

1 **Parental distress around supplementing breastfed**
2 **babies using nasogastric tubes on the postnatal ward:**
3 **a theme from an ethnographic study.**
4

5 **Abstract**

6 There is abundant evidence of the benefits of breastfeeding. In the UK,
7 supplementation in hospital has consistently been shown to be associated with
8 shortened duration of breastfeeding. This paper reports on one theme that
9 emerged from an ethnographic study that explored the expectations, beliefs and
10 experiences of mothers and health professionals concerning supplementation of
11 breastfed babies in an English maternity unit in 2002. It relates specifically to a
12 subset of the data, ten mothers whose babies received at least one
13 supplementary feed by nasogastric (NG) tube on the postnatal ward. Participant
14 observation was carried out on the postnatal ward on day and night shifts and at
15 weekends over nine months. Mothers, midwives, neonatal nurses, health care
16 assistants and senior paediatricians were interviewed. Categories and themes
17 were generated. The researchers' constructs of 'the essential method', when
18 the tube was the method needed for medical reasons, and 'the chosen method'
19 when other methods of oral feeding should have been possible, emerged. The
20 latter included time pressures and the avoidance of any form of oral activity that
21 might perhaps make return to the breast more difficult. The data concerning the
22 use of NG tubes for supplementation yielded the specific theme of parental
23 distress. In the absence of evidence that supplementation by NG tube on the
24 postnatal ward is associated with greater breastfeeding success than other
25 methods, its use to avoid any form of 'oral confusion' should be discontinued. Its
26 use primarily to save time should not be considered acceptable.

27
28 **Keywords:** breastfeeding, maternal confidence, feeding problems,
29 complementary feeding, postnatal, ethnography.
30

31 **Introduction**

32 The major health benefits of breastfeeding to both mother and infant are well
33 documented (Dermott *et al.* 2006, Gartner *et al.* 1997). If supplementary feeds

34 are required, the use of a variety of alternative feeding methods has been
35 widely discussed; these methods include cup, bottle, finger-feeding, syringe,
36 nasogastric and orogastric tubes and devices such as the supplemental nursing
37 system (Watson Genna 2008, Walker 2006). In the UK supplementation in
38 hospital has consistently been shown to be associated with shortened duration
39 of breastfeeding (Bolling *et al.* 2007, Hamlyn *et al.* 2002, Foster *et al.* 1997). It
40 has been suggested that 'nipple confusion' between breast and bottle feeding is
41 one of the factors that could have an adverse effect on the continuation of
42 successful breastfeeding (Neifert *et al.* 1995, Biancuzzo 1993), despite a
43 dearth of evidence to support this. Nevertheless, global recommendations are
44 that parents should be informed of the risks of using a bottle and teat and
45 offered an alternative method of feeding breastfed infants when supplements
46 are required (Vallenas & Savage 1998).

47

48 This paper reports on the findings of part of a larger ethnographic study which
49 was undertaken specifically to explore the expectations, beliefs and
50 experiences of mothers and health care professionals concerning
51 supplementation of breastfed babies as no previous study had reported on
52 these issues. One of the themes that emerged from the study related to the use
53 of NG tubes to supplement feeds in newborn babies on the postnatal ward, and
54 is the subject of this paper. More detail about the methods used and other
55 themes that emerged have been reported in detail elsewhere (Cloherty *et al.*
56 2004; Cloherty *et al.* 2005)

57

58 Nasogastric (NG) tubes are commonly used in the UK as a means of giving
59 supplementary feeds if a baby is unable to feed orally, or has significantly
60 increased metabolic requirements such as one who is premature or has
61 congenital heart disease (Page-Goertz & Riordan 2005). In early discussions
62 around the phenomenon of 'nipple confusion', Newman (1990) proposed the
63 use of an NG tube, even when other oral methods were feasible, to avoid breast
64 refusal and the subsequent problems that might ensue. Despite evidence
65 demonstrating that using an NG tube as opposed to a bottle to supplement
66 preterm babies during their transition to oral feeds on a newborn baby unit
67 significantly increases the probability of breastfeeding at discharge, 3 days, 3

68 months and 6 months, there appears no evidence to support its use for term
69 babies on the postnatal ward (Kliethermes *et al.* 1999). Indeed surprise has
70 been expressed that, given the lack of evidence concerning nipple confusion,
71 'caregivers sometimes even recommend passing a NG tube rather than give a
72 bottle' (Renfrew *et al.* 2000: page 44). Moreover, a recent systematic review
73 comparing cup feeding with other forms of supplemental enteral feeding for
74 newborn infants unable to fully breastfeed did not identify any studies that
75 included the use of NG tubes (Flint *et al.* 2007).

76

77 NG placement is believed to cause a substantial amount of discomfort and
78 distress to the baby (Wilson-Clay & Hoover 1999), and despite being a common
79 clinical procedure, can produce unexpected complications through
80 misplacement or perforation of the oesophagus, posterior pharynx, stomach or
81 duodenum (Niermeyer and Gross 1999). Whilst there appears a dearth of
82 evidence related to NG feeding in term infants, nasogastric feeding in low birth
83 weight infants has been associated with reduced minute ventilation and tidal
84 volume, poor suckling ability (Shiao *et al.* 1995; Hawdon *et al.* 2000) which may
85 delay the establishment of normal feeding patterns, nasal irritation (Sporik
86 1994), altered oral sensitivity (Doddrill *et al.* 2004) and gastroesophageal reflux
87 (Bazyk 1990; Peter *et al.* 2002).

88

89 **Methods**

90 **Research Design of the Wider Study**

91 As there was minimal evidence relating to interactions surrounding the
92 supplementation of breastfed babies, an ethnographic approach was chosen
93 as it provides an 'insider's view' within a specific cultural context (Roper &
94 Shapira 2000; Holloway & Wheeler 2002). The qualities of ethnography have
95 been demonstrated to be valuable in a previous research study relating to
96 breastfeeding, because of their importance in revealing concepts that cannot be
97 uncovered through other methods, such as questionnaires alone (Victoria *et al.*
98 1997). An enhanced understanding of routine practices used in relation to
99 supplementation of breastfeeding was sought, which included the use of naso
100 gastric tubes.

101

102

103 **Setting and Participants**

104 The study was undertaken on the postnatal ward and neonatal unit of a
105 maternity unit in the South West of England (UK) with an annual rate of 2500
106 births, and where a wide variety of approaches were used to give
107 supplementary feeds to breastfeeding babies. These included cup, bottle,
108 finger- feeding, syringe, nasogastric and orogastric tubes and the supplemental
109 nursing system. This paper reports on a subset of the data from the main study
110 relating to ten mothers whose babies received at least one supplementary feed
111 by NG tube on the postnatal ward; oro-gastric tubes were not used there. Seven
112 midwives, three neonatal nurses, three healthcare assistants, and three senior
113 paediatricians were interviewed.

114

115 **Ethical Issues**

116 A favourable opinion from the Local Research Ethics Committee was gained
117 and permission was granted by the midwifery managers and the directors of
118 obstetrics and paediatrics. Participants were informed that their participation
119 was voluntary, they were free to withdraw from the study at any time and their
120 identity would be protected, although some of their words might be quoted.
121 Mothers were assured that if they declined to take part their care would not be
122 affected in any way. Health professionals were informed that their professional
123 competence was not being judged and that their clinical decisions would be
124 respected.

125

126 Health professionals were provided with both written and verbal information and
127 written consent was obtained. All those approached to participate agreed.

128

129 Mothers whose baby's required supplementation were initially provided with a
130 written information leaflet about the study by the health professional caring for
131 them. If they were interested in taking part, they were subsequently seen
132 personally by the researcher who talked with them, leaving a consent form to be
133 collected later. One mother declined to take part.

134

135 The full interview tapes were only accessed by the research assistant and the
136 grant holders and were destroyed on completion of the study. To guarantee
137 anonymity pseudonyms were used and, specific grades of staff were not
138 identified.

139

140 **Observation**

141 The researcher was actively present as a 'participant observer' within the field,
142 (Dewalt & Dewalt, 2002). After an initial six week period of observation to
143 enable her to become immersed in the field the observation continued for seven
144 and a half months for periods during the day, night and weekends. The
145 researcher specifically noted communication between health professionals and
146 mothers, using a combination of formal interviewing and casual conversation.
147 The latter was particularly helpful in establishing good relationships. Field notes
148 were recorded of all observations.

149

150 As the researcher was not a health professional she was able to ask naïve
151 questions, allowing participants to enrich the data by explaining their thoughts
152 and feelings in detail. Additionally, because she was not a health professional,
153 role conflict did not occur and she was not expected to perform any health care
154 duties, which enabled her to withdraw easily when necessary to write up field
155 notes.

156

157 **Interviews**

158 Depending on the mother's choice, interviews were conducted on the postnatal
159 ward, in a private room or by the bedside with the curtains drawn around.
160 Sometimes interviews followed a period of observation when health
161 professionals' and mothers' interactions were observed prior to or during a
162 supplementary feed being given using an NG tube. To facilitate an open
163 discussion allowing the participant freedom to control the focus of the
164 conversation, the interview technique was interactive and unstructured.
165 Interviews with mothers were initiated by asking them to tell the researcher
166 about the experience of their baby being given an NG feed.

167

168 Interviews with health professionals were undertaken in a private room within
169 the hospital. A similar interactive, unstructured technique was employed, with
170 an opening question asking the health professional to tell the researcher about
171 their experiences and views of giving supplementary feeds to breastfed babies;
172 this included giving feeds by NG tubes.

173

174 **Data Analysis**

175 Where relevant the researcher contemplated potential meanings of the
176 emerging data during the time between observation and interview, thus allowing
177 questions to be asked about issues that remained unclear.

178

179 She then examined and re-examined the field-notes and interview transcripts,
180 until definite ideas emerged. Categorising and coding of ideas enabled related
181 concepts to be identified and grouped together to form themes. To ensure
182 credibility and trustworthiness of the research, a second member of the
183 research team reviewed the analysis of each transcript, and then finally a peer-
184 review of the data was undertaken (Lincoln & Guba 1985) by two midwives with
185 known specialist breastfeeding expertise from a different area of the UK.

186

187 **Results and discussion**

188 The mothers and health professionals were asked for their understanding of the
189 reason for the supplementation (further details of this and of the babies
190 concerned are given in appendix 1). Because of the focus of the study, access
191 to medical records had not been requested from the Ethics Committee and no
192 verification of the information provided was sought.

193

194 The researchers formed the tentative opinion that the babies could be divided
195 into those who were supplemented by NG tube because it had been decided
196 that for 'medical' reasons it was essential to use this method, and those who
197 could arguably have been supplemented using other methods of oral feeding
198 but the NG tube had been specifically chosen. Thus the researchers' constructs
199 of 'essential method' and 'chosen method' emerged. The existence of these two

200 'groups' was supported and further illuminated by the observation and interview
201 data.

202

203 In relation to its use as **the 'chosen method'** two sub-groups emerged. In the
204 first the NG tube was used, as previously alluded to by Renfrew *et al.* (2000), in
205 order to avoid any form of oral activity connected with supplementation that
206 might perhaps 'confuse' the baby and therefore possibly make a subsequent
207 return to breastfeeding more difficult.

208 *"The midwife suggested that I had two options and these were to use either the*
209 *syringe or the tube. She suggested that she [the baby] might get confused if we*
210 *used the syringe, and for this reason we chose the tube". (Mother 14)*

211

212 However, whilst use of a tube for this reason was advocated by Newman
213 (1990), there does not appear to have been any research to investigate its
214 effectiveness other than with preterm babies in the newborn baby unit
215 (Kliethermes *et al.* 1999). Indeed, no studies were included in a recent
216 systematic review evaluating cup feeding versus other forms of supplemental
217 enteral feeding in newborn babies (Flint *et al.* 2007). There even remains
218 debate as to whether the phenomenon of 'nipple confusion' actually exists
219 (Fisher & Inch 1996; Renfrew *et al.* 2000).

220

221 In the second sub-group, it appeared that issues relating to time pressures on
222 staff played at least some part in the decision. Indeed, several health care
223 professionals expressed the view that tubes were easy and less time
224 consuming than other methods of supplementation.

225 *"Personally I sometimes feel we over use tubes...Maybe tubes are being used*
226 *because it's quicker, where it may be better to sit down and either support the*
227 *mother's breastfeeding, which midwives do very well, but often there just isn't*
228 *time, or to try methods like cup feeding, syringe feeding". (Paediatrician 3)*

229

230 *"They're so easy, I love them for their easiness. I'm terrible, but you know, when*
231 *.... you know there's a baby that you're coming back to, you know that it's a *****
232 *feeder, you know you're going to have trouble with it, and you come in and the*

233 *person who was dealing with it before, and they're like 'Oh I put a tube down it'*
234 *and you're like 'Yes, thanks so much!' ” (Midwife 17)*

235

236 The following is an example of the use of an NG tube as **the 'essential**
237 **method' group:**

238 *“For preterm babies, who aren't very awake and get tired quickly what I'll do is*
239 *put a tube down because you want to try them as often as possible on the*
240 *breast, and that wears them out, and so does any other method of feeding*
241 *probably...and more often than not they need regular feeding, especially during*
242 *the first few days, so I'll put a tube down and supplement them that way, (a) to*
243 *save their energy and (b) to make sure they get the fluids they're supposed to*
244 *have”.* (Midwife 5)

245

246 Data from the mothers of the babies who had received supplementary tube
247 feeds contributed to the themes identified by the study as a whole, however a
248 specific theme, parental distress, emerged relating to this particular method of
249 supplementation. **Distress** was mentioned spontaneously by five of the ten
250 mothers interviewed and also by three of the health care professionals.

251

252 This distress occurred at the time that the tube was inserted:

253 *“It was traumatic when a student [midwife] was trying to fit a tube and there was*
254 *blood coming out of twin 1's nose. When they had to remove the tube again,*
255 *they asked me if I'd prefer if they took the twins away and I said yes, I couldn't*
256 *bear to watch it again to be honest”.* (Mother 9 of growth retarded twins)

257

258 *“They fitted it away, not in my sight, as I didn't want to watch it being done, they*
259 *described what they'd do, and I just didn't want to watch as I think I'd get quite*
260 *queasy”.* (Mother 11)

261

262 However distress also continued if the tube was left in place:

263 *“I'll be much happier once the tubes have been taken out. It's horrible having*
264 *these tubes in them. You know that it's doing them good but it's not nice to see*
265 *tubes down their noses...It is an invasive treatment, you don't want to see it”.*
266 (Mother 9)

267

268 The adverse effects of maternal distress on lactation are well documented with
269 evidence demonstrating that psychological distress can impair the milk ejection
270 reflex causing a reduction in the release of oxytocin (Dewey 2001, Ueda *et al.*
271 1994). With adequate support the mother's lactation usually returns to its
272 previous level. However, if a distressed woman on a postnatal ward is
273 attempting to breastfeed or to express her milk to initiate and maintain lactation,
274 the milk supply could at least temporarily be adversely affected. Whilst many
275 women are subject to transient low mood in the first few days post birth, this
276 study highlights the importance of providing information, reassurance and
277 support to breastfeeding women in order to prevent additional distress which
278 may subsequently have a detrimental effect on their mental health, wellbeing
279 and ability to breastfeed.

280

281 One baby born by elective caesarean section at term had an NG tube left in situ
282 to facilitate the giving of supplementary feeds whilst receiving phototherapy; the
283 baby weighed 4.56 Kg. The mother said:

284

285 *"You see, you don't know how much they're getting when you're*
286 *breastfeeding...I'll be offering him a bottle tonight, I want him to have a bottle...*
287 *I'd much prefer him to have the bottle now. I mean once you've seen your baby*
288 *wired up like that [meaning the nasogastric tube], you want to know exactly how*
289 *much milk he's having...". (Mother 5)*

290

291 Whilst it was true that there may well have been a variety of reasons for the
292 very considerable anxiety expressed by this mother who subsequently stopped
293 breastfeeding completely, the NG tube certainly seemed to have caused her
294 great distress and knocked her confidence in her ability to breastfeed. She had
295 breastfed her previous baby for seven months. The importance of maternal
296 confidence for breastfeeding success has been identified in several studies
297 (Blyth *et al.* 2002, Dykes & Williams 1999). Clearly an NG tube is a very
298 invasive form of delivering a feed. Another form of medicalised intervention with
299 breastfeeding, visual charting of weights by health visitors, has also been found
300 to have an adverse effect on breastfeeding success (Sachs *et al.* 2006).

301

302 For another mother the context of care appeared to influence her and her
303 partner's feelings about the NG tube.

304

305 *"I didn't mind over in the newborn unit, but we both found it quite stressful over*
306 *here because you don't expect it over here on the postnatal ward". (Mother 10)*

307

308 It seems likely that most staff would not have expected this increased anxiety
309 about the NG tube, as the transfer of a baby from the newborn baby unit (NBU)
310 to the postnatal ward is generally taken as an important positive milestone that
311 should reduce parental anxiety.

312

313 One paediatrician felt that the parents' feelings needed to be taken into account
314 more when the decision as to whether to pass an NG tube was being made.

315

316 *"We as health professionals who use tube feeding at the drop of the hat, it's no*
317 *big deal to put a tube down, though parents do see that as very invasive, very*
318 *artificial, and I think perhaps we make the mistake of neglecting those concerns,*
319 *because we do it so often, it's easy to put a tube down...Personally I sometimes*
320 *feel we overuse tubes". (Paediatrician 3)*

321

322 Given that the mothers may well have seen other methods of giving
323 supplementary feeds in use, it is perhaps surprising that none of them
324 expressed the view that an NG tube should not have been used. As with
325 another study exploring women's perceptions of care received in labour (Bluff &
326 Holloway 1994), they appeared to believe that the health care professionals
327 'knew best'.

328

329 Wilson-Clay & Hoover (1999) suggest that babies find tube feeding
330 uncomfortable and, given this, it is also surprising that no mother or health care
331 professional made reference to having observed any signs of this. It may be
332 however, that such distress arises only after a tube has been in place longer
333 than would be usual on the postnatal ward.

334

335 **Conclusion**

336 With a dearth of evidence, this work, despite the small sample size, has
337 particular importance in drawing attention to the distress that parents
338 experience when their babies are given supplementary feeds by NG tube on the
339 postnatal ward. In the remainder of this study, reported elsewhere (Cloherty *et*
340 *al.* 2004, Cloherty *et al.* 2005), no other method of supplementation was found
341 to cause the parents to express the same level of distress. It is an invasive
342 procedure which can result in unexpected complications. It is therefore
343 recommended that, in the absence of any evidence suggesting that the use of
344 NG tubes on postnatal wards is associated with better breastfeeding outcomes
345 than other methods of supplementation, their use, solely in order to avoid any
346 form of 'oral confusion', should be discontinued. Their use primarily to save time
347 should also not be considered acceptable.

348

349 **Key messages**

350

351 The insertion of and subsequent feeding of a newborn baby using a nasogastric
352 tube on the postnatal ward can cause distress and anxiety to parents.

353

354 If a nasogastric tube is necessary, women may need support to maintain
355 confidence in their ability to breastfeed. This may be especially important if the
356 tube is left in situ.

357

358 The use of nasogastric tubes, solely in order to avoid any form of 'oral
359 confusion', should be discontinued.

360

361 The use of nasogastric tubes primarily to save time should be considered
362 unacceptable.

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364

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366

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514 **Appendix 1 Babies Supplemented by Nasogastric Tube**

515

Reason given for supplementation*	Type of birth	Gestation at birth (weeks)	Birth weight (Kg)
'Essential Method' Group:			
Low BM- no energy	Normal	34	1.84
Low BM- jaundiced	Normal	37	4.5
Low BM	Normal	37	2.27
Preterm & growth retarded	Normal	36	1.84
No energy (twins)	Ventouse	36	2.64 & 2.38
Jaundiced & preterm	Normal	36	3.09
'Chosen Method' Group:			
Phototherapy	EI LSCS	Term	4.56
Growth retarded (twins)	Normal	38	2.3 & 2.18
Growth retarded	Emerg LSCS	38	1.93
Growth retarded	Normal	37	1.81

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517 *The words used are as collected in the field

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