



Preparation and support for infant feeding in pregnant women with diabetes in the West Midlands: Research Report

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**PREPARATION AND SUPPORT FOR INFANT FEEDING IN PREGNANT
WOMEN WITH DIABETES IN THE WEST MIDLANDS: RESEARCH REPORT**

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We hope the findings of the study will make some contribution to providing best care to women with diabetes and their babies.

LITERATURE REVIEW

Pregnancies complicated by type 1 and type 2 diabetes are associated with greatly increased risks of perinatal mortality, congenital anomalies, and neonatal morbidity, including trauma associated with difficult delivery and neonatal hypoglycaemia in the immediate post-delivery period (CEMACH 2005). The CEMACH (2005) evaluation of pregnancy outcomes and care in England, Wales and Northern Ireland for 3808 women with diabetes between 2002 and 2003 demonstrated high rates of preterm delivery (36%) and caesarean section (67%), with a high likelihood of separation of the baby from its mother due to admission of about 33% of babies to a neonatal unit.

The adverse delivery outcomes associated with diabetes constitute significant barriers to implementation of best practice for the early initiation of breastfeeding, such as skin-to-skin contact and feeding on demand (CEMACH 2005, 2007). In addition, the CEMACH (2005) data demonstrate a smaller proportion of diabetic women with the intention of breastfeeding compared with the general population of childbearing women. Conversely, the infants of diabetic mothers, at high risk of hypoglycaemia in the early neonatal period, need early and frequent feeding, optimally with breast milk (NICE 2008).

Successful initiation and establishment of breastfeeding is of critical importance for immediate and long-term health and well-being of mothers as well as babies (Dyson et al 2005). Its potential contribution to the health of the babies of diabetic mothers may be of special significance considering their poor perinatal outcomes (NICE 2008, CEMACH 2007). Strategies to improve breastfeeding rates for the babies of diabetic mothers, who are less likely to be breastfed, will make an additional contribution to strategies for long-term improvement of nutrition and reduction of obesity.

As well as the well-evidenced interventions to support breastfeeding advocated in the NICE clinical guidelines for diabetes in pregnancy (NICE 2008, 2008a), it has been suggested that antenatal expression of colostrum is an intervention that is worth further investigation (NICE 2008, Cox 2006, Clay 2005). While not advocated in published clinical guidelines, there is anecdotal evidence of midwives' interest in the practice and

desire for further information about the practice (personal communication with C. Mansell).

Given the high prevalence of diabetes in the pregnant population of the West Midlands (Shah, Brydon and Gardosi 2010), the development of high standards in this area of care is essential. Recommendations of the CEMACH (2007) national enquiry highlighted a number of key areas of practice with important consequences for establishing and supporting breastfeeding for the babies of diabetic mothers. An evaluation of the impact on local practice of the recommendations of CEMACH (2007) , Shah, Brydon and Gardosi (2010), and NICE clinical guidelines (2008) related to the care of diabetic women and infant feeding, will contribute to gauging the achievement of good practice as well as identifying those areas where further research and practice development is desirable. This study, by providing insight into current practice and experience, is perceived as the first phase of further research focused on practice development and/or testing of interventions to improve the outcomes of care (Campbell et al 2000).

BACKGROUND TO THE STUDY

This study was undertaken against the background of low breastfeeding rates among diabetic women in the West Midlands (Shah, Brydon and Gardosi 2010) in order to gain information from women and practitioners about current antenatal services for women with pre-existing diabetes (Type 1 and 2) and how women's choices, preparation and support for infant feeding are addressed by those giving women care in pregnancy. In particular, we wanted to consider to what extent national guidelines (NICE 2008, 2008a) are reflected in the practice undertaken in maternity units in the West Midlands and to identify gaps in the implementation of best practice. In addition, the study sought to explore midwives' knowledge of and perspectives on the possibility of antenatal expression of colostrum as a contribution to breastfeeding support and early neonatal care, and to explore diabetic women's experiences of advice, care and support offered by professionals regarding infant feeding. It was anticipated that the study might identify innovative and/or exemplary practices which might inform future practice development.

METHODOLOGY

Research question

This study proposed to answer the question: How do antenatal services for diabetic women in the West Midlands prepare and support women to breastfeed their babies?

Methods and procedures

The study involved the administration of three different questionnaires to each of three key groups:

1. Midwives and nurses with a designated responsibility for delivery of antenatal care to women with diabetes in pregnancy;
2. Midwives with a designated responsibility for coordination of local infant feeding policies and practices; and
3. Recently delivered women with pre-existing diabetes.

Data collection was undertaken using two different approaches. We sought the views and perspectives of midwives and nurses, by means of two different web-based survey questionnaires using SurveyMonkey© software, one for the use of specialist diabetes nurses and midwives (DPSMs), and one directed at infant feeding specialist midwives (IFSMs). Women's views and perspectives were accessed by the means of telephone interviews conducted after their return home with their babies.

Data analysis

The survey questionnaires provided quantitative and free text data which have been analysed descriptively.

Verbatim transcripts of the telephone interviews were prepared and imported into NVivo 8© software which was used primarily as a tool for organising and managing the data. After the data were coded, analysis was continued manually, which involved the researcher reading through the NVivo generated codes and re-reading transcripts to identify similarities in the women's accounts and emerging themes. Electronic and manual methods were combined to assist analysis as recommended by Welsh (2002)

and Bringer et al (2006). Themes were identified by reading through the codes and re-reading transcripts to identify similarities in the women's experiences and their reflections on these experiences. The process of thematic analysis was informed by guidance outlined by Attride-Stirling (2001) and Braun and Clarke (2006). Both the researchers independently coded identified themes before returning to the transcripts to ensure extracted data corresponded with the evolving themes. The researchers discussed their analysis before coming to agreement on the themes that are outlined in this report. The process of thematic analysis was informed by guidance outlined by Attride-Stirling (2001) and Braun and Clarke (2006).

Ethical approval

Ethical approval for the study was sought and gained from the Black Country Research Ethics Committee.

Recruitment

All consultant maternity Units in the West Midlands (14) were approached to participate in the study as Participant Identification Centres (PICs), sites through which the researchers could locate and recruit study participants. Initial contact was with the Trust Research and Development offices (R&D). Full agreement to participate was subsequently confirmed with Heads of Midwifery. Twelve trusts agreed to participate in the survey of staff, but one trust declined to identify women as respondents for the study, due to pressure on staff time.

Recruitment of staff

Heads of Midwifery were asked to identify eligible staff respondents at their Trust: midwives and nurses with a designated responsibility for delivery of antenatal care to pregnant women with diabetes and midwives with the designated responsibility for coordination of local infant feeding policies and practices. E-mail contact to invite participation of those eligible was undertaken either directly by researchers or by the head of midwifery or her delegate on behalf of the researchers.

Recruitment of women

Eligible women were those with Type 1 or Type 2 diabetes before their pregnancy, who had given birth and had experienced no serious adverse outcomes for themselves or their baby. Women were excluded if they had experienced serious maternal or neonatal morbidity, stillbirth or neonatal death or if they did not speak English.

Participating trusts were provided with posters to advertise the study in antenatal clinics and postnatal wards and they were asked to facilitate distribution of recruitment leaflets to eligible women during their postnatal stay.

The leaflet invited interested women to indicate their willingness to participate by completing a form, providing a contact telephone number and indicating a preferred time for contact to be made, not less than 2 weeks after their birth. Women returned this form to a member of postnatal staff who posted it back to the researchers. A woman's initial expression of interest to participate was confirmed in the first telephone call made to her by the researcher (RH), approximately 3 weeks after the birth. At this initial contact, the research aims and what the woman's participation would involve were reiterated. The participant's right to withdraw at any time was repeated and the woman was also asked to confirm her consent and her continued eligibility for the study. Women were contacted approximately one week later by telephone at the preferred time to conduct the interview. Consent was confirmed again at this time. Interviews lasted between 20 to 40 minutes and although the interview was structured, women were invited to elaborate on their answers.

Before agreeing to participate, all women were informed in writing and orally of the aims of the study and the content of the questions. They were informed that they were free to withdraw at any time and could decline to answer any questions. Women were asked for permission for the interview to be recorded and for anonymised direct quotations to be used in the research report. They were assured that the recording and transcripts would be kept securely and would be available only to the two researchers.

Selection of Participants

Fifteen diabetes specialist nurses or midwives (DSNMs), and fifteen infant feeding specialist midwives (IFSMs) were identified by participating trusts as potential participants.

All of these staff members were sent an invitation email which outlined the research and provided a link to the questionnaire. Potential participants were also sent an information form which explained details of the study and what participation would involve. Consent was confirmed when participants logged onto the questionnaire.

The questionnaire, composed of multiple choice questions and free text boxes for extended responses, focused on the following areas: the provision to women of antenatal information about infant feeding and the support available ante- and postnatally, respondents' views regarding this information and support and respondent's views of the benefits and challenges of breastfeeding.

Respondents

Diabetes specialists

Of the fifteen practitioners approached, twelve completed questionnaires, resulting in a response rate of 80%.

All but one of the respondents provided some information about their personal and professional background. Ten of the DSNMs were qualified nurses and had been qualified for between 13 and 32 years; the majority of respondents had been qualified for at least 20 years. Nine were also qualified midwives with between 12 and 30 years qualified status. Respondents had occupied their specialist diabetes posts for between 5 months and 12 years.

Infant feeding specialists

The link for the questionnaire was emailed to 15 potential participants, of whom eleven completed it, a response rate of 73%.

Nine of those responding provided some details of their experience. Respondents' years as a qualified midwife ranged from 9 to 34 years. Seven respondents were also

qualified as nurses and had been qualified since at least the 1980s. Apart from one respondent who had been in a post specifically related to infant feeding for 20 years, the respondents had been in the post from 3 months to 4 years.

Women

Nine women submitted forms expressing interest in the telephone interview, but only six were later contactable.

All the women interviewed were 30 years or over, three had previous children. All had intention in this pregnancy of breastfeeding, and all were delivered in this pregnancy by caesarean section.

| TABLE 1: Characteristics and infant feeding methods of women interviewed | | | | | | |
|---|------------|------------------------|-------------------------|-------------------------|--|--|
| Woman | Age | Previous births | Previous feeding | Mode of delivery | Feeding intention for this baby | Feeding method at interview (3-8 wks age) |
| 1 | 30 | - | | LSCS | Breast | Formula |
| 2 | 36 | - | | LSCS | Breast | Mixed: EBM + Formula |
| 3 | 32 | 2 | Formula x 2 | LSCS | Breast | Formula |
| 4 | 30 | 1 | Breast | LSCS | Breast | Formula |
| 5 | 39 | 2 | Mixed x 2 | LSCS | Breast | Exclusive BF |
| 6 | 34 | - | | LSCS | Breast | Mixed: EBM + Formula |

EBM= Expressed Breast Milk; BF = Breastfeeding

STUDY FINDINGS

This first part of this section will report the general findings based on survey questionnaires and interviews about the provision of infant feeding information and support to women with diabetes. The second part of the section will report the thematic analysis of the women's accounts.

Antenatal care for women with diabetes

All twelve DSNMs reported that they saw diabetic women on a regular basis during their pregnancy and that they used specified guidelines and standards for providing antenatal care of diabetic women. All made use of local Trust clinical guidance or protocol, ten also used NICE Clinical Guideline 63 (NICE 2008) and two practitioners also reported using West Midlands clinical guidance or protocols. One respondent also mentioned CEMACH reports.

Women's views of their antenatal care, in particular the diabetes element of it, were very positive. The antenatal appointments often took place at their local hospital starting at around 8-12 weeks in their pregnancy, with two women reporting that their antenatal care started before 8 weeks. One woman, however, reported difficulty in initiating early antenatal care, due to policy at her GP's practice.

I just spoke to the receptionist in the doctors' surgery and I sort of said, "I'm diabetic and...I need to have an appointment", and she went "no we don't take pregnant women until eight weeks". So I left it thinking, "oh, okay then"...

Participant 3

In some cases antenatal and diabetic care were combined, with women attending one integrated appointment, but other women described appointments with a diabetes specialist to monitor the diabetes aspect of their pregnancy and an additional appointment for antenatal care. The women regularly met with a diabetic specialist (usually the same one), a midwife and a doctor. Additionally they were provided with the contact details of their DSMN should they wish to contact them in between appointments.

*I went [to antenatal clinic] about every 2 to 3 weeks throughout my pregnancy ...and I met with a diabetic doctor or a nurse, yeah, at each visit... being able to see somebody every couple of weeks and kind of getting that reassurance that I was managing it the best that I could whether it was with diet or insulin was really good for me. **Participant 2***

*Whilst I was pregnant [care was] fantastic as ever. **Participant 3***

I would speak to ... our diabetes nurse on the phone. On the weeks that I wasn't at the hospital I would ring her at her office and speak to her and sort of get a check up on my sugar levels and stuff like that from her over the phone.

Participant 5

*The specialist diabetic nurse – yes I've only ever seen the one of those at our hospital, she is fantastic. **Participant 5***

Antenatal information about infant feeding: practitioner views

We asked both groups of practitioners what information about infant feeding would ordinarily be provided for women and in what form. Seven of the DSNMs reported that specific information about breastfeeding was provided to the diabetic women that they cared for and this took the form of leaflets, contact with peer support groups, DVDs and specific information in antenatal classes about feeding. Conversations between the woman and midwife or nurse were also identified by several respondents as a means of providing this information. Three specialists, however, reported that no specific information on breastfeeding was provided to women.

Specific information about artificial feeding was only reported to be given antenatally by one respondent, while eight of the DSNMs did not give any specific information about this. Two respondents indicated that leaflets about artificial feeding were available, but not specifically brought to the attention of women.

Both the DSNMs and IFSMs indicated that in their contact with women, infant feeding is discussed throughout the pregnancy. Some of the DSNMs indicated that they started this at the women's booking visit, while IFSMs started this discussion at specific

gestational stages usually at around 30 weeks, with some indicating that they did this at every opportunity or when the woman wishes to discuss it.

The majority of IFSMs said that no special arrangements were routinely made for them to discuss breastfeeding with women with diabetes during the antenatal period or the postnatal period. They might see women with diabetes antenatally because they'd been referred by community midwives or DSNMs. Two of the infant feeding specialists also reported that they visit the diabetes clinic to provide women with an opportunity to discuss breastfeeding during the antenatal period and that they visit the postnatal ward to offer advice and support.

| TABLE 2: Timing of discussion of breastfeeding by diabetes specialist | |
|--|---------------------------------------|
| Stage of pregnancy | Number reporting this practice (n=12) |
| At a women's booking visit or first contact with team | 5 |
| At a specific gestational stage (24, 28, 32, 36) weeks | 4 |
| Recurrently (at diagnosis of GDM, at 28, 36 weeks) | 2 |
| Other (e.g. AN classes, varies depending on time available, if mother initiates) | 4 |

However, half of the practitioners in both specialist groups felt that not enough information was provided to women for their decisions about method of infant feeding. Some clinicians felt they were restricted in the amount of time they could spend conveying this information in detail. Two of the DSNMs pointed out that infant feeding information can be neglected at times because the focus of pregnancy in women with diabetes is often the diabetes rather than the pregnancy.

I feel that more emphasis is placed on their diabetes. They are considered high risk and therefore sometimes things like infant feeding become less important for these women. **Diabetes Specialist**

Antenatal information about infant feeding: women's views

The interviews with the women suggested that information about infant feeding and discussion of their preferences may not be as effectively provided during antenatal care

as clinicians believe. Positive encouragement about breastfeeding from the antenatal care team was reported by only one participant.

*They were very, very pro breastfeeding early on which made me, because I bottle fed the other two, but with this one I was quite determined, because it was my third one that I was going to breastfeed her. So they did speak about breastfeeding early on which made me think about it more and influenced me to definitely have a go. That was early on in the pregnancy, then a bit later on, because I'd been under general, I'd been knocked out when I'd had the other two and been unconscious, I was worried about that and we went through the aspects of that. And they really, really made it easy to see how I could breastfeed this one, whereas I couldn't see with the other two how I could have done it. **Participant 3***

Other women, however, reported that nobody spoke to them in great detail about infant feeding during pregnancy.

*Only like towards the end when I mentioned [infant feeding] and that was with the obstetrician rather than the diabetic team. **Participant 6***

*No, not the antenatal, no it was never discussed at antenatal, it was always, it was the NCT group I joined...talked a lot about feeding and things like that, but antenatal, no, didn't cover it. **Participant 2***

*They always mentioned that they were going to talk about it later on in the pregnancy but they didn't really talk about it, and I spoke to the diabetic nurse about it and she said there wouldn't be a problem with me breastfeeding with me being diabetic. So we touched on it although we didn't go into it in great detail. **Participant 1***

Another woman who had other children, wondered if she was not given much information because staff assumed she would have received it with her previous pregnancies:

*I don't think anybody has spoken to me about feeding ...and I don't know whether that's because it's not my first baby, I don't know whether that makes a difference because obviously I've been through it all before so I don't whether people just assume, or whether its just not dealt with. I don't know. **Participant 5***

One woman reported that as this was her second pregnancy she had advised her antenatal team that she did not need the information again:

Nothing like major sort of information. They basically asked me what I wanted to do, and I told them that I wanted to breastfeed and that I should be okay with it because I breast fed the other one. You see because I'd had information previously and I more or less knew. Because he wasn't that much older, they gave me the leaflets, but ... they didn't elaborate that much on it because I asked them not to. Because it was information that I knew already at the time.

Participant 4

Some women also noted the absence of specific discussion of their diabetes and its implications for breastfeeding.

*...at no point did anyone mention about the diabetes and breastfeeding. That wasn't discussed, it wasn't brought up, it wasn't followed up, it wasn't mentioned. I really have very, very little, actually no knowledge about how breastfeeding would affect my diabetes at all. **Participant 2***

As we all know, that breastfeeding means you lose weight quicker and for me my diabetes is largely weight based, that when I'm lighter it's not as bad as it is when I'm bigger, so I was aware that that would really help if I could lose weight quicker. But nothing really about how it directly affected my diabetes.

Participant 3

Support for infant feeding in the postnatal period

Practitioners were asked if there was enough support for diabetic women in their decisions for infant feeding. DSNMs thought that most women got the support they needed, and those who wanted to breastfeed were supported in doing that. However, four of the IFSMs did not think the women got enough support, citing busy wards and

the numbers of women requiring support as a reason for this. Two IFSMs also suggested that where support is available it is not always accessed by women.

However, in their responses, clinicians acknowledged awareness of problems with feeding support postnatally.

*From general feedback not enough help is given to establish breastfeeding on the wards due to staffing levels. **Diabetes Specialist***

*Postnatal wards very busy and not always enough time to spend discussing the importance of expressing. **Diabetes Specialist***

*Not enough staff have the knowledge, expertise, confidence or feel strongly enough about breastfeeding to discuss it with diabetic women. **Infant feeding specialist***

Do women achieve their preferred method of feeding?

In spite of acknowledging the limitations of support available for women, most of the DSNMs (7/12) felt that women with diabetes were able to adopt the method of infant feeding that they preferred. One DSNM acknowledged that that concern for the baby's blood sugar levels being maintained can dominate care. Another commented that many women, once their baby has had formula feed, feel that this method is easier, but often regret the decision when they discuss it during their next pregnancy.

All the women interviewed for the study had intended to breastfeed. However, at the time of interview (approximately 3-8 weeks after birth) only one was exclusively breastfeeding. Three women were using formula to feed their baby and two of the women were using a combination of expressed breast milk and formula feeding.

Support for breastfeeding at birth: skin to skin contact

Women recounted that early feeding was generally achieved, although not always within the timeframe specified in NICE guidelines (NICE 2008). All the women had delivered by caesarean section, and so were generally not able to breastfeed within 30 minutes of giving birth. However, all but one of the women reported that as soon as they were out of surgery they were encouraged to breastfeed. All the mothers also experienced skin to

skin contact with their baby as soon as possible to facilitate the initiation of breastfeeding.

Yes ... as soon as I got back on the ward, ... I was encouraged to try to breastfeed and there was a healthcare assistant to try and assist me to do that.

Participant 1

Yeah, well when she was born they took her out to weigh her and do whatever, and they took me to the recovery room within an hour and she was put on me skin to skin contact, and then she was fed because they had to the tests on her for the sugar levels. **Participant 2**

Yes, I was still in recovery from theatre when I was feeding him, when she was putting him onto feed. **Participant 5**

Support during the postnatal period: women's views

Although most women did not receive information or advice about breastfeeding antenatally, more advice and support was offered on the postnatal ward. However, opinions about the effectiveness of this advice and support varied. Some women felt that they were very well supported on the postnatal ward and said they returned home with their baby feeling confident to continue with breastfeeding, whereas others felt that they were not given enough support and because of this felt less prepared when they went home. Two examples illustrate divergent experiences.

....I really felt like I needed someone to sit with me for about an hour, and really go through it with me and see the problems I was having or make suggestions or try different techniques, and then maybe say: "look, perhaps this isn't working out, but that's okay, let's look at something else". I don't know, I just, I just felt like I was abandoned time and time again when I was really trying and it wasn't working, and I just felt very,clueless really. And I just wanted somebody to sit with me for an hour and just kind of be with me, and help me really.

Participant 2

They were amazing. The midwives in the hospital after I had her, because I was in for three days because I had a caesarean, they were absolutely fantastic and they were on call night and day. I had the midwives and breastfeeding workers.

Participant 3

Women generally expressed positive views about the support they received whilst on the postnatal ward. They spoke positively about midwives who spent time with them to help them to breastfeed and who were sympathetic to new mothers, regardless of their success with breastfeeding.

There was two midwives that come to mind that were, that were understanding and empathetic with where I was coming from. Participant 2

Yeah [midwives] were fantastic, just showing me how to latch on and how much you should be feeding and showed that she was obviously a really contented baby, and sort of confidence. Breastfeeding is all about confidence, rather than technique and if it worked for me. Participant 3

They gave me, they helped me to make sure he was latching on properly and obviously when you've had a section, because you're not so mobile for the first 24 hours you do need that help. Participant 5

There was a really good nurse, I think she was the matron or the sister or whatever, and she encouraged me to express and to put [baby] to my breast.

Participant 6

In contrast, those who struggled with breastfeeding were particularly frustrated with midwives who appeared unsympathetic to their difficulties or who were unable to spend additional time to help them. The women also reported that they had to seek out support. One woman suggested that midwives should actively offer support so that less assertive women are not overlooked:

Yes I mean they're very helpful and they were good at helping me but you did need to sort of like call on the buzzer and sort of say "can someone help me here, he's not feeding, you know he's fallen asleep or you know, what do I do?"

*Wake him up, how do I do this how do I do that?" I didn't mind asking...[but] I know a lot of people don't like making a fuss do they when they're in hospital. So maybe somebody who was, who was less sort of confident about what they were doing would have missed out there because they might have needed a bit more support to be offered rather than needing to ask for it. **Participant 5***

Once you agree to breastfeed the support you get is fantastic, it is good, it is really good, there's a lot of people to help you, and especially during those few days in hospital. It must be hard for ladies who have babies naturally because they're not in hospital as long as I was. And I'm quite an old.... I'm thirty two, ... this is my third baby and I'm older than some of the other women that were in the hospital who had natural births and then were being sent out within twelve hours to breastfeed on their own. You know, and I'm a confident older woman who had three days of somebody helping me and still found it hard.

Participant 3

Women also noted the absence of specific information about artificial feeding. This was raised in the context of unsuccessful attempts at breastfeeding. They suggested that mothers should be supported regardless of their chosen method of infant feeding and that more help should be provided to women who choose artificial feeding instead:

*I have a bee in my bonnet permanently about the bottle feeding and as soon as you choose to bottle feed how you're slightly treated as a second rate citizen, and in hospital it's hard. I remember with my daughter, they give you a leaflet on how to make up bottle, formula milk and make it up properly so that the baby doesn't get ill. And on the back of the leaflet they gave you said that breast is best and if you're not breastfeeding you should try. **Participant 3***

*They didn't help at all, and she was struggling and screaming and all the rest of it, so I said to the midwife, you know, I need to put her on the bottle, and they kind of sort of, some of them sort of made out that if I did the bottle feeding with her ... I was going to be a bit of a failure as a mum. **Participant 2***

Other people have done this, but you're kind of made to feel that it's either one or the other and by not, by not continuing [breastfeeding] you kind of felt a failure. Participant 6

I think it's quite important not to be made to feel like you're some kind of bad person if you don't want to breastfeed or you can't breastfeed. And I know that's difficult because the health professionals have to support breastfeeding and I understand why, but some people can't do it or don't want to do it and are made to feel bad before they get started. Participant 5

Women reported that they did not find breastfeeding information in leaflets useful because they did not always have time to read it. They suggested that their preferred means of learning about breastfeeding was one to one advice and support, especially after the baby's birth:

It needs to be more verbal support as well rather than giving you leaflets and things to read. I came home from hospital after I had him with loads of leaflets about this, that and the other, and to be honest you don't have the time or the inclination really to be sitting down and reading things when you've got a new baby, and before you had the baby you're so knackered that you know, if you're still working as well you wouldn't necessarily sit down and read things, so I think, and it's more useful when people talk to you anyway. Reading something is not the same as actually talking to somebody about it and getting information and advice and suggestions. Participant 5

I'd recommend that the midwife kind of spent a bit of time with you, because they were very much come along "oh yeah let's try it this way" gave you about ten or fifteen minutes and then went, and then left you on your own. Participant 2

Antenatal collection of colostrum: Practitioners' views

Most practitioners had heard of the practice of collecting colostrum during late pregnancy and storing it for use in the early neonatal period (9/12 DPSMs and 7/11 IFSMs). Those who were familiar with the practice had either heard of it in a professional journal or from a colleague, for example their breastfeeding coordinator.

Eight of the DSNMs felt that antenatal expression of colostrum would be a feasible strategy for diabetic women who planned to breastfeed. In elaborating on their answers they suggested:

- it would help to reduce diabetes in the mother and baby
- that it might reduce the amount of formula given to newborns
- It might help some mothers who undergo a caesarean section and do not always feel like feeding immediately afterwards.

One respondent identified organisational and procedural issues she thought needed to be addressed to implement this practice.

I feel that there should be clear national guidelines regarding timing of expression, equipment, safe storage at home of colostrum. Transportation to hospital of colostrum and correct labelling and storage once in hospital. Storage times in fridge and freezer. **Diabetes Specialist**

Seven of the eleven IFSMs had heard of antenatal colostrum collection, either from colleagues or a journal article, although four did not answer this question. One respondent had experience of this practice for a number of years, initially introducing it because of information from a study day attended by a colleague. The practice was felt to be a feasible strategy for diabetic women planning to breastfeed by five of those with knowledge of it. Comments from the infant feeding specialists highlighted a range of views on this practice.

But [I] worry about premature labour and from experience colostrum is notoriously hard to store in small amounts. Also if mum doesn't produce colostrum at this stage, does it send out a negative message? **Infant feeding specialist**

The practitioner with experience of implementing the practice acknowledged that:

Initially [collecting and storing colostrum] took a lot of time to set up and [to] change attitudes of staff. **Infant feeding specialist**

Antenatal collection of colostrum: Women's views

Women were also asked about colostrum collection and storage to use for the baby's early feeding needs. Three had not heard of the practice, but three had heard of it. One woman did attempt it, but without success. Another woman had heard about this practice through her own research, but when she asked her antenatal care team if she could do it, they advised she did not need to.

*I just said "oh I want to breastfeed" and they said "yeah that, you know that shouldn't be any problem" and I said you know "do I need to speak to someone about expressing beforehand" and they said "oh no, no, you just erm, you know" and there wasn't any sort of any firm conversation "yeah you'd be able to do that" kind of thing. **Participant 6***

This participant later said that in future pregnancies she would insist that she was advised on how to collect and store colostrum:

*I think you know, in the diabetic magazines I've read, other mums certainly have expressed before they've given birth and if I do go on to have another child I think I would be more insistent that I have the opportunity to do that. If nothing else to give me a backup and a breather and to give me the confidence that I'm producing the milk that I need. **Participant 6***

All the women, whether they had previously heard about it or not, said that they would have liked to have attempted colostrum collection.

*Yeah that would have been helpful, yeah, it probably would have encouraged him a little bit more with breastfeeding. **Participant 1***

*Yeah, absolutely I would have been really up for that if I'd known. I hadn't got a clue, nobody told me about that at all. **Participant 2***

*It would have been quite useful to have a bit of a back up before you get started. **Participant 5***

The woman who did attempt to collect colostrum a week before she gave birth was not successful. However, after her baby was born and the midwife demonstrated how to express breast milk she suspected that her difficulties with it may have been due to her not doing it properly.

But in hospital afterwards, because we expressed some by hand, some of the colostrum and gave that to her, that ... I think I probably could have done it, I just wasn't being either hard enough, or really know what I was looking for, you know? **Participant 3**

Thematic analysis of women's accounts

The experiences of the women were varied and influenced by a number of factors, including the care they received, their expectations, previous experiences of infant feeding and self-confidence. A number of themes reoccurred in the women's accounts which offer insight into their common experiences.

All of the women we spoke with told us that they intended to breastfeed. However, they all found this difficult, especially in the first few days after the birth. Their difficulties were compounded by feelings of physical vulnerability, perceived pressure to persist with breastfeeding and at times a lack of consistent advice. Women's accounts also reflected at times a failure by midwives and others to acknowledge specific concerns about themselves and/or their baby because of their diabetes. Five of the six women with whom we spoke abandoned exclusive breastfeeding within the first few weeks and their accounts reflect a sense of desperation in arriving at this decision and a degree of guilt in not having achieved their intentions.

The challenges of breastfeeding

I struggled with breastfeeding the baby so I'm not actually breastfeeding him now. It didn't work at all for me. But the midwives in the hospital were very helpful with trying to facilitate breastfeeding, but it just didn't happen.

Participant 1

... it was very distressing for me in the first few days because I assumed in my naivety that ...breastfeeding would be very easy and very natural, well I know it's a natural thing, but that it would be very easy to do. And it wasn't, it wasn't at all.

Participant 2

Some women recalled feeling fragile and vulnerable after their baby's birth. The women's accounts, especially those of first time mothers, indicated that they found the experience of having a caesarean, looking after a new baby and breastfeeding very overwhelming.

But with it being a caesarean it was a bit difficult getting onto the breast as well at first because it took me a day before I could start it. But for the three or four days that I was in hospital I did give her my breast milk.... I was quite ill as well the first night, so on the first night I gave her breast milk during the day but not during the night. ... And then the next day there was the breastfeeding after that.

Participant 4

You're all shaking and you don't know why you're shaking and it's all a bit scary and it's all a bit – blood pressure is going up and down or whatever, yeah it can be a little bit daunting really. **Participant 5**

Just coping with that roller-coaster as a new mum is hard enough. **Participant 6**

One woman recounted the effect of conflicting advice offered by midwives:

...sometimes one person would go "oh no, you're not, you don't do it like that, or you don't do this or that or the other". And then the next person would go "well why haven't you done it like I told you" and you were just a bit in limbo, you don't really know what was the right path, which is the right decision and which person you should follow their advice. Because obviously they're professionals, you want to listen to what they're saying. **Participant 1**

She recounted a particular incident:

*... at one point ... myself and my husband were given some formula milk to feed the baby with and ... we just let him drink as much as he wanted to drink ... later on we got told off by the midwife because we should have only given him a 10ml top up, and obviously he drank about 30ml, so then he didn't want to try and breastfeed. But nobody told us ... and obviously once somebody said to us "no you shouldn't do that, you should only give him like a 10ml top up, just to fill his tummy a little bit" then we realised. But ... sometimes I felt a little bit like people were saying different things to us in that respect. **Participant 1***

Women with other children mentioned the conflicting demands upon them as an additional challenge:

*it was just it was getting to the point after ten days of no sleep day and night, I was like, I can't just keep going. And I've got two other children that I need to get to school and sort out. **Participant 3***

Pressures to succeed

A number of the women commented on feeling strong pressure to succeed at breastfeeding from a number of sources: information literature, midwives on the postnatal ward, lay support groups, family and the woman herself. Some women interpreted the emphasis on avoiding bottle feeding as a pressure to persevere and they felt judged when they decided not to continue with breastfeeding.

*... as soon as you choose to bottle feed ... you're slightly treated as a second rate citizen, and in hospital it's hard. I remember with my daughter [her previous pregnancy], they give you a leaflet on how to make up bottle, formula milk and make it up properly so that the baby doesn't get ill. And on the back of the leaflet they gave you said that breast is best and if you're not breastfeeding you should try. ... there's a lot of pressure, and it's hard because when you've just had a baby you're feeling a bit emotional and vulnerable anyway. **Participant 3***

And they said “well no, don’t put her on the bottle, otherwise you’ll never get the hang of it” and it was kind of like I was caught between the devil and the deep blue sea. I’m damned if I do and I’m damned if I don’t. Participant 2

Somebody rang me from the NCT, and even when I said, you know, ‘I’m doing it this way’, she was still pressurising me to keep trying with the breastfeeding. And it was just like, ‘oh for God’s sake, just back off! Please I’ve had enough of it, I’ve had so much help and advice and everyone telling me how I should do this, and how I should do that, and all the rest of it, and making me feel guilty and all the rest of it.’ Participant 2

The NCT classes ...were very pro-breastfeeding and they were saying there’s no reason why any baby can’t breastfeed and you know it’s kind of like the mother’s fault if you’re not doing it correctly and they really placed the emphasis on breastfeeding – that was the best. Participant 6

Many relatives that’ll come they’re like “breastfeed her”. I haven’t got the support here for me – yeah you all come and visit once in a while, and you see she’s alright at the moment but you’re not here when I have to look after both of them on my own. Participant 4

An additional feature of women’s determination to succeed is reflected in the two women who continued to express breast milk at home, either manually or with a breast pump, for several weeks. Women’s comments highlight that the ‘status’ of the practice is poorly defined for women --- does it constitute breastfeeding or not? It is also clear that it represents significant additional effort for women, adding to the demands of the early postnatal period. It is striking that for women who continued to express milk after their return home, expressing breast milk was perceived as an alternative feeding method rather than an adjunct to breastfeeding --- i.e. a way to collect milk to be used at times when the mother is unavailable.

One woman felt that more acknowledgement should be given to expressed breast milk:

... like I say I never breastfed him so as far as I was concerned I felt like I didn’t, hadn’t breastfed him and in actual fact I had breastfed him I’d just expressed and fed him, that was the vehicle of getting the breast milk to him that was just

different. But ... if anybody asked me "oh are you breastfeeding" I'd go "no, no, I'm expressing and feeding him in a bottle". It would have been nice if at some point somebody said "actually you are breastfeeding him". Because I was to all intents and purposes looking back. Participant 6

Another woman recounted her decision because of continued difficulty in getting the baby to latch on:

And then I made a decision that I was just going to stop kidding myself and trying to make it work when it wasn't working. And that's when I got the machine, the electric expressing machine and decided that I was going to do mixed feeds, and since then it's been great. But I think I had to arrive at a decision for my own piece of mind and stop being on a guilt trip. ... because I was determined that she was going to get my milk one way or another! If it wasn't going to be direct from me, it was going to be ... another way ... it's so important for her to get my milk so ...that's why, when it didn't quite work out in those few days in hospital... you know and I came home and I bought the machine and I did it that way...

Participant 2

you know you spend ... quite a long time feeding your baby and then expressing it. ...even now I feel a bit guilty because I'm only expressing like twice a day if that, because you know it is hard, you know. [Baby] waking up a lot more now so I feed him and then I want to express but he just wants to be held... I've been hand expressing, so I can't hold [Baby] and hand express at the same time. And then my partner comes home and says "well what have you done? Have you been you know playing with [baby] and stuff" and you're like, do I play with him? Do I hold him? Do I express? Do I wash his clothes? Participant 6

The special needs of women with diabetes

Closely linked to women's perceptions of the pressures related to breastfeeding was women's sense that their own knowledge, concerns and special needs as women with diabetes were not sufficiently acknowledged or addressed. They also felt that special concerns about their babies receiving adequate nutrition were not fully appreciated during the postnatal period.

Aspects of antenatal arrangements occasionally fell short of women's expectations.

*Well I think I just spoke to the receptionist in the doctors' surgery and I sort of said, I'm diabetic...I need to have an appointment, and she went "no we don't take pregnant women until eight weeks". So I left it thinking, "oh, okay then", and then got into trouble with the midwife when I rang back! **Participant 3***

Well I started [antenatal care] myself...because I knew I would need to see the diabetic consultant. So I had my booking in appointment at 7 weeks. I knew the sooner I saw the midwife the sooner I would be able to get referred to ... my consultant diabetic doctor, and then I could get onto the process of being looked after by them...

*...before I got pregnant it was me who had to go to the doctors and ask for a higher dose of folic acid. A lot of ... medical people don't seem to know about that. That you need to be on a higher dose of folic acid which surprised me. ... I went to the doctors at the start of last year when we started trying for the baby and said I wanted to have the folic acid and the doctor I spoke to at the time...wasn't really aware of that, looked it up, and was happy to prescribe it of course but wasn't really aware that you needed a higher dose, and neither was my local community midwife.... maybe that's the information they should be given when they've had a baby to say if you want to have another baby you will need a higher dose . **Participant 5***

Women reported a similar lack of confidence in caregivers' awareness of special aspects of their postnatal care:

*I don't think they fully understood the reasons why she had to go on the bottle as soon as she did. Because they kept saying "well it was your fault you put her on the bottle, oh that was your mistake, as soon as you put her on the bottle that's it you're doomed, she'll never go on the breast now". And I kept having to explain myself to different midwives again and again, saying well the reason I did that was because she had to get her sugar levels checked because I'm diabetic and it was very much well "no you still did it wrong" you know. **Participant 2***

I felt a little bit like I was trying to tell them, I felt there was something wrong [with the baby] quite early on, but nobody believed me. I think they assumed that all

women who breastfeed have problems, you know, it's never plain sailing, but I thought by baby number three I kept saying, 'do you know what, this doesn't feel right, this is not a happy baby'. **Participant 3**

One woman dismayed by what she perceived as a lack of appreciation of her diabetic treatment requirements postnatally:

.... when I was on the maternity ward after I had (baby) ... I was told off by one of the midwives for using my own medicine...she said "you should only take medicine that is prescribed in the hospital" well whilst I understand I would have liked to have known where they would have found my insulin in the hospital in the middle of the night to prescribe it to me ... it just really annoyed me that I just felt that the maternity weren't warned, weren't geared up to mothers that were diabetic... I'm going to be diabetic even after I've been pregnant you know, and ... it just didn't seem to register. **Participant 6**

She went on to describe her distress at feeling inadequately prepared and supported in the immediate postnatal period.

I ate quite a lot when she brought some snacks for me and I checked my sugar half, an hour and a half later and it was still really low and still needed more food. Now that's not like me...[but] you just don't know how you're going to be because it's not a situation you've been in. ... having gone through a ...massive operation and then your baby being rushed to neonatal so you're worried as well. In those situations you're never going to know how your body is going to react, much less your insulin, and the last thing I wanted to do was...having a hypo and getting myself into ... a situation that I couldn't control because it was the middle of the night and nobody would you know, nobody would know, if you see what I mean?
Participant 6

Desperation, relief and guilt

A prominent feature of the women's accounts was the sense of desperation associated with unsuccessful efforts to establish breastfeeding, the experience of relief experienced when the move to artificial feeding was made as well as the regret associated with this decision.

*I've got to feed my baby, but at the same time she won't latch on, so what options do I have? But they [staff] ... some of them made me feel very inadequate by asking for a bottle. It was like "oh, so you're going to go for the bottle are you?" You know "you're not going to take our advice" and "you do know the more bottles you give her, the less chance you'll have of succeeding with her on the breast" and I said, yes I know that, but she hasn't fed for nearly six hours, what am I supposed to do? You know, and they were like "well just be patient, keep trying, when she's hungry, she'll feed" and I said, well she's not, she's not feeding and she could lose weight. **Participant 2***

*I was up all day and all night with a screaming baby for ten days. And the breastfeeding advice people rang up and were saying "are you all right?" and I was in tears and I said I don't know what to do because she screams, screams, screams..... it was the biggest relief I've ever heard, she said "you need to either give her some bottle feed as well as your breast milk or you need to be expressing it and giving it to her in a bottle". Well I'd been expressing it for two days to try and see how much there was anyway. ... so I then gave her a bottle of formula milk and for the first time in ten days she actually fell asleep, and it was like the clouds parted and sunshine came through the clouds! **Participant 3***

*I mean latching, (baby) wouldn't suck at all and as soon as he went on the bottle he was so much happier and so much more contented even now, as soon as he gets his bottle he's so happy, and just to see that rather me putting him to my breast and him just crying and pushing me away all the time. **Participant 6***

But alongside the sense of relief, women also expressed guilt associated with the decision.

When I made a decision to put him on the bottle ... I was just in tears all the time, and it's like nobody else can make that decision – it is actually on your shoulders.

Participant 6

*Sometimes I do feel ... a bit regretful about it, and I think I should have tried for longer but it was more difficult this time. **Participant 4***

DISCUSSION

The findings of this study offer access to perspectives of diabetic women and practitioners involved in their antenatal care regarding how this group of women is prepared and supported to feed her newborn baby. Insights emerging from these perspectives suggest recommendations for ways in which effective infant feeding support can be improved and more satisfactory outcomes achieved for diabetic mothers and their babies. This section summarises our findings with reference to other relevant studies.

Antenatal care

Lavender, Platt, Tsekiri et al (2010) found in their study of the experience of women with pre-gestational diabetes that women's antenatal appointments tended to focus on diabetes management rather than their pregnancies and the authors referred to this as 'pregnancy overshadowed by diabetes'. The accounts from women and practitioners in this study suggest a similar situation: excellent and well-coordinated antenatal care but gaps regarding preparing women for changes in the postnatal period and their infant feeding experience.

The DSNMs reported seeing diabetic women on a regular basis throughout the antenatal period and women expressed very positive views of the quality of the care they received, commenting on experiencing continuity of care from the same multidisciplinary team throughout. Several women, however, seemed to have attended different clinics, one for the management of their diabetes and one for their antenatal care which risks discontinuity in care and demands additional time from women.

All the DPSMs made use of NICE Clinical Guidelines CG63 (NICE 2008) in delivering care but some important recommendations were absent in women's accounts of their care. For example, NICE clinical guideline 63 emphasises that insulin dependent diabetic women should be made aware, at about 36 weeks of pregnancy, of the "increased risk of hypoglycaemia in the postnatal period" (NICE 2008:17), particularly relevant for those who choose to breastfeed. Women did not report having had this discussion and at least one woman went on to experience glycaemic instability postnatally which she had not anticipated and did not feel was well responded to by those caring for her.

The women we spoke with generally did not have the opportunity to hear about breastfeeding or discuss their plans for infant feeding during the antenatal period, although providing information about breastfeeding is recommended in NICE guidelines for antenatal care and diabetes care (NICE 2008, 2008a) and is perceived by practitioners to take place. One woman in this study, having her third baby, highlighted how important encouragement received for breastfeeding during antenatal appointments was, reflected that the confidence instilled in her during antenatal care was a key factor for her successfully breastfeeding for the first time. However, most of the women noted that, whilst their diabetes was well addressed during antenatal appointments, breastfeeding was generally not. The topic was either not addressed at all or not addressed in detail. Women also commented on the sharp contrast between their antenatal care, with its focus on their diabetic condition, with postnatal care, which for some failed to acknowledge any special needs related to their diabetes or the implications of that for the baby.

Antenatal collection of colostrum

The favourable response of women to the idea of antenatal expression of colostrum (Cox 2006, Clay 2005) is an interesting finding, especially as some of the women were hearing about it for the first time in the interview. Women expressed interest in the value of stored colostrum as a back up to early establishment of breastfeeding and this suggests that they perceive a potential value in reducing their anxiety about the risks to the baby of delayed breastfeeding. However, only one woman had been given the opportunity to try it, but was unsuccessful. One woman wanted to try it but her suggestion was dismissed as unnecessary.

Study findings suggest that there is not yet universal awareness of this practice among practitioners and practitioners suggest that an important element of introducing this approach is careful preparation of practitioners about the timing of expression, guidelines for storage and transport and preparation of women to undertake it. Likewise, women themselves would need to be taught the technique of expressing and prepared for the possibility of small collected amounts. The lack of evidence for the benefits and risks of the practice, as highlighted in NICE (2008) must also be acknowledged.

Postnatal care

This section considers the aspects of postnatal care that were commented on by practitioners and women including availability and quality of support, women's concerns and confidence about diabetes management and the implications of their infant feeding decisions.

Early feeding and skin-to-skin contact

All the women we spoke with reported having had the opportunity to put their babies to the breast at soon after birth. In addition, skin-to-skin contact was facilitated and supported, as recommended in NICE guidelines (2008). This is a strong and convincing demonstration of the effective embedding of these practices into routine care, including in the care of women delivered by Caesarean section.

Ongoing support for feeding

Limitations were, however, identified by both practitioners and women regarding ongoing support. This is important in the light of research which highlights the importance of support from midwives for breastfeeding during women's postnatal stay. Bick, MacArthur and Lancashire (1998) reported that one third of women in their study who stopped breastfeeding within three months had decided this within the first week after birth, with some of these women still being on the postnatal ward when they made this decision, while Bailey et al (2004) demonstrated that decisions to stop breastfeeding were made within the first few days after birth.

In this study, although most DSNMs felt that most women were able to feed according to their preference, there was recognition by both DPSMs and IFSMs that support for establishing feeding was variable and that women did not always receive sufficient ongoing support, because of pressures on staff and lack of time.

Women's comments on their need for ongoing postnatal support for establishing breastfeeding and whether they received it were varied. All women found breastfeeding difficult and several of the women referred to the additional impact of caesarean delivery. Some respondents would have liked staff members to spend more time with

them, and they preferred practical, face-to-face advice rather than information leaflets. This finding has also emerged elsewhere. For example, Graffy and Taylor (2005) found that practical support, like help with positioning the baby was appreciated by women.

Several women in the current study reported having experienced strong, consistent encouragement and support in learning how to help their babies latch on and how to recognise effective feeding. Others, however, expressed frustration with midwives who appeared unsympathetic to their difficulties or were unable to spend additional time to help them. Some women explained that they had to actively seek help from midwives and they worried that young, first time mothers might be less likely to do this. Shakespeare et al (2004) found that despite some women having positive experiences with the care received on the postnatal ward, others reported that the healthcare professionals were unsupportive, “bossy” and provided contradictory advice. Similar issues emerged from accounts in this study as discussed earlier.

Women also identified limitations about other aspects of postnatal care, in particular a perception that those looking after them were insufficiently aware of their special postnatal needs. This also echoes findings from previous studies. Soltani, Dickinson, Kalk and Payne (2008) also reported that diabetic women recalled being closely monitored during their antenatal care but were disappointed not to receive the same level of monitoring after the birth.

Giving up breastfeeding

Particular concern was expressed by women about feeling judged when they decided, however reluctantly, to provide artificial feeding for their babies when breastfeeding was not working. Sometimes the decision was made because of anxiety about the baby’s risk of hypoglycaemia. The interviews suggested that midwives caring for diabetic women postnatally were not always alert to or responsive to this concern. Observations by Hoddinott and Pill (2000) may be relevant in this context. They point out that women and healthcare professionals often have different goals, giving rise to difficulties in communication and contributing to women’s dissatisfaction with their care. Whereas the goal of healthcare professionals is to ensure that breastfeeding is initiated and continued, the goal of mothers is to ensure the immediate well-being of their baby.

Our interviews suggest that women with diabetes feel vulnerable due to the emotional and physical impact of caesarean section, their anxiety concerning their baby's blood sugar levels and the management of their diabetes. Breastfeeding presents a further challenge. The decision to stop breastfeeding was associated with feelings of guilt and distress. Two women continued the effort of expressing breast milk to combine with formula feeding as a substitute for breastfeeding. A sense of guilt when breastfeeding fails is a common finding. The studies of Shakespeare et al. (2004), Hoddinott and Pill (2000) and Hauck and Irurita (2002, 2003) all identify guilt as a factor for women with breastfeeding difficulties. It is unfortunate, although not exceptional, that the women in our sample, with high motivation to breastfeed, were not more successful in achieving this.

Conclusions

The findings of the study suggest that women did not feel well enough prepared for infant feeding nor well-informed about how their glucose control might be affected in the postnatal period and by breastfeeding. Women's accounts suggest that, because of their particular needs, they would have benefited from a dedicated antenatal consultation with a focus on their plans for feeding and their diabetes management after delivery. Similar suggestions are made in NICE (2008) and Shah, Brydon and Gardosi (2010).

Early breastfeeding and skin-to-skin contact was facilitated for most of the women with whom we spoke and women appreciated those practices. However, not all women experienced effective ongoing support. Difficulties with breastfeeding were exacerbated by women's anxiety about hypoglycaemia in their babies. This suggests that diabetic women have a special need for infant feeding support postnatally, linked to advice and information about changes in glucose control and management of their diabetes.

Women viewed the practice of antenatal expression of colostrum favourably and all the women would have liked to have tried it. Practitioners also viewed this as a potentially useful contribution to women's care. However, awareness of the practice amongst practitioners was not universal and women received conflicting information about it.

RECOMMENDATIONS

1. Diabetic women must have at least one opportunity during their antenatal care to meet with a knowledgeable practitioner (e.g. an infant feeding specialist midwife) specifically to discuss preparing for breastfeeding and the special challenges related to diabetes. This consultation should occur at approximately 36 weeks gestation (NICE 2008, 2008a).
2. The consultation should result in **an infant feeding care plan** to ensure that the woman and those giving her postnatal care are clear about her preferences and her need for support.
3. The consultation should also generate an explicit **postnatal care plan** for the management of the woman's diabetes and hypoglycaemia after delivery (Shah, Brydon and Gardosi 2010).
4. A considered discussion should be undertaken in Maternity Units about implementing antenatal collection of colostrum for women with diabetes, in the light of current and emerging evidence about the practice (NICE 2008). Guidelines to support the practice must be developed and well-disseminated so that all midwives and women are aware of best practice and implementation can be evaluated.
5. The 36 week consultation should include discussion of antenatal expression of colostrum with reference to Trust policy, to determine if the woman would like to undertake it and to instruct her in the technique, storage and when to commence it.
6. The postnatal care plan for management of diabetes and hypoglycaemic episodes should be reviewed by a midwife with the woman at the time of her admission to the postnatal ward.
7. The infant feeding care plan should be reviewed with the woman early in the postnatal period to ensure that it is acted upon and/or changed according to the woman's needs and the baby's condition.

8. Diabetic women who want to breastfeed require specific guidance and information about their baby's glucose levels and how these should be managed. Women's anxiety about their baby's and their own condition should be addressed directly by a midwife with knowledge about diabetes and its implications for infant feeding.

9. Women who decide to discontinue breastfeeding must be given the opportunity to discuss the reasons for this and support should be offered as required.

10. Accessible information should be available about the management of formula feeding for women requiring it and care should be taken to ensure that there is no negative judgement implied.

REFLECTIONS ON THE RESEARCH PROCESS

Strengths of the research

We believe this study was designed to gain access to both staff and user perspectives on a focused period of pregnancy, to reflect most fully what information and support about infant feeding are available to pregnant women with diabetes and how these are received. The use of an online questionnaire facilitated staff participation because it enabled busy practitioners to could complete the questionnaire with greatest efficiency and convenience.

Using telephone interviews facilitated women's participation because they could be timed at their convenience and interrupted and resumed if required. Telephone interviews also avoid the expense and intrusion of face to face interviews at a busy time in women's lives.

Limitations of the research

The main limitation of this research was the small size of the samples. We were able to approach all the specialist practitioners whose contacts we were provided with and, although numbers were small, response rates were satisfactory although it was unfortunate that not all respondents answered all questions. Also, we did not include a sample of midwives working on postnatal wards and, as these are the practitioners in closest contact with providing postnatal infant feeding support, this was an unfortunate omission.

There were also a number of factors contributed to the small numbers of women recruited, and these processes would need to be approached differently in future research.

We experienced delays in organising participation of trusts because of the several layers of scrutiny and agreement required before beginning data collection across a health authority. In an attempt to facilitate the process, all local R&D offices in the West Midlands where there are consultant maternity units (n = 14), were contacted with an application requesting their willingness to act as Participant Identification Centres (PICs) at the same time as the REC submission. Nonetheless, gaining approval from both trust

R & D offices and midwifery managers was a protracted task, with delays at times with reaching the individual whose agreement was required. Once contact was established, staff in the trust R& D offices and maternity units were very helpful and supportive. Out of the 14 Trusts / maternity units that were approached, we established contact with 12 units who gave approval for data collection to take place.

Additionally, we were reliant on midwifery staff to identify potential participants and distribute invitation leaflets to eligible women during their postnatal stay. There may have been women with potential interest in participating in the study who did not receive this information. This was a risk inherent in our recruitment strategy, insofar as we were dependent on the goodwill and capacity of staff in participating trusts and we understand that there are many competing and more immediate demands on the time of ward based staff.

Recruitment of interested participants also runs the risk that women with a negative experience would have a particular interest in sharing their experience. We found though that most women narrated mixed experiences and demonstrated a genuine desire for their accounts to be useful for the benefit of other women. Furthermore, such potential 'bias' does not invalidate the value of such accounts for helping to understand the care received and the decisions women made.

REFERENCES

Attride-Stirling, J (2001) Thematic networks: an analytic tool for qualitative research. *Qualitative Research*, 1, 3, 385-405.

Bailey, C, Pain, RH, & Aarvold, JE (2004). A 'give it a go' breastfeeding culture and early cessation among low-income mothers. *Midwifery*; 20: 240–250

Bick, DE, MacArthur, C & Lancashire, RJ (1998). What influences the uptake of early cessation of breastfeeding? *Midwifery*; 14: 242-247.

Braun, V and Clarke, V (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2): 77-101.

Bringer, JD, Johnston, LH, & Brackenridge, CH (2006). Using computer assisted qualitative data analysis software to develop a grounded theory project. *Field Methods*, 18, 245-266

CEMACH (2005) Pregnancy in women with Type 1 and Type 2 diabetes 2002-2003 England, Wales and Northern Ireland. London: CEMACH.

CEMACH (2007) *Diabetes in pregnancy: are we providing the best care? Findings of a National Enquiry: England, Wales and Northern Ireland*. London: CEMACH.

Clay T. (2005) Colostrum harvesting and type 1 diabetes. *Journal of Diabetes Nursing*. 9(3): 111-116.

Cox SG. (2006) Expressing and storing colostrum antenatally for use in the newborn periods. *Breastfeeding Review*;14(3):16.

Dyson L, McCormick FM, Renfrew MJ. (2005) Interventions for promoting the initiation of breastfeeding. *Cochrane Database of Systematic Reviews*, Issue 2.

Graffy, J., & Taylor, J. (2005). What information, advice and support do women want with breastfeeding? *Birth*, 32, 3, 179-186.

Hauck, YL., & Irurita, VF. (2002). Constructing compatibility: managing breastfeeding and weaning from the mother's perspective. *Qualitative Health Research*, 12, 7, 897-914.

Hauck, YL., & Irurita, VF. (2003). Incompatible expectations: the dilemma of breastfeeding mothers. *Health Care for Women International*, 24, 62-78.

Hoddinott, P. & Pill, R. (2000). A qualitative study for women's views about how health professionals communicate about infant feeding. *Health Expectations*, 3, 224-233.

Lavender, T., Platt, M. J., Tsekiri, E., Casson, I., Byrom, S., Baker, L., & Walkinshaw, S. (2010). Women's perceptions of being pregnant and having pregestational diabetes. *Midwifery*, 26, 6, 589-595.

Moore ER, Anderson GC, Bergman N. 2007 Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews*, Issue 3.

NICE (2008) *Clinical Guideline 63. Diabetes in Pregnancy: management of diabetes and its complications from preconception to the postnatal period*. London: RCOG.

NICE (2008a) *Clinical Guideline 62. Antenatal care: routine care for the healthy pregnant woman*. London: RCOG.

Shah, N, Brydon, P and Gardosi, J (2010) *Diabetes in pregnancy: addressing the challenge in the West Midlands*. Birmingham: Perinatal Institute Diabetes in Pregnancy Advisory Group.

Shakespeare, J., Blake, F., & Garcia, J. (2004). Breastfeeding difficulties experienced by women taking part in a qualitative interview study of postnatal depression. *Midwifery*, 20, 251-260.

Soltani, H., Dickinson, F. M., Kalk, J., & Payne, K. (2008). Breastfeeding practices and views among diabetic women: A retrospective cohort study. *Midwifery*, 24, 471-479.

Welsh (2002) Dealing with data: using NVivo in the qualitative data analysis process.
Forum: *Qualitative Social Research*, 3, 2. Retrieved January 19, 2011 from
<http://www.qualitative-research.net/fqs-texte/2-02/2-02welsh-e.pdf>