

**Factors influencing student midwives' competence and
confidence when incorporating
UNICEF UK Baby Friendly Initiative (BFI) Education
Standards in clinical practice.**

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for the degree of Doctor of Health Sciences**

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Abstract

Background:

Breastfeeding is crucial in providing optimum nutrition and health for babies' to develop into healthy adults and has important emotional, physical and psychological benefits on maternal health. The UK has stubbornly low breastfeeding initiation and continuation rates. To address this, the government has policies targeting maternity and public health services. Furthermore, UNICEF UK introduced Baby Friendly Initiative (BFI) Hospital Standards in 1998 and Midwifery Education Standards in 2002.

The University of Nottingham adopted BFI Education Standards in 2005 and have maintained accreditation since 2008. The BFI curriculum changes incorporated a knowledge, skills and attitude framework for teaching, learning and assessing. The embedding of positive attitudinal and skills facilitation of breastfeeding within the curriculum changes was essential. The influence of Trust's organisational culture on student learning was considered critical due to its impact on midwives working practises and pre-registration midwifery curricula having a minimum of 50% clinical practice.

There is a lack of information about the efficacy of BFI Education Standards on student learning and application to practice. The aim of this study was to explore factors affecting student midwives competence and confidence when incorporating BFI Education Standards into clinical practice.

Methodology and methods:

A three year longitudinal multiple educational case study of a Bachelor of Midwifery programme commenced in 2009. Ethical and R&D approval were gained from the University and five Trusts, each at different stages of BFI

clinical accreditation. The inclusion criteria were any student in the September 2009 midwifery cohort and their allocated midwife mentors.

From a cohort of 32 students, 22 consented and 16 supplied data at each collection point throughout the three years. Students identified 92 midwife mentors, they had worked with, who were then invited to participate; 16 consented and 6 supplied data at each collection point throughout the three years. A total of 92 questionnaires and 70 one hour interviews were conducted.

Data collected from students included questionnaire, individual interview and documentary evidence at 6, 18 and 30 months into the programme. Data from midwife mentors was questionnaire and individual interview at each stage. Documentary evidence was obtained from the students' NMC record of clinical skills and second year biology examination question on infant feeding.

Data analysis used NVivo for qualitative data management, and PAWS for quantitative data analysis. Verbatim transcription of interviews was followed by thematic analysis.

Findings:

Findings are presented using BFI 'Ten Steps' Standards with the underpinning knowledge, skills and attitude framework. **All** students considered themselves to be competent and confident in 'normal' aspects of infant feeding but only competent in 'complex' feeding scenarios.

Students self reported the theoretical component was most important to their learning in years 1 and 3 and clinical placements in year 2. Students who were mothers and students working in BFI accredited units had better examination results. Changes in workforce skill mix and reduced

community midwife visits were factors in reported gaps of 'complex' breastfeeding learning opportunities. These were addressed by scenario role play. Reductions in Infant Feeding Advisor hours were found to correlate with increased formula supplementation.

Mentors praised students' enhanced theoretical knowledge from their first year, and assessment and planning in the third year. They attributed this to the BFI curriculum. More prescriptive and structured organisational documentation facilitated student learning. Theory practice gaps existed at all five case study sites. At BFI accredited sites mothers and babies were statistically more likely to experience skin-to-skin following any mode of birth ($n=1462$ $p<0.001$ $\phi=0.21$). At all sites a normal birth statistically increased the opportunity of mother-baby skin-to-skin ($n=1462$ $p<0.001$ $\phi=0.57$) and initiation of breastfeeding ($n=1462$ $p<0.001$ $\phi=0.52$).

Students embraced a 'hands-off' technique to support breastfeeding and hand expression of the breast against prevailing clinical role modelling. Techniques students developed were 'shadowing', use of props, use of feeding cues and increasing the accessibility of their knowledge to women through facilitative communication skills. Use of infant feeding tools provided through the curriculum supported student learning. Detail provided within the postnatal data was poor and mirrored by mentors reporting poor use of relevant organisational documentation. Students had little opportunity to develop constructive formula feeding support, sterilisation of feeding equipment and reconstitution of formula milk. Anxiety was expressed by mentors and students in providing support to formula feeding women within a BFI framework. The use of interactive teaching methods and individual assessment through a workshop in year 3 were identified by students as significant to their learning.

Students desire to support women to breastfeed grew over the 3 years. This was independent of personal feeding experiences of students who were mothers and the non-mothers embedded norms. The reinforcement and incremental delivery of the BFI curriculum in each year was identified as essential in this process.

Conclusion:

A BFI accredited midwifery curriculum positively impacts on student learning in infant feeding, raises the profile of infant feeding within postnatal care and enables students to create positive experiences for women. This study's findings would recommend that **all** midwifery curricula embrace BFI Education Standards within a knowledge, skills and attitudes framework.

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I therefore dedicate this work to:

My husband John, and children Hannah, Edward and Simon wishing them every success and joy as they commence their journey of adult life.

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Glossary of terms

Term	Definition
Breastfeeding	Baby feeds either exclusively or partially from the breast.
Hand expression	Removal of breastmilk from the breast using maternal hand action.
Breastmilk feeding	The giving of expressed breastmilk via a cup or bottle.
Positioning and attachment	The placement of the baby at the breast.
Formula feeding	The feeding of a baby by bottle usually with formularised cow's milk.
Record of clinical skills	A document of skills that students have to record throughout their programme.
Practice document	A document of assessed competencies that students record and reflect upon.
Mentor	The midwife assigned to guide and assess a student in clinical practice.
Link Teacher	The midwife teacher allocated to a specific maternity ward/area.
Hands-on	The placing of the health professionals hands on the breast and/or the baby when facilitating positioning and attachment of the baby at the breast.
Hands-off	The verbal instruction of facilitating positioning and attachment of the baby at the breast.
Skin-to-skin	The placing of a naked baby against the skin of the mother or significant other.

Glossary of abbreviations

Abbreviation	Definition
BFI	Baby Friendly Initiative
RCS	Record of clinical skills
MSW	Maternity support workers
NNU	Neonatal unit
EBM	Expressed Breastmilk
QALY	Quality Adjusted Life Years
NB	Normal birth
OPDEL	Operative delivery
LSCS	Lower segment caesarean section
BF	Breastfeeding
FF	Formula feeding
EMPHO	East Midlands Public Health Observatory
PCT	Primary Care Trust
FTE	Full time equivalent
CS	Case study site
OSCE	Objective Structured Clinical examination
Q1	Questionnaire in year 1
Q2	Questionnaire in year 2
Q3	Questionnaire in year 3
Int1	Interview in year 1
Int2	Interview in year 2
Int3	Interview in year 3
Viga	Vignette A in Qu3
Vigb	Vignette B in Qu3

Abbreviation	Definition	Colour coding
Vigc	Vignette C in Qu3	
Vigd	Vignette D in Qu3	
Vige	Vignette E in Qu3	
CS 1	Case study 1	Turquoise
CS 2	Case study 2	Red
CS 3	Case study 3	Green
CS 4	Case study 4	Yellow
CS 5	Case study 5	Purple

Chapter -1 Introduction

Breastfeeding is the optimum feeding method for babies and midwives have a key role to play in supporting infant feeding within the postnatal period [NMC 2009, ICM 2002, Hoddinott 2012]. A one percentage increase in women breastfeeding their babies to 6 weeks in the UK would increase the economic activity by £278 million per annum [UNICEF/Renfrew et al 2012]. Since 1989 there have been standards for supporting breastfeeding within the hospital environment - 'The Ten Steps' [UNICEF 1998] - the second of which involves the training of staff. Despite this there has been little increase in breastfeeding initiation (81%) and continuation rates with a 12% drop within the first two weeks following birth when midwives are the main professional in attendance. Only 23% of women breastfeed exclusively to 6 weeks with ninety percent of women who cease regretting their decision [Bolling et al 2007, McAndrew et al 2012]. To support midwifery competence at the point of registration UNICEF UK Baby Friendly Initiative (BFI) introduced 'Education standards for pre-registration midwifery' in 2002. The University of Nottingham adopted these gaining accreditation in 2008 and 2011.

When designing this study in 2008/9, there were no published data and only one on-going study which I was aware of through the breastfeeding networks evaluating the effectiveness of the Education Standards. It was important to understand how effective the teaching and learning strategies were from a University education and financial perspective as well as outcomes for women through student competence. Pollard [2010] evaluated her curriculum using focus groups, individual interviews and critical incident diaries on 6 student midwives, 5 midwife teachers and 2 'qualified' student midwives. Her results are discussed within the context of my findings. Midwifery curricula require a 50% minimum practice element [NMC 2009], so exploring application of theory to practice was an

important focus of this study. One purpose of curriculum change within midwifery education is the improvement of clinical outcomes and care for women and babies. This brings the organisation of postnatal care into sharp focus. Exploring the experience of student midwives application of infant feeding theory in practice and the role of mentors and organisations in the learning process was key to this study.

Chapter-2 details the University of Nottingham's curriculum development which used a knowledge, skills and attitude framework informed by previous authors findings on education in infant feeding and subsequently adopted by the NMC in the Essential skills standards [2007]. The importance of a breastfeeding population from an international and national perspective is highlighted to substantiate the need for skilled support for mothers and babies. A important role of the midwife within the postnatal period has been infant feeding which appears to be under threat with new workload configurations and financial constraints on delivery of care within what has always been known as the 'Cinderella service'. The benefits of a UNICEF, BFI accreditation is acknowledged within the literature and subsequently NIHCE postnatal guidelines [2006, 2013] recommend all maternity facilities to be BFI accredited. It would be anticipated that similar benefits are noted within educational settings too.

Chapter-3 explores the importance of the correct methodology for the study in question and decision to choose case study as the methodology which allowed for multiple case studies to be compared. The methods used were questionnaire, individual interviews and documentary evidence from the record of clinical skills and biology examination in year 2. Both students and mentors were included in the study as a triangulation method and to assess the different roles each play in teaching and learning within

the clinical environment. Thematic analysis was undertaken as described by Denscombe [2008] whilst remaining open to iterative suggestion of the data between the three collection points.

Chapter-4 firstly provides background and demographic data. Secondly the findings are presented using 'The Ten Steps' as the theoretical framework. There is a variable amount of data relating to each of the 'Steps' depending on their relevance to the development of student competence and confidence. Steps 1, 8 and 9 have particularly limited data. Differences between students, mentors, sites, teaching, learning opportunities and assessment strategies are addressed.

Chapter-5 discusses the study findings in light of allied research. The discussion is subdivided into the impact of the BFI curriculum on student competence and confidence; how this may have been modulated by the teaching and learning strategies employed, mentors' roles and organisational structure or culture.

Chapter-6 draws together the conclusions reached, strengths and limitations of the study, my reflections on the research process and finally recommendations for practice, the university and future research.

Chapter -2 Background and Literature Review

2.1 Introduction

This study explored the impact of delivering an infant feeding curriculum aligned with UNICEF UK Baby Friendly Initiative (BFI) Education Standards [2002] within a pre-registration midwifery degree programme. It focused on the competence and confidence of students at supporting women with infant feeding aiming to create more positive outcomes for women and families.

A conventional systematic review of the literature is less relevant for a study designed to evaluate a clearly defined aspect of a pre-registration midwifery curriculum. Instead the first part of this chapter provides a summary of the literature and policy documents which led to the changes to the existing curriculum to incorporate the BFI education standards. In particular this section addresses the bio-psycho-social reasons why the promotion of successful breastfeeding is so important. Once qualified and practising, midwife graduates are responsible for the pregnancy, labour and care of the mother and baby from birth up to six weeks postnatally.

The second section provides a review of the literature on the role of the midwife in infant feeding.

The third section discusses how the BFI education standards [2002] were incorporated into the curriculum and the education theories underpinning each learning and teaching strategy. The importance of integrating a knowledge, skills and attitude framework to develop appropriate supportive infant feeding facilitation is highlighted in the literature and was incorporated within this curriculum. The chapter concludes with a rationale for a rigorous evaluation of this aspect of the curriculum.

2.2 The Social imperative for a Breastfeeding population

Breastfeeding populations are important in reducing maternal and infant mortality [WHO 2007]. The difference between a resource poor country's infant mortality and resource rich country's is partially attributed to poor and non-exclusive breastfeeding rates [WHO 2005, CEMACH 2007].

Four million child deaths under five years of age occur during the first month of life and breastfeeding within the first hour of birth would prevent 22% of these deaths [Edmond et al 2006 in Palmer 2009 p49]. The 4th Millennium Development Goal (MDG4) is to reduce infant (years 0-1) mortality by two thirds between 1990 and 2015 [World Health Organisation (WHO) 2003] which is more achievable within a breastfeeding population. It recommends that all babies be exclusively breastfed to 6 months and continued up to 2 years following the introduction of solids at 6 months [WHO 2003, DH 2007]. The MDG5 is to reduce maternal mortality by three quarters between 1990 and 2015 again more achievable if mothers breastfeed due to the effect of oxytocin in reducing postpartum haemorrhage and increased family spacing.

Longterm morbidity and health inequalities [Marriott 2010, WHO 2010, DoH 2007a, Kings Fund 2005] place a different burden on society in resource rich countries. In the UK maternal mortality increases seven fold and death in infancy six fold if both parents are unemployed [DoH 2007]. Ironically the highest proportion of breastfeeding mothers are from managerial/professional groups (44%), left education after 18 years of age (46%), are aged over 30 (45%) and live in the least deprived areas (40%) [McAndrew et al 2012].

Breastfeeding:

- reduces illness and disease reducing health care costs [Tappin 1997, UNICEF/Renfrew et al 2012];

- generates financial savings from purchase and sale of formula feeds [Frick 2009] enabling a reduced carbon footprint [Palmer 2009];
- produces a healthier, intelligent workforce creating an economic advantage and higher self esteem among children and adults [Palmer 2009, UNICEF/Renfrew et al 2012].

The UK has one of the lowest breastfeeding initiation (81%, 2012) and continuation rates (23% at 6-8 weeks, 2012) in Europe [Yngve & Sjoström 2001, Bolling et al 2007, McAndrew et al 2012]. The Government is attempting to redress this through various policies and targets, all of which require the engagement of midwives. These include: a 2% rise in breastfeeding rates per annum [Department of Health (DH), 2003]; a reduction in the rise of obesity within children [DH, 2004]; the production of postnatal guidelines [National Institute for Health and Clinical Excellence (NIHCE), 2010] requiring every maternal health facility to adopt the Baby Friendly Initiative standards Ten Steps [UNICEF 1998] or Seven point plan [UNICEF 2008]; 'A Healthy Start' [DH 2004 a]; the promotion of exclusive breastfeeding to six months [DH 2007]; data on feeding patterns collected by every Primary Care Trust at 6 weeks and 6 months and the adoption of WHO growth charts based on breast fed babies from April 2009 [DH, 2008].

2.3 Biological benefits of breastfeeding for mother and baby.

Breastfeeding offers many personal benefits to mothers but also reduces projected costs for treatment if required [UNICEF/Renfrew et al 2012]. A systematic review by Ip et al [2007] critically explored many areas where breastfeeding has been demonstrated to be advantageous to mothers (Table 1). Benefits to the breastfeeding baby were systematically reviewed

by Horta et al [2007] which identified that constituents of breastmilk and the action of breastfeeding were two routes by which benefit was gained. Some of these are elaborated upon next. Breastmilk contains many anti-infective factors [Silverdale et al 2007, Pisacane et al 2010] contrasting with formula milk which has no live cells therefore no anti-infective properties creating vulnerability to short-term illnesses (Table 2) with many further longterm advantages conferred on the breastfed baby (Table 3).

Longer breastfeeding duration proportionately improves IQ in term [Caspi et al 2007] and preterm babies [Lucas & Cole 1990] and the attainment of gross motor milestones at 9 months [Quigley et al 2011]. If 1% of the never breastfed category did so, there would be an increase in economic activity of £278 million [UNICEF/Renfrew et al 2012].

The risk of sudden infant death is reduced in breastfed babies but whether lifestyle choices or maternal responsiveness is the reason is unclear [Ball et al 2003, Ball 2012, Alm et al 2002, Mosko et al 1997, Hauck et al 2011]. Exclusive breastfeeding would save £4.7 million per year and £1.3 million in QALY's from reduced SIDS [UNICEF/Renfrew et al 2012].

Many studies of breastfeeding mothers highlight improved mother-baby attachment [Finnigan & Davies 2004] and reduced postnatal depression [Kendall-Thackett 2007, 2010]. Physical closeness of a breastfeeding mother and her baby when using skin-to-skin [UNICEF UK 1998, Moore et al 2007], creates better physiological stability [Lagercrantz & Slotkin 1986], increases adaptation to maternal commensals [Christensson et al 1995], somatic growth [Rigas et al 2003] and prolongs exclusive breastfeeding [Carfoot et al 2005]. Uninterrupted skin-to-skin occurs less in complex birthing situations when its benefits would be most profound [Sheridan 2010].

Table 1- Maternal Benefits and economic costings associated with the consequences

Maternal Benefits of breastfeeding her baby	Cost from UNICEF/Renfrew et al [2012]
Reduced risk of Breast Cancer (BF reduces the risk by 4.3% for each year of breastfeeding; 28% reduction for >12 months breastfeeding)[Stuebe et al 2009].	If half the mothers who don't breastfeed do for 18 months during their lifetime – 845 fewer cases saving £21 million and 512 QALY's gained £10 million
Reduced risk of Ovarian cancer. Rosenbalt et al [1993] multinational study showed a 20-25% decrease in the risk of ovarian cancer among women who lactated for at least 2 months per pregnancy, compared to those who had not. Little or no further decrease in risk was seen with increasing duration of lactation. A long total duration of breastfeeding appears to be associated with a substantial reduction in the overall risk of ovarian cancer, independent of the decrease in risk due to parity [Jordan et al 2010].	Annual NHS costs for cancer services are £5 billion, but the cost to society as a whole – including costs for loss of productivity – is £18.3 billion [UK gov stats 2013]
Reduced risk of Type 2 diabetes - for women without a history of gestational diabetes, each additional year of BF was associated with a 14-45% reduced risk [Stuebe et al 2005]. Liu et al [2010] found a 50% increase in childbearing women who do not breastfeed (n=52,731 women).	

<p>Reduced risk of Hip fractures associated with osteoporosis. Cohort of 308 mothers, if fully breastfed to 6 months the decrease in density was overcompensated by 1.1-1.9% by 18 months post birth [Polatti et al 1999].</p>	
<p>Reduced fertility and increased birth spacing [Belaggio consensus 1988, Lawrence 2007]</p>	
<p>Postpartum haemorrhage. Maternal mortality per year due to haemorrhage accounts for 25% of all maternal deaths. In the developing world 132 per 100,000 [WHO 2005] compared to GB 4 per 100,000 [CEMACH 2007] are recorded. The release of oxytocin during breastfeeding has the added advantage of contracting the uterus therefore reducing the surface area for bleeding [Sobhy & Mohame 2004, Winikoff et al 2010].</p>	

Table 2- Short-term disadvantages of not breastfeeding a baby and costings associated with the consequences.

Short-term disadvantages of not breastfeeding a baby	UK millennium cohort study - 15,890 infants if BF exc 6 months	Costings from UNICEF/Renfrew et al [2012]
Increased risk of gastroenteritis in the first year if not breastfed to 13 weeks and protection last following cessation of breastfeeding [Forman et al 1984, Victoria et al 1989, Ruuska 1992].	53% decrease in hospital admissions with diarrhoea (partial BF - 31%)	If 45% exc BF for 4 months - 3285 fewer infections saving £3.6 million per year
Triple increased risk of respiratory illness/wheeze and hospitalisation if not exclusively breastfed to 4 months once factored for socioeconomic and smoking patterns [Pisacane et al 1994, Chen et al 1988].	27% decrease in respiratory tract infections each month (partial BF - 25%)	If 45% exc BF for 4 months- 5916 fewer infections saving £6.7 million per year
Five times increased risk of urinary infections in the first six months with any breastfeeding compared to exclusively formula fed. Comparison of 128 children with UTI hospitalised and 128 children without hospitalised.[Pisacane et al 1992]		
Increased risk of acute otitis media. 1013 babies- exclusively breastfed to 4 months had a 50% reduction in incidence [Duncan et al 1993]		If 45% exc BF for 4 months - 21045 fewer infections saving £750.000 per year
10 fold increased risk of developing necrotising enterocolitis (NEC) if born premature [Lucas & Cole 1990].		If 45% exc BF for 4 months - 361 fewer NEC saving £6 million

Table 3- Longterm disadvantages of not breastfeeding a baby and costings associated with the consequences.

Longterm disadvantages of not breastfeeding a baby	Costs from BFI UNICEF/Renfrew et al [2012]
Higher Risk of Types1 & 2 Diabetes Mellitus if no breastfeeding and early introduction of formula cow's milk. Exclusive breastfeeding to 5 months, total longer breastfeeding are independent protective factors [Gerstein 1994, Ravelli et al 2000, Sadauskaite-Kuehne et al 2004]	Diabetes was estimated to cost the health service £2.8 billion in 2007
Higher Risk of overweight and obesity at 5-6 yrs. Every month of breastfeeding reduces the risk by 4% when confounders accounted for [von Kries et al 1999, Singhal et al 2002].	Decreasing obesity by 5% would save £1.6 million
Higher risk of a raised cholesterol levels in adulthood. A 14% reduction in ratio of LDL to HDL in breastfeed pre term babies which is dose dependent. A 10% reduction in cholesterol reduces the incidence of CVD by 25% and mortality by 13-14% [Ravelli et al 2000, Singhal et al 2004].	Costs of cardiovascular disease to the NHS have been estimated at around £14 billion per annum, with a total cost to the economy in excess of £30 billion (British Heart Foundation)
Greater risk of developing a higher systolic blood pressure in adulthood if not exclusively breastfed to 4months [Singhal et al 2004 (a)]	
Higher risk of food and respiratory allergy if not exclusively breastfed to 4months [Dell & To 2001, Oddy et al 2002]	
Higher risk of childhood leukaemia's. Any breastfeeding reduces the risk of acute leukaemia by 21%[Davis et al 1988, Shu et al 1995]	
Higher risk of childhood asthma in children under 10 years with no family history if not exclusively breastfed to 4months [Gdalevich et al 2002]	Health care costs related to asthma have been estimated as being in excess of £2.3 billion per annum in 2001 figures (Asthma UK)

An extension of skin-to-skin is Kangaroo Mother Care (KMC) [Davanzo 1993, Anderson et al 2003, Christensson et al 1998, Nyquist 2009]. Breastfeeding duration was increased in transitional care babies [Gregson and Blacker 2011] and by 1.4 months in term babies when KMC was experienced [Mikiel-Kostyra et al 2001, 2002]. Physical growth was also noted to increase with KMC [Gathwala et al [2010]. KMC enhances positive neurological development of the babies' brain which once hard wired will preferentially alter the baby's future emotional development [Bergman 2009]. The 'Millennium cohort study' demonstrated breastfeeding reduces negative behaviour patterns in children [Heikkila et al 2011].

Formula milk is neither species nor child specific and this method of feeding carries additional risks which fall into two categories: firstly the product itself, secondly its reconstitution. Formula milk is usually based on skimmed cow's milk, with potentially unacceptable sourcing of additives as well as dormant Salmonella, E Coli and E Saka-zakii [FAO/WHO 2004, FAO/WHO 2006, Palmer 2009, McSpotlight accessed 2010, BBC 2008]. It is regulated by the Department of Food, Agriculture and Fisheries. The nutritional content deteriorates over time/shelf-life. Environmental costs are incurred [Palmer 2009] with tax payers funding to the dairy industry [Frick 2009, NICE 2010]. The process of reconstitution is fraught with potential errors. New guidance includes reconstituting with boiled water which is cooled to a minimum of 70 degrees centigrade, adding the milk powder to the water in the correct proportions, making up one feed at a time and discarding any residual reconstituted milk after an hour [DoH 2011, Forsyth 2004, France et al 1980]. The proportion of women in the UK aware of the guidelines for reconstitution has risen from 13% to 49% but over half who are using formula milk remain unaware of safe reconstitution [Bolling et al 2007, McAndrew et al 2012]. Prior to the

introduction of formula its acceptability, feasibility, affordability, safety and sustainability (AFASS) [WHO 2012] need to be considered particularly within a developing world context or one without a social support mechanism such as 'Healthy Start'.

The bio-psycho-social benefits to support over 90% of women to successfully breastfeed are clear. Health professionals and organisational strategies are required to support this change.

2.4 The role of the midwife in infant feeding

Historically the midwife has been involved in the care of mother and baby up to 28 days but recently extended to six weeks postpartum [Nursing and Midwifery Council (NMC) 2009]. Infant feeding is incorporated within this role and the public health agenda [DoH 2010, FIGO 2005, ICM 2011, RCM 2010]. In 2007 the NMC identified essential skills in infant feeding.

Debates around the ability of midwives to function adequately on qualification led to NMC standards on 'Fitness to Practice and Purpose' [NMC 2006, Clarke and Holmes 2007].

The role of midwives includes how labour care, such as the use of opiates and separation post birth, affect skin-to-skin and breastfeeding success [Righard and Alade 1990 (Table 4), Barrowclough 1997, Walsh and Downe 2010, Odent 2003]. The greater the deviation from the normal the greater The measures required to enable successful lactation and reduce the risk of supplementation with formula milk [Furber & Thomson 2006].

Supplementation potentially contravenes the midwife's code of practice [NMC 2009] and ethical position [Cloherty et al 2004]. The professionals knowledge, skills and attitude are crucial to women's success in breastfeeding [Whelan 2011].

Table 4 - Data highlighting the negative impact of opiates and separation of the mother and baby at birth [Righard & Alade 1990].

	Attached and suckled		No suckling after 2 hours
	Correctly	Incorrectly	
Continuous' contact, no pethidine (17)	16 (94%)	1 (6%)	0 (0%)
'Continuous' contact, pethidine used (21)	8 (38%)	3 (14%)	10 (48%)
Separated, no pethidine (15)	7 (47%)	7 (47%)	1 (6%)
Separated, pethidine used (19)	0 (0%)	4 (21%)	15 (79%)

Recent changes to the delivery of postnatal care followed 'Maternity Matters' [DH 2007] which proposed care at home or in a community setting such as 'Sure Start Children's centres', and Lord Darzi's Report [DH 2008] advocated new ways of working to provide choice for women. Bick [2008] questions whether vulnerable women's needs are being addressed as breastfeeding rates appear negatively affected. It has been known since 'Changing Childbirth' [Cumberledge 1993] that women require from the maternity services: continuity of care/carer; choice in care pathways and control of their care which remain the same now [DoH 2007, RCM 2010]. The skill mix within postnatal care following 'Agenda for change' [2004] includes breastfeeding peer supporters and unregistered maternity support workers (MSW) who undergo infant feeding education. Prescriptive visiting patterns impact on the role of the midwife within this field [McInnes and Chambers 2008, Hoddinott et al 2008]. There is evidence to suggest that local peer supporters have a positive impact, particularly on the duration of breastfeeding [Renfrew 2005, 2006 & 2006a, Smale 2004]. However, each individual often has a short working span as they move on to other activities [Dykes 2005a]. An evaluation of MSWs' in midwifery by Sandall et al [2007] identified managers' enthusiasm of their role but concerns were expressed about their scope of practice, the replacement of midwives

with MSWs and the lines of accountability [RCM 2006]. This subsequently impacts on student learning, competency and clinical assessment of infant feeding as this is an area MSW's have been particularly active. Irrespective of the grade of practitioner, their personal experiences, knowledge and belief systems will impact on their ability to support breastfeeding women effectively [Bernaix 2000, Di Girolamo et al 2003]. Attitude is a learned predisposition to think, feel and act in a particular way towards a given object or class of objects [Downie & Tannahill 1999]. Naidoo & Wills [2000] state that information alone is insufficient to change behaviour. It is therefore important that any infant feeding curriculum addresses not only knowledge but behaviour patterns associated with midwifery support [Bernaix et al 2010]. Dykes [2006] identified practical, informational, esteem building, emotional and network supports that women required. Encouragement and positive reinforcement is also required as many women and families have had little exposure to breastfeeding [Atchan et al 2011]. Ekstrom et al [2005] identified four types of interactions of staff supporting women with breastfeeding: regulatory, facilitatory, disempowering and antipathy. They recommend a process model of training is adopted to include counselling skills and reflection to develop the desired facilitatory style of interaction which was included in this curriculum.

2.5 Evidence supporting BFI clinical accreditation

In order to address the poor global breastfeeding rates, UNICEF created an award for hospital facilities achieving the BFI 'Ten Steps' with 80% compliance in 1989. This was introduced to the UK in 1994. Initial training includes 18 hours of theory and skills for each member of staff with subsequent yearly updates. Both staff (stage 2) and women (stage 3) are interviewed and observed as part of the external assessment. Stage 1

assessment is the background curriculum guideline development and training programme planned. Clear links are identified between the 'Hospital-Ten Steps to Successful Breastfeeding' [1998], 'The Seven Point Plan for Sustaining Breastfeeding in the Community' [2008] and 'Education Standards' [2002] (Figure 1).

The success of the hospital scheme has been demonstrated in increased breastfeeding initiation rates [Byrom et al 2009] and sustained breastfeeding rates [WHO 2009].

Table 5 – Data on pre and post hospital BFI implementation [Byrom et al 2009]

Hospital facility	% pre BFI rates	% post BFI rates
Royal Oldham	29 [1994]	66 [2007]
Glasgow	51 [1997]	65 [2004]
Derby	50 [1996]	72 [2004] 75.5 [2010]

Table 6 – National impact of BFI implementation [WHO 2009]

Country	Impact of BFI
Cambodia	50% inc in BF rates in 5 years
Madagascar	46% to 83% in 1 year

Recent findings from Australia contested that it was not the accreditation per se which increased initiation and continuation rates but the incorporation of Steps 3, 4 and 5 into clinical practice [Brodribb et al 2013]. It could be argued that without the BFI standards in place practice would never had been altered such that non-BFI accredited hospitals had baby friendly policies and support mechanisms for breastfeeding.

Figure 1 - Comparison table of Hospital BFI 10 steps, Community BFI 7 point plan & University Learning outcomes

Step	Hospital 10 steps	Community 7 point plan	University Learning outcomes
1	Have a written breastfeeding policy that is routinely communicated to all healthcare staff.	Have a written breastfeeding policy that is routinely communicated to all healthcare staff.	<p>Appreciate the main differences between the WHO International Code of Marketing of Breastmilk Substitutes and the relevant current UK legislation, and understand the relevance of the Code to their own work situation.</p> <p>Be thoroughly conversant with the Baby Friendly Initiative best practice standards, understand the rationale behind them and what the Baby Friendly Initiative seeks to achieve through them, and be equipped to implement them in their own workplace, with appropriate support from colleagues.</p>
2	Train all healthcare staff in the skills necessary to implement the breastfeeding policy.	Train all staff involved in the care of mothers and babies in the skills necessary to implement the policy.	<p>Understand the importance of breastfeeding, and the consequences of not breastfeeding, in terms of health outcomes.</p> <p>Have developed an in-depth knowledge of the physiology of lactation and be able to apply this in practical situations.</p>
3	Inform all pregnant women about the benefits and management of breastfeeding.	Inform all pregnant women about the benefits and management of breastfeeding.	Understand the importance of breastfeeding, and the consequences of not breastfeeding, in terms of health outcomes.

4	Help mothers initiate breastfeeding soon after birth [includes skin to skin].	Support mothers to initiate and maintain breastfeeding.	<p>Understand the potential impact of delivery room practices on the well-being of mother and baby, and on the establishment of breastfeeding in particular.</p> <p>Be able to recognise effective positioning, attachment and suckling and to empower mothers to develop the skills necessary for them to achieve these for themselves.</p>
5	Show mothers how to breastfeed and how to maintain lactation even if they are separated from their babies.		<p>Be able to demonstrate knowledge of the principles of hand expression and have the ability to teach these to mothers.</p> <p>Be able to support mothers who are separated from their babies (for example, on admission to SCBU or when returning to work) to initiate and/or maintain their lactation and to feed their babies optimally.</p>
6	Give newborn infants no food or drink other than breastmilk, unless medically indicated.		<p>Identify babies who require a managed approach to feeding and describe appropriate care.</p> <p>Know about the common complications of breastfeeding, how these arise, and how women may be helped to overcome them.</p> <p>Understand the limited number of situations in which exclusive breastfeeding is not possible and be able to support mothers in partial breastfeeding or artificial feeding in these circumstances.</p>
7	Practice rooming-in, allowing mothers and infants to remain together 24 hours a day.		<p>Understand why it is important for mothers to keep their babies near them.</p>

8	Encourage breastfeeding on demand.		Understand the principle of demand feeding and be able to explain its importance in relation to the establishment and maintenance of lactation.
9	Give no artificial teats or dummies to breastfeeding infants.		Be equipped to provide parents with accurate, evidence-based information about activities that may have an impact on breastfeeding.
10	Identify sources of national and local support for breastfeeding and ensure that mothers know how to access these prior to discharge from hospital		Understand the importance of community support for breastfeeding and demonstrate an awareness of the role of community-based support networks, both in supporting women to breastfeed and as a resource for health professionals.
5		Encourage exclusive and continued breastfeeding, with appropriately-timed introduction of complementary foods.	Understand the importance of exclusive breastfeeding for the first six months of life and possess the knowledge and skills to enable mothers to achieve this. Understand the importance of timely introduction of complementary foods and of continuing breastfeeding during the weaning period, into the second year of life and beyond.
6&7		Provide a welcoming atmosphere for breastfeeding families. Promote co-operation between healthcare staff, breastfeeding support groups and the local community	Understand the importance of community support for breastfeeding and demonstrate an awareness of the role of community-based support networks, both in supporting women to breastfeed and as a resource for health professionals.

The set-up cost of a facility achieving BFI accreditation is £446.300 (recurring costs of £329.300) which is recouped within a year [UNICEF/Renfrew 2012] not 15 years as previously thought [NICE 2006]. The UK has been particularly resistant to any increase in sustained breastfeeding rates; 34% of any breastfeeding at 6 months in 2010, an improvement from 21% in 1995 and 25% in 2005, but only 1% exclusively breastfeed to six months. During the first two weeks when the midwife is the key health professional breastfeeding rates drop from 81% to 69% [McAndrew et al 2012]. Attention therefore turned to pre-registration midwifery, to ensure fitness for purpose in infant feeding at qualification, with the launch of the BFI Education Standards in 2002. Their efficacy has yet to be explored to confidently promote their incorporation into midwifery curricula.

2.6 Curriculum development

The nature of curricula and particularly the development of the University of Nottingham programme to address BFI Education Standards [2002] is now explored. This University was part of the planning process for implementation of the standards and in 2008 became the third University to achieve accreditation for curriculum changes, delivery and assessment of student learning in breastfeeding. Barnes [2001] argues that no curriculum is valueless or neutral as it encompasses the desired aspirations for the students. Within midwifery there is the philosophy of 'with woman'/self actualisation [Maslow 1973] which emphasises the normality of pregnancy, the birth process and the postnatal period encompassing infant feeding [ICM 2002]. This philosophy is embedded in the University of Nottingham's curriculum.

Within a midwifery curriculum, clear outcomes have to be achieved to maintain standardisation and approval with the UK Nursing and Midwifery council [NMC 2009]. There are also the standards set out by BFI [Figure 5] which filled gaps highlighted by Freed [1996] and more recently Chen et al [2001] and Chiu et al [2003] that 'nursing' student's grasp of breastfeeding knowledge and application to practice were unsatisfactory. Lastly there are University expectations of programmes for which they grant awards.

Increasingly within health care settings a knowledge, skills and attitude framework has been adopted to support effective learning and application of theory to practice. Within breastfeeding literature it is known that,

"The professional's underlying knowledge and attitudes is a predictor of breastfeeding support behaviour" [Bernaix 2000 p203].

And further

"The perceived neutral attitude of hospital staff was related to early cessation of breastfeeding" [Di Girolamo et al 2003 p96].

Bernaix [2000] explored the intention of maternity nurses (n=48) in the USA and women's experience of their care (n=136) using an attitudinal and knowledge questionnaire test. She identified that 56% (p<.001) of the variance in supportive behaviour was attributed to knowledge, 29% and 16% to attitude. There was no additional training within this study and worryingly the nurses were relying on their personal knowledge validating women's views that nurses were not helpful in breastfeeding support. Maternity nurses are the key health care worker in the first week post birth and worse discontinuation and supplementation rates to the UK exist. Her subsequent study published in 2010 used a quasi experimental style and online training package with 236 nurses. Using univariate analysis the experimental group had significantly more positive outcomes for

knowledge and intention but limited change in belief or attitude. Wallace et al [2006] in the UK equally found it was easier to improve knowledge and skills. However, positive attitudes documented by other authors have demonstrated increased breastfeeding satisfaction and continuation rates [Renfrew et al, 2000; Sikorski et al, 2003]. More recently Whelan [2011] identified 25% of the GPs and nurses she surveyed were neutral or disagreed with the nutritional and immunological benefits of breastmilk. These were similar to Schanler et al [1999] in a study of paediatricians in which nearly half considered breastmilk and formula milk to be nutritionally equal. Spear [2005] testing baccalaureate student nurses in the USA following their infant feeding lectures and practice identified that 85% did not know that breastfeeding for one year was recommended, only 22.5% knew that breastmilk contained antibacterial cells, only 38.8% knew that increased frequency at the breast would increase supply, however, 61.3% identified that a correct attachment was the best way to prevent nipple trauma. Over a third of participants (41.3%) stated women should not breastfeed in public highlighting the importance of practitioner attitude. More recently Bernaix et al [2010] reiterated the role of knowledge and intention to support breastfeeding as important however she did not address the maintenance of skills. Waterstone and Tumwine [2003] also emphasised the ethical dimension associated with the economics and marketing of breastmilk substitutes for inclusion in curricula. Smale [2004] in the UK emphasised the need for knowledge and skill acquisition which was regularly reiterated and in 2006, Smale et al explored the challenges of implementing policy into practice. Ingram et al [2002] undertook a non-randomized prospective cohort study of 1400 breastfeeding women in the UK who had been taught a 'hands-off' technique to positioning and attachment of the baby at the breast by their midwife straight after birth which took on average 30 minutes. The outcomes for satisfaction in

feeding, maintenance of feeding at 6 weeks were significant as was reduced cessation. Butler et al [2008] exploring essential competencies of a midwife on qualification identified safety but also attitude and communication skills which will be returned to in the findings and discussion.

This curriculum has to be understood within the context of the changes to university midwifery education which occurred in the mid 1990's [The Briggs Report in 1972 [HMSO p14] UKCC 1986, Silverton 1994] revolutionising the student midwife's status from a salaried apprentice to bursaried and supernumerary. Fitzpatrick et al [1993] highlighted only 2% of the students' clinical time was supervised by their mentor and promotion reflected clinical abilities rather than critical thinking and implementation of research findings. This contrasted with the ethos of higher education summed up in the Robbins Report [1983]. Adaptation by universities was suggested, as the practical and nurturing aspects of the nursing/midwifery profession [McIntyre 1996, DoH 2007] could be eroded by the importance placed on scholarship and peer review [Barnes & Edge 1982], impartiality, innovation and research [Congdon & French 1995].

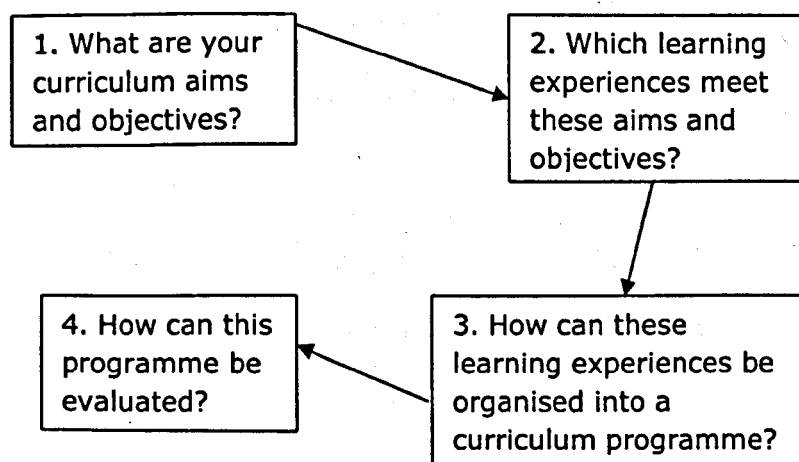
Hart [2004] suggested the curriculum had to balance the needs of the NHS, educational vision and financial resources, a position reiterated by the NMC-MINT findings [Fraser et al 2010]. The need of the NHS particularly focuses on a competency based curriculum [Holland 2001]. Students move from a novice to competent/proficient on qualification and onward to expert though not all who are competent will become expert [Benner 1984 & 2001]. The requirements of the university include an increase in University numbers, a diversity of gender, ethnicity, maturity and widening entry gates [NMC 2004] but also a reduction in attrition [Glen and Parker 2003]. These are not always congruent with 'fitness to

practice' on qualification. Delivery of the curriculum within higher education and planning an all graduate profession was found to be most affected by the demands of the service requiring a 'task orientated' rather than holistic skill set [Carr 2008].

Commissions for midwifery education are a mixture of instrumentalism governed by the local strategic health authority and academic concepts of a free thinking individual [Armitage et al 2001]. An educational philosophy therefore emerged followed by congruent teaching and assessment methods. Aristotle considered there to be three forms of knowledge; theoretical, productive and practical [Smith 2000]. Armitage et al [2001] considers four models of learning which link to Aristotle's concepts of knowledge;

1. Curriculum as a body of knowledge to be transmitted (syllabus) with chronology of information giving as key [Hirst 1974].
2. Curriculum as a method of achieving a product was developed by Bobbitt [1918] and later Tyler [1949]. It is one of the earliest models and believed by Tanner and Tanner [1980] to be the dominant model used in education today coinciding with the rise of scientific management [Taylor 1911]. Tyler's model requires four aspects for curriculum development (Figure 2) which are apparent in this curriculum [Appendix 2].

Figure 2- Tyler's model



Tyler [1949] uses the behavioural approach to learning but students remain passive within the process, overlooking group interaction.

Education is seen as a technical exercise and is concerned with competencies and measured outcomes reducing the autonomy of the teacher [Taba 1962].

Measurable outcomes may result in the breakdown of tasks to such an extent that it renders them meaningless. The regular use of simulation is an example of behaviourist schools [Reece and Walker 2000, Tyler 1971] which supports the maintenance of competencies [DoH 2001] to address the failures highlighted from confidential enquiries [Lewis and Drife 2001, CEMACH 2007]. Within the infant feeding context regular skills practice in 'hands-off' techniques of hand expression and positioning and attachment; sterilisation and reconstitution of formula milk are undertaken.

An incremental approach persists within the theory and practice of midwifery and clinical competency assessment. This parallels Benner's model [2001] as students are expected to develop from observers to skilled, competent practitioners who are then in a position to teach others as they move from level A to E (Figure 3). The latter is integral to the midwife's health promotion role.

Figure 3 - University of Nottingham midwifery clinical competencies

The student:

"Level A = Has observed the activity.....

Level B = Participates safely under direct supervisiondiscuss theory and practice....

Level C = Is able to perform accurately and safely with appropriate supervision from a skilled practitioner. Using ...research evidenceselects appropriate strategies to meet individual needs....

Level D =Is competent to carry out the activity accurately, safely and reliably under indirect supervision. ...ability to critique...and apply research findings to practice. Evaluates....care delivered, reflects upon practice and initiates ..changes.

Level E = Is confident in level of knowledge and ability to teach colleagues. [University of Nottingham DM3601 p3].

3. Curriculum as process

In contrast this model highlights process and procedures of learning to develop the student's ability to engage with the subject matter using concepts and principles [Stenhouse 1975, Smith 2000]. The teacher is more autonomous but outcomes are less uniform between and within student groups. Process is lost in outcome driven assessments.

4. Curriculum as praxis

The curriculum as praxis is an extension of the process model with informed and committed action, *praxis*, rather than just thinking; action is the consequence of learning within the cultural context [Grundy 1987]. Therefore, concepts of values/ethics within a corporate understanding begin to be considered such as health promotion, economics and marketing of breastmilk substitutes within a global context. Cornbleth [1990] however argues that the context is still not sufficiently accounted for within clinical learning, the 'hidden curriculum' which positively or negatively impacts. Tensions between nursing values negatively affecting the ideal of an autonomous midwife remain [Ho 1989].

Teaching methods are dependent on pedagogical and andragogical approaches to learning.

"Educators can no longer make "deposits" of knowledge into students and adequately prepare them for a professional future"
[Rideout 2001 p119].

Lindeman [2000] states that,

"at the present time most of the nation's education programmes remain orientated to prepare individuals for yesterday's health care system and not for the demands of the new health care system"
[p9].

The decision on curriculum philosophy and methods needs to be congruent with the expectations and learning styles of the students. Andragogy is the method by which adults learn [Knowles 1970] with gestaltist, cognitivist and humanist approaches [Reece and Walker 2000].

The gestaltist starts with the overall picture which is then broken down, with patterns and links developed by the learner. This requires drawing on previous experiences which mothers within our student population do.

The cognitivist focuses on how learners receive and organise knowledge so are 'learning to think' which problem based learning particularly addresses [Dewey 1993, Foyle 1999, Boud & Feletti 1998]. The teacher becomes a facilitator in discussions and reflection from which new concepts and principles emerge. Schön [1983] describes reflection-on practice and reflection-in practice. This occurs within the infant feeding curriculum at the beginning of each teaching period by relating 'The Ten Steps' to their practice experience reflecting-on practice. Midwifery students are encouraged to reflect-in and on practice throughout their programme [Johns 1995, 2009] as recommended by Ekstrom et al [2005] to encourage a process model of learning in infant feeding. However, reflection can result in disturbing insights [Taylor 2000, Duke and Copp 1994] and is dependent on their clinical mentor.

The humanist view stresses the facilitative role of the teacher in maximising the learner's potential. The learner follows a programme at their own pace and in their own direction. Role play and simulation are key and affective domain objectives can be more readily incorporated. Role play in infant feeding training examines information giving and the style and attitudes associated with that encounter. The use of training objective simulation clinical examinations, based on real scenarios, ensure the learner draws on knowledge from various subject areas known to prevent compartmentalisation [Cullen 2000]. The humanist approach to

time and pace unfortunately cannot be adopted when students are expected to attain a certain level within a fixed timetable. An andragogical model encourages the learner to become self directed and lifelong learners [Mezirow 1981], which is a professional and government requirement [DOH 2001, NMC 2006].

Midwifery students are over eighteen years old but embrace andragogical approaches to varying degrees [Kerka 1994, Holmes and Abington-Cooper 2000, Rideout 2001]. Alligood [1997] identified stages through which nurse/midwifery education has travelled which could also influence the learning and teaching style of clinical mentors.

- 1920's - the curriculum era using an apprenticeship model.*
- 1950's - the research era*
- 1920 - 80's - the graduate and theory era.*
- 1990-2000 - the evidence based practice era using literature search and critical appraisal. [Alligood 1997]*

Pedagogy and andragogy probably exist at either end of a continuum [Knowles 1980]. A variety of teaching methods are implemented depending on the domain [cognitive, affective or psychomotor], style and stage of a course, ability of the student and level of learning required.

A crucial element in the equation is the learner's preferred learning style [Honey & Mumford 1986]. Kramlinger and Huberty [1990] argued there is a link between learning styles, theories of learning and teaching strategies. They concluded that humanist methods answered the 'why' questions, the cognitivist the 'what' questions and the behaviourist the 'how' questions. Therefore, when planning a programme of learning, the product and operational environment have to be considered. Tompkins [2001] considered that the twenty-first century nurse/midwife requires an education incorporating moral reasoning and ethical values with technical



and intellectual capability. Ferguson [1997] adds adaptability, an observation ahead of the times.

This requires a midwife to be technically competent and confident to adapt in a fast changing environment. The processes of critical analysis, reflection and self assuredness are crucial for their future effectiveness but requires a self directed model of learning. The incorporation of research evidence into practice is fundamental to a modern midwifery service. This was a primary consideration when developing the University of Nottingham's midwifery curriculum in 2006 which included the BFI Education Standards [2002].

2.7 Development of the Nottingham Midwifery BFI education curriculum

Discussion with UNICEF UK in 2004 revealed the curriculum in use (Appendix 2) fulfilled most of the objectives (Figure 1, Appendix 1) required for accreditation with a knowledge, skills and attitude framework adopted. Force field analysis (Figure 4) indicated it was an appropriate time to forge ahead with new developments.

Figure 4 - Force field analysis of the adoption of the BFI curriculum

Driving forces 	Restraining forces 
Re-structuring of the curriculum (46+hours) Revalidation New degree programme 3 motivated teachers with UNICEF training Support of the Head of Division Some Trusts had achieved BFI status	Time Conflicting priorities Resource allocation This was the 1st cohort on a new curriculum Most Trusts were not considering BFI accreditation

The University of Nottingham achieved the award for both the 18 month and 3 year programme as follows;

- Stage 1 and Certificate of Commitment August 2007 - At this point all aims and objectives for each session and lesson plans are mapped and detail content of each submitted. Some content is covered within other modules such as counselling skills. A signed letter of support from the head of department is also required.
- Stage 2 Assessment December 2008 – Students in their final year following all the content are individually assessed face to face by external UNICEF assessors on their skills and underpinning knowledge. 80% of students have to answer successfully for the accreditation to be achieved. The cost is around £2,000 for each full assessment.
- Successful re-accreditation occurred in 2011
- The next reaccreditation process will be December 2014

It was agreed that no specific module should be allocated to infant feeding as its philosophy spanned the whole curriculum. Modules already covered communication (Psychosocial module), anatomy of the breast and physiology of lactation (Biology module), neonatal care (Applied biology module) and application in the clinical environment (Practice module).

Within the curriculum development of knowledge/theory, skills and attitude were considered with clear outcomes/competencies to be achieved and reflections expected by students. The style of delivery incorporates didactic teaching, practical and praxis methods.

The **theoretical** component for the three years takes the student from the normal to common challenges then complex feeding scenarios.

- Year 1 – Essentials in infant feeding
Practicalities of infant feeding
- Year 2 - Evidence based practice - complications in infant feeding
- Year 3 - Infant feeding workshop
Challenges in infant feeding

In each year the students are expected to achieve their clinical competencies to the required **practice document** level B (year1), C (year 2), D (year3), E (optional year 3). Some may choose an infant feeding scenario to reflect upon too. This document also identifies particular skills that students have to undertake within each of the three years (Figure 6, Page 25).

Students maintain a **record of clinical skills**. The infant feeding descriptors included in each of the following were amended following an audit of student completion at the end of 2007. These include breastfeeding competencies (40), breastfeeding difficulties (10), care of babies requiring special care (10), personally managed labours (40), at 'risk cases' (40) and postnatal care of mother and baby (100) (Appendix 2).

Ten detailed **breastfeeding observations** are required over the 3 years using the provided recording tool.

The numbers of opportunities identified within the record of clinical skills were used as part of the documentary evidence within this study.

2.8 Role of the mentor

Practice based competency model assessment requires clinical mentors. All midwifery programmes are required by the regulator [NMC 2009] to have at least a 40% theoretical component and 50% clinical component. The clinical component is managed and assessed by midwife mentors.

Supervision of practice for qualified midwives has existed since the 1902

Act [McIntosh 2012] with a guiding, advisory and counselling role [Hallsworth et al 2000].

Search terms employed using the University purchased data bases and hand searches included, 'mentor in nursing and/or midwifery', 'the role of the mentor in nursing and/or midwifery', 'mentor as assessor in nursing and/or midwifery' and 'mentor as a role model'. Textbooks on mentoring were a resource for the broad concepts. Midwifery mentoring and breastfeeding identified little of relevance.

Mentoring in pre-registration midwifery has come to the fore since the move to higher education and a more andragogical learning approach [Minns 1995, Sundli 2007]. Burnard [1988] highlighted that just placing students within the clinical environment did not guarantee learning.

However, no consensus exists as to the role of the mentor [Jones 2005].

Within the literature mentoring can be seen as a 'helping process' [Caruso 1990, Stanulis & Russell 2000], a teaching-learning process [Ardery 1990], as an intentional, structural, nurturing, insightful process developing in steps but not necessarily in series [Roberts 2000, Awaya et al 2003].

The ENB [1989] defined a mentor as someone who assisted, befriended, guided, advised and counselled students but no formal supervision or assessment was expected. By 2001 a mentor's role included assessment [DoH 2001] an element poorly acknowledged by both mentors and mentees [Bray & Nettleton 2007].

"Midwifery mentors perceived the roles of facilitator (30%, n = 9) and teacher (23%, n = 7) to be the most important parts of their role. There was poor recognition of the role of assessor amongst midwifery mentors, with just 7% (n = 2) regarding assessment as the most important aspect of their role..... The roles of teacher (48%, n = 14) and supporter (28%, n = 8) were chosen as important, assessment was not rated at all in responses from mentee midwives" [p851].

Assessment is not perceived as a mentors' role and arguably should not form part of mentorship as it undermines the relationship and creates a conflict of interest [Bayley et al 2004]. This appears particularly so when students are failing and advanced counselling skills are called into play [Cassidi 2009]. Duffy [2003, 2004] highlighted the importance of procedure within a failing scenario when often weak students were given the benefit of the doubt in the hope that they would improve as they matured through the programme. Moral dilemmas exist when faced with failing students and therefore preparation and support are required from education and practice. Further, Webb & Shakespeare [2008] found that judgements on students' competence were made on a relatively subjective basis.

"Good mentoring' depended on students building a relationship with their mentors, and undertaking a great deal of 'emotional labour' to convince mentors that they were 'good students' in terms of attitudes as well as clinical competence" [p563].

Carr [2007] found clinical placements a weak link in delivering an effective pre-registration curriculum due to: poor nursing competencies, the need for clinical educators, poor role modelling and overwhelmingly poor mentorship. The role of mentors is variable [Roberts 2000; Jones 2006] and students are often regarded as apprentices. Role modelling becomes an integral part of that process.

Bluff & Holloway [2008] argue that role modelling can be learning behaviours specific to a role [Jung 1986] or teaching by example [Ficklin et al 1988] that reinforce and perpetuate certain models of care. Hargreaves' [2006] considered that theoretical models are over ridden by practice expectations of character and behaviour.

Regular update for practicing midwives and evidence based practice supports positive role modelling [Hannula et al 2008]. BFI expect yearly updates of clinical staff once accredited. Encouraging students to reflect and develop analytical skills supports the adoption of values, behaviours and thinking that optimise evidence based practice [Fowler 2008, Lopez 1983]. The importance of mentors embedded within a BFI philosophy to positively role model breastfeeding support and knowledge is crucial and expected in a BFI accredited unit. However, not all students are allocated practice in BFI accredited units.

2.9 Influences on evidence based practice in infant feeding

There is evidence that newly qualified midwife's practice in infant feeding is influenced by a variety of factors: the theoretical curricula, their clinical experiences under mentoring and previous personal experience [Dykes 2006 & 2006a, Pollard 2010]. The University has direct influence over the curriculum and its delivery. The effect of personal experience is very powerful as embodied knowledge is the motivator for actions taken [Dykes 2006]. However, there is also the professional role of the midwife. Within the curriculum, issues of role, accountability and health promotion are addressed [Raynor et al 2005]. The University has a more limited role within the practice setting although continued delivery of programmes is dependent on the NMC inspectorate satisfying itself of the suitability of practice areas to deliver appropriate and contemporary maternity care and mentorship. Regular practice audit is instrumental in this process. It was therefore important to set minimum expectations for opportunities students were expected to gain within the practice document and record of clinical skills. Midwife teachers working clinically can directly and indirectly influence patient care and policy [Personal link role on a postnatal ward, attendance at a Trust's Infant Feeding Implementation Strategy Group and

Regional Breastfeeding Meetings]. UNICEF UK audit clinical areas that are BFI accredited though many students are placed in non-BFI accredited units [Reddin et al 2008]. The extent to which this is important when compared to the curriculum or personal experience and what measures may be required to create a positive outcome require exploration.

Nevertheless, learners can be instrumental in the adoption of evidence based practice and powerfully influence the practice setting [Moch 2010, Cronje 2010]. Within the described action research project joint practitioner-learner meetings occurred with learners tasked to share their IT and literature searching skills to evidence, practice dilemmas identified by practitioners.

Within the UK there is no published evidence, either from UNICEF or other Universities, that implementation of the BFI Education Standards has a positive outcome in the support that midwives give women and babies on breastfeeding initiation and continuation rates [Pollard 2010]. This study explored the adoption of evidence based infant feeding competencies into clinical practice. This evidence is required if the investment of time and finance by the University to incorporate and continue development of the curricula to UNICEF [UK] BFI Education Standards is to be justified.

2.10 Summary

This chapter explored the incorporation of BFI Education standards into the University of Nottingham's midwifery curriculum with supportive educational philosophies and theories. The prelude to the standards including; the importance of a breastfeeding population for the health of individuals, the economic improvement of a nation, the role of the midwife in supporting women and students and the success of BFI accreditation within hospitals to enhance a breastfeeding population were explored. The

above was described to enhance understanding of subsequent chapters, though the focus here is the implementation of the Education Standards.

This study therefore aimed:

To explore what factors influence student midwives' competence and confidence most when incorporating UNICEF UK Baby Friendly Initiative (BFI) Education Standards to support breastfeeding in clinical practice.

The objectives were:

- To identify factors that facilitate and inhibit student midwives promotion and support of breastfeeding over the period of their programme.
- To compare and contrast the influence of different learning environments on students' application of BFI Education Standards in clinical practice.

The methodology and methods used to explore and gain answers to the study's aim and objectives are developed in Chapter 3.

Chapter 3 – Methodology and methods

3.1 Introduction

The introduction of BFI Educational Standards into the University of Nottingham's midwifery curriculum created a need to evaluate its effectiveness in developing competence and confidence in student practice. The initiative was costly in terms of financial outlay for the university and the time spent by staff and students in its implementation and assessment. Any changes to a curriculum have to be argued against competing demands from stakeholders and hence an initiative such as this required robust evaluation. This chapter begins by discussing how the research methodology of case study was determined. An overview of case study for education evaluation is presented next and is followed by the arguments for single versus multiple case study. The next section deals in depth with recruitment and ethical issues and is followed by the research techniques used to collect and analyse data.

3.2 Methodology

In the 1970s there was a shift in education evaluation in schools from a mainly positivist tradition to more qualitative research design [Stake 1967, Parlett and Hamilton 1972]. In 1982 Cronbach argued that contextual factors influence programmes and that experimental designs do not allow for these variables. In the health sector, particularly medicine, there remains a tendency to favour positivist or experimental research designs. It is usually associated with empirical/natural sciences where a concept of universality of application across time and space is expected. Objectivity is achieved by randomisation and control of the variables. Replication of findings is assumed and the personal characteristics of the researcher are irrelevant as a neutral position is presumed [Benton and Craib 2001]. Deductive reasoning is used within this paradigm. Therefore a theory leads

to an hypothesis followed by the collection of data/observations and finally confirmation or not, of the original theory. In contrast, the qualitative paradigm uses an inductive framework, moving from the specific to the general. Observations are made in situ, followed by pattern recognition and in some cases, the creation of a tentative hypothesis and ultimately a theory. Because of the nature of human interaction, the impact of the researcher can be more overt. It is therefore crucial that the research design has a 'logical model of proof' to safely make conclusions from the data collected [Nachmias & Nachmias 1992].

Dewey is rather scathing of researchers posturing to have found 'the solution' [in Delanty & Strydom 2003]. Dewey continues that judgements are made along the social research process as to which pieces of data are to be incorporated and which carry more substance in a way not experienced by the natural scientist. Methodology and methods need to be explicit to guard against unwitting manipulation of data and imposition of prejudice. The inability to find one fixed law does create problems producing recommendation for practice.

A direct cause and effect paradigm would be inappropriate to evaluate this curriculum innovation for the following reasons;

- The student, midwife mentor, woman and teacher have personal and/or vicarious knowledge of breastfeeding.
- Standardised theoretical and skills teaching only occurs in the classroom.
- Practical/in vivo experience occurs within the clinical environment where the variables include the woman, her baby and extended family, the midwife mentor and the clinical and ethnic culture of breastfeeding.

One hypothesis could be that a student's positive personal, vicarious, theoretical and clinical exposure to breastfeeding would increase the woman's positive breastfeeding experience because of the student's application of BFI theory into practice [Bernaix 2000]. However, controlling for the other variables to prove direct cause would be impossible. Whilst the educational end product is important there are other factors that must be considered.

The holistic approach of naturalistic evaluation, described as 'illuminative' as long ago as 1972 [Parlett & Hamilton] appeared particularly appropriate to the holistic model of midwifery. Consideration was also given to using a combination of approaches [Cresswell & Plano-Clark 2007] but the ability to replicate in quasi-experimental designs would not have been feasible given the variety of contexts in practice placements and the range of students and mentors. Instead it was more important to try to understand the complex educational context as it exists for each student.

A research approach was therefore sought which enabled the context in which the midwifery programme was delivered to be captured, was responsive and evolved during the programme of study. Case study was considered to fulfil these requirements [Gillham 2000].

3.3 Case Study

Case study focuses on one event [Denscombe 2008] examining the 'when', 'how' and 'why' in context/situ and the researcher having little influence over proceeding [Yin 2003]. The 'event' of this study was the introduction of BFI Educational Standards. The University of Nottingham adopted these standards in 2005. Within the UK no published study had explored the effects of this curriculum initiative to student midwife outcomes in the

practice setting. Stake [1989] emphasise choosing an 'extraordinary' case which applied here. The investigator had limited control over practice implementation as students had midwife mentors in acute and community settings to facilitate their learning and assess their competencies [NMC 2008, 2009]. The use of case study allowed for in-depth exploration of relationships and processes to unpack the complexities of a given situation. Denscombe [2008] asserts "*case studies tend to be 'holistic' rather than deal with 'isolated factors'*" [p36], and are not restricted to outcome measures only. Multiple sources and methods of investigation enabled triangulation on various levels which is recommended. Yin [2003 p97-105] considers three principles of data collection important in improving the validity and reliability of a study namely:

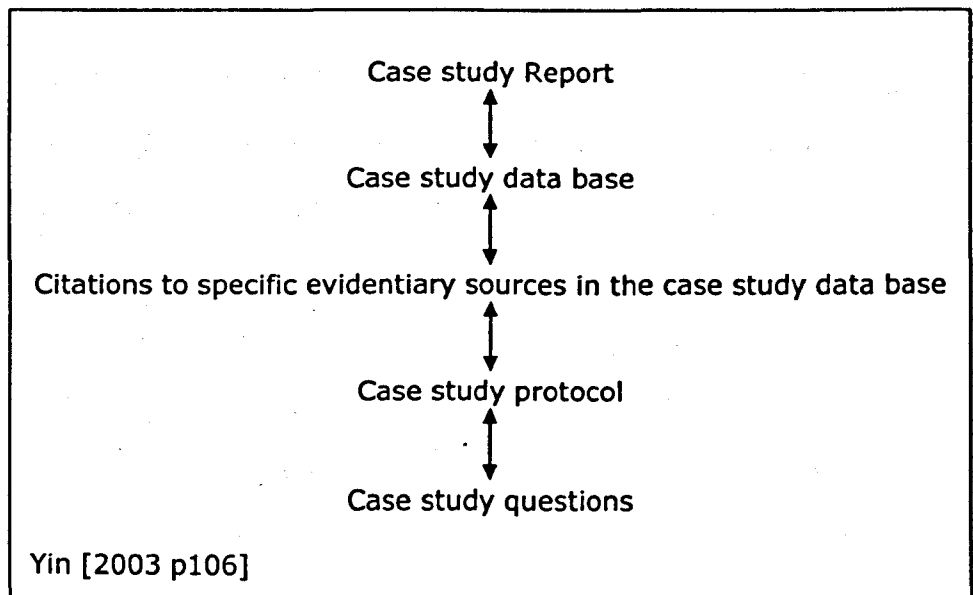
- the use of multiple sources of evidence,
- creating a case study data base and
- maintaining a chain of evidence.

The use of multiple sources of evidence in case study allows the researcher to consider historical, attitudinal and behavioural issues with a key advantage of 'converging lines of enquiry' [Yin 2003 p 98]. Patton [1987] considers four different forms of triangulation; data, investigator, theory and methodological. Denscombe [2008] further delineates time and space within data triangulation. Yin [2003] considers true triangulation requires corroboration from more than one data source which occurred in this study.

Yin [2003] supports the separation of the case study data base and reports as a method of always being able to return to the full data set rather than those chosen for a particular report. This was implemented within this study. Each data set was kept and analysed independently prior to cross analysis within and between sites and participant groups. Thirdly a clear chain of evidence from conception to the finished report and between the

various stages allows for transparency of validity and reliability as demonstrated within the methodology, analysis, findings, conclusions and recommendations chapters (Figure 5).

Figure 5 – Chain of events from study question to report



Although Yin [2003] stresses the unique or particular instance of case study, it is possible that other midwifery education providers will be able to relate the findings to their own situation. It was therefore hoped that there would be features, issues or problems common to a range of settings. This led on to a decision about whether the study should comprise a single or multiple case study.

3.3.1 Single versus multiple case study

It could be argued that as one curriculum is being studied then it is a single case. The relative uniqueness of a BFI accredited curriculum could justify its individual exploration within a longitudinal timeframe [Yin 2003 p45-46]. However the students receive 50% of their education programme in practice placements. Each student in a cohort in Nottinghamshire and Derbyshire is allocated to one of five maternity units and their surrounding communities suggesting a multiple case study approach. Yin [2003]

considers multiple case studies to be more robust and more resistant to deviations from the initial study question. The comparisons and similarities within the multiple cases studies allows for greater confidence in findings and generalisability [p47-53]. He distinguishes this from multiple sampling and discusses the relative importance of sample size. As a teacher of infant feeding I was aware that each maternity service provider had their own organisational culture which included differing levels of commitment to infant feeding training. CS1 and CS2 were exploring BFI accreditation at the beginning of the study, CS4 had had a certificate of commitment for 2 years, CS5 clinical BFI accreditation for 4 years and CS3 accreditation for 8 years (Table 7). Given the differences in context which are further identified in Table 7, especially whether the unit was BFI accredited, and mentor/student pairings it was believed essential to consider each practice placement site as a case study. The final grouping that could be applied and data was collected for this analysis to be possible was mother and non-mother.

In this study a variety of methods of data collection were employed namely: questionnaires, individual interviews and documentary evidence at 6, 18 and 30 months from students and mentor questionnaires and individual interviews at each point.

Details of recruitment, methods of data collection, using a framework adapted from Denscombe [2008], and analysis techniques now follow.

Table 7 – Key infant feeding features of the case studies (see glossary of abbreviations)

Case Study	Number of students allocated	Classification of unit	Number of births per annum [Birth choice UK 2011]	Average % birth types [Birth choice UK 2011]	Neonatal facility [Trent neonatal survey 2012]	BFI accreditation	Infant feeding advisor	BF initiation rate % [EMPHO 2010 by PCT]	Totally BF 6-8 weeks % [EMPHO 2010 by PCT]	Partial BF 6-8 weeks % [EMPHO 2010 by PCT]	No BF 6-8 weeks % [EMPHO 2010 by PCT]
1	7	Tertiary referral unit	4600	NB 42.9 OPDel15.2 LSCS 22.5	Network neonatal unit	Stage 1 -2011	1990-2005 1x FTE, 2009 -1xFTE between CS1 & CS2	71.2	33.2	12.7	53.9
2	9	Tertiary referral unit	5700	NB 44.9 OPDel15.9 LSCS 18.6	Network neonatal unit	Stage1 -2011	1995-2008 0.6 xFTE	69.4	27.7	10.1	59.0
3	9	District general	5900	NB- no data OPDel15.7 LSCS 23	Local neonatal unit	Accredited since 1998	1998 1.6 xFTE	75.5	26.3	10.1	59.5
4	3	District general	3300	NB- no data OPDel14.4 LSCS 17.1	Local neonatal unit	Accredited in April 2012	2008 1xFTE	68.2	27.1	10.9	60.4
5	4	District general	2900	NB 48 OPDel 9.6 LSCS 22.2	Local neonatal unit	Accredited since 2002	2000 - 2010 1xFTE	72.3	33.5	7.5	59.0
UK statistics Mc Andrew [2012]								81.0	23.0	32.0	45.0

3.4 Recruitment

Details of the study aims and objectives were identified in Chapter 2. The study explored the application of the BFI curriculum into clinical practice including factors that would support or hinder the process of learning.

The complexity of student learning and achievement required the collection of data from students, their mentors, relevant assessment outcomes and documents over the course of the three year programme. To ensure no coercion took place a generic flyer advertising the study was circulated to clinical areas, the Academic Division of Midwifery and by e-mail through the relevant management systems. University of Nottingham midwifery students were recruited from a September 2009, three year pre-registration cohort which has on average 35 students. The BFI curriculum was therefore embedded, expected and documentation familiar within practice as it had been in circulation since 2005.

The students were approached by their intake leader who explained the purpose of the study and issued an Invitation letter and Participant Information Sheet allowing time for consideration and questions.

Students who had been recruited identified their midwife mentors who were subsequently sent an Invitation letter, Participant Information and Questionnaire-1 via internal mail or link teachers. The researcher was available via telephone or e-mail for questions the mentor had about the study. Repeat information was sent via the postal system or link teachers with an e-mail reminder.

The number of students varied slightly due to interruptions and re-starters from previous cohorts. Mentor numbers increased as students were rotated round new clinical areas and had different mentors.

The first data collection point was at 6 months allowing for a period of embedding into the teaching period. Data were then collected at 18 and 30 months into the programme to gain discreet perceptions of each year and following university infant feeding input. The time lag allowed for the impact of the teacher within the university to be minimised and allow for reflection and balance between theory and practice input. A practical time consideration of student and mentor availability and follow up was included. Students and mentors were advised that the study involved completion of questionnaires at these three time points. Samples of student/mentor pairs would be compared if possible over the three years to explore individual development of students. Consent was also requested from students to collect relevant assessment and practice learning data.

3.5 Ethical considerations

Ethical consideration was two-fold. Firstly the research required ethical approval through the National Research and Ethical Service (NRES) and Research and Development (R&D) approval from the University and each NHS provider Trust (Appendix 4). Verbal and written communication from the relevant managers confirmed their agreement for their staff or students to be approached once ethics and R&D approval had been received for each of the five NHS Trusts involved. One of the local PCT executive managers' acted as the external referee for the study (Appendix 4). A contract for access to Trust premises was issued where not already available.

Consent forms, codes and data collections were stored separately in a locked filing cabinet in a University office on NHS premises. The data was available for scrutiny by review bodies and accessed only by the researcher

and academic supervisors. The coded data was then allocated a name to further distance the data from the participant for publication.

Secondly anticipation of ethical dilemmas and practical problems for an insider/researcher had to be addressed. The ethical principles of beneficence, non-maleficence, justice and autonomy, guided the design and conduct of the study. The impact of the teacher also being the researcher was considered throughout the study. Insider research can provide depth and richness as emergent themes are more readily recognised [Hewlitt-Taylor 2002]. Concern that objectivity of data collection and analysis may be lost by the researcher [Darke et al 1998] is negated by Mercer [2007]. Both supervisors were used to corroborate themes. One not being a midwife challenged embedded understandings and assumptions. Personal reflexivity was also used to reduce the 'insider' effect. None of the students within the study were my personal students. Any concerns identified in interviews by students would have been referred to their personal teachers, mentors or supervisor of midwife with their consent and the interview curtailed.

Written informed consent (Appendix 4) was confirmed prior to entry into the study for questionnaire, interview and documentary evidence to be requested and used. It was made clear within the covering letter and participant information sheet that consent was voluntary and that they could withdraw at anytime should they wish to without consequence. Mentor recruitment was only through the researcher. Participants were identified using a unique study code and subsequently pseudonyms in published documentation to increase anonymity.

Questionnaires were collected by return to the researcher's university office in prepaid envelopes or directly into a sealed identified box for the investigator only to open and code. Confidentiality was assured from the researcher but there could be recognition by participants of their own words and disclosure.

One to one interviews were conducted in private on Trust or University premises, within normal working hours at the participant's choice of location and tape recorded with the consent of the participant. One mentor chose her home for interviews.

Revisited unresolved feeding issues could become upsetting requiring referral to appropriate colleagues; this had been anticipated. Many however, found the process cathartic with no adverse reactions identified.

The intimate nature of breastfeeding discouraged the use of observation as a third person within the therapeutic environment may have been unethical. Effective information gathering would have required long periods of observation and many pairings and still only partially addressed the study's aims and objective.

3.6 Data collection

In line with the recommendations of Yin [2003] data collection included questionnaires, interviews and documentary analysis. Observation was not included for the reasons explained above. Table 5 (page 48) summarises the data collection tools used.

3.6.1 Questionnaires

The nature and usefulness of questionnaires, postal or electronic, is widely debated and in practice many are semi-structured [Denscombe 2008].

There is no absolute acceptable percentage response rate as it is

dependent on the nature of the survey/questionnaire but a 'rule of thumb' appears to be around 60% [Johnson 2012]. Edwards et al [2002] following a systematic review identified a stamped addressed envelope for returns, personalised letter and follow up, interesting format for the questionnaire and university led studies improved response rates. These were used in this study. Other factors such as incentives, short questionnaire and insensitive subject were not possible to incorporate. Denscombe [2008] adds the social (organisational) climate, something the researcher could not control.

Table 5 – Summary of data collection methods

Data collection method	Why beneficial	How undertaken	Who from
Questionnaires	Provides demographic information and baseline information for discussion/clarification in interviews.	Coded and sent to participants for individual and confidential completion.	Mentors and students at each data collection point
Interviews	Clarification of understandings from the questionnaires and development of new lines of enquiry.	In a private space convenient to both parties and tape recorded.	Mentors and students individually
Record of Clinical skills (RCS)	Provides a record of clinical exposure which application which are recorded contemporaneously, signed by mentors and a requirement of NMC registration	Photocopies of the RCS were made at each data collection point and correlated personal code assigned	Students
Examination question in the biology module	Provides an indication of theoretical knowledge gained	Results provided by moderators for participating students only and project code assigned.	Students

A pilot questionnaire was used with personal students and the mentor questionnaires with qualified mentors known to me through my clinical links. The associate researcher within the Division of Midwifery and my two

supervisors were consulted and a final questionnaire agreed. An A5 booklet was created with a themed logo on the front which linked all the pieces completed by the participants and flyer.

The semi-structured questionnaire was designed to include demographic data and free text to capture participants' understanding and opinions. This allowed previously unconsidered themes to emerge. Questionnaires were coded to maintain anonymity and subsequently pseudonyms given to quotes to reduce the impact of the researcher on the findings. From the 'original' data base the facility remains for linkage of mentor-student pairs.

Questionnaires sent to students at six months into the programme collected:

1. Demographic details including their status as a mother or non-mother
2. Information on infant feeding knowledge, skills and attitude prior to commencing the course and
3. The students' understanding of the appropriateness of the theoretical knowledge to practice implementation within the programme so far.

Information on point 3 was requested again at 18 and 30 months. Reaction to vignettes from an article by Cloherty et al [2004] formed part of the third and final questionnaire.

Questionnaires were issued around the same time to midwife mentors of the students using similar lines of enquiry. Some identical questions were asked at each data collection point as continuity of mentor was not guaranteed.

Students were sent reminder requests for completion of questionnaires and duplicate hard copies were provided if requested. Questionnaire responses were transferred to a word document to allow for collation and merger of answers and themes within the categories of mother, non-mother, year of study and cases study site. There was no pre-determined number of mother to non-mothers required but the impact of that status on attitudinal change was worth consideration.

Mentors were sent a second hard copy of relevant information and a subsequent e-mail reminder.

Non-response rates are known to increase with the complexity of the questions, expectation of participant opinion, the length of time required for completion, nature of contact and organisational culture. The acceptability of a response rate for questionnaires is dependent on the nature of study but a very low response rate calls into question the reliability, validity and transferability of the information gained [Biersdorff 2009, Johnson 2012]. Another major difficulty is the researcher cannot verify the truthfulness of the data collected [Denscombe 2008 p171]. Therefore interviews were used for corroboration and expansion of themes.

3.6.2 Interviews

Interviews were necessary to clarify understanding, corroboration of information and development of themes. Participants consented to discuss a particular topic 'on the record' under the direction of the researcher [Denscombe 2008 174]. Interviews are particularly useful in eliciting opinions, feelings, emotions and experiences, exploring sensitive issues and gaining privileged information [Denscombe 2008 ch10 p202-203]. Semi-structured interviews allow the conversation to follow the direction the participant wishes to develop [Geertz 1973] and be alert to meanings

within the conversation [Rubin and Rubin 2005]. Themes develop rather than theories tested [Dingwall 1997, Silverman 1993] which guards against re-enforcing preconceived ideas [Clarke & Iphofen, 2006]. The longitudinal nature of the study allowed for iterative development of ideas and concepts.

A semi-structured interview was chosen to allow for certain topic areas to be addressed but also allow the participant to share relevant information that may not be naturally covered within the line of questioning [Yin 2003].

The role of the researcher within interviews is crucial to their ability to obtain sufficient relevant data. Ideally the personal stance of the researcher is not known to the participants and a neutral position is adopted when the interviews are conducted. As a teacher of infant feeding my personal stance was known to all participants but another teacher to reduce bias or coercion was not possible.

Effective interviewing skills are: an attentive interviewer, sensitivity to the feelings of the participant, an ability to tolerate silences, being adept at using prompts, probes and cross checking and adopting a non-judgemental attitude [Denscombe 2008]. Although my communication skills had developed through my professional role as a nurse, midwife and midwife teacher, those needed by a researcher can be different. Both direct questioning and counselling skills were required at different times. Denscombe [2008, pp202-203] cautions that whilst interviews can yield a depth of information and help the researcher gain important insights, they can be very time consuming and the interviewer effect has to be considered. Practice interviews were therefore conducted by the

researcher with colleagues to become familiar with the equipment and discursive style of interview.

Initially the piloted interview schedule was used but it was quickly identified that students, particularly in year 1, needed clarification of the questions asked. The expected outcomes of the 'BFI Ten Steps' in practice (Figure 1, page 17) were therefore used and systematic questions on how they considered these were being fulfilled and support received to achieve theory–practice links. For example, for Step 3 (inform all pregnant women of the benefits of breastfeeding) my questions surrounded information giving during antenatal appointments, associated documentation, what parent education was available and their involvement, followed by, the role of the mentor and university lectures in supporting their clinical learning.

The use of clinical opportunity was an acceptable vehicle to discover learning. A similar process was used with mentors, followed by their mechanisms for supporting and assessing students.

The revised interview schedule was anticipated to elicit better clinical information on facilitation and implementation of breastfeeding support in practice.

The interviews were tape recorded to improve accuracy and allow revisiting of the material. This also allowed the investigator's full attention to be directed to the participant responses within the conversation. Verbatim transcription was undertaken as soon after the interview as was practicable initially by the investigator then outsourced, made possible by funding from the East Midlands Regional Breastfeeding committee. There was verification of a sample by my supervisors. A total of 70 interviews were conducted over the 3 years with some lasting over an hour.

3.6.3 Documentary Evidence

Documentary evidence is a source of information commonly used within case study [Yin 2003]. Data in this form are generally stable, unobtrusive, exact and have a broad coverage. However, access can be problematic, retrievability low, and there can be bias in selection of the original reporting. Denscombe [2008] adds that it is cost effective but the evidence is secondary and may not provide an accurate picture of reality but of social construction.

Three forms of documentary evidence were drawn upon for this study. Information about each case study site's policies and guidelines about infant feeding were available to the university for teaching purposes and readily accessible. Student records of clinical skills [Record of clinical Skills booklet (RCS)] provided quantitative practice data. In particular, key categories pertaining to BFI clinical standards added as part of the curriculum changes, were used for each student's experiences over the three years from: the breastfeeding competencies (40), breastfeeding difficulties (10), care of babies requiring special care (10), personally managed labours (40), 'at risk' cases (40) and postnatal care of mother and baby (100). This therefore creates a substantial number of entries per student and per case study site. Students record events contemporaneously which is signed by the designated mentor, providing confidence in the accuracy of the recording. This document is provided as evidence to the NMC of the student's clinical capabilities. However, it was not specifically designed for the research project so variation in completion has to be acknowledged. Collection of record books corresponded with questionnaire and interview points. Students' RCS books were photocopied, coded at source and immediately returned to them. The day chosen coincided with scheduled University lectures or an agreed convenient date for interview. The RCS data was a reliable source of

student activity and sections had been inserted as part of curriculum development to enhance student learning opportunities and expected outcomes. Detailed completion however, did vary between students and case study sites which may have created potential inaccuracies.

The third piece of documentary evidence was the results from the compulsory theoretical breastfeeding question on the year 1 biology examination paper. The moderators were approached for details of participating students. Exam results were allocated the study code not the student's examination number or university identifier.

Although consent was gained for viewing the practice document, this was not included in the study. Data from the workshop in year 3 would have been a good source of overall learning and has proved anecdotally to be instrumental in student development.

3.7 Data analysis

An inductive framework is implied within the use of case study although the researcher had some deductive expectations of the research findings which had to be put aside both during the planning of the research and its execution. Cases within cases are identified within this study. Therefore comparison between clinical sites for a cohort where the theoretical input is constant was possible. Further in-depth exploration of student-mentor pairs and individual student cases allowed for consideration of micro influences on the implementation of BFI Education Standards into clinical practice. The student as a mother/non-mother and potential choice/experience of infant feeding created possible further case study groupings.

Analysis requires delving beneath the surface of data to seek understanding and function [Denscombe 2008]. By achieving this, general principles can be obtained and applied to other situations. Case study analysis encompasses quantitative and qualitative techniques. Denscombe [2008] argues it is the extent to which the research is based in one camp or the other and the appropriateness of the analysis process which is important [Strauss 1989]. Cresswell and Plano-Clarke [2007 in Denscombe 2008 p252] tabularised the process of quantitative and qualitative analysis which provided clarity in segmenting the workload.

3.7.1 Quantitative data analysis

Quantitative data was primarily collected from the 'Record of Clinical Skills' (RCS), some closed questions from the questionnaires and the examination results. Many advantages of quantitative data exist but in reality the analysis is only as good as the data recorded, the appropriateness of the data collected and the manipulation of the data to prove significance [Denscombe 2008].

3.7.1.1 Examination results

These were entered under the appropriate students coding. Mean for mother and non-mothers and case study site were made for comparison.

3.7.1.2 Record of Clinical skills

Practice data from the students' RCS was uploaded to PAWS 18 as a whole for each student then, divided into each academic year rather than year of the study to more closely fit with the expected development of the students through the 3 year programme. Student's age, base site and mother/non-mother status were recorded baseline information. Students' status as mother/non-mother was not purposive.

Decisions had to be made for categories and groupings. For example:

- 'At risk' (complicated) births were individually identified eg ventouse birth, forcep birth, elective caesarean section (EI LSCS) and emergency caesarean section (Em LSCS) births but others eg breech, postpartum haemorrhage and antepartum haemorrhage etc are grouped. Many in the 'at risk' category are not an actual birth but a situation in accordance with the instructions.
- The expected standard length of skin-to-skin at the beginning of the study was 30 minutes therefore the categories created were: below 30 minutes, 30 minutes, 31-60 minutes, 61-90 minutes and 91-120 minutes.
- Within the birth information, normal and complicated, data related to: skin to skin given, Yes/No; length of skin to skin in minutes; if a feed was initiated was it breast or formula and lastly was the feed successful.
- Within the breastfeeding information, normal and difficult experiences data related to: is this a normal feed; is it a complicated feed scenario and what other advice has been offered
- Within the postnatal information data related to: is the baby breastfeeding or formula feeding; if breastfeeding has hand expression of the breast and/or sterilisation been taught and if formula feeding has reconstitution and/or sterilisation been taught.
- For postnatal information decisions were made in relation to normal/routine, routine complex, normal discharge and complex discharge. The complexity related to either a complex maternal or neonatal situation.

Data was analysed using descriptive analysis: mother/non-mother, age, year of study and case study site were the most used correlations within the categories. Chi squared testing to assess significance was possible with

some categorical data. The manipulation of data on PAWS was undertaken by a colleague trained in quantitative analysis, who also acted as moderator for inputted data.

Correlations were therefore made between and within the demographic data and then between the specific data collected. Due to the small number of students their ages were grouped to retain anonymity. Comparisons were also possible between the years and case study sites.

3.7.1.3 Questionnaires

Closed questions identified the age, highest qualification, mother/non-mother, number of children and method of feeding and for how long. Open questions supported inductive analysis of infant feeding experience giving insight into their knowledge and decision making at the time. The infant feeding knowledge prior to entering the midwifery programme, what source of infant feeding information had been most influential and what new knowledge had been most illuminating from the University theoretical/skills/attitude input was also generated. Responses were collated into a word document for each participant, case study site and mother/non-mother which allowed for cross analysis.

Some identical questions were asked of the mentors but also length of service and regularity of infant feeding updates within their service.

3.7.2 Qualitative data

Interviews and responses to open questions created a vast amount of data. To enhance rigor, four principles as suggested by Patton [1987] were implemented:

- the findings and conclusions emerge from the data, 'are grounded',
- the meanings and explanations are consistent with the raw data,

- an unbiased interpretation of the data occurs in spite of knowledge of the field and
- an iterative, inductive process occurs.

Preparation of the data, familiarity with the data, interpretation of the data, verification of the data and representation of the data within an inductive and iterative framework involved re-visiting the stages above as suggested by Denscombe [2008]. Cresswell [1998 p142] calls this the 'data analysis spiral'.

Preparation of the data for analysis included creating anonymised back up copies kept separately from the original and used as the working copies. Hard copies of interview transcripts were printed with large margins on both sides for comments to be added at a later date. Pertinent areas were highlighted and up-loaded into themes on N vivo. These were categorised into years 1, 2 and 3, by student and mentor data respectively. Familiarity with the transcripts started with reading of the text for broad themes, followed by connections being made between the different forms of data collected, then looking for implied meaning before starting the coding process. As the only researcher within this study processing the data and undertaking the interviews a 'sense' of emerging themes occurred and variance between variables noted. The themes and quotes were printed off and the best representations selected for inclusion in the thesis. Both the most popular responses and the non-congruent responses were explored. Changes over time within the students learning incorporated curriculum and practice settings. Qualitative data and analysis was scrutinised by my supervisors.

Denscombe [2008] highlights the great advantage of computer assisted qualitative data analysis tools such as N Vivo [Gibbs 2002] for ease of storage, coding/categorizing and retrieval of data. However, the start up

time, superficiality of the data and volume of coded data can create an unmanageable data set. Clarity of findings becomes difficult [Patton 1987].

This study created a huge volume of data. To help manage this, training in N Vivo use was obtained. Content analysis, as described by Denscombe [2008 p238], was used as a method of highlighting 'hidden' meanings which may not have been previously considered [Krippendorf 2004].

Positive, negative and neutral perspectives and experiences were highlighted for a number of codes. Additional codes emerged from the questionnaires and interviews between the years which demanded re-scrutiny of previous years for potential omissions.

The expected codes to be explored in the data were identified from themes within the curriculum and literature on breastfeeding but emergent codes were iteratively identified from the data. Both are listed below for each year.

Year 1 codes

Expected codes:

Role modelling (family/friends); Prior theoretical learning; Intrinsic attitude to breastfeeding; Maternal feeding method; Personal feeding method; University theoretical input; University skills input; Clinical skills exposure; Clinical application; Sore nipples; Parent education; Use of observation sheets; Use of Record of clinical skills; Use of Practice document; Role of the mentor; Skin-to-skin; Curriculum developments required.

Emergent codes:

General support to women; Information giving re skin-to-skin; Breast expression; Sterilisation; Re-constitution of formula milk; Role of MSW; Student time management; Busy midwives; Midwives' priority; Mentor role at booking; Student initiative; Maternal condition; Maternity documentation.

Additional Year 2 codes

Expected codes:

Changing role of the mentor; Feeding complications.

Emergent codes:

Changing role of the student; Assessment of student ability;
Organisational impact; Changing organisational priorities.

Additional Year 3 codes

Expected codes:

Development of strategies to be hands-off the breast; Student confidence and competence.

Emergent codes:

Changing postnatal care pathways; Changing workforce configuration; Use of aromatherapy.

Interpretation of the study's aim and objectives were considered in light of the practical outcomes expected highlighted by the BFI comparison table (Figure 1, page 17) and the known effect of belief systems on support mechanisms. The opportunity for students in Year 1, 2 and 3 for clinical skills, such as information giving to women, skin-to-skin following birth, initiation of the first feed, position and attachment in the postnatal period, hand/mechanical expressing, sterilisation and formula reconstitution were explored and verified using the three data collection methods. Students' developing competence and confidence was explored through their personal reflection during the interview and increasing complexity of clinical opportunity. Students are unable to progress through the years without achieving a pass grade in all assessment components. Students experience based at any one case study site were compared for convergence or divergence of emerging themes to facilitate generalisability or transferability.

The influence of the University's curriculum at each stage was explored with a view for developments and improvements. Mentor, student, and organisational perspectives emerged from the various breakdowns and rebuilding of information.

3.8 Summary

Case study methodology was chosen as it encompassed a holistic philosophy in keeping with midwifery, the curriculum development and supported the use of mixed data collection methods.

Questionnaire, individual interview and documentary evidence were collected. The ability to use a longitudinal approach enabled development of competence and confidence to be mapped with associated facilitation and barriers to learning. Planned triangulation with mentor data supported or refuted student perspectives helping to differentiate between organisational and individual experience.

The processes used for analysis endeavoured to increase the reliability and validity of findings discussed next in chapter 4.

Chapter 4 Findings

4.0.1 Introduction

This chapter presents the findings from analysing all the data collected throughout the study. As recommended by Yin [2003], the findings from each case study are first compared to identify similarities and contrasts. The 'BFI Ten Steps' were used as the framework to evaluate the correlation between the 'BFI Education Standards' and clinical outcomes (Figure 1, page 17) and are the headings used in this chapter. Most 'Steps' draw upon data from all methods and participants; Steps 1 and 9 were only evident from interviews and limited data were obtained. Step 2 includes issues relating to the effect of the learning environment, mentor relationships and assessment in gaining competence and confidence. Step 7, rooming in was achieved in all units without contest. Step 8, demand/responsive feeding gleaned little information which is concerning as a basic to lactation physiology. Step 10 includes information giving in relation to infant formula.

Before presenting the 'Ten Steps' findings, details about the case study sites and their BFI accreditation status are provided. This is followed by details of participation and retention rates at the 6, 18 and 30 month data collection points.

4.0.2 Location of the study and BFI accreditation status

The study was conducted at the University of Nottingham and in five maternity service Trusts where students receive their practice experience. Students are based at one unit for the majority of their educational programme but have an elective period of 2 weeks in Year 2 and may choose to experience a different unit for a short period of time at the end of the course.

Only one community area within CS3 and the hospital Trust at CS4 has become BFI accredited during the study period although in some areas there has been more activity towards BFI accreditation than others [personal information from Regional Breastfeeding committee]. Community midwives at CS 3, 4 and 5 receive the same training as their hospital based colleagues. This did not apply to CS 1 and 2 until April 2011 following Trust mergers. Table 7 (on page 43) highlighted pertinent features of each case study including infant feeding data.

4.0.3 Demographic details of Participants and Retention

Recruitment levels of each year for the students and mentors and subsequent retention are presented in Tables 9 and 10. The data has been further subdivided into the types of data collected.

Table 69 identifies the number of potential students for each CS with a total of **32** in the cohort, of which over 50% participated each year. Also identified are the numbers of students withdrawing from the programme, taking time out or returning from other cohorts which accounted for **8** over the study period. The overall number recruited was **22** ($n = 32, 68.8\%$) with full **questionnaire** data sets obtained from **16** ($n = 32, 50\%$) students. Both students at CS4 and two at CS5 took time out from their programme therefore withdrew from the study at different stages of the study. Over the three years **58** student questionnaires were analysed.

The **Record of Clinical skills** provided quantitative data from students at each collection point with a full three year data set from **18** ($n = 32, 56\%$) students. There is no data from CS4.

Interviews at all three data collection points were held with **17** (n=32, 53%) students representing all but CS4. A total of **53** student interviews were conducted over the three years.

Students identified midwife mentors from the time preceding the data collection point who were invited to participate in the study.

Table 9 – Student recruitment, questionnaire returns, RCS and interviews over 3 years

Case study site		CS1	CS2	CS3	CS4	CS5	Total		
Student Recruitment & Questionnaire returns	Invited	7	9	9	3	4	32		
	Recruited Year1	4	7	5	2	4	22		
		57%	66.6%	55.5%	66.6%	100%	68.8%		
	Alteration to returns in Year1	-1	-2	0	-1	0	18 56.3%		
	Alteration to returns in Year2	0	0	+1	-2	0	19 59.4%		
	Alteration to returns in Year3	0	0	-1	0	-2	16 50%		
Full Data Set		4	6	4	0	2	16 50%		
Student Record of Clinical Skills	Yr 1	Recruited	4	7	5	2	4	22	
		RCS	4	6	5	0	4	19 86%	
			100%	85.7%	100%		100%		
	Yr 2	Recruited	4	6	6	0	4	20	
		RCS	Rpt	4	6	5	0	4	19
			New	0	0	1	0	0	
	Yr 3	Recruited	4	6	6	0	4	20	
		RCS	Rpt	4	6	6	0	3	19
			New	0	0	0	0	0	
	Full Data Set		4	6	5	0	3	18 56%	
Student Interviews	Yr 1	Recruited	4	7	5	2	4	22	
		Interviewed	3	6	5	0	3	17 77%	
			75%	85.7%	100%		75%		
	Yr 2	Recruited	4	7	6	2	4	22	
		Interviewed	Rpt	3	6	5	0	3	17
			New	+1	0	0	0	+1	+2 86%
	Yr3	Recruited	4	6	6	0	4	20	
		Interviewed	Rpt	4	6	5	0	2	17 85%
			New	0	0	0	0	0	
	Full Data Set		4	6	5	0	2	17 53%	

Table 10 – Mentor recruitment, questionnaire returns and interviews over 3 years

Case study site			CS1	CS2	CS3	CS4	CS5	Total	
Mentor Recruitment	Year 1	Invited	11	12	13	1	8	45	
		Recruited	3 27.3 %	1 8.3 %	2 15.4 %	1 100 %	1 12.5 %	8 17.7 %	
	Year 2	Invited	16	27	36	1	12	92	
		Recruited	5 31.2 %	1 3.7 %	2 5.6 %	1 100 %	1 8.3 %	10 10.9 %	
	Year 3	Invited	21	18	7	3	4	53	
		Recruited	7 33.3 %	5 27.7 %	2 28.5 %	1 33.3 %	1 25 %	16 22.6 %	
Full Data Set			3	1	1	1	1	7 44%	
Mentor Recruitment & Questionnaire returns	Yr 1	Recruited		3 27.3 %	1 8.3 %	2 15.4 %	1 100 %	1 12.5 %	8
		Questionnaire		3	1	2	1	1	8
	Yr 2	Recruited		5 31.2 %	1 3.7 %	2 5.6 %	1 100 %	1 8.3 %	10
		Questionnaire	Rpt	3	1	2	1	1	8
			New	2	0	0	0	0	2
	Yr 3	Recruited		7 33.3 %	5 27.7 %	2 28.5 %	1 33.3 %	1 25 %	16
		Questionnaire	Rpt	5	1	2	1	1	10
			New	2	4	0	0	0	6
	Full Data Set			3	1	1	1	1	7 44%
	Mentor Interviews	Yr 1	Recruited		3 27.3 %	1 8.3 %	2 15.4 %	1 100 %	1 25 %
Interviewed			3	1	1	0	1	6 13%	
Yr 2		Recruited		5 31.2 %	1 3.7 %	2 5.6 %	1 100 %	1 8.3 %	10
		Interviewed	Rpt	3	1	1	0	1	6
			New	1	0	0	0	0	1 7.6 %
Yr 3		Recruited		7 33.3 %	5 27.7 %	2 28.5 %	1 33.3 %	1 25 %	16
		Interviewed	Rpt	4	1	1	0	1	7
			New	0	0	0	1	0	1 15%
Full Data Set			3	1	1	0	1	6 38%	

Students usually have more than one mentor per year and often different ones between years hence the changes identified within the data set for invited, accepted and repeats.

Table 10 identifies the number of midwife mentors who were approached and recruited from each case study per year.

Mentor recruitment for years one, two and three was **8** (n=45, 18%), **10** (n=92, 11%) and **16** (n=53, 23%) respectively with **questionnaires** from each and a full data set obtained on **7** (44%). A total of **34** mentor questionnaires over three years were received and analysed.

Interviews with mentors were **6** (n=45, 13%), **7** (n=92, 8%), **8** (n=53, 15%) respectively for each year with a full data set on **6** (38%).

Demographic information of student participants (Figure 6)

Figure 6 identifies the distribution of ages for students relative to mother or non-mother status and case study. Interestingly 3 out of 4 students at CS1 are mothers, all at CS2 non-mothers with CS3 and CS5 having an even distribution of each. Of the 16 students with full data sets, **7** (n= 16, 43.7%) were mothers and **9** (n=16, 56%) non-mothers.

Demographic information of mentor participants (Figure 7)

Of the 16 mentors (Figure-11), **10** (n= 16, 62.5%) were mothers and **6** (n= 16, 37.5%) non-mothers. The proportion of non-mothers was highest at CS1 and for mothers at CS2, CS3 and CS5. This contrasts with the students' demographics:

Figure 6 - Relationship of student age to mother or non-mother by case study.

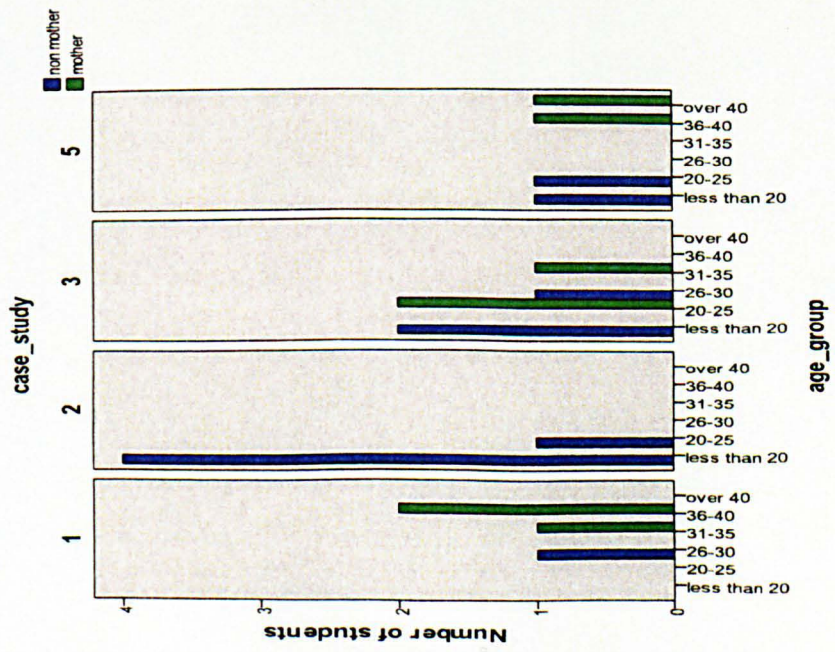
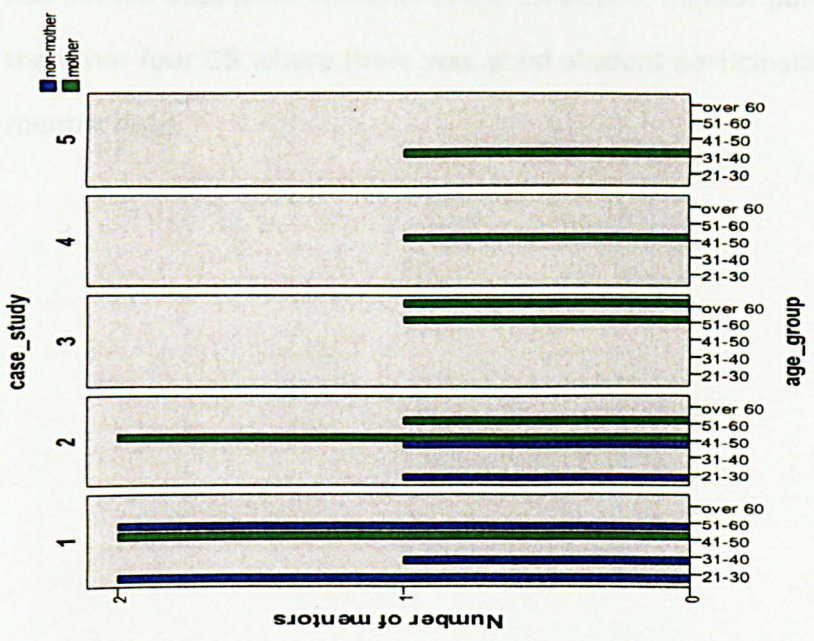
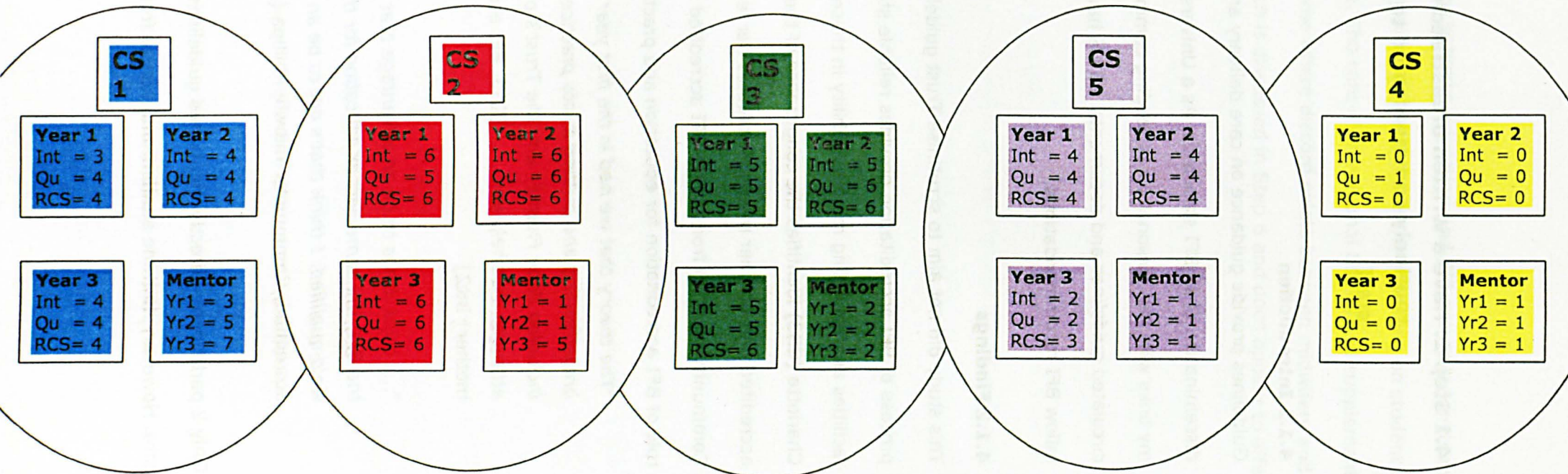


Figure 7 - Relationship of mentor age to mother or non-mother by case study.



In conclusion Figure 11 presents a summary of student respondents for each data set in each year and each CS including mentor recruitment. CS4 has limited data from students but a consistent mentor participant unlike the other four CS where there was good student participation but limited mentor data.

Figure 8 - Summary of participants and each data collection method by year and case study.



4.1 Step 1: Have a written breastfeeding policy that is routinely communicated to all healthcare staff.

4.1.1 Introduction

Guidelines provide guidance on care delivery and form the basis for the dissemination of all BFI standards. As a University department and due to my links with the Regional Breastfeeding committee, I have access to circulated guidelines and documents. All CS have guidelines that broadly follow BFI recommendations.

4.1.2 Findings

This study did not aim to scrutinise Trust guidelines accepting that the process of BFI accreditation provides reliable standardisation within these facilities and expecting more variability in those not accredited. Indeed, Charlotte (CS3) identifies the congruence of the Trust policy as a BFI accredited unit and her mentor facilitates her learning. Phillipa (CS1, Community mentor) from a non-BFI accredited unit is positive about the role of BFI accreditation for education and practice in supporting learning.

"The theory that we had in the first year was fantastic in regard to breastfeeding and putting it into practice.....I just think that it's the including Baby Friendly and the Trust's policies and your mentor's attitudes that help you....." [CS3, BFI accredited, Charlotte (non-mother) Int2]

"...I think it has to be an advantage that they (University) go into the BFI, the same sort of education for the students as we got once we'd qualified. I think that's got to be an advantage." [CS1, non-BFI accredited, Community midwife Phillipa (mother) Int3]

Only 2 participants directly mentioned guidelines within normal postnatal care. However, both the student and mentor from different CS identified

that congruence between education and BFI accredited units must exist to facilitate theory practice links, therefore impacting on student competence and confidence. The care of transitional babies and supplementation policies is an area where discord exists between midwifery and paediatric guidelines which is discussed in Step 6 and does appear to affect learning.

4.2 Step 2: Train all healthcare staff in the skills

necessary to implement the breastfeeding policy.

4.2.1 Introduction

To achieve consistency of care delivery of information to all staff needs to be uniform, relevant and directed towards the desired aims and objectives. It is important to acknowledge prior learning and expertise, addressing any areas that may be barriers or supports to new learning. Therefore, the first questionnaire asked students to describe their knowledge, skills and attitudes regarding infant feeding before commencing the course and again following the first, second and third year lectures. Clarification and elaboration were sought at interview. These findings are presented first, subsequently the processes involved in learning under three themes:

- teaching methods
- learning tools
- assessment.

4.2.2 Knowledge prior to commencing midwifery programme

The students were asked to describe what knowledge they had prior to commencing the midwifery course and where or how they had gained it. Three categories emerged from their responses, 'Good', 'Limited' and an awareness that 'Breast is Best' (Table 11).

Table 11 – Students (mothers and non-mothers) perceived knowledge prior to commencing the programme (n=18)

Good	Limited knowledge	An awareness that 'Breast is Best'
5	5	8

The various levels of knowledge were evenly distributed across all case study sites but variance between the mothers and non-mothers was noted. The **5** participants self reporting '**good**' knowledge were **all** mothers and identified their knowledge had been gained from a variety of sources such as college/personal studies, personal experience and/or vicarious experience from family.

"As a child my aunt breastfed her 3 children. I used to sit with her as she fed, I remember reading the 'pros and cons' of infant feeding. From the age of 8 I knew breastfeeding was a positive thing to do, something I would do in the future..." [CS1, non-BFI accredited Alice (mother) Q1]

"Breastfed my 3 children (all very different experiences). Been breastfeeding peer supporter (volunteer) for 6 years." [CS5, BFI accredited Effie (mother) Q1]

The **5** participants self reporting '**limited**' knowledge were non-mothers gaining information through education, the internet or family members, however they identified the societal norm to be formula feeding.

"Reasonably limited, I had read information regarding the baby friendly initiative... The majority of those around me artificially fed their children..... I gained knowledge via reading internet articles and text books." [CS3, BFI accredited, Cathy (non-mother) Q1]

"A small amount told to me by my mum.....artificial feeding seemed the norm as TV and advertisements pointed towards such as SMA and Cow and Gate....." [CS4, BFI accredited, Debbie (non-mother) Q1]

In contrast the '**Breast is Best**' category included mothers and non-mothers.

"Not too much, just the basics 'breast is best'..... campaigns and internet." [CS3, BFI accredited, Cheryl (non-mother) Q1]

"None at all." [CS5, BFI accredited, Estelle (mother) Q1]

4.2.2.1 Skills prior to commencing midwifery programme

Only one student had previous training as a peer supporter. The 7 mothers had predominantly breastfed with varying degrees of success which were categorised into 'good', 'mixed' and 'poor' (Table 12). Some non-mothers had observed breastfeeding within their family.

Table 12 - Student mother's experience of infant feeding prior to commencing the programme (n=7)

Good Breastfeeding experience	Mixed Breastfeeding experience	Poor Breastfeeding experience	Formula fed
2	1	3	1

Alice described her positive and empowering breastfeeding experience.

"Breastfeeding.....Around 5 months.....Positive, pleasurable, personal (just me and my baby), easy. I remember feeling tired at times and sore until our feeding was established. I fed my babies wherever I was, I did get points and stares, I pointed and stared back, laughing at peoples ignorance." [CS1, non- BFI accredited, Alice (mother) Q1]

Effie (CS5) had different/mixed breastfeeding experiences based on the support she received when breastfeeding and knowledge she subsequently gained through training to be a peer supporter.

"I had little or no support with my first two children and stopped breastfeeding before I wanted to. Breastfeeding was never discussed or promoted as the best. The experience with my 3rd child was very different. I was educated and supported and felt very strongly about all women being supported and educated, that I trained to support others." [CS5, BFI accredited, Effie (mother) Q1]

Both Alex (CS1) and Diana (CS4) identified poor breastfeeding experiences with poor support noted, however each had resolved to continue for as long as possible. Diana's experience highlights the failure to use the NICE [2005] guidelines on ankyloglossia in the newborn examination.

"...breast fed all for varying lengths of time. I found it very difficult and didn't have much support so gave up and continued with formula. Found I was more successful with subsequent pregnancies" [CS1, non-BFI accredited, Alex (mother) Q1]

"Breast and formula..... Quite negative, I struggled to breastfeed both, managed to do so till about 6 weeks postnatal. Both were very tongue tied and nothing was done about it early enough. I feel that if it had it could have changed the outcome." [CS4, BFI accredited, Diane (mother) Q1]

4.2.2.2 Attitude prior to commencing midwifery programme

Exposure to breastfeeding by student non-mothers covered a wide spectrum from observing a sibling breastfeed to only being aware of it in public areas and being uncomfortable with it.

"Admittedly, when I was younger I always wanted to artificially feed..." [CS3, BFI accredited, Cathy (non-mother) Q1]

"I would definitely- breastfeeding no matter what. I am a strong believer in breastfeeding as it is the best method and it's what your breasts are for." [CS3, BFI accredited, Charlotte (non-mother) Q1]

"Before I felt a bit squeamish about women who breast fed in public....." [CS5, BFI accredited, Enya (non-mother) Q1]

The mothers within the cohort with poor experiences of breastfeeding had been positively or negatively affected by staff knowledge, priorities and support offered.

"Very little community support so struggled. Very painful and sore." [CS1, non-BFI accredited, Amber (mother, poor experience) Q1]

"I wasn't supported to breastfeed...I just think she hadn't got the time to spend with me to help me and was just you know "give him a bottle" sort of thing." [CS1, non-BFI accredited, Adele (mother, poor experience) Int1]

4.2.3 Knowledge of breastfeeding in Year 1 of the midwifery programme

All **18** students across all case studies identified that their knowledge had positively improved following lectures particularly the anatomy of the breast, physiology of lactation and the differences in composition between breast and formula milk.

"More aware of the anatomy of the breast and the process of lactation- which is very beneficial to explain to prospective mothers." [CS3, BFI accredited, Cathy (non-mother) Q1]

"...ingredients in both formula and breastmilk and the benefits of breastmilk." [CS2, non-BFI accredited, Bella (non-mother) Q1]

"The fact that the milk alters nutritionally with the baby's needs. That powder is not sterile and can cause problems such as gastric illness." [CS5, BFI accredited, Enya (non-mother) Q1]

4.2.3.1 Skills to support breastfeeding in Year 1 of the midwifery programme

All **18** students identified that their skills in supporting women to successfully breastfeed and hand express the breast had positively improved following the 'practicalities' lecture.

"by learning how to hand express, how the baby latches on....."
[CS3, BFI accredited, Cheryl (non-mother) Q1]

"New skills learned in theoretical session and practice with baby led feeding and latching on." [CS5, BFI accredited, Enya (non-mother) Q1]

Billie (CS2) a younger student eludes to a growing confidence in supporting women to breastfeed.

"I have learnt about different positions, the need for a wide mouth, and using the nipple near the baby's nose to help. I feel more comfortable helping mothers with this." [CS2, non-BFI accredited, Billie(non-mother) Q1]

Amber (CS1) and Effie (CS5), both mothers, identify incorporating personal experience and knowledge into their new skill base.

"Together with breastfeeding knowledge I am able to offer my own skills to women when supporting breastfeeding." [CS1, non-BFI accredited, Amber (mother) Q1]

"It has enhanced the skills I already had." [CS5, BFI accredited, Effie (mother) Q1]

Only students at CS2, who were all non-mothers and under 25 year olds identified skills of formula reconstitution, sterilisation and storage which is particularly interesting when examining the RCS data on postnatal information giving elaborated on in Step 10.

"...Also the proper way to make up and store formula feeds." [CS2, non-BFI accredited, Belinda (non-mother) Q1]

"Knowing rules and regulation for formula feeding is good as well – how to sterilise- and how to make up formula feeds – will be good information for formula feeding mothers." [CS2, non-BFI accredited, Becky (non-mother) Q1]

4.2.3.2 Attitude towards breastfeeding in Year 1 of the midwifery programme

Exploring the students' disposition towards breastfeeding, **11** identified an increased positivity towards breastfeeding. Mothers who had either not

breastfed or had difficulties breastfeeding still had a positive and promotional attitude to breastfeeding.

"Don't give up too soon! With time and patience and support a positive outcome can be achieved with breastfeeding." [CS1, non-BFI accredited, Amber (mother) Q1]

"I am a lot more pro- breastfeeding and would even try again myself if I had more children." [CS4, BFI accredited, Diane (mother) Q1]

"Before I felt a bit squeamish about women who breast fed in public but not now. I think that they are doing the best for their child so it doesn't matter what others think, I would probably do it now!" [CS5, BFI accredited, Enya (non-mother) Q1]

Estelle [CS5 (mother)] had a powerful alteration in her belief system following the first year's lectures and her desire to prevent a repetition of her scenario.

"I never knew how important breastfeeding is. I apologised to both my children for formula feeding." [CS5, BFI accredited, Estelle (mother) Q1]

"I have regretted ever since not being able to breastfeed or not having breastfed, that's water under the bridge and I don't want anybody else that I am caring for to be in that situation." [CS5, BFI accredited, Estelle (mother) Int1]

For 5 students there had been no change as they were positive towards breastfeeding prior to the programme.

"My attitude to breastfeeding has always been positive- it's what your breasts are for!!! I would never judge a woman if she decided to formula feed, although I would still try to promote breastfeeding." [CS3, BFI accredited, Charlotte (non-mother) Q1]

For some there had been a concurrent negativity towards formula feeding.

"I feel my attitude towards breastfeeding has become much more positive but my attitude towards formula feeding is more negative...make(s) me more likely to ensure women get enough information on the benefits of breastfeeding." [CS5, BFI accredited, Emily (non-mother) Q1]

There was a concern by many that promoting breastfeeding should not remove the woman's freedom of choice and Adele (CS1) worries that her promotion of breastfeeding will be construed as bullying.

"I will try to encourage mothers to breastfeeding as I do feel anti formula but appreciate it is a personal decision that parents make for themselves/lifestyle." [CS1, non-BFI accredited, Alice (mother) Q1]

"I know to advocate breastfeeding to everyone (whilst supporting their decision)." [CS2, non-BFI accredited, Bella (non-mother) Q1]

"I wouldn't have questioned it (the method of feeding), whereas now if somebody said they want to artificially feed I would ask them if they have had any information about breastfeeding..I'm not a bully though,... are they aware of their choices and you know the benefits of breastfeeding" [CS1, non-BFI accredited, Adele (mother) Int1]

Adele's (CS1) concerns seem reasonable considering Caroline (CS3) was reprimanded for her enthusiasm of breastfeeding by her mentor.

"I was worried about ..me being all 'gung ho' about how easy it was ...Erm, so sometimes that's a little bit hard, erm, and other times mentors out in the community that I know for a fact didn't have good experiences....I got the impression that oh was I a bit kind of forceful about giving the information across, erm, so she told me to pull back a bit." [CS3, BFI accredited, Caroline (mother) Int1]

Mentors highlight the importance of communication and life skills in supporting women with breastfeeding which they believe is related to age and motherhood.

"I think a great deal of it with breastfeeding is the age of the student midwife ...The women who have children of their own are always keen to bring their own experiences, whereas I think an 18/19 year old girl doesn't have that, does she? Although she then comes with no preconceived ideas and just looks at the theory.....I think it's a lot about ...the communication skills and how those skills get better with experience, and also with age...mature women ..their communication skills are just therethe younger girls tend to be a little bit quieter ..tend to sit and listen and not contribute quite so much initially..... [CS1, non-BFI accredited, Community mentor Philippa (mother) Int1]

"...anything in midwifery.. when you've had a baby it's a completely different job to before when you haven't isn't it..... it's all about communicating with that mum and that mum being confident in what you're doing life skills come into it don't they if you've got them." [CS5, BFI accredited, Community mentor Shona (mother) Int1]

The responses to the question; "What had influenced their knowledge and skills development in Year 1 most?" highlighted theoretical teaching (10) rather than midwifery practice (2) at this point in their programme (Table 13). However, 5 out of 7 mothers were drawing on their personal experience of infant feeding.

Table 13 – Students' most influential factor to their learning in Year 1 (n= 18)

Personal experience	Vicarious experience	Theoretical teaching	Clinical placements
5	1	10	2

4.2.3.3 Summary from year one

Students personal assessment of knowledge varied from 'good', 'limited' to 'breast is best' only. Those who identified 'good' knowledge were mothers. The other two categories had a combination of mothers and non-mothers. All students in year 1 identified university theoretical and skills teaching

had greatly increased their learning. Challenges in implementing this knowledge have been identified in all CS including BFI accredited units where organisational factors would be expected to be supportive.

Students' attitude prior to the course encompassed the normal social distribution. The knowledge gained from the curriculum had positively enhanced their attitude (n=11) toward breastfeeding and for those positive prior to the course (n=5) maintained positivity. Students began to voice concerns about 'bullying' women to breastfeed.

The influence of personal experiences is noted by students and mentors when supporting infant feeding in clinical practice from the mothers.

4.2.4 Knowledge of breastfeeding in the 2nd year of the midwifery programme

All **19** students irrespective of CS, being a mother or non-mother found their knowledge had increased although one student from CS3 in the interview commented that some of the information was repetitious.

"Well the first thing I noticed was that the booklet that we were advised to download before the session was the same one with a few tweaks. So I did think 'oh is it not more in depth, it's just a matter of relearning it for this exam' because it was a big part of this exam. Erm, so I don't know really what I did different. I suppose the only big change was like the anatomy of the mouth, infant mouth, and that side of it just because we'd not been there before. And all the muscles that go with the whole like feeding process. So I think that was the only different area that I kind of picked up on really....I suppose ..they were. An enhanced version."

[CS3, BFI accredited, Caroline (mother) Int2]

For most students the revisiting of infant feeding had increased their knowledge and confidence when explaining the benefits of breastfeeding and supporting women.

"I feel far more knowledgeable now, I can explain in more detail what to expect, when breastfeeding.... I would not recommend artificial feeding knowing what it contains." [CS1, non-BFI accredited, Adele (mother) Q2]

"The more infant feeding lessons we have I feel improves my practice. Can explain to women confidently about breastfeeding." [CS2, non-BFI accredited, Bridget (non-mother) Q2]

"...what we had in the second year was quite helpful, I remember that one, and again it was just reiterating, and then we had a lesson and we were all drawing on a balloon, that was really quite good." [CS5, BFI accredited, Estelle (mother) Int3]

Some students were also beginning to trouble shoot for themselves and theory practice associations verbalised, from the knowledge they had gained.

"Understand why problems may occur and how to rectify." [CS3, BFI accredited, Cathy (non-mother) Q2]

"Understanding the anatomy allows the physiology to make sense. I appreciate the importance of regular feeding." [CS5, BFI accredited, Estelle (mother) Q2]

4.2.4.1 Skills to support breastfeeding in 2nd year of the midwifery programme

All **19** students identified their skill set had developed within this year. This was particularly around communication with a hands-off technique of supporting women with breastfeeding which was often not witnessed in practice. The use of hands-on in practice was the 'norm' in all case studies which is corroborated by mentor comments. Further details on student's progress towards a hand-off technique are provided in Step 4. However at

this point in the programme, Amber (CS1) was one student whose belief contrasts with her peers in saying that women 'prefer' hands-on.

"I still find it difficult to remain hands-off and find most women prefer hands-on to assist them." [CS1, non-BFI accredited, Amber (non-mother) Q2]

"Able to help women to attach baby to breast with a hands-off approach..." [CS2, non-BFI accredited, Becky (non-mother) Q2]

"The teaching also helps you to adopt a more hands-off approach which many midwives in practice forget to do due to time constraints." [CS5, BFI accredited, Emily (non-mother) Q2]

The sense of empowering women to be successful breastfeeders by integrating their knowledge and offering comprehensive care was noticeable.

"Honed my skills.....More confident and able to offer a whole postnatal 'package of care' on the postnatal ward instead of just a one-off." [CS3, BFI accredited, Caroline (mother) Q2]

"The teaching sessions do improve my skills of breastfeeding and artificially feeding and feel I can use these skills continuously in practice." [CS2, non-BFI accredited, Bridget (non-mother) Q2]

Some students were beginning to tackle more complex scenarios and looking to developing breast expression techniques.

"The teaching can help when complications or difficulties occur to understand why they are happening and the physiology behind it in order to solve the problem." [CS5, BFI accredited, Emily (non-mother) Q2]

4.2.4.2 Attitude towards breastfeeding in the 2nd year of the midwifery programme

The majority (**16**) of students' disposition towards breastfeeding had continued to develop positively. Two students' attitude had remained

positive/unchanged but one student had become more negative towards breastfeeding. There is an increasing fear by the students that promoting breastfeeding will be seen as removing a woman's choice of infant feeding method. Noticeably mothers are more confident to support breastfeeding.

"I'm understanding and hope I am not judgemental when women state how they choose to feed their baby. I'm certainly far more approachable to breastfeeding than ... before I started." [CS1, non-BFI accredited, Adele (mother) Q2]

"Positive but not judgemental." [CS2, non-BFI accredited, Becky (non-mother) Q2]

"Always encourage breastfeeding if only for the first feed, while allowing choice." [CS5, BFI accredited, Estelle (mother) Q2]

A few non-mothers continue to view breastfeeding and formula feeding as similar products and processes.

"To be open minded and let women chose what they want to do without influence. Bottle feeding is not bad." [CS2, non-BFI accredited, Barbara (non-mother) Q2]

"I feel that the theoretical teaching causes you to approach formula feeding negatively however for some women it is their choice to formula feed despite being given the information and they should be supported with feeding just the same as a breastfeeding woman." [CS5, BFI accredited, Emily (non-mother) Q2]

4.2.4.3 Attitude change from Year 1 to 2

Adele (CS1) in year 2 had a revelatory moment. She had had a poor breastfeeding experience herself and predominantly formula fed therefore felt disingenuous advocating breastfeeding.

"But then Year 2, things have clicked in a lot more for me...I think in Year 1 I was ..changing my whole concept..... trying to encourage people to breastfeed and support people whereas I thought I can't help these people because I didn't even do it myself"

and I felt a bit of a fool.....So I have knocked those barriers down kind of thing and then Year 2 seems to have been a much easier, yeh I have been able to take it on board far more and understand the whole concept of breastfeeding more now.” [CS1, non-BFI accredited, Adele (mother) Int2]

Barbara (CS2) although always positive towards breastfeeding found the lectures gave credence to that belief system but wants to justify and support women who are formula feeding.

“..I always knew that breastfeeding was better than formula feeding I don’t know why, It hasn’t really changed my views because I didn’t really know anything about it before. I think having lessons early on changes your views about breastfeeding, so I think having that before going into practice helps you a lot in a wayI knew breast was best but I just thought formula wasn’t, didn’t have as many disadvantages as ...it did.” [CS2, non-BFI accredited, Barbara (non-mother) Int2]

The responses to the question; “What has influenced their knowledge and skills development in Year 2 most?” students identified their knowledge base had increased through the infant feeding study day (4) but an overwhelming shift to clinical placements (10) is noted (Table 14). Personal experience has also reduced in its influence.

Table 14 - Students’ most influential factor to their learning in Year 2 (n=19)

Personal experience	Vicarious experience	Theoretical teaching	Clinical placements
3	2	4	10

4.2.4.4 Summary from year two

Students in year 2 were consolidating their theoretical knowledge and generating theory practice links that supported problem solving strategies. Their greater exposure to clinical practice continues to undermine a

positive belief system in breastfeeding and implementation of theory particularly, hands-off in supporting breastfeeding.

The role of clinical BFI accreditation appears to have little influence on the students' attitudinal development. Personal development following reflection seems a more powerful motivator.

4.2.5 Knowledge of breastfeeding in Year 3 of the midwifery programme

Most students (**15 from 16**) were positive about the continuing theoretical input they were receiving with only one who was doubtful. The more conversant and greater depth of knowledge the students had gained enabled them to better support the women. Their skills acquisition had further raised their confidence levels. The ability to assess and care for women experiencing breastfeeding complications is also highlighted.

"My knowledge base has continued to develop which has had a knock on effect to my skills and attitude. Plus I feel a growth in my confidence when supporting breastfeeding." [CS, non-BFI accredited, Alice (mother) Q3]

"I understand that formula, no matter how much I previously thought cannot match breast milk." [CS5, BFI accredited, Estelle (mother) Q3]

"complications of breastfeeding and how to deal with them" [CS2, non-BFI accredited, Belinda (non-mother) Q3]

Estelle (CS5) discusses the application and communication of her physiology knowledge to enhance women's breastfeeding success.

"I think knowing about physiology, I think that's been underlying the most valuable thing, knowing in my head how it works to be able to then explain to women in their terms. Even just to saying, imagine a broccoli stem ..And again about your acini cells and your prolactin being switched on and off, and it's optimum time to get it and do it and the more you can do it, the better outcome women

tend to have. Just getting them to understand on their level is amazing.” [CS5, BFI accredited, Estelle (mother) Int3]

Communication skills appeared to have developed within this year from the generalised to the individualised but also the manner of the communication from directed to facilitative.

“Gaining knowledge over the past 3 years had helped me in terms of explaining the lactation process and putting women at ease, especially in the first 48 hours.” [CS1, non-BFI accredited, Adele (mother) Q3]

“I can now discuss causes and biology with clients rather than just advising.” [CS3, BFI accredited, Caroline (mother) Q3]

Knowledge of the constituents of breastmilk appears to be difficult to assimilate and only theoretically covered.

“I didn’t find any of it too difficult to understand. Probably the only least bit I remember from the theory and I struggled to retain is like the constituents of breast milk and all the whys and wherefores of which bits are good.” [CS3, BFI accredited, Cathy (non-mother) Int1]

4.2.5.1 Skills to support breastfeeding in Year 3 of the midwifery programme

All, **sixteen**, students have continued to gain benefits through reiteration of the clinical skills and developed a hands-off technique. The strategies they employ are discussed in Step 4. This appears to be partly based on their communication skills and confidence having increased with women and in all areas of infant feeding. University teaching appears to be for some the only experience of hand expression.

“100% more confident with supporting women with attachment, hand expressionyou feel empowered and professional when you can talk about it without seeking help.” [CS1, non-BFI accredited, Alex (mother) Q3]

"Have better skills to discuss breastfeeding from a hands-off approach." [CS2, non-BFI accredited, Becky (non-mother) Q3]

"Being able to help and advise women on how to breastfeed using a hands-off approach." [CS3, BFI accredited, Cheryl (non-mother) Q3]

Some situations remain more difficult to use a hands-off technique such as post caesarean section.

"I feel I am becoming more skilled in talking a woman through positioning and attachment also hand expression. Although, I sometimes find this difficult with post caesarean women who have limited mobility." [CS1, non-BFI accredited, Alice (mother) Q3]

Increasingly students are looking to complications and resolution of them in year 3 and the importance of building competence and confidence through visiting women on their own is highlighted.

"Understand issues relating to poor positioning and attachment." [CS5, BFI accredited, Estelle (mother) Q3]

"skills in relation to complications I feel have improved. Un(accompanied) community visits have allowed me to feel more competent in my abilities too." [CS3, BFI accredited, Cathy (non-mother) Q3]

4.2.5.2 Attitude towards breastfeeding in the 3rd year of the midwifery programme

Fifteen students have a positive perspective on breastfeeding and are prepared to spend time with women wishing to breastfeed and seek other means by which to support breastmilk feeding. This appears to have been driven by their increased knowledge base. One student commented it was the woman's choice and there was one non-return of questionnaire.

"From understanding the process and initiation of lactation, I would now facilitate breastfeeding and allow more time for facilitation than prior to the course." [CS1, non-BFI accredited, Amber (mother) Q3]

"Definitely more aware of breastfeeding. Fully support women's view. Sensitively promoting breastfeeding for women." [CS3, BFI accredited, Cheryl (non-mother) Q3]

"It's still the mother own choice" [CS5, BFI accredited, Enya (non-mother) Q3]

There was evidence that students have confidence to seek solutions in encouraging women to successfully breastfeed.

"I believe I am far more understanding and able to spend quality time with women who wish to breastfeed who maybe having initial problems.." [CS1, non-BFI accredited, Adele (mother) Q3]

"I have the confidence to try different techniques in order to come to a mutually acceptable plan." [CS3, BFI accredited, Caroline (mother) Q3]

"I encourage expressing if women wish not to breastfeed, as baby still gets EBM." [CS5, BFI accredited, Estelle (mother) Q3]

Bella's (CS2) language is one of empowerment not coercion as a consequence of her learning.

"Know the benefits – which I didn't know before – makes me want to inspire woman to breastfeed." [CS2, non-BFI accredited, Bella (non-mother) Q3]

Cathy (CS3) who was from a formula feeding background found her attitude towards breastfeeding remained positive throughout the programme.

4.2.5.3 Attitude change from Year 2 to 3

Students with positive and negative personal experiences were willing and able to positively support women with breastfeeding.

"I mean not having breastfed myself. I did try with my first one...With my second one I was so disheartened by my experience, I just straight bottle-fed. I do regret it now. I wish I'd known then what I know now. ...It does (change my practice).." [CS5, BFI accredited, Estelle (mother) Int3]

"I think before if someone said they wanted to bottle-feed, I'd have probably thought, tick, that's easily done, there won't be any problems there. That's awful but I'll admit it, I shouldn't admit it, I know it's really wrong. Now I actually quite enjoy some of the challenges that breastfeeding brings, because I feel I can actually bring some positives to it, and I can help the woman now. Before I used to think,...what the heck can I tell her that's going to improve this situation?" [CS1, non-BFI accredited, Adele (mother) Int3]

Caroline (CS3) notes that students in her cohort who were fearful of supporting breastfeeding made conscious decisions to ensure their competence prior to qualifying. Equally her positive stance has remained throughout the programme.

"Well, I've known people that have been terrified of tackling it (breastfeeding) because they had a bad experience, and kind of avoiding it, and avoiding filling in the red book (RCS) and stuff. But then thinking towards the end of the course that actually this is something they've got to tackle, and going completely the other way now, so that's been quite nice to see that...." [CS3, BFI accredited, Caroline (mother) Int3]

The responses to the question; *"What has influenced your knowledge and skills development in Year 3 most?"* highlights a greater reliance on the evidence base to complications and theoretical knowledge (9) in their learning although practice application (5) was often jointly chosen (Table 15). An emerging theme is students developing their own personal style of practice independent of their mentor and organisation.

For the first time 'other' had been chosen and annotated which created more than the cumulative number of students (n=16).

Table 15 - Students' most influential factor to their learning in Year 3
(n=16)

Personal experience	Ethnic/cultural	Theory teaching	Clinical placement	Highest academic qualification
3	2	9	5	4

4.2.5.4 Summary of year three

Students in year 3 identify developing their own style of communication and working which appears to be more aligned to theoretical frameworks and evidence based practice. These changes are not defined by clinical BFI accreditation but the students' desire to fulfil the BFI curriculum. They identify their confidence as having grown and their belief system enhancing their desire to spend time with women to resolve any feeding difficulties. Increasingly breastfeeding complications are being addressed and resolutions sought independently.

4.2.6 Teaching Methods

Different teaching methods are employed throughout the infant feeding curriculum to address knowledge, skills and attitudes. These include lectures, group work, skills, scenarios and workshop with re-visiting of issues throughout the programme.

"I think the academic side is great, the recapping of knowledge because although you know the knowledge and it's there, going over it again really helps to bring it to the forefront of your mind so that you've got it there.....it hasn't been exactly the same.....I think I'd have forgotten it if I just did it in the first.." [CS2, non-BFI accredited Belinda (non-mother) Int3]

Adele (CS1) considers the teaching strategies in the BFI curriculum caters for all students' learning.

"I liked the workshops, I thought they were really good. That type is best for me, but I don't know how you can improve on those ...I think we were quite lucky in terms of how we were taught breastfeeding, we have lots of different ways, so you have academic parts, and then you have those little tests, and then you had the workshops. I can't think of a way of improving it,.." [CS1, non-BFI accredited, Adele (mother) Int3]

Mentors both expect and acknowledge an improved knowledge base in students from the first placements of the programme.

"Yes, I think it's a lot better than it used to be, much better (knowledge base in that first year)....." [CS3, BFI accredited, Community mentor Lesley (mother) Int1]

"I'd expect that knowledge right from the beginning now, whereas I wouldn't have done a few years ago, but they seem to get that so much earlier in the training now than they did. That I'd expect them to have all the knowledge, even if they hadn't got the clinical skills to go with or problem solving, but they should have all that there....It's good now because they've got a bit of knowledge about the theory and the benefits, and all those kinds of things earlier on." [CS1, non-BFI accredited, Community mentor Peggy (mother) Int3]

Phillipa (CS1, Community mentor) in Year3 makes a positive link between theoretical learning on breastfeeding supporting students' ability to problem solve and increasing confidence.

"Yes, I do (think the students have more strategies) and I think that's probably come from what they've learnt in school, the theory behind everything. It has got to help you hasn't it when you come out to be more confident in saying what you're saying....." [CS1, non-BFI accredited, Community midwife Phillipa (mother) Int3]

Surprisingly students are relying on university skills training for positioning and attachment of the baby to the breast and reconstitution of formula milk within both BFI and non-BFI accredited units.

"No, because we've even done the practical sides of it in class, haven't we. I felt very prepared for breastfeeding, ...less prepared for bottle feeding, because I haven't made up a feed.... So all I'm teaching them is the theory behind it that I've read in the leaflets and the guidelines...I do learn by doing theory and then doing practice... on the wards there are the pre-made bottles" [CS2, non-BFI accredited, Bella (non-mother) Int2]

"More so university I think (learning about positioning and attachment most)." [CS5, BFI accredited, Enya (non-mother) Int3]

All the students identified the benefits of breastfeeding lectures within each of the 3 years for reinforcement of knowledge base, confidence building and reiteration of the philosophy of reflection.

"Yes. I think it's important (to have a drip, drip approach). Well, we're always taught to reflect on our practice aren't we, but with breastfeeding especially there's lots of troubleshooting. You're given the basics of breastfeeding aren't you, you're not given what would you do in this situation if you came across a difficulty - it's the mechanics of a normal breastfeed isn't it more so. But I think to reflect on it and to go through it again....." [CS5, BFI accredited, Enya (non-mother) Int3]

"Completely (prepared). You're always going to see rare cases, .. but the basics and the general complications we've been taught in class, and you've seen them as you've gone from year 1 to 3 in practice, so you've put the theory into practice.....Yes, I think it's good to be taught regularly about it, it's definitely something that needs to be updated regularly, not just a one off or a couple of lessons, it needs to be structured well throughout the first to third year on a regular basis. ..Yes (drip, drip), ...to build that confidence in us." [CS2, non-BFI accredited, Becky (non-mother) Int3]

4.2.7 Learning tools

Three learning tools are embedded within the BFI curriculum:

- record of clinical skills (RCS)
- breastfeeding observations sheets
- competencies in the practice document

Record of Clinical Skills (RCS):

Mentors and students are aware of the expectations of completing the 'numbers' in the RCS.

"I know they've had to write in the red book that they've observed a feed.." [CS1, non-BFI accredited, Community mentor Phillipa (mother) Int3]

"Yes, she's filling it in well, I can't remember what number we're on, but she's got loads..." [CS4, BFI accredited, Community mentor Maggie (mother) Int3]

Students found recording their clinical skills a chore and often not reflective of the learning opportunities they have had. However they appreciated they were a prompt and supportive of learning.

"...terrible at (filling in my little red book).. I've no idea how many I've got but it's certainly not reflected on the amount we do....Yes (it is a useful trigger for learning), I think it is..." [CS3, BFI accredited, Candice (mother) Int3]

Bella (CS2) identifies concerns about achieving normal births which encourages her to record those in preference to breastfeeding opportunities.

'..I have been awful with it (RCS) because I haven't put every breastfeeder in, so I don't have enough at all....actually that's my main objective now before I qualify....I have been prioritising the NMC requirements.....no (40 is not unreasonable)..' [CS2, non-BFI accredited, Bella (non-mother) Int3]

Breastfeeding observation sheets:

The existence of the observations sheets by mentors and the reception of students using them were particularly poor in year 1 at CS1.

"Yeah, I pulled out one of my sheets to fill in, I'd observed and a couple of minutes later I filled in the sheets at the desk area, you know got the reaction from them. What's that and why do you have to fill that out, oh what is it....No, Not really interested...I appreciate they are so busy aren't they. But no..." [CS1, non- BFI accredited, Amber (mother) Int1]

Phillipa (CS1) the community mentor also notes the changing skill mix and working patterns which may hinder students observing a full breastfeed.

"I didn't know that (observing a full feed). I know the practice document and the red book. ...if we've known that the MSW is going out to a woman..., and we have sent the students in and they've found that quite useful, because they can just sit there for an hour and watch a whole breastfeed....now I know about that I'll...But it's certainly not as easy as it was because of the implementation of the post-natal clinic and the reduced home visiting." [CS1, non-BFI accredited, Community mentor Phillipa (mother) Int1]

By year 3 the mentors are aware of the existence of the observation sheet but their students may not have used them in community and Lesley (CS3 Community midwife) questions their feasibility. Maggie (CS4, Community mentor) is enthusiastic about students using observations sheets in the community as she does this regularly.

"Yes, I've seen one of those (observation sheets). But I've never seen someone...You haven't got time. You've very rarely got time to sit and observe a feed... you can see them do the latching on." [CS3, BFI accredited, Community mentor Lesley (mother) Int3]

"I'd say quite easily in the community, that happens a lot, and again we document if we've observed a full feed because there's a box for it in their postnatal notes....Yes (students could do their observation sheets), it's quite easy to observe a full feed in

community...." [CS4, BFI accredited, Community mentor Maggie (mother) Int3]

Peggy (CS1, Community mentor) considers enforced use of observations sheets good and enhances learning the diverse nature of breastfeeding support.

"I think it's good ..they have to observe, because again they were never in there before, were they?...I think the fact they actually sit and observe a whole feed is quite important, and having the time to do that is difficult, but very often you can do that at a first visit quite easily..that's a good thing for them to do, because then they've got a good knowledge. If they've not got any breastfeeding experience, it's very easy to think everything's the same rather than they're all different, and they're all doing their own thing. ...I wouldn't know the number, to be honest, but I knew they had to do some." [CS1, non-BFI accredited, Community mentor Peggy (mother) Int3]

Students and mentors acknowledge the benefits of the observation sheet.

"I think they are of use, I do think they're of use. They don't always do those sheets you know....I don't think that's that many in a year, do you, 3?...I don't think that's a problem...Absolutely (benefited), yes, and the woman as well because it's a familiar face." [CS2, non-BFI accredited, Hospital mentor Heather (mother) Int3]

"I think the observation sheets are good, it makes you think what you're looking for and if you're helping ladies that are struggling rather than teaching them initially to do it, it helps you break it down to see which parts aren't as effective as they could be.." [CS3, BFI accredited, Candice (mother) Int3]

Bridget (CS2) has used the observation sheet as a method of spending time with her women and developing her communication skills.

"The breastfeeding observation sheets we're meant to do over the 3 years are good, because you can kind of say to your mentor, I need to go and sit down with that lady and watch her breastfeed.... I

found in my first year it was useful to do them because it made me learn, because the mum would talk to me more about how they felt about breastfeeding, it helped me....." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

Not all students completed them, Alice (CS1); Charlotte (CS3) admits to forgetting about them and Becky (CS2) notes the size of the document as unwieldy.

All, **seventeen** students identified that putting 3 breastfeeding observation sheets in each practice document as a requirement, would aid completion, gives credence to it and support continued learning and reflection.

"...Oh yes (three observations going into every practice document.)" [CS1, non-BFI accredited, Alice (mother) Int3]

"...Yes, I think in my first year, I was just excited if a baby had actually gone on to the breast rather than knowing that it's good positioning...Yes, that's a really good idea actually (3 at the back of the practice document)." [CS3, BFI accredited, Charlotte (non-mother) Int3]

Barbara (CS2) questions the feasibility of observing full breastfeeds in years 2 and 3 as they are 'working as midwives'.

"Yes, I've done all that (observation sheets). But that was all done in the first year..I was all observing anyway.. now ..We don't stay in and watch a whole feed, we see them latching on and then we'll go back... I don't think in the second year and third year, that you're able to stay there with a woman for the whole of a feed...No, I've never seen a midwife stay there for the whole feed...." [CS2, non-BFI accredited, Barbara (non-mother) In3]

Practice document and competencies:

Mentors identify that it is helpful to have specific breastfeeding competencies that students have to achieve.

"I think it's good that they have competencies in there they have to

observe, because again they were never in there before, were they?..." [CS1, non-BFI accredited, Community mentor Peggy (mother) Int3]

"...I know the practice document (has feeding competencies)."
[CS1, non-BFI accredited, Community mentor Phillipa (mother) Int1]

4.2.8 Assessment

Assessment of competence in infant feeding takes place through a written examination in year 2 and by continuous assessment of competence by practice mentors.

BFI examination:

This examination is undertaken in year 2 and the results are presented in Table 16. It appears that being a mother or working in a BFI-accredited CS site confers a small percentage advantage in examination results.

Table 16 – Results (mean) from the examination by mother or non-mother and BFI or non-BFI site.

	CS1	CS2	CS3	CS5
Mean result	50.25%	54%	57.66%	55.75%
Mean result for students who are mothers	53.66%		57.66%	57.5%
Mean result for students who are non-mothers	40%	54%	57.66%	54%
Mean result for non-BFI sites	52.1%			
Mean result for BFI sites			56.7%	

Practice:

Assessment in practice occurs in two ways:

- direct observation particularly in years 1 and 2
- student verbal handover and written Trust documentation in year 3.

Continuity and trust are especially important in the latter years to support withdrawal of direct supervision and facilitation of unaccompanied visits in the community. Students identify their standing over the years as supporting this process.

Direct or indirect observation:

Mentors identify student replication of their 'patter' as a sign of competence to move on to the next stage.

"..they're not really left alone at all, not until third year and they are really senior..even then when they first come out to the surgery, I don't leave many alone...I might nip in and out of the room..... You look at each student....how well they've done..the really good student....say we'd done two 24 weekers, 'I'd say have a go'.....she did the first one, the second... the third...I can't fault her, she's got a really good memory for what I said , the words I used...she was doing all of it before she even got to the second year..." [CS3, BFI accredited, Community mentor Lesley (mother) Int1]

"...When they are second and third year students,...they work alongside you when they first come on because they only have short placement; so it is important you know where they are at.....you can't just take it for granted.....there's not that continuity.." [CS2, non-BFI accredited, Hospital mentor Heather (mother) Int3]

Students are comfortable and understanding that midwives need to make some direct observation of their skill before allowing them to work under indirect supervision.

"...sometimes mentors will say 'I don't want to put you off by standing directly next to you, but I'll just listen behind the curtain.... I think that is quite difficult for them.. I find it harder on the ward ...because of the lack of continuity....some will happily trust you.....some like to be with you for the first couple of weeks....." [CS, non-BFI accredited, Bridget (non-mother) Int3]

"....a lot will say don't feel I don't trust you, but I prefer to see what you can do before I sign you off, which I think is acceptable. Usually within a shift or two they are more than happy....." [CS1, non-BFI accredited, Amber (mother) Int3]

Caroline (CS3) identifies very early mentor assessment of competence in breastfeeding therefore a reliance on the university theoretical input.

"...Even from quite early on, mentors probably see breastfeeding as something students can grasp, so they'll go off and do other things ...we're thriving completely on what you've taught us, the theory. That's how you make your own patter up....." [CS3, BFI accredited, Caroline (mother) Int3]

Petulla (CS1, hospital mentor) comments about watching from afar which students may not be quite so conscious is occurring but also a confidence that students are being provided with the same theoretical knowledge that the midwives are.

"...I've no concerns about the level of student recently; they all seem to have the right initiative and ...drive.... watching them from afar and ensuring they are saying the right things. It goes back to having continuity with them....you trust they are being taught what we are teaching women....." [CS1, non-BFI accredited, Hospital mentor Petula (non-mother) Int3]

Continuity of mentorship:

Continuity of the mentor–student relationship either on a daily basis as Phillipa (CS1, Community mentor) describes or throughout the three years as described by Peggy (CS1, community mentor), increases accuracy and

confidence in the assessment of student capabilities. This trust enables 'letting go'.

"..I think it is easy for us because we are working with that person seven and a half hours in very close proximity....they can't hide their bad points or their good points...if you are in hospital ...you're working with a different midwife every shift; it's not easy to do that" [CS1, non-BFI accredited, Community mentor Phillipa (mother) Int1]

Peggy (CS1, Community mentor) also identifies some students need 'a push' to prove to themselves that they are capable.

"....you've had a student on and off for years, you know what they are capable of....I think continuity really helps, rather than having to reassess a new student all the time.....you just need to trust them ...the team felt quite confident she was ready....it's easier if you've not met the woman before...it's very difficult to be quiet and let them take the lead when it is somebody you know.....for some students its very difficult for them totake the lead, you almost have push them into it" [CS1, non- BFI accredited, Community mentor Peggy (mother)Int3]

Final year assessment can be particularly difficult. Estelle (CS5) describes the manner and accuracy of her judgement which enables a mentor to make an assessment and Alice (CS1) the completeness of the care she provided.

"....I think (the mentors decide you know what you are doing) if you walk into somewhere and she's feeding, whether it is in hospital or home and (you make an accurate assessment of the feed)...I think it's your individual mentor, and I think a lot of it probably goes on how they were taught." [CS5, BFI accredited, Estelle (mother) Int3]

"..Well, I've been signed off with D's...on breastfeeding, ...because I did the care and support up until discharge....if I was unsure ...I'd ask for help....I wouldn't say anybody comes to watch....." [CS1, non-BFI accredited, Alice (mother) Int3]

Maggie (CS4, Community mentor) discusses the choice of woman for an unaccompanied visit has to be carefully made in conjunction with the assessment of the students capabilities.

"....it's from working with them and seeing how they are doing. You discuss with them, do you feel ready to move on to the next level.....I might be saying, 'I doing the writing, you give the care and I'll be quietI had to really try and be quiet and back off a bit, the student was capable but when the woman knows you , they look to you.....you've worked with them.....she's got the knowledge,the expertise...to give advice...do that visit with me supervising indirectly, because you are only a phone call away.... you've got to pick suitable candidates for them....." [CS4, BFI accredited, Community mentor Maggie (mother) Int3]

Student reputation:

Bella (CS2) and Barbara (CS2) allude to their reputation over the three years as instrumental in the mentors assessment of their abilities.

Barbara also identifies her documentation as a method of mentor verification of capability.

"...most of them know me by now. I have worked with a million of them. Some of them will come and observe you, but some of them will trust you and say, do you feel confident in going and doing this on your own. And I will say, yes or ...no...." [CS2, non-BFI accredited, Bella (non-mother) Int3]

"...She's never seen me work.....she knows I am a good student....will ask for help if needed....she always sees my documentation...." [CS2 non-BFI accredited, Barbara (non-mother) Int3]

Enya's (CS5) mentor uses her handover of care.

"I've done two antenatal home visits on my own....reported back ... I've done this and this....and it's been ok...using my mentor as a (coordinator/supervisor)..." [CS5, BFI accredited, Enya (non-mother) Int3]

4.2.9 Overall Summary

Knowledge, skills and attitude were reviewed from student's personal reflection prior to commencing the course, following their first, second and third year infant feeding sessions. Knowledge steadily increased in its evidence base, complications and ability to trouble shoot. Skills development particularly using a hands-off technique in breastfeeding support and hand expressing were highlighted as beginning to occur in year 2 against the prevailing clinical role modelling. This continued in year 3. Positivity towards breastfeeding support increased with the increased knowledge students gained about the benefits of breastfeeding and breastmilk versus formula feeding, formula milk and skill development. Some felt a concurrent negativity towards formula feeding. A concern was expressed about 'bullying' women to breastfeed.

Teaching methods, style and delivery appear to support learning for all students irrespective of their previous exposure to breastfeeding, mentor and organisational factors. Although the RCS is regarded as tedious by some students it appears to enhance learning opportunities. The role of observation sheets appears more relevant with student use and seniority. The suggestion to have three observation sheets within the practice document was overwhelmingly supported by mentors and students. Clinical assessment is direct in the first year. The development of accurate 'patter' signifying competence. Assessment becomes more distant in subsequent years with the use of accurate 'hand-over' and plans of care also signifying competence. The early assessment of competence was found by some students to not reflect the changing expectations required with seniority preventing students from seeking support from mentors. Student reputation was a factor in assessment of competency. Similar patterns of assessment were identified across all CS sites.

4.3 Step 3: Inform all pregnant women about the benefits and management of breastfeeding.

4.3.1 Introduction

This BFI standard expects all pregnant women to be supplied with information on the benefits of breastfeeding regardless of their final choice of infant feeding method. The curriculum addresses the benefits and disadvantages of both breast and formula feeding to allow students to inform women more fully. Breastfeeding management strategies such as hand expression, positioning and attachment, sterilisation and reconstitution of formula milk are part of the skills set addressed in the curriculum (Appendix 2). Exploration of student application of these skills is found in Steps 4 and 10.

The findings related to this 'step' are drawn from interview data collected throughout the three years from students and mentors for each case study. Questionnaire data did not directly address practice issues. Four themes emerged regarding antenatal information giving during routine clinic appointments:

- initial contact,
- timing, content and manner of information given,
- organisational constraints,
- parent education classes.

4.3.2 Initial Contact

Information giving at the initial contact - 'Booking' - which is around 10 weeks of pregnancy is very consistently described by mentors and students from all case studies and over the 3 years. Midwives introduce the subject of infant feeding to women giving supporting material, such as leaflets and/or DVD but there is a reluctance to overload information at booking.

Historically a direct question on feeding intent was asked and then information given accordingly. This approach was thought to create a fixed position discouraging women from changing their decision following discussion [Sheehan et al 2010] and appears to be abandoned now from Effie's experience.

"They don't ask at booking though do they? Not allowed to ask if they're breastfeeding or formula feeding, they're not allowed to ask how you're going to feed." [CS5, BFI accredited, Effie (mother) Int1]

An introduction to the topic is recommended with appropriate sign posting which Phillipa (CS1, Community mentor) and Belinda (CS2) identify is undertaken and follows BFI curriculum recommendations [2011].

"Well, we should be talking about breastfeeding from booking...there's no set way in which we do that. I don't go into the whole ins and outs of it when someone's eight weeks pregnant and I'm booking them in, I just think it's too early too much. But I'll always point out that [maternity handheld records] is where there are feeding sheets and information, do you know the benefits to you and the baby, and leave it and say that we'll talk about it later on. Then they'll get the Mother's Guide to Breastfeeding." [CS1, non-BFI accredited, Community Mentor Phillipa (Mother) Int1]

"My mentor didn't discuss much feeding .. antenatally....But we gave them breastfeeding booklets and go through that with them and went through the breastfeeding pages in the [maternal handheld records] and may be talk a little bit with that." [CS2, non-BFI accredited, Belinda (non-mother) Int1]

Alex (CS1) and Maggie (CS4, Community mentor) do not identify sign posting but just give out the breastfeeding booklet. One student Charlotte (CS3) highlights some women's poor use of the materials provided. An evaluation of the DVD 'Bump to Breastfeeding' highlighted the importance of sign posting women for maximum benefit to be achieved from the information tools. The evaluation found 71% used the DVD and 99% of

those found it useful with an increased rate of breastfeeding to 6 weeks particularly amongst the lower socioeconomic groups [Wilkins et al 2010].

"We do still give out the DVD with the packs, but I've known it that when women come into labour, it's still sealed in their pack they were given originally and you kind of think, oh dear." [CS3, BFI accredited, Charlotte (non-mother) Int3]

Alex (CS1) notes differences in mentors' approaches to breastfeeding antenatal information giving, suggesting it relates to the mentors' general enthusiasm for breastfeeding. She takes her cue from the mentor and role models her conversation.

"One was more breastfeeding than the other. The other one was they have had enough leaflets and she wasn't going to push She wouldn't touch it. The other would talk a bit more. I would wait to hear how they said things and I would say the same things." [CS1, non-BFI accredited, Alex (mother) Int1]

4.3.3 Timing, content and manner of antenatal information giving

Two patterns of antenatal information giving have emerged. CS1, CS2 and CS4 have a 'one-stop shop' at 34-36 weeks whereas CS3 and CS5 have a 'structured-drip-drip' delivery of information from 20 weeks pregnancy onwards which covers key aspects of the 'BFI Ten Steps'. Both students and mentors identify the same delivery of information although students in year 1 are rather vague in their descriptions.

4.3.3.1 'One-stop shop'

The one-stop shop provides the information close to most women's expected date of birth however some women may have already had their babies. It also provides little time for revisiting. It is held that revisiting information supports its retention; therefore this pattern of information giving may not be optimal. Alex (CS1) and Maggie (CS4, Community

mentor) identify the 34-36 week timeframe whereas Peggy (CS1, Community mentor) a little earlier at 30 weeks.

"It was about 36 weeks she would do another talk and she would discuss if they wanted to breastfeed or bottle feed and some of the pros of breastfeeding. I think it came across that it was easier because your breasts were there and that you didn't have to go downstairs and make the formula." [CS1, non-BFI accredited, Alex (mother) Int1]

"I'd tell them that I'll talk to them (about feeding) usually when they're over 30 weeks" [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

"...There's a box on the pathway that we tick to say they've had it and on what date, but also by 34 weeks, we should have had a proper discussion with them about breastfeeding.." [CS4, BFI accredited, Community Mentor Maggie (mother) Int3]

4.3.3.2 'Structured-drip-drip'

In year 1 students' at CS3 are aware but not too sure of the set pattern of information giving provided on four occasions, starting at 24 weeks of pregnancy. Enya (CS5) is aware there are 3 points at which a discussion should occur.

"The first part that you have to tick off is 24 weeks.....And then I think there is another one at 28 and another one at 34. There are four altogether." [CS3, BFI accredited, Caroline (mother) Int1]

".....There is like a whole page devoted to breastfeeding and I think you discuss it on three separate occasions. Early on when you are booking in, about 26 weeks or something...." [CS5, BFI accredited, Enya (non-mother) Int1]

Lesley (CS3, Community mentor) corroborates the structured-drip-drip delivery of information at 24, 28, 32 and 36 weeks giving detail of the content. The description can be directly linked to the 'BFI Ten Steps'

starting with generic steps/advice culminating in reinforcement of the importance of the first breastfeed. The curriculum emphasis is on information giving in a sensitive way not the pattern of delivery, as Trust documentation varies.

"There's a set formula, yes. 24 weeks is talking about skin-to-skin, we'd like baby to sleep in the parents room for the first few weeks at home, to encourage them to give at least that first feed as a breastfeed. 28 weeks is how long we feed babies for at the breast, we don't have a fixed time; we try not to use dummies, teats or nipple-shields until they're at least ten days old; and the fact that baby only needs milk for six months, it doesn't need any water, any squash, any baby tea, any food until six month...Then at 32 weeks we go through... there are support groups ...Then at 36 weeks, try and give that first feed, it's really important, and then ..just hand expressing, and nipple stimulation for delivery." [CS3, BFI accredited, Community Mentor Lesley (mother) Int1]

Candice (CS3) considers this approach beneficial to women as women are not overloaded with information at any one time empowering them in their decision making. She also identifies that a DVD can be provided but not used whereas a face-to-face meeting guarantees some level of engagement with the information.

"I think having to talk to the ladies antenatally about specific breastfeeding at certain stages definitely helps. I think it opens their eyes, because you can give them a DVD and they don't watch it...I think they're easier to digest and you're not bombarding them.....they tend to know more about it when it comes to making that choice in hospital or at home, wherever they deliver. I think that's definitely good." [CS3, BFI accredited, Candice (mother) Int3]

Students at CS1 have noticed a change in practice since the Trust began preparing for BFI accreditation. Both mentors and students now describe a more structured-drip-drip delivery of information starting at 20 weeks.

"This is new that I noticed in my third year, in the (maternal handheld notes), there was always that bit about feeding in there,

but I can't ever think that my mentor particularly went through it specifically, but they do now. They'llgo through all the different types of feeding options, and there's a booklet as well that you give out at that stage. I think it was always there, but I've noticed in my third year that my mentors definitely explain it...." [CS1, non-BFI accredited, Adele (mother) Int3]

CS3 has altered its documentation to a more discursive transfer of information as noted by Lesley (community mentor) in line with new BFI recommendations for longstanding BFI accredited units [personal communication 2011] but draw backs are noted. Caroline a student is aware of the new documentation.

"Not anymore (structured antenatal information giving), no, that's changed.....It's more open questions, more discussion questions ... do you know the benefits to baby of being breastfed, ...do you know the detriments of bottle-feeding, that sort of thing. Are they aware of how to make up feeds? But I think it gives more open discussion, but it's also more time consuming, and when you haven't got a lot of time because we're seeing so little of the ladies now." [CS3, BFI accredited, Community Mentor Lesley (mother) Int3]

"There's a page (on breastfeeding antenatal information) and its split up, although it has changed and there's a new document." [CS3, BFI accredited, Caroline (mother) Int3]

Students at CS3 and CS5 observed hand expression being discussed antenatally in all years of their programme whereas, it took until the third year for students in non-BFI accredited units CS1 and CS2 to see its implementation.

"She [MSW] had a booklet (now) and would go through hand-expression" [CS1, non-BFI accredited, Adele (mother) Int3]

4.3.3.3 Manner

The style of communication was found to be different between those case study sites that are BFI accredited and those that are not as illustrated by Amber (CS1) and Effie's (CS5) observations.

"Um.....pause,during antenatal, I'd say at the booking they were asked and it was put to them I quote, 'Have you decided how you are going to feed are you going to give breastfeeding a go', so it was always breastfeeding you know at the top of..." [CS1, non-BFI accredited, Amber (mother) Int1]

"...Not allowed to ask if they're breastfeeding or formula feeding.....They promote the benefits to everybody, they don't ask how they're feeding they just promote the benefits to everybody" [CS5, BFI accredited, Effie (mother) Int1]

A more discursive manner is noted by Enya (CS5) in year 3 with potential options rather than a fixed decision which has to be fulfilled and a clear desire to ensure an informed choice could be achieved. The concept of making a choice at each staging post is introduced from both BFI-accredited sites.

"Whenever I do come across a lady who's adamant they want to formula feed I'll go through the breastfeeding with you, enhance the informed choice, you can't make your choice until you're fully informed of both aspects of it, so I'll still go through it with you anyway. So they still end up having all the information. If they do want to formula-feed, you can offer to try the first feed and 'see how you feel', ask what the reasons are for them not wanting to breastfeed, some people are, 'I don't want anything sucking on my nipples thanks', but I'll say, 'you can always give it a try, when you've got baby in skin-to-skin if it does try and go on, give it a go', but if they don't want to, then that's fine." [CS5, BFI accredited, Enya (non-mother) Int3]

This approach is mirrored by Lesley (CS3, Community midwife).

"Well, if you're not thinking of breastfeeding, why don't you just give the first feed and see how you feel, because really babies benefit an awful lot from the first feed. They get all the colostrum, so they get some immunity, it's putting a layer of good bacteria all the way through baby's gut which will help protect them for life. So if you can give that first feed or even the first few feeds, it will really do baby good. You never know, you might like it. Don't go over the top and just tell them a few bits, and then next time you come, build on it." [CS, BFI accredited, Community Mentor Lesley (mother) Int3]

Estelle (CS5) is particularly sensitive in her approach with breastfeeding due to women's comments overheard in local shops.

"We try to give the benefits of breastfeeding at least three times during their antenatal period, but we're doing it in a way that you're not bullying them into it, because I've stood in Tesco queuing and heard women sort of saying, the midwives at CS5, they bully you into breastfeeding, and you just do it while you're there, and as soon as they get home they go onto formula-feeding. ..I don't want to make people feel pressured like that." [CS5, BFI accredited, Estelle (mother) Int3]

4.3.4 Organisational constraints

Community mentors and students particularly at CS1, CS2 and CS3 comment on time constraints and therefore the increasing use of MSW's within the service. Time to impart sufficient infant feeding information to ensure an informed choice within a 20 minute appointment in addition to other equally important topics was found to be increasingly difficult.

"... The amount of things, as community midwives over the time I've been out here, we're expected to cover in a 20 minute appointment is growing daily; the questions you have to ask, the boxes you have to tick." [CS1, non-BFI accredited, Community Mentor Philippa (mother) Int3]

"No, you just have to pull it in with your 20 minutes wherever you can, which I mean I'm an experienced midwife; I find it difficult in 20 minutes. There's no time for anything that's a little bit out of the ordinary. There's just no time." [CS3, BFI accredited, Community Mentor Lesley (mother) Int3]

"It would be a usual 20 minute appointment, so it's just slotted into a normal antenatal appointment." [CS2, non-BFI accredited, Belinda (non-mother) Int3]

To accommodate the reduced midwifery time allocated, MSWs have been employed and trained to give antenatal infant feeding information at the birth planning visit.

"...(the)MSW...arranges a 36 week talk with the ladies and they go through feeding, labour and positionsgo round to their homes.....Especially for first time mums we do recommend it, it's just if they want it or not....that's a new thing that's come in....." [CS2, non-BFI accredited, Barbara (non-mother) Int1]

"I think it's at 28 weeks they're offered a home visit around 32 weeks, from the MSW. She goes in and goes over a whole load of breastfeeding information, things they might need in preparation; ways to prepare for breastfeeding; and gives them a breastfeeding leaflet." [CS1, non-BFI accredited; Amber (mother) Int3]

This home visit has been available for different lengths of time dependent on the demographics of the area at CS1 and CS2.

"a primip will get a MSW visit at 34 weeks in the community.....It's a new thing really, probably been done for the last year... I've probably been doing mine longer.....because it was ..targeted to start with (Sure Start). So all primips now and targeted multips really. She does them in the afternoon, it takes her about an hour/an hour and a half, but very often she's at women's houses for two hours, because she's got the time to do that." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

4.3.5 Parent education

The amount of parent education varies between sites in number, content and perceived usefulness to the women/couples who attend. There are generally only 2 sessions one on labour/pain relief and one on living with a baby which includes infant feeding but the detail provided appears quite limited. Students have also commented on the type of individuals accessing parent education.

"....they do a whole day at (my community)on pain relief and what to expect and then infant feeding at the end....you just want to go home and these women are heavily pregnant..... the information was not given probably in a very effective way..... But then some people go to the NCT classes." [CS1, non-BFI accredited, Adele (mother) Int1]

"They can either do one day, they can do specific ones just for breastfeeding, or they can go to a set of three, whichever really. We try and give them a choice....We'd do labour on one day, pain relief on another day, and then breastfeeding and postnatal care on another day." [CS4, BFI accredited, Community mentor Maggie (mother) Int3]

The point at which information is provided to reserve classes varies between midwives. Women accessing parent education is reliant on the individual's initiative and timely return of the form. Shona (CS5, Community mentor) in year 3 identifies that MSW's are undertaking parent education classes.

"....They (MSW) came with us to do our parentcraft and then they said it was something they'd like to do, and obviously with our busy role, we're quite happy to let them do it. The ladies are coming back and giving quite good feedback, they seem to be saying the things that we'd say." [CS5, BFI accredited, Community Mentor Shona (mother) Int3]

Limited importance was given to infant feeding classes within the set plan

for parent education. This situation hasn't changed over the 3 years at CS3 a BFI accredited unit or CS2 which is not.

".....I don't recall there being much on breastfeeding...so kind of breastfeeding got... pushed out the way perhaps, yeh." [CS3, BFI accredited, Cathy (non-mother) Int1]

"..We talk about sterilisation.....but (feeding) it's not something that's taught because of the (mixed) audience." [CS3, BFI accredited, Charlotte (non-mother) Int3]

"they didthree sessions and they're wanting them to cut down to two. And I think the breastfeeding was going to be shunted." [CS2, non-BFI accredited, Belinda (non-mother) Int1]

Perceptions of the effectiveness of the infant feeding section of parent education classes vary dependent on personal belief system. Enya (CS5) considered too much emphasis was given to breastfeeding and Effie (CS5) who had been a peer supporter, too little. These were comments in year 1 so Enya (CS5) may have become less uneasy with the balance of the session by year 3 as a quote earlier from her intimated she would still give the benefits of breastfeeding to a woman who was considering formula feeding to support an informed choice and recommend a first feed. Polly expresses her concern that women's lack of knowledge about breastfeeding can impact upon subsequent experience and risks a dissonance between the ideal and reality.

"(women)...don't prepare. And I think people's exposure generally in society is much less to breastfeeding than it has been so therefore people don't quite know what to expect or what happens." [CS1, non-BFI accredited, Hospital Mentor Polly (non-mother) Int3]

4.3.6 Summary

Findings on antenatal information giving in infant feeding, particularly breastfeeding, highlighted four themes during routine clinic appointments.

- The initial contact identified limited verbal information giving but leaflets and/or DVD were provided to take home.
- Differences in approach were noted between BFI accredited and non-accredited sites but also between mentors.
- BFI accredited units used a 'structured-drip-drip' transfer of information from 20 weeks onwards which students identified supported women's knowledge. The non-accredited, CS1 and CS2 used a 'one-stop shop' around 34-36 weeks. Since the process of accreditation has begun a 'structured-drip-drip' approach has been implemented. CS3 has recently altered the formatting of information giving using questions rather than transmitting information opening a dialogue with the pregnant woman in line with new UK BFI standards [2012].
- Twenty minute clinical appointments limit discussion time and MSWs increasingly are being deployed to provide informed choice on infant feeding including parent education.

Students identify role modelling their mentor in year 1 and comment on differences in breastfeeding approach which pervades all breastfeeding care. Sensitivity in information giving is noted and a desire to provide informed choice is identified in year 3 which are key philosophies of the BFI curriculum.

4.4 Step 4: Help mothers initiate breastfeeding soon after birth (includes skin-to-skin).

4.4.1 Introduction

Skin-to-skin is regarded as the prelude to breastfeeding as discussed in chapter 1. The length of time recommended for skin-to-skin increased from 30 to 60 minutes in 2011 to facilitate self attachment [UNICEF-UK BFI 2011]. This was incorporated into the university BFI teaching.

The findings have been categorised under four themes:

- information giving on skin-to-skin
- the opportunity of supporting skin-to-skin following a normal birth or operative birth
- the initiation of feeding following a normal birth or operative birth
- the manner in which the first feed was achieved

The figures were generated from the record of clinical skills (RCS) data and as there are different numbers of students per CS mean statistics have been produced rather than summative. No RCS data were returned by the students at CS4 therefore there is no data for this site.

4.4.2 Information giving on skin-to-skin

From the data it was evident that there are differences in the information women are given relating to skin to skin; when it is given; how much detail is provided and its documentation. This varies between CS sites and mentors. In year 1 students at CS1 and CS2 don't recall information being offered relating to the benefits of skin-to-skin and Bridget (CS2) questions whether it is information that should be provided in the antenatal period.

"Pause, um..... Um.....Pause... there's nothing that springs to mind as when things have been spoken about when the women are in labour.... nothing springs to mind about do you want skin to skin, I

can't remember that being asked." [CS1, non-BFI accredited, Amber (mother) Int1]

"(Pause) I don't know really there wasn't much information given..... maybe that should be discussed in the community before to like encourage them to put it on the breast..... We didn't go through that much with my mentor really." [CS2, non-BFI accredited, Bridget (non-mother) Int1]

Students at CS3 and CS5 spontaneously provide some benefits of skin-to-skin, are sharing this information with women antenatally in clinical practice and documenting the conversation in maternal handheld notes.

"I'd say .., have you heard of skin to skin first and see if they can tell me anything about it and then say we recommend skin-to-skin, it's quite good for baby regulating temperature and heart beat, it also starts bonding and it can also initiate the first breastfeed if that's how you were wanting to feednot many people really say "no", they go with it really." [CS3, BFI accredited, Charlotte (non-mother) Int1]

"Yes ..in the antenatal period I have noticed that women are told about skin-to-skin the bonding and how it can help breastfeeding.." [CS5, BFI accredited, Effie(mother) Int1]

Maggie (CS4, Community mentor) informs women antenatally about the benefits of skin-to-skin in preparation for further discussion when admitted in labour.

".....I'd tell them that, 'we're still going to ask you do you want to do skin-to-skin even if you don't want to breastfeed', in the hope they might change their mind on the day." [CS4, BFI accredited, Community Mentor Maggie (mother) Int3]

Although Estelle (CS5) doesn't recall the documentation, as a first year student she has been involved in imparting the information to women.

"Not paperwork wise,.... Most midwives tend to talk through it (skin-to-skin) or they will allow me to talk through it..." [CS5, BFI accredited, Estelle (mother) Int1]

In year 3 Belinda (CS2) reinforces the benefits of skin-to-skin to women on admission in labour and has embedded it in her practice. This is a new development which was commented on by students at CS2 both antenatally and when women were admitted in labour.

"I always do a big discussion when they're first admitted about delivery and what they want, which includes...whether they want skin-to-skin, and the benefits of skin-to-skin if they want it; how they want to feed baby and when to do the first feed;Not to pressure them for a decision at that point.... Some women don't decide right up until the birth" [CS2, non-BFI accredited, Belinda (non-mother) Int3]

4.4.3 Skin-to-skin following normal birth

Students must undertake a minimum of 40 normal births within the three years of the programme to qualify although the distribution varies between students. The distribution in the numbers of normal births for each CS (Figure 9) in year 1 is 5.75-6.8, with the greatest number in year 2 (15.5-20.3) and reducing a little in year 3 (10.8-13.1). Students usually increase the number of complicated births as they progress through the programme therefore having less experience of normality in year 3 is to be expected. This pattern is displayed on all CS sites.

The number of students participating in normal births where women have skin-to-skin (Figure 10) varies in year 1 from 71% (n=39) at CS2 to 93% (n=41) at CS3. CS1 and CS2 sees a rise in skin-to-skin following normal birth then a drop in year 3. CS5 a steady fall but CS3 consistently has the highest percentage. The overall percentage of skin-to-skin following normal birth at all CS sites never drops below 65%.

A chi squared test for independence indicated a significant association between normal birth and having skin-to-skin following birth (n=1462 $p < 0.001$ $\phi = 0.57$) (Figure 11).

Figure 9 - Mean number of normal births recorded by students' in years 1, 2, 3 by CS

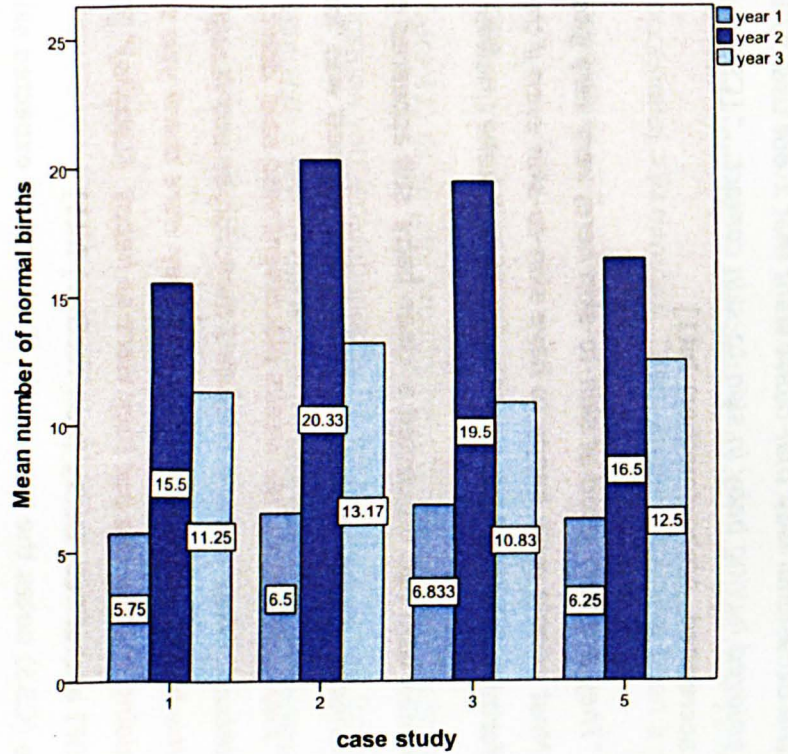


Figure 10 - Percentage comparison of mothers and babies having skin-to-skin following a normal birth by Year and CS

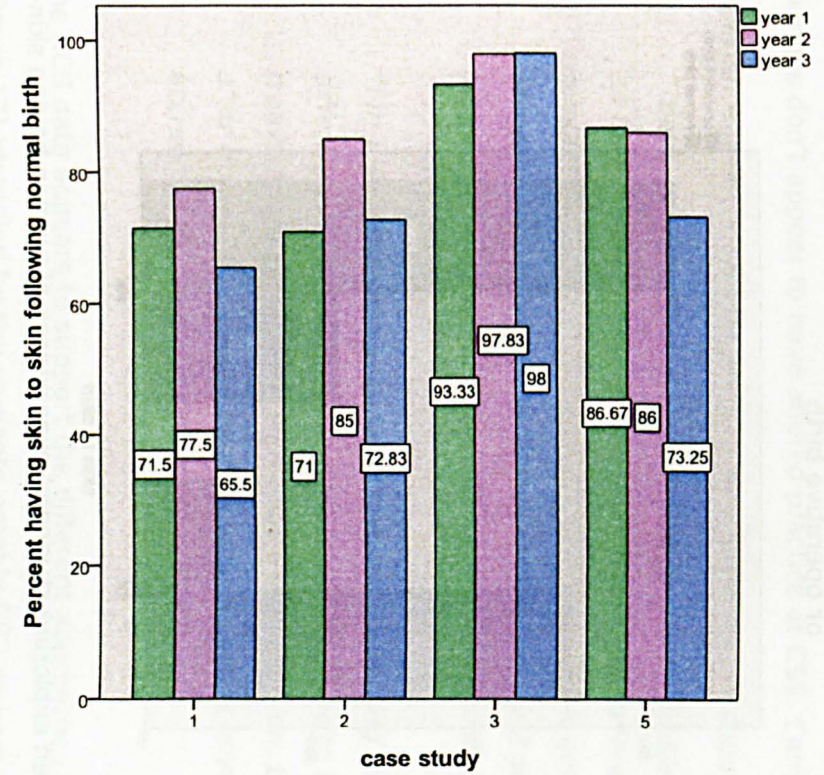
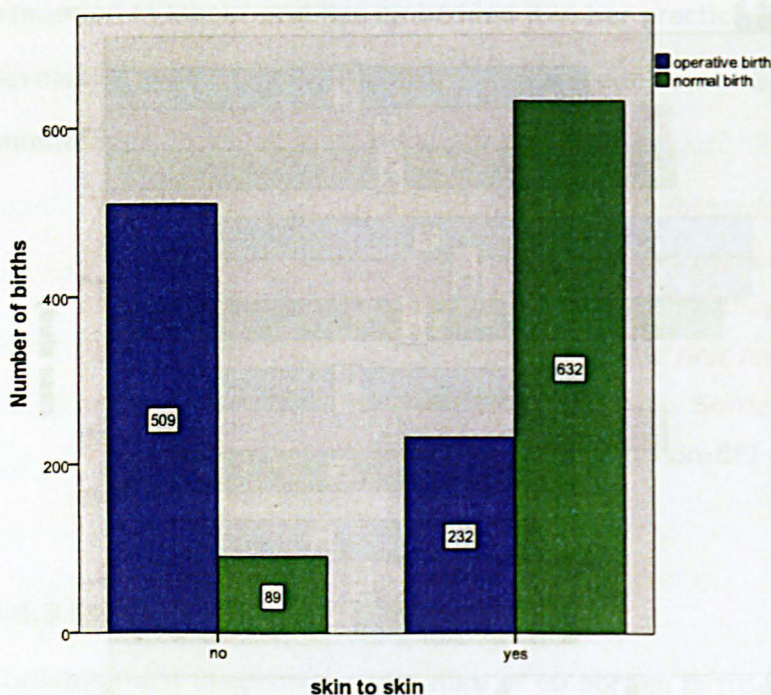


Figure 11 – Relationship between skin-to-skin and normal or operative birth



When exploring students' experiences of women having skin-to-skin, all reported positive opportunities irrespective of feeding intent and CS site. Most women appeared to enjoy the experience.

"Skin-to-skin usually straight away, following birth...you would get the occasional lady that didn't want that ...but usually most women enjoyed having baby in skin-to-skin contact..." [CS1, non-BFI accredited, Amber(mother) Int1]

"They are very good at skin-to-skin here, very very good at it.... Most people were happy to have skin-to-skin even if they were formula feeding." [CS5, BFI accredited, Estelle (mother) Int1]

Even women who had requested a 'clean baby' still appeared grateful for the experience of skin-to-skin even when their request was 'forgotten'.

"Two ladies in my six weeks placement who said 'don't, please clean them up first' but the midwife I think forgot and (Laughs) popped the babies straight on them and they were thank you so much for doing that for me but they were so happy. (Laughs)" [CS2, non-BFI accredited, Becky (non-mother) Int1]

Caroline (CS3) notes the increase in the length of expected skin-to-skin

which has changed over the course of their programme although the changes don't appear to have altered practice at CS5. Caroline's experience is supported by the RCS data presented in Figure 16.

"That's (skin-to-skin) generally happening... I know it's advised for an hour now, whereas it was 45 minutes and before it was 30 minutes. It may not happen straight away but it generally happens somewhere along the line. Some people decline it so there's not a lot you can do really." [CS3, BFI accredited, Caroline (mother) Int3]

"I'm just trying to think. I don't seem to be doing that much different. Here there's more skin-to-skin and we're trying to transfer women upstairs with baby in skin-to-skin, but usually it's after they've been down here a good 4-5 hours anyway." [CS5, BFI accredited, Enya (non-mother) Int3]

The RCS data appears to support the different approaches to skin-to-skin (Figure 12) identified by the students notably CS2 compared to CS3 and CS5.

The length of skin-to-skin following normal birth at **CS2** in year 1 is predominantly <30 minutes (n= 13 from 39); in year 2, 31-60 minutes (n= 64 from 122); and year 3, 61-90 minutes (n= 15 from 75) and the occasional >91minutes. There appears to have been a major change in practice at CS2.

CS3 in year 1 has 30 minutes (n=14 from 41) and 31-60 minutes (n=14 from 41) as equally predominant times. In year 2 CS3 has maintained its position with predominantly 31-60 minutes (n=68 from 117) of skin-to-skin with a few in the 61-90 minute category. However, proportionally CS2 has exceeded CS3 numbers for over 61 minutes of skin- to-skin in year 3.

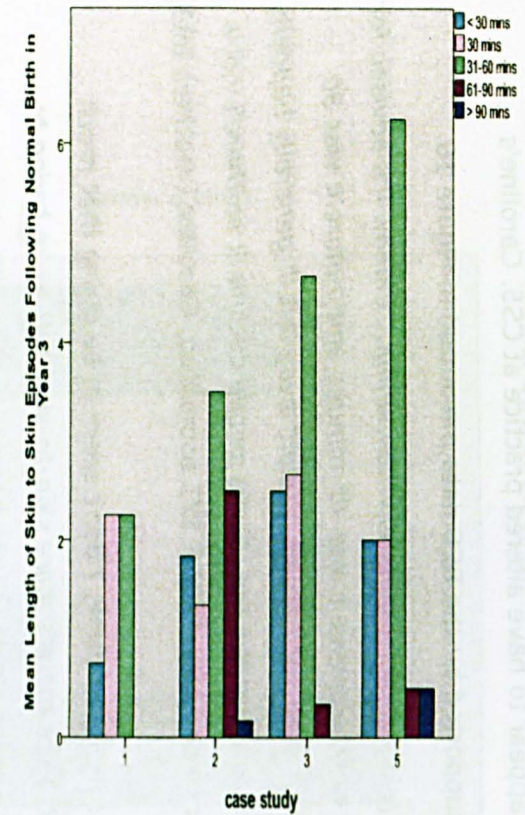
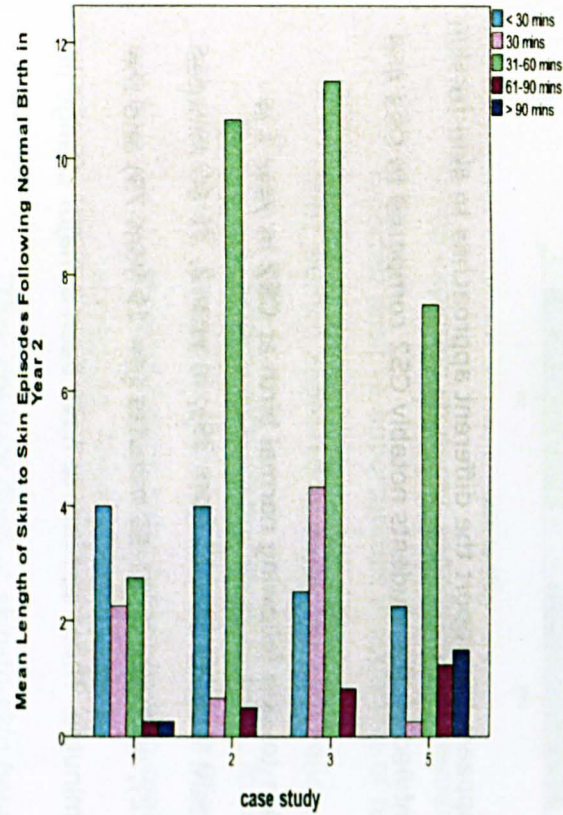
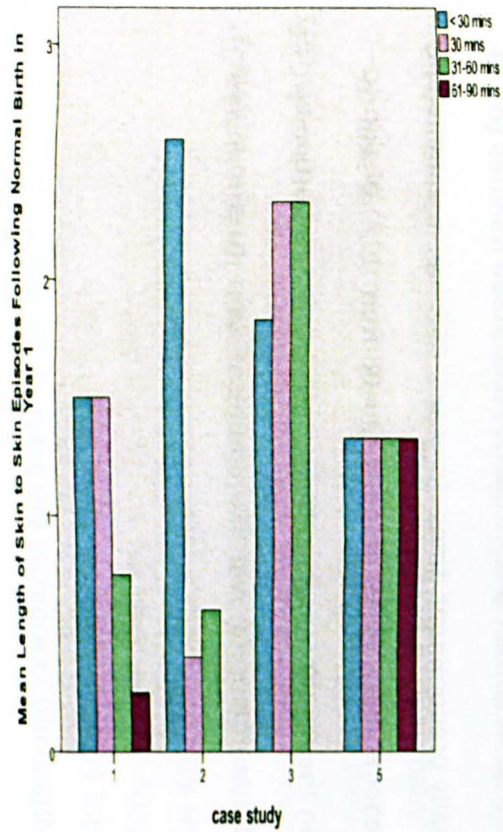


Figure 12 - These three figures compare the mean number of episodes of length of mother and baby skin-to-skin following a normal birth by case study for Years 1, 2 and 3 respectively.

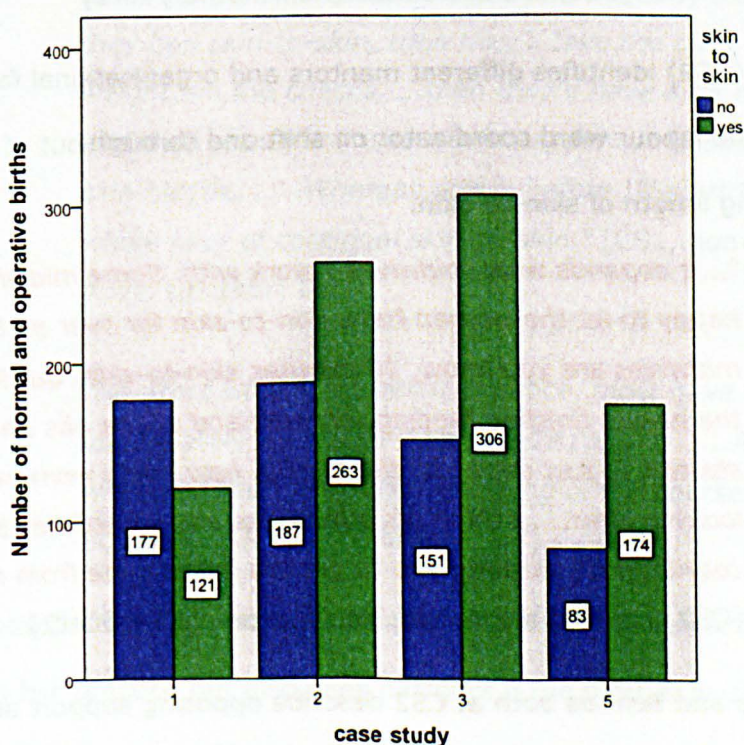
CS5 has the highest number of 61-90 minutes (n=4 from 25) in year 1 with an even distribution across all time categories. By year 3 CS5 has the highest proportion of 31-60 minutes (n=25 from 50) of skin-to-skin.

CS1 persistently has the highest proportion of skin-to-skin 30 minutes or less throughout the three years- year 1 (n= 21 from 23), year 2 (n=25 from 61), and year 3 (n=12 from 45).

The importance of longer skin-to-skin is its relationship with good mother-baby attachment, increased likelihood of self attachment at the breast and a successful breastfeed prior to transfer from labour ward.

A chi squared test for independence indicated a significant association between case study site and having skin-to-skin following any birth (n=1462 p<0.001 phi=0.21). CS3 and CS5 have a statistically significantly greater numbers of skin-to-skin post any type of birth (Figure-13).

Figure 13 - Relationship between skin-to-skin following any type of births and by CS.



There appears to be more focus on ensuring skin-to-skin takes place at CS3 and CS5 although when it is initiated at CS5 seems to be little different to the other CS.

"They are very pro skin-to-skin. On the front of the feeding sheet 'was skin-to-skin commenced within 30 minutes of birth' and if not why. So everyone is like its 29 minutes shove [laughs]." [CS5, BFI accredited, Enya (non-mother) Int1]

4.4.3.1 Barriers to skin-to-skin following normal births

The length of skin-to-skin that is expected appears to vary between women, mentors and CS. Cathy (CS3) notes specific instances such as breast surgery or culture where women may decline skin-to-skin or have limited skin-to-skin.

"Yeh, everybody, every single person that I've seen has had skin-to-skin for above 30 minutes if not longer...one lady, which we didn't discuss breastfeeding or encourage skin-to-skin ...she'd had some sort of breast surgery.....If anything....I suppose it's cultural, tends to be your more Asian origins.....they'll have a cuddle for 5 minutes and say "oh no" you can put baby down in the crib for me...." [CS3, BFI accredited (non-mother) Int1]

Becky (CS2) identifies different mentors and organisational factors such as time, the labour ward coordinator on shift and through put of women affecting length of skin-to-skin.

"...it depends what midwives I work with. Some midwives are just happy to let the woman have skin-to-skin for over an hour, other midwives are you know, 10 minutes skin-to-skin, quick feed, once the babies finished feeding, dressed and all the obs and things started. It just depends, the timing, how many women we're looking after.....I think it's a business and sometimes the coordinator's pushing you to get the ladies gone from labour suite" [CS2, non-BFI accredited, Becky (non-mother) Int2]

Barbara and Belinda both at CS2 describe opposing support and facilitation for skin-to-skin from their mentors. Barbara is looking forward to the

'confidence cases' in year 3 to support her development in facilitating extended skin-to-skin.

"I think most of the time the women just go along with what the midwife does...I'll be getting 'confidence cases'.... I won't have that mentor so at least then I'll be able to explain it (skin-to-skin) a lot more." [CS2, non-BFI accredited, Barbara (non-mother) Int3]

"....I think they let me kind of say 'let's have a bit more skin-to-skin here and let's, you know, not take it away from the parents straight away'..... I haven't really ever had a mentor that's butted in..."
[CS2, non-BFI accredited, Belinda (non-mother) Int2]

4.4.3.2 Student development and confidence

Students in all CS become more confident as the course progresses in supporting women to have extended and continuous skin-to-skin following normal birth. The biggest changes are noted by students at CS1 in Year 3 where skin-to-skin had been interrupted to undertake necessary neonatal care. RCS data supports students' comments.

"....all normal births, it's always been offered, most women have taken up the skin-to-skin as soon as the baby's born. I think before they had skin-to-skin, then they'd take the baby off, they'd do the weight, do the checks, ...then they'd have a bit more skin-to-skin, and then something else would happen. It wasn't continual skin-to-skin maybe.Whereas now, , before I'll start to try and get a whole hour of continual skin-to-skin." [CS1, non-BFI accredited, Adele (mother) Int3]

"No, from what I've seen in practice, most have skin-to-skin immediately no matter how they're feeding.....A big change from what I've seen since the beginning of the course." [CS1, non-BFI accredited, Amber (mother) Int3]

Belinda actively promotes skin-to-skin with mothers and has embedded it in her practice but also uses partners if the mother is unable to, and clearly articulates her rationale, which has been commented on by mentors.

Maggie (CS4, Community midwife) also comments on how she encourages skin-to-skin and the use of partners if required.

"...the majority of women have skin-to-skin.....(If the mentor) isn't happy with the baby on the woman while she's being sutured... I put the baby skin-to-skin with the dad. I've done that several times. A couple of people have said to me, 'oh I've never seen that before',although it might not help with the initiation of breastfeeding,.... I've found that as a halfway point....." [CS2, non-BFI accredited, Belinda (non-mother) Int3]

"...It's better from the mother than the father obviously, and that we don't want to interrupt the skin-to-skin contact if we can help it....." [CS4, BFI accredited, Community Mentor Maggie (mother) Int3]

Barbara from CS2 in contrast to Belinda does not appear to have had such a positive experience with the use of skin-to-skin. She has acknowledged she maybe does not encourage skin-to-skin enough but is increasingly trying to implement it more.

"Most(ly)...I don't see it (skin-to-skin) being done straight away, I always see it after an hour....if they don't mention it., which is a fault of mine really, I don't push it so much,.....since the first year I'm thinking a lot more about it and trying to implement it a little bit more..." [CS2, non-BFI accredited, Barbara (non-mother) Int3]

4.4.4 Skin to skin following operative birth

Operative births defined in the students' RCS include emergency and elective caesarean sections, ventouse and forcep births. With increasing knowledge the opportunities for student learning about more complex births occurs in the second and third years. However clinical practice can present these cases at any point in their programme.

Figure 14 highlights a greater variance in the number of operative births compared to normal births that students are involved in with CS5 having

the lowest mean of 5 (n=21) per student and CS2 the highest 13, (n=77) in year 1. Students in year 2 experience the greatest number of operative births in all CS as would be expected from the curriculum design.

Figure 15 shows that the proportion of caesarean births (if elective and emergency are combined) in **year 1** is similar for CS1 (n=9), CS2 (n=14), CS3 (n=13) but much lower in CS5 (n=1). However the emergency caesarean section rate is greater at CS1 (n=6).

In **year 2**, CS1 has the highest mean combined caesarean sections (n=21) but also a higher emergency rate (n=13). That pattern is mirrored by CS3 (n=23 and n=15 respectively).

Operative (particularly caesarean section) births carry greater risk factors than a normal birth for the mother and/or baby and therefore different parameters need consideration when advising skin-to-skin. It is however, important to 'normalise' the situation if possible and maximise the physiological and psychological advantages of skin-to-skin within this group of women and babies with subsequent early initiation of breastfeeding because of the delayed lactation experienced by this group of women.

Figure 16 identifies that in **year 1**, CS3 has the highest percentage of skin-to-skin following an operative birth (n=35 from 65) and CS1 the lowest (n=5 from 37). CS3 also has the second highest operative birth rate. This paradox may in part be explained by the proportion of caesarean births (CS1 n=9, CS3 n=11) to ventouse and forcep births (CS1 n=4, CS3 n=17) but more importantly the proportion of emergency caesarean births (CS1 n=6, CS3 n=4) (Figure 18).

Figure 14 - Mean number of operative births (emergency or elective caesarean section/ventouse/forcep birth) recorded by students in Years 1, 2 and 3 by CS

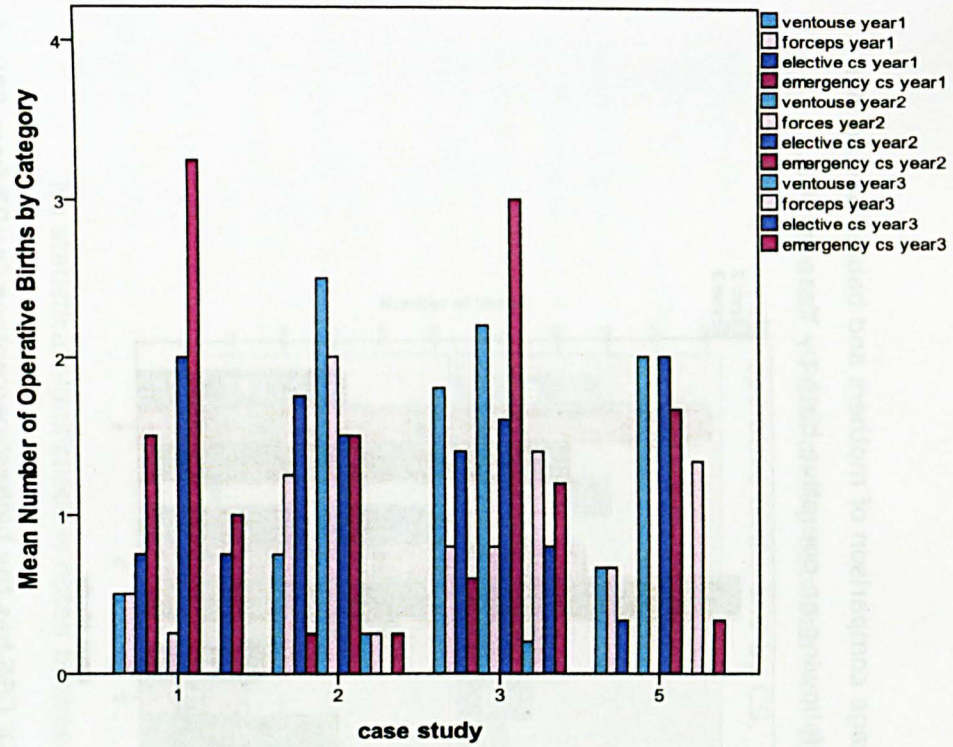
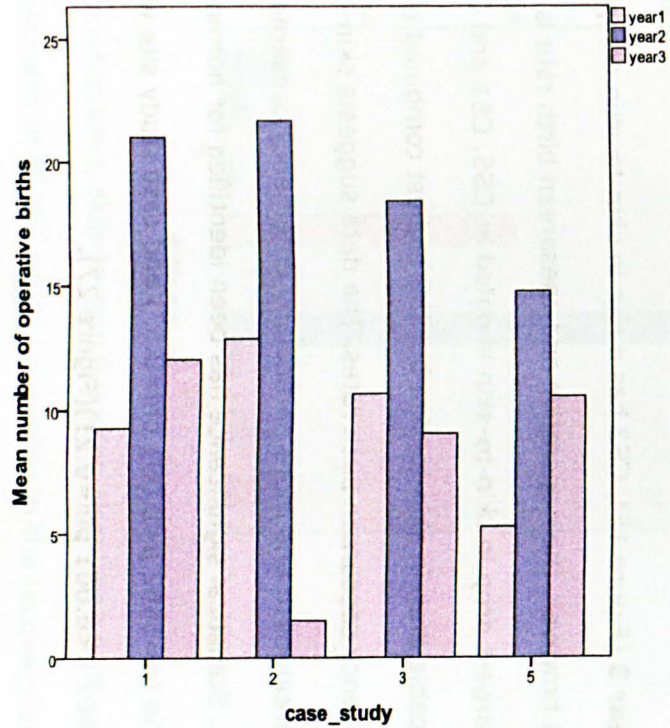
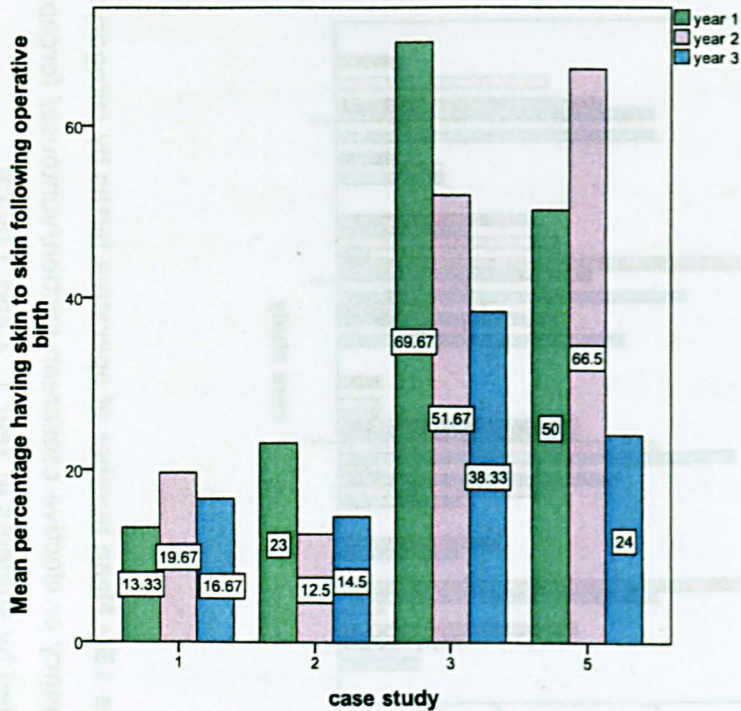


Figure 15 - Mean number of operative births by category: emergency or elective caesarean section/ventouse/ forcep birth recorded by students in Year 1, 2 and 3 by CS

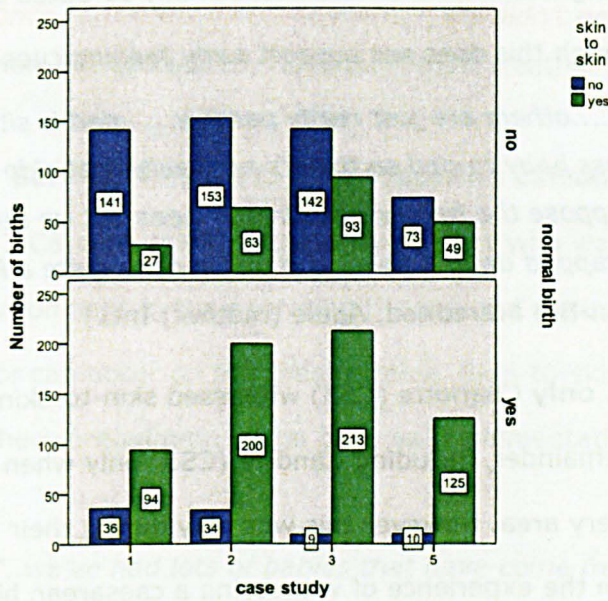
Figure 16 - Percentage comparison of mothers and babies having skin to-skin following an operative birth by Year and CS.



In **year 2** (Figure 15), CS5 has the highest percentage (n=22 from 59) of skin-to-skin following an operative birth. CS3 (n=29 from 92) and CS5 have significantly higher percentages for each year compared to CS1 (n=11 from 84) and CS2 (n=26 from 130), which are generally below 20%, although there is a declining trend for CS3 and CS5 from a high of over 60%.

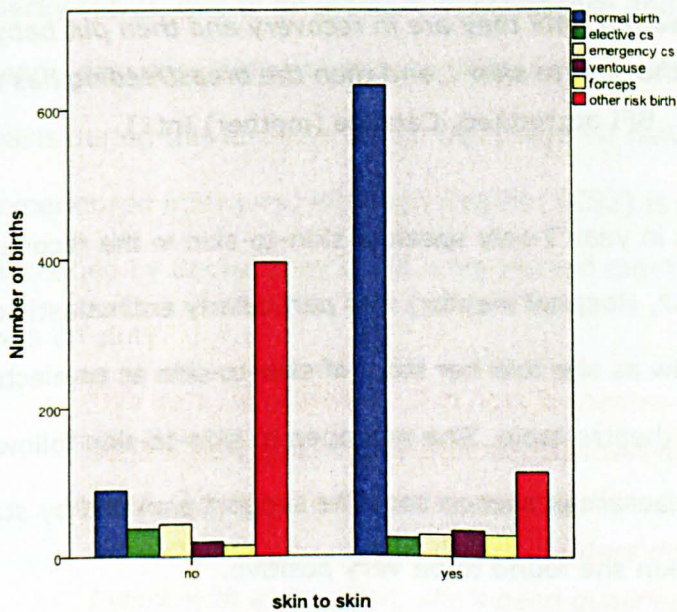
In **year 3** (Figure 15), CS2 has a rise in skin-to-skin compared to other years however, their operative and caesarean birth rate is particularly low. The largest drop in skin-to-skin is noted at CS5. CS1 and CS3 have a noticeable drop in skin-to-skin but the highest combined elective and emergency caesarean birth rates. The data suggests skin-to-skin for caesarean birth and more particularly emergency caesarean birth is less likely. Statistical significance has been identified for normal birth with skin-to-skin (n=1462 p<0.001 phi=0.57) and case study site with skin-to-skin (n=1462 p<0.001 phi=0.21)(Figure 27).

Figure 17 – Relationship between skin-to-skin following normal and operative births and by CS.



No statistical significance is noted between types of operative births although mothers having a ventouse or forcep birth are more likely to have skin-to-skin (Figure 18).

Figure 18 – Relationship between skin-to-skin following different types of operative births.



From interviews, skin-to-skin following caesarean birth proved to be more problematic in all CS, usually occurring in the recovery area. Mentor

practice, the maternal and neonates condition following caesarean section were highlighted. Fathers were occasionally co-opted to provide skin-to-skin although this does not support early feeding cues.

".....others are just really passive.....dad is sitting next to mum, pass baby to dad so there's not really that skin to skin contact....I suppose the barrier has already been put up because the baby is wrapped up in a towel and we've done quite a lot already..." [CS1, non-BFI accredited, Adele (mother) Int1]

In year 1, **only** Charlotte (CS3) witnessed skin-to-skin on the theatre table but the remainder, including Candice (CS3) only when the mother was in the recovery area. However this was only during their first year and recall, apart from the experience of witnessing a caesarean birth could have been affected.

"Yeh. I'd say mostly, if the mum's in a place to do it, obviously the sheets there then they ask dad to stand with his hand but they'll take mum's, it'll be usually above the breasts in the space that we can put it.... that's quite standard" [CS3, BFI accredited, Charlotte (non-mother) Int1]

"....waited until they are in recovery and then put baby with mum and the skin to skin ...and then the breastfeeding has happened." [CS3, BFI accredited, Candice (mother) Int1]

All students in year 2 only speak of skin-to-skin in the recovery area.

Heather (CS2, Hospital mentor) was particularly enthusiastic during her final interview as she told her story of skin-to-skin at an elective caesarean birth on the theatre table. She was open to skin-to-skin following an emergency caesarean section too. The support provided by staff in theatre for skin-to-skin she found to be very positive.

"I'm really excited..., because recently I went to a caesarean section with a lady and she had skin-to-skin on the theatre table..... for me I'd never done that....It was an elective section, (it could be with an emergency) I've changed my practice that way as well,

and I'm excited by that.....They were absolutely fine, the anaesthetist. ...the surgeons, I do that now; I've done it more than once.... there's no reason why it shouldn't be (a guideline)." [CS2, non-BFI accredited, Hospital Mentor Heather (mother) Int3]

4.4.4.1 Barriers to skin to skin following caesarean section births

In year 3 Caroline (CS3) is the **only** student who was concerned about the cold environment in the operating theatre and unsure that skin-to-skin should or can occur on the theatre table. Skin-to-skin is known to support better thermoregulation in the baby so implementation procedures may be at fault.

"..we've had lots of babies that have come from theatre cold, because it's got the air conditioning..., so I don't think it's appropriate to have a baby undressed while they're in there. So generally dad holds the baby....when we get through to recovery, we undress it and shove it up the jumper." [CS3, BFI accredited, Caroline (mother) Int3]

4.4.4.2 Student development and confidence

Becky (CS2), due to an increase in confidence and rapport with the theatre team, describes initiating skin-to-skin on the theatre table on a regular basis during this last year which has triggered new practices in experienced midwives. Although Heather (CS2) is not the midwife mentor described by Becky, they could have worked together while Becky's mentor was off-duty.

"We do a lot of skin-to-skin now in theatre as well, and that wasn't done a year ago. ..once the paediatrician has checked over the baby, it's put straight under skin-to-skin. A few of the mentors weren't doing it,... ..Yes, some mentors do it routinely. The mentor I work with quite often, she's been qualified 5 years, she's never done it before., 'I'm going to do that a bit more.'...I think it's confidence with the...theatre....team.... you're not just a student any more, they respect you...Definitely, rather than just following

your mentor's guide, you go ahead and do it, and maybe she's learnt something as well so that's good." [CS2, non-BFI accredited, Becky (non-mother) Int3]

Becky also describes skin-to-skin on the theatre table with a woman who had previously had postnatal depression and acted as a role model to the mentor she was with then.

There is more variation in the length of skin-to-skin for mothers and babies following operative births but there is still the trend for longer times at CS3 and CS5 as well as the previously noted greater percentage of operative births receiving skin-to-skin. A dramatic reduction in <30 minutes (n=4 from 130) and increase in 31-60 minutes (n=20 from 130) of skin-to-skin is noted in **year 2** at CS2. In **year 3**, CS1 and CS2 have no recorded skin-to-skin of <30 minutes (Figure 19).

4.4.5 Initiation of feeding following normal birth

The initiation of feeding within an hour of birth is intended to coincide with the time when a newborn is alert. Ideally, a baby whether to be formula or breast fed, should have its first feed on labour ward prior to transfer to the ward or home. Data from the RCS on feeding method following normal birth in the three years is depicted in Figure 20.

CS2 has seen a noticeable reversal from a higher proportion of formula feeding in year 1 to breastfeeding in year 2 which may be a consequence of the altered skin-to-skin practice.

The predominant first feed is breast in all other CS in years 1 and 2. By year 3 CS2 continues to have the greatest difference.

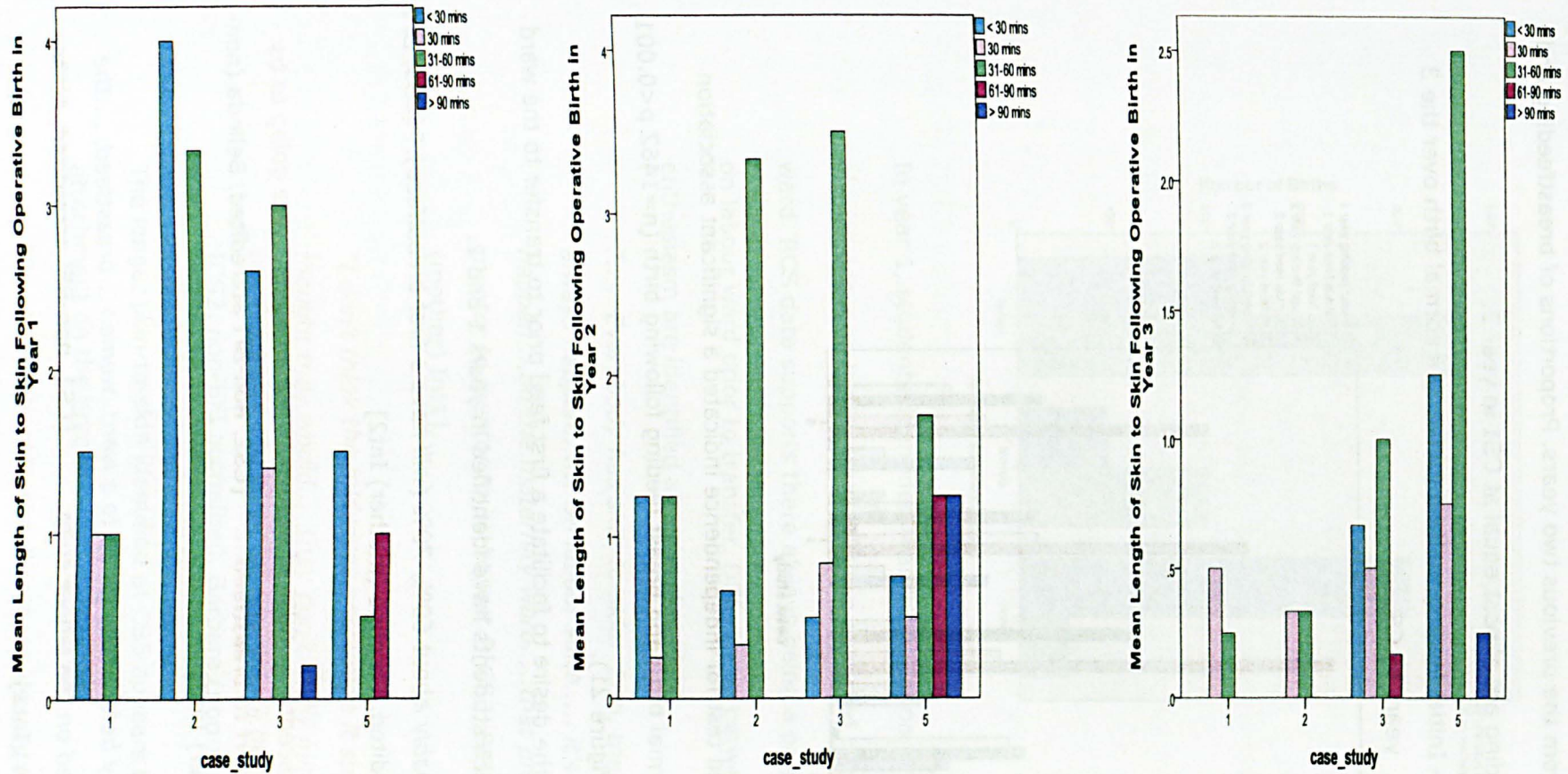
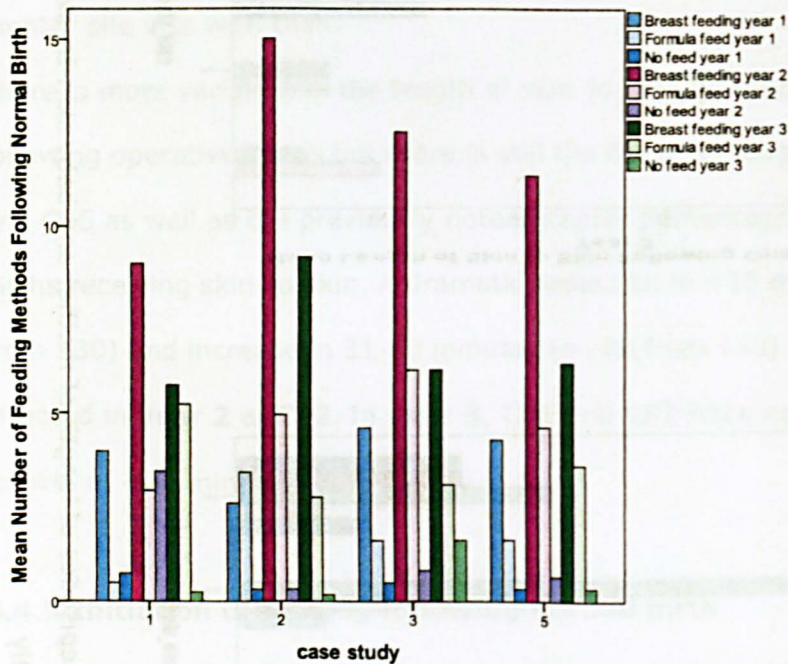


Figure 19 - These three figures compare the mean number of episodes of length of mother and baby skin-to-skin following an operative birth by case study for Years 1, 2 and 3 respectively

CS1 has an increased number of non-feeders in year 2 and CS3 in year 3. The proportion of first formula to breastfeeds at CS3 and CS5 has increased from the previous two years. Proportions of breastfeeding and formula feeding are almost equal at CS1 in year 3.

Figure 20 - Initial feeding method following a normal birth over the 3 years by CS.



A chi squared test for independence indicated a significant association between normal birth and breast feeding following birth ($n=1462$ $p<0.001$ $\phi=0.52$) (figure 21).

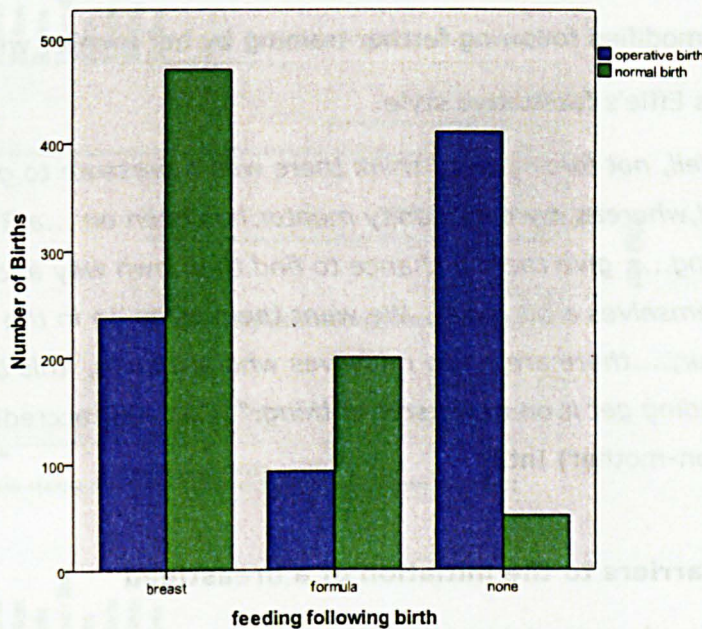
All CS have the desire to facilitate a first feed prior to transfer to the ward or home which students have identified in years 1 and 2.

"Probably about 60%, 70% (will have a first breastfeed)." [CS3, BFI accredited, Caroline (mother) Int2]

".... recently80% of women on labour suiteare going to try and start to breastfeed...." [CS2, non-BFI accredited, Belinda (non-mother) Int2]

"Usually before they go up to a ward..women ...breastfeed,the first feed on the labour suite" [CS1, non-BFI accredited, Amber (mother) Int1]

Figure 21 - Association between breastfeeding following normal and operative birth



In year 1, students identified that the initiation of breastfeeding did not always occur on labour ward but was expected to occur on the postnatal ward. RCS data supports there always being a proportion of babies not fed on labour ward prior to transfer. Differences between mentors and enthusiasm are identified as an explanation.

".... Everybody has skin-to-skin. Erm, the first breastfeed doesn't always happen..... On labour suite..... it's assumed that that will.. happen ...on the maternity ward. ...that probably varies from mentor to mentor to be honest." [CS3, BFI accredited, Caroline (mother) Int1]

"I don't think the midwives encourage it straight away as much as I thought they would.... they don't really initiate a feed..... kind of brush it aside and think 'oh well they'll be fed up on the ward...." [CS2, non-BFI accredited, Barbara (non-mother) Int1]

The longer skin-to-skin identified at CS5 appears to facilitate baby's self attachment on the breast.

"So it's skin-to-skin and then baby usually tries to find its own way and the midwives will try to help the baby's attach or I will or

whatever...." [CS5, BFI accredited, Effie (mother) Int1]

Enya (CS5) identified a previous pressure to force a first breastfeed which has been modified following further training by her mentor which challenges Effie's facilitative style.

"Well, not forcing but I think there was a pressure to get this baby fed, whereas my community mentor has been on ...a 3 day BFI thing..... give them a chance to find their own way and get on themselves a bit more ..We want them to go on in the first hour,....there are a few midwives who are quite, 'this baby needs feeding get it on now', sort of thing." [CS5, BFI accredited, Enya (non-mother) Int3]

4.4.5.1 Barriers to the initiation of a breastfeed

Organisational constraints such as time and pressure to vacate rooms for admissions, not only affect length of skin-to-skin but the facilitation of breastfeeding too. This creates dissonance for Bridget (CS2).

"The sisters will be like quick you need to get this woman straight up to the ward because we've got a new lady coming in.. she.... wants to breastfeed this baby and she is being pressured to stop breastfeeding in a way...." [CS2, non-BFI accredited, Bridget (non-mother) Int1]

"...once that baby is out .. baby is well, then the midwives are being hassled to get them off labour suite, to free up beds.... all..have had skin-to-skin but not always ..a breastfeed..." [CS1, non-BFI accredited, Hospital Mentor Polly (non-mother) Int3]

The mentors' perspective on breastfeeding impacts on their willingness to enable students to support women with the first feed which appears independent of the CS's BFI accreditation.

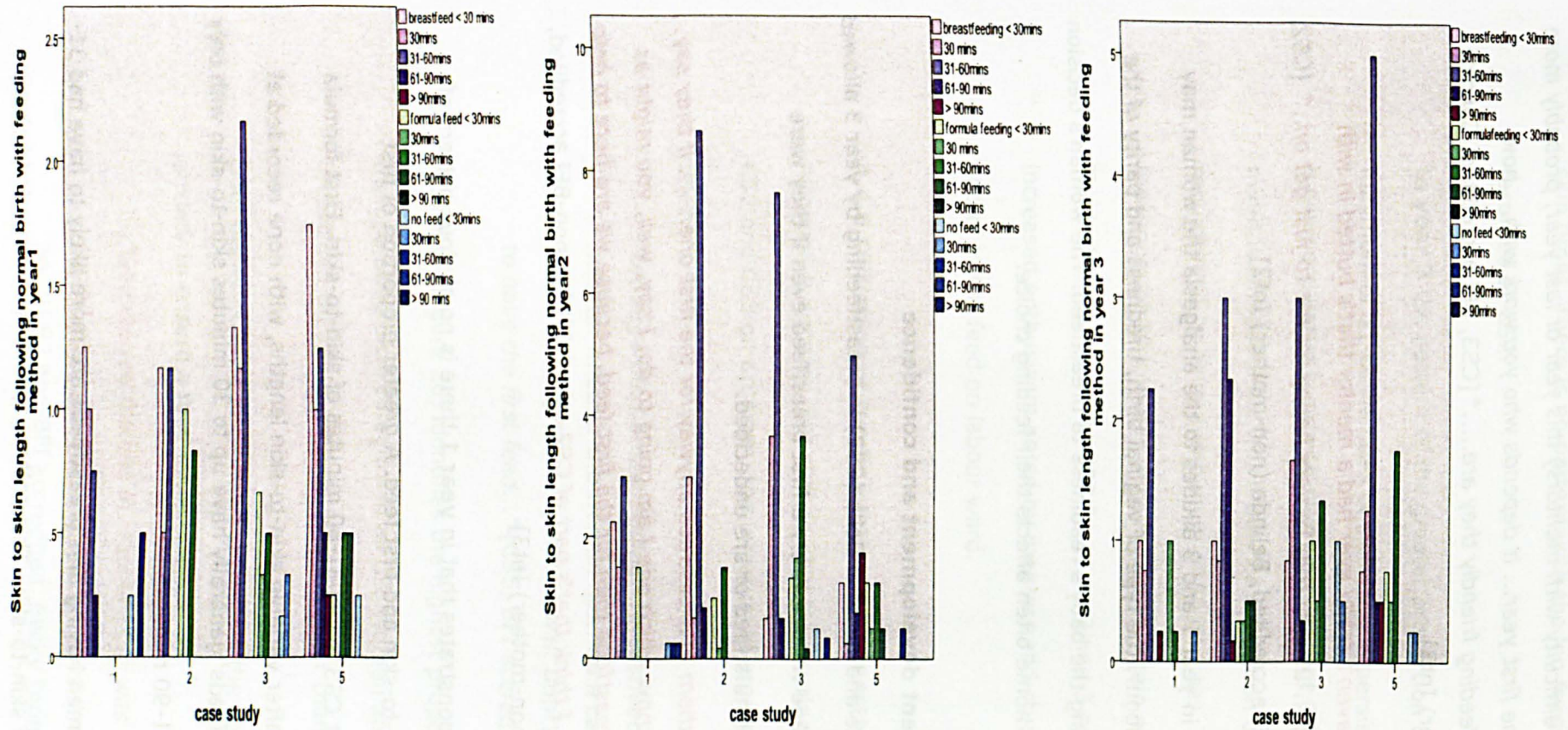


Figure 22 - These three Figures compare the mean number of episodes of length skin-to-skin following normal birth with feeding method by case study for Years 1, 2 and 3 respectively.

"...discuss feeding after the room has calmed ..initiate,..Not so much (difficulty with mentors) this year or last year, probably more so in the first year... it depends who you work with, ..how breastfeeding friendly they are....." [CS3, BFI accredited, Candice (mother) Int3]

"....I haven't really ever had a mentor that's butted in with feeding.... usually they're very happy for me to just get on.." [CS2, non-BFI accredited, Belinda (non-mother) Int2]

Bridget (CS2) in year 1 and 3 alludes to the analgesia the woman may have had in labour, the type of vaginal birth, tiredness and parity of the woman affecting the baby's readiness to breastfeed. The woman's decision of when to go home often affects their feeding choice.

4.4.5.2 Student development and confidence

The confidence and belief of Bella (CS2) in breastfeeding by year 3 allowed her to encourage women to try a first breastfeed even if they were planning to formula feed or are undecided.

"I get them to breastfeed anyway for the first one.. if they say, I don't know which one I am going to do, I say, well, you might as well breastfeed then for the first feed, because we are here to help you.....I think that's part of CS2 ethos.." [CS2, non-BFI accredited, Bella(non-mother) Int3]

Figure 22 demonstrates that in **year 1** there is no obvious pattern of length of skin-to-skin and first feed. A greater proportion of first breastfeeds at CS3 follow 31-60 minutes of skin-to-skin. First formula feeds occurs after variable skin-to-skin lengths, with none recorded at CS1. The 'no feeds' generally have up to 30 minutes skin-to-skin with only CS1 having 61-90 minutes.

In **Year 2** women having first breastfeeds are more likely to have had 31-60 minutes of skin-to-skin. This pattern applies to formula fed babies at

CS3 but these babies, at other CS are more likely to have shorter skin-to-skin times. There is no pattern with the 'no feeds' except none are recorded at CS2.

In **year 3** the pattern of the greater proportion of first breastfeeds follow a minimum of 31-60 minutes of skin-to skin persists. Formula fed babies have more variable skin-to-skin times except CS3 and CS5 where 31-60 minutes is most likely which may be a function of their BFI status and requirement to have a minimum of 60 minutes. The 'no feeds' have a maximum of 30 minutes of skin-to-skin. Again none are recorded at CS2. The lack of 'no feeds' at CS2 for years 2 and 3 correlates with the increased enthusiasm noted by mentors and students towards skin-to-skin and of a first feed on labour ward.

4.4.6 Initiation of feeding following operative birth

Although it appears that skin-to-skin is occurring on the theatre table at CS2 and CS3 on occasion, the initiation of breastfeeding is left to the recovery area.

"Um regarding breastfeeding. ..breastfeeding is promoted in the hospital whether the woman has had a caesarean or normal birth....usually the baby has to wait until mums back from theatre to have the first feed..." [CS5, BFI accredited, Effie (mother) Int1]

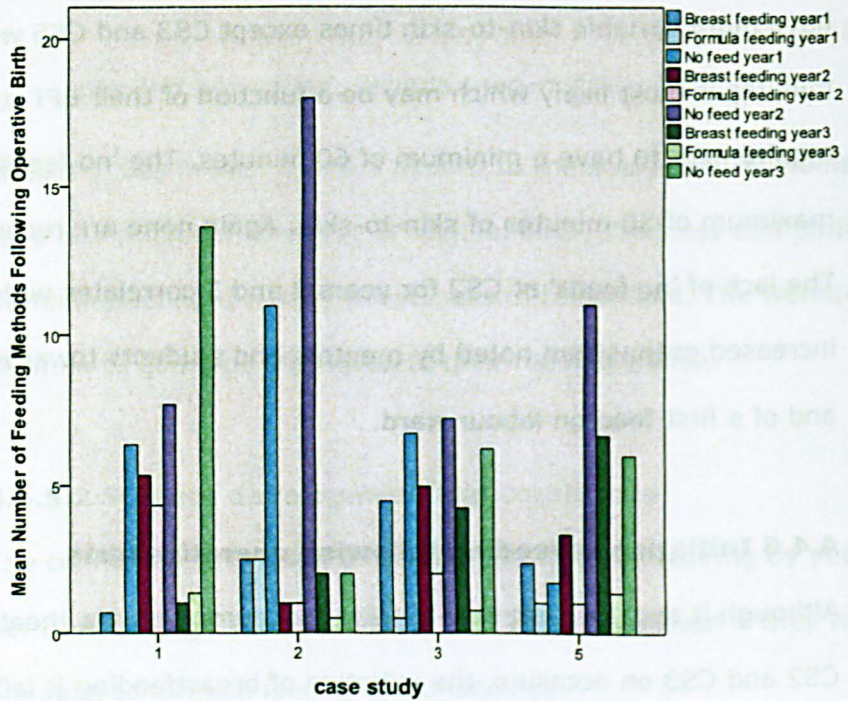
RCS data (Figure 26) identifies the highest proportion of 'no feeds' within the operative birth category in all CS. Women appear more supported to breastfeed than formula feed in all CS other than CS1 in year3.

Both Becky (CS2) and Alex (CS1) suggest the delay in feeding creates an anxiety to ensure a feed takes place.

"She started feeding in recovery ...it was a good hour before we got sorted ..and got her out but first thing was ..let's ...get this baby on." [CS2 non-BFI accredited, Becky (non-mother) Int1]

"It ...seems a bit rushed at times you are out of here and skin-to-skin and they have got babies head and trying to pushing it on, (after) caesarean..." [CS1, non-BFI accredited, Alex (mother) Int1]

Figure 23 - Initial feeding method following an operative birth over the 3 years by case study.



Becky (CS2) who has become accustomed to skin-to-skin on the theatre table considered initiating breastfeeding but acknowledged achieving the correct position is awkward.

4.4.7 Manner of support: Hands-on VS Hands-off support in clinical practice

Following a taught session in year 1 (Appendix 2) **all** students identified they were more able to support a woman with positioning and attachment.

"I have more skills on attachment and positioning for breastfeeding and feel more confident to talk to mums about this...." [CS4, BFI accredited, Debbie (non-mother) Q1]

In clinical practice the observation from students highlights a hands-on approach is more evident at all CS. This is acknowledged by the mentors who note their willingness to embrace the change.

"most of the time I probably do hands-on ... but I know we're not supposed to be doing that." [CS1, non-BFI accredited, Hospital Mentor Polly (non-mother) Int1]

"A lot of the midwives just plonk the baby on the breast themselves and then get the woman to hold the baby once it's feeding." [CS2, non-BFI accredited, Becky (non-mother) Int2]

".... she's more hands on... we're taught hands off." [CS5, BFI accredited, Effie (mother) Int2]

"..coming from hands-on historically myself, ..getting away from that is quite hard, ..to have a student... it's good especially if things are changing..." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

Adele (CS1) reflects on the hands-on support she offered a woman in her first year and questions the effectiveness of the support she offered.

"in my very first year... I was just holding a baby onto the breast really. ...now I would ...practise completely differently to what I did even like a year ago. I tried to help her. Looking back, did I actually explain what I was doing and why I was doing it.... probably not.... wasn't that helpful really looking back." [CS1, non-BFI accredited, Adele (mother) Int2]

"....I was hands-on first year because you just want to get in there don't you..." [CS2, non-BFI accredited, Becky (non-mother) Int2]

In year 2 students are beginning to master a hands-off technique despite often observing hands-on within clinical practice including CS5 which is a BFI accredited unit.

"Able to help women to attach baby to breast with a hands-off approach" [CS2, non-BFI accredited, Becky (non-mother) Q2]

"The teaching also helps you to adopt a more hands-off approach which many midwives in practice forget to do due to time constraints." [CS5, BFI accredited, Emily (non-mother) Q2]

4.4.7.1 Belief system

Two reasons were offered by mentors using a hands-off technique namely dignity and education of the women. Philippa (CS1, Community mentor) acknowledged there may be times when a hands-on approach would yield results but was conscious this may not be appropriate.

"I hate touching women I think it's awful to be, I like to tell them what to do ..you know watch them..." [CS, non-BFI accredited, Hospital Mentor Petula (non-mother) Int1]

"We try not to. We try and talk the mum through it and let her do it....I only learn by doing it myself" [CS3, BFI accredited, Community Mentor Lesley (mother) Int1]

"I think 99% of the time we'd be hands-off, but there are some occasions where I think it's impossible not to have a hands-on approach. I don't know if that's damming me for saying it, ..." [CS1, non-BFI accredited, Community Mentor Philippa (mother) Int1]

The sense of empowering women to be successful at breastfeeding by integrating their knowledge and offering comprehensive care was noticeable as the students became more senior. Reinforcement of the benefits of hands-off is gained from community when women are unable to successfully attach their babies to the breast because of a hands-on technique in hospital.

"I've seen people out in community, they've said, 'the midwife just came and put the baby on for me and now I can't do it...' ..I've not had any ..from when they've been hands-off in hospital..Now I'm always aware that in hospital they can do it themselves before they go home..." [CS5, BFI accredited, Enya (non-mother) Int3]

Barbara expresses her discomfort at watching a mentor being hands-on with both the breast and baby; followed by her frustration at not being able to change the situation.

"Yes, because as third year students,.... it's in indirect supervision,..how can they see us do our way of breastfeeding and hands-off technique...she's very hands-on, she's getting the boob into that baby's mouth,doing it all. It's very hard for me to watch.... I can't say anything because she's been doing that for a long time. That's the only thing I think they need to have updates as well."

[CS2, non-BFI accredited, Barbara (non-mother) Int3]

Enya (CS5) sums up the sensitivity of handling a woman's breast which **all** the students were acutely aware of.

"...I always try and bear in mind that..we're used to seeing boobs it's an alien environment to them, ..to have somebody come along ..not really say what they're going, grab your boob and shove a baby on it is probably quite distressing." [CS5, BFI accredited, Enya (non-mother) Int3]

Estelle (CS5) at a BFI accredited unit has reversed her perspective over the three years of the programme from hands-off being a 'load of cobblers' to considering it a more successful method of facilitating women to breastfeed.

"I think in my first year I thought it was a load of cobblers, to be honest, because I'd never seen a midwife walk up to a woman and never touch her... it has developed and it's a lot better, and just by simply talking a woman through what you need to be seeing... Just getting them to understand it in a simple way, it's a lot better. ..Yes, I do (find the women are more successful), whereas if you'd asked me that 2 years ago I'd have said, no, definitely not." [CS5, BFI accredited, Estelle(mother) Int3]

Students and midwives belief systems were explained more fully in their responses to the questionnaire vignettes. The responses to vignette (C),

"Midwives have a moral responsibility to ensure that the baby is positioned effectively at the breast and that the mother learns to do this for herself....When mothers give up breastfeedingand believe themselves to be failures, they must surely experience considerable damage to their self esteem " [Cloherty et al 2004, p8].

are presented below and differences between students and mentors identified. **All** (n=32) respondents acknowledged that the midwife had a professional responsibility to inform and support women with the skill of breastfeeding.

"It is part of our professional role to make sure mums are able to successfully position baby and learn that it changes as lactation changes. Mums should be encouraged if they give up there are several factors and not to see it as failure." [CS5, BFI accredited, Community Mentor Shona (mother) VigC]

The method of support was commented on by **2** students both working in BFI units.

"Only recently, I have learnt the importance of talking a woman through technique from first breastfeed rather than the hands-on technique widespread on labour ward. Harder but more effective." [CS3, BFI accredited, Caroline(mother) Qu3, VigC]

The midwife's moral responsibility was doubted by **all** (n=16) the mentors who responded and that the midwife cannot account for a woman's self assessment.

"A 'moral responsibility' sounds a bit strong - I would say a professional responsibility - words are powerful- we shouldn't encourage women to feel failures - this is quite difficult when feeding is not going well." [CS2, non-BFI accredited, Hospital Mentor Hilary (non-mother) Qu3, VigC]

Students do appear more sensitive to the women's position.

"I agree, it does devastate women." [CS5, BFI accredited, Estelle (mother) Qu3, VigC]

All but 2 respondents considered that infant feeding education had supported them in their method of assistance. Petula (CS1, Hospital mentor) highlighted organisational constraints to support.

"....Women need more support/resources to carry on feeding. We do the best we can with limited time in hospital." [CS1, non-BFI accredited, Hospital Mentor Petula (non-mother) Qu3, VigC]

There is a consensus that hands-off is more effective and desirable but not always possible. Secondly, that it is a fundamental role of the midwife to support breastfeeding mothers.

4.4.7.2 Developing a hands-off technique

In year 2 all (n=19) the students identified that their skill set had developed this year, particularly around communication with a hands-off technique in supporting women with breastfeeding although it continued to prove a challenge for some.

Two students expressed the belief that women expect and wish midwives to be hands-on although Bridget describes a belief in self efficacy.

"....some people think it's right that midwives shouldhave hands-on help with breastfeeding but I think it is important, ...to help them butfor us to stay back ...when they go home ..we're not always going to be there are." [CS2, non-BFI accredited, Bridget (non-mother) Int2]

Cathy (CS3) identifies the first feed on labour ward as harder to adopt a hands-off approach than subsequent feeds on the ward although Caroline does state *"start as you mean to go on"* [CS3 BFI accredited, Int3].

Various strategies have been developed by students to enhance a hands-off technique which included:

- shadowing,
- demonstrating,
- use of feeding cues,

- use of props and
- development of a personal communication style.

Shadowing:

Becky (CS2) describes how she is moving towards a 'hands off' technique by shadowing the mother's hands.

"..I'm just saying 'okay put your hand here, this is what you do with your hands, just see if you can give it a go' and if not I'll ask them 'do you mind if I just put my hand on top of your hand?'...I'll guide them with my hands instead of holding the baby myself..." [CS2, non-BFI accredited, Bridget (non-mother) Int2]

Demonstration:

Enya (CS5) has developed her own method of hands-off demonstrating hand positions for the baby and the analogy of a clock to help with positioning.

"..... I don't touch the breast. I'll use a clock face and say, 'if you press your finger at 10 o'clock, that will point your nipple up towards baby's nose and might help you to get baby on', visual guides rather than using my hands-on them." [CS5, BFI accredited, Enya (non-mother) Int3]

Feeding Cues:

Amber (CS1) was utilising her knowledge of feeding cues to enhance a mother's success.

"go through the cues they can look out for. ..I suppose knowledge and confidence has taught me to talk the women through it so when they go home, they're not stuck." [CS1, non-BFI accredited, Amber (mother) Int3]

Props:

Belinda (CS2) uses leaflets as a prop to support her facilitation of breastfeeding.

"..you talk them through it ...the breastfeeding booklet....gone through it with them and shown them the pictures, ..they found that really helpful, especially ones that have no idea ... what they're doing....." [CS2, non-BFI accredited, Belinda (non-mother) Int2]

Peggy (CS1, Community mentor) expects senior students to be able to use a hands-off technique with or without props.

Communication style:

Student progress in year 3 encompasses their skill base with hands-off which is directly linked to their ability to more clearly articulate how a mother can successfully place her baby on the breast to suckle effectively.

"100% more confident with supporting women with attachment... providing the physiological evidence behind breastfeedinghas finally clicked now and makes you feel empowered and professional.." [CS1, non-BFI accredited, Alex (mother) Q3]

Becky comments both in her questionnaire and at interview how in year 3 she is suddenly able to use a hands-off approach.

"Second year it was hands-on all the way; third year hands-off, I never put my hands-on now ...I don't know, I think it just clicked. One day I did it and that was it. I can't remember. Yes, I think it was (moving up to year 3)." [CS2, non-BFI accredited, Becky (non-mother) Int3]

Candice (CS3) identifies how important it is to not only give the 'how' but the 'why' in supporting positioning and attachment.

"I think you sort of tell both. First of all, you'd start with your technique ...(then) you're explaining why... it just sits better if they know why they're doing something and why you're looking for those things." [CS3, BFI accredited, Candice (mother) Int3]

4.4.7.3 Bridges and barriers to hands-off

As a hands-off approach is given considerable emphasis in the BFI curriculum, it was important to search the data for emerging themes that

identified if there were barriers to implementing theory into practice. The sub-themes that emerged were:

- student education and skill
- mentor modelling and facilitation
- time.

Student education and skill:

Students stated the hands-off approach came from university lectures, workshops and peer support. They experienced a predominantly hands-on practice by their mentors.

"I tend to do more hands-off now, but I think that's mainly from lectures rather than practice, because in practice I've seen hands-on..... Mainly the workshops have helped me and listening to other people as well, other student midwives that do hands-off, I think I just tried to do that more because we were taught that was the best way to do it" [CS2, non-BFI accredited, Bridget (non-mother) Int3]

Cathy (CS3) described the strong urge to help women with a 'hands-on' technique.

Mentor modelling and facilitation:

Mentor modelling has inspired Charlotte (CS3) to see the benefits of hands-off and challenge her practice which was based on a previous mentors hands-on modelling.

"I think in practice, you do see lots of hands-on...a lot of mentors are quite hands-on. The mentor I'm with currently is very much hands-off, and she'll talk to the woman. I think that's what's made me think to change my practice, that she's very much hands-off and still gets good results." [CS3, BFI accredited, Charlotte (non-mother) Int3]

Heather (CS2) has noted a positive change in the support women are offered to breastfeed following staff training.

"..skin-to-skin at birth is really important,...more so now because of the education of midwives.... hands-off, how we teach has changed for the better. ..I think it has improved definitely. .Yes, I am (finding students are doing hands-off)." [CS2, non-BFI accredited, Hospital Mentor Heather (mother) Int3]

Mentors often appeared to have a blocking effect on students implementing what they had learned although this effect diminishes as the students become more senior.

"...it's not just you communicating with the lady, it's your mentor hovering... you hold back because it's not your place if you like.. Whereas now I'm taking more of a lead role..I choose how I do things..maybe it wasn't relevant to start with, or not able to be done perhaps." [CS, BFI accredited, Caroline (mother) Int3]

Time:

Bella (CS2) acknowledges it may take half an hour particularly when the baby is fractious. The importance of early feeding cues as previously identified and perseverance in a facilitative manner is highlighted.

"...it's really hard to not help. But you just keep trying, don't you. Start straight again I guess...Yes (it does take longer at first). Oh, I don't know, half an hour." [CS2, non-BFI accredited, Bella (non-mother) Int3]

Further insight into student and midwife emphasis on breastfeeding support was elicited from the responses to Vignette (E) which are presented below.

"Barrowclough [1997] has drawn attention to the paradox that whilst midwives will expend much energy in encouraging women in the second stage of labour who feel exhausted to continue working towards a normal birth, they view their role with more ambivalence when encouraging women to continue breastfeeding. Midwives may be focusing on being 'with

woman' in the short term, as opposed to their responsibility to promote breastfeeding and long term health" [Cloherty et al 2004, p10].

Fourteen respondents disagreed with the statement stressing their holistic view for the whole of the pregnancy journey.

"This is not what I have experienced. Every midwife I have worked with has always given their full support with breastfeeding longterm." [CS3, BFI accredited, Cheryl (non-mother) Qu3, VigE]

The effect of time and systems negating the desire of midwives to be more holistic is identified both in hospital and community. The one-to-one care in second stage is contrasted with a one-to-six ratio of midwife to women and babies on the postnatal ward.

"Unfair statement. I'm sure most midwives would love to spend much more time with women encouraging/supporting them in their breastfeeding experience- however - the time constraints ..make it impossible..." [CS1, non- BFI accredited, Community Mentor Phillipa (mother) Qu3, VigE]

"It is a paradox that I think probably does exist, however not by choice. ...How can she split herself in 6? Whereas on labour suite, if a woman is in 2nd stage the midwife only has one woman to concentrate on." [CS1, non-BFI accredited, Hospital Mentor Paula (non-mother) Qu3, VigE]

Five of **six** students and **all** mentors from CS2 identify a focus on second stage management rather than infant feeding. When probed at interview the risk element of birth was highlighted as greater than the comparison between formula milk and breastmilk. The notion that a baby has to be born 'somehow', but more open choices in infant feeding pervades some of the responses. The concern of 'bullying' identified during interviews when infant feeding is discussed does not apply to second stage.

"Yes I agree however, pushing in second stage of labour is more important than breastfeeding." [CS2, non-BFI accredited, Barbara (non-mother) Qu3, VigE]

"I agree to a point. As a labour suite midwife I am more concerned with achieving a normal birth than longterm continuation of breastfeeding." [CS2, non-BFI accredited, Hospital Mentor Heidi Qu3, VigE]

The impact of practice modelling for Bridget (CS2) was greater than infant feeding education. Bella (CS2) and Philippa (CS1, Community mentor) identify that some midwives will always be hands-on in all aspects of midwifery but Bella feels that these mentors would be more supportive of hands-off with breastfeeding compared to the perineum because the woman had received support and relieving them of a task. A relegation of breastfeeding down the list of complex tasks is implied.

"Yes, ..they (mentors) are more supportive of that than they are about being hands-off on the perineum...they have a million other things to do." [CS2, non-BFI accredited, Bella (non-mother) Int3]

"...there are some midwives who aren't hands-off and will never be hands-off with breastfeeding, with delivering, with whatever, because that's what they've traditionally done...." [CS1, non-BFI accredited, Community Mentor Philippa (mother) Int3]

4.4.8 Manner of support provided to initiate formula feeding

Infant feeding for all the CS mostly revolved around information giving and support for breastfeeding. An emerging theme was the limited evidence based information and support given to women choosing to formula feed due to an anxiety of contradicting the promotion of breastfeeding. Women who identified their choice to formula feed are offered the 2-3 brands of ready-made formula milk the hospital stocks and it is passed to either the mother or relative in attendance to administer.

"I think people are really frightened of being seen to say anything. We're not supposed to push bottle-feeding, so it's almost like, she's bottle-feeding, that's her choice, we're not there to say anything....." [CS1, non-BFI accredited, Hospital Mentor Petula (non-mother) Int3]

The sub-themes identified with facilitating formula feeding related to:

- choice of formula
- required volumes
- information giving.

Women who have chosen to formula feed are anxious to make their decision known either on admission or immediately after birth for fear of being persuaded to change their minds. The anxiety by students of appearing to be breastfeeding 'bullies' is discussed in Step-2.

"...ifthey really don't want to breastfeed, they'll say prior to delivery, ...or as soon as the baby's born, 'can I have a bottle because I don't want to breastfeed, I don't want to try.'" [CS3, BFI accredited, Candice (mother) Int2]

Choice of formula:

All CS sites provide 100ml ready-made SMA and C&G formula bottles to which teats are added as required. The choice of formula milks are limited within the hospital setting although CS2 have the facilities for allowing women to bring in their own in powder form. Difficulties associated with formula products are highlighted by Caroline's (CS3) comments of 'floaters'.

".....If they wanted Aptamil or something, they're allowed to bring it in, but they have to be proven to be sterilising it properly.. Yes, some women do (bring their own in), not many.....powder." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

Volumes:

All the bottles are 100mls but CS3 divide the volume into two bottles of

50mls and CS5 discard half or more of the bottle and instruct the woman to only expect the baby to take up to 30mls. This process does create an educational opportunity with families. This contrasts with CS1 and CS2 who present the whole bottle and may or may not give instructions on expected volumes.

"The first feed I always pour out and just leave 30ml...grandma ...said, 'what's it going to do when it's drunk all that, will it get another bottle?', I said, 'it won't need all that.' I ..tried to explain about how tiny babies tummies are, and that they'll just posit it back anyway... It does then show how much pressure women are under from different people around them." [CS5, BFI accredited, Estelle (mother) Int3]

"..leave about 40mls in it and give them that for the first feed..." [CS3, BFI accredited, Candice (mother) Int2]

CS1 and CS2 offer the mother the whole bottle generally with little information regarding volumes. Bella (CS2) intimates a small volume when talking about the size of a baby's tummy.

Information giving:

Both students and mentors suggest that little information and support is provided with the first feed unless requested at the non-BFI accredited CS.

"If I'm honest, I don't see any support really ..they're given the bottle and the teat ..The midwife might ..document how much the mum said they've drunk, ..that's kind of it, to be honest." [CS1, non-BFI accredited, Alice (mother) Int2]

"..we often do just give a bottle and expect people to ask questions..... I always say to people, you have got an hour and then that bottle needs to be thrown away..." [CS1, non-BFI accredited, Hospital Mentor Polly (non-mother) Int3]

Students at CS3 and CS5 identify giving practical advice on formula

feeding. The information from Enya (CS5) is selective depending on the parity of the woman and includes safety tips.

"It's pretty basic 'don't prop feed it, make sure the milk comes to the end', if it's a first time mum; if it's a second time mum they're just given a bottle and left to it.... 'wouldn't give it more than 30mls on its first feed...wind the baby afterwards, here you go, off you go.'" [CS5, BFI accredited, Enya (non-mother) Int3]

".. and talk about how to hold the baby, how to hold the bottle."
[CS3, BFI accredited, Candice (mother) Int2]

In the year 3 interviews Becky (CS2) identifies becoming more aware of an information deficit with her women and partners regarding the position of the baby, bottle and burping; although Bella (CS2) still only talks about reconstitution and storage. Heather (CS2, Hospital mentor) does provide a comprehensive package of information.

The psychological aspects of feeding are also recognised by some mentors and students although this is not a common feature.

4.4.9 Summary

Skin-to-skin is practiced in all CS. Is more embedded and statistically more likely for normal and operative birth at CS3 and CS5 where longer times occur. A decline has been witnessed at CS5. A marked positive change was identified in practice at CS2 with information giving and length of skin-to-skin for both normal and operative births. Skin-to-skin was statistically more likely following normal birth.

The first breastfeed generally occurred with longer skin-to-skin. Formula feeders often had shorter skin-to-skin times. The 'no feeds' have less than 30 minutes of skin-to-skin, none were recorded at CS2 for years 2 and 3. The first feed usually occurred on labour ward, with breastfeeding statistically more likely following a normal birth. Following caesarean births

the feed occurred in the recovery area. The support offered depended on choice of feeding method, time, mentor and organisational preoccupations.

Hands-on vs hands-off facilitation of breastfeeding highlighted a major theory-practice gap. The mechanisms by which students learn to be hands-off were identified. Support for formula feeding and which safety messages were imparted was variable. The curriculum was identified as instrumental in students developing a hand-off approach to breastfeeding and supporting increased information giving to formula feeding women.

4.5 Step 5: Show mothers how to breastfeed and how to maintain lactation even if they are separated

4.5.1 Introduction

A woman's confidence in breastfeeding prior to transfer home from hospital and skills to maintain her lactation are crucial to successful breastfeeding. One skill BFI expects all women to be taught prior to transfer to community is hand expression of the breast to enable self management of breastfeeding. Other skills required on transfer include sterilisation of feeding equipment and reconstitution of formula feeds if formula feeding (discussed in Step-10).

The emergent themes relating to Step-5 were:

- antenatal teaching of hand expression of the breast (hand expression),
- selective or routine postnatal teaching of hand expression,
- the use of breast pumps
- student development during the programme
- the mentor's role in learning.

4.5.2 Antenatal teaching of hand expression of breastmilk

The requirement to discuss antenatal hand expression is only identified in year 1 by students at CS3 and CS5 which is corroborated by Lesley (CS3, Community mentor). Lesley also undertakes a demonstration and explanation in the antenatal period. However, what she describes is the traditional technique. Students consistently demonstrate this approach in the workshop despite being taught the new technique in university skills session.

"We try and teach them at 36 weeks to hand express....I say, 'pretend that button is my nipple, put your fingers either side of it behind the brown area, pull the breast towards you.... just roll your

thumb forward until you've got a drop of milk. You'll feel some hard lumps behind the brown area,...you've got it, and if you get a drop of milk just rub it in the nipple. The best time to do it is either when you're getting out of the bath or the shower because you've got what we call a let-down reflex, which means your breasts are nice and soft, and they'll let milk out more.." [CS3, BFI accredited, Community Mentor Lesley (mother) Int1]

Phillipa (CS1, Community mentor) describes inconsistencies in teaching hand expressing which has been rectified recently by the introduction of the 34 week home visit by MSW's. This may explain the absence of hand expressing described in year 1 by students at CS1 and CS2 whose mentors' are from the same Trust.

"That's been a big thing..., making sure that... standardising it (hand expression) that everybody is giving the same information, and when they're given the information. So that was when it was decided all primips had to have this 34 week visit,... we were falling down on hand expressing and we're teaching them how to hand express and giving that information out. ...I think it was probably just a bit ad-hoc really before that." [CS1, non-BFI accredited, Community Mentor Phillipa (mother) Int1]

By Year 2 Alice (CS1) is aware of hand expressing antenatally but is unsure of the universality of this information giving.

"In community they do hand-expression and at 36 weeks we give out a pack all about the feeding.., an explanation on hand-expression...don't know whether all midwives do that.....you get a longer appointment, and they sit and have a chat about feeding and things?" [CS1, non-BFI accredited, Alice (mother) Int2]

Charlotte(CS3) describes teaching hand expression antenatally in year 2 but remains unsure of its relevance at this point in a woman's pregnancy and is disparaging of the style of documentation used.

"Tick-list again. I think it's at 32 weeks we're asked to talk about it, but that's something that sort of feels out of place.... that's kind of irrelevant. We do talk about hand expressing, we talk about how to

make it easier for yourself and why you might need to use it, and why you might need to hand express." [CS3, BFI accredited, Charlotte (non-mother) Int2]

It is noticeable that students on all sites by year 3 are aware of the benefits of teaching hand expression antenatally and actively promote it. At CS1 and CS2 the 34 week visit is specifically identified as the allotted moment for hand expressing to be discussed and/or taught by the MSW. Both Amber (CS1) and some women question why a midwife isn't leading the 34 week visit.

".. it's an hour visit (at 34weeks) and she (MSW) goes over... hand-expressing; use of pumps;... She does cover quite a wide range....the women find it quite useful, but I often think there's a lot to take in over that hour, and from a MSW. I don't know if the women might feel they'd rather have the knowledge from a midwife. I don't knowThey've questioned whether it would be the midwife doing the visit and it's been explained that the MSW are trained in this particular area, and they can give the knowledge and advice. But I think women still prefer it from the midwife." [CS1, non-BFI accredited, Amber (mother) Int3]

Although at CS5 it is the midwife who has the discussion, it is left until after the woman would have attended the parent education class, therefore one-to-one discussion is used for clarification only. There does appear to be some variation at CS3 between midwives approaches and thoroughness in discussing and/or demonstrating hand expression as identified by Caroline and Charlotte. Charlotte's comment in Year 2, noted earlier, questioning the relevance of antenatal hand expression may have been the result of the mentors approach when considering her comment in Year 3.

"Since last time I had a new community mentor... her ante-natal teaching was very good. The mentor that I used to work with never used to go (through hand expressing antenatally), even though it's

in the tick-list ..." [CS3, BFI accredited, Charlotte (non-mother) Int3]

"They should (get taught antenatal hand expression at 34 weeks). It depends on who's doing it I suppose. Some people might just talk about it and some people might go through the whole how to do it. It depends on the person I suppose, doesn't it." [CS3, BFI accredited, Caroline (mother) Int3]

Antenatal hand expression by diabetic women for storage of breastmilk in preparation for supplementation after the birth is routinely undertaken at CS5 where it was developed in practice by the infant feeding advisor [Chapman et al 2013]. This has been a role recently passed to MSW's.

"They're (MSW) also getting involved in antenatal. As I say, they're doing a lot of work with gestational diabetics, and going in and showing them how to hand-express, and taking them kits and stuff, which is a good thing, because we've not always got time to do that on the antenatal visits at home." [CS5, BFI accredited, Community Mentor Shona (mother) Int3]

This contrasts to CS1 where it had previously been a feature of care of a diabetic woman but used rarely now, although the mentor and student have opposing experiences.

"I don't know if (diabetic ladies expressing antenatally) is routine. I don't know if I've seen anybody do that for a while.....There was quite a big thing a few years ago when we were doing that." [CS1, non-BFI accredited, Hospital Mentor Petula (non-mother) Int3]

"...When I was on (the postnatal ward), there were two (diabetic) ladies ...that had been hand-expressing before they had their babies,... it had worked quite successfully. But I haven't personally been involved in it, or seen it." [CS1, non-BFI accredited, Adele (mother) Int3]

RCS data depicted in Figure 24 for **Year 1** CS1 identifies predominantly women confident (n=53 from 122) at breastfeeding therefore requiring no

information. CS3 has the highest number of women being taught positioning and attachment (n=28 from 140) and CS1 (n=27 from 122), CS2 (n=38 from 214) and CS5 (n=19 from 60) feeds are predominantly observed. CS3 (n=8 from 140) is the only one which identifies feeds as not having being observed. Hand expression is taught on all sites but particularly CS5 (n=8 from 60).

Year 2 highlights some notable changes from Year 1. CS1 has a much reduced number of women that are confident (n=46 from 171) but still higher than other sites and CS3 (n=51 from 240) has an increase in this category. CS2 (n=86 from 333) and particularly CS5 (n=106 from 211) have an increase in the numbers of women being observed breastfeeding. CS3 remains the only one where women are identified as not having been observed breastfeeding (n=6 from 240).

Year 3 data highlights CS5 where women require no information and are confident (n=47 from 113). CS3 identifies the majority of their women as being observed (n=52 from 123) with none now who have not been observed which correlates with the new local policy and documentation. CS1 (n=9 from 105) and CS5 (n=11 from 113) have the greater number of hand expressions.

Normal expectation is that all women would either be taught positioning and attachment and/or observed breastfeeding if that was their chosen infant feeding method. Good practice is that all women breastfeeding are taught hand expression.

4.5.2.1. Selective teaching of hand expression

Selective teaching and use of hand expressing is typically described within all CS by students in year 1 and year 2 usually as a consequence of poor attachment, engorgement or because the baby is on the neonatal unit.

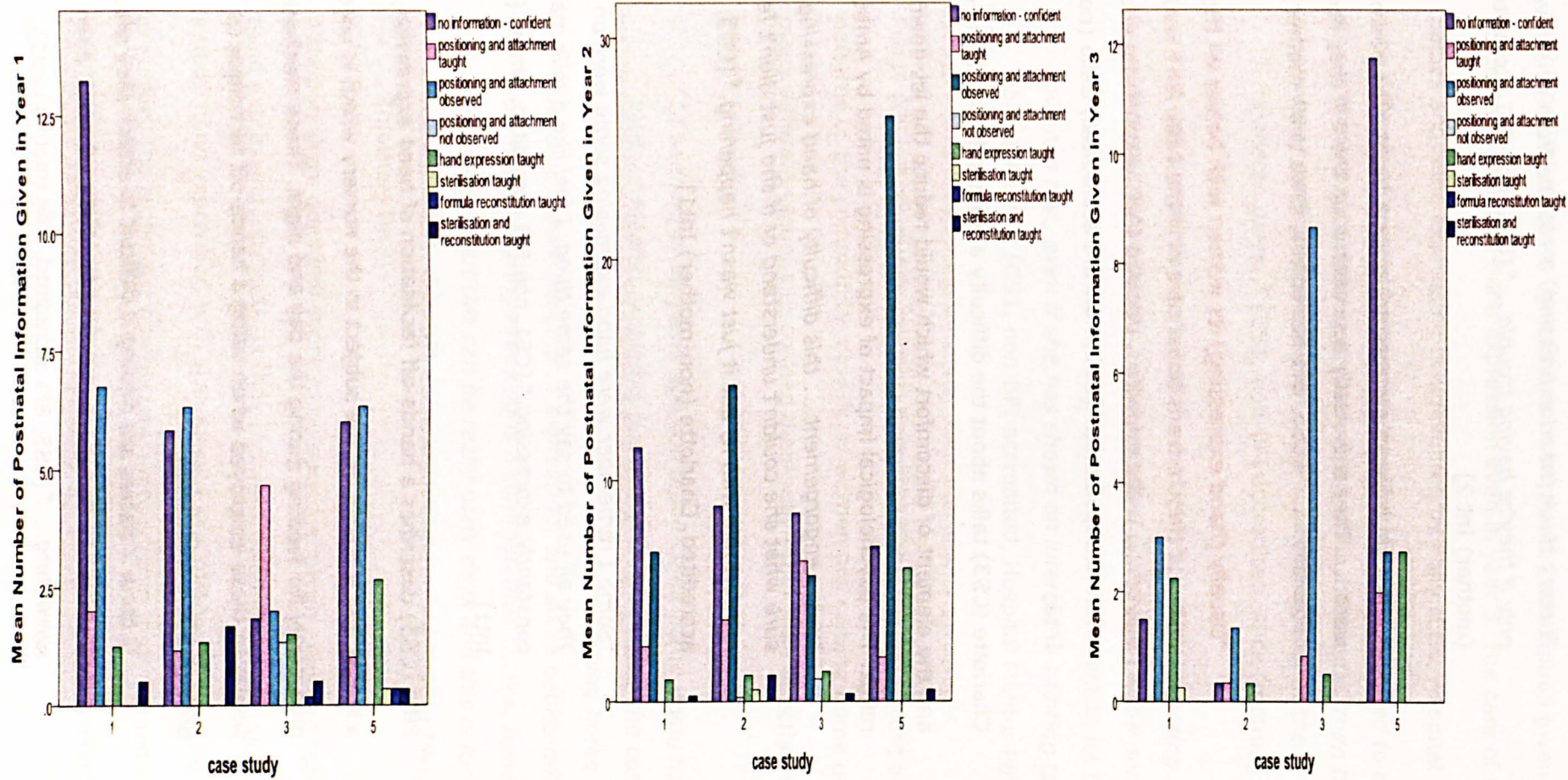


Figure 24 - These figures identify the support and information given to women on infant feeding during the postnatal period by case study for Years 1, 2 and 3 respectively.

"I don't think (hand expressing) is routine from what I've seen; it's only if they're having trouble ..." [CS1, non-BFI accredited, Alice (mother) Int 2]

"...they do it (hand expressing) quite a lot on (the postnatal) ward.....They only really approach it up there if they feel it is necessary....." [CS5, BFI accredited, Enya (non-mother) Int1]

"Usually (hand expressing) its women with babies on the neo-natal unitif they're transitional care or if the baby isn't sucking maybe..... the midwife .. decided that...expressing and helping with the cup-feed..." [CS2, non-BFI accredited, Bella (non-mother) Int2]

Charlotte (CS3) talks about the difficulty a woman had in hand expressing and the element of discomfort which would reduce the let-down (oxytocin) reflex. The psychological impact of expressing is noted by Amber (CS1).

"Yes, ..engorgement.... this difficulty of hand expressing I'm not sure what she couldn't understand or if she just didn't feel comfortable with it, but it just wasn't happening." [CS3, BFI accredited, Charlotte (non-mother) Int1]

"Some I remember were hand expressing some were on the pump. They all used to say the same thing, I feel like a milk machine. I am constantly expressing." [CS1, non-BFI accredited, Amber (mother) Int1]

Effie (CS5) describes a hands-off facilitation of hand expression, the use of a leaflet and a poster on the subject in the nursery which is used proactively for feeding during the day and night. These mechanisms are similar to those employed when using a hands-off technique to breastfeeding facilitation.

"I think if babies are finding it difficult to attach they show the woman how to hand express so the baby...knows...there is something...." [CS5, BFI accredited, Effie (mother) Int1]

Both hospital mentors from CS1 corroborate the description given by students of selective hand expression even in year 3. The care of neonatal babies and hand expressing is highlighted by Polly (CS1, Hospital mentor).

"women are shown hand-expression if they're required to do it, ..if they're successful in breastfeeding while in hospital, then they won't be shown hand-expression, ..it will be highlighted in the leaflets...given.." [CS1, non-BFI accredited, Alice (mother) Int3]

"..we are getting better at the initiation of hand expressing ...with the mums and babies on the neonatal unit....But I know some people are still a bit wary to approach it... they want to let the woman rest, even if she has shown an interest in wanting to breastfeed..." [CS1, non-BFI accredited, Hospital Mentor Polly (non mother) Int3]

Peggy (CS1, Community mentor) describes the changing nature of transfer patterns to the community midwife as women are coming home using many different techniques to feed their baby other than directly from the breast.

"It seemed to be years ago you didn't come home if you had any kinds of feeding problems, but now you do because the community midwife will sort it out. So you'll find they're coming home syringe-feeding, spoon-feeding ... expressing, and some babies not going on at all,... Syringe-feeding is a common one.Yes, hand-expressing, but this can be really early days and this is for first time mums." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

Although there does still seem to be overwhelmingly selective teaching of hand expressing, students as they progress through the course, start to initiate hand expressing with skin-to-skin as a method of enticing the baby to suckle. The technique has become embedded in their method of facilitating breastfeeding which Bella (CS2) hopes will be transferred specifically to hand expressing.

"As and when I think..... I do show it a lot just because I use it in helping with breastfeeding, just to get them to express it on to their nipples. So sometimes I try to talk to them a bit about it while they are breastfeeding. I get them to massage their breast and hand express and I then hope that they will transfer those skills to hand expression." [CS2, non-BFI accredited, Bella (non-mother) Int3]

Barbara (CS2) uses hand expressing as a method of encouraging women about their lactation as many are anxious about their body's innate ability.

4.5.2.2 Routine teaching of hand expression

All students from CS3 (BFI accredited) clearly identify that routine hand expression occurs in hospital and community even in year 1 with a process and documentation in place to ensure standardisation. The role of the Breastfeeding Advisor in facilitating learning is highlighted by Cathy (CS3).

"...what the Breastfeeding Adviser taught me.... when you admit somebody and you give them the leaflets ...go through them a bit then with your hand expressing and you can tick that off so that they know on discharge that they've had the information already." [CS3, BFI accredited, Cathy (non-mother) Int1]

Students at CS5, also BFI accredited, are in year 2 before being confident of routine teaching of hand expression.

"Yes, hand expressing.....I was on there last night and that's all everyone was doing....They were doing it when I started, but I'd say they're stricter on it now than they were when I started." [CS5, BFI accredited, Emily (non-mother) Int2]

Adele (CS1) has noticed a difference between hospital and community mentors use and discussion of hand expression.

"I think in community it is the opposite (to hospital). Because in community, we discuss it (hand expressing) all the time with (my mentor)" [CS1, non-BFI accredited, Adele (mother) Int1]

A hospital mentor Polly (CS1) identifies time as a potential difficulty with routine teaching of hand expression on transfer to community services but equally the community midwives are relying on MSW time.

"....I know generally that I'm discharging a breastfeeding woman home I'll say, and what are you going to do if your baby hasn't fed....The breastfeeding leaflet ...that's got a good section on hand expressing .. I..talk them through it.... I tend to teach itit depends how short of time you are, and how quickly you need the bed." [CS1, non-BFI accredited, Hospital Mentor Polly (non-mother) Int2]

"Women don't want to be in hospital, they want to be at home,.... if you teach them ...hand-express and how to cup-feed, or syringe-feed,...The difficulty is, from our point of view, the amount of time we can spend with them.if they're really struggling, then it can be a team effort, and that's when the MSWs are really good, because they haven't got the clinic commitments that we have, they can spend two hours there if they need to, or they can ring the woman, what time are you due to feed?, I'll come round then...." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

Students at both CS1 and CS2 identified a change in practice from year 2 to 3 in routine teaching of hand expression. Becky (CS2) highlights the distinction that newly qualified midwives are more likely to routinely teach hand expression than established midwives. This could be a result of 6 years teaching the BFI curriculum and the hospital drive for BFI accreditation.

"Yes, hand-expression (is routine). It gets pointed out in the booklet as well for when they go home ...Yes, that's all breastfeeding women.....Yes, definitely, that's another change (from a year ago).....I think it's more with the newly qualified, the younger people, that talk about hand-expression on discharge rather than the midwives that have been qualified a long time." [CS2, non-BFI accredited, Becky (non-mother) Int3]

However Polly (mentor CS1) became more positive in her response to teaching hand expression in year 3 compared to year 2 (see comment above).

"...I have always talked them through it (hand expression) before they go home.....I would make sure that they are confident with that before they go home." [CS1, non-BFI accredited, Hospital mentor Polly (non-mother) Int3]

The community midwives at CS3 and CS5 routinely teach hand expression, Lesley (CS3) as part of facilitating breastfeeding and Shona (CS5) to enable the mother to be able to trouble shoot and prevent formula supplementation.

"Yes (it is routine)...when anybody's feeding I say, 'just express a drop before you put baby on the breast',baby will get on better." [CS3, BFI accredited, Community Mentor Lesley (mother) Int3]

"... if you get engorged when your milk comes in you might need to hand-express. ...Always make sure they know everything, otherwise they'll be ringing you upYes I do (find it works). ...not everybody does it,...you go back to the next day...they've had a real problem overnight and then baby's had some formula....but if you told them, 'you just need to hand-express a bit off', and they go, 'I did that and it worked.'" [CS5, BFI accredited, Community Mentor Shona (mother) Int3]

4.5.3 Use of mechanical/breast pumps to express breastmilk

All students in year 1 had had opportunity to witness or support a woman using a breast pump. Alice (CS1) identifies it was a MSW who facilitated this.

"There was a support worker who was showing a lady how to use the breast pump and I observed how to set up...." [CS1, non- BFI accredited, Alice(mother) Int1]

In all the CS breast pumps were used usually following hand expression.

Becky (CS2) however found the use of the breast pump challenging due to the woman's anatomy and appears to contradict the standard hand expressing before using breast pumps. She had previously noted the big change between year 2 and 3 in practice with regard to teaching routine hand expression.

"...they use the pump a lot on the ward now a bit of hand expression on community..... I didn't have any cases where they hand expressed on the ward..... I have found it quite difficulty actually, [laughs] I had quite a difficult lady with funny shaped breasts, peculiar shaped breasts and it was quite difficult to get the pump staying on." [CS2, non-BFI accredited, Becky(non-mother) Int1]

The use of breast pumps does appear to be for babies on the neonatal unit when larger volumes are required on a regular basis. Effie (CS5) describes the proactive nature of support for women on the postnatal ward both during the day and night.

"The mentors I've seen, pause, um. Yeah I think they are shown to hand express before they try the pump....They do express with the pumps as well and obviously if baby has gone to special care baby unit I've noticed they give them the double pumps. And they wake them up in the night to make sure they express and at regular intervals through the 24 hours ..." [CS5, BFI accredited, Effie (mother) Int1]

4.5.4 Student development in teaching hand expression

Charlotte (CS3) describes the intimate nature of hand expressing and her discomfort at discussing it antenatally. Caroline (CS3) who was a breastfeeding mother, also finds slightly awkward.

"Me personally I get uncomfortable talking about it, especially with women that are older than me.... Sometimes I think to myself, I'm giving this information, it's quite intimate information, to a lady and I feel almost silly in the situation doing it....antenatally" [CS3, BFI accredited, Charlotte (non-mother) Int2]

"I was ..watching the mentor do it whereas now it would obviously be different. ...now ...you have to do the hand expression when you're in community as well. That seems a bit kind of early to do because people don't want that information at that point.....I'd say that a lot of people don't use hand expression even if they are going to breastfeed anyway." [CS3, BFI accredited, Caroline (mother) Int3]

Students' ability to support hand expression appears very mixed in the early part of their programme, generally witnessing mentors hands-on facilitation which they perpetuated with varying degrees of success.

Students in year 3 do appear to have a predominantly hands-off approach until the woman asks for help when hands-on the breast takes place.

"Yes I think (my teaching hand expression) is okay.....I'd probably say that hasn't changed (hands-off), because I suppose that's easier to explain in terms of hand gestures and everything, but you do get people saying, will you do it because I can't do it? So in that case I'd be hands-on, but at maternal request....." [CS3, BFI accredited, Caroline (mother) Int3]

Bridget (CS2) identifies the pressure required when compressing the breast tissue as the most complex part of the procedure to undertake hands-off, which often leads to hands-on at that point.

"Hands-off (hands expressing), I do.... I think in terms of like how hard to press is sometimes one thing women don't always get because they don't press hard enough... just saying, you need to press quite firmly, doesn't really tell them anything I don't think. That's the main reason I've had hands-on....I'd encourage them to do it themselves, because when they get home, they need to be doing it by themselves; mainly hands-off." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

The effect of the mentor in role modelling and communication strategies has overturned Charlotte's (CS3) previous practice of hands-on or selective hands-on.

"I think in practice, you do see lots of hands-on. The mentor I'm with currently is very much hands-off, ..gets good results ..especially...hand-expressing where I've had women ..say, just do it for me, I think now it's more beneficial for them to learn. I know to say to them, 'actually go back and feel the change in texture', rather than me feeling it and then placing their hands where it should be. So that's one of the things I need to trust women a bit more I think.... So there's definitely been a push from me for hand-expressing." [CS3, BFI accredited, Charlotte (non-mother) Int3]

Petula (CS1, Hospital mentor) has clinically found the new technique and hands-off is effective.

"The new technique,... I think they should be seeing that in practice,.....it clearly works a lot better when you're doing it...It's really hard to say for everybody else isn't it, but I feel the ethos...is (hands-off).. that's really inappropriate to be in somebody's personal space, that you actually don't need to be, you can teach them and enable them to do that without needing to touch them. I don't know, I'm not sure....I have (found hands-off successful) yes. We have teaching aids in clinical... knitted breasts.." [CS1, non-BFI accredited, Hospital Mentor Petula (non-mother) Int3]

Teaching and reiteration of hand expression within the curriculum at the beginning of year 3 has been identified by most students as instrumental in their increased promotion, confidence and skill to independently and autonomously facilitate women with hand expression.

"..Like with hand-expressing.., I feel like I can actually explain it now in a better context, and that could be to do with ...the academic university training ..." [CS1, non-BFI accredited, Adele (mother) Int3]

"Again being a student and knowing it (hand expression) as part of your curriculum, it's fresh in our minds,....." [CS1, non- BFI accredited, Amber (mother) Int3]

The confidence and belief to contradict custom and practice is evident with students' seniority and skill proficiency.

"I learnt more about it, that you're supposed to do more hand-expression before you turn towards the breast-pump...my mentors ...go straight in there with the pump and get going.....Hands-off yes, because what we've been taught in class....the first year ..my mentors was always ..hands-on... you're just basically observing..... since second year more, but third year now I'm doing everything on my own, I learn more from the classes ..now, because I get all my information from them ..I'm not around my mentors ..I'm looking after my own women. So I'm getting the information from the...classes and I'm putting it into practice. It's taken me that while really because of how you go about your training." [CS2, non-BFI accredited, Barbara (non-mother) Int3]

Students continue to identify a range of practice in midwifery support for hand expressing in year 3.

"..I've found it's who you work with. Not everybody gets the same information (on hand expressing) and as much information from midwife to midwife..." [CS1, non-BFI accredited, Amber (mother) Int3]

4.5.5 Summary

The BFI recommendation on the method of hand expressing is taught on the university curriculum including how and when it should be introduced to women. Students identify having mixed opportunities to apply this learning. By year 3 students have increased understanding and confidence to undertake facilitation of hand expressing without mentor modelling. CS3 and CS5, both BFI accredited, are more likely to teach hand expression routinely but the depth of information is mentor dependent.

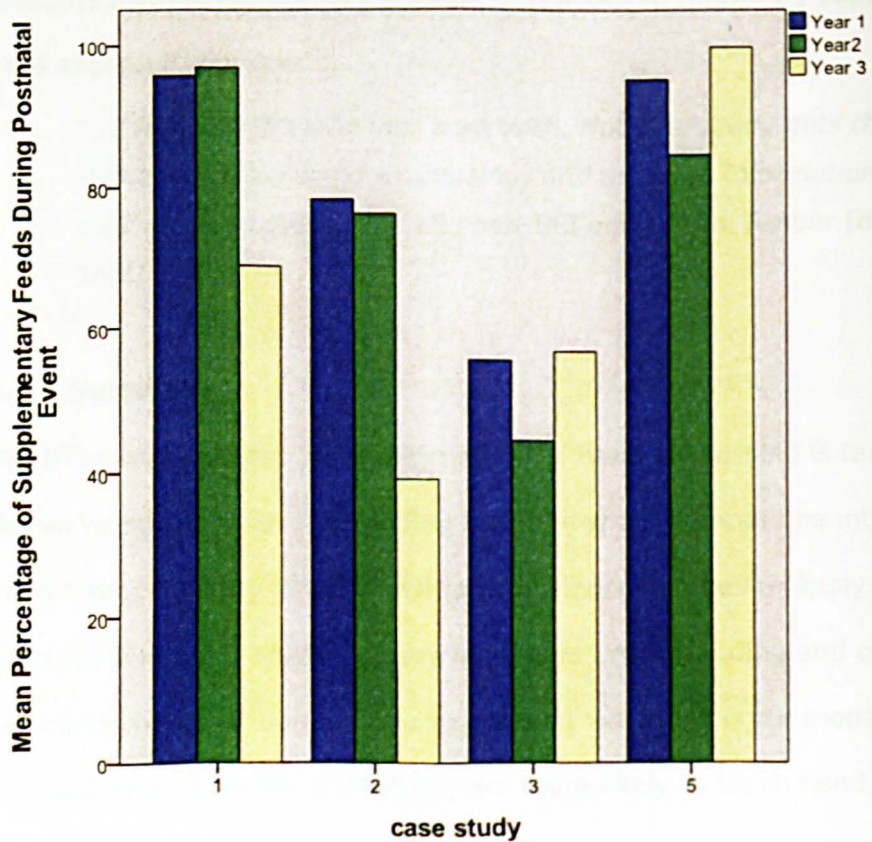
Organisational changes at CS1 and CS2 have seen an increase in routine teaching of hand expression of the breast.

4.6 Step 6: Give newborn infants no food or drink other than breastmilk, unless medically indicated.

4.6.1 Introduction

Breastfeeding or breastmilk feeding eg. using a cup, syringe or nasogastric tube following expression of breastmilk, are recommended for successful lactation and maximising health benefits [Flint et al 2007]. A high rate of supplementation is regarded as an indicator of poor breastfeeding practices. Students were asked to record situations when they observed or participated in supplementary feeding. RCS data (Figure 25) demonstrates that students experience highest supplementation rates in **year 1** at CS1 (n=29.5 from 122) and CS5 (n=17.7 from 60); in **year 2** at CS1 (n=42 from 171) and in **year 3** at CS5 (n=23 from 113).

Figure 25 – The correlation between mean supplementary feeds and CS.



CS1 (n=17.3 from 105) and CS2 (n=4 from 44) have seen a reduction in supplementation particularly in year 3. CS3 has consistently the lowest supplementation rates although there is a rise in year 3, which correlates with an anecdotal observation made by Lesley (CS3, Community mentor). RCS data did not always make clear whether EBM or formula was being supplemented which may explain CS5 data, although students did identify paediatric staff were not always proactive in the use of EBM.

The following sections provide the findings in relation to supplementation, the complications that could have led to supplementation and the support mechanisms available to women.

4.6.2 Supplementation

The role of supplementation of breastmilk or more usually formula milk was discussed during the interviews. Sub themes that emerged were:

- ease of formula supplementation,
- student dilemmas/confidence,
- documentation of supplements.

Vignettes A and B are relevant to this dilemma with questionnaire and interview responses included.

6.6.2.1 Ease of supplementation

CS5 and CS3, which are BFI accredited, demonstrate an embedded expectation of women to breastfeed unless they specifically request a formula or there is an identified need. Candice (CS3) implies other units are much quicker to introduce formula supplementation.

".. I know some of the other girls were saying that they quite often will top the babies up and whatever, whereas you have to have a real need, they try everything else first before giving them a (formula) and topping them up. It's very much breastfeed and they

have to express and cup feed,... some of the other girls seem to have had a different experience on that....No, not in the same unit, in different." [CS3, BFI accredited, Candice (mother) Int1]

Adele (CS1) and Becky (CS2) identify a change from year 1 to years 2 and 3 in supporting breastfeeding and reducing the use of formula supplementation implied by Candice. This change is corroborated by the RCS data in year 3 (Figure 29).

"..I think before people would give top-up feeds, like 7mls, not everybody would, ..if the baby's not fed., whereas you just don't see that now..... I think it's just probably that I'm more relaxed now with feeding as opposed to in my first year." [CS1, non-BFI accredited, Adele (mother) Int3]

"Yes, hand expressing, then pump expressing, and then the last part of call is a cup feed with formula ... last time, from what I can remember, it was pretty much if they didn't go on the breast they got given a bottle and that was it..." [CS2, non-BFI accredited, Becky (non-mother) Int2]

This change in practice is corroborated by mentors at CS1 and CS2 who identify a new guideline and a greater belief in colostrum which may have been instrumental in this change.

"...Probably yes (the supplementation rate has come down) I think soYes definitely (increased confidence and belief in colostrum from training)...That's what the policy says now, that's what the guideline says." [CS2, non-BFI accredited, Hospital Mentor Heather (mother) Int3]

"..in terms of supplementation ..I think there is much better awareness of what's needed and what's not needed...." [CS1, non-BFI accredited, Hospital Mentor Polly (non-mother) Int3]

Candice (CS3) has noted in year 3 that it is at home that formula supplementation takes place and women are telling midwives they are breastfeeding to avoid confrontation rather than being honest about their

feeding method. Bridget (CS2) considers the discontinuation rates would increase further with the limited visiting that takes place if MSW's were not available.

"...I don't really see much (supplementation), until they get home usually ...You do see it in the ladies that tell you they want to breastfeed because they think that's what you want to hear. They're the ones that will try by themselves, because they don't want you to help them, and they say, 'I've tried but she wants bottle'.." [CS3, BFI accredited, Candice (mother) Int3]

"they'll say they're struggling with breastfeeding..you see them on day 1/day 2 as they come out of hospital, and then you'll see them again between day 5 and day 7, if you send an MSW in between that, maybe day 3 or 4, you find they give up quite quickly...I find... (the women are) Not always (honest).....It probably is (support at the right time), which I think is why it's good there's an MSW around these days to do the breastfeeding, because if they saw the midwives as now and not see anybody in between, I think you'll have a lot more people giving up.." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

Contact details are given out for 24 hour advice which the above women do not appear to be accessing. Enya (CS5) is confident that processes are in place to limit supplementation but the home environment again appears to be the weak link and supplementation is observed at its highest when students are in their third year. An infant feeding advisor was employed to ensure re-accreditation of BFI status in year 2 which may have positively influenced the statistics.

"I don't think that (supplementation) would ever happen because we've gone through it, even in the middle of the night we've gone through it. Unless they're at home ..breastfeeding and then they've gone and done this without ringing anybody. But we always tell them they can ring the birth centre, we always say, don't give a formula-feed until you've spoken to somebody..." [CS5, BFI accredited, Enya (non-mother) Int3 VigB]

Vignettes were used as a research method as a trigger to explore mentors' and students' views. The responses to Vignette A,

"To be honest I didn't care if he had a formula because I was really tired, it was 5 am in the morning" [Cloherty et al 2004 p6]

are presented below.

All 32 questionnaire respondents (students, hospital and community mentors) across all CS agreed that this was a sad but common scenario. With forethought and planning either expressed breastmilk (EBM) or other mechanisms of support could have been used eg fathers or midwives caring for the baby for a while. These mechanisms are clearly used by Charlotte (CS3) who also highlights cultural differences and the need for good communication skills.

"You get this quite a lot on the wards....I think that's the benefit of not having milk on the wards,..they do have to ask for milk..it's a good way of policing what a mum's doing and trying to steer her on the right track. ...Especially in Asian communities, they do tend to mix feed ...it isn't something we particularly promote or are used to...I do think it's important that that's where you pick up your communication skills and ask them why they want to bottle-feed, and what their intention is long term. I think that's something we're really bad at asking." [CS3, BFI accredited, Charlotte (non-mother) Int3 VigA]

"This is where partners come into their own. They should have encouraged the mum to not give up and help out. The education has reinforced my belief in breastfeeding." [CS3, non-BFI accredited, Community Mentor Lesley (mother) Qu3, VigA]

Although Philippa (CS1, Community mentor) considers the scenario a thing of the past, Peggy (CS1, Community mentor) identified lack of night staff could create a similar situation.

"..that's quite sad really....I know it used to happen years ago, I don't think today... there shouldn't be anyone offering formula"

...because everybody's tired after they've had a baby, and there are other ways of supporting them through that, even if it's cuddling the baby for an hour while the mother has an hour's sleep. So that makes me sad..." [CS1 non- BFI accredited, Community Mentor Philippa (mother) Int3 VigA]

More midwifery perseverance was suggested as being required by **12** questionnaire respondents.

"Not acceptable – it's our job, encouragement is needed for the mother to continue. Persistence is the key and patience." [CS2, non-BFI accredited, Becky (non-mother) Qu3, VigA]

"I'd concentrate on saying, 'although you're tired, you still need to feed the baby....' ..I'd discuss breastfeeding to her and how she felt about that, ..babies do need feeding at night. ..or ..if she ..was ..saying, 'I do actually want to formula-feed'....." [CS2, non-BFI accredited, Bridget (non-mother) Int3 VigA]

Three questionnaire respondents were of the opinion that once all the pros/cons had been discussed, if the mother still requested a formula that would have been her informed choice.

"personal choice, I feel this is up to parents – providing they are fully informed about pros/cons and the normal process of breastfeeding." [CS2, non-BFI accredited, Community Mentor Hettie (non-mother) Qu3, VigA]

"The mum must be happy with her decisions as long as she has had all the information." [CS5, BFI accredited, Enya (non-mother) Qu3 VigA]

Enya (CS5) considers the discussion prior to offering a formula feed could increase a mother's guilt, however there is an acknowledgement that without that conversation an exploration of the mothers intent cannot be confirmed.

"Well I wouldn't ever do that.... you have to discuss the pros and cons, (but)...I think that made her feel worse, she was like, 'I feel

really bad now that you've got to go through all this just to give your baby a bit of formula, but at the end of the day I want to give it some formula'...." [CS5, BFI accredited, Enya (non-mother) Int3 VigA]

Adele (CS1) noted the role of tiredness following the birth of a baby, the realities of implementing their feeding choice, with possible lack of perseverance are highlighted by Caroline(CS3).

"I'd be tempted to think that a) they could just be shattered from whatever, so encouragement might work, or b) that although they considered the idea of breastfeeding, it's not something they'd be willing to put the effort into..." [CS3, BFI accredited, Caroline (non-mother) Int3 VigA]

"...a bit sad really. I do know you're really tired at 5 o'clock when you've got a new baby... she's still got to feed the baby whether she's breastfeeding or bottle feeding ...Breastfeeding is actually a lot more convenient... So it's probably just lack of knowing, not making a specifically informed choice there..." [CS1, non-BFI accredited, Adele (mother) Int3 VigA]

Maggie (CS4, Community midwife) doubts the ability to make an informed choice at 5 am when tired, a position corroborated by students who are also mothers.

"Mum tired and 5 am in the morning, not probably making informed choice to give formula." [CS4, BFI accredited, Community Mentor Maggie (non-mother) Qu3 VigA]

However, as **one** student identified in her questionnaire response, it does not preclude the mother starting with breastfeeding again the next day and that it was a response to not being prepared for motherhood.

"Mother not prepared for how life was going to change and focus would be baby instead now. Encouragement given but not optimistic, nevertheless no reason why breastfeeding couldn't be continued from next feed." [CS3, BFI accredited, Caroline (mother) Qu3 VigA]

All but **one** questionnaire respondent identified that infant feeding education to staff and students had provided knowledge, skills and patience to positively support a woman in this situation.

4.6.3 Student dilemmas/confidence

Bella (CS2) and Amber (CS1) are torn between their education and belief system to maintain breastfeeding and concern for the welfare of the baby. Bella finds poor suckling and breastmilk expression two areas of challenge for which mentors have offered alternatives.

"Recently help(ed) a baby with a cup-feed (formula) because it just wasn't sucking and that baby hadn't fed in the last 24 hours properly since it was born. ..That's two things that I don't really know what to give women advice on, is when the baby isn't sucking properly.. then ifshe's trying to express and she isn't getting any milk, or if she doesn't feel like the baby's getting any milk... Usually (the mentors) just comein with me and show me some other positions, or they'll rearrange how I've been doing it,..." [CS2, non-BFI accredited, Bella (non-mother) Int2]

Amber's status as a year 2 student at CS1 hinders her from suggesting a formula supplement which does therefore encourage her to seek other methods of supporting the mother with her choice to breastfeed; although the midwife agrees with her assessment and a formula cup feed is subsequently given.

"... when it's not going right ..I was really conscious as to whether I should offer a cup feed for baby. I was aware that time was ticking, the baby was really distressed and the parents were really anxious, but I almost felt scared as a student to offer it(formula)Definitely, yes, you don't want to be offering it too soon...Yes, definitely (isn't quite right for me to be making that judgement call)....And in the meantime, ..it encouraged me to keep going with the woman." [CS1, non-BFI accredited, Amber (mother) Int2]

In contrast, Effie (CS5) in year 2 has sufficient confidence to challenge paediatric staff to consider an alternative to formula supplementation and had a positive outcome.

"...it was an SHO.., that said ..top the baby up with formula (for a low blood sugar) and I said but if we could just, ..express some breastmilk off can we try that first. And he was happy for that and we, we actually got loads of colostrum offI think it's just because sometimes they don't think." [CS5, BFI accredited, Effie (mother) Int2]

Estelle (CS5) has noted differences in management between circumstances and paediatric staff but has again had a good outcome when using EBM.

"Different circumstances, different paediatricians. We've had a lot of new ones...they're straight in for top-ups...I've stood my ground with one .. and got a woman to express about 2mls and topped-up and that baby was fine, it's BMs came back up and it was brilliant. I was quite impressed." [CS5, BFI accredited, Estelle (mother) Int3]

University theory and skills teaching are providing a strong basis for students to be confident in their knowledge and challenge present practice despite rebuffs.

".. (The workshop was) Really good....we got so much all in one space of time. It was drilled in and then drilled in again, and you were in practice and it was drilled in again. I think the repetitiveness of it really helped, because sometimes you have it and then you forget, and you get overwhelmed with what people tell you to do in practice rather than what you've learnt in theory...Normally the older midwives ...They're normally open to suggestions, but some of them are like, 'no, that's not what I practice so just...' Yes (do as you're told)." [CS2, non-BFI accredited, Becky (non-mother) Int3]

Belinda (CS2) also identifies differences between midwives' practice, their length of qualification but also the workload, staffing levels and time which dictate the decision making on a particular shift. The concept of risk is

introduced with essentials being undertaken suggesting that breastfeeding is not regarded as essential to midwifery care on a postnatal ward.

"..I think it's a combination (of supplementation formula and EBM).. I don't think it's really changed. I think it depends how much EBM they can get off... it depends on the midwife.... How busy the ward is and how many staff there are...the workload has increased so much...since I started, especially on the wards. There doesn't ever seem to be the time to do everything ..." [CS2, non-BFI accredited, Belinda (non-mother) Int3]

Students in year 2 identify a progression in expectation of their abilities from year 1 which may not always be justified. Students do appear to be confident with the normal and are able to undertake a simple pathway with guidance. More complex transitional care babies have taken more referral as the first expected exposure comes in year 2.

"Erm, I think because you're in your second year they assume that you can just get on with it and sometimes it's not the case. I found quite a lot of ladies ..on the ward erm, experiencing difficulties in breastfeeding in the early days,.. I feel like I'm becoming a lot more confident at dealing with the ..difficulties now. ..the process ..at the moment ..see if you can get latched on, different positions, letting the baby sleep a bit longer and then try again, keep stimulating the breast, ..I'm, looking after a lot of transitional care babies, ..then ..offering a cup feed of expressed breast milk. ..if you can't express then we're giving them a top up of formula ..then trying again in the next 3 hours onto the breast again..." [CS2, non-BFI accredited, Becky (non-mother) Int2]

Year 3 students and their mentors identify a noticeable change in the students' knowledge, decision making and planning of care which mentors consider is due to the theoretical teaching but opportunity to use in practice appears fundamental to confidence.

"A lot better prepared than I felt this time last year, but I think again that's more a combination of not just university, but what I've

also seen in practice as well, so I've been much more confident...."

[CS5, BFI accredited, Estelle (mother) Int3]

"...obviously the visits that they're allowed to do on their own in the third year are only normal visits....She's leading the visits even if it's a problematic lady but I'd still be there." [CS5, BFI accredited, Community Mentor Shona (mother) Int3]

"..Yes,..she (student) .. after we'd had a discussion (took) responsibility for what she was saying ...she made the right decisions and the right plans for some of the problems we'd had. I don't know I think that had to come from knowledge in school didn't it really, to be able to use that information ...No (she wouldn't have come across it in practice before that point)." [CS1, non-BFI accredited Community Mentor Philippa (mother) Int3]

The majority of students had found they were using the knowledge from theoretical sessions to inform practice on complications.

"Good, useful (theory session), because you don't get to see all the complications in practice so it was good going back over them..."

[CS2, non-BFI accredited, Belinda (non-mother) Int3]

This was not the case for Charlotte (CS3) who had witnessed complication in infant feeding in year 2 prior to the theory although she is using the 'SPECIFIC' card designed by the university (Appendix 2).

"I think most of the remedies for complications, I have actually learned in practice from seeing them.... I've always got my specific card (issued by Uni) with me, ...I do remember being taught the physiology behind them, the remedies I've very much learnt...in practice, definitely...In my second year ...everybody I came across had something or other. Not so much in my third year, no...I think a lot of the midwives do use more of their own... techniques, but more anecdotal. I'm not sure of the evidence behind it..." [CS3, BFI accredited, Charlotte (non-mother) Int3]

Bella (CS2) identified she would have liked it earlier but this was not unlike the rest of the curriculum where information is stratified. Students consider

the theoretical session a good basis to apply in practice but consider it is not until regular opportunities are gained that confidence is achieved which does seem to be a challenge in some areas.

"..I haven't really seen many (complications), to be honest. I've seen a couple in Community....But these lectures have helped me because I now know the symptoms and the signs for all the different things, so at least when it comes about, I will know about it, but I still need that experience...." [CS2, non-BFI accredited, Barbara (non-mother) Int3]

"I guess after the days at university, you're competent to do it, you know what you're doing, but...I think it's only once you start doing that (telling somebody blind), that you get confident with it, that you're not assuming they know what you mean..." [CS3, BFI accredited, Candice (mother) Int3]

There is a correlation between Vignette A to Vignette B that women are not always happy that a formula supplement was given even with their consent at the time, therefore the importance of staff perseverance and making a decision when less tired or anxious is possibly a good strategy to pursue.

Vignette B: *"I regretted him having the cup feeds, if I had done my homework better I wouldn't have let him have them. I panicked that he hadn't got enough milk from me"* [Cloherty et al 2004, p7].

There was some confusion with this quote as the whole article related to normal/healthy term babies who had been given formula supplements. However, clear understandings that breastmilk cup feeds following hand expression is positive compared to a formula supplement unless medically indicated are voiced by **all** questionnaire respondents. This is a different message than was voiced by some in year 1.

"Cup feeds are better than bottle feeding – it depends if he was a transitional care baby or a healthy term baby." [CS2, non-BFI accredited, Bella (non-mother) Qu3, VigB]

"Cup feeds with EBM does not interfere with breastfeeding and as a quick fix or for maternal reassurance does not pose a problem."

[CS3, BFI accredited, Caroline (mother) Qu3, VigB]

"A lot of ladies suggest these cup-feeds or top up feeds, and I often wonder why so many know about it, and where they're reading their information...But you do hear a lot of regrets of top up feeds....try and talk them out of that decision,.. saying, tomorrow when you've had some rest, you'll be feeling a lot better in yourself..you'll have a lot more support from them(family etc)."

[CS1, non-BFI accredited, Amber (mother) Int3 VigB]

Poor maternal education antenatally is noted by **5** questionnaire respondents and **16** comment on the normality of women doubting their abilities to supply enough breastmilk.

"Cup feeds EBM/Formula? Mum hasn't been given enough info antenatally to do homework. Normal for mum to question lactation/milk supply." [CS4, BFI accredited, Community Mentor Maggie (non-mother) Qu3, VigB]

"...I think we need to give the homework in antenatal. In community I did parent education classes and I wanted to do the breastfeeding area, but it was the MSW that did that, that was her role. I wanted to highlight the dangers of formula-milk, because I think people need to know that it's like feeding your baby paint stripper....No, I didn't (challenge the MSW). She's very stuck in her way as well..." [CS1, non-BFI accredited, Alice (mother) Int3 VigB]

Peggy (CS1) however, identifies it is not about antenatal education but meeting the needs or not of the woman at the time.

"...I don't think there's anything to do with education that's going to change that, I think it's just all about her experience on that day really.." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3 VigA]

One community midwife, Lesley (CS3) was pragmatic in her response to

learn and move on was the best policy, probably a reflection of her many years in community and acknowledging the psychological state of women postnatally; Caroline a student and mother also from CS3 is equally pragmatic. The need for exclusivity is challenged but the reality of encouraging any breastfeeding as positive is noted.

"Why do you regret the cup feed and was it breastmilk or formula. Put it behind you, you cannot do anything about it now so look to the future not the past and don't do it with your next baby." [CS3, BFI accredited, Community Mentor Lesley (mother) Qu3, VigB]

".....I suppose if this has already happened, then you couldn't have advised about the disadvantages of having had a cup-feedyou're going to add to that anxiety. But I'd say that just because they've had that one cup-feed, it doesn't mean to say they're a formula-feeder.. just go on to breastfeeding and that be that... so just more reassurance really." [CS3, BFI accredited, Caroline (mother) Int3 VigB]

All but **one** respondent identified continued infant feeding education for staff had positively enhanced their support of women with breastfeeding.

"Made me more confident withholding cup feeds and knowing that The baby will not starve!" [CS1, non-BFI accredited, Hospital Mentor Poppy (mother) Qu3 VigB]

Only **one** considered it had not.

"I don't feel my education on breastfeeding has impacted on my opinion." [CS2, non-BFI accredited, Community Mentor Hettie (non-mother) Qu3 VigB]

4.6.4 Documentation following supplementation

Charlotte (CS3) identifies a pathway for consent and documentation of formula supplements which is similarly identified by Enya (CS5) earlier.

Candice (CS3) notes that women are not literally expected to sign on the dotted line.

"Yes, (the parents) are supposed to agree to it the very first time it's done. They have to read and there's a little box on the end of the feeding page that says why it's been given the first time..is it consented to.." [CS3, BFI accredited, Charlotte (non-mother) Int3]

"....I think it upsets some of them, to be honest, having to sign because it's as though they're not doing the right thing. It's a bit of a double-edged sword I suppose... I don't think they really sign, I think they just document it, mum wishes to formula-feed and whatever milk's given." [CS3, BFI accredited, Candice (mother) Int3]

Petula (CS1, Hospital mentor) does not witness the specific section for formula supplements completed but Heather (CS2) and Amber (CS1) do note they document in the women's handheld notes.

"Yeah but it's never used (the supplementation section in the documentation)..Very rarely... but again we're less likely to (formula) supplement because we're very hot on getting them hand expressing at 6 hours,..." [CS1, non-BFI accredited, Hospital Mentor Petula (non-mother) Int2]

4.6.5 Complications that may lead to formula supplementation

Students commonly identified complications that lead to formula supplementation as:

- sleepy baby,
- milk insufficiency allied to weight loss in the baby,
- sore nipples,
- engorgement.

Others such as blocked duct, mastitis, infection and jaundice in the baby are also seen. Transitional care and neonatal care babies and those with specific anomalies for example ankyloglossia have also been learning opportunities for students within an inter-professional capacity.

4.6.5.1 Sleepy baby

Within a hospital setting students from all CS found a sleepy baby caused anxiety, particularly if he/she had not fed on labour ward prior to transfer to the postnatal ward. The 'reluctant feeder' guideline at CS1 and CS2 does appear to have provided good working parameters.

"It's mainly been babies that are sleepy, that aren't very responsive in wanting to feed, which I've found skin-to-skin has near enough always worked for me." [CS1, non-BFI accredited, Adele (mother) Int3]

"Like the sleepy babies...They are impossible, aren't they? They are just keep going with that,..But sometimes I don't have a clue what to do with them. But in the end they are maybe expressing and doing a cup-feed. ..Yes (that's about perseverance really, isn't it, and maintenance of the confidence), that's all I know...." [CS2, non-BFI accredited, Bella (non-mother) Int3]

"Yes, if a baby hasn't fed, if it's a term healthy baby..., pop baby on to skin-to-skin.....I think it's part of our practice now, but whether it's for everyone... I'm sure it's not for some of the old-schoolers." [CS1, non-BFI accredited, Hospital Mentor Polly (non-mother) Int1]

All students at CS5 identify the use of finger feeding something not practiced by any other CS.

"...There's the whole feeling the palate, stroking them and that kind of thing. You're getting the mums to finger-feed...Yes, and how long do you finger-feed it for, and then what do you do at the next feed; how long do you try for; do you finger-feed it again; how long do you keep going, because I still don't really know what I'd do." [CS5, BFI accredited, Enya (non-mother) Int3]

4.6.5.2 Milk insufficiency

Students identify two forms of milk insufficiency, perceived and actual. Perceived is by the mother who is asking to change to formula (see comments to Vignette A) and includes formula milk being given to an

unsettled baby. Actual relates to recorded weight loss in a baby. Enya's (CS5) description doesn't resolve the problem for very long suggesting maybe other challenges.

"...They say 15–20mls, never any more.....Yes (standard). But....a woman on labour suite has gone to theatre and the baby's hungry.. left with the MSW, ..'can I give the baby some formula, it's hungry?' and the woman, the partner, said, 'yes' but she gave the baby 80mls twice,..not going to revert back very easily now....On the ward they're good, but on the labour suite they weren't so clued up on it." [CS2, non-BFI accredited Becky (non-mother) Int3]

"..a baby that was nearly 5kg and absolutely ravenous. This woman had absolutely no colostrum whatsoever on hand-expressing, her nipples were cracked and sore, this baby was screaming its head off for hours... Nobody knew really what to do with it,... after it had 45mls of Aptamil, it settled for an hour and a half, and then screamed its head off again, the mouth was going everywhere." [CS5, BFI accredited, Enya (non-mother) Int3]

4.6.5.3 Weight Loss

Weight loss that results from actual milk insufficiency relative to the baby's needs, is an increasingly difficult area to manage and maintain exclusive breastfeeding. It is particularly in year 3 that students comment on it and the challenges associated with different policies.

Peggy (CS1 non- BFI accredited, Community midwife) doesn't consider there has been an increase in large weight losses in babies although it is something that students worry about.

"Big weight loss; a baby that won't feed.....No, I don't think you do (get a lot), but you do get the odd one....Yes (the early transfers),...if the woman perseveres long enough..Most babies if you give them long enough will do it; they'll do it in the end." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

"..No (not a lot of weight losses), not really, not over 10%." [CS5, BFI accredited, Community mentor Shona (mother) Int3]

A consensus of more frequent observation once the baby has a 10% weight loss, then serious exploration with possible review to paediatric staff at 12-13% weight loss is noted from mentor interviews.

"The normal cut off is within 10%, although UNICEF said it should be 3%... .Day 3. ..Our normal is 10%, up to about 12% - 13% they're happy for you to look at the situation, make the clinical judgement, is the baby well, has the mum got milk, etc, and then give it a couple of days. But 14% ...it really should be readmitted. But even then if you talk to paediatricians, sometimes they'll say, get a GP review" [CS5, BFI accredited, Community mentor Shona (mother) Int3]

"If (weight loss) is over 7%, then we usually go back to re-weigh Within a few days; if it's over, ..13% we should be speaking to the paediatrician that day, taking into account everything else..." [CS4, BFI accredited, Community Mentor Maggie (mother) Int3]

Peggy (CS1, Community midwife) considers the new guideline puts the onus of decision making on the midwife which is challenging.

"..Now the guideline is much woollier than it used to be ...you have to look at lots of other things as well, whereas it used to be 12.5% or more, in you go. .. that's quite hard really making that decision if they've lost more, to think that it's okay to stay at home." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

Adele (CS1) was challenged by intentional mixed feeders and Alice (CS1) by a mother with an eating disorder.

"..Muslim ladies... do mixed feeding to start with. You always think, that won't work, but then it does,....Although, ... the two babies that had ..weight drops..over 10%, and one had to go back in with jaundice, they were both babies that had had mixed-feeding. So is it working?.. those babies ended up being readmitted." [CS1, non-BFI accredited, Adele (mother) Int3]

"...in relation to a woman's diet and breastfeeding, I don't think we get quite (enough) ... we had an anorexic lady.., she was breastfeeding, but the baby just kept losing weight. I don't think she was feeding it for long enough, but then she probably didn't have enough milk to do that.... I wish I could answer that question in depth....She used to come regularly to the postnatal clinic to have the baby weighed.. Yes, it was having formula top-ups." [CS1, non-BFI accredited, Alice (mother) Int3]

Belinda (CS2) identifies a positive outcome for a baby with a 14% weight loss based on support and perseverance.

"..in community ..a baby that had lost 14% of its birth weight, she was breastfeeding, and she didn't want to give any formula at all.....We got her to express and got her to feed as much as she could. ...She had a lot of breastfeeding support....she managed to get the weight back on and avoid having to come back into hospital and have formula." [CS2, non-BFI accredited, Belinda (non-mother) Int3]

Bridget (CS2) also noted her increasing confidence as a third year student with weight management in babies.

4.6.5.4 Sore nipples

All the students and mentors identify sore nipples as one of the commonest complications of breastfeeding that they encounter in hospital and community. Women experiencing sore nipples has been a recurring theme throughout the study period and is often the cause of discontinuation.

"Um I think a lot of them were like sore nipples. They were getting a bit impatient ..and they weren't looking forward to the feed, because they knew it hurt a lot.. I got a lot more on the ward than I did in the community." [CS2, non-BFI accredited, Bridget (non-mother) Int1]

"Probably soreness would be the biggest.... she's starting to think

about stopping breastfeeding....Yes (day 3)..." [CS4, BFI

accredited, Community Mentor Maggie (mother) Int3]

The midwife who could resolve the problem of soreness was highly praised by women.

"..the midwife would go out and assist with either positioning or give advice on sore nipples, cracked nipples and then the next (day) you would go they would praise the midwife no end..." [CS1, non-BFI accredited, Amber (mother) Int1]

Interestingly, a few students' perceived sore nipples as inevitable when breastfeeding therefore did not consider it a complication.

"..I've had women with sore breasts and sore nipples, but I'm not putting them in as complications ...I'm just thinking that's ..a normal thing that happens initially, but ...that's a complication... I'd have had three books of them." [CS1, non-BFI accredited, Alice (mother) Int3]

"(Complications) None. I have seen sore nipples." [CS2, non-BFI accredited, Bella (non-mother) Int3]

All students and mentors identify poor positioning and attachment as the source of sore nipples. The emergent themes for the care of sore nipples were; correcting positioning and attachment, use of nipple shields, use of dry and wet intention healing, and aromatherapy.

"..Mostly on the ward....Yes, under three days mostly. So not really bad, just redness....Attachment and positioning, and giving them support (works best). Being with them for the next feed, if you have time, trying to make time." [CS2, non-BFI accredited, Bella (non-mother) Int3]

Nipple shields:

The use of nipple shields remains controversial and results of their use are mixed. Bella (CS2) hasn't found them particularly effective within the hospital setting but two community mentors (CS4 and CS5) have had

success with judicious use. Maggie (CS4) argues that any breastmilk would be better than none.

"(Nipple shields) are discouraged aren't they, but sometimes I'll suggest them if a baby's having real problems.... in my experience they've been a success. I've had very few unsuccessful breastfeeders that have used shields,.. because they say they get 10% less milk, that it's better than getting 100% less, in my opinion....." [CS4, BFI accredited, Community Mentor Maggie (mother) Int3]

Dry and wet intention healing:

Bridget (CS2) describes dry intention healing used when breasts are exposed to the air. Wet intention healing of the breasts uses expressed breastmilk which is rubbed into the nipple (Maggie CS4, Community mentor) or commercially available Lansinoh (Shona CS5, Community mentor).

"Yes, and exposing them to the air I find helps. A few midwives have said about expression, colostrum on to your nipples and rubbing on, ..and the aromatherapy. Just regular feeding, making sure they've got the attachment and positioning right, they're the main things I'd say for sore nipples." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

"..I'd suggest breast shells first to treat that soreness, because they're very good at treating soreness.....They keep the nipple moist, ...30-40 minutes put them in... the milk will heal soreness quickly. .." [CS4, BFI accredited, Community Mentor Maggie (mother) Int3]

"The women are doing all sorts. Lansinoh is the big one for sore nipples ...and Vaseline." [CS5, BFI accredited, Community Mentor Shona (mother) Int3]

Aromatherapy:

Increasingly aromatherapy compresses are being used at CS1 and CS2 once the students are in year 3, following their aromatherapy theoretical day. Bridget (CS2) identifies her success with it and her confidence in challenging midwives to allow her to use it.

"..For (nipple soreness) Lavender and camomile yes..... So even if I was to work with somebody that doesn't feel it worked, I'd encourage that because I've seen it work in the past..... but in terms of sore nipples mainly in my third year...." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

For some women using a breast pump is more acceptable until the soreness subsides.

"I had someone with sore nipples last night who wouldn't put the baby on at all....so she just expressed using the pump, Yes, she got about 40mls...." [CS5, BFI accredited, Emily (non-mother) Int2]

4.6.5.5 Engorgement

Engorgement is not a commonly seen complication either in hospital due to early transfers or in community because of visiting patterns when it may be missed. Charlotte (CS3) describes the difficulties of engorgement and attachment which required a longer postnatal clinic appointment.

"You don't tend to see it now, I haven't seen anybody with engorgement ..(the early transfers), but hopefully if we've improved our skills of teaching these problems shouldn't happen should they?.." [CS2, non-BFI accredited, Hospital Mentor Heather (mother) Int3]

"Engorgement....You don't always see that so much these days, because obviously the women are seen early and then not again for 5 days....Yes (we're missing engorgement)...." [CS1, non- BFI accredited, Community Mentor Peggy (mother) Int3]

"..we arranged a longer appointment..She couldn't hand express, ...she was producing a lot of milk ...her breasts looked quite tender....the baby would attach perfectly sometimes and then other times ...the baby would be on and off ...Yes, it was.. engorgement.." [CS3, BFI accredited, Charlotte (non-mother) Int1]

Throughout the period of the study the women in hospital that do get engorged are those with babies on the neonatal unit and therefore have longer stays. Again aromatherapy appears to be being successfully used for engorgement at CS1 and CS2 in the third year.

"..Breast engorgement which we'd use geranium for.... lukewarm water and you'd then put your compress... (a jug of 500mls of water to 2 drops of geranium).....Probably (for) 15 - 30 minutes. ...unless you literally take your compress off and then put the baby straight on, but if you say waited another half an hour/hour, that's absolutely fine to leave it and not wash it off..." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

Hand expressing has been successfully used by students and mentors throughout the study period.

"Yes, I've had engorgement and just explaining hand-expression always helps there, just getting the woman to express." [CS1, non-BFI accredited, Adele (mother) Int3]

Caroline (CS3) describes successfully re-establishing breastfeeding with a mother who had been unsuccessful in hospital and had become engorged in community.

"And she said "no they were still full" ...she'd tried to breastfeed in hospital...but wasn't given the time to be shown properly ... she had been bottle feeding in the meantime.... so I showed her how to do it and she said that that was all comfortable and felt really good ..and was going to breastfeed from then on...even after 3 or 4 days...." [CS3, BFI accredited, Caroline (mother) Int1]

"But I did have a woman who had a fourth baby, she never breastfed, and I went in at about four-five days and she said, 'what

can I do with these?... 'best advice is to put baby on the breast, five minutes the first feed, three minutes the second, one minute the third, and you won't fill up quite so much each time.'...I went back three days later and ..ten days and she was breastfeeding totally... 'this is a doddle in comparison to making bottles up, why don't you tell people it's this easy?'... if I have any more children I'll definitely breastfeed.'...[CS3, BFI accredited, Community Mentor Lesley (mother) Int1]

Community mentors within the study all pre-empted the problem by providing information at the first visit giving the mothers coping strategies.

"...when you do a first visit, you say to the woman...this is what to expect in the next few days... because you're not always going to be there to help..." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

Shona (CS5) intimates that some of her colleagues are not so pro-active therefore engorgement is experienced by those women.

"You don't see too much (engorgement), but then when we go in on that first visit, we'll tell them every single thing we can possibly think of,...It can be (a long visit).....not everybody does it..and they're the ones you go back to the next day where they've had a real problem overnight and then baby's had some formula.." [CS5, BFI accredited, Community Mentor Shona (mother) Int3]

4.6.5.6 Blocked duct

A blocked duct has **only** been discussed by Estelle (CS5) therefore although identified on the BFI curriculum is not frequently encountered. This is reflected in Estelle relying on her theoretical knowledge.

"...I'm in community ... if we had a woman complaining of a blocked duct, ...I'd feel more confident to say to her, let's give it 24 hours, we'll come back tomorrow ..where as last year I wouldn't have done, I'd have wanted to probably jump straight in." [CS5, BFI accredited, Estelle (mother) Int3]

4.6.5.7 Mastitis

Mastitis is not a common problem.

"I don't think we've had a lady (with mastitis) for absolutely ages."
[CS5, BFI accredited Community Mentor Shona (mother) Int3]

"..I've seen one case of mastitis..." [CS1, non-BFI accredited,
Amber (mother) Int3]

However, when mastitis does occur it is a significant learning event as Estelle (CS5) describes.

"Yes a couple of ladies one particularly lady had really really bad mastitis ...we had only been in training six weeks and it was quite terrifying ...the problems started when she got ...a little bit sore she started to bottle feed and things like escalated from there. When we went she was extremely tachycardic, her pulse was sky high and really wet physically wet sweating, really bad infection and we went to see her the midwife got ..in touch with the doctor and got antibiotics prescribed and we went back to see her the day after and the day after and I couldn't believe the difference two days of antibiotics could make...." [CS5, BFI accredited, Estelle (mother) Int1]

"Yes, sometimes we do get them developing mastitis.. if ..we encourage them to keep feeding.....The majority don't need antibiotics if they can work through that difficulty..." [CS4, BFI accredited, Community Mentor Maggie (mother) Int3]

Students rely on the theoretical day and the use of scenarios for re-enforcement and clarity of diagnosis and management.

"..I've seen some unusual things that you don't see in hospital because they're dischargedbefore the problems can accrue, ...I know it's from what I've done here in university; I'd never have picked that up in practice...I think just spending time learning, especially with problem shooting, ...My mentors haven't necessarily gone through that with me all the time, some do, but it's just clearer, the clarity's different in university to what it is in practice I'd say." [CS1, non-BFI accredited, Adele (mother) Int3]

Peggy (CS1) a community mentor acknowledges that not all conditions can be experienced within the training programme.

"you just can't see everything, can you, when you're training, you've just got to know that you've got that knowledge to recognise things when they do come up and you learn from that." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

4.6.5.8 Infections

Discouraging the use of dummies has made Candida a rarity although the new guidance on SIDS may alter that. There is also a risk associated with finger feeding that students acknowledged.

"I'd say no (candida) for breastfeeding, because obviously it's going to affect the mum's nipple, ...we discourage the use of anything else like dummies or teats,.. Really it's quite rare I'd say, in my experience..." [CS4, BFI accredited, Community Mentor Maggie (mother) Int3]

"...You're getting the mums to finger-feed and then you get someone telling you shouldn't ..because you can give the baby thrush in its mouth.." [CS5, BFI accredited, Enya (non-mother) Int3]

4.6.5.9 Congenital Anomalies

The most common anomaly that students have either diagnosed or been involved in the care and management has been ankyloglossia.

"Never had tongue-tie." [CS2, non-BFI accredited, Becky (non-mother) Int3]

"..Tongue-tie I've come across a couple of times, and mums that are getting a bit sore, but ..the paediatric doctors will snip it, job done before they even go home...." [CS5, BFI accredited, Enya (non-mother) Int3]

This is more commonly diagnosed at CS3, CS4 and CS5 which are BFI

accredited with a clear and rapid local process for its management.

"(the tongue tie) was picked up at birth... (at) about three days. ..She'd breast-fed before and she said she could feel the difference. ..she'd already seen somebody here and got a sort of plan ..." [CS3, BFI accredited, Candice (mother) Int3]

"No, we do it (tongue tie division), and then it just depends how quickly we can do it. They do them on a Wednesday and Thursday ..mums are really worried about it aren't they, but as soon as you say to them 'well I've been and I've seen it done, the baby didn't even wake up', 'oh right, yeah'..." [CS5, BFI accredited, Community mentor Shona (mother) Int1]

Charlotte (CS3) identifies the two managements used with ankyloglossia, division or not, usually dependent on the mothers feeding intent although she notes the poor feeding even with formula [Hogan et al 2005, Glynn et al 2010, NIHCE 2005].

"...The first one I found hadn't been picked up on (till day 4) at all, and she was adamant she was going to breastfeed, therefore it got snipped. It was fantastic to watch the process of it being done and how simple it is really,.. we had this MaxFax guy there and the sugar water and things...The second lady that I found,..she wasn't 100% sure whether she wanted to breastfeed.., so they left ..it ..and told her..to come back and they'd do it through a GP referral. ..I cup-fed him and he wasn't brilliant at that either, quite uncoordinated..." [CS3, BFI accredited, Charlotte (non-mother) Int3]

Cleft lip and/or palate are routinely screened for at birth and with prompt support from the specialist team good outcomes are achieved but often the babies are breastmilk fed via bottle rather than breastfed and this baby was formula fed.

"..there was a cleft palate, so I spent an hour or two with the cleft palate team dealing with that baby....Which actually fed like a dream so we didn't have any issues anyway but they just had

different teats and different things for them. It wasn't breastfed ...Yeah (that was EBM)... [CS3, BFI accredited, Caroline(mother) Int 2]

Bella's (CS2) involvement was with a baby diagnosed with Patau syndrome on a palliative care pathway.

"I was looking after a little Patau syndrome baby, and that was having nasal gastric feeds of breast-milk but that was on the palliative care pathway anyway..it had a massive cleft-lip and palate....." [CS2, non-BFI accredited, Bella(non-mother) Int2]

4.6.5.10 Transitional care babies

Transitional or extra care babies are those under 37 weeks gestation or under 2.5 Kg. They therefore straddle midwifery and paediatric guidelines.

Traditionally these babies would be fully breastfeeding or formula feeding via a bottle prior to transfer to community. This situation has changed as identified by Shona (CS5).

"Well we're having a lot of babies, usually if they were 2.5(Kg) or littler they went to special care ..they're not now ..they're coming home at 2.2(Kg) breastfeeding.." [CS5, BFI accredited, Community mentor Shona (mother) Int1]

"well it's just like passing the tubes in them, ..they're really proactive ..to get mum to express ...right at the beginning sort of thing, and the storage of breast milk ..I couldn't remember.. how you store it ..but now I definitely know..." [CS1, non-BFI accredited, Alex (mother) Int2]

Maternal breast surgery also complicates the care of breastfeeding babies identified by Candice (CS3).

"we had some twins but the lady had had a breast reduction one side. She was breastfeeding the twins, ...she was expressing and topping up. ...it was like switching the twins over.. she was still lactating ..there was quite an obvious difference .. we gave her the numbers.., to have a double-pump..." [CS3, BFI accredited, Candice (mother) Int3]

When babies fall into the transitional care category frequent and adequate feeds are required. Volumes for each feed are calculated by the number of days following birth and the weight of the baby at birth. All CS have found that despite a breastfeed, the full requirement will be given as EBM or formula, both Charlotte (CS3) and Heather (CS1, Hospital mentor) corroborate. Only the Infant Feeding Advisor appears confident enough to either significantly reduce or not give a supplement based on the nature of the breastfeed.

"her baby was 34 weeks and it weighed 2160g, so ..require(d) topping-up to requirements, but she was like, how do I not know that it's already had 16mls? ...even if it's had 20 minutes on the breast, then this is its requirements. ..she was quite upset ..to have this baby topped-up...No (reducing of volumes)...An infant feeding advisor I worked with ..is far more trusting in women who are lactating, ..you've had a 40 minute breastfeed, I'm happy for this baby not to be topped-up. But I don't think midwives are autonomous ...it's trusting women,... I do think that's something we're really bad at doing, is giving responsibility back to mums."
[CS3, BFI accredited, Charlotte (non-mother) Int3]

"...try the baby at the breast first if it's rooting and get mum to hand-express... you know it's going to tire, you can't just totally breastfeed that premature baby....We'd always top-up with EBM....cup-feed... 3 hourly feeding, and because they have to have a set requirement in a 24 hour period,... We like to get the feed within 30-40 minutes ..you want it to have had good suckling at the breast to get the requirements." [CS2, non-BFI accredited, Hospital Mentor Heather (mother) Int3]

Belinda (CS2) highlights guidelines, professional groups and the time and attention given on the postnatal ward compared to the NNU which precludes midwives observing full breastfeed. This maybe impacting on midwives confidence to reduce the required formula top-ups appropriately.

"..Especially the paediatricians..., even if someone says she's

breastfed, good breastfeeds, they always say, ..top-up....I've seen it a couple of times, reduce it a tiny bit but not very often. ..No (the midwife) doesn't sit and watch the breastfeed), ..I don't think they've got the time to do that. (they decide it was a good feed) ..from the mother.I wouldn't say I've got the confidence...no (not even the midwives are doing that). ..I think it's probably both (guidelines..., or..dynamics within the professional team) but I think the guidelines are very much on requirements. I don't think they mention much about breastfeeding when it comes to transitional care...Yes (formula driven), and the regularity, it has to be this much...I don't think they've got the support on the postnatal ward, ..on the neonatal unit, they're ..in the low dependency ...they've got four or five babies.. one or two nurses, and there's usually only one or two parents there at a time,.. adults they ..need ..much attention, asking questions..in a bay with four women,..the care is stretched further....." [CS2, non-BFI accredited, Belinda (non-mother) Int3]

Polly (CS1, Hospital mentor) identifies a difference not only in guidelines but in the belief system of midwives and paediatricians to the benefits of breastmilk versus formula and support mechanisms [Renfrew et al 2010].

"...there is still probably a way to go in terms of the neonatal team, when dealing with breastfeeding and the 'at risk' babies, but it does depend which doctor is seen...there is a protocol that we follow....if the baby hasn't fed at the breast, then we just give 7mls on the first day ..it is still offered the breast, and we are still doing the hand expressing and giving what we get off thatgetting the policies the same as the neonatal unit and from us and it is still...(Not happening.) No...there is still some discrepancy between what two people will say....My feeling is yes (about the belief system in breastmilk), because I was speaking to one of the neonatal consultants the other day and she was saying about how this woman had no milk at all and I just thought, just the way she said it made me think, yes it just kind of made me think – you are not believing in it,.." [CS1, non-BFI accredited, Hospital Mentor Polly (non-mother) Int3]

The role of the paediatrician in infant feeding is much more prominent

for transitional care babies, an area that BFI clearly identify as acceptable for formula top up.

"...You have to talk to a paediatrician, ..(to stop the formula supplementation)...." [CS2, non-BFI accredited, Bella (non-mother) Int3]

"...The only other formula you see is for medical reasons,..some of them would rather top up with formula for requirements than breastfeed....The plan's drawn up...because the paediatrician has already seen them ..I think that's usually if they've not fed well or they've had low BMs, or there have already been problems to say that they need feeding....." [CS3, BFI accredited, Candice (mother) Int3]

Feeding method:

There is an increasing variety of feeding methods used in hospital and the community, many of which were introduced as short term measures.

"It seemed to be years ago you didn't come home if you had any kinds of feeding problems, but now ..the community midwife will sort it out.... they're coming home syringe-feeding, spoon feeding,..expressing, and some babies not going on at all, cup feeding." [CS1, non-BFI accredited, Community Mentor Peggy (mother) Int3]

4.6.6 Support mechanisms available to women

Early transfers home are of concern to Petula (CS1, Hospital mentor) especially for first time mothers.

"I do worry about postnatal care here,....worry how quickly some women go home, especially with their first baby feeding ..." [CS1, non-BFI accredited, Hospital Mentor Petula (non-mother) Int2]

There is an increasing reliance on MSW's to support infant feeding within the hospital setting in **all** CS, but also CS1, CS2 and CS3 in the community too with mixed reports of their efficacy.

"I think a lot of the feeding is done by the MSWs on the ward. They're all fantastic... They are brilliant... yeh (I've learnt a lot on infant feeding from MSW's)... I know some of the other girls were saying that they quite often will top the babies up and whatever....some of the other girls seem to have had a different experience on that....No, not in the same unit, in different." [CS3, BFI accredited, Candice (mother) Int1]

"..they'll always get a midwife visit on the first day home, that could be day 1 and then you're not going to go back until day 5, but I'd always ensure that there's a phone call in between those times...Yes (an MSW phoning)." [CS1, non-BFI accredited, Community Mentor Philippa (mother) Int1]

Standard visiting patterns at CS1, CS2 and CS3 are three visits at day 1 after transfer from hospital, day 5 and day 10 with the middle one usually conducted by the MSW; telephone numbers are issued. This compares with CS4 and CS5 where visits remain at the midwives discretion and can be up to 28 days.

"Yes (more complications by day 5), definitely...that tends to be when they say, 'I've gone on to formula', because you've missed them in that vital period. ...maybe a routine MSW appointment could be made on day 2 for them, whether that would help... we always ask them and they normally say, 'oh, we just didn't get on with it'..." [CS2, non-BFI accredited, Becky (non-mother) Int3]

"...From day 1 when we go out to day 5, it's too much of a jump...I think they could do with more visits, but it's down to time and staffing and everything else." [CS1, non-BFI accredited, Amber (mother) Int3]

The use of postnatal clinics at CS1 and CS2 has altered the time frames that midwives have to support women with breastfeeding difficulties. It also changes the locus of responsibility to the mother for identifying any difficulty and be well enough to leave her home.

"..I think for us community midwives, ..we do less and less. We'll do the first visit, ..a day 5 visit, and then everything else is in clinic. ..Yes I think we do (more problems). ... the women who have the major problems do get the support. It's the women who possibly have given up by day 10, and maybe if they'd had a visit at day 8 and day 3 might not have done...I think so (a change in continuation rates). I don't know what the stats are." [CS1, non-BFI accredited, Community Mentor Philippa (mother) Int3]

".....So sometimes it's difficult to define the feeds..It's a bit different ...they do a lot of postnatal clinics now, so if you were seeing them at home...you'd be able to watch them do a feed. But if you had a clinic and set times, you'd have to send that woman home with a baby that was dropping weight, and not seeing a feed...use the MSW.., to help as well, because that's one of the roles they can do in between when we can see them....." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

Vignette D was designed to be provocative;

"Clarke [1995] suggests that it is the midwives who have failed the mothers and not the mothers who have failed....Effective positioning... and attachment... is the fundamental skill that should be focused upon rather than advising a short term 'solution' of supplementation" [Cloherty et al 2004, p8].

Twenty two questionnaire respondents agreed with the quote but elaborate that women needed to be willing to learn and system failures were also at play.

"Agree that correct positioning and attachment is fundamental to successful breastfeeding. Needs to be a co-operation between midwife/mother and baby and cannot blame one individual if there is a breakdown in the process." [CS1, non-BFI accredited, Community Mentor Philippa (mother) Qu3, VigD]

"Yep, but as most mothers leave hospital so soon they don't get enough help with positioning and then before a midwife's visit at

home problems have occurred." [CS4, BFI accredited, Community Mentor Maggie (non-mother) Qu3, VigD]

"..effective positioning and attachment is focussed upon It is your responsibility to promote breastfeeding and long term health." [CS5, BFI accredited, Enya (non-mother) Int3 VigD]

The remaining **10** either disagreed [**2**] or partly agreed [**8**].

"I don't believe it is the midwives who have failed, some women attempt breastfeeding that have no or little support or are pressured into it. And some midwives are under too much pressure with high workloads to provide the care needed...Having seen this in practice midwives do not fail the women, the system does." [CS3, BFI accredited, Christine (mother) Qu3 VigD]

Hettie (CS2 non-BFI accredited, Community mentor) identifies inappropriate education relating to the 'reluctant feeder' but as Lesley (CS3, Community mentor) from a BFI unit comments maybe it is more the application of knowledge and belief.

"possibly true but as a midwife never had any education on how to support reluctant feeders – only on correct positioning and attachment which is not required." [CS2, non-BFI accredited, Community Mentor Hettie (non-mother) Qu3, VigB]

"...We always look for the 'fix it now' solution. I on the whole agree with the statement, and that nature does not get it wrong. Encourage mum not to give up." [CS1, non-BFI accredited, Community Mentor Lesley (mother) Qu3, VigB]

4.6.7 Summary

The use of formula milk supplementation does appear to vary between CS sites depending whether they are BFI accredited or not. This in part is due to guideline differences and application of the guidelines between and within professions. Confidence in women's ability to lactate and therefore support reducing supplementary volumes is hindered by

lack of time to observe a full feed, lack of detailed documentation and lack of belief in breastmilk.

The alteration in visiting patterns and skill mix is also changing the opportunity for students to experience common complications of breast feeding expected by the BFI curriculum.

The curriculum does appear to provide the necessary information in a suitable format for students to feel competent, if not necessarily confident in the management of complicated feeding scenarios even when there is a lack of clinical opportunity.

There is an acceptance that midwives are responsible to facilitate positioning and attachment but that women have to accept their responsibility to learn and persevere.

4.7 Step 7: Practice rooming-in, allowing mothers and infants to remain together 24 hours a day.

4.7.1 Introduction

Rooming-in is the practice of keeping mother and baby together at all times. Historically nurseries were used to leave baby's under midwifery care, hence separating mother and baby. This has been shown to not be effective in promoting maternal infant attachment [Bergman 2009], successful breastfeeding [Ball 2003] or safety from SIDS [Blair & Inch 2011, Ball et al 2012], infection and theft.

4.7.2 Findings

Rooming-in occurs in **all** CS and was never identified as an area with conflicting perspectives. Effie (CS5) is the **only** student to have commented on the use of the nursery as a 'feeding room' particularly overnight. This keeps mother and baby together, maintains safety, keeps noise levels acceptable in bays and allows for support by a member of staff to a few women simultaneously if required.

"....when I was on nights ...the nursery was always full of women breastfeeding, they now promote not to breastfeed in bed, so the nursery was always full of breastfeeding women. in the day they are allowed to sit by the bed and they don't allow the curtains round as much. Before women just had curtains round and left them round but now they like them open so they can see that everybody is safe." [CS5, BFI accredited, Effie (mother) Int 1]

Rooming-in is evidenced as good practice and occurs at **all** CS sites. The use of the nursery as a 'feeding room' overnight is a new development which is limited to uncomplicated postnatal women. No mention was made of using the room in the day as a private space for feeding during visiting hours. Congruence with this step would suggest a positive learning environment.

4.8 Step 8: Encourage breastfeeding on demand.

4.8.1 Introduction

Baby led/demand feeding now called 'responsive feeding' [UNICEF/BFI 2013] is essential for all babies to allow for the physiology of hunger, satiety, volume control and ultimately weight management. The maintenance of breastfeeding is based on a supply and demand mechanism and efficient positioning and attachment are essential.

4.8.2 Findings

Step 4 highlighted the increasing use of the anatomy of the breast and physiology of lactation by students in facilitating women to breastfeed. Of relevance to step 8 is Estelle's (CS5) describing how her understanding of physiology underpinned her explanation to women of the importance of frequent feeding.

"I think knowing about physiology, I think that's been underlying the most valuable thing, knowing in my head how it works to be able to then explain to women in their terms. Even just to saying, imagine a broccoli stem ..And again about your acini cells and your prolactin being switched on and off, and it's optimum time to get it and do it and the more you can do it, the better outcome women tend to have. Just getting them to understand on their level is amazing." [CS5, BFI accredited, Estelle (mother) Int3]

Cathy (CS3) relied on the theoretical sessions from year 1 to support her explanation and facilitation of continued lactation with women.

"You know give or take a little bit of rope on my technique and manoeuvres so yeh I literally took it straight from that, you know from the day that we had and it seems to have it seems to have worked.between days 4 and 7 is when you can be feeding every half an hour and you know your milk's still coming in and when you try and talk to women like that and then you're trying to explain it about how it all works with the hormones and that kind of

thing it has been helpful but I don't ever sit and say you know right this hormone stimulates that and that causes a release through this and go through it in technical jargon." [CS3, BFI accredited, Cathy (non-mother) Int1]

Very little was commented on by students relating directly to 'responsive feeding' although they describe use of theoretical teaching to facilitate women's understanding and success at breastfeeding.

Numbers of feeds within a day are omitted but the importance of night feeds are included. This may provide some explanation for the dissonance women experience in the early days of feeding with regard to frequency of feeds. The paucity of data makes student competence and confidence in this Step hard to evaluate.

4.9 Step 9: Give no artificial teats or dummies to breastfeeding infants.

4.9.1 Introduction

Artificial teats/dummies are discouraged when establishing breastfeeding because of nipple confusion [Flint et al 2007] and reduced stimulation to the breast negatively impacting on lactation. Recent evidence supports the use of dummies in preventing SIDS [Li et al 2006] and has "muddied the waters". However BFI guidance [Fleming et al 1999, Blair & Inch 2011] suggests leaving the introduction of dummies/pacifiers until lactation is established at 6-8 weeks.

4.9.2 Findings

Very little emerged on advice in relation to use of teats and dummies.

Estelle (CS5) provides information on dummy use as part of her transfer information to community and part of the SIDS guidance.

"..We're still giving out leaflets. ..advice about not giving dummies to breastfed babies, but they get that much information at discharge, you know they've not took it in. If ..they might go home that day, I try..telling them little bits, drip-feeding over that morning, about not having a dummy..... it's just time, it would be lovely if you could with every single one...." [CS5, BFI accredited, Estelle (mother) Int3]

Community mentors, Shona (CS5) and Lesley (CS3) discuss dummy use in relation to infection control, prevention of Candida and sterilisation.

"I think sterilising ...we get the babies that get oral thrush, but that tends to be more from dummies dropping out and people shoving other things in, fingers in." [CS5 BFI accredited, Community mentor Shona (mother) Int 3]

"I don't go through it (sterilising) with them unless they're using dummies" [CS3, BFI accredited, Community Mentor Lesley (mother) Int1]

This study suggests a lack of information on the use of dummies. The longstanding reluctance to use dummies in breastfeeding babies continues. Infection control appears to be the main focus for enquiring about dummy use. No support on how to remove them later is provided as they are known to have a detrimental effect on communication skills and dentition [Blair & Inch 2011].

Evaluation of student competence and confidence in this Step is therefore hard.

4.10 Step 10: Identify sources of national and local support for breastfeeding and ensure that mothers know how to access these prior to discharge from hospital.

4.10.1 Introduction

This BFI step primarily addresses the needs of a breastfeeding mother.

However as student midwives and their mentors have to support formula feeding mothers too, the mechanisms for this have been included within this step. The curriculum specifically addresses these areas to ensure parity of care.

The key themes that emerged in preparation for transfer home were:

- Information giving prior to transfer from hospital to home
- Sterilisation of feeding equipment with sub-themes;
 - who receives information/instruction
 - how information/instruction is given
- Reconstitution of formula milk with sub-themes;
 - who receives information
 - what information is provided
 - how information is provided

4.10.2 Information giving prior to transfer from hospital to home

Students and mentors described the large amount of postnatal transfer information covering a vast range of subjects which could be given within 6 hours of birth and usually just prior to leaving the hospital.

"..I always discuss feeding, emotions, contraception, sleeping, bed sharing, SIDS, things like registering the baby's birth, if they've had hearing screening or anything like that done, and smoking...."

[CS2, non-BFI accredited, Belinda (non-mother) Int3]

Additionally

".. (On Transfer from hospital) .. just basically diet and fluids, postnatal exercises; hygiene; ... we talk about if they need a cervical smear or anything like that; and then just general questions..." [CS2, non-BFI accredited, Barbara (non-mother) Int3]

Polly (CS1, Hospital mentor) questions how much information a woman can retain within a short space of time due to tiredness and Charlotte (CS3) considers their excitement to go home as a barrier to retention of information.

"...Massive (learning curve), and I think often the women are exhausted, so they're not taking in the information as they'd normally be able to do. It's very difficult and I think the community rely on us to teach the women, to send the women out once they're confident or happy with feeding ... it's all very well and good being able to do the first feed but it's then keeping that going..." [CS1, non-BFI accredited, Hospital mentor Polly (non-mother) Int2]

"I'm not always in agreement that they don't need the information twice, because when they go home, they're excited ...I don't think 100% of everything that you tell them goes through at all, so I do think it needs repeating." [CS3, BFI accredited, Charlotte (non-mother) Int3]

All breastfeeding women at CS3 and CS5 have a full observation of feed prior to transfer home. This is commented on as a new development by Caroline (CS3) within the last year.

" The breastfeeding observation checklist (is completed prior to transfer from hospital). ...In the back of the book, most of its whether they feel confident and if you've observed a feed. The observation sheet is quite similar to the one we had from university.that's a relatively new thing too. I don't remember doing it in

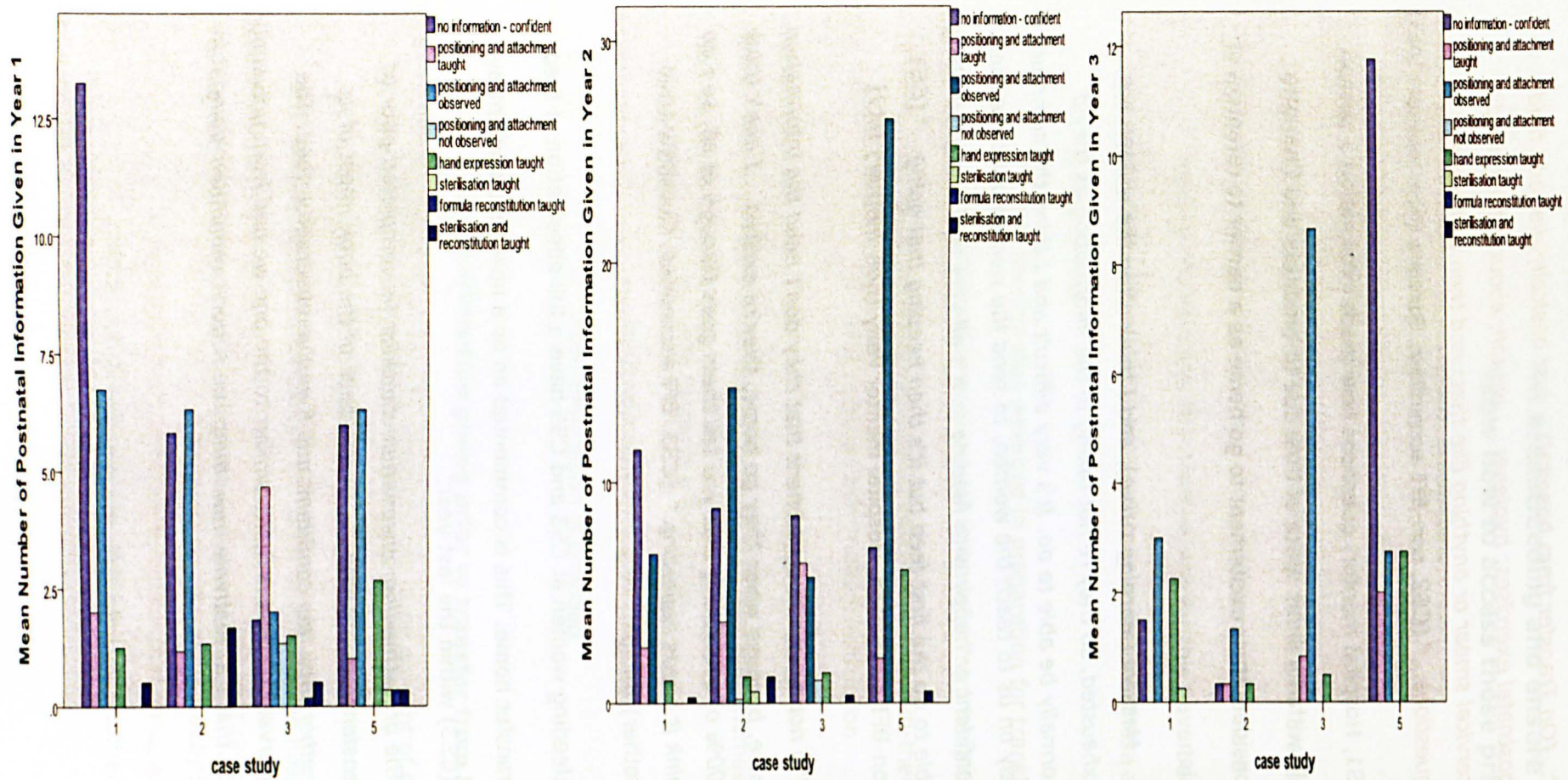


Figure 26 -These figures identify the support and information given to women on infant feeding during the postnatal period by case study for Years 1, 2 and 3 respectively.

the first year, but I can't remember when it came in." [CS3, BFI accredited, Caroline (mother) Int3]

Caroline's (CS3) experience is endorsed when comparing RCS data that identifies the support and information given to women on infant feeding during the postnatal period by case study for Years 1, 2 and 3 respectively (Figure 26).

Student records in the RCS for **year 1** identified the mean number of women having an observed breastfeed is least at CS3 (n=12 from 140), with CS1 (n=27 from 122), CS2 (n=38 from 214) and CS5 (n=19 from 60) having more similar proportions.

In **year 2** this value is again highest in CS5 (n=106 from 211) and remains lowest in CS3 (n=34 from 240).

For **year 3** a markedly raised profile in observed feeds is noted at CS3 (n=52 from 123) compared with CS1 (n=12 from 105), CS2 (n=8 from 44) and CS5 (n=11 from 113).

However, Shona (CS5, Community mentor) notes not all women remember having any guidance with breastfeeding even when it is documented which is maybe a symptom of tiredness and the huge learning curve identified by Polly (CS1) and exacerbated by early transfers.

"They should have done (a full observation of a breastfeed before they're discharged) and it's usually documented that they have done, but sometimes the ladies will say, 'nobody showed me, nobody saw me'....You don't always know do you." [CS5, BFI accredited, Community mentor Shona (mother) Int3]

4.10.3 Sterilisation information

Information on sterilisation of equipment occurs as part of the transfer to community/home package. The sub-themes how information is provided and who receives information/instruction on sterilisation are now elaborated.

4.10.3.1 How sterilisation information is provided

All sites provided leaflets which may or may not be clarified with discussion by the practitioner. Demonstrations are not the norm, a situation which hasn't changed over the three years.

"..basically it's just, do they know how to sterilise, I think it can be shown here, although I haven't seen it they can have a taught session on sterilising...it's all done before the discharge really ...get talked through about sterilising...It's just discussed with them.."

[CS5, BFI accredited, Estelle (mother) Int1]

Figure 30 identifies only CS5 (n=1 from 60) in **year 1** with sterilisation taught independent of formula reconstitution. In **Year 2** it is only CS2 (n=3 from 333) and **year 3** only CS1 (n=1 from 105) that has any recorded independent sterilisations. The targeted teaching of sterilisation to breastfeeding women who are expressing prior to transfer may provide some explanation for this data. There may also be a generalised belief that women can sterilise their equipment safely.

"I think sterilising they've always been alright with....." [CS5 Community mentor Shona (mother) Int3]

The approach taken and confidence demonstrated by students in year 3 towards sterilisation for formula feeding women, is noticeable whether they are mothers or non-mothers. At this point the students had undertaken the workshop which includes sterilisation as a practical station which they found instrumental to their confidence and learning.

Charlotte (CS3) is critical of the modelling of closed questions midwives use when asking about feeding and sterilisation which reduces meaningful dialogue.

"..I think it's down to midwives. I think again it's a bit of a closed question, did they talk to you about feeding/sterilisation? and if a woman says, yes, then you just tickI do think that's a complete flaw of having a tick list.., because I do think you forget to just talk

and just communicate and find out what people know.....I think sometimes you're guilty of falling in that pattern of saying, do you know, instead of saying, what do you know? [CS3, BFI accredited, Charlotte (non-mother) Int3]

Estelle (CS5) identifies the benefits of an integrated system where community and hospital systems work synchronously, including staff rotation to enhance women's care.

"When they're leaving the ward, it does tend to be leaflets, so you can only rely that they've had some information beforehand....being a student and seeing both community and hospital, you get to see strengths on both sides, so if both could do a little bit you'd reap the rewards at the other side. The more information they can be given antenatally, it's a lot better....Definitely (revisit ...sterilisation on community). [CS5, BFI accredited, Estelle (mother) Int3]

The integration identified by Estelle (CS5) doesn't seem so robust at CS1 with Philippa (community mentor) relying on her antenatal knowledge of women.

"..Again when I do my parent education here... the feeding portion, I'll always discuss sterilisation.... Then with the women I have in my clinic situation, I should know them well enough to know ...I'm sure there are some women that I do miss, but I try to do that.." [CS1, non-BFI accredited, Community mentor Philippa (mother) Int3]

Peggy (CS1, Community mentor) is also doubtful of the information discussed in hospital.

"With some people, yes (sterilisation...). I don't know whether the hospitals actually go through that with them....whether they're doing it safely, or actually just running through that with them.." [CS1, non-BFI accredited, Community mentor Peggy (mother) Int3]

4.10.3.2 Who receives information on sterilisation

All (n=17) students identified that breastfeeding women received leaflets with contact numbers for breastfeeding support. This is corroborated by mentors.

"I always make sure they have the breastfeeding leaflets ...I always tell them about the contact details on the back, the breastfeeding helpline..." [CS2, non-BFI accredited, Belinda (non-mother) Int3]

"...we give them the breastfeeding advice leaflet....." [CS1, non-BFI accredited, Hospital mentor Petula (non-mother) Int2]

Belinda (CS2) both in year 2 and year 3 identifies that sterilisation in hospital and community was selectively taught if expressing had already been commenced.

"Not a lot, I mean obviously it's said that you know, if you're going to be ..hand expressing into... something you need to sterilise ...before every use and after every use. But it's never, sterilising isn't really taught or explained I don't find ..it's just mentioned" [CS2, non-BFI accredited, Belinda (non-mother) Int2]

"..No (not routine), but if they'd been expressing and they were planning to continue expressing at home, I'd definitely teach them sterilisation ..and safe storage of breast-milk, but not routinely, no..." [CS2, non-BFI accredited, Belinda (non-mother) Int3]

These findings are endorsed by hospital and community mentors.

"...unless they're starting to express with a pump..., a need to be sterilising things on the ward we wouldn't go through it ... until you discharge ..home ..say., 'have you got a steriliser and are you happy with how to use it?'..." [CS1, non-BFI accredited, Hospital mentor Petula (non-mother) Int2]

"... So yes, we'd say anything that they're going to use regarding breastfeeding has got to be sterilised,..." [CS4, BFI accredited, Community mentor Maggie (mother) Int3]

Charlotte (CS3) identifies that sterilisation is taught to both breast and formula feeding mothers once in year 3 however this wasn't endorsed by Lesley (CS3, Community midwife) in year 1 so there may have been a change in documentation and practice over the three years.

"...Yes, sterilisation is covered in both of them (information packs) ...Yes. A lot of ..things ...are ...in the tick list for the discharge home from the hospital.." [CS3, BFI accredited, Charlotte (non-mother) Int3]

"I'd say fewer of them know how to hand express than know how to sterilise. I don't think...I don't know whether they teach them sterilising for the breastfeeding? ... If they are expressing, then I'll go through sterilising with them but most of them aren't." [CS3, BFI accredited, Community Mentor Lesley (mother) Int1]

Students in year 2 and 3 appear to have initiated discussions on sterilisation to breast and formula feeding women in their practice. Alex (CS1) highlights midwives identifying specific situations when more detailed exploration of sterilisation of infant feeding equipment will be undertaken. The importance of the curriculum covering all types of sterilisation techniques is highlighted.

"...I've never really heard anybody telling anybody or giving them information on sterilisation and.... there's only one young Polish lady ...That's the only time I can remember the midwife saying 'what are you using?' and she would just boil in a pan because that's what she's used to doing....." [CS1, non-BFI accredited, Alex (mother) Int2]

"...Much more independently (initiated).... I always explain it (sterilising ...) because I know what it's like personally going home with a baby thinking, oh gosh, how do I do the simplest of things like this?..." [CS1, non-BFI accredited, Adele (mother) Int3]

Bridget (CS2) considers the potential for a woman wishing to breastmilk feed from a bottle therefore requiring the skill of sterilisation prior to transfer which she identifies as not occurring in year 1.

"We didn't talk much about that (sterilisation) on the ward because...they're just all in the bottle just sterilisedAnd on community whenever I asked about if they were like formula feeding, sterilisation of the bottles if they were going to put breastmilk in them.....Not really, I guess (sterilisation) should be mentioned. I guess if they are formula feeding the midwife sends them home they should know how to sterilise. A lot of them bought these big sterilisers..." [CS2, non-BFI accredited, Bridget (non-mother) Int1]

4.10.4 Reconstitution of formula milk

Reconstitution of formula feeds creates ethical dilemmas for BFI accredited units because of the need to not be seen to promote formula feeding. The duty of care remains, therefore the curriculum does cover DoH recommendations for safe formula feeding and reconstitution [2011]. Sub-themes were who, what and how information is provided to women on reconstitution of formula milk.

Figure 26 identifies from RCS data that **all** CS [CS1 n=2 from 122, CS3 n=3 from 140, CS5 n=1 from 60] have sterilisation and reconstitution in small proportion but CS2 (n=10 from 214) has the highest proportion in **year 1**.

In **year 2**, CS2 (n=7 from 333) marginally has a greater proportion but by **year 3**, **none** have recorded any combined sterilisation and reconstitution. The introduction of new forms commented on by students may be a response to this lack of consistency in information provision and an attempt to reduce anxiety relating to supporting formula feeding.

4.10.4.1 Who receives information on reconstitution of formula milk

There is an anxiety expressed that supporting women with safe formula feeding will be misconstrued as promoting formula feeding.

"...I always think, this (formula feeding) is a bit of a grey area. It goes against BFI..." [CS1, non-BFI accredited, Adele (mother) Int3]

"..I think people are really frightened of being seen to say anything (about formula feeding). We're not supposed to push bottle-feeding, so it's almost like, she's bottle-feeding..we're not there to say anything...." [CS1, non-BFI accredited, Hospital mentor Petula (non-mother) Int3]

This anxiety may also prevent honest discussions with women on feeding to prepare them for their longterm rather than short-term feeding plan.

"...Yes (at the point at which they've moved over from breastfeeding ..they ...haven't had any information on making-up a formula), so they normally say, are you alright making-up formulas; how do you do it? ...I've never seen a midwife observe making up a feed or anything like that....Yes (always verbal)."
[CS2, non-BFI accredited, Becky (non-mother) Int3]

If women deemed themselves confident little was clarified. New recommendations [DoH 2011, UNICEF/BFI 2013] have made the process more complex. There is a consensus from students in year 1 that community mentors on the first postnatal home visit would clarify women's formula feeding skills.

"...well basically from the off they decide that they're going to bottle feedwe have to tell them how to sterilise and how to mix up the formula and why they mustn't mix it up too concentrated or too diluted and this, that and the other." [CS3, BFI accredited, Caroline (mother) Int1]

"So going through sterilisation and making up the feeds,That was in community." [CS1, non-BFI accredited, Alice (mother) Int1]

Lesley (CS3, Community mentor) in year 1 highlights that many women are coming home not clearly understanding sterilisation and reconstitution of formula feeds.

" I don't know when they learn about the formula making up and sterilisingThey should do (before they leave hospital) but I don't think they do. I think they teach them as they come out. .. I particularly go through it with every single mum, if they're bottle feeding you'd be amazed at the number of people that aren't doing it properly. This student and I got to the end of week ..we had 10 people that were doing it wrong, and I think we'd seen about 30 patients (breast and formula feeding)...." [CS3, BFI accredited, Community Mentor Lesley (mother) Int1]

Bella's (CS2) experiences in year 3 identify continued inability of women to safely reconstitute and use formula milk.

"..Whilst I have been out, twicewe have talked to them (women) about how they are making up bottles, just to reiterate it. And one of them was making up three bottles at a time and then heating them up in the microwave. Then another girl was putting in the powder first and then the water and then heating them up in the microwave.... she came from a family of bottle-feeders. She hadn't been doing it in front of her mum and her baby was really constipated..." [CS2, non-BFI accredited, Bella (non-mother) Int3]

However by year 2 the majority of students are incorporating sterilisation and formula reconstitution as part of their transfer information to community which is borne out by their RCS data, although not sustained in year 3.

"...the sterilisation and making up the feeds, I always ask when I do the discharge and during community visits if the women are bottle feeding ...I always ..go through that with them.., if not I'll go through the, .. sheet .." [CS2, non-BFI accredited, Belinda (non-mother) Int2]

"..on discharge if anyone is bottle feeding you know I'll ..make sure they know about sterilisation and the bottles and all that kind of thing then and so I suppose they get the support then..." [CS3, BFI accredited, Cathy (non-mother) Int2]

Becky's (CS2) experience remains one of a cursory reference to sterilisation and reconstitution.

"I haven't seen anyone tell anyone anything (about sterilisation and formula feeding). It's just sort of 'are you happy with feeding?' 'Yep', that's it really.." [CS2, non-BFI accredited, Becky (non-mother) Int2]

4.10.4.1 What information is given on reconstitution of formula milk

Formula milk at **all** CS comes in pre-packed, sterile 100mls bottles to which single use sterile teats are applied. Adele (CS1) notes the ready to use bottles allows little room for learning about sterilisation and reconstitution in practice.

"... I always think having those little pre-packed bottles aren't very helpful ...Some people need to do something to learn how to do it properly ...I think we should have a milk kitchen or something, even if we had our own formula but people had their own bottles to have to sterilise. I don't think we're really helping the women ...because they've still got to go home and go through it all....." [CS1, non-BFI accredited, Adele (mother) Int3]

Bridget (CS2) has found Asian women bringing in their own powdered formula milk but identifies a pressure for them to conform.

"..Yes. A lot of Asian women I find bring powder in. I mean we try and encourage them to use the SMA and Cow & Gate, mainly because it's already made-up, but then I guess it's good in a way to know they're sterilising it. ...There are some sterilisers at the hospital..." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

There does appear to be a variation in the level of information given that

students are identifying. The key features of one feed reconstituted at a time with water at 70°C, using the first milks only up to 6 months and water placed in the bottle before the milk powder, are identified by **all** mentors. This does appear to be mentor dependent rather than an organisational issue as Heather (CS2, Hospital mentor) and Maggie (CS4, Community mentor) clearly and thoroughly identify the process.

"I always say that (water has to be 70 degrees and first milk to 6 months)...Oh, definitely one feed up at a time, and using a fresh kettle of water, cooled. We don't do bottle demonstrations now, like years ago; we don't do that in hospital. I suppose in the parent education... On the discharge I do talk about making up a bottle, to have a clean area for the bottles, enquire what sort of steriliser.... checking the expiry date on the tin of milk, making sure the water goes in first, and using the scoop that comes with it.... I do think they should - I mean we don't have time to do that on the ward - physically make it, but I think they should have had that antenatally." [CS2, non-BFI accredited, Hospital mentor Heather (mother) Int3]

Maggie (CS4, Community mentor) considers it is a challenge for women to implement the new guidance and Shona (CS5, Community mentor) has found some women initially resistant to the changes.

"Realistically for a lot of families that's hard to achieve, isn't it, but if it's freshly boiled water that's cooled down, and not had the formula put in it until the baby's going to feed, that's the important thing that we do seem to be getting across.If we see them (bottles), we tell them, ...you mustn't put the milk in until the time of the feed, ..we'd stress that... I must admit I don't see it very often, I think most people are getting the message...." [CS4, BFI accredited, Community mentor Maggie (mother) Int3]

"... I think people who've had babies before are a bit, 'oh I'm not doing that'.." [CS5, BFI accredited, Community mentor Shona (mother) Int 3]

Not all students have witnessed clear guidance being provided as noted particularly by Barbara (CS2) who is in year 3 and continues to model practice not theoretical learning.

"..not temperature (70 degrees) wise but I think ..you're only supposed to make, ..one at a time and don't do sort of big batches ... I've heard that mentioned a couple of times ..I wouldn't know (if the women are doing it).." [CS1, non-BFI accredited, Alex (mother) Int2]

".. (On transfer) ...No (reconstitution)....No (not 70°C). If they have any queries about that, then usually the community midwives sort that out, but I've rarely seen it in community either....Just on what we give them in terms of leaflets.....Maybe but I've never been taught it. I've never ever been taught to do that at all with any mentors in my practice. All of the midwives I've seen, they don't do it. So it's just what's going on in practice that I've picked up on... I wouldn't know what to say so much in terms of that.." [CS2, non-BFI accredited, Barbara (non-mother) Int3]

The importance of only using the first milk is generally adhered to, volumes following transfer from hospital have often not been adjusted and the knowledge on teat hole sizes often needs discussing with women. There is also a discrepancy between professionally recommended volumes and that found on the tins which would over estimate requirements adding to the obesity challenge.

"..We don't see too much of it (first milk/second milk issue, the hungrier baby milk). .. There's an odd person .., 'the baby's constipated', ...so they tend to go back. It's not a big problem..... they do (use follow on milks) because ..they think it's better...it's just educating and your level of knowledge and capacity of some of your ladies.....We do (discuss volumes). They all come out saying they shouldn't have more than 30mls, but they don't seem to tell them to increase it..we'd expect your baby to feed 8 times ..., I mean the tin actually says more4oz ..by a week... Yes (the bottles have still got ounces on as well as mls). ..Yes (the scoops

are still worked out per ounce). And your teats on your bottles, ...the manufacturers are putting slow-flow teats on and then the baby's aren't taking as much.." [CS5, BFI accredited, Community mentor Shona (mother) Int3]

Students and mentors identify talking through formula reconstitution but documentation is variable.

"..There is a place to tick in the (hand held notes).." [CS1, non- BFI accredited, Adele (mother) Int3]

"..It depends on the midwife. My feeling would be that the majority of the time it isn't used and it would just be documented in the main body of the handheld notes..." [CS1, non-BFI accredited, Hospital mentor Polly (non-mother) Int3]

"...Yes, I always put it in the notes on the discharge day, what I have discussed with them." [CS2, non- BFI accredited, Bella (non mother) Int3]

Caroline (CS3) notes that women's competency with formula feeding is not assessed as thoroughly as breastfeeding.

"...With the formula-feeding, there aren't any questions to tick off as such in the book, whereas there's so much with the breastfeeding. So I suppose we don't assess their competency with bottle-feeding so much...." [CS3, BFI accredited, Caroline (mother) Int3]

Documentation can be supportive of safer formula feeding as demonstrated by the forms that have been recently issued and their use implemented in **all** CS.

"There's been a new form for formula-feeding as well stapled in the front of the postnatal notes, so you have to go through a checklist with them....There's a separate box for feeding at night, ...they'll say, 'oh well, we just boil the water before we go to bed, leave it in the bottle, and then we just tip the powder in the middle of the night when the baby needs it' and you're like, 'no, don't do that.' ..." [CS5, BFI accredited, Enya (non-mother) Int3]

"There's a checklist in the back of the postnatal booklet that's usually gone through before they go home,...because of the recent changes ..they've got to have had that information given to them really...." [CS4, BFI accredited, Community mentor Maggie (mother) Int3]

Bridget (CS2) considers the documentation is to support midwives as little time is spent in observing women sterilising and reconstituting formula.

"...When we see them on the first visit, we have these little stickers, ...that's got sterilisation of equipment and making up feeds on it..... in my second year they started doing them. It's mainly to help the midwives.... we lack watching them make up feeds...."
[CS2, non-BFI accredited, Bridget (non-mother) Int3]

4.10.4.2 How is information provided on reconstitution of formula milk

Information in **all** CS sites was provided through leaflets, the quality of which was variable. Both mentors and students corroborate that leaflet giving and a brief discussion is the norm.

"..Very little (advice) I think. They're taking the 'How to make up bottle feeds safely' leaflets off us on the ward, so we've now got one bit of A4 paper that they get, which is photocopied...that's about it. [CS1, non-BFI accredited, Hospital mentor Petula (non-mother) Int3]

"..if they're formula-feeding they just get the formula-feeding leaflet...In hospital....sterilisation, ..how to make up a feed..... they've got picture information as well.... There's not much input.."
[CS2, non-BFI accredited, Becky (non-mother) Int3]

Demonstrations have only occurred in very unusual circumstances as described by Adele (CS1) or if difficulties have been noted therefore is a rare occurrence.

"..... we had a specific one in my last community placement where the lady had learning difficulties,....and so did her partner. They were bottle-feeding and we went through it in really fine detail with her...." [CS1, non-BFI accredited, Adele (mother) Int3]

".. I think if the women are having trouble ...(community) midwives will help them,...I think I've seen it once ...actually help them make up a bottle feed..." [CS2, non-BFI accredited, Barbara (non-mother) Int2]

Community mentors describe washing their hands in the kitchen as a mechanism to see how women are reconstituting formula milk.

"..I had a young girl recentlyI went into the kitchen to wash my hands and I can see them (formula bottles) all lined up there, 'my mum said that's what we do and we put them in the fridge.' And obviously her mum didn't know that things had changed...." [CS1, non-BFI accredited, Community mentor Peggy (mother) Int3]

Caroline (CS3) acknowledges that the changes in advice in formula reconstitution do create problems for mothers.

"..Well, it changes every time.. , the information (on formula feeding)... so we just make sure that they're up-to-date....some people aren't aware that you can't fill your fridge with hundreds of bottles for the day. ...you don't see evidence of it but when you tell them, they're really surprised, .. you can see that." [CS3, BFI accredited, Caroline (mother) Int3]

The types of questions asked often miss the detail that may support safer formula feeding.

"... Some midwives will just say, 'how's the feeding going?', and if they're formula-feeding, 'how much are they taking, how often?' and that will be it. I think there are a lot of things that we miss..." [CS2, non-BFI accredited, Bridget (non-mother) Int3]

"....On sterilisation ...and to make your bottle.....That's pretty much what happens (...you just say, 'do you know how to do it?'

and if they go, 'yes', then that's it?)...No (confirmation of knowledge base)." [CS1, non-BFI accredited, Alice (mother) Int3]

4.10.5 Student competence

Student competence appears fundamentally affected by the lack of learning opportunities in practice although it does not apply to all students. Belinda (CS2) in year 2 and 3 identifies she does cover the material with women but having never physically undertaken the tasks reduces her confidence.

"I'll go through ..the sheet ..and then mention sterilisation, but sterilisation is one area that I, I'm not very clued up on and I don't hear it being taught about a lot on wards or on community really." [CS2, non-BFI accredited, Belinda (non-mother) Int2]

"...But I've never made up a feed myself so I wouldn't say I'm an expert in doing itIt's not one of those things that you do over and over again in practice" [CS2, non-BFI accredited, Belinda (non-mother) Int3]

Barbara (CS2) articulates that the change in practice should not be coming from the students but the midwives.

"I've never ever been taught to do that (sterilisation and reconstitution) at all with any mentors in my practice...but I don't think students can start doing that ...the midwives need to start doing that and teaching the students in the first year to be doing that, then explaining what to do in discharge..." [CS2, non-BFI accredited, Barbara (non-mother) Int3]

Heather (CS2, Hospital mentor) acknowledges that although she does verbally cover sterilisation and reconstitution in depth as noted earlier her use of the documentation is limited in relation to formula feeding.

"...You see, I've never filled that in, the bottle-feeding bit (in handheld documentation)....I should start flipping it over. I don't think anybody does, I don't think many midwives do...Definitely since the study day (filling in the breastfeeding bit). No (not before

then)...” [CS2, non-BFI accredited, Hospital mentor Heather (mother) Int3]

Becky (CS2) describes academic learning has increase her conviction in giving the information required. Barbara (CS2) identifies a possible deficit in the curriculum with regard to the provision of transfer information relating to infant feeding.

“..But since I’ve done my presentation I’m starting to say ‘well although you’re happy I’m going to tell you anyway you know, just because if you don’t follow these steps correctly there could be some health problems with the baby’...I’ll say it more sensitively,... And I discuss winding with them ...little bits that’s going to boost their confidence as parents.” [CS2, non-BFI accredited, Becky (non-mother) Int2]

“...Yes (sterilisation and reconstitution was covered within the workshop), but that’s one session. Maybe a little bit more should be on that and what we should be doing in discharge, what should be said....” [CS2, non-BFI accredited, Barbara (non-mother) Int3]

4.10.6 Summary

Postnatal transfer information is vast, often delivered just before women leave to go home and both students and mentors question the effectiveness of women’s retention of the information. Transfer information includes sterilisation of feeding equipment and reconstitution of formula milk if required.

RCS data identified very little sterilisation and/or reconstitution of formula milk was disseminated to mothers with limited detail. This is despite each student being required to record 100 postnatal examinations with a proportion of these being transfer consultations. When this is covered, mostly leaflets are used with very selective demonstration. Students were concerned by the communications identified by mentors when confirming

women's abilities to sterilise and reconstitute formula milk. Trust documentation is generally not completed or with limited detail. Students, particularly non-mothers at CS2 (non-BFI accredited) identify a knowledge and skills deficit in sterilisation and reconstitution of formula milk which at present is not being uniformly filled by the BFI curriculum. The demonstration to the whole class in year 1, re-enforcement in year 2 and individual assessment in year 3 through the workshop does not compensate for the lack of opportunity within clinical practice. Although the RCS identifies expected transfer information students appear not to be making the theory practice links.

Chapter 5 – Discussion

5.1 Introduction

A major factor in UNICEF UK setting Education Standards [2002, 2009] was low initiation and continuation rates of breastfeeding within the UK [McAndrew et al 2011, Byrom et al 2010] despite post qualification education of midwives in infant feeding since the 1990's. Re-learning requires active forgetting of prior knowledge which is dependent on the 'storage strength' and 'retrieval strength' of the item [Storm et al 2008, Estes 1955, Hull 1943]. Further, the difficulty of the task, length of time between learning episodes and a change in environment can support this process. Effective pre-registration breastfeeding education for midwives should increase educational outcomes and therefore clinical outcomes [Comparison of Education Standards and BFI clinical steps (Figure 1, page 17)]. Dodgson & Tarrant [2007] in a study on infant feeding education identified that ten hours of classroom teaching and eight hours of practice within the intervention arm increased students knowledge scores, implementation of evidence based practice and reduced negative support behaviours.

Qualitative research findings are useful in their generalisability or transferability [Denscombe 2008] ie.

- are the findings relevant in other settings and
- would they be found in other settings.

Yin [2003 p130] suggests the development of models to enable clarity of process and exploration of transferability. Case study may suggest a high specificity but the complex nature of the subsets within this study provided a greater confidence in the findings transferability to different settings.

Atkinson and Delamont [1985] consider that there are likely to be features

- The mentors role within the learning process
- The role of organisational culture on BFI learning

5.2 Student competence and confidence gained from a BFI curriculum

Students identify themselves to be competent and confident in 'normal' infant feeding by the end of the programme. Students acknowledged they had a good theoretical grounding to be able to consider difficulties and complex care pathways but were mindful of their limitations and professional responsibility to seek support accordingly which both Butler et al [2008] and Holland et al [2010] noted were important features of a newly qualified midwife.

All students developed their confidence in senior years and a few reported gaining competence only in the third year as they confronted the challenges of infant feeding in readiness for qualification. A competent practitioner was identified by Butler et al [2008] to be safe, self sufficient, detects deviation from normal, uses evidence based practice, is professionally and self aware. Holland et al [2010] equated competence with fitness to practice, where as confidence can be lost and regained over time and under changing circumstances [Gerrish 2000, Clark & Holmes 2007, Maben et al 2007, NMC 2006]. Donovan [2008 p513] elaborates that student assessment of confidence does not necessarily equate to competence or the length of time spent undertaking the skill but maybe related to the feedback and manner of the mentor. Maintenance rather than enhancement of skills were noted at CS5 who though BFI accredited, in year three had no infant feeding advisor and RCS data showed reductions in skin-to-skin and early feeds following birth but positive statistical difference remains. The university theoretical component was identified by all students as the most influential to their learning in years

one and three. Third year data highlighted reduced opportunities of complex infant feeding scenarios in clinical practice. As a group of competencies that students have to demonstrate to achieve BFI accreditation the curriculum has had to include interactive role play of these scenarios as a teaching strategy to address this. Students have been guided to access breastfeeding clinics/cafes to gain practice opportunities.

5.2.1 Effective communication skills development

Communication skills are highlighted as important in different ways at different stages of student progression and applied across all sites. Butler et al [2008] in their study of student midwives noted that effective communication skills and appropriate attitude development is required in curriculum development and assessment. Exercises in communication have been specifically incorporated within the BFI curriculum. First year findings identified communication skills related to general ease of interaction with women and families. Mentors noted that mature students usually possessed these from the start of the programme and often drew on personal feeding experiences. This does bring into focus the 'de-briefing' required within the early teaching sessions and appropriate use of personal experiences within a professional context.

In later years students demonstrated direct application of infant feeding knowledge and skills. Students and mentors identify the ability to translate theoretical knowledge to be understood by mothers in different circumstances, is an art requiring development. The focus on complications, exercises in decision making and differential diagnosis in the third year is particularly crucial, as few students experienced the range of feeding complications required for the standards to be fulfilled within clinical practice. Fraser et al [2010] noted the importance of simulation and support with decision making in the development of autonomous

practitioners. All students identified the individually assessed formative workshop was crucial to their personal assessment of knowledge and skills. The workshop comes six months prior to qualifying, allowing students time to reflect and develop their confidence and competence [Robertson et al 2006].

Unaccompanied community visits during the third year supports development of decision making skills, accountability and personal professional style in care delivery. The threat to unaccompanied visits due to lone working policies requires serious consideration both educationally and for competence and confidence of newly qualified midwives to function effectively in service delivery. Both mentors and students identify unaccompanied visits as instrumental to professional development, differential diagnosis and decision making skills [Fraser et al 2010, Raynor et al 2005].

5.2.2 Influence of Clinical practice

Students identified clinical practice as most influential in the second year highlighting the importance of evidence based practice and '*singing from the same hymn sheet*' also found by Pollard [2010 p151] and positively noted in BFI accredited facilities. Although this study did not aim to explore congruence of policy guidelines with evidence base, students were aware when there was discord between the two which caused confusion. This was particularly noticeable within the care of transitional care babies where inter-professional differences in beliefs were apparent. The lack of belief in small volumes of colostrum to resolve hypoglycaemia and skin-to-skin in regulating hypothermia were identified. Orland-Barack and Wilhelm [2005] in their study of student nurses in clinical practice found they were exposed to medical terminology not nursing, that they concentrated on actions not interactions, the knowledge was instrumental, facts driven,

often fragmented and although there could be rich practice opportunities it did not always yield rich learning. The importance of congruence in guidelines and ethos is crucial.

University skills training combine theory and practice. The latter is reinforced by the practice document, breastfeeding observation sheets and record of clinical skills (RCS) which appear to stimulate and legitimize seeking opportunities for learning. Recording of taught infant feeding skills increased over the three years particularly in CS1 and CS2 although CS1 continued to have the lowest incidence. Students identify the underpinning university theory was essential, as only skills were gained in practice. Students' recording of events in the RCS was variable and driven by EU requirements rather than comprehensive completion of the BFI requirements. Entries are signed and verified by the mentors so poor knowledge of requirements and expectation by mentors may have played a part. Neary [2000] identified variations in mentors with many feeling unprepared, ill equipped and lacking in confidence to support and assess students effectively. The role of the mentor in supporting infant feeding competency achievement in clinical practice is elaborated on later.

5.2.3 Mother and baby skin-to-skin post birth

RCS data identified differences that were statistically significant between skin-to-skin and breastfeeding with normal birth versus operative birth (includes caesarean section) and case study site particularly (CS3 and CS5, both BFI accredited) irrespective of mode of birth. The importance of skin-to-skin following any type of birth has been known for many years but the 9 processes that babies undertake to self attach on the breast within the first hour of birth have only recently been described in detail [Brimdyr 2013]. Although variation with implementation and length of skin-to-skin was identified by students all on completion of the programme had had

opportunities to facilitate skin-to-skin within a normal birth situation. The increased length of skin-to-skin noted in BFI facilities correlated with increased self attachment and first breastfeed. The change noted in CS2 would suggest that the process of attaining BFI accreditation had been a driver for a positive change in practice which supported student learning. Opportunities for skin-to-skin following a caesarean section were more limited and concerns over hypothermia were voiced. Gouchon et al [2010] in a randomized trial of skin-to-skin and not post caesarean birth identified no risk of hypothermia in the skin-to-skin contact group. Facilitation of skin-to-skin in theatre following caesarean section was seen once at CS3 but undertaken by students at CS2 against normal custom and practice at that site in senior years. Sheridan [2010] similarly identified poor rates of skin-to-skin and early breastfeeding following caesarean births. The potential for practice development in reducing feelings of disassociation of women from their babies [Bergman 2009] and postnatal depression [Kendall-Thackett 2007] was highlighted by the mentors impressed by the student's role modelling of skin-to-skin use in theatre following caesarean births. Both Moch [2010] and Cronje [2010] also identified that learners can be instrumental in the adoption of evidence based practice and powerfully influence the practice setting although some students were uncomfortable in adopting that role.

5.2.4 Hands-off breastfeeding support

Positioning and attachment with or without hands-on the breast demonstrated the greatest variance. Observed practice is predominantly hands-on by all grades of staff which the mentors acknowledged was true. Changing from a hands-on to a hands-off approach had proved challenging for mentors locally and is also identified in other studies [Inch et al 2007, Ingram et al 2002]. Law et al [2007] in their study of breastfeeding

support with positioning and attachment identified senior midwifery students and midwives had similar pre-knowledge scores. However, following 4 hours training in hands-off technique, the midwives demonstrated a large increase in skill set. Bernaix et al [2010] would dispute that attitude, effective communication style as well as skill set could be sustainably altered in a short training session. Indeed student comments would suggest that it took to the third year of the programme to fully appreciate the necessity for hands-off support. For some the driver was the responsibility of graduating with a recognised BFI certificate. The two students who witnessed a hands-off technique noted a positivity and empowerment from women with a greater ability to replicate the process themselves reinforcing the power of role modelling. This strengthened their belief and desire to use a hands-off technique [Inch et al 2007, Ingram et al 2002]. Poor experiences of women's capabilities at home with infant feeding added to this, corroborating findings by Coulson [2012] with breastfeeding women that hands-off was more likely to be successful and acceptable.

Hands-off facilitation required confidence in personal knowledge and skill combined with effective and enthusiastic communication with women which students and mentors at all sites commented on. Ekstrom et al [2005] identified this as facilitatory interaction rather than disempowering, regulating or antipathy. Some mothers were identified as more open with their bodies and not offended by hands-on but maybe this should be regarded as the exception and possibly a fear of challenging the status quo. The mechanisms students developed and employed to facilitate a hand-off approach were identified in Step-4. The debate continues as to whether short courses are sufficient for sustainable change in practice. BFI require a annual update for all qualified staff which mirrors the yearly input of this curriculum. The evidence base suggests hands-off is the support

method of choice. Ingram et al [2002] identified that 30 minutes was the average time required to facilitate the first feed using a hands-off technique which was similarly discussed by students in this study.

5.2.5 Hands-off support of hand expression

Hand expression of the breast antenatally and postnatally is implemented variably (Findings-Step 10). The important use of antenatally expressed breastmilk by women with diabetes [Chapman et al 2013] is particularly used in CS3 and CS5 (both BFI accredited). The practice has waned at CS1 (non-BFI accredited). Hands-on techniques are often witnessed when hands-off is desirable [Inch et al 2003] and a more simple technique is now taught [BFI 2007] again not always witnessed in practice. Both the new technique and hands-off is developed by students in their senior years irrespective of case study site and mentor. Teaching hand expression to all breastfeeding women is mixed and not routine. Due to the small numbers identified by students within the RCS data, no test for statistical significance was possible despite students being required to complete 100 postnatal examinations, a reasonable proportion of which would be expected to be transfers from hospital to community care. Hand expression is regarded as an essential skill for women prior to transfer from hospital care [UNICEF/BFI 2011] particularly in light of present infrequent community visiting patterns. This study identified it is usually given on a need to know basis within more complex neonatal and maternal scenarios. However, McInnes et al [2010] did find that some women found it cumbersome when all they wanted to learn was how to breastfeed successfully. Mentors identify the importance of forward planning in care and empowerment of women for successful prolonged breastfeeding which students only develop in the third year. Step 8 concentrating on maintenance of breastfeeding and Step 9 restricting dummy use, gleaned

little information during this study which was surprising. This may highlight a deficit in learning opportunity and therefore competence and confidence or total congruence. McInnes [2010] and Hoddinott [2012] found women considered clear timely sign posting the most supportive in sustaining breastfeeding and that exclusivity was not always possible. Indeed, Pincombe et al [2008] identified that demand feeding and the use of nipple shield, dummies or bottle feeding were significant indicators of early weaning. Therefore, women may chose to express as they intend breastmilk feeding not breastfeeding or this option is attractive for their continuance of breastfeeding [Dyson et al 2010]. Further exploration of skill development in this area maybe required.

5.2.6 Sterilisation of infant feeding equipment

Many students lacked confidence in sterilisation of infant feeding equipment and the various methods employed by different cultures. Students at CS2 who were all non-mothers requested added input to be able to confidently advise women. Cold water sterilisation is available in hospitals but selectively demonstrated to postnatal women on the ward who are expressing and may not be the method chosen for home use. Community midwives confirm sterilisation skills on their first visit to formula feeding mothers which probably occurs following the first feed at home. This does pose a health risk illustrated by a community midwife who found that a third of her women were undertaking sterilisation and/or reconstitution inaccurately when observed during a week of practice. Senior students developed non-threatening questioning of multiparous women regarding safe sterilisation and reconstitution of formula milk which was triggered by curriculum requirements. National knowledge of formula reconstitution has increased to 49% but this may not be translated into practice and over half the women are still unclear of the process [Renfrew

et al 2010, McAndrew et al 2012]. Choice of formula and safe information giving to women within BFI/UNICEF standards creates dilemmas for students and staff but fundamentally a midwife has a duty of care [Fuber & Thompson 2006, Cloherty et al 2004] to all women regardless of feeding method. Differences of approach and belief were highlighted within the vignette responses obtained at the last data collection point. The great impact of nutrition on short and long term development of the neonates' health, physique and metabolism creates an imperative to urge women to independently explore the differences between infant formula milks [Williams 1993]. The removal of free infant formula milk in Hull was headline news in the 'Mail' [2011] and has been considered by local Trusts. A hospital requirement to supply 1oz single sachets of formula milk powder, with individual packs of bottle, teat and sterilisation equipment for formula feeding women is a possibility to enhance their knowledge prior to going home. This would prevent women making a choice before birth and skin-to-skin had been experienced, a practice known to reduce initiation rates [Brown et al 2011]. The curriculum has always identified a duty of care to ensure safe and informed infant feeding.

Mentors have identified the increased infant feeding knowledge and skill of the student from the first allocation in the first year. All students irrespective of previous experience, knowledge or belief system were positively disposed towards breastfeeding as the optimal method of infant feeding. They self reported a willingness to give time to support women who chose to breastfeed and possessed a variety of strategies to maximise this feeding method (Step-2).

5.3 Teaching and learning strategies to enable students to assimilate BFI curriculum knowledge, skills and behaviour patterns.

The aim of the BFI curriculum, since inception in 2003, was to deliver evidence based information on breast and formula feeding. A strong conviction by all infant feeding teachers that breastfeeding is optimal has been negatively commented on by some students. However, many students identified the bias within society and the media towards formula feeding and ignorance of the dangers associated with formula feeding within a developed country (Step-2) [Marsden & Abayomi 2012, Hoddinott et al 2008, Palmer 2009]. Student midwives who had formula fed their infants identified continued feelings of anger and compromise at the lack of knowledge they had had when making their initial and subsequent infant feeding choices following complications. This is not an uncommon feeling as the infant feeding survey identified that ninety percent of women, who have experienced breastfeeding complications and stop prematurely, subsequently regret it [McAndrew et al 2012]. These students were typical and found their experience increased their desire to support women more fully with the knowledge gained from the BFI curriculum. A default position of relying on personal experience was found by Hellings & Howe [2004] if curricula depended predominantly on theoretical teaching and did not include practical application [Freed et al 1996]. Further Freed et al [2006] found students' ability to troubleshoot and generate breastfeeding management plans was compromised. The importance and power of embodied knowledge by mothers within cohorts has to be acknowledged and managed in curricula development.

Emphasis within the curriculum is placed on women's right to informed choice as stressed by Dimond [2008] and midwives duty of care [NMC 2008a] to provide unbiased information.

Regular updating of information and delivery methods supports an evidence based curriculum. Government policy documents [DoH 2010, DoH 2011] are incorporated often identifying the direction of service delivery which can change care provision is discussed in more detail under organisational structures.

5.3.1 A 'drip-drip' approach to curriculum delivery

The decision to cover BFI input throughout the 3 years of the programme rather than a module in any one year helped maintain skills and the profile of infant feeding as a key role of the midwife [Hannula et al 2008]. A similar model was adopted by Pollard [2010] who developed the University of West of Scotland's BFI curriculum. This model has since been emulated in other UK universities [Angell & Taylor 2012] and mirrors the annual updates of qualified staff.

The 'drip-drip' delivery of infant feeding lectures throughout the programme ensures the importance of breastfeeding to mother and infant is maintained [Beake et al 2012]. Repetition and increasingly complex information in year two in preparation of the biology examination was negatively perceived by some students. However, by year three a greater appreciation of reinforcement and increased complexity of information was noted by all students. Pollard [2010] similarly identified students' confusion with 'repetition or revisiting' as part of a spiral curriculum [Bruner 1960] but they also found it instrumental to their growth in confidence. Dodgson & Tarrant [2007] suggested following the eighteen weeks of training that revisiting and integration of infant feeding issues through other modules supported enhanced learning. Nationally, midwifery curricula vary enormously in their approach to infant feeding. Some only have one or two days for a three year programme and/or all the infant feeding information is provided in a module in one academic year (personal communication

from Regional meetings). The curriculum this study was based on has 5 days which has been increased to 6 days following student evaluations. Reinforcement that breastfeeding should be the norm and support from the university department and large multinational health agencies [WHO 2003, 2005, 2007, UNICEF 1998] partially redresses the many negative images of breasts and breastfeeding. These exist within midwifery, allied professions and society generating many questions for students [Whelan 2011]. The mentor and Trust organisation can support or negate the ethos of the curriculum.

5.3.2 Reflection and repetition

The NMC launched Essential Skills clusters [2007] which among other subjects require assessment of knowledge, skills and attitude (KSA) relating to infant feeding at key points in the curriculum. The areas identified as important to address from literature in breastfeeding training [Dykes 2005, 2006, Smale et al 2006] had already been included within the University of Nottingham's curriculum. Bernaix [2000], DiGiroloma et al [2003] and Ekstrom et al [2005] all identify that a professional's knowledge and attitude to breastfeeding unequivocally affects the support mechanisms offered to breastfeeding women, a finding of this study in all case study sites and with all students. Schmied et al [2011] conducted a metasynthesis which identified four types of encounters that women experienced when supported to breastfeed: an authentic presence, a facilitative style, a reductionist approach and disconnected encounters. Students witnessed the last two approaches which are not supportive of a positive and successful breastfeeding experience. A reflective model of learning [Johns 1995 & 2009, Schön 1983] is encouraged and incorporated through the practice document to support situated learning [Bandura 1977].

Theoretical sessions use active participation of students 'reflection-on' practice [Schön 1983] related to the 'BFI 10 steps'/ '7 point plan' (Figure 1, page 17). Angell and Taylor [2012] highlighted the use of reflection in challenging belief systems relating to breastfeeding. Scenarios enhanced the students' differential diagnosis and decision making, encouraging the adoption of values, behaviours and thinking that optimise evidence based practice [Fowler 2008, Lopez 1983].

During these reflective discussions and through this study, the practice environment was identified as particularly influential in year two. For many a dissonance was identified between the BFI curriculum and practice, again similar to Pollard's [2010] findings. Allmark [1995] identified theory-practice gaps were increased when practice was not incorporating recent theory, poor links between the higher education institution and practice existed and/or the theory was perceived to be irrelevant. Jervis and Tilki [2011] noted the importance of university-practice links in accurate assessment of students and potential failure to fail. Good links between the university and practice exist but at times a lack of link teacher visibility may reduce the impact of theoretical teaching and increase students' sense of isolation [Chamberlain 1997]. More recently the MINT project also highlighted the influential role of link teachers and teachers in clinical practice to reduce of theory-practice gaps [Collington et al 2010]. The importance of evidence based practice and theoretical knowledge was reinforced to support student's development of individual professional discernment [Butler et al 2008]. Field [2004] reiterates that lack of incorporation of evidence based practice increases the theory-practice gap. The use of the RCS and observation sheets are methods of reinforcing best practice and encouraging reflection in-practice. Students in the first year were reliant on mentors' familiarity with university documentation to support its completion. Limited knowledge was noted particularly at CS1

and CS2 (both non-BFI accredited) of both the RCS requirements and existence of observation sheets. An ambivalence bordering on dismissal was described by students at CS1 (non-BFI accredited hospital) in year one. By year three mentors in all case study sites were more conversant with the documentation and seeking methods to support student opportunities in all case study sites.

Anatomy and physiology theory related to breast and formula feeding are assessed through an unseen examination in year two. A small percentage advantage was conferred on students who were mothers and/or working in a BFI accredited site. The difference could be a greater embodiment of BFI principles or marker variation but moderation would be expected to reduce this effect. Consolidation of information is expected through application in practice which has been previously highlighted as important in support strategies [Hellings & Howe 2004]. Students identified using this knowledge to empower women with normal infant feeding and in dealing with complex scenarios.

5.3.3 Assessment of skills

Role play supports skills development and scenarios on complications within a safe environment, provides safety for 'patients' from novice practitioners and allows for assessment of competency [Bailey & Medway 2002]. Assessment of skills through the workshop, for which they have no preparation, using role play emulates the BFI accreditation process.

Student reported this positively enhanced their learning and confidence in personal abilities [Robertson et al 2006, Lathrop 2007]. Students with deficits in skills and/or knowledge receive facilitation to achieve competency. The formative individualised workshop (OSCE) within 6 months of qualifying, encourages students to reflect and address their strengths and weaknesses [Robertson et al 2006, Gordon & Buckley 2009,

Walsh et al 2009]. Jay [2007] found students undertaking OSCEs felt more prepared for practice, that they were a reliable method of assessing practice and an opportunity for further learning. Borneuf & Haigh [2010] do however question the artificiality of skills development and assessment away from the bedside highlighting the conflicting roles of lecturers to be competent in clinical, teaching and research skills.

In clinical practice some students found it difficult to ask for support in infant feeding as competency was expected by year two. Students in Pollard's [2010] study were also concerned about the '*see how you get on and let me know*' style of supervision that occurred following the first year. Chamberlain [1997] found feedback from community midwife mentors often occurred in car journeys with close supervision in the early part of the course which then reduced. This often left students feeling insecure and lacking in confidence which can be misconstrued as lack of motivation. The increasing level of competency expected in each year within the practice document may not be acknowledged [Benner 1984, 2001] or possibly an acceptance that infant feeding is not a complex process hence its delegation to MSWs. Ball & Washbrook [1996] in 'Birthrate Plus' recommended a maximum of 20% of care be provided by MSWs in hospital postnatal care and 25% in community postnatal care under the direct supervision of a midwife. How Trusts adhere to the above suggested percentages is presently unknown. Hussain & Marshall [2011] highlighted the dramatic increase in the employment of MSWs by Heads of Midwifery to work within the maternity sector, the lack of role delineation, lines of accountability and standardisation of training/education all which was inconsistent across the country. Dimond [2000] considers midwives have to learn to effectively implement supervision and utilisation of MSWs.

5.4 The mentor's role within the learning process

The mentor role is pivotal to student learning including infant feeding [DoH 2001] as 50% of the curriculum has to be in practice [NMC 2009]. Burnard [1988] challenged the concept that placing students in practice guaranteed learning. More recently Carr [2008] identified clinical placements as the weakest link in pre-registration nurse education. Emphasis is placed on outcomes [Tyler 1949] and task orientation [Carr 2008] which contradicts the ethos of adult [Dewey 1993], self-directed [Mezirow 1987] and reflective learning [Johns 2009]. This may be partly due to the period in history that the mentor was trained [Alligood 1997]. The service arguably requires practitioners who are technically and intellectually capable, can incorporate ethical reasoning [Tompkins 2001] and are adaptable [Ferguson 1997]. University processes are therefore required to ensure attainment of competency in practice [Burns & Patterson 2005]. Little correlation between the BFI curriculum and clinical BFI standards are made by many midwives despite university led mentor updates. Yearly updating of staff by Trusts should supply sufficient information for staff development [BFI 2011, Hannula et al 2008] but students had mixed experiences of their application of theory to practice.

5.4.1 Mentor's BFI knowledge

Poor mentor knowledge of university expectations and BFI curriculum appear to hinder student learning in all but the most pro-active and confident students. This is despite all the mentors (with a full data set) identifying increased knowledge of students in their first year that is built upon through the three years. Students found this frustrating and it restricted learning. Many established midwives and externally recruited midwives will not have been exposed to a BFI pre-registration curriculum and students did question the continuing education and evidence base in

infant feeding that mentors received [Bray & Nettleton 2007].

Students particularly at CS2 identified three categories of midwives; very established, moderate length of experience and more newly qualified. The moderate length of experience midwives had the least infant feeding skills which may correlate with the changing role of midwives in the postnatal period over the years [McIntosh 2012].

5.4.2 Curriculum knowledge and assessment in practice

The practice document has two elements: assessment of competency and reflective writing. The role of the mentor as assessor was introduced in 2001 [DoH] but is a role least recognised by mentors and mentees [Bray and Nettleton 2007]. This creates conflict in the relationship with students [Bayley et al 2004] requiring counselling skills on the part of the mentor [Cassidy 2009]. Webb and Shakespeare [2008] considered clinical assessment by mentors was subjectively undertaken and often failing students were given the benefit of the doubt [Duffy 2003]. Jervis & Tilki [2011] identified that mentor assessments balanced objectivity and intuition with attitude, which is difficult to measure.

Students identified assessment of competency occurred in two ways. The first was direct observation which is more accessible in years 1 and 2. In year 3 the student's reputation as found in the 'Hawthorn study' [Mayo 2003], their ability to verbally hand over care with assessment and planning of care become the strategies used. Re-version to observation occurs in previously un-encountered complex scenarios but the onus remains on the student to request support and identify their lack of knowledge/competence. A development of accountability and autonomy is identified [Fraser et al 2010]. Mentors corroborate a similar pattern of assessment. Students in Pollard's [2010] study identified similar processes of assessment which at times left them feeling vulnerable. There are

potential flaws within this system as good or ill reputations could have been developed erroneously which would affect the future development of the student [Fraser et al 2010]. Equally observation of practice can be intimidating and alter performance with students noting a desire to 'please' and emulate their mentor [Webb & Shakespeare 2008]. Role modelling and apprenticeship style practice learning are influential in reinforcing patterns and styles of care [Bluff & Holloway 2008, Jung 1986, Fickling et al 1988]. Hargreaves [2006] argues this overrides any theoretical teaching students may have had. Similarly despite potential negative attitudes in practice less credibility is proffered the lecturer by students [Hollis-Martin & Bull 2004]. However, within this study theoretical learning appears to be incorporated into practice and indeed created change in practice as Moch [2010] and Cronje [2010] have previously noted.

5.4.3 Attitudes to Breastfeeding

The priority/interest and particular expertise of the midwife influenced their delivery of BFI standards. Just as students' prior knowledge and experience of infant feeding is important, mentors' backgrounds also affects care delivery [Bernaix 2000, DiGirolamo et al 2003]. This does create conflict for students which they have to negotiate particularly in the first two years as seen with comments like '*we have to do as the mentor would*' (Bridget CS2). BFI accreditation showed statistically significant differences in this study for skin-to-skin and initiation of breastfeeding, reducing the impact of individual mentors. The students desire to please [Webb & Shakespeare 2008] often prevented evidence based practice being implemented. The greater confidence of third year students and working under indirect-supervision allowed them to apply evidence based theory irrespective of mentor practice. The third year also sees students increasing their decision making skills when mentors have confidence in

them. For community midwives 'unaccompanied' visiting by students was the only way to prevent women deferring to them instead of the student. Community mentors talk of '*sitting on their hands*' (Phillipa CS1) and '*zipping their mouths*' (Lesley CS3, Shona CS5) to encourage student planning and decision making in care. The community midwives who participated had good trusting relationships with their women and families who had to be directly requested to converse with the student (Maggie CS4), allowing them to lead. The MINT report [Fraser et al 2010] highlighted the need for mentors to '*let go*' to enable student's autonomous, professional development. Kitson-Reynolds [2009] discusses the difficulty of learning decision making skills within the classroom because of the speed of events unfolding in real time, reiterating the need for positive enablement of through distance supervision.

The demographics of some community areas with lower socioeconomic status or young mothers can pose more challenges for breastfeeding and breastfeeding support. These are often the very communities that require an enthusiastic and inspiring approach for the major benefits to be realised [McAndrew et al 2012] eg. government initiatives such as Sure Start. This was particularly noted by a student at CS5 who was disappointed in her mentor's poor enthusiasm for breastfeeding health promotion and ineffective use of paid peer supporters. This student considered informed choice was lacking as a consequence of the approach taken conflicting with her knowledge of the curriculum, expectation of a midwife and a BFI accredited site.

5.4.4 Task orientation and the role of MSWs

The role of maternity support workers (MSW) [Hussain & Marshall 2011]. and peer supporters in the midwifery service [Dykes 2005a, Ingram et al 2005], particularly within infant feeding can create inconsistencies of

quality, knowledge and no assessment of competency for student midwives. Infant feeding is often delegated to MSWs creating conflict for students in their role of caring for postnatal women and babies [NMC 2007]. The MSW becomes the role model in infant feeding for student midwives both within the hospital and community settings. This has been an increasing trend other than at CS4 where only community midwives offer care in the community. The DoH [2007a] recommended a seamless service with the majority of care provided by midwives and the length of postnatal care determined by professional judgement. This is questionable given the reduction in beds, increase in six hour hospital stays post birth and prescribed three community postnatal visits. Equally the RCOG [2007] recommended a minimum of 1 midwife to 28 'bookings' and 1 to 1 care in established labour. It is unknown if adherence to these ratios enhance assessment of competency in infant feeding skills. The potential de-skilling of midwives for normal and complex situations within infant feeding over time is possible and a cause for concern [Hussain & Marshall 2011, Hood 2007]. The literature does make it clear that continuity of carer and support in breastfeeding does increase maintenance and longevity of exclusive and any breastfeeding [McAndrews et al 2012]. Mentors identify disappointment in their lack of infant feeding involvement as their role becomes increasingly medically driven. The mentors within this study may have a bias toward infant feeding which gave them confidence to take part. Midwifery 2020 [RCM 2010] did highlight the growing tension between a social and medical model of care and the increasing concept of risk aversion within maternity care provision.

5.4.5 Structured assessment of feeds

Infant feeding advisors have for many years used breastfeeding observation sheets as a method of assessing a breastfeed and planning

care [Saxton, unpublished]. It is a useful method of learning and students are expected to complete ten over three years. This was not occurring due to student '*forgetfulness*', mentors lack of awareness, time and/or priorities within the clinical environment. However, when used, students' identified their usefulness in structuring the assessment of a feed and documentation. Some students felt uncomfortable staying with a woman throughout a feed as this is not customary within clinical practice unless there is a difficulty. Others enjoyed '*being with woman*' and facilitating the woman's empowerment and ability. The lack of structured assessments of feeds by practice other than CS3 (BFI accredited) may have been a key feature in the lack of understanding of their relevance. Communication between education and clinical establishments are highlighted as crucial to successful implementation of practice elements of the curriculum [Fraser et al 2010]. Breastfeeding observation sheets have since been incorporated into the practice document to ensure opportunities are maximised throughout the three years. This is proving particularly important when assessing the need for formula supplementation of transitional care babies.

The requirement to witness whole feeds and MSW's providing care may negatively influence RCS documentation. The detail provided by students within the documents generally increased over the three years and correlated with BFI accreditation. The postnatal information provided on transfer from hospital to community and discharge from midwifery care, proved inconsistent and student or mentor dependent, not policy or trust document dependent.

5.4.6 Facilitation of learning

Awayaa et al [2003] identified that despite noted variations, mentors who are open, facilitative and welcoming of students are able to be guided by

students' learning needs and expectations. Students and mentors in year one identify initiative, organisation and articulation of learning needs are required to enhance their learning experience but a balance is noted in the literature of '*stepping on toes*' when being overly assertive and enthusiastic [Vallant & Neville 2006]. Age and maturity linked to confidence, organisation and understanding of curriculum and documentation requirements by individual students' are identified as supporting acceptance/learning. These skills can take a variable length of time for students to develop and are influenced by individual mentors and organisations [Vallant & Neville 2006]. Gray & Smith [2000] identify the mentor who was instrumental in effective learning but also the 'toxic mentor', the 'dumper', the 'blocker' and the 'destroyer'. Fortunately all students appeared to have had 'instrumental mentors' as well as the 'toxic' variety. One mentor from CS3 identified a very clear structure to her student orientation and development. The remainder of mentors were not so structured. However, all commented that students mimicked them - '*learned the patter*' and their increasing accuracy appeared to be the mentor's sign that students were moulding/modelling communication and care pathways safely/appropriately. Lave and Wenger [1991] called this learning the language of professional socialisation. Time with the mentor within a shift and the length of allocations to any one area, affected the ability of mentors to fulfil their obligations as assessors and facilitators of learning. The present curriculum allows for flexi weeks to stagger holidays and placement numbers with unintended consequences of disjointed placement [Fraser et al 2010]. Dolan [2003] considered longer clinical placements with an increased emphasis on clinical skills development supported decision making and autonomous practice. The NMC [2009] recommend 4 week placements for assessment to be valid. The balance of student flexibility and learning has to be closely monitored and considered

within curriculum development. The role of the mentor is important for future generations of midwives and their evidence based care, needs embedding [NMC 2008].

5.4.7 Infant feeding advisors

Infant feeding advisors varied in the hours they provided for their Trust per birth rate and the balance of strategic versus clinical practice. Students were advised by their mentor to spend a day with the infant feeding advisor, an experience positively assessed by students who would have liked longer. Students identified clinical expertise, an inspiring belief in breastfeeding and a three stage approach to learning: demonstrate, instruct and observe. The role and presence of infant feeding advisors have been greatly reduced due to the economic climate. This may impact on breastfeeding initiation and continuation rates [McAndrew et al 2012]. Their expertise in the clinical area can benefit staff development and women's experiences. However, this 'luxury' is being withdrawn from clinical areas. During this study an infant feeding advisor was withdrawn from one of the case study sites and another under threat. Many believe that all midwives should be expert in such a fundamental role of postnatal care [RCM 2001, NMC 2007]. However, as has been demonstrated this does not appear to be always evident despite the midwives best efforts [Barbabieri 2013]. The debate of competence versus expertise and breastfeeding as the norm to impact policy is required. The access to services not directly under midwifery control is important in the overall strategy for the nation.

5.5 The role of organisational culture on student learning

Organisational culture encompasses the underpinning philosophies and belief systems which dictate the methods by which an organisation operates [Morgan 1986, Parkin 2010]. Schein [1983] considered organisational culture to be the informal social aspects of organisations which affects individuals thinking, priorities, behaviour and interactions at work. He elaborates with 'above surface norms and behaviour' and 'below surface beliefs and values' with the former easier to change than the latter. Therefore although change may be desired and instigated the culture may stifle the required change. Moss-Kanter [1988] identified that successful organisations demonstrate congruence between beliefs/values and implementation of their vision, implementing change with a fast, friendly, focused and flexible approach. This is difficult within the NHS as the values for each part of the organisation may be different, requiring a tailored organisational culture [Scott et al 2003]. Also quality and safety targets may not support an holistic perspective of healthcare delivery [Mannion et al 2009]. Larkshear et al [2005] particularly discuss the complexities pertaining to labour suite care, risk and decision making. Organisational issues of time, skill mix and throughput of women affect students' and midwives' facilitation of evidence based practice.

5.5.1. BFHI accreditation

BFHI accreditation embeds a positive environment and skill base for breastfeeding through policy, training and audit [Byrom et al 2010]. Renfrew et al [2005] talks of '*chaotic*' learning environments and poor infrastructure being unsupportive of breastfeeding initiation and continuation rates suggesting BFHI accreditation offers the antithesis. Similar to Cattanes & Benette [2006], this was particularly noticeable at

CS1 and CS2 which are undertaking a joint process of accreditation where students identified improved facilitation, congruence of information with the curriculum and focus on supporting breastfeeding within the acute sector. Differences do exist between CS1 and CS2 when comparing RCS data with CS2 having a greater breastfeeding initiation rate so individual organisational cultures are also influential. In discussion with the infant feeding advisor her data had identified a similar trend which is a reverse of historical patterns. Students with poor, no or negative knowledge, skills and attitude suggested a longer period of adaptation was required to those with good and positive knowledge, skills and attitude when starting the programme. The 'drip-drip' strategy of teaching and assessment allowed for students to achieve the required competencies at their own developmental rate following a process model of learning. Case study sites with BFI accreditation had statistically significant RCS data suggesting the congruence more conducive to application of theory to practice. At CS3 and CS5 that have extended BFI accreditation, changing workforce configurations had a negative impact on the thoroughness and consistency of information and skills noted by some students and midwives. Continuous reinforcement and enthusiasm by infant feeding leads and a clinical presence do appear to be important both in this study as in Hannula et al [2008].

5.5.2. Pregnancy and childbirth records

Case study site documentation varies throughout the antenatal, labour and postnatal period. Benefits of breastfeeding are covered antenatally but some have a more 'structured-drip-drip' approach than others (Findings-Step 3). A 'structured-drip-drip' approach appears to provide consistency and confidence in the information provided to women for later follow up [Beake et al 2012]. Students working within this model were more

conversant with the benefits of breastfeeding and discerning of methods of communicating the information. CS3 (longstanding BFI accreditation) has recently updated their documentation in line with new BFI recommendations [UNICEF/BFI 2013] anticipating a more fluid discussion guided by maternal priorities. The effect of these changes remains to be seen but there is the onus on the midwife /MSW to be conversant and confident with the evidence as Stenhouse's [1975] process model identifies. Mentors comment that the conversation does appear to be taking a little longer.

Recently a 'disadvantages of formula feeding' section to pregnancy records has been added to the list of areas to be discussed with women antenatally. This is an area that many midwives feel uncomfortable discussing although it does allow for informed choice by women. Constituents of breastmilk and formula milks are not discussed in practice which weakens the debate on advantages of breastfeeding and the disadvantages of formula milk. Students found this part of the curriculum harder to assimilate.

Labour ward documentation universally includes skin-to-skin and initiation of a feed following birth [UNICEF/BFI 2011]. A noticeable feature has been the increase in length of skin-to-skin over the students three years and the number of babies having the first feed prior to transfer from labour ward. The level of information given to women regarding the benefits of skin-to-skin has also become more comprehensive. This increases the consolidation of knowledge in practice which is essential to embedding support mechanisms [Fraser et al 2010]. The increased number of women opting for skin-to-skin when formula feeding enhances the benefits of early attachment and 'neural hard wiring' [Bergman 2009] for those babies.

Despite postnatal documentation being equally comprehensive, completion is patchier and minimalist. One mentor had only recently been made aware of it so was completing it but felt she was not unusual.

5.5.3 Formula supplementation

The postnatal area is where there are greatest discrepancies between Trust documentation and its use. Sections on formula supplementation, hand expression, demonstration and competence of positioning and attachment by the mother, sterilisation and safe reconstitution for formula milk are patchily completed. Students in the first year were not aware of their existence and by year three were but found them infrequently completed. This was corroborated by mentors from the acute and community sectors creating potential for women to '*fall through the gaps*'.

Midwives were very conscious of the tiredness that many women experience following birth and therefore were more comfortable to 'do for' rather than empower the woman to be able to do. Difficult conversations about formula supplementation would be avoided and this mirrors the experiences in other maternity services researched and documented by Fuber & Thomson [2006] and Cloherty et al [2004]. The use of Cloherty's vignettes in this study highlighted greater differences between mentor approaches than student.

Supplementation rates vary between case study sites both in numbers that students report and the process used. CS3 and CS5 continue to have low supplementation rates. Walker [2004] identified the detrimental effect of a supplement to a breast feeding baby in altered gut flora and to the mother of undermining confidence and lactation. Students and mentors at CS3 suggest a recent increase in supplementation on the postnatal ward possibly due to increased use of MSW, workload/turnover of women and

reduced midwifery/infant feeding advisor input. CS1 and CS2 proportionately have always had a higher supplementation rate with greater volumes usually involving formula milk being supplemented particularly at CS2. The organisational guidelines in midwifery and paediatrics are often inconsistent, creating complex dilemmas for students, midwives and women. This highlights the role of BFI accreditation in guiding safe practice to be breastfeeding and baby friendly. Students working in the neonatal unit at CS5 found conflicting advice between the postnatal ward and neonatal staff created difficulties for women. Anxieties in relation to volume, rather than quality and regular small quantities continue to be drivers within neonatal units and transitional care which Gregson & Blacker [2011] also found.

5.5.4 Support provided to enhance the quality of feeds

Documentation of individual feeds varied between CS in the content and detail for future planning of care. Mentors considered it particularly important due to lack of continuity of midwives that women see. The emphasis on the length of feeds rather than quality fulfilled paediatric measures, a situation exacerbated by lack of observation of full feeds. Transitional care/extra care babies also fell into this category. The acknowledgement that small volumes of colostrum can increase a blood glucose levels to normal range is often lacking with paediatric staff [Renfrew et al 2010]. Senior students discussed successfully challenging paediatric staff to use colostrums first before infant formula milk for hypoglycaemia. The role of the infant feeding advisor is crucial within these situations as noted at CS3. The lack of one at CS5 exposed differences on the neonatal unit in support offered to breastfeeding women. CS1 has always had strong support for breastmilk feeding or breastfeeding on the neonatal unit when compared to CS2 which then extends to the postnatal

areas but even there a mentor commented on the paediatrician '*not believing in breastmilk*'. Students were notably highly praised for their support and knowledge of breastfeeding on the neonatal unit at CS2.

Dyson et al [2010] discusses the need to offer other options of providing breastmilk to babies, such as expressed breastmilk via bottle for particular groups such as teenagers.

Support for formula feeding mothers was limited in all case study sites with women often expected to know how to feed their babies. Some mentors provided detailed information (Findings-Step 4) but this was not case study dependent but individual midwives' practice. CS3 and CS5 only give half the standard 100mls, ready-made bottles as a method of demonstrating expected volumes. This is important for long term health when looking at formula feeding behaviour patterns and obesity rates [Singhal et al 2002 & 2004]. All sites continued to stock ready-made pre-bottled formula although the selection has commonly reduced to 2-3 common brand names. A tension therefore exists between the need for BFI units not to advertise/support particular formula brands and the necessity to provide emergency nutrition for inpatients where required. Mentors described this tension in relation to the amount of information they considered was acceptable to provide. Many sites have explored women bringing their own chosen brand of formula but this forces a choice by the mother prior to the birth which would otherwise have been delayed and a choice to breastfeed taken. Sheehan et al [2010] identified congruence between midwives' and women's views of the factors leading to women's choice of feeding method demonstrating greater empathy and understanding than is often portrayed. Sterilisation and reconstitution by women within the clinical area are problematic although some units within the country have achieved women bringing their chosen formula in for use during their stay [Mail 2011]. This

allows observation of women's sterilisation and reconstitution techniques, a topic which if addressed, is usually discussed using leaflets. Most students and mentors trusted that women once at home were following the new guidance on formula reconstitution during the day but not necessarily at night. However, McAndrew et al [2012] identified that 49% of women knew the principles of formula reconstitution leaving half the population therefore unsure.

5.5.5. Priorities for the midwife's role

Interestingly with the change in government there has been a dearth in legislation which has mentioned the role of midwives in health promotion of which breastfeeding plays a large part during the postnatal period. The emphasis has been on freedom of choice and safety in childbirth. This could be disputed by the 'place of birth' [Sandall et al 2009, McCourt et al 2011] report where choice is often restricted to perceived not actual safe place. The drivers continue to be 'risk' such as Clinical Negligence Scheme for Trusts (CNST) considerations often negating the softer parameters of care [McFarland 1999]. Dykes [2006a] suggested women are more successful with breastfeeding in their home environment with support. This supported early transfer home of women from the maternity units; a policy which fulfilled the need for cost effectiveness in the acute sector at a time of unlimited home visiting by midwives. Arguably this is a short term measure as long-term benefits and cost reductions are not being maximised with restricted postnatal visiting [UNICEF/Renfrew et al 2012]. Introduction of postnatal clinics offering a fixed 20 minute appointment time and drop in 'Breastfeeding Cafes' alter the locus of care provision. All sites, but particularly CS1 and CS2, have seen an increase in the clinical dependency level of women which has altered the nature of their work to

include many more '*medically required procedures*' to be completed. This has in part led to the MSW role being adapted to support women with infant feeding. There is anecdotal evidence from student interviews that often women are being visited following the critical moment to support them to continue breastfeeding.

Government policies dating back to 1992 'Changing Childbirth' identified that women require continuity of carer, choice and control of their pregnancy, birth and mothering experience. Subsequent papers in the new millennium continue with this theme. However continuity of carer [Walstrom & Turnbull 1998, Homer et al 2000, Page 2009], identified as key, was interpreted as continuity of care with the creation of care pathways. Increasingly women complain of never seeing the same midwife at any point in their maternity care [Commission for Healthcare Audit and Inspection 2007]. However, NIHC guidance does recommend a named midwife to be identified for each woman which may begin to have impact on ownership, delivery of care and outcomes [2012]. A redressing of the balance to women focused care and midwives decision making based on clinical need would improve breastfeeding success and students learning opportunities.

5.6 Summary

The inclusion of BFI outcomes to the midwifery curriculum have enhanced student learning and provided an evidence based framework for student knowledge. Mentor facilitation and organisational cultures modulate, by supporting or stifling learning. However, by year three students demonstrate the ability to independently implement evidence based practice competently and confidently. The more positive mentors and organisational cultures are positively improving:

- the learning environment for students
- facilitation of women with infant feeding
- challenging established routines and norms creating better outcomes.

Chapter 6 – Conclusions and Recommendations

6.1 Introduction

Reflection is integral during and following any research study to enable continued development from a novice researcher and to professionally evaluate its contribution to a body of knowledge, in this case BFI curriculum development. Therefore this chapter will address:

- The strengths and limitations of this study
- My reflections on conducting this study
- Conclusions reached
- Recommendations for universities, practice and future research
- Dissemination

6.2 Strengths and limitations of this study

Strengths of the study include:

The use of a case study allowed for a variety of data collection methods providing a breadth of information which could be triangulated. A comprehensive data set was sought from students and mentors to fulfil the holistic methodology employed.

The use of five sites with differing BFI accreditations allowed for differences and similarities to be identified and enhance the transferability and resonance of findings to other Higher Education Institutions in the UK. The study occurred during a period of change within CS1 and CS2 which allowed for changes to be vicariously monitored.

The longitudinal nature of the study provided information on student progress over time allowing for students differing rates of development and/or clinical opportunities which vary depending on practice allocations.

As one of the larger Schools of Midwifery in the UK, numbers within the cohort provide a picture of student experience that can be confidently shared.

Limitations of the study include:

The greatest limitation is the small number of mentors who engaged with the study which could provide bias. Whether this was due to the complexity, the longevity, the advertising/recruitment process, the unknown researcher in many case study sites, the culture of the NHS at this moment in time or the individual mentors belief system in relation to breastfeeding is difficult to ascertain. Despite this there was representation from each case study site which allowed for differences and similarities from mentors and students to be analysed.

I was a novice researcher in this field which probably reduced my efficacy in organisation and analysis. The use of my supervisors was essential in reducing this factor.

The researcher, as 'an insider' teaching the curriculum may have altered responses from mentors and students although I believe they were candid with me. Mentors particularly were anticipated as being the counterbalance to any bias students may have inadvertently provided. Ethical considerations of beneficence, non-maleficence, confidentiality were embedded within the process of planning, implementation and dissemination of the data. At no point do I believe that students or mentors were coerced into becoming participants or remaining so. Further many found the process cathartic for which I was thanked. None of the students were my personal students and interviews would have been curtailed and a referral suggested if information had been deemed dangerous. Students were allocated a code and then a pseudonym as a method of distancing the individuals from the data.

Further research into the extent and lasting effect of the curriculum under different circumstances can only be evaluated through follow up a year or two following the students' appointments as qualified midwives.

The use of an established attitude questionnaire may have enhanced the data collection methods. However this was only an element of the holistic approach to curriculum evaluation in this study.

6.3 My Reflections on conducting this study

A purpose for embarking on this study was to justify both the financial and teacher time invested in the curriculum change that I had been involved with. However, the concern for women's support in infant feeding by midwives had initially driven the changes and a desire for positive practice outcomes underpinned the curriculum changes. The design of the study exploring curriculum change was negatively perceived by a funding body due to the lack of clinical outcome. This did not take into account that within this study the clinical outcomes were the students achievement of the assessment in relation to infant feeding observed by their mentors, infant feeding advisors and/or link teachers. It seemed inappropriate in a study such as this to do token observations without evidence of curriculum benefits. The clinical implications for positive change unearthed were gratifying although unexpected. Maybe in time an ethnographic study on postnatal wards in BFI and non-BFI units would be plausible and beneficial. The ethical process and six R&D approvals was at times tortuous and frustrating with the minor differences in detail required. Recruitment of mentors was particularly difficult and the balance between enthusiastically persuading individuals and coercion was a fine line to tread. Having confidence that the work was important also created anxiety. The mountains of data and work generated are commented on in the literature and it has been overwhelming at times.

Time management and work life balance have proved challenging at times. The outsourcing of transcription and quantitative data manipulation was made possible by a small amount of funding from the Regional Breastfeeding coordinator for the East Midlands, for which I was enormously grateful. It also allowed for equipment purchase to ease data collection and analysis. This has however also placed a burden of expectation on the quality of study generated. A report will be required for Region to also include the 18 month programme data not included in this thesis - challenging my writing skills further.

The positive response to presentations of parts of my work at the NICER and RCM conferences were welcome. The NICER conference title was 'Development of Knowledge, Skills and Attitude in infant feeding on a BMid programme' which drew particular attention from Australian Universities who were keen to have a locally implemented BFI approved curriculum. The RCM conference title was 'Hands-off the breast at first saves nine down the line' described the mechanisms students used in developing a hands-off technique. A student from another university in the audience responded and identified both with the situation analysis and corroborated with the processes identified which provided support for the universality of my findings. An abstract was submitted to the UCLAN-MAINN conference 2013 entitled 'Tipping the balance in an infant feeding curriculum, theory or practice; a case study' for which a poster has been accepted. Dr Savage who was instrumental in the first production of the UNICEF BFI '10 Steps' was particularly encouraging and positive of the findings.

Although at times a roller coaster of a journey the information gleaned I believe will be beneficial to women, midwifery education and the role of midwives within the postnatal period.

6.4 Conclusions reached

This study of a BFI curriculum demonstrated enhanced student learning and provided positive evaluation of an evidence based framework for student confidence and competence in knowledge, skills and attitude to infant feeding. Particular features that have proved beneficial and pivotal to learning are the yearly theoretical input, interactive teaching methods and assessment, use of reflection for de-briefing and development of a positive attitude to supporting women to breastfeed, facilitating theory-practice links and lastly practice documentation to include/re-inforce BFI outcomes measures.

Knowledge relating to benefits of breastfeeding to mother, baby and society and their relationship to breastmilk constituents appears particularly hard to assimilate. A game in the second year was designed to challenge the student to make these links and the importance of making the information accessible to women. The deficit identified in complicated breastfeeding learning opportunities led to the development of case study scenarios involving role play. Other skills developed using role play included: 'hands-off' technique to supporting positioning and attachment and hand expression of the breast, sterilisation of infant feeding equipment and reconstitution of formula milk. Methods developed by students to deliver a 'hands-off' technique were described in Step 4 such as shadowing, use of props, feeding cues and demonstration. The importance of communication skills to deliver an authentic presence employed reflection in and on practice in promoting a positive belief system to breastfeeding.

Mentor facilitation modulates learning by either supporting or stifling opportunities. Mentor knowledge of BFI curriculum requirements was poor despite yearly mentor update which includes a summary of expected infant

feeding learning opportunities. There was statistically a greater number and length of skin-to-skin and breastfeeding opportunities at BFI accredited facilities. Student data identified those facilities working toward BFI accreditation demonstrated noticeable increases in BFI outcome measures too. The mentors knowledge, skill and attitude to breastfeeding does need addressing at facility level to support students more fully. The university practice documentation has developed more explicit breastfeeding data requirements as part of the twice yearly tripartite meetings. Also recent inclusion of breastfeeding observation sheets within the practice document has increased its profile and validates students request to stay with a woman for a whole feed. The role of the midwife teacher either in practice or as a link is essential to the sharing of knowledge, skills and information of student requirements particularly in non-accredited facilities. Mentor impact on senior students is reduced as their confidence and competence grows. This may be due to indirect supervision and students increased knowledge, professional accountability and autonomy.

Organisational cultures also modulate application of theoretical learning through structures, priorities, time constraints, economic climate and skill mix. BFI practice accreditation increases the profile and expectations of a Trust's breastfeeding outcomes. The congruence of their policies with educational outcomes supports students learning. Transitional care areas/wards are particularly vulnerable to inconsistent policies and implementation. Reorganisation of midwife accessibility and time for women impacts negatively on learning opportunities particularly breastfeeding problems and the assessment of competence by midwife mentors. The more positive mentors and organisational cultures enable students to develop positive knowledge, skills and attitudes in support of

breast and formula feeding women earlier in the programme. A proactive role of the midwife teacher, creative dialogue at education-practice meetings at all levels of both organisations and reflection on practice explicit within the curriculum will positively support the poorer learning environments. A lecturer practitioner role whose specific remit is theory practice links in practice would also support positive role modelling.

6.5 Recommendations

University

1. All midwifery curricula need to implement the BFI standards which are delivered in every year of the programme.
2. Ensure diverse teaching strategies are employed to include skills development of 'hands-off' technique in breastfeeding and hand expressing using role play; communication training and scenario role play to support teaching of breastfeeding complications.
3. Conduct individual student assessment of skills through a workshop or Objective Structured Clinical Examinations.
4. Ensure congruence of practice documentation and record of clinical skills related to skin-to-skin and early feed on labour ward, postnatal support and transfer information to support theory practice links. Breastfeeding competencies (40) and difficult breastfeeding competencies (10) and full breastfeeding observations (10) spread over three years.
5. Support the role of midwife teachers in practice to create positive role models and a resource for evidence based practice.
6. Ensure practice placement time with midwife mentor to allow for student development and assessment of infant feeding competencies.

7. Knowledge and skills teaching on sterilisation, formula reconstitution and differences in types (not brands) of formula.
8. Support indirect supervision through unaccompanied visiting in community placements to enhance critical analysis and care planning.

Practice

1. Implement BFI Practice Standards.
2. Encourage a positive organisational culture which values and 'permits' time to be spent by midwives in supporting infant feeding.
3. Facilitate through organisational structures timely, regular postnatal home visiting on Day 1 then Day 3 post transfer from hospital in support of breastfeeding.
4. Ensure staff training advocates a 'hands-off' approach to supporting women with breastfeeding and hand expression of the breast using role play.
5. Ensure staff training includes communication skills particularly for short courses.
6. Maintain midwifery infant feeding skills to enable assessment of student competence, not a reliance on MSWs.
7. Support effective completion of student and Trust documentation which facilitates both breast and formula feeding women more fully.
8. Consider a proforma for documentation of a feed.
9. Consider the removal of readymade, pre-bottled formula from hospitals and introduction of 'powdered formula feeding packs'.
10. Re-evaluate the use of nurseries/infant feeding rooms on postnatal wards
11. Consider health promotion to targeted certain cultural populations on the benefits of colostrum and exclusive breastfeeding.

Future research

1. Undertake a follow up study of the cohort of students at 1-2 years post qualified employment.
2. Explore the effectiveness of infant feeding advisors in role modelling versus strategic positioning.
3. Women's desire to formula feed and competence when self determined.
4. Explore the implementation of Kangaroo mother care, the impact on supplementation rates in transitional care babies based on postnatal wards and possible positive unintended consequences to term babies cared for on the same postnatal ward.
5. Explore midwives perception of their role related to infant feeding within the postnatal period.
6. Explore the role of MSW's specifically in relation to infant feeding provision within maternity services.

6.6 Dissemination/publications

1. A critique of the use of case study for infant feeding research through the eyes of a novice researcher.
2. The educational process which students travel to assimilate knowledge, skills and attitude require for competence and confidence in infant feeding.
3. Students experience and methods of developing a 'hands-off' approach to breastfeeding support.
4. The impact of different patterns of antenatal information giving on student learning.
5. Student experience of skin-to-skin use on labour ward and personal development to counter normal patterns of care.

6. Information giving postnatally, curriculum practice outcomes and its impact on service provision.
7. Is there an alternative method of providing support to formula feeding women without enforcing a choice of feeding method prior to birth but maintaining safe practices?
8. Dilemmas faced by students when caring for transitional care babies in reducing supplementation rates.
9. Is the recommendation of routine hand expression to all breastfeeding mothers desirable and/or reality?
10. What is the role for midwives' in postnatal support of infant feeding?

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Appendix 1 - BFI Education Standards

and

Outcomes [2002]

Learning outcomes 1-4:

Basic knowledge and skills

1. Understand the importance of breastfeeding, and the consequences of not breastfeeding, in terms of health outcomes

The education required to meet this learning outcome is as follows:

- the evidence-based health benefits, short- and long-term, of breastfeeding for mothers and babies
- the risks associated with formula feeding, both full and partial
- the differences between breastmilk and formula milk
- the value of colostrum
- current recommendations regarding the duration of exclusive breastfeeding.

2. Have developed an in-depth knowledge of the physiology of lactation and be able to apply this in practical situations

The education required to meet this learning outcome is as follows:

- external anatomy of the breast; normal variations of the size and shape of breast, nipple and areola
- relevant internal anatomy of the breast (with discussion of new evidence in this area)
- normal changes in the breast during puberty, pregnancy and lactation
- the role of the pituitary gland and the action of the lactational hormones, including their effects on behaviour
- the prolactin receptor theory
- the role of the Feedback Inhibitor of Lactation (FIL) in the maintenance of lactation
- the significance of the fat gradient of a breastfeed
- the importance of early feeding/expression and frequent, effective drainage of the breast to ensure adequate ongoing milk production.

3. Be able to recognise effective positioning, attachment and suckling and to empower mothers to develop the skills necessary for them to achieve these for themselves

The education required to meet this learning outcome is as follows:

- the difference between positioning and attachment
- definition and recognition of effective attachment and its importance for effective drainage of the breast
- the mechanism of suckling the suck/swallow cycle and recognition of effective feeding
- the principles of positioning for breastfeeding, and why these matter

- communication skills; effective teaching techniques, including identification of suitable resources (for example, visual aids) for teaching positioning and attachment.

4. Be able to demonstrate knowledge of the principles of hand expression and have the ability to teach these to mothers

The education required to meet this learning outcome is as follows:

- why mothers should be enabled to learn hand expression of breastmilk
- how hand expression differs from mechanical (pump) expression and reasons why it may be preferable
- the technique of hand expression
- ways to assist the milk ejection reflex
- communication skills; effective teaching techniques including identification of suitable resources (for example, visual aids) for teaching hand expression.

Learning outcomes 5-8:

Initiation and management of normal breastfeeding

5. Understand the potential impact of delivery room practices on the well-being of mother and baby, and on the establishment of breastfeeding in particular

The education required to meet this learning outcome is as follows:

- the innate reflexes, responses and abilities of the normal newborn baby
- the physiological changes that occur at birth and the needs of the neonate for warmth, food and maternal contact
- the role and importance of a period of unhurried skin contact between mother and baby at birth
- the importance of breastfeeding as a means of promoting and assisting the adaptation of the infant to extra-uterine life.
- For midwifery students, the following are also essential:
- the impact of medications that may be used during labour on the condition and behaviour of the neonate
- the role of the midwife in facilitating early mother-infant interaction and breastfeeding
- the role of the midwife in ensuring the safety and well-being of the mother and baby in the immediate postnatal period.

6. Understand why it is important for mothers to keep their babies near them

The education required to meet this learning outcome is as follows:

- the benefits of mothers keeping their babies near for early recognition of the infant's feeding cues and therefore for demand feeding
- the relevance of mothers keeping their babies near for the prevention of infection
- the relevance of mothers keeping their babies near for the prevention of Sudden Infant Death Syndrome
- the information that must be shared with parents to enable informed decisions and safe practice around adult-infant bed sharing.

7. Understand the principle of demand feeding and be able to explain its importance in relation to the establishment and maintenance of lactation

The education required to meet this learning outcome is as follows:

- the principle of supply and demand and its importance in promoting and ensuring adequate breastmilk production
- the nature and recognition of infant feeding cues
- the importance of explaining demand feeding to parents.

8. Be equipped to provide parents with accurate, evidence-based information about activities that may have an impact on breastfeeding

The education required to meet this learning outcome is as follows:

- the nature and basis of different attitudes to breasts and breastfeeding and of how these may be influenced
- the potential impact of mother-infant separation, restricted feeding practices, supplementation and the use of teats and dummies on breastfeeding and infant health
- the definition and importance of informed choice
- communication skills, including the importance of giving full, unbiased information in a non-judgmental way.

Learning outcomes 9-11:

Breastfeeding beyond the newborn period

9. Understand the importance of exclusive breastfeeding for the first six months of life and possess the knowledge and skills to enable mothers to achieve this

The education required to meet this learning outcome is as follows:

- the reasons for the current recommendations regarding the duration of exclusive breastfeeding
- the impact of supplementary feeds on successful breastfeeding
- The common situations that lead to the introduction of supplementary feeds and how these may be avoided

- the incremental benefits associated with how exclusively and for how long breastfeeding is practised
- the importance of getting breastfeeding off to a good start.

10. Understand the importance of timely introduction of complementary foods and of continuing breastfeeding during the weaning period, into the second year of life and beyond

The education required to meet this learning outcome is as follows:

- the reasons for the current recommendations regarding the appropriate age for the introduction of solid food
- the value of longer-term breastfeeding to the health and well-being of both mother and baby.
- For health visiting/public health nursing students, the following are also essential:
- recognition of developmental readiness for solid feeding
- when and how to introduce solid foods.

11. Understand the importance of community support for breastfeeding and demonstrate an awareness of the role of community-based support networks, both in supporting women to breastfeed and as a resource for health professionals

The education required to meet this learning outcome is as follows:

- the importance of support for women in enabling both initiation and continuation of breastfeeding
- the existing sources of support for breastfeeding families, both professional and voluntary, and how to access them
- the role of voluntary sector breastfeeding counsellors/supporters
- the role and value of support groups and peer support schemes
- the importance of effective communication and handover of care between agencies, (for example, between midwife and health visitor).

Learning outcomes 12-16:

Special situations and common complications

12. Be able to support mothers who are separated from their babies (for example, on admission to SCBU or when returning to work) to initiate and/or maintain their lactation and to feed their babies optimally

The education required to meet this learning outcome is as follows:
When separation occurs from birth:

- the importance of breastmilk for all babies, including those who are preterm, ill or compromised
- the importance of early breastmilk expression in initiating and establishing lactation

- how to optimise lactation through frequent expression, breast 'switching', dual expression
- the value of skin contact/kangaroo mother care for the baby's well-being and for stimulating lactation and mothering
- the unique role of hand expression in the first few days.
- Ongoing care and later separation:
- the importance of frequent, effective breastmilk expression in maintaining breastmilk production
- the value of skin contact whenever mother and baby are together
- methods of stimulating/assisting the oxytocin reflex
- the ongoing value of hand expression and the appropriate use of breast pumps
- ways to help mothers re-establish/induce lactation
- storage of breastmilk, both for home use and for baby in SCBU.

13. Be able to demonstrate a knowledge of alternative methods of infant feeding and care that may be used where breastfeeding is not possible, and that will enhance the likelihood of a later transition to breastfeeding

The education required to meet this learning outcome is as follows:

- the alternative feeding methods available when babies are unable to breastfeed
- the benefits and risks of alternative feeding methods
- how to feed a baby safely using these methods
- the benefits of skin-to-skin contact during feeding.

14. Identify babies who require a managed approach to feeding and describe appropriate care

The education required to meet this learning outcome is as follows:

- identification and appropriate management of babies who cannot demand feed (for example, premature, small for gestational age, infected)
- recognition and appropriate (pro-active) management of healthy, term newborns who are reluctant to feed
- recognition and management of the baby who is not receiving an adequate breastmilk intake
- the management of neonatal jaundice in the breastfed baby
- acceptable clinical indications for supplementation
- the prevention and management of breast refusal.
- For midwifery students, the following are also essential:
- the definition, diagnosis, prevention and management of neonatal hypoglycaemia
- the management of the breastfed baby of a diabetic mother.

15. Know about the common complications of breastfeeding, how these

arise, and how women may be helped to overcome them

The education required to meet this learning outcome is as follows:

- the normal appearance of the lactating breast
- aetiology, recognition and appropriate management of nipple trauma, blocked duct, engorgement, mastitis, and candida infection
- diagnosis and management of insufficient milk production in the mother
- ways to help mothers to re-establish or induce lactation, including managing supplementary feeding.

16. Understand the limited number of situations in which exclusive breastfeeding is not possible and be able to support mothers in partial breastfeeding or artificial feeding in these circumstances

The education required to meet this learning outcome is as follows:

- the few, rare conditions of the mother and/or infant in which breastfeeding is contra-indicated
- the safe preparation and feeding of infant formula
- the importance of practices such as skin-to-skin contact and rooming-in and demand feeding for all babies

Learning outcomes 17-18:

The Baby Friendly Initiative and the International Code

17. Appreciate the main differences between the WHO International Code of Marketing of Breastmilk Substitutes and the relevant current UK legislation, and understand the relevance of the Code to their own work situation

The education required to meet this learning outcome is as follows:

- explanation of the International Code and the UK law in relation to the advertising of breastmilk substitutes, bottles, teats and dummies
- key stipulations of the code
- how to ensure that the practices of individual health-care staff, and the workplace environment, are in line with the code.

18. Be thoroughly conversant with the Baby Friendly Initiative best practice standards, understand the rationale behind them and what the Baby Friendly Initiative seeks to achieve through them, and be equipped to implement them in their own workplace, with appropriate support from colleagues

The education required to meet this learning outcome is as follows:

- how the Ten Steps/Seven Points work together to enable women to initiate and maintain breastfeeding
- the background to the Baby Friendly Initiative and its value as an accreditation scheme
- evidence for the effectiveness of the Baby Friendly Initiative as a public health intervention
- the importance of being fully acquainted with the Individual workplace's breastfeeding policy
- the student's individual role and responsibility in implementing best practice related to breastfeeding.

**Appendix 2 - Aims and objectives for University of
Nottingham BFI curriculum**

and

Record of Clinical skills

The **theoretical components** for the three years were developed:

Level 1/Teaching period 1 teaching sessions

Pre-course	Guided study infant feeding (level 1)	3 hrs
Session 1	DM 1602: The essentials of infant feeding	5 hrs
Session 2	DM 1602: Neonatal Reflexes	1 hr
Session 3	DM 1603: Communication skills for professional practice	6 hrs
Session 4	DM 1604: Sterilisation of feeding equipment and preparation of breastmilk substitutes	1 hr
Session 5	DM 1604: The practicalities of Infant feeding	6 hrs
Total hours	Theoretical component	22 hrs
Assessment	Practice document (40 credits) Clinical skills development DM 1604 Record of clinical experience Biological sciences examination DM 1602	

Level 2/Teaching period 2 teaching sessions

moves the students on to common challenges found within infant feeding.

Pre session	Level 2 Infant Feeding Study Guide	6 hrs
Session 1	DM 2603: Transition from Intrauterine to extrauterine life	6 hrs
Session 2	DM 2603: Infant Feeding evidence-based practice	5 hrs
Total hours	Theoretical component	17 hrs
Assessment	Practice document (20 credits) Record of clinical experience Applied reproductive biology examination DM 2603 (compulsory infant feeding question)	

Level 3/Teaching period 3 teaching sessions

explores the more complex challenges that a midwife may face when supporting infant feeding.

Session 1	Challenges in infant feeding (Conference style)	5 hrs
Session 3	DM 3601: Infant feeding workshop	2 hrs
Total hours	Theoretical component	7 hrs
Assessment	Practice document (30 credits) Record of clinical experience	
Total hours	Theoretical component over programme	46 hrs

Year 1

Essentials of Infant Feeding

Aims:

To introduce the students to the Baby Friendly Initiative and its role in promoting breastfeeding

To discuss factors affecting choices and decisions in infant feeding

To develop knowledge and understanding of the physiology of lactation and principles of initiation of breastfeeding

To identify appropriate research which supports current midwifery practice in the management of breastfeeding

Learning Outcomes:

1. State the Ten Steps/ Seven Point Plan standards of the Baby Friendly Initiative and discuss how this research supports the current management of breastfeeding
2. Discuss the importance of breastfeeding to the health of the mother and infant
3. Discuss psychosocial factors affecting infant feeding decisions
4. Describe the anatomy of the breast and its development

5. Describe the anatomical and physiological changes occurring in the breast during pregnancy and lactation, discuss the effect these may have on the woman
6. Outline the physiology of milk secretion and ejection
7. List a minimum of 8 constituents of breastmilk and their relevance to the neonate
8. Compare and contrast the various infant formula milks available

BFI outcomes addressed: 1,2,5,6,7,8,9,10,12,16,17,18,19

NMC Essential skills Cluster: c1-c8, b1-b3, b5,b6

Practicalities of Infant Feeding

Aims:

To develop knowledge and skills in facilitating infant feeding

To incorporate national guidelines on infant feeding into personal practice

Learning outcomes

1. Discuss the potential impact of birth practices on the establishment and continuation of breastfeeding
2. Discuss the newborns ability to initiate breastfeeding and explore the role of the midwife in assisting the mother and baby soon after birth
3. Identify the physiological importance of correct attachment for breastfeeding and the various positions that may be adopted
4. List the conditions under which a mother may need/choose to express breastmilk
5. Describe the principles of hand expression and demonstrate the correct technique in simulation
6. Review principles of sterilisation of feeding equipment and reconstitution of infant formula milks
7. Reflect on personal beliefs and values and their potential impact on facilitating infant feeding

BFI outcomes addressed: 1,2,3,4,5,6,7,8,10,11,13,14,17,18,19

NMC Essential skills cluster: c1-c8, n6, n7, n9, n10, b1-b6, m1

Assessment of Clinical Practice

Practice document

Clinical skills development document

Record of clinical experience:-

10 Observations of complete breastfeeds

Skin to skin contact for all births attended

Teaching of hand expression of the breasts

Assistance with mothers/babies experiencing breastfeeding difficulties

Year 2

Evidence based Practice

Aims:

To develop knowledge and understanding of the physiology of lactation and its application to midwifery practice

To reflect on best practice embedded in the principles of the UK Baby Friendly Initiative

Learning outcomes:

1. Describe the anatomy and physiology of lactation
2. Identify the principles of positioning and effective attachment for breastfeeding
3. Critically analyse common interventions which may impact on the physiological process of lactation and breastfeeding
4. Discuss the role of the UK Baby Friendly Initiative in supporting evidence based practice
5. Discuss common challenges to the breastfeeding relationship
6. Demonstrate the principles of hand expression

BFI outcomes addressed: 8,9,12,13,14,15

NMC Essential skills clusters: c1-c8, n7, n9, n10, b1-b6, m1, m6, m9

Year 3

Infant Feeding Workshop

Aims:

To enable students to demonstrate knowledge and competence in infant feeding skills

To enable reflection on practice and highlight skills deficits

Learning outcomes

1. Participation will enable students to demonstrate:
2. The benefits of breastfeeding to mother, baby and society
3. A sound knowledge of the anatomy and physiology of lactation
4. Appropriate information giving and communication skills
5. The ability to verbalise the principles of positioning and effective attachment of the baby for breastfeeding
6. An appropriate technique for hand expression and discuss correct storage and preparation of breastmilk
7. Principles of hygiene in relation to sterilisation of feeding equipment
8. Knowledge of the properties of breastmilk

BFI outcomes addressed: All outcomes tested

NMC Essential skills Cluster: c1-c8, n9, n10, b1-b6, m1,m6,m9

Challenges in infant feeding

Aim:

To explore challenges in Infant feeding and enable students to develop strategies for advice and management of specific situations

Learning outcomes

1. Consider the nutritional implications of infant formula as an alternative food for neonates
2. Reinforce the advantages of breastfeeding in the management of neonatal hypoglycaemia and jaundice
3. Explore the physiological challenge for mothers in providing breastmilk for their preterm infants
4. Recognise how tongue tie can affect the infants ability to breastfeed
5. Explore the practical aspects of feeding infants with cleft lip and/or palate.
6. Outline key strategies for services implementing BFI standards

BFI outcomes addressed:1, 2, 3, 4, 5, 6, 7, 8,10, 11, 12,1 3, 14,15,

At each level the students are expected to achieve the competency to the required practice document requirements and continue to complete their

record of clinical skills. The descriptors in these were amended following an audit of student completion at the end of 2007.

In each year the students are expected to achieve their competencies to the required **practice document** level B (year1), C (year 2), D (year3), E (optional year 3). Some may choose an infant feeding scenario to reflect upon too. This document also identifies particular skills that students have to undertake within each of the three years.

Infant feeding skills required

Skill	Observed/discuss the skill (Level A)	Participated in skill to (Level B,C,D or E)
Infant Nutrition		
70. Cup feeding		
71. Discuss the safe storage of breastmilk and artificial formula		
72. Informed discussion when supplementation is considered for a breastfeeding baby		
73. Facilitate and maintain good positioning and attachment of a baby at its mother's breast.		
74. Explain and demonstrate hand expression to a breastfeeding mother		
76. Demonstrate safe sterilisation of feeding equipment		
77. Preparation of formula feeds		

Students maintain their **record of clinical skills**. The infant feeding descriptors identified next were amended following an audit of student completion at the end of 2007.

Breastfeeding Competencies

The student should record experiences of observing 40 complete breastfeeds with at least 10 using the breastfeeding observation sheet. Comments on the correct positioning and attachment, confidence of the mother and effectiveness of the feed need to be included.

Breastfeeding competencies

No	Mother's No	Date	Comments	Midwife's Signature
1				

Breastfeeding Difficulties

The student should record involvement in the care of 10 women experiencing difficulties with breastfeeding and outline the management i.e skin to skin, positioning and attachment, effectiveness of feed, alternative strategies which may have been used, transfer of information.

Breastfeeding difficulties

No	Mother's No	Date	Comments	Midwife's Signature
1				

Care of Babies Requiring Special Care

Students are expected to observe and care for 10 newborn babies requiring special/transitional care, including those born preterm, post-term, underweight or ill. They should outline management as for *breastfeeding difficulties*.

Care of babies requiring special care including feeding

No	Baby's No / Initials	Comments regarding baby and its care	Midwife's Signature
1			

Personally Managed Labour and Birth

Students should personally manage the labour of at least 40 women and assist with the birth under the supervision of midwives. When recording this experience, comments on place of birth, gravida, parity, condition of perineum, estimated blood loss, weight of the baby, placental condition, skin to skin (I-yes/no) duration of skin to skin (II in mins) initiation of feeding (III yes/no and method) should be recorded. Any further significant events relevant to the care provided, may also be recorded.

Record of personally managed labour including BFI requirements

No	Mother's No	Date	Comments	Skin-to-Skin / NO of mins	Midwife's Signature
1					

"At Risk" Cases

Students should participate in the supervision and care of 40 women at risk in pregnancy, labour or the postnatal period. Outline details as for *personally managed labour and birth*.

Postnatal Examination of Mother and Baby

Students should personally examine 100 mothers and their babies during the postnatal period. These examinations must be undertaken in the mother's home or the postnatal ward. Comments should include birth

details if valid, postnatal day of visit, condition of mother and baby. The student should record feeding method (I) and information given to support feeding method (II) e.g when positioning and attachment and/or hand expression skills have been facilitated/discussed.

Record of postnatal examination of mother and baby including BFI requirements

No	Mother's No	Date	Comments	Positioning and attachment Hand Expression Taught	Midwife's Signature
1					

The requirement for students to record the number of experiences supports active seeking of opportunities. The summary of number of breastfeeds is recorded at the tripartite meeting which is held bi-annually between the mentor, student and midwife teacher.

Ten detailed **breastfeeding observations** are required over the 3 years using the provided recording tool.

The numbers of opportunities identified within the record of clinical skills were used as part of the documentary evidence within this study.

Breastfeeding Aide Memoir



- S Skin to Skin**
- P Positioning and Attachment**
- E Expression (Hand)**
- C Confidence building**
- I Information**
- F Feeding History**
- I Infant Behaviour**
- C Common Conditions**

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Breastfeeding Aide Memoir



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Positioning - 4 principles

1. Baby held close
2. Head and body in alignment
(freedom to tilt head back)
3. Nose opposite mothers nipple
4. Sustainable

Hand expression - 5 principles

1. Cup the breast in your hand
2. Feel for a change in texture
3. Compress and release
4. Use a rhythmic movement
5. Rotate to access other lobes

(Reproduced with permission from UNICEF HPA for Northern Ireland 2008)

7 Signs of effective attachment

1. Chin touching breast
2. Mouth open wide
3. Cheeks full and rounded
4. More areola visible above top lip
5. Lower lip curled back
6. Rhythmic sucks swallows and pauses
7. Feeding is pain free

Positioning - 4 principles

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Appendix 3 - Study Regimen and Gant chart

Study Regimen

Autumn 2009	Recruit September 2009 Three year Pre-registration midwifery cohort
February 2010 Phase 1/ Year 1	<p>3 year Students -</p> <ul style="list-style-type: none"> Commence data collection with questionnaire Select those required for interview Data collation of documentary evidence <p>Mentors - Recruit midwife mentors</p> <ul style="list-style-type: none"> - Commence data collection with questionnaires - Identify those required for interview
April 2010	<p>Transcribe the interviews</p> <p>Input data into SPSS</p> <p>Commence data analysis on questionnaires, interviews and documentary evidence</p>
Autumn 2010	<p>Revisit and amend the questionnaires and interview prompts in light of the preliminary analysis and literature. Ethics and R&D will be informed if changes are required.</p> <p>Begin writing up preliminary findings</p> <p>Recruit September 2010 Shortened Pre-registration midwifery cohort (18 month)</p>
February 2011 Phase 2/ Year 2	<p>3 year and 18 month Students -</p> <ul style="list-style-type: none"> Commence data collection with questionnaire Interim interview with previously selected 3 year students Select 18 month students required for interview Data collation of documentary evidence. <p>Mentors - Recruit midwife mentors</p> <ul style="list-style-type: none"> Commence data collection with questionnaires Identify those required for interview
April 2011	<p>Transcribe the interviews</p> <p>Input data into SPSS</p>

	Commence data analysis on questionnaires, interviews and documentary evidence
Summer 2011	Compare data from Phase 1 and 2 for 3 year students and Phase 1 data between 3 year and 18 month students.
Autumn 2011	Revisit and amend the questionnaires and interview prompts in light of the preliminary analysis and literature. Ethics and R&D will be informed if changes are required. Begin writing up additional preliminary findings
February 2012 Phase 3/ Year 3	3 year and 18 month students - Commence data collection with questionnaire Final interview with previously selected students Data collation of documentary evidence. Mentors - Recruit midwife mentors Commence data collection with questionnaires Identify those required for interview
April 2012	Transcribe the interviews Input data into SPSS Commence data analysis on questionnaires, interviews and documentary evidence Begin writing up and integration of findings
Autumn 2012	Compare data between Phases 1, 2 and 3 within and between the 3 year and 18 month cohorts' of students and sites. Link findings to literature and theory.
Winter 2012	Write up etc

Gant Chart:

- 1.To identify factors that facilitate and inhibit student midwives promotion and support of breastfeeding over the period of their programme.
- 2.To compare and contrast the influence of different learning environments on students' application of BFI Education Standards in clinical practice.

Date	Activity
September 2011	Complete SPSS analysis of year 1 and year 2 data
October 2011	Complete uploading of transcriptions onto N Vivo and analysis of the data.
November 2011	Compare Nvivo data with Spss. Look at comparisons for year 1 and 2 for: long and short cohort, mothers and non-mothers, base sites, mentor expectations. Identify the key themes and variants from the general.
December 2011	Re-write methodology Start writing up findings chapter
January 2012	Prepare and send questionnaires to students and known mentors
February 2012	Collect questionnaire data and conduct interviews asap from students [? leave record of clinical skills till June to get a fuller set of data.] Send questionnaires to new mentors
March 2012	Process data collected
April 2012	Analyse the data collected
July 2012	Compare year 1,2,3, data under the main categories

May/June 2012	Collect record of clinical skills data and upload to spss Revisit the findings chapter and structure in light of new findings
October 2012	Write discussion chapter
November 2012	Revisit the introduction chapter following writing of discussion Revisit methodology chapter Send 1 st draft to supervisors by 1 st December 2012

Appendix 4 - Ethics/R&D approvals



National Research Ethics Service

Derbyshire Research Ethics Committee

1 Standard Court

Park Row

Nottingham

NG1 6GN

Telephone: 0115 8839435

Facsimile: 0115 9123300

18 November 2009

Prof Diane Fraser
Head of the Academic Division of Midwifery
Nottingham University
School of Nursing, Midwifery & Physiotherapy
Faculty of Medicine & Health Science
QMC, Derby Road,
Nottingham, NG7 2HA

Dear Prof Fraser

Study Title: An exploration of what factors influence student midwives' confidence and competence most, when incorporating UNICEF UK Baby Friendly Initiative (BFI) Education Standards to support breastfeeding in clinical practice.

REC reference number: 09/H0401/78

Protocol number: 4

Thank you for your letter of 12 November 2009, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.



Research Department
Clinical Standards and Governance

Tel: 01246 513632
e-mail: sue.glenn@chesterfieldroyal.nhs.uk

19th April 2010

2009/50

Professor Diane Fraser
Head of Academic Division of Midwifery
Nottingham University
School of Nursing
Faculty of Medicine and Health Science
QMC, Derby Road
Nottingham, NG7 2HA

Dear Professor Fraser

Re: Student Midwives and BFI Education in Practice

I write to confirm that we now have full approval for above named project and you may commence the study on the understanding that you comply with the following:

- Audit requests - In order to comply with the standards of Good Clinical Practice (ICHGCP) and the Research Governance Framework (DoH), it may be necessary to audit your study as it progresses. To assist you we have compiled the enclosed Investigator Site File, listing the documents which should be included to demonstrate compliance (not all may be relevant to your study).
- Monitoring information - You will be sent an annual letter requesting a progress report and/or outcomes/findings of your project.
- Summary of findings - Dissemination of results will be monitored in accordance with the project protocol.
- Unexpected results - In accordance with Trust policy, all serious unexpected adverse events should be reported to the Trust Patient Safety Team, the Ethics Committee and the study sponsor.
- Policies and procedures - You agree to abide by the Trust policies and procedures -
 - You manage data in line with the Data Protection Act and will be responsible for identifying and reporting Health and Safety issues that may arise during the course of the project.
 - You comply with local guidance on compliance with the Human Tissue Act regarding the use of human tissue in research.
 - You alert the trust to any concerns regarding suspected misconduct or fraud resulting from a research project.

If you require further advice on any of these issues, do not hesitate to contact me. I hope your study progresses successfully.

Yours sincerely

Sue Glenn
Matron for Clinical Research

Enc

Copy to:

✓ H McIntyre, Nottingham University

I agree to comply with the above condition and return one copy duly signed.

Signed: (Prof D Fraser)

Date:

Please reply to:

Research and Development
E11 Curie Court
Queen's Medical Centre Campus
Derby Road
Nottingham
NG7 2UH

Telephone:

0115 970 9049

Fax:

0115 849 3295

E-mail:

Ms Helen McIntyre
Academic Division of Midwifery
NUH City Campus PGEC
Hucknall Road
Nottingham
NG5 1PB

28 January 2010

Dear Ms McIntyre

ID: 090B011

An exploration of what factors influence student midwives' confidence and competence most, when incorporating UNICEF UK Baby Friendly initiative (BFI) Education standards to support breastfeeding in clinical practice.

The R&D Department has considered the following documents:

- . Application form, 29/09/09.
- . Protocol, version 4, 01/11/09.
- . Participant Information Sheet, version 4, 12/11/09.
- . Participant Consent Form, version 2.0, 12/11/09.
- . Questionnaire: Q1 students 3Y and Shortened, version 4, 01/11/09.
- . Questionnaire Q1 mentor 3Y and Shortened, version 4, 01/11/09.
- . Questionnaire Q2 Mentor 3Y, version 3, 01/11/09.
- . Questionnaire Q2: Q2 Students 3Y, version 3, 01/11/09.
- . Questionnaire: Q3 Student 3Y and Shortened Programme, version 3, 01/11/09.
- . Questionnaire: Q Final Mentor 3Y and Shortened, version 3, 01/09/09.
- . Advertisement, version 2, 01/11/09.
- . Semi-structured interview - Midwife mentors 1, version 2, 01/09/09.
- . Semi-structured Interview - Midwife mentors 2, version 2, 01/09/09.
- . Semi-structured Interview - Midwife mentors 3, version 2, 01/09/09.
- . Semi-structured Interview- for student Midwife 1, version 2, 01/09/09.
- . Semi-structured Interview - for student Midwife 3, version 2, 01/09/09.

Your study now has R&D approval, on the understanding and provision that you will follow the conditions set out below.

Conditions of Approval

That you:

1. Accept the responsibility of Chief/Principal Investigator as defined in the current Research Governance Framework.
2. Request written approval from the R&D department for any change to the approved protocol/study documents you wish to implement
3. Ensure all study personnel, not employed by the Queens Medical Centre, University Hospital NHS Trust Nottingham or the City Hospital NHS Trust Nottingham, hold either honorary Contracts/letters of access with this Trust, before they have access to any facilities, patients, staff, their data, tissue or organs.

4. Report any Serious Adverse Event involving the Trust to the R&D department, using the Trust 'policy for research safety reporting in human subjects'. Policy available from the R&D Department.
5. Complete the R&D Research Governance interim and final reports as requested.
6. Comply with the regulatory requirements and legislation relating to: Data Protection, Trust Caldicott Guidelines, Health and Safety and the use of Human Tissue for research purposes.
7. Comply with the current Research Governance Framework, available at www.doh.gov.uk or via the R&D office or Research Governance Web-site.
8. Agree to conduct this research project in accordance with ICH Good Clinical Practice and/or the MRC Guidelines for Good Clinical Practice (as appropriate)
9. Must not start your project until you have received written approval from the relevant ethics committee.

This approval letter constitutes a favourable Site Specific Assessment (SSA) for this site.

Please note that the R&D department has a database containing study related information, and personal information about individual investigators e.g. name, address, contact details etc. This information will be managed according to the principles established in the Data Protection Act.

Yours sincerely



Dr Brian Thomson

Director of R&D

cc Nottingham Research Ethics Committee



Nottinghamshire County

Nottinghamshire County Teaching PCT
Research and Evaluation

Birch House
Ransom Wood Business Park
Southwell Road West
Rainworth
Nottinghamshire
NG21 0HJ

Tel: 01623 673338

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www.rdnottspct.nhs.uk

18th February 2010

Professor Diane Fraser
Head of the Academic Division of Midwifery
University of Nottingham
School of Nursing, Midwifery and Physiotherapy
Queen's Medical Centre
Nottingham
NG7 2HA

Dear Professor Fraser

Ethics Reference Number: 09/H0401/78

Project Title: An exploration of what factors influence student midwives' confidence and competence most, when incorporating UNICEF UK Baby Friendly Initiative (BFI) Education Standards to support breastfeeding in clinical practice

Thank you for submitting the above project to the NHS Nottinghamshire County Research and Evaluation Department. The project has now been given Organisational Approval by:

Dr Chris Packham, R & D Lead, on behalf of NHS Nottingham City

Although Organisational approval has been given for this study it does not guarantee that independent contractors such as GPs, dentists, optometrists and community pharmacists will be able to take part in your study.

Conditions of approval

Please note that approval for this study is dependent on full compliance with the following. To that end, please complete and return the form attached to this letter confirming your acceptance of these terms and conditions:

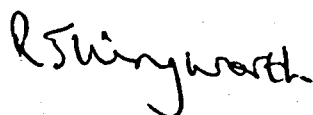
- You are required to ensure that all information regarding patients or staff remains secure and **strictly confidential** at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice (<http://www.dh.gov.uk/assetRoot/04/06/92/54/04069254.pdf>) and the Data Protection Act (1998). Furthermore, you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

- You must not hold person identifiable data on portable media unless it is encrypted. Protecting data files with passwords does not constitute encryption
- To complete yearly/final reports as requested, and to feedback study findings to the Research and Development Department and participants (as appropriate)
- To endeavour to publish and/or disseminate research findings on completion of the project
- To inform the Research and Development Department of any changes that occur, e.g. amendments to approved documentation, project not started for any reason, change in personnel etc
- That you inform the Research and Development Department which GP Practices you have recruited to your study from the Nottinghamshire PCTs (where applicable)
- That you inform the Research and Development Department of all serious adverse incidents¹ in accordance with Trust Policy and/or Legal requirements (e.g. Sponsor, MHRA). This is in addition to the reporting of serious or unexpected adverse events and adverse drug reactions (which may affect the conduct and continuation of the study) to the approving research ethics committee
- That you are aware of and comply with the PCT Research and Development Policies and Best Practice Guidance²
- That you agree to cooperate with a Research Governance Audit of the project if requested by the Research and Development Department
- That you have read and agree to abide by the Research Governance Framework (RGF) for Health and Social Care (second edition 2005)

The *Research Governance Framework for Health & Social Care* sets out the responsibilities of all those involved in research in order to enhance the ethical and scientific quality of health research and to safeguard patients and the public. The lead investigator and all involved in the research have a responsibility to comply with Research Governance.

Full details can be found in the RGF document available at www.dh.gov.uk or via the Research and Evaluation Department.

Yours sincerely,



Rachel Illingworth
Head of Research and Evaluation

Copy to
R&D leads
Ethics
Helen McIntyre, Midwife Teacher

¹ Refer to Nottinghamshire PCTs Adverse Event Reporting Policy in Research for definitions - www.rdnottspct.nhs.uk

² Policy for Adverse Event Reporting in Research
Research Fraud and Misconduct Policy
Policy for the Management of Trust Generated Intellectual Property
Best Practice Guidance: Data Management in Research
www.rdnottspct.nhs.uk

Ref: 2010/005A

28th April 2010

Research and Development Committee
King's Mill Hospital
Mansfield Road
Sutton in Ashfield
Nottinghamshire
NG17 4JL

Tel: 01623 622515 ext 3735
e-mail: richard.scott@sfh-tr.nhs.uk

Dear Helen

Full Title of Study: An exploration of what factors influence student midwives' competences & confidence most when incorporating UNICEF UK baby friendly initiative (BFI) standards to support breastfeeding in clinical practice

REC Ref: 09/H0401/78

The Research and Development Committee has approved the above research project.

We are aware that researchers have not completed ICH GCP training. Due to the nature of the study the Research and Development Committee have deemed it not necessary to have for this project, but would encourage you to do this in the future.

Conditions of Approval

That you have read and agree to abide by the Research Governance Framework for Health and Social Care, and comply with all reporting requirements, systems and duties of action put in place to deliver Research Governance, including:

- All projects are liable to be monitored internally by the Research Governance Monitor.
- That a system for recording and reviewing all adverse events in research is in place. This is in addition to the reporting of serious or unexpected adverse events and adverse drug reactions (which may affect the conduct and continuation of the study) to the approving research ethics committee. All research-related incidents will be reported on the Trust's incident system.
- Honorary contracts for all non Sherwood Forest Hospitals NHS Trust employees, involved in the project are obtained from Human Resources.
- All research staff taking consent are adequately trained to do so
- All research, which is discontinued temporarily or permanently, should be reported to R&D Department.
- All changes to the project protocol including amendments, changes in study personnel and change in duration/timescale of the project should be referred to R&D as well as the appropriate ethics committee.
- That R&D are notified when project findings are published or disseminated in any way.
- To complete yearly/final reports as requested.

Copies of the Research Governance Framework for Health and Social Care and the EU directive can be found on the Department of Health's website:

<http://www.dh.gov.uk/en/PolicyAndGuidance/ResearchAndDevelopment/A-Z/ResearchGovernance/index.htm>

Acceptance of conditions of approval

Commencement of the research project is taken as acceptance of the conditions of Research and Development approval.

Any queries regarding the Research Governance Framework for Health and Social Care should be directed to the R&D office.

Yours sincerely,



Dr Richard Scott
Chair
Research and Development Committee

c.c. Evaluation, Audit and Research Manager
Evaluation, Audit and Research Department
Sherwood Forest Hospitals NHS Foundation Trust
King's Mill Hospital
Mansfield Road
Sutton in Ashfield
Nottinghamshire
NG17 4JL



*Student Midwives, Midwife Mentors and
Baby Friendly Initiative Education Standards in Practice*



*An evaluation of applying theoretical breastfeeding education
into practice will be undertaken by
Helen McIntyre for her Doctorate in Health Sciences Degree.*

A cohort of three year and shortened pre-registration midwifery students and their mentors will be invited to take part in this study across the Nottinghamshire/Derbyshire circuit. This will involve questionnaires and some interviews.
Contact Details: 0115-8231924 / helen.mcintyre@nottingham.ac.uk



Participant Information

Full Title: An exploration of what factors influence student midwives' competence and confidence most when incorporating UNICEF UK Baby Friendly Initiative (BFI) Education Standards to support breastfeeding in clinical practice.

Before deciding to take part in this study it is important that you understand why the research is being undertaken and what it will involve. There are no direct benefits for participating in this study but the knowledge gained will inform future developments of the curriculum. Please take time to read the following information and contact me if you would like further clarification.

What is the purpose of the study?

The study is being conducted as part of a Doctorate in Health Sciences (DHSci) with the University of Nottingham. I am employed by the University of Nottingham as a midwife teacher and am a qualified nurse and midwife. In 2002, UNICEF UK introduced Baby Friendly Education Standards which were incorporated into the Nottingham midwifery curricula at re-approval in 2006. This has involved changing teaching methods and documentation as well as content with the expectation of changes in knowledge, skills and attitudes of future midwives to infant feeding but more particularly breastfeeding.

We have recently received accreditation from UNICEF UK for the work which we have undertaken but there is no data on the students' and mentors' roles in influencing the application of theoretical knowledge to practice in this field. Future students or mentors will benefit from the knowledge gained from this study

however, there are no direct benefits for students and mentors participating in this research.

Why have I been chosen?

1. You have been chosen for this study because you are a student in the **2009 Three Year cohort**. Your intake leader will be requesting your participation and involvement on my behalf but I will be available for further questions. **OR**
2. You have been chosen for this study because you are a student in the **2010 Shortened cohort**. Your intake leader will be requesting your participation and involvement on my behalf but I will be available for further questions. **OR**
3. You have been chosen for this study because you are a **mentor** to a student in the 2009 Three Year and /or 2010 Shortened Midwifery programmes. Your student will be requesting your participation and involvement on my behalf but I will be available for further questions.

Do I have to take part?

It is your choice to take part or not. If you chose to take part you will keep the information sheet and be requested to complete and sign a consent form. You will be free to withdraw from the study at any time should you wish to without any affect on your midwifery programme.

What do I have to do?

1. As a **three year midwife student** volunteer you will be invited to take part in completing a questionnaire at 6, 18 and 30 months into your midwifery programme and may be invited to take part in an audio taped interview lasting up to 60 minutes. I am interested in hearing about your experience of incorporating the theoretical infant feeding input into practice. As dyads will be made with your mentor some information may be related to your application of theory to practice as well as generic trends.

Data from your 'Record of Clinical Skills', reflections from the practice document if appropriate and result from the infant feeding question on the biology examination will be requested for corroboration and comparison with the qualitative data. These will be linked anonymously.

Your personal teacher and intake leader will be available for support should you find the questionnaire and/or interview distressing.

2. As a **shortened midwife student** volunteer you will be invited to take part in completing a questionnaire at 6, and 18 months into your midwifery programme and may be invited to take part in an audio taped interview lasting up to 60 minutes. I am interested in hearing about your experience of incorporating the theoretical infant feeding input into practice. As dyads will be made with your mentor some information may be related to your application of theory to practice as well as generic trends.

Data from your 'Record of Clinical Skills', reflections from the practice document if appropriate and result from the infant feeding question on the biology examination will be requested for corroboration and comparison with the qualitative data. These will be anonymously linked.

Your personal teacher and intake leader will be available for support should you find the questionnaire and/or interview distressing.

3. As a **mentor** volunteer you will be invited to take part in completing a questionnaire at 6, 18 and 30 months into the student's three year midwifery programme if you are still her mentor at these points and may be invited to take part in an audio taped interview lasting up to 60 minutes. For a student on the shortened midwifery programme it will be at 6 and 18 months only. I am interested in hearing about your experience in supporting students incorporating the theoretical infant feeding input into practice.

What are the possible benefits of taking part?

The results of this study will start to create a body of knowledge as to how student midwives incorporate breastfeeding knowledge into clinical practice, where added support may be required and which strategies may be most effective. The main purpose is to ultimately create a positive breastfeeding experience for mothers and babies therefore improving public health.

Will my taking part in this study be kept confidential?

All data collected will be treated with utmost confidentiality. The questionnaires, interview audiotapes, interview transcripts, 'Record of Clinical Skills' data and other documentary data will be stored in a locked cupboard in a University office on NHS premises.

All data will be anonymised. Any extracts of quotes used in the final piece of work or publications will also be anonymous. The tapes will be destroyed after completion of the study in accordance with University policy.

What will happen to the results of the research study?

The results will be presented for the award of DHSci, a copy of the executive summary will be given to Trust and University managers, presentations of findings will be arranged for the students and mentors that were involved in the study and publication of findings pertinent to the wider academic population is expected.

Who is organising and funding the research?

The study has no external funding. Professor Diane Fraser and Dr Sheila Greatrex-White will supervise the study.

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given a favourable opinion and Research Ethics Committee approval prior to the research being conducted.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the chief investigator who will do her best to answer your questions -

Professor Diane Fraser

Phone: 0115-8230820

Fax: 0115- 9700878

Email: diane.fraser@nottingham.ac.uk.

If you remain unhappy and wish to complain formally, you can do this [NHS complaints Procedure or PALS]. Details can be obtained from your doctor or hospital.

Contact for further information.

For further information please contact Helen McIntyre, Midwife Teacher at the University of Nottingham on 0115-8231924 or via e mail at helen.mcintyre@nottingham.ac.uk.

Finally, thank you for taking the time to read this information and for considering to take part in the study.

Appendix 5 - Data collection tools

1. For students

2. For mentors



Baby Friendly Initiative Education in Practice

Student Questionnaire 1 3 year and Shortened Programmes

Researcher: Helen McIntyre

ID Number

Dear Participant,

Thank you for agreeing to take part in this study. This is the first of three questionnaires you will be invited to complete.

If you are able to participate, please complete this questionnaire and send it back in the stamped address envelope provided.

If there is insufficient writing space provided please use additional sheets.

Thank you for your time.

Helen McIntyre
Midwife Teacher,
University of Nottingham
Academic Division of Midwifery,
PGEC,
City Hospital Campus,
Hucknall Road,
Nottingham,
NG5 1PB

1. Before commencing your midwifery programme, what knowledge of infant feeding did you have?

2. If you had prior knowledge of infant feeding, how was this gained?

**If you have children please answer questions 3-6
If you do not have children, go directly to question 7**

3. If you have children, what infant feeding method did you use?

4. What age was your baby/ies when dietary changes were introduced and which were they?

5. Please describe what your infant feeding experience/s were like?

6. In what ways have you drawn on your infant feeding experience during your midwifery placement?

7. If you are not a mother what infant feeding method would you consider and why?

The following questions are for all participants

8. Has the theoretical/skills teaching on infant feeding altered your knowledge, attitude and approach to breast and formula feeding?

- Yes
- No
- Unsure

If so, how:
Knowledge

Attitude

Skills

9. Has your mentor helped you to achieve your infant feeding competencies and skills?

- Yes
- No
- Unsure

If so, how:

10. Please state your date of birth.....

11. Please state your ethnic origin

12. What is your highest academic qualification?.....

13. Please tick which **one** of the following has had the greatest impact on your **personal** midwifery practice in relation to breastfeeding.

- Your Age
- Your Ethnic/Cultural background
- Your Highest academic qualification
- Your Personal experience of breastfeeding
- University theoretical session
- Clinically observing/assisting women breastfeed
- Other-please state

14. Please use the space below to make any comments

Thank you for completing the questionnaire

Please return the questionnaire in the envelope provided

Please turn over

REPLY SLIP:

Please complete the reply slip IF you are willing to be approached for an interview as part of this study, your documentary evidence used and return with your questionnaire.

Full Title: An exploration of what factors influence student midwives' competence and confidence most when incorporating UNICEF UK Baby Friendly Initiative (BFI) Education Standards to support breastfeeding in clinical practice.

Name of Participant:

Address:
.....
.....

Telephone number:

E mail address;

Identify if you are a: Three Year Programme Student
Shortened Programme Student
Mentor

Thank you once again.



**Baby Friendly Initiative
Education in Practice
Student Year 2
Three year programme**

Researcher: Helen McIntyre

ID Number

Dear Participant,

Thank you for participating in this study which is nearing its conclusion and the valuable contribution you have made to the data collection.

If you are able to participate, please complete this questionnaire and send it back in the stamped address envelope provided.

If there is insufficient writing space provided please use additional sheets.

Thank you for your time.

Helen McIntyre
Midwife Teacher,
University of Nottingham
Academic Division of Midwifery,
PGEC,
City Hospital Campus,
Hucknall Road,
Nottingham,
NG5 1PB.

1. Has the theoretical/skills teaching on infant feeding altered your knowledge, attitude and approach to breast and formula feeding?

Yes

No

Unsure

If so, how:

Knowledge

Attitude

Skills

2. Has your mentor helped you to achieve and develop your infant feeding competencies and skills?

Yes

No

Unsure

If so, how:

3. Has your facilitation in breastfeeding been different in the 2nd year of the programme?

Yes

No

Unsure

If so, how:

4. Please tick which **one** of the following you think now has the greatest impact on your midwifery practice in relation to breastfeeding.

- Age
- Ethnic/Cultural background
- Highest academic qualification
- Personal experience of breastfeeding
- University theoretical session
- Clinically observing/assisting women breastfeed
- Other – please

5. How confident do you feel your mentor is about working with students to facilitate learning in relation to the BFI Standards on infant feeding?

6. Please use the space below to make any comments

Thank you for completing the questionnaire
Please return the questionnaire in the envelope provided

REPLY SLIP:

Please complete the reply slip IF you are willing to be approached for an interview as part of this study and return with your questionnaire.

Full Title: An exploration of what factors influence student midwives' competence and confidence most when incorporating UNICEF UK Baby Friendly Initiative (BFI) Education Standards to support breastfeeding in clinical practice.

Name of Participant:

Address:
.....
.....

Telephone number:

E mail address;

Identify if you are a: Three Year Programme Student
Shortened Programme Student
Mentor

Thank you once again.



Baby Friendly Initiative Education in Practice

Student Final Questionnaire 3 year and Shortened Programmes

Researcher: Helen McIntyre

ID Number

Dear Participant,

Thank you for participating in this study which is nearing its conclusion and the valuable contribution you have made to the data collection.

If you are able to participate, please complete this questionnaire and send it back in the stamped address envelope provided.

Thank you for your time.

Helen McIntyre
Midwife Teacher,
University of Nottingham
Academic Division of Midwifery,
PGEC,
City Hospital Campus,
Hucknall Road,
Nottingham,
NG5 1PB.

1. Has the theoretical/skills teaching on infant feeding altered your knowledge, attitude and approach to breast and formula feeding?

Yes

No

Maybe

If so, how:

Knowledge

Attitude

Skills

2. Has your mentor helped you to achieve and develop your infant feeding competencies and skills ready for qualifying?

Yes

No

Maybe

If so, how:

3. How has your facilitation in breastfeeding been different in the final year of the programme?

4. Please tick which of the following you think now has the greatest impact on your personal practice in relation to breastfeeding.

- Age
- Ethnic/Cultural background
- Highest academic qualification
- Personal experience of breastfeeding
- Other – please

5. How confident do you feel your mentor is about working with students to facilitate learning in relation to the BFI Standards on infant feeding?

6. Please offer **your opinion** on the following vignettes from an article by Cloherty et al [2004] who explored the experiences of breastfeeding mothers.

a. "To be honest I didn't care if he had a formula because I was really tired, it was 5 am in the morning [p6]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

b. "I regretted him having the cup feeds, if I had done my homework better I wouldn't have let him have them. I panicked that he hadn't got enough milk from me [p7]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

c. " Midwives have a moral responsibility to ensure that the baby is positioned effectively at the breast and that the mother learns to do this for herself....When mothers give up breastfeedingand believe themselves to be failures, they must surely experience considerable damage to their self esteem. [p8]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

d. " Clarke [1995] suggests that it is the midwives who have failed the mothers and not the mothers who have failed....Effective positioning... and attachment... is the fundamental skill that should be focused upon rather than advising a short term 'solution' of supplementation [p8]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

e. "Barrowclough [1997] has drawn attention to the paradox that whilst midwives will expend much energy in encouraging women in the second stage of labour who feel exhausted to continue working towards a normal birth, they view their role with more ambivalence when encouraging women to continue breastfeeding. Midwives may be focusing on being 'with woman' in the short term, as opposed to their responsibility to promote breastfeeding and long term health [p10]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

7. Please use the space below to make any comments

Cloherly,M; Alexander,J & Holloway,I. [2004] Supplementing breast-fed babies in the UK to protect their mothers from tiredness or distress. *Midwifery*,Volume 20,Issue 2, pages 194-204

Thank you for completing the questionnaire

Please return the questionnaire in the envelope provided

Baby Friendly Initiative Education in Practice

Semi-structured Interview Schedule for Student Midwife -1

Introductions and purpose of the interview.

Clarify the participant consents to an audio tape recording.

Stem

How have you found the infant feeding teaching correlates to practice?

Prompts if required

Can you tell me more about that?

Does any event/scenario/situation stand out to you?

That's very interesting?

Where were you at the time?

How did that make you feel?

Would you do the same again?

Would you do anything differently?

Have any individuals been influential in your learning?

What has been particularly useful?

What has been unhelpful?

Was this a new topic area for you?

Where does your familiarity with the breastfeeding come from?

Would anything help you more to achieve your competencies?



Baby Friendly Initiative Education in Practice

Semi-structured Interview Schedule for Student Midwife- 2

Introductions and purpose of the interview.

Clarify the participant consents to an audio tape recording.

Stem

How has the infant feeding teaching changed in the last year?

How relevant is the infant feeding teaching to practice?

Prompts if required

Can you tell me more about that?

Does any event/scenario/situation stand out to you?

That's very interesting?

Where were you at the time?

Does the environment make any difference?

How did that make you feel?

Would you do the same again?

Would you do anything differently?

Have any individuals been influential in your learning?

What has been particularly useful?

What has been unhelpful?

Was this a new topic area for you?

Where does your familiarity with the breastfeeding come from?

Would anything help you more, to achieve your competencies?



Baby Friendly Initiative Education in Practice

Semi-structured Interview Schedule for Student Midwife- 3

Introductions and purpose of the interview.

Clarify the participant consents to an audio tape recording.

Stem

Do you consider that the infant feeding curriculum has prepared you for practice on qualifying?

Prompts if required

Can you tell me more about that?

Does any event/scenario/situation stand out to you?

That's very interesting?

Where were you at the time?

Does the environment make any difference?

How did that make you feel?

Would you do the same again?

Would you do anything differently?

Have any individuals been influential in your learning?

What has been particularly useful?

What has been unhelpful?

Was this a new topic area for you?

Where does your familiarity with the breastfeeding come from?

Would anything help you more, to achieve your competencies?





Baby Friendly Initiative Education in Practice

**Midwife Mentors 1
3 year and Shortened
Programme**

Researcher: Helen McIntyre

ID Number

Dear Participant,

Thank you for agreeing to take part in this study. As you know it is exploring the student's incorporation of BFI standards into practice and the interplay with their mentors to achieve their competencies and skills.

If you are able to participate, please complete this questionnaire and send it back in the stamped address envelope provided.

Thank you for your time.

Helen McIntyre
Midwife Teacher,
University of Nottingham
Academic Division of Midwifery,
PGCE,
City Hospital Campus,
Hucknall Road,
Nottingham,
NG5 1PB.

1. Before commencing your midwifery programme, what knowledge of infant feeding did you have?

2. If you had prior knowledge, how was this gained?

**If you have children please answer questions 3-6
If you do not have children, go directly to question 7**

3. If you have children, what infant feeding method did you use?

4. What age was your baby/ies when dietary changes were introduced and which were they?

5. Please describe what your infant feeding experience/s were like?

6. In what ways have you drawn on this experience during your midwifery career?

7. If you are not a mother what infant feeding method would you consider and why?

8. How often have you updated your knowledge and skills in relation to infant feeding since qualifying?

9. When was your last update?

10. Where was your last update?

11. What did the update consist of?

12. Has the theoretical/skills teaching on infant feeding altered your knowledge, attitude and approach to breast and formula feeding?

Yes

No

Unsure

If so, how:
Knowledge

Attitude

Skills

13. How well prepared do you feel students are to apply breastfeeding knowledge into practice?

- Excellently
- Well
- Satisfactorily
- Poorly

14. How do you help students achieve their infant feeding competencies and skills in the **first** year of the programme?

15. How do you feel about working with students to facilitate learning in relation to the BFI Standards on infant feeding?

16. Please state your age

17. Please state your ethnic origin

18. What is your highest qualification?.....

19. How long have you been qualified?.....

20. Please tick which of the following has had the greatest impact on your **personal** midwifery practice in relation to breastfeeding.

Your Age

Your Ethnic/Cultural background

Your Highest academic qualification

Your Length of midwifery qualification

Your Personal experience of breastfeeding

Other – please state

21. Please tick which of the following has had the greatest influence on your **mentorship** of students in relation to breastfeeding.

- Your Age
- Your Ethnic/Cultural background
- Your Highest academic qualification
- Your Length of midwifery qualification
- Your Personal experience of breastfeeding
- Other – please state

22. Please tick which area have you undertaken most of your midwifery practice?

- Labour ward
- Antenatal/Postnatal ward
- Antenatal clinic
- Parentcraft
- Community

23. Please use the space below to make any comments

Thank you for completing the questionnaire

Please return the questionnaire in the envelope provided

Please Turn Over

REPLY SLIP:

Please complete the reply slip IF you are willing to be approached for an interview as part of this study and return with your questionnaire.

Full Title: An exploration of what factors influence student midwives' competence and confidence most when incorporating UNICEF UK Baby Friendly Initiative (BFI) Education Standards to support breastfeeding in clinical practice.

Name of Participant:

Identify if you are a: Three Year Programme Student
Shortened Programme Student
Mentor

Thank you once again.



Baby Friendly Initiative Education in Practice

**Midwife Mentors 2
3 year Programme
Only**

Researcher: Helen McIntyre

ID Number

Dear Participant,

Thank you for agreeing to take part in this study. As you know it is exploring the student's incorporation of BFI standards into practice and the interplay with their mentors to achieve their competencies and skills.

If you are able to participate, please complete this questionnaire and send it back in the stamped address envelope provided.

Thank you for your time.

Helen McIntyre
Midwife Teacher,
University of Nottingham
Academic Division of Midwifery,
PGCE,
City Hospital Campus,
Hucknall Road,
Nottingham,
NG5 1PB.

**If you have already completed a
Midwife Mentor -1 Questionnaire**

Please only answer questions 14 and 15.

1. Before commencing your midwifery programme, what knowledge of infant feeding did you have?

2. If you had prior knowledge, how was this gained?

**If you have children please answer questions 3-6
If you do not have children, go directly to question 7**

3. If you have children, what infant feeding method did you use?

4. What age was your baby/ies when dietary changes were introduced and which were they?

5. Please describe what your infant feeding experience/s were like?

6. In what ways have you drawn on this experience during your midwifery career?

7. If you are not a mother what infant feeding method would you consider and why?

8. How often have you updated your knowledge and skills in relation to infant feeding since qualifying?

9. When was your last update?

10. Where was your last update?

11. What did the update consist of?

12. Has the theoretical/skills teaching on infant feeding altered your knowledge, attitude and approach to breast and formula feeding?

Yes

No

Unsure

If so, how:
Knowledge

Attitude

Skill

13. How well prepared to you feel students are to apply breastfeeding knowledge into practice?

- Excellently
- Well
- Satisfactorily
- Poorly

14. How do you help students achieve their infant feeding competencies and skills in the **second** year of the programme?

15. How does your facilitation in Year 2 differ from Year 1?

16. How do you feel about working with students to facilitate learning in relation to the BFI Standards on infant feeding?

17. Please state your age

18. Please state your ethnic origin

19. What is your highest qualification?.....

20. How long have you been qualified?.....

21. Please tick which of the following has had the greatest impact on your **personal** midwifery practice in relation to breastfeeding.

- Your Age
- Your Ethnic/Cultural background
- Your Highest academic qualification
- Your Length of midwifery qualification
- Your Personal experience of breastfeeding
- Other – please state

21. Please tick which of the following has had the greatest influence on your **mentorship** of students in relation to breastfeeding.

- Your Age
- Your Ethnic/Cultural background
- Your Highest academic qualification
- Your Length of midwifery qualification
- Your Personal experience of breastfeeding
- Other – please state

22. Please tick which area have you undertaken most of your midwifery practice?

Labour ward

Antenatal/Postnatal ward

Antenatal clinic

Parentcraft

Community

23. Please use the space below to make any comments

Thank you for completing the questionnaire

Please return the questionnaire in the envelope provided

Please Turn Over

REPLY SLIP:

Please complete the reply slip IF you are willing to be approached for an interview as part of this study and return with your questionnaire.

Full Title: An exploration of what factors influence student midwives' competence and confidence most when incorporating UNICEF UK Baby Friendly Initiative (BFI) Education Standards to support breastfeeding in clinical practice.

Name of Participant:

Identify if you are a: Three Year Programme Student
 Shortened Programme Student
 Mentor

Thank you once again.



Baby Friendly Initiative Education in Practice

**Midwife Mentors
Final Questionnaire
3 year and Shortened
Programme**

Researcher: Helen McIntyre

ID Number

Dear Participant,

Thank you for agreeing to take part in this study. As you know it is exploring the student's incorporation of BFI standards into practice and the interplay with their mentors to achieve their competencies and skills.

If you are able to participate, please complete this questionnaire and send it back in the stamped address envelope provided.

Thank you for your time.

Helen McIntyre
Midwife Teacher,
University of Nottingham
Academic Division of Midwifery,
PGCE,
City Hospital Campus,
Hucknall Road,
Nottingham,
NG5 1PB.

If you have already completed a

Midwife Mentor -1 Questionnaire

And /Or a

Midwife Mentor -2 Questionnaire

Please only answer questions 14, 15 and 23.

1. Before commencing your midwifery programme, what knowledge of infant feeding did you have?

2. If you had prior knowledge, how was this gained?

**If you have children please answer questions 3-6
If you do not have children, go directly to question 7**

3. If you have children, what infant feeding method did you use?

4. What age was your baby/ies when dietary changes were introduced and which were they?

5. Please describe what your infant feeding experience/s were like?

6. In what ways have you drawn on this experience during your midwifery career?

7. If you are not a mother what infant feeding method would you consider and why?

8. How often have you updated your knowledge and skills in relation to infant feeding since qualifying?

9. When was your last update?

10. Where was your last update?

11. What did the update consist of?

12. Has the theoretical/skills teaching on infant feeding altered your knowledge, attitude and approach to breast and formula feeding?

Yes

No

Unsure

If so, how:
Knowledge

Attitude

Skills

13. How well prepared do you feel students are to apply breastfeeding knowledge into practice?

- Excellently
- Well
- Satisfactorily
- Poorly

14. How do you help students achieve their infant feeding competencies and skills in the **final** year of the programme?

15. How does your facilitation in the **final** year of the programme differ to other years?

16. How do you feel about working with students to facilitate learning in relation to the BFI Standards on infant feeding?

17. Please state your age

18. Please state your ethnic origin

19. What is your highest qualification?.....

20. How long have you been qualified?.....

21. Please tick which of the following has had the greatest impact on your **personal** midwifery practice in relation to breastfeeding.

- Your Age
- Your Ethnic/Cultural background
- Your Highest academic qualification
- Your Length of midwifery qualification
- Your Personal experience of breastfeeding
- Other - please state

21. Please tick which of the following has had the greatest influence on your **mentorship** of students in relation to breastfeeding.

- Your Age
- Your Ethnic/Cultural background
- Your Highest academic qualification
- Your Length of midwifery qualification
- Your Personal experience of breastfeeding
- Other - please state

22. Please tick which area have you undertaken most of your midwifery practice?

Labour ward

Antenatal/Postnatal ward

Antenatal clinic

Parentcraft

Community

23. Please offer **your opinion** on the following vignettes from an article by Cloherty et al [2004] who explored the experiences of breastfeeding mothers.

a. "To be honest I didn't care if he had a formula because I was really tired, it was 5 am in the morning [p6]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

b. "I regretted him having the cup feeds, if I had done my homework better I wouldn't have let him have them. I panicked that he hadn't got enough milk from me [p7]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

c. " Midwives have a moral responsibility to ensure that the baby is positioned effectively at the breast and that the mother learns to do this for herself....When mothers give up breastfeedingand believe themselves to be failures, they must surely experience considerable damage to their self esteem. [p8]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

d. " Clarke [1995] suggests that it is the midwives who have failed the mothers and not the mothers who have failed....Effective positioning... and attachment... is the fundamental skill that should be focused upon rather than advising a short term 'solution' of supplementation [p8]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

e. "Barrowclough [1997] has drawn attention to the paradox that whilst midwives will expend much energy in encouraging women in the second stage of labour who feel exhausted to continue working towards a normal birth, they view their role with more ambivalence when encouraging women to continue breastfeeding. Midwives may be focusing on being 'with woman' in the short term, as opposed to their responsibility to promote breastfeeding and long term health [p10]"

Opinion.

How may your infant feeding education have had an impact on your opinion?

24. Please use the space below to make any comments

Thank you for completing the questionnaire

Please return the questionnaire in the envelope provided

Please Turn Over

REPLY SLIP:

Please complete the reply slip IF you are willing to be approached for an interview as part of this study and return with your questionnaire.

Full Title: An exploration of what factors influence student midwives' competence and confidence most when incorporating UNICEF UK Baby Friendly Initiative (BFI) Education Standards to support breastfeeding in clinical practice.

Name of Participant:

Identify if you are a: Three Year Programme Student
Shortened Programme Student
Mentor

Thank you once again.

Baby Friendly Initiative Education in Practice

Semi-structured Interview Schedule for Midwife Mentors -1

Introductions and purpose of the interview.
Clarify the participant consents to a tape recording.

Stem

What changes have you witnessed in infant feeding during your midwifery career?

How have you found the student's infant feeding teaching correlates to practice in Year 1?

Prompts

How have these changes occurred? [Personal experience or educational programmes]

Can you tell me more about that?

Have these changes in any way been mirrored by the students educational input?

How do you feel about that?

In what way may this help the students achieve their competencies?

May this have altered your role as a mentor? If so how?

Does any event/scenario/situation stand out to you?

That's very interesting?

Where were you at the time?

Does the environment make any difference?

Would you do the same again?

Would you do anything differently?



Baby Friendly Initiative Education in Practice

Semi-structured Interview Schedule for Midwife Mentors -2

Introductions and purpose of the interview.

Clarify the participant consents to an audio tape recording.

Stem

What changes have you witnessed in infant feeding during your:

- midwifery career
- in this last year?

How have you found the student's infant feeding teaching correlates to practice in Year 2?

Prompts

How have these changes occurred? [Personal experience or educational programmes]

Can you tell me more about that?

Have these changes in any way been mirrored by the students educational input?

How do you feel about that?

In what way may this help the students achieve their competencies?

May this have altered your role as a mentor? If so how?

Does any event/scenario/situation stand out to you?

That's very interesting?

Where were you at the time?

Does the environment make any difference?

Would you do the same again?

Would you do anything differently?



Baby Friendly Initiative Education in Practice

Semi-structured Interview Schedule for Midwife Mentors -3

Introductions and purpose of the interview.

Clarify the participant consents to an audio tape recording.

Stem

What changes have you witnessed in infant feeding during your:

- midwifery career
- in this last year?

How have you found the student's infant feeding teaching correlates to practice in Year 3?

Do you consider that the infant feeding curriculum has prepared your student for practice on qualifying?

Prompts

How have these changes occurred? [Personal experience or educational programmes]

Can you tell me more about that?

Have these changes in any way been mirrored by the students educational input?

How do you feel about that?

In what way may this help the students achieve their competencies?

May this have altered your role as a mentor? If so how?

Does any event/scenario/situation stand out to you?

That's very interesting?

Where were you at the time?

Does the environment make any difference?

Would you do the same again?

Would you do anything differently?

