Work shop:

Lactation

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NB This is an edited version of the training given to staff in the NWLPN during 2008-9
To obtain more detail please see recommended reading

The UK’s first Academic Health Science Centre delivering breakthroughs in medical research directly to its patients
Areas to discuss

- Establishing preterm lactation
- Milk ejection reflex
- Skin to skin
- Poor milk supply
Areas covered in this session are described in detail in chapters 4 & 5 in Jones & King Feeding & Nutrition in the preterm infant. Further useful references are:
- Jones & Hilton 2009 JNN 15,14-17
- Jones & Spencer 2007 ADC F&N 92,236-8
- Jones – Best practice standards for preterm breastfeeding on BFI website
- Bliss booklet “Breast feeding your premature baby”
Breastfeeding your premature baby

www.bliss.org.uk

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Establishment of preterm lactation

- Lactogenesis 1 during pregnancy
- Lactogenesis 2 after delivery
Establishment of preterm lactation

- Transition to lactogenesis 2 occurs 30-40 hours post delivery
- Triggered by delivery of placenta
- Hormonally driven
Establishment of preterm lactation

- At the onset of lactogenesis 2 milk removal essential to maintain milk supply
- For mothers delivering prematurely early milk removal even more important
Establishment of preterm lactation

- However there is an increase in storage capacity and compensatory growth of breast over first weeks and months however immature breast initially

- As long as milk removal is sufficiently frequent
Establishment of preterm lactation

• Initial early hand expression to remove colostrum – see Best beginnings DVD
• Express 8-10 x in 24hr
• Once a night between 2- 4am
• Best have maximum gap of 5 hours
Breast full
Milk synthesis slow

Breast empty
Milk synthesis fast

Mums may wait till breast full to express – slowing down milk production
Calculation of hourly milk production rate

- 60ml after 3 hours
- 100ml after 7 hours
Calculation of hourly milk production rate

- 60ml after 3 hours = 20ml/hr
- 100ml after 7 hours = 15ml/hr
Breast Expression

- Useful to assess mothers milk production at set points during first 2 weeks to get early warning if she needs help with her lactation
Breast milk supply

- Baby may be getting mums milk every day – but is she producing that amount every day?
- Or is it from frozen supplies?
- Don’t just rely on a freezer full of milk
Breast expression - physiology

• Milk is not just sucked from the breast

• Milk is removed by triggering the milk ejection reflex – MER

• MER leads to propulsion of milk from breast
Breast expression - physiology

- Milk ducts shortened & widened via contraction of myoepithelial cells
- Pushes milk towards nipple
- Mediated by release of oxytocin
Breast expression- physiology

- MER leads to approx 30 ml milk ejected
- But very variable +/- 22ml
- During a feed several MERs occur
- No MER = very little milk expressed
Breast expression- physiology

• Milk not removed moves back into breast
• FIL produced which inhibits milk production
• FIL = Feedback Inhibitor of Lactation
Breast expression - the physiology

- The MER becomes a "conditioned" reflex
- Will happen due to an environmental trigger
Breast expression - the physiology

- Smell sound sight
- Will help to cultivate triggers associated with baby – not with pump etc
- Also - Nipple stimulation has important role in helping elicit MER via oxytocin
Breast expression - the physiology

• Not all women will feel a MER, and if they do it can be a mild or sometimes painful sensation

• In mothers of term infants 88% felt initial MER during a feed but not subsequent ones during same feed
Breast expression - the physiology

- Oxytocin – many benefits
- Uterine contractions early in lactation
- Helps mother reduce blood loss and recover from delivery faster
- Induces feeling of well being
Breast expression - the physiology

- MER happens in both breasts
- So double pumping very efficient way of increasing milk expressed
- And saves time for mum
Skin to skin contact

• Stimulates & maintains lactation – allow baby contact with the breast

• If mother lactating will help maintain babies temperature

• Helps mother learn about her baby

• Helps protect against infection?
Maternal mucosal surfaces encounter microbes in her own and babies environment, predominantly via the gut, enhanced by skin to skin contact.

Maternal lymphocytes at gut / lung surface stimulated by microbes to produce specific antibody.

Maternal lymphocytes migrate to other mucosal surfaces and breast.

At breast maternal lymphocytes produce specific antibody against microbes encountered which is secreted into breast milk.
Skin to skin

- Best to develop guidelines to ensure parents receive consistent advice
Trouble shooting: Poor milk supply

There are many reasons for poor milk supply

See chapter 4 Jones & King 2005 for more complete list
- Retained placenta fragments
- Maternal diabetes
- Maternal obesity
- CS delivery - not in all studies
- Prenatal steroid use (28/40 + & >3 days post)
- Progesterone based contraception
- Anaesthetic agents
- Poor breast development
- Drugs and alcohol / opiates / smoking
- Previous surgery or radiation
- Glandular insufficiency – hormonal imbalance
• Factors on previous list not so modifiable?
• Following factors we can do something about;
  – Breasts not fully emptied
  – Inadequate nipple stimulation- MER not induced
  – Inadequate frequency of pumping
  – Stress and fatigue
Trouble shooting: Poor milk supply

• See Bliss booklet – Breastfeeding your preterm infant
Trouble shooting: Poor milk supply

- Does expressing equipment work?
- Are funnels correct size?
- Is nipple healthy?
- Bra well fitting?
Poor milk supply

- Galactagogues
- See information leaflet produced by Wendy Jones for the Breast feeding network, March 2009