

NCT EVIDENCE BASED BRIEFING Maternity Care in Birth Centres - Part 1

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Introduction

This briefing paper provides an introduction to the history and development of birth centres in the United Kingdom (UK) and a review of evidence. Part 1 includes:

- an overview of outcomes of free-standing birth centre care compared with hospital based care for low-risk women; and,
- findings from qualitative studies on differences in philosophy of care.

Part 2, which will follow in the next issue of *New Digest*, will include:

- an overview of outcomes of integrated birth centre care compared with conventional hospital based care for low-risk women; and,
- further discussion about the organisation and philosophy of care.

Background

Maternity care across the world is moving inexorably towards a greater concentration of birth in large hospitals, rather than birth at home or in smaller hospitals or community maternity units¹. As an example of this shift, in the UK in 1970, 12.8% of all births occurred in what were then described as 'isolated general practitioner (GP) units'². In 2000, these units, which were by this time being led by midwives, hosted fewer than 2% of total births in the UK³. Now, it is estimated that 96% of all births in England and Wales take place in a hospital consultant unit³. There were 135 'isolated GP units' in England and Wales in 1984². By 2000, the number seemed to have dropped to around 53 - as small units sometimes close temporarily, the number may fluctuate a little over time. Increasingly, these 'free-standing' community-based units have begun to describe themselves as birth centres.

There are, however, some very recent indications that this apparently inexorable turn to hospitalisation for birth is faltering in the UK. In some areas where maternity services have been 'reconfigured', obstetric and neonatal services have been centralised in one large unit and new free-standing midwifery-led birth centres (FSBCs) are opening on the site of former small consultant units⁴.

The notion of 'birth centres' has gradually evolved over recent decades. In the United States (USA) the term 'birth centre' covers a number of organisational models, including facilities directed by midwives or jointly run by midwives and obstetricians, and a mixture of state or private provision. In countries like Canada, Norway, Finland and Australia, the sparse populations led to the provision of local maternity units, staffed by midwives, maternity nurses and general practitioners, sometimes called birth centres.

Alongside the free-standing model, there is an increasing number of midwife-led units adjacent to an obstetric unit, referred to here as integrated birth centres (IBCs). They may be on the same floor, in the same building, or occasionally, a separate building within a hospital complex. This is a common model in the UK.

Thus FSBCs and IBCs, both of which are midwifery-led, are the two models that characterise birth centres within the UK. The briefing paper covers the quantitative and qualitative research carried out to date on both models.

Quantitative research on free-standing birth centres

In 2004, Walsh & Downe⁵ published a systematic review of all comparative research done on free-standing birth centres which met the following criteria:

- a maternity unit which had no routine labour involvement of medical staff and no facility for epidural analgesia and caesarean section; and,
- which was geographically separate from an obstetric hospital.

Research studies were included which met the following criteria:

- a controlled comparative design was used that attempted to match women in both arms according to eligibility for birth centre care, either at the time of booking or the onset of labour; and,
- clinical outcomes were examined for FSBCs compared with consultant units.

After blind peer review and consensus discussions to exclude studies which did not fit the agreed criteria, five papers were included. Three reported prospective studies and in the others the data were collected retrospectively.

Outcomes

Selected outcomes are tabulated in Table 1.

Normal vaginal birth

Four studies reported this outcome⁶⁻⁹. In each case, the control groups reached high levels of normal birth. This is likely to indicate that they were reasonably matched to the birth centre groups in terms of obstetric risk factors, although non-randomised designs cannot control for all confounders. In all four studies, across three different countries and separated by up to 14 years, normal birth was higher in the birth centres. The range of absolute percentage increase in normal vaginal birth between experimental and control groups across the studies were 4.8% to 13.3%. It is likely that the difference of 13.3% found in the study of Saunders and colleagues is at least partly explained by a higher percentage of multiparous women in the birth centre group.

TABLE 1:

Variable	Author / Date / Place	Number	Birth Centre (%)	Control Group (%)
Normal birth	Saunders et al, 2000, UK	589, 19529	85.6	72.3
	Scupholme et al, 1986, USA	250, 250	92	83
	David et al, 1999, Germany	801, 3271	91.4	84.3
	Feldman & Hurst, 1987, USA	77, 72	93.5	88.7
	Saunders et al, 2000, UK	589, 19529	6.1	12.6
Caesarean section (total)	Scupholme et al, 1986, USA	250, 250	6	14
	David et al, 1999, Germany	801, 3271	3	4.6
	Feldman & Hurst, 1987, USA	77, 71*	6.5	11.3
	Saunders et al, 2000, UK	589, 19529	46.7	43.3
	David et al, 1999, Germany	801, 3271	30	22
Intact perineum	Feldman & Hurst, 1987, USA	77, 72	25	6.3
	Stone, 1998, USA	54, 52**	22	8
	Saunders et al, 2000, UK	589, 19529	5.1	18.9
	David et al, 1999, Germany	801, 3271	15.7	54.8
	Feldman & Hurst, 1987, USA	77, 72	47.2	78.1
Baby with mother	Saunders et al, 2000, UK	589, 19529	96.4	94.4
	David et al, 1999, Germany	801, 3271	97.4	98
	Feldman & Hurst, 1987, USA	77, 72	98.7	94.4
	Saunders et al, 2000, UK	86	14.6	
	Scupholme et al, 1986, USA	17	22	
Intrapartum transfer	David et al, 1999, Germany	146	18.2	
	Saunders et al, 2000, UK	589, 19529	2:1000	4:1000

* There are missing data for some participants in both arms of the study. Numbers originally recruited were 77, 72.

** There are missing data for some participants in both arms of the study. Numbers originally recruited were 69, 77.

Caesarean section

Four studies reported this outcome⁶⁻⁹ and all demonstrated a lower caesarean section rate in the birth centre group. Despite being separated by 14 years and being undertaken in two different countries, the findings were remarkably comparable in three of these studies, with rates of 6% v 14%^{6,7,9}. The remaining, retrospective, study found considerably lower rates in both groups, with a more marginal difference of 3% vs. 4%¹⁰. The range of absolute percentage decrease in caesarean section between experimental and control groups across the studies was 1% to 8%.

Intact perineum

Four studies reported this outcome^{6-8,10}. Rates varied considerably between the studies, with a tendency towards a higher intact perineum rate for the birth centres. The incidence of intact perineum was high in both arms of the study carried out by Saunders and her colleagues, and there was a minimal difference between the groups (46.7% v 43.3%). The small study undertaken by Patricia Stone¹⁰ found lower rates and bigger differences (22% vs. 8%). In the two retrospective studies reporting this measure, the rates were 30% v 22%⁸ and 25% v 6.3%⁹. It is of interest that both the USA studies, though separated by ten years, had similar findings. These differences in relative rates between the studies may be due to different approaches to the use of episiotomy in different countries, as discussed in the next section. The range of absolute percentage increase in intact perineum between experimental and control groups across the studies were 3.4% to 18.7%.

Episiotomy

Episiotomy rates were extremely variable across all studies, probably reflecting known differences between countries and within countries¹¹. The only UK study reported episiotomy rates of 5% in the birth centre group compared with 18.9% in the hospital group⁶. The German study showed a large difference between groups of 15.7% vs. 54.8%⁸, as did the only USA study to report this measure, which reported rates of 47.2% vs. 78.1%⁹. In every case, the rates for the birth centre group were lower, with the absolute percentage decrease ranging from 13.9% to 39.1%. While the 1998 Stone study discusses numbers of episiotomies in the text, the denominator is not given, and so these findings are not reported in this section¹⁰.

Babies remaining with their mothers

These data can be extrapolated for the three studies which reported admission to neonatal units⁶⁻⁸. In other words, all other babies not admitted to neonatal units were classified as remaining with their mothers. In all cases, the rates of babies remaining with their mothers for both groups are above 90%. The range of difference across the studies was 0.8% to 3.6% in favour of the birth centre groups.

Perinatal mortality

The numbers in most of these studies render it impossible to report reliably on this measure. In the one study which could have been large enough to report this finding⁶, percentages of stillbirths are given and these can be extrapolated to around two per 1,000 for the birth

(continued overleaf.....)

centre vs. four per 1,000 for the hospital births. It was estimated that half of the stillbirths in both groups were explained by prenatal factors. However, the problems with possible confounding variables, i.e. factors other than place of birth which may have affected the risk of perinatal mortality, makes it impossible to draw any conclusions from comparing the stillbirth figures in this study.

Intrapartum transfer rates

For the three studies where rates were quoted, the range was 14.6% to 22%⁶⁻⁸. In all three studies, the main indication for transfer was failure to progress in the first stage of labour. Though delivery outcomes were not separately reported on for transfers, intention to treat analysis reflects the inclusion of these in overall outcomes. As reported above, the rate of admission to a neonatal unit was lower for babies planned to be born at birth centres and these data include babies whose mothers transferred during labour.

Discussion

In the absence of any randomised controlled trials, the data in the included papers could not be pooled in a meta-analysis. Meta-analysis would also have been compromised by between-site heterogeneity. While all the studies selected women who were eligible for local birth centre care, criteria regulating access to birth centres were variable and often rather idiosyncratic. In addition, while most of the included studies did attempt to control for principal confounders like demographic background and parity, there is the possibility of systematic bias in all of the reports. Ascertainment and completeness of follow up were reasonable. Obstetric risk factors aside, other differences between birth centre women and hospital groups are known to exist - women who attend birth centres, tend to be better educated, older, Caucasian, wealthier and more orientated to natural birth. In at least two of the included studies, such variation appeared to be present^{8,9}.

This self-selecting dimension has been criticised by opponents of birth centre provision who say that it will always confound hospital group comparisons¹². However, a study undertaken by Scupholme and Kamons attempted to address the issue of self-selection bias by comparing a cohort of women who selected a birth centre and another group who were assigned birth centre care because their first preference, the main hospital, was full¹³. There were no differences in outcomes between the groups, nor between these later findings and the researchers' earlier study, which is included in this review⁷. These findings offer the possibility that preference may not be the main factor influencing differences in clinical outcomes for women using birth centres.

Across the studies included in this paper, data are reported for 1,781 women who intended to give birth in a birth centre. Taking into account the problems with the included studies, it is of interest that the universal trend across the reported findings is a benefit for women who intended to use birth centres. However, these differences were not always very large.

The results of the existing research in this area cannot be generalised. However, they do indicate that there is no

prior reason to reject care in FSBCs on the grounds of adverse outcomes. In addition, the findings raise a question about the risk of increased morbidity for women who fulfil standard criteria for FSBCs, but who labour and give birth in centralised obstetric units. Given the small but important increase in the number of these units, and the ubiquity of obstetric unit birth, it is important that a series of well-designed studies are undertaken to make comparative assessments of both clinical and psychosocial outcomes. It is also important to assess the relevant organisational and cultural features of units which generate positive outcomes for women and babies, whatever the model of care or the geographical location of such units.

Qualitative research on free-standing birth centres

There are only a handful of published qualitative research papers on FSBCs.

A fascinating ethnographic study of a birth centre in the USA situated in a deprived, inner-city area illuminates another dimension to FSBC care that may matter as much to women as measurable differences in clinical outcomes²⁹. The birth centre had an explicit woman-centred, 'birth as normal' ethos and mainly served low income, minority groups. Esposito found that women using the centre, regardless of their prior beliefs about childbirth, tended to take on the philosophy and ethos of the centre over the months of contact. She describes the culture there as humanistic and woman empowering.

The centre had a distinct rapport with the local community and networked strongly with other organisations that served women's needs. Esposito undertook further qualitative work with a sub-set of these women who had previous experience at a large maternity hospital in the same city. Key issues for the women were control of the birth environment, the opportunity to develop supportive interpersonal relationships with midwives, to have a safe birth and to be treated with dignity and respect - all of which were less evident within the hospital system³².

Another remarkable ethnography was published by Annandale who studied a FSBC in the USA³⁰. Her conclusions speak directly to the UK experience because she theorises how midwives, working within a philosophy of natural birth, have to manage risk perceived by obstetric services to which they refer when problems arise and expectations of women who often fear the pain of childbirth. They therefore have a lower threshold for pharmacological analgesia. This created an uncomfortable ambivalence for birth unit midwives who 'in trying to counter medical dominance ... had to engage the medical model using its very definitions to maintain the independence they sought' even though this 'might conflict with the desires of the very women they were trying to serve' (page108).

Summary

Evidence from research into free-standing birth centres suggests they are very positive environments for normal birth, both in terms of clinical outcomes and the

satisfaction of women. In addition, qualitative studies show that the ethos and behaviour of staff and parents in small midwife-led birth centres are very different from those in many hospital maternity hospitals. Birth centres may bring a number of organisational, environmental and style benefits that are more difficult to achieve in larger units.

Key points

- Intrapartum interventions are probably reduced for mothers booking care at a FSBC.
- Studies of maternal experience show high levels of satisfaction with FSBC care.
- The opportunities for both women and staff in birth centres to experience one-to-one care in labour - and to get to know and care about one another - may explain their positive evaluations.
- The positive beliefs of women and staff using birth centres may work together constructively to increase physiological births. However, women who have not chosen birth centre care, but have been allocated to it, have had similar outcomes to self selecting women.

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