared to singleton births (Kiely, 1998). In the US in the year 2000, 57% of twins and 93% of triplets were born preterm with mean birthweights of 2,362 grams and 1697 grams, respectively (Martin et al., 2002). In fact, 40% of twins and 90% of triplets born in the US are born *both* preterm and low birthweight (Ventura et al., 2000), with 35% of twins and triplets also being small for gestational age (Alexander et al., 1998). Analysis of national birth data for Canada and the US reveals that the average gestational age at delivery for twins is approximately 36

weeks and for triplets 32.5 weeks (Alexander et al., 1998; Joseph et al., 1998). Based on European, Canadian, and US multiple birth delivery statistics, approximately 45% of twins and anywhere from 62–90% of HOM infants are born by Cesarean section (Dommergues et al., 1998; McNab, 1997). Neonatal conditions commonly associated with preterm birth such as hyperbilirubinemia, cardiac and respiratory distress, gastro-oesophageal reflux, and infections interfere with breastfeeding initiation and progression (Czeszynska & Kowalik, 1998; Mead et al., 1992). Neurodevelopmental complications, which are seen more frequently in multiple pregnancies as compared to singleton gestations (Versmold & van Baalen, 1998), may also affect breastfeeding.

Families who wish to breastfeed require sustained breastfeeding education, guidance, and research-based support from community and hospital-based health professionals who are encouraging, knowledgeable, skilled, and committed to the breastfeeding of multiple birth children (Biancuzzo, 1994; Bryan et al., 1997; Gromada & Spangler, 1998; Leonard, 2002a; Leonard, 2000a; Liang et al., 1997; Mead et al., 1992). Hospital and community environments are needed that genuinely promote the breastfeeding of fullterm and preterm multiple birth infants. The author and Bryan et al. (1997) have observed that very few maternity and community health agencies include detailed and evidence-based breastfeeding of multiples guidelines in their breastfeeding policies. This paper is based on the author's work of developing such guidelines for the British Columbia Reproductive Care Program, a program aiming to optimize maternal, fetal, and infant health throughout British Columbia, Canada.

Seven breastfeeding rights of multiple birth families during pregnancy and early childhood are identified. Shaped by the *Declaration of Rights and Statement of Needs of Twins and Higher Order Multiples*, a document endorsed by multiple birth and professional organizations worldwide (COMBO, 1995), the rights are family-centred, measurable, and realistic. The breastfeeding rights include the right of families to learn about the breastfeeding of multiples, to have access to multiples-specific infant feeding resources, and to receive assistance in developing a plan for breastfeeding multiples. The family also has the right to experience early initiation of breastfeeding, to avoid unnecessary maternal–infant and infant–infant separations, and to receive continuous and skilled support for breast and bottlefeeding multiples. Finally, these families have the right to receive comprehensive, coordinated, and research-based infant feeding assistance throughout pregnancy and early childhood.

The guidelines relate to each of the seven rights and suggest “best practices” based on current research, empirical, and anecdotal evidence. What sources of evidence were utilized in the development of the guidelines? A comprehensive search was conducted of health-related indexes and data bases such as Medline, CINAHL, EMBASE, Cochrane, and Family & Society Studies Worldwide, as well as other professional literature. The purpose was to identify research or program evaluation studies that focused on the breastfeeding of multiples or provided direction for managing the breastfeeding care of preterm infants.

Findings from quantitative and qualitative studies using a variety of research designs and sample sizes, including single case studies were incorporated into the guidelines. The author concluded that the existing multiples-specific research literature did not fully capture the scope, uniqueness, and variability of the experience of breastfeeding multiples, especially as it unfolds over time. Therefore, several scholars known to the author who were currently conducting research on breastfeeding multiples or practitioners with a multiples-focused practice were contacted and their contributions utilized. Published anecdotal accounts of breastfeeding twins and higher-order multiple infants and material from breastfeeding references designed for multiple birth parents and health professionals were integrated as deemed appropriate. Even though the body of research and empirical evidence regarding the breastfeeding of multiple and preterm infants is growing, there are substantial gaps. The guidelines for practice should, therefore, not be regarded as static but modified as new and compelling evidence becomes available.

The guidelines are in accordance with various hospital and community initiatives concerned with the promotion of breastfeeding (Breastfeeding Committee for Canada, 1999; United Kingdom Committee for UNICEF, 1994; United States Department of Health and Human Services, 2000; World Health Organization/UNICEF, 1989). The author considers breastfeeding to be the provision of breast milk to one or more infants, regardless of method(s) used, amounts provided, and duration. A distinction between lactation and breastfeeding is made: lactation refers to the process of breast milk production whereas breastfeeding denotes lactation as well as the transfer of milk from the maternal breast to the infants, breastfeeding techniques and practices, and maternal–infant interactions.

Breastfeeding Rights and Care Guidelines

Right 1

Families expecting and raising multiple birth children have the opportunity to learn about the benefits and challenges of breastfeeding fullterm and preterm multiple birth infants.

Supporting Evidence and Guidelines

The benefits of providing breast milk to fullterm and preterm infants are well documented and are maximized when a family is raising twins, triplets, or more (Bryan et al., 1997). Mikulska & Wolnicka (2000) contend, based on their research, that breastfeeding may have a beneficial influence on the course of adaptation of multiple birth neonates. Breastfeeding can also facilitate maternal attachment to the multiples as a unit as well as to each of the infants (Bonnycastle, 2001; Gromada, 1999). Breastfeeding, including the provision of expressed breast milk (EBM), especially in situations where the infants require complex neonatal care, is one act that only the mother can perform and enables the mother to claim the infants as her own (Niebler, 2001a; Regan, 1994). Some women find breastfeeding multiple birth children convenient, timesaving, and relatively easy whereas many others face substantial challenges and considerable difficulties.

An expectant or new mother of multiples should not be given the impression that she has to breastfeed exclusively in order to breastfeed successfully (Mead et al., 1992; Molko, 2001). Even a small amount of breast milk is beneficial to an infant. Prospective parents and their helpers need to know that there are many different ways to breastfeed multiples (Gromada, 1999; Gromada & Spangler, 1998; Leonard, 2000a). Some mothers of twins and triplets exclusively breastfeed all their infants, either at the breast or by giving EBM (Bryan, 1995; Hattori & Hattori, 1999; Leonard, 2000a). Other mothers may fully breastfeed all infants during part of the day (or night) and offer infant formula at the other times. Some women adopt a rotation system by providing a full breastfeeding to one or two infants and a full formula feeding to the remaining infants. There are women who provide some breast milk at every feeding to all infants and complement the feeding with infant formula. Duration of breastfeeding within a set of multiples may vary with some members of the set nursing for several months after a co-multiple has weaned (Auer & Gromada, 1998; Leonard, 2000a).

For many parents, this will be their first pregnancy and some will be unsure of what they need to learn and what questions to ask about infant feeding (Mariano & Hickey, 1998; Nys et al., 1998). Expectations about breastfeeding may be high, particularly if this is a long awaited pregnancy. A woman and her partner will require information about the logistics of breastfeeding multiple infants, the concepts of breast milk supply and infant demand, time and energy available for parenting older children, and the impact on the mother's physical and emotional health. Expectant parents usually welcome opportunities to discuss feeding options and positions, breastfeeding and milk-expression techniques, how to assess sufficient breast milk supply and infant intake, and preterm infants' breastfeeding behaviors (Moxley & Haddon, 1999). The mother should be helped to consider how much breastfeeding she wishes to undertake (Auer & Gromada, 1998; Tabet, 2001; Withers, 2000). Women who have undergone a reduction mammoplasty should not be discouraged from trying to breastfeed as some have partially breastfed their multiples after receiving help from a breastfeeding specialist and by using a galactagogue (prescribed medication or natural product that induces lactation) (Leonard, 2000a). An expectant mother may decide, after exploring the breastfeeding resources, not to start breastfeeding. It is important to respect her decision and to ensure that she is not "made to feel less of a mother..." because of her choice to use infant formula (Tablet, 2001, p. 250).

Expectant women and their partners may "underestimate the amount of time they will need to care for their babies" and "overestimate the amount of energy that they will have" (Mariano & Hickey, 1998, p. 29). Liang et al. (1997) found that mothers of twins who weaned their infants sooner than they wished did so because of fatigue or "inadequate milk supply" (p. 211). Many parents are unable to predict, afford, find (Holditch-Davis et al., 1999), or accept the type and amount of help they need. Guidance from health professionals during pregnancy includes helping parents explore ways of coping with a

feeding session, recognize the amount of help they will require after the births, and investigate possible sources of affordable at-home help. Expectant parents should be encouraged to line up regularly-scheduled home and child care support beyond the immediate postpartum period (Leonard, 2000a; Mariano & Hickey, 1998; Myers & Leonard, 2001). Sources of help may include family, friends, nanny or postpartum support agencies, doulas (women trained to support women during and after child-birth), students enrolled in nursing and early childhood education programs, volunteers from church and grandparent organizations, or mature high school students. Women are advised to discuss their breastfeeding plans with potential helpers because extra help does not necessarily result in increased frequency or duration of breastfeeding (Leonard, 2000a; Niebler, 2001b).

Right 2

Families expecting and raising multiple birth children have access to multiples-specific and general breastfeeding information resources.

Supporting Evidence and Guidelines

In cultures or sub-cultures where breastfeeding is not the norm, parents may need access to information about breastfeeding in general as well as to multiples-specific resources. It usually takes several months for new parents to acquire the knowledge and skills necessary for breastfeeding multiple birth children (Biancuzzo, 1994; Withers, 2000). The stress associated with multiple pregnancy and parenting multiples may be overwhelming and interfere with a parent's ability to learn about breastfeeding two or more (Mariano & Hickey, 1998; Sollid et al., 1989). A Flemish study of 62 couples expecting twins found that the parents used a variety of sources such as the literature and other parents of twins to learn about multiples-specific feeding issues (Nys et al., 1998). Twenty-six per cent of the participants stated that they would have liked to receive more information. As learning needs and styles vary, some resources may better suit one family than another. HOM parents may find that information on feeding twins is not relevant to their situation and will request HOM-specific resources. Parents often need help to find the most appropriate breastfeeding resources for them.

Families and their helpers should be told about prenatal education sessions focusing on the feeding of twins or HOMs (Bowers, 1998; Moxley & Haddon, 1999) as well as introduced to mothers of multiples and health care providers with breastfeeding of multiples' experience. Multiple birth and breastfeeding organizations, at national and local levels, can often provide useful literature and personal introductions. Each family should receive a Resource Guide that lists the variety of breastfeeding of multiples resources including printed materials (books, pamphlets, newsletters etc.), videos, online sites, sources of in-home help, and telephone support lines such as the Tamba Twinline (see Appendix). Parents may want information about breastfeeding equipment and how to find, for example, effective electric breast pumps with double collection kits and large V or horseshoe-shaped pillows to

support two infants. As there are a variety of pumps and pillows available and all mothers do not find the equipment helpful, mothers should be encouraged to discuss the merits with other parents before buying or renting.

Right 3

Multiple birth families are supported to initiate lactation and provide breast milk to their infants at the earliest opportunity.

Supporting Evidence and Guidelines

Mothers of multiples usually prefer to start breastfeeding by feeding one infant at a time rather than feeding two infants simultaneously (Auer & Gromada, 1998; Leonard, 2000a; Mead et al., 1992). In the absence of medical contraindications, a woman may choose to breastfeed the firstborn twin before the vaginal delivery of the second infant, thereby stimulating uterine contractions and the birth of the second infant.

A private, comfortable, and quiet environment in the mother's hospital room and in the neonatal nursery enhance the initiation of lactation, breastfeeding, and attachment to the infants. For the first few days after delivery, the mother is unlikely to be able to respond to the needs of two or more infants on her own. Experienced staff should, therefore, be available to the mother throughout the entire feeding session in the early days. The use of relaxation techniques or administration of an analgesic medication about 30 minutes prior to a breastfeeding session may promote relaxation in those women who are troubled by post-delivery pain or uterine contractions. Mothers who are expressing milk should have ready access to a breast pump or one designated for their sole use. This enables the mother to establish a more flexible pumping schedule without having to compete with other women for use of a pump, and to be more available to her infants. A woman may require advice on which of her preterm infants should receive the small amounts of expressed colostrum or milk. She may prefer that it goes to the sickest or smallest child or that the total amount is given to a different infant at each feeding.

Karen Gromada, a nurse and International Board Certified Lactation Consultant from the US, has counselled women breastfeeding multiples for over two decades. She concluded that breast milk production increases if feeding and/or pumping are initiated early (ideally within the first six hours after delivery), are done regularly (approximately same time each day), and frequently (every two to three hours at least during the day, with a 4- to 6-hour sleep break) (Gromada, 1999). Based on research and anecdotal evidence, she recommends that total daily pumping time range from 100–120 minutes and that each session range from 10–20 minutes (or slightly longer if milk production is high) (K. Gromada, Personal communication, 2002). Her recommendations are closely mirrored by Hill et al. (2001) who found that the amount of breast milk was significantly higher in mothers of preterm singleton and multiple birth infants who pumped an average of seven times per day. Frequency of pumping was positively correlated with early initiation of pumping. Jones & Spencer (1999) discovered that milk production in mothers of singleton preterm

infants increased when double-sided pumping and hand massage were utilized. Parents should be encouraged to practice kangaroo care (parent–infant skin-to-skin contact) with preterm and fullterm multiples. Kangaroo care of multiples may take various forms (separate, sequential, or shared) and is believed to foster earlier breastfeeding initiation, facilitate milk production, and enhance parental self-confidence (Dombrowski et al., 2000; Gromada, 1999). The use of infant formula should be limited to situations where it is medically indicated or when the mother has made the decision not to breastfeed.

There are significant numbers of mothers of twins and HOM infants who report a delay in lactation and small volumes of breast milk (Auer & Gromada, 1998; Leonard, unpublished data). Research is needed to determine exactly how many women are affected and why it may take these women as long as 9–15 weeks to achieve a satisfactory amount of milk (K. Gromada, personal communication 2002). Inadequate milk production can shatter the confidence of a mother who is already under pressure from limited time. It is important to assess what may be contributing to delayed or low production and, with regular encouragement, introduce *realistic* strategies. Gromada (personal communication, 2002) reported some success when affected women expressed their milk more often (infant at the breast or pumping), limited each infant's breastfeeding session to a maximum of 15–20 minutes, and used single-sided pumping with simultaneous breast massage rather than double-sided pumping. The use of screened, tested, and pasteurized human donor milk may be appropriate when the mother's milk supply is inadequate and particularly if the infants are at risk of developing necrotizing enterocolitis (Arnold, 2002).

Right 4

Families expecting and raising multiple birth children are assisted in developing a breastfeeding plan that considers the short and long term needs of the mother, each infant, and the family collectively.

Supporting Evidence and Guidelines

The principal family members as well as the mother should all be involved in the design and implementation of the feeding plan. The outline of the plan can be made during pregnancy, developed more fully after the births, and adjusted as necessary over time. Without such a plan, breastfeeding assistance may be haphazard, uncoordinated, contradictory and confusing. A goal of the planning process is to help the parents (and health professionals) organize infant feeding and other aspects of infant care, address any problems as they arise, and enable parents to feel more in control. Mothers often feel guilty and frustrated because they are unable to attend to the needs of all infants at the same time, be “everywhere at once”, and accept that the infants must “wait in line” to feed (Holditch-Davis et al., 1999, p. 206). The woman and her partner should be counselled to regard each day as a step toward the desired breastfeeding goals and helped to realize that time, patience, determination, and perseverance may all be needed (Bonnycastle, 2001; Muizelaar, 2001).

A plan for breastfeeding multiples should be flexible; reflect maternal goals and preferences; be modified as necessary; and address the needs of the mother, each of the infants, and the family as a unit. Whether informal or written, it must be clearly understood and followed by all key health care providers. The plan can be adapted easily for women who choose to bottle feed with infant formula or for those who wish to stop breastfeeding. The following should be taken into consideration:

- maternal health and wellbeing
- the health and maturity of the infants and any necessary medical or nursing interventions
- method(s) & type(s) of feeding for each infant (e.g., at the breast, EBM, infant formula, gavage, bottle etc.)
- frequency of feedings
- whether feedings are consecutive and/or simultaneous
- preferred positions for feeding
- location of each infant (e.g., with mother at bedside, Neonatal Intensive Care Unit (NICU), Level 2 nursery, at home)
- pumping schedule
- strategies to address specific maternal and/or infant's feeding problems (e.g., ineffective suckling, gastro-oesophageal reflux, congenital anomalies (LaFleur & Niesen, 1996)
- strategies to address the parents' own needs (e.g., rest, nutrition, stress reduction, social contact etc.) and other responsibilities (e.g., care of older children).

Flow charts for neonatal care based on gestational age (Tobin et al., 1998) and a breastfeeding flow chart or protocol designed for multiples (Hattori & Hattori, 1999) provide additional guidance for establishing breastfeeding. Colour coding of charts for each infant helps both parents and caregivers to avoid confusion. Figure 1 outlines a range of observations that may be useful after delivery or if the infants are cared for in the hospital nurseries. Once the infants are thriving, parents should be helped to decide how much or little data they wish to record.

Women may feel guilty or resentful because they are unable to attend personally to their older children's needs (Muizelaar, 2001) and alterations in the feeding plan may be prompted when older children protest about diminished maternal attention (Leonard, 2000a). A list of “survival tips” such as those suggested by Isca (1993) may help parents cope with feeding their infants while at the same time addressing their other children's need for attention. Breastfeeding may take on added or lesser significance if parents are faced with the actual or impending death of one or more of their babies before or after the births. A balance of care and support is needed that enables parents to grieve the loss of the multiple(s) as well as build a relationship with and attend to the needs of the survivor(s) (Bryan, 1999; Leonard, 2002b; Van der Zalm 1995).

Additional support from health professionals is often needed during infant growth spurts (Wilton, 1995), infant or maternal illness or hospitalization, changes in helpers, the mother's return to employment outside the home

Name:

Date	Feeding (Breast, EBM, Formula type)	Feeding Quality (e.g. vigorous, spit up, sleepy etc.)	Urine	Bowel	Medications & Administra- tion Times _____	Comments: Baby Behavior, Kangaroo Care, Rashes, Other
Time	Breast: left/right Method (gavage, bottle etc.) Amount ml/oz	Feeding Length			Human Milk Fortifier	Temperature: Weight: Bath:

Figure 1

Sample infant care flow sheet for caregiver and parent use in hospital/home (Infant A). The type and amount of detail should be determined on an individual basis. Once the infant is healthy and breastfeeding established, parents can be encouraged to determine what (if any) data they wish to record.

(Bonnycastle, 2000), and when weaning the infants. Gromada (1999; Personal communication 2002) suggests that nursing strikes (sudden refusal to breastfeed after breastfeeding is established) and abrupt infant-initiated weaning may be more common in multiples. Nipple/breast infections such as Candidiasis can add to nursing difficulties and require prompt attention. A sudden drop in milk production and significant weight loss has been reported at about three months postpartum by a small number of mothers of triplets who were exclusively breastfeeding (Leonard, 2000a). Exhaustion of pregnancy stores and inadequate diet since the births may have been responsible. In such cases, a careful assessment of maternal diet and nutritional counselling may be needed.

Over time, a mother may wish to alter her breastfeeding pattern in response to the babies' needs, including weaning, or to accommodate her changing domestic and working schedules. Assistance and non-judgmental support from health care providers may be required, especially in situations where the woman's family or helpers question her decisions.

Right 5

Families receive evidence-based, skilled, and continuous assistance when breast and formula feeding their multiple birth children during the postpartum, infancy, and toddlerhood periods.

Supporting Evidence and Guidelines

The mother's postpartum recovery may be hindered by pregnancy-induced problems such as hypertension, anemia,

gestational diabetes, HELLP syndrome (hemolysis, elevated liver enzymes, and low platelets), postpartum hemorrhage, endometritis, and urinary infections, all of which are more common in multiple pregnancies (Fitzsimmons et al., 1998; Malone et al., 1998). Women who spend extended periods on bedrest during pregnancy may develop muscle atrophy and cardiovascular deconditioning (Maloni et al., 1993).

Furthermore, the perceived or actual threat of preterm delivery, anxiety about the delivery, and distress about their newborns' health may leave parents emotionally exhausted. Maternal age may also affect a woman's ability to recover from a multiple pregnancy and delivery. Women who deliver twins or HOM infants are more likely to be 30 years or older with rates highest for women aged 35–39 years (Statistics Canada, 2001; Martin et al., 2002). In recent years, a dramatic rise in multiple birth rates in the US has been observed for women 40–54 years of age (Kiely, 1998; Martin et al., 2002).

A mother of multiples, especially a HOM mother, may not always want the infants at her bedside for long periods during the hospital stay. Many HOM women report that they feel tired, weak, and unwell (Borowy, 2001; Leonard, 2002a; Spillman, 1999). If the infants are slow feeders, parents have little opportunity to rest and recover. Parents may appreciate the offer of a hospital room with a comfortable bed that enables the father or other support person to "move in" and assist with infant care (Leonard, 2002a). Maternal preferences for the amount of rooming-in with her babies should be assessed over time and respected.

Maternal attachment to multiple birth infants is complicated and may take longer than attachment to a singleton infant, despite breastfeeding initiation (Bryan et al., 1997; Gromada, 1999). Women may report feeling emotionally disconnected from their infants for weeks and even months. HOM women attribute the slower attachment process to maternal ill health, fears about infant survival, lack of personal contact in the hospital, fatigue, feeling overwhelmed by the infants' care demands, and boredom from the repetition of caregiving tasks (Myers, 2001; Niebler, 2001a).

When the infants' health and resources permit, it may be helpful if the infants are brought to the mother's bedside rather than expecting the mother to go to the nurseries to breastfeed (Mead et al., 1992). As a mother cannot "rest" a nipple, prevention of sore and cracked nipples is vital. Both primiparous and multiparous women will require help with finding comfortable and satisfactory positions for consecutive and simultaneous feeding and with effective techniques for correct latching-on and suckling, particularly if the infants are preterm or have developed a preference for artificial nipples. Photographs are available that illustrate various positions for simultaneous breast feeding (Gromada, 1999; Sollid et al., 1989); positions for managing burping and simultaneous bottlefeeding are shown by Alexander (1987) and Rothbart (1994). It may take the mother four or more weeks of experimentation to determine the preferred feeding positions for each infant.

Spillman (1999) observed a positive correlation between breastfeeding outcomes and the nature of professional breastfeeding support received by newly delivered multiple birth women. She noted that women whose infants were in the NICU were more likely to breastfeed successfully than women whose infants were on the postnatal wards. It has been suggested that the NICU environment provides more opportunities for multiple birth parents to receive appropriate breastfeeding support (Killersreiter et al., 2001; Liang et al., 1997; Spillman, 1999).

There is considerable empirical evidence that certain infants, particularly those who are preterm, have difficulty making the transition from artificial nipples to the breast or may have problems nursing effectively in the early weeks after birth if they alternate between an artificial nipple and the maternal nipple (Neifert et al., 1995). The phenomenon, often referred to as "nipple or sucking confusion" or "nipple preference" is controversial and has received limited systematic study with regard to incidence, etiology, risk factors, and prevention (Neifert et al., 1995; Riordan & Auerbach, 1999). It is believed that affected infants may have difficulty controlling the milk flow rate when standard bottlefeeding nipples are used and that the shape and location of the hole on the standard artificial nipple may also contribute to transition problems (Dowling, 1999; Noble & Bovey, 1997). It is important to note that Liang et al. (1997) found no evidence of nipple confusion in preterm twins, despite prolonged periods of using pacifiers for non-nutritive sucking and receiving milk from bottles.

Whatever the nature of this feeding problem, breastfeeding may be seriously jeopardized when twin or HOM infants experience such difficulties (Leonard, 2000a, 2002).

Various strategies to improve milk transfer and the transition to breastfeeding for preterm infants have been suggested. However, not all are realistic when there are multiple infants to feed. In a multi-study review, non-nutritive sucking on a pacifier was found to have several benefits including faster transition from tube to bottle feeds and better bottlefeeding performance (Pinelli & Symington, 2002). Improved breastfeeding outcomes were noted when preterm infants progressed from gavage to breast to bottlefeeding rather than from gavage to bottle to breast feeding (Kliethermes et al., 1999) and breast milk intake increased when an ultra-thin silicone nipple shield was used (Meier et al., 2000). Noble & Bovey (1997) claimed a success rate of over 90% in converting infants with sucking problems to breastfeeding when a therapeutic nipple was utilized and Dowling (1999) concluded that use of an orthodontic nipple was associated with physiologic stability and effective feeding behaviors for some but not all preterm infants. A specific bottlefeeding method has been proposed to sustain the transition from bottle to the breast (Kassing, 2001). Cup feeding during hospitalization, as compared to bottlefeeding, was found to be associated with a higher prevalence of breastfeeding at three months among preterm infants (Rocha et al., 2002) but the efficacy and efficiency of cup-feeding preterm infants has been questioned by Dowling et al. (2002).

Mothers of multiples may prefer to breastfeed the infants individually, despite the time involved, because they can ensure correct latching-on and suckling, devote attention to one infant at a time, and respect an infant's preference (Leonard, 2000a; Niebler, 2001b). Some women feel awkward and trapped by simultaneous feeding or dislike the sensation of two infants suckling at the same time. Once breastfeeding is successfully established, other mothers prefer to feed simultaneously for most feeds (Bonnycastle, 2001; Muizelaar, 2001). Some women reserve feeding two at once for special circumstances such as two infants crying at the same time or the mother's wish to shorten the length of a feeding time, particularly during the night. Indications for simultaneous nursing are: (a) the infants are more skilled at feeding; (b) a multiple responds positively to a co-multiple feeding at the same time (e.g., copes with milk let-downs or is not distracted by the co-multiple); (c) the mother enjoys it; and (d) time saving is important.

When feeding simultaneously, it is usually best to start with the infant who is experiencing difficulties latching (the mother has two hands free) followed by the more skilled infant. However, there are situations in which the avid feeder who latches easily can be started first in order to establish the letdown or shape the nipple for the slower/less accomplished infant. A mother may wish to be shown how to breastfeed one infant while at the same time bottlefeeding the other. As parents of multiples often use EBM and/or infant formula, guidance in formula preparation, storage of EBM and infant formula, and cleaning feeding equipment (breast pump, bottles, nipples, etc.) are usually needed.

It is usually not necessary to switch an 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, offer both breasts to the third infant to feed. Indications for rotation at the breast are maternal preference (e.g., avoiding lop-sided breasts, wanting each infant to feed from both sides) and repeated poor breastfeeding attempts on one side.

Once the infants are ready, mothers may adopt a flexible approach to feeding based on the infants' demands, a more scheduled approach, or a combination of both. Some women switch from one approach to the other, even within a 24-hour period (Leonard, 2000b). One infant may thrive on a "schedule" while a co-multiple may not. Parents of HOM infants usually find that the more scheduled approach helps them cope better with the demands of parenting and provides more stability to their lives (Åkerman, 1999; Niebler, 2001b).

Mothers may not seek professional help once they leave hospital because of fatigue, the overwhelming demands of parenting, and/or difficulty in asking for assistance. It is helpful if families, especially those with HOM infants, can receive breastfeeding support services in their homes. Regularly scheduled telephone follow-ups and/or home visits by skilled personnel are essential. With adequate home support and child care, success with breastfeeding is much more likely (Wilton, 1995). Because of the paucity of subsidized home support resources for families, it is likely that there will be times when the mother must manage by herself. When home support is inadequate, parents, especially those with HOM infants, not unusually resort to propping bottles (Bonnycastle, 2001; Niebler, 2001b; Tierney, 2001). Parents need to be made aware of infant safety precautions and the emotional implications of too frequent bottle-propping. It is also vital to monitor maternal mood (Leonard, 1998) as mild to severe postpartum depression may affect 25–30% mothers of twins and up to 40% of mothers of triplets during the first year (Garel & Blondel, 1992; Hay et al., 1990; Monset-Couchard et al., 1998; POMBA, 1993; Robin et al., 1996).

If milk insufficiency is prolonged and usual measures to increase production have not been effective, a galactagogue such as domperidone maleate (Motilium™) or metoclopramide (Reglan™) or rotation of galactagogues, including specific natural products, may be useful (Gabay, 2002; K. Gromada, personal communication 2002). Further study is required to determine when galactagogues will or will not be effective and there is a need to establish the efficacy and safety of herbal galactagogues (Gabay, 2002; Lawrence, 2000). A few mothers of multiples have reported significant improvements in breast milk production after taking the herb fenugreek (*Trigonella foenum-graecum*) (K. Gromada, personal communication 2002; Leonard, unpublished data). Health professionals must continue to provide appropriate breastfeeding assistance when mothers are using a galactagogue and should monitor for untoward side effects (Lawrence, 2000).

Right 6

Multiple birth families experience hospital care practices that minimize geographical and physical separation among the infants themselves and of mothers from their infants.

Supporting Evidence and Guidelines

Preliminary research suggests that co-bedding (two or more infants sharing the same cot or incubator) of preterm multiples helps physiological stabilization, decreases stress levels, and possibly improves breastfeeding success (Nyqvist & Lutes, 1998). Anecdotal evidence suggests that most but not all multiple birth infants settle better after a feeding when co-bedded.

It is exhausting for parents to get to know, begin caregiving, and start breastfeeding when members of a multiple set are placed in separate neonatal nurseries (Dombrowski et al., 2000) or sent to different hospitals because of overcrowded NICUs (Leonard, 2002a). Breastfeeding is more difficult when one infant is discharged from hospital before the other, particularly if parents must travel long distances from their homes to the hospital. Some mothers assume that there are advantages to leaving hospital without any or some of their infants in that they can spend time with their older children, recover from pregnancy and delivery, get to know the infant(s) at home, and increase their milk supplies through pumping. Staggered infant discharge may, however, increase the potential for parental favouritism and maternal–infants' attachment difficulties (Hay, 1999; Spigarelli, 2001).

Alternatives to separating infants should be fully explored with parents. If one infant is discharged home before the co-multiple(s), a care-by-parent space attached to the neonatal nurseries enables parents to bring that infant to hospital to breastfeed and to spend time with the co-multiple(s). A mother may have difficulty in visiting the infant who remains in hospital because of the overwhelming demands at home (Spigarelli, 2001) and insufficient home help. Every effort needs to be made by neonatal care staff to keep parents informed about and involved with their hospitalized infants.

Right 7

Multiple birth families receive research-based, comprehensive, consistent, coordinated, and seamless breastfeeding care during pregnancy and early childhood.

Supporting Evidence and Guidelines

Maternity care in the industrialized world is based on a singleton model of care delivery. As a result, policies and practices are not necessarily appropriate for the breastfeeding needs of multiple birth families. Commitment to the breastfeeding of multiples begins with the review and careful revision of any policies and care practices in hospital and community settings that may affect breastfeeding outcomes. Partnerships need to be formed between management, first-line care providers, and representatives from the multiple birth community in order to design and implement evidence-based guidelines and resources for breastfeeding multiples (Auer & Gromada, 1998; Czeszynska & Kowalik, 1998). The establishment of a consultation network of professionals and multiple birth parents who are knowledgeable about breastfeeding multiples is one strategy to address the educational needs of health professionals and the support needs of multiple birth families.

Efforts should be made to avoid confusion by consolidating care among fewer health care providers and by ensuring that there is effective communication between them as well as with the family throughout pregnancy and the early childhood period. A designated coordinator of breastfeeding can help to ensure that breastfeeding issues for individual family members and the family as a unit are dealt with satisfactorily (Auer & Gromada, 1998; Leonard, 2002a).

Health professionals must be prepared to advocate for these families and to participate as change agents when health care policies and practices interfere with breastfeeding. Health care providers are encouraged to link up with multiple birth organizations, including the local Parents of Multiples Group, and with other sectors such as social services, home support agencies, educational institutions, and levels of government to find ways to improve breastfeeding support and reduce social isolation. *Multiple Blessings* is one example of a program that was developed using the partnership model and which provides financially subsidized in-home support by trained workers (Multiple Births Canada, 2000).

The Need for Ongoing Research

There is a profound need for multiples-specific breastfeeding research directed at the factors that foster or hinder breastfeeding initiation and duration for twin and HOM infants (Geraghty, 2001). The effects on breastfeeding outcomes of specific policies, practices, and strategies such as co-bedding, coordinated breastfeeding care, geographical separation of infants, staggered hospital discharge, and home support resources all need further study. Further investigation of the breastfeeding needs of preterm multiple birth infants and the effective management of breast milk insufficiency is necessary. Also required is data about mothers of multiples breastfeeding satisfaction and difficulties, adequacy of breastfeeding education and support resources, and the education needs of health care providers.

In summary, concerted efforts are required of health care professionals, the multiple birth community, and other sectors to improve breastfeeding of multiples' initiation and duration rates by providing high-quality breastfeeding support. The seven multiple birth family breastfeeding rights and accompanying guidelines provide multiples-focused direction for implementing breastfeeding programs and services; evaluating the effectiveness of care, education and support services; and conducting much needed research.

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Appendix

Breastfeeding of Multiples Resources

Multiple Birth Organizations

Listing of international multiple birth organizations on the *International Society for Twin Studies* website: <http://www.ists.qimr.edu.au/links.html>

Selected Breastfeeding Organizations

Australian Breastfeeding Association
PO Box 4000 Glen Iris, Victoria 3146 Australia
Telephone: 61 03 9885 0855 E-mail: info@breastfeeding.asn.au
Online: <http://www.breastfeeding.asn.au>

La Leche League International (referral to local LLL leaders throughout the world)
1400 N. Meacham Road, Schaumburg, IL 60173-4808 USA
Telephone: (847) 519-7730 Online: <http://www.lalecheleague.org>

Human Milk Banking Association of North America, Inc. (referral to breast milk banks)
C/o Mary Rose Tully, UNC Women's & Children's Hospitals, CB # 7600, 101 Manning
Dr, Chapel Hill, NC 27514 USA Telephone: 919 966-3428 E-mail: mrtully@mindspring.com
Online: <http://www.hmbana.com>

Books/Booklets

Australian Breastfeeding Association (n.d.) *Breastfeeding twins and Breastfeeding higher order multiples*. Victoria, Australia: Author.

Davies, M., & Denton, J. (1999). *Feeding twins, triplets and more: A booklet for professionals and parents with advice and information on breast and bottlefeeding*. London, UK: Multiple Births Foundation.

Gromada, K. K. (1999). *Mothering multiples: Breastfeeding and caring for twins or more!!!* (Rev. ed.) Schaumburg, Illinois: La Leche League International.

Videos

Side By Side: Breast Feeding Multiples (1992). Available: Foothills Medical Centre, Communications: Learning and Development Department, 1403-29th Street N.W., Calgary AB, Canada T2N 2T9 Telephone: (403) 944-1939.

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