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Midwifery basics. Infant feeding: Breastfeeding premature babies

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## **Breastfeeding premature babies**

Infant feeding: is the twelfth series of 'Midwifery basics' targeted at practising midwives. It aims to provide information to raise awareness of the impact of the work of midwives on women's experience and encourage midwives to seek further information through a series of activities. In this eighth article Joyce Marshall considers some of the key issues related to breastfeeding premature babies.

### **Introduction**

Having a premature baby can be a very frightening and traumatic experience for parents (Arnold, 2010). They may be anxious and concerned about the health and possibly survival of their infant and may spend long periods of time separated from them (Renfrew et al., 2009). Mothers with a baby in the special care or neonatal unit make the transition to motherhood in an unfamiliar and medicalised environment (Flacking et al., 2006) and midwives caring for families of premature babies can do much to support them at this difficult time.

### **Scenario**

Baby Jack was born by caesarean section at 29 weeks gestation as his mother Lynne had pregnancy induced hypertension. Lynne enjoyed holding Jack against her skin immediately after birth in the operating theatre as he seemed calm and relaxed although she was amazed at how small he seemed. Lynne is keen to start expressing breastmilk for Jack and has asked the midwife what she should do.

### **Breastmilk: 'a medicine' for premature babies**

Breastfeeding is the optimal choice for all babies but being fed breastmilk is especially important for premature infants. Specific biofactors such as IgA, lactoferrin, lysozyme, growth factors and enzymes in human milk all contribute to decreased rates of infections in premature infants (Hurst and Meier, 2010). There are many hazards of formula feeding affecting a broad range of outcomes for premature infants such as delayed brainstem maturation, poorer visual acuity and increased incidence of retinopathy of prematurity (e.g. Arnold, 2010, Hurst and Meier, 2010, Walker, 2011). One of the most important issues to be aware of is that premature babies who are fed formula rather than human milk are around six to ten times more likely to suffer from necrotising enterocolitis (NEC) than babies who are fed either their mother's milk or donor human milk (Lucas and Cole, 1990, McGuire and Anthony, 2003). NEC is a disease of prematurity that causes significant mortality and morbidity. It is a condition that if allowed to progress can lead to ischaemia, gangrene and possibly perforation of the intestine (Arnold, 2010). The

risk of developing NEC is highest in infants born at earlier gestations. Lucas and Cole (1990) estimated that 400 cases and 100 deaths could be prevented each year if infants were fed human milk. The gut of the premature infant is immature and human milk contains components that help it to mature whereas formula does not (Walker, 2011). Components in human milk are thought to promote closure of the junctions between cells in the lining of the gut and aid the digestion of proteins and carbohydrates. Whereas undigested casein in the gut from formula can attract neutrophils that provoke an inflammatory response and opening of the junctions between cells in the gut wall allowing invasion and damage to the premature infant's fragile gut (Walker, 2011). Extremely low birth weight infants fed human milk have also been shown to have better neurodevelopmental outcomes at 18 months of age than those not fed human milk in a dose dependent relationship (Vohr et al., 2006). This study of 1035 low birth weight infants showed that the more breastmilk the infants ingested the higher the mental developmental, psychomotor and behaviour scores (Vohr et al., 2006). Premature infants have greater nutritional needs than full-term infants partly because of the immaturity of their digestive systems (Arnold, 2010). The composition of milk from mothers of premature infants differs from that of mothers of term babies; it is higher in many nutrients for about the first 2 to 4 weeks (Arnold, 2010). For all these reasons premature babies should be fed human milk unless medically contra-indicated.

Parents of premature infants have a right to factual information about the effects that human milk feeding will have so that their feeding decision can be based on current evidence. Most mothers, even if they do not intend to breastfeed, will be keen to express at least some breastmilk for their baby once they understand the importance of this (Hurst and Meier, 2010). Some mothers may be happy to express their milk but might never want to breastfeed and it is important for midwives to support mothers in these decisions and support them in whatever level of commitment they feel able to give without judging them (Hurst and Meier, 2010).

### **Activity 1**

Consider what you would say to a mother about the importance of providing breastmilk for her baby.

Would it be useful to consider breastmilk as a medicine? Download and read (Miracle et al., 2004)

<http://www.awhonn.org/awhonn/binary.content.do?name=resources/documents/pdf/mothersdecisiontochangeformula.pdf>

## **Expressing milk for premature babies**

A mother of a premature infant will need to initiate and maintain lactation until their infant is able to suckle fully at the breast. This may be for several weeks or even months at a stressful time. It may therefore be important for midwives to provide emotional support as well as information to enable mothers to persevere to achieve their goals. Although having a baby prematurely does not appear to limit mother's ability to produce milk, many of the factors that often occur as part of the overall experience are known to inhibit the production of prolactin, such as maternal complications, tiredness, stress and irregular breastmilk expression (Hurst and Meier, 2010). The shortened gestation may mean hormones do not reach maximum levels and lactogenesis II may be delayed which may result in low milk supply in the early days after birth (Arnold, 2010).

Mothers should start to express breastmilk as soon as possible after birth and should express frequently in the first few days (8 to 10 times daily) (Hurst and Meier, 2010) with at least one being at night between 02.00 and 06.00hrs when prolactin levels are highest (Walker, 2011). It may be helpful for mothers to express near the baby or have a photograph or an item of the baby's clothing to help to stimulate oxytocin to enable the milk to flow. The aim should be to produce a milk volume of 750 - 1000mls a day at the end of the first week to 10 days regardless of the infant's needs at that time (Hurst and Meier, 2010). This will help to enable mothers to produce an adequate on going supply. It may be helpful to start by hand expressing and collecting drops of colostrum by syringe from the nipple (UNICEF Baby Friendly Initiative UK, 2009) but after this a hospital grade electric pump is likely to be needed and pumping both breasts at the same time most effective (Renfrew et al., 2009). At least 50% of the calories in human milk come from lipids and the lipid concentration increases throughout a single milk expression (Hurst and Meier, 2010). It is therefore important that mothers know this and are encouraged to continue pumping until the flow of milk ceases as the last few drops to be expressed will be high in calories. When expressed milk is stored the milk fat rises to the top so mothers should be encouraged to gently mix the milk before pouring it into sterile storage containers otherwise the baby may receive milk with very different calorific content at different feedings (Hurst and Meier, 2010).

## **Activity 2**

Based on your knowledge of the physiology of lactation what suggestions might you make to a mother who is concerned that the volume of milk she is expressing is low? Where and how is expressed breastmilk stored in your unit?

### **Kangaroo care and the effect on milk production**

Skin-to-skin or kangaroo care is an important aspect of care for premature infants and documented benefits include: stability of vital signs, increased parent-infant interaction, faster neuro-behavioural maturation and improved sleep patterns (Hurst and Meier, 2010). It also provides ready access to the breast and improves milk supply (Moore et al., 2012) and can mean that the mother is more responsive to her baby's cues. Evidence from a systematic review suggests that kangaroo care leads to increased duration of breastfeeding of premature infants after discharge home (Renfrew et al., 2009) and Hake-Brooks and Anderson (2008) in a small study in the found that kangaroo care increase exclusivity of breastmilk feeding at every time point up to 18 months. Kangaroo care has also been shown to decrease the length of hospital stay (Gregson and Blacker, 2011).

The transfer of an infant to the mother's chest for kangaroo care can be a stressful event and therefore the duration of kangaroo care should generally be longer than an hour to enable them to settle (Arnold, 2010). The baby is placed in a fetal position between the mother's breasts vertically or diagonally with only a nappy and maybe booties and a hat on, covered with a blanket and the mother's clothes. There is no need to limit time spent skin to skin unless the mother requests or the baby shows signs of distress (Hurst and Meier, 2010, Nyqvist, 2013). Since 2003 kangaroo care has been recommended as part of high quality neonatal care (World Health Organisation, 2003).

### **Activity 3**

Search the internet using a phrase such as 'kangaroo care' or 'expecting a premature baby' and look at the information mothers may access. A range of books and DVDs are available to mothers consider which of these you feel would be useful to mothers of premature babies you may care for as a midwife.

### **Mother's experiences**

Mothers of premature babies inevitably experience negative and conflicting emotions which are more severe with increasing prematurity (Arnold, 2010). The most stressful aspects of neonatal care for a mother of a premature baby are separation and her inability to fully care for her baby (Boucher et al., 2011, Flacking et al., 2006). Most mothers are separated from their baby as facilities for rooming in are limited. Flacking *et al* (2006: P74) found that this resulted in women feeling like a visitor and 'unimportant to the infant' and that their emotional needs to be close to the infant were not met. Holding their baby skin-to-skin and breastfeeding can be a step towards normalcy and will strengthen

the relationship between the mother and baby (Flacking et al., 2006). The new UNICEF Baby Friendly Initiative standards incorporate this at the Stage 3 assessment by including standards that must be met in relation to parent's experiences in the neonatal unit. This includes unrestricted access to their baby, encouragement to touch and respond to their baby and to hold their baby skin-to-skin (UNICEF Baby Friendly Initiative UK, 2012). In addition to support from health professionals mothers may benefit from mother-to-mother support or support from trained peer counsellors that can reduce anxiety and improve breastfeeding outcomes (Hurst and Meier, 2010).

#### **Activity 4**

Consider what emotional support you would offer to a woman who had given birth to a premature baby if you were the midwife caring for her on the postnatal ward. What support is there for women in the neonatal unit in your place of work? Does this support continue once the baby is at home?

#### **Reflection on the scenario**

Jack will benefit from on-going skin-to-skin contact with his mother. Despite him being so small Lynne is confident she can care for him. She is aware that he feels calmer and more settled when she is holding him. She has learned how to hand express and now has some colostrum for Jack; she smiled as the midwife referred to it as 'liquid gold'. What information will Lynne need to enable her to establish a good milk supply? What kinds of breast pumps are available in your unit? Would Lynne have unrestricted access to Jack in your unit?

#### **Conclusion**

Having a premature baby is a very stressful life event for women and families. Providing good support can make a real difference to both how women feel and to their ability to supply breastmilk for their baby. Midwives have a key role to play in ensuring that women have correct evidence based information to enable them to make important infant feeding choices, emotional support to help them to cope and practical support to help them learn the skill of milk expression.

## References

- Arnold, L.D.W., 2010. Human Milk in the NICU: policy into practice. Jones and Bartlett, London.
- Boucher, C.A., Brazal, P.M., Graham-Certosini, C., Carnaghan-Sherrard, K., Feeley, N., 2011. Mothers' breastfeeding experiences in the NICU. *Neonatal Network* 30 (1), 21-28.
- Flacking, R., Ewald, U., Nyqvist, K.H., Starrin, B., 2006. Trustful bonds: a key to "becoming a mother" and to reciprocal breastfeeding. *Stories of mothers of very preterm infants at a neonatal unit. Social Science & Medicine* 62 (1), 70-80.
- Gregson, S., Blacker, J., 2011. Kangaroo care in pre-term or low birth weight babies in a postnatal ward. *British Journal of Midwifery* 19 (9), 568-577.
- Hake-Brooks, S.J., Anderson, G.C., 2008. Kangaroo care and breastfeeding of mother-preterm infant dyads 0-18 months: a randomized, controlled trial. *Neonatal Network* 27 (3), 151-159.
- Hurst, N., Meier, P., 2010. Breastfeeding the preterm infant. In: *Breastfeeding and lactation*. Jones and Bartlett, London.
- Lucas, A., Cole, T.J., 1990. Breast milk and neonatal necrotising enterocolitis. *The Lancet* 336 (8730-8731), 1519-1523.
- McGuire, W., Anthony, M.Y., 2003. Donor human milk versus formula for preventing necrotising enterocolitis in preterm infants: systematic review. *Archives of Disease in Childhood - Fetal and Neonatal Edition* 88 (1), F11-F14.
- Miracle, D.J., Meier, P.P., Bennett, P.A., 2004. Mothers' decisions to change from formula to mothers' milk for very-low-birth-weight infants. *J Obstet Gynecol Neonatal Nurs.* 33 (6), 692-703.
- Moore, E.R., Anderson, G.C., Bergman, N., Dowswell, T., 2012. Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews* 5. Art. No.: CD003519. DOI: 10.1002/14651858.CD003519.pub3.
- Nyqvist, K.H., 2013. Breastfeeding preterm infants. In: Genna, C.W. (Ed.), *Supporting suckling skills in breastfeeding infants*. Jones and Bartlett, London.
- Renfrew, M.J., Craig, D., Dyson, L., McCormick, F., Rice, S., King, S.E., et al, 2009. Breastfeeding promotion for infants in neonatal units: a systematic review and economic analysis. *Health Technology Assessment* 13 (40).
- UNICEF Baby Friendly Initiative UK, 2012. *Guide to the Baby Friendly Initiative standards*. UNICEF Baby Friendly Initiative UK, London.
- UNICEF Baby Friendly Initiative UK, 2009. *The UNICEF UK Baby Friendly Initiative Training Pack*. UNICEF Baby Friendly Initiative UK, London.
- Vohr, B.R., Poindexter, B.B., Dusick, A.M., McKinley, L.T., Wright, L.L., Langer, J.C., Poole, W.K., NICHD Neonatal Research Network, 2006. Beneficial effects of breast milk in the neonatal intensive care unit on the developmental outcome of extremely low birth weight infants at 18 months of age. *Pediatrics* 118 (1), e115-123.
- Walker, M., 2011. *Breastfeeding management for the clinician: using the evidence*. Jones and Bartlett, London.
- World Health Organisation, 2003. *Kangaroo mother care: a practical guide*. World health Organisation, Geneva.