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Supporting Feeding on NNU: The journey

Annie Aloysius
Speech and Language Therapist & Lactation Consultant
Annie.aloysius@imperial.nhs.uk

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1990's …

- Predominately a bottle feeding culture
- Managing "difficult feeders"
- Feeding aversion
- Broncho pulmonary dysplasia

Feeding Management strategies

- Side lying positioning
- pacing
- slow flow teats

“Baby friendly bottle feeding”

- Feeding readiness not weight/gestational age

Changes in neonatal care:

- Home oxygen
- Obstetric care – babies born in better condition
- Antenatal steroids
- surfactant
- Nasal CPAP

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Multidisciplinary team working

- **Teaching and nurse training:**

feeding development, readiness, feeding support strategies

- MDT ward rounds

- Preventative management strategies

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Premature arrival:
barriers to normal feeding skills development

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Neonatal Environment

- Developmentally supportive care
- opportunities for rooting, sucking, swallowing, flexion, maternal touch, skin to skin contact

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Environment

Light and Noise

Positioning: Comfortable, midline, flexed

Supporting opportunities for
“normal” feeding development

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swallowing



10- 17 weeks starts to swallow amniotic fluid

750ml per day in last trimester

smell and taste

Contains growth factors that promote growth of the intestinal mucosa

Non nutritive sucking

Lessens behavioural distress to painful procedures

helps babies organise state/physiological stability

Maximises delivery of nasal CPAP

may accelerate the organisation and efficiency of sucking

may build an association between sucking and satiation

no specific short term negative outcomes

Reduce use during transition to breastfeeding

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Key policy documents

BLISS the preterm baby charity www.bliss.org.uk

Poppy report (Parents of Premature Babies project)

- To identify effective interventions for communication, information and support for parents of a premature baby.
- Provided a model for family centred care





- Bliss baby charter 2005 This was the first time the rights of a premature or sick baby had been clearly set down

- Baby charter standards 2009 to highlight the importance of both clinical and **family centred care** working hand in hand, to provide these babies with the very best opportunity to not only survive but go on to have the best possible quality of life.

- Benchmarking/audit tool

DOH toolkit for high quality neonatal services (2009) National Standards: SLT Staffing

- **Appendix C: Principles (characteristics of a quality service)**
- **Principle 2: Staffing of neonatal services** High-quality neonatal services, including those providing neonatal surgery, rely on having an adequate and appropriate workforce with the leadership, skill mix and competencies to provide excellent care at the point of delivery.
- 2.5.3 Speech and Language Therapy
  - All units have access to a neonatal speech and language therapist competent in the assessment and management of infants with feeding difficulties, including those with impaired swallowing.
  - All speech and language therapists caring for neonates have access to a specialist neonatal speech and language therapist whose job plan contains identified capacity for providing advice and support across the network.

BRITISH ASSOCIATION OF PERINATAL MEDICINE SERVICE STANDARDS FOR HOSPITALS PROVIDING NEONATAL CARE (3rd edition) August 2010 www.bapm.org

6.3 *Speech and Language Therapy*

6.3.1 Roles/Benefits

The speech and language therapist (SLT) is a key member of the multidisciplinary neonatal team with a unique role in the assessment and management of infant feeding and swallowing.

A knowledge of feeding development and early communication skills enables provision of pre-feeding intervention programmes with the aim of:

- reducing the potential development of aversive feeding behaviour
- promoting oral feeding readiness
- maximising the potential for successful oral feeding

An integral part of the SLTs role is to support and provide education to the multidisciplinary team regarding optimal feeding practice and the management of infants with complex feeding and swallowing problems.

6.3.2 Network staffing model

- All units should have access to the specialist SLT services. The precise staffing model will reflect the size and configuration of the network. Neonatology is an advanced practice sub speciality area within paediatric SLT. Speech and language therapists working in this specialty should have relevant post graduate paediatric experience and evidence of relevant CPD.



Breastfeeding:

Importance of breast milk for the preterm baby

- 1920's -30's MEBM standard practice and breastfeeding encouraged when 4lbs
- Healthy baby would suckle one breast to stimulate MER while preterm baby suckled the other
- 1940's-50's neonatology more "scientific"; nutritional research – formula milk
- 1970's research into NEC – antibodies in breastmilk may protect the preterm gut
- Milk banking
- 1980's HIV: closure of milk banks – pasteurisation

- Re-emergence of interest in breast milk

Understand the importance of breast milk and breastfeeding

- Unique, tailor made composition (enteromammary pathway) “medicine” or “vaccination”
- better tolerated (reduced NEC)
- reduced infections (sepsis)
- better neuro developmental outcomes
- Dose and duration effect

- The one thing a mum and only a mum “can” do



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SPECIFIC CHALLENGES OF BIOMECHANICS OF BREASTFEEDING FOR THE PRETERM INFANT

Geddes D et al (2008) Tongue movement and intra oral vacuum in breastfed infants *Early Human Development 84 (7) 471-7*

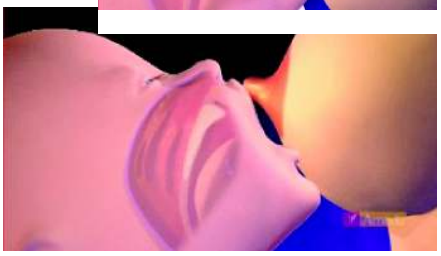
Breast feeding requires intra oral suction to draw the breast tissue into the mouth for attachment

Milk flows when the tongue is lowered and suction pressures are high

Effective attachment and nipple stimulation is needed to trigger milk ejection reflex (30+/-22mls)

Preterm infants have weaker sucking pressures and rooting which may affect breastfeeding ability







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Breast/bottle differences and impact?

- Passive milk flow with the bottle
- Can still feed with weak suction
- If strong suction and poor co-ordination can have difficulties
- Easy to over ride cues

Risks associated with early introduction of bottles

- Habituation to a different technique
- Effect on maternal confidence
- Frequent bottle feeds = less regular breast stimulation = impact on lactation
- Bottle top ups = lengthy feed times and fatigue = baby less likely to wake for next feed

Lactogenesis

- Mammary development in pregnancy usually complete by 23 weeks (Lactogenesis I)
- Effect of delivery
- Antenatal history and medications

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Preterm “breastfeeding”

- Hand express colostrum in the 1st 6 hrs post delivery
- Express 8-10 times in 24 hrs (milk log)
  (once at night 2-4am prolactin)
- Volume of milk production (600-1000 mls by day 14)

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Early Breastfeeding support, developing the breastfeeding relationship

colostrum

- No swallowing of amniotic fluid: gut fragile and immature
- Colostrum more like amniotic fluid than mature milk: mimic function in gut maturity
- Colostrum increases gut mucosa by 65% in 24hrs in pigs

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Mouth care with breast milk

- Colonises mouth and GI tract with commensal bacteria (anti inflammatory and protective)
- Normalises the environment: taste and smell
- Start of breastfeeding
- Positive touch

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Environment, keeping mother and baby together skin to skin









Bonding

Stabilising,
Maintains temperature

Taste and smell

Mum and baby share microflora

During tube feeding: builds associations

Observe readiness cues/transition

Benefits lactation



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Supportive tube feeding



Feeding readiness

- Gestation should not be the predictor of skills
  Nyqvist 2008
- Physiological stability
- Maturity of state organisation

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Feeding readiness cues:

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In the cot

- Hands to mouth
- Mouth opening
- 'rooting' for the breast
- Response to gentle touch to face

crying is a late cue

Lang 2002

Skin to skin

- Smelling
- Alert and looking at the breast
- Protruding tongue
- Licking
- Touching breast with fingers

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Positioning and attachment

The main cause of breastfeeding problems is poor positioning and attachment



- Low tone in preterm infants
- Midline flexion
- Neutral alignment of head and neck
- support of head and trunk; rugby hold cross cradle



Signs of milk transfer

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MOTHER

- Milk Ejection reflex (MER)
- Oxytocin: feeling of wellbeing
- Breast softening/emptying

INFANT

- Attachment: wide gape, rounded cheeks
- Slow rhythmic nutritive sucking
- Audible swallow
- Milk in the corner of the mouth
- Elongated and wet nipple
- Comes off and is satisfied

- Growth, wet/dirty nappies, feeding pattern

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First attempts

- Realistic expectations
- shared language
- cue based feeding

- Build confidence for future

Feeding regimes & feed volumes

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- 2 hourly to 3 hourly
- Wake for feeds

- Modified demand regime

- Avoid 4 hourly feeding

- Consider reducing total volume
- Reduce NG top ups
  - Variable intake pattern is normal
  - Consider intake over 12-24 hours

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Managing NGT top ups

Breastfeeding Assessment Score

score	definition	action
A	Offered the breast, not interested sleepy	Full top up*
B	Interest in feeding, however does not latch	Full top up*
C	Latches onto the breast, however comes on and off or falls asleep	Full top up*
D	Latches, however sucking is uncoordinated or has frequent long pauses.	Half top up* *Consider not* topping up if mother is available for another breastfeed. The baby may wake earlier
E	Latches well, long slow rhythmical sucking and swallowing—short feed < 10 min	Half top up* Do Not top up if mother is available for next feed
F	Latches well, long slow rhythmical sucking and swallowing—long feed > 10 min	No top up

*If a top up required it is preferable to continue to allow baby nuzzle at the breast

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QCCH Neonatal Unit

Neonatal Unit- Baby Feeding Check list

Please use Print Name, Initials, Date and Time to confirm all parts have been completed.

To be kept in Baby's Notes.

Name:

Hospital No:

	Tick when achieved	Print Name Plus Initials	Date / Time
1. To be completed within 6 hours of admission during visit to mother by a staff member:			
Discussion about the importance of breast milk for the preterm baby with respect to the following • Reduced risk of NEC • Reduced risk of Infection • Improved gut tolerance • Improved neuro developmental outcome • In respect to the mother; reduced risk of breast and ovarian cancer, osteoporosis?	❑		
Ask feeding intention and record this here.	❑		
Information on breast massage and hand expressing colostrum given (Appendix B) Name of midwife discussed with	❑		
Is baby a candidate for donor breast milk? (see Donor Milk guideline)	Y / N		
Verbal consent for donor breast milk obtained from mother	Y / N N/A		
Maternal medications checked and assessed for safe use while breast feeding? (Prescribed/ non prescribed/ herbal)	❑		
2. Call to midwife 8 hours post delivery to check mother has expressed	❑		
3. On mother's first visit to the unit (usually within the first 24hrs after the baby's birth):			
Importance of skin to skin contact with baby explained and consequent need for daily bathing/showering	❑		
Breast massage and hand expressing observed	❑		
Ensure the BLISS leaflet 'Breast Feeding Your Premature Baby' and Bump to Breastfeeding DVD provided	❑		

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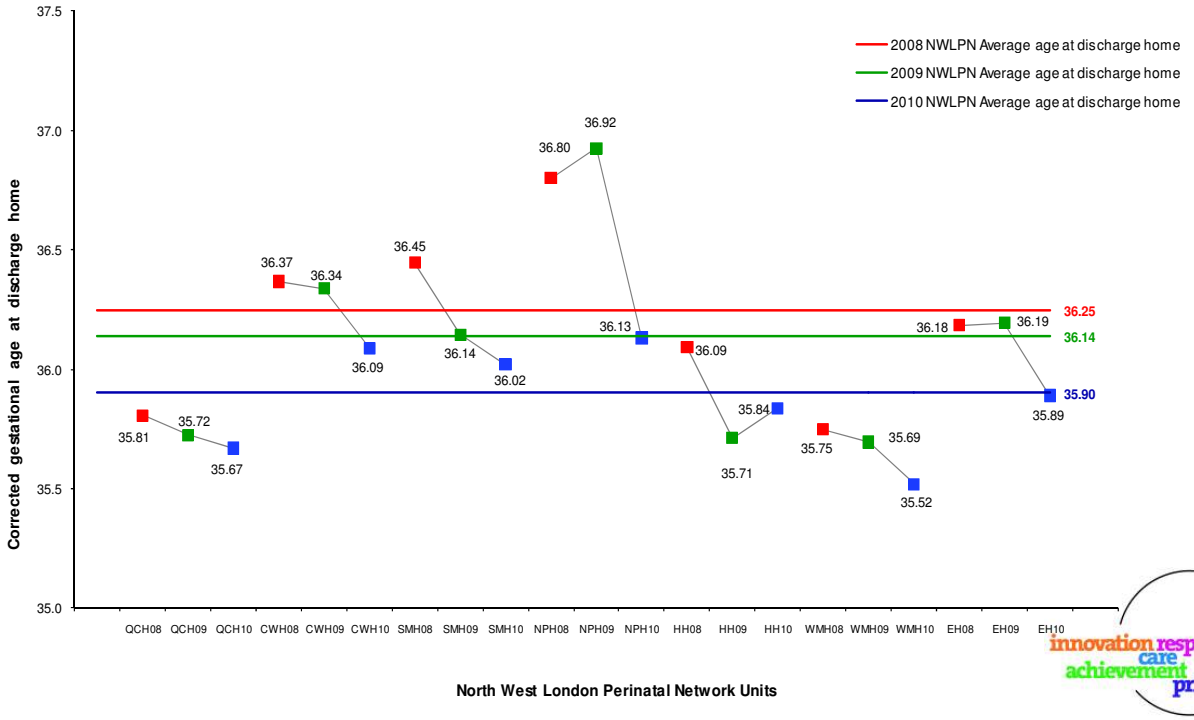
	Tick when achieved	Print Name (Initials)	Date / Time
Importance of frequent milk expression explained i.e. 8-10 times in 24 hr (including once at night between 2 and 4am)	❑		
Benefits of non nutritive sucking explained (calming, maximising CPAP, sucking practice during tube feeds)	❑		
If mother unable to visit the unit within 24 hours go down to visit her to complete this section	❑		
4. When milk comes in (typically day 2-3, sometimes delayed by preterm delivery)			
Check that mother has access to a breast pump for use at all times?	❑		
Use of breast pump demonstrated?	❑		
Safe collection and storage of expressed breast milk explained, including guide to minimise contamination?	❑		
Advice given about the detrimental effects of alcohol and smoking on lactation?	❑		
5. Day 5			
Check that milk has come in and the volume of expressed breast milk is increasing? (Record volume expressed in last 24 hours here) If not give necessary support indicated	Volume = mls		
6. Day 10			
Check that production has increased to copious amounts and milk is being stored in the freezer (600mls in 24hrs is optimal) Record volume expressed in last 24 hours here) If not give necessary support indicated	Volume = mls		
Discussion regarding the need for breast milk fortifier to meet a preterm baby's additional requirements for growth	❑ N/A		
7. Stable and ready to breast feed			
Importance of mothers availability for breastfeeding and rooming in discussed with support for any potential obstacles considered?	❑		
Member of staff with training has observed a breast feed and supported with baby's position and attachment?	❑		
Disadvantages explained re early introduction of bottles?	❑		
Consent for bottles given if necessary	❑		

S:\Paediatrics - Neo\Marianna\Policies and Guidelines\Nutrition - Baby Feeding Checklist.doc
April 2010

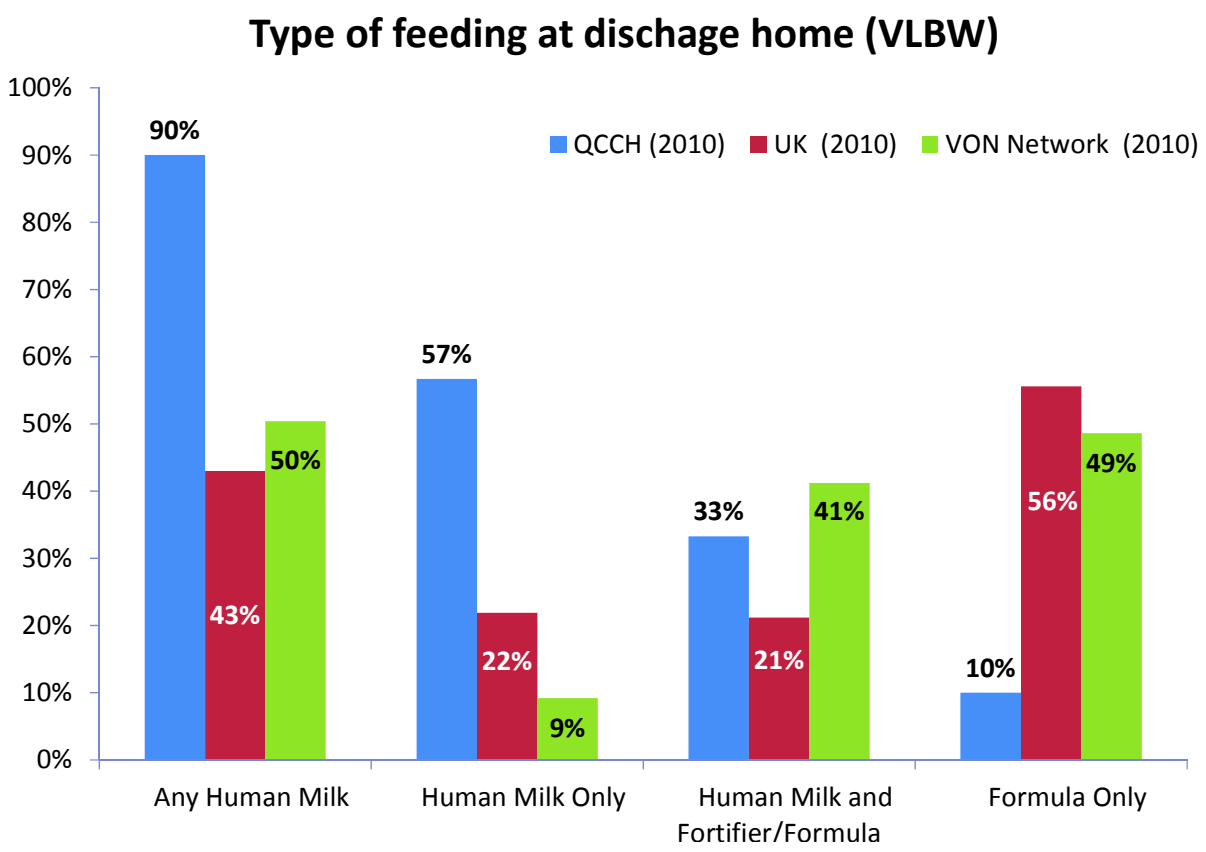
Feeding outcomes at discharge

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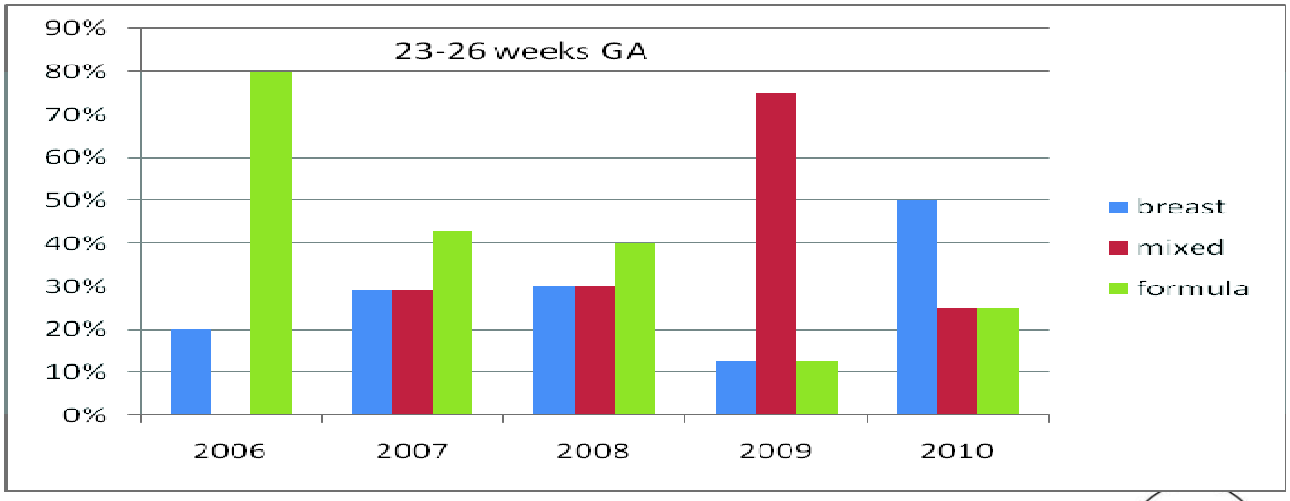
North West London Perinatal Network
Mean corrected gestational age at discharge home
for infants born at 30^{+0} - 34^{+6} weeks gestation
Comparison of neonatal units within NWLPN
1 January 2008 - 31 December 2010



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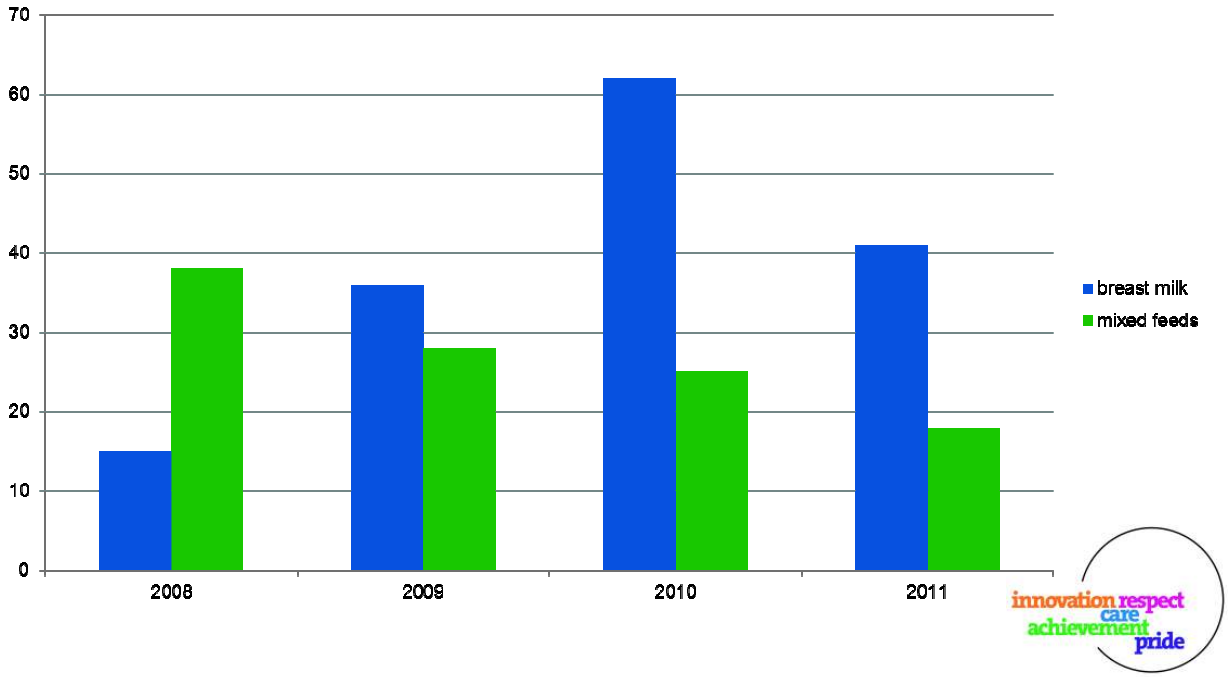

Type of feeding at dischage home (VLBW)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
QCCH (2010)
UK (2010)
VON Network (2010)
90%
43%
50%
57%
22%
9%
33%
21%
41%
10%
56%
49%
Any Human Milk
Human Milk Only
Human Milk and Fortifier/Formula
Formula Only

Significantly results have been most notable in the extremely preterm population where the length of hospital stay is prolonged and achieving sufficient lactogenesis for sufficient breast milk supply is most challenging.



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HIE VON data
Feeding outcome on discharge home



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Key practice points

- Baby friendly/ family centred care
- Environment
- Teaching and training
- Teamwork

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