Maternity Care in Birth Centres - Part 2

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Introduction

This is the second of a two-part briefing paper on maternity care in birth centres. Part 1 (New Digest - January 2005) provided an introduction to the history and development of birth centres in the United Kingdom (UK), 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 provides:

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

Quantitative research on integrated birth centres

In addition to the free-standing birth centres (FSBCs) discussed in part 1, midwifery-managed units within or alongside consultant maternity units are sometimes described as home-from-home units or birth centres. These ‘integrated birth centres’ have been subjected to a number of good quality RCTs (randomised controlled trials) and therefore provide us with clearer comparative clinical outcomes than is the case for free-standing birth centres. Hodnett’s14 systematic review of ‘home-like’ (birthing suites) versus conventional institutional settings for birth included six trials, three of them from the UK15-17. The other studies were from Australia18, Canada19, and Sweden20. In total, nearly 9,000 women participated in the studies, giving a more comprehensive and robust picture of this birth setting than the research into FSBCs. Altogether, 39 different outcome measures are included in the review and a selection are presented here.

Allocation to a home-like setting was associated with:

- less pharmacological pain relief;
- being less likely to have labour augmented with syntocinon;
- being less likely to be immobile in labour;
- fewer fetal heart abnormalities;
- being less likely to have operative deliveries;
- being less likely to report dissatisfaction with care.

There was a non-significant trend towards higher perinatal mortality in three of the studies.

There were no statistically significant differences in caesarean section rates, induction of labour rates, neonatal unit admissions, Apgar scores or postpartum haemorrhage.

Although women allocated to home-like settings were less likely to have an episiotomy, they were more likely to have vaginal/perineal tears and there were no differences in the likelihood of having an intact perineum.

<table>
<thead>
<tr>
<th>Outcome title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immobility during labour</td>
<td>1</td>
<td>2844</td>
<td>0.72 [0.61, 0.85]</td>
</tr>
<tr>
<td>Induction of labour</td>
<td>4</td>
<td>8482</td>
<td>0.96 [0.84, 1.11]</td>
</tr>
<tr>
<td>Augmentation of labour</td>
<td>5</td>
<td>8457</td>
<td>0.72 [0.64, 0.81]</td>
</tr>
<tr>
<td>Opioid analgesia</td>
<td>5</td>
<td>8532</td>
<td>0.86 [0.78, 0.95]</td>
</tr>
<tr>
<td>Epidural analgesia</td>
<td>6</td>
<td>8646</td>
<td>0.80 [0.70, 0.90]</td>
</tr>
<tr>
<td>Instrumental vaginal delivery</td>
<td>6</td>
<td>8646</td>
<td>0.87 [0.74, 1.01]</td>
</tr>
<tr>
<td>Caesarean delivery</td>
<td>6</td>
<td>8646</td>
<td>0.85 [0.72, 1.00]</td>
</tr>
<tr>
<td>Episiotomy</td>
<td>5</td>
<td>8496</td>
<td>0.78 [0.70, 0.87]</td>
</tr>
<tr>
<td>Vaginal/perineal tears</td>
<td>5</td>
<td>8360</td>
<td>1.15 [1.05, 1.26]</td>
</tr>
<tr>
<td>Not intact perineum</td>
<td>5</td>
<td>6818</td>
<td>1.07 [0.95, 1.20]</td>
</tr>
<tr>
<td>Post-partum haemorrhage</td>
<td>2</td>
<td>4672</td>
<td>0.97 [0.78, 1.20]</td>
</tr>
<tr>
<td>Less than completely satisfied with labour care</td>
<td>2</td>
<td>5932</td>
<td>0.62 [0.55, 0.70]</td>
</tr>
<tr>
<td>Five-minute Apgar score &lt; 7</td>
<td>2</td>
<td>2028</td>
<td>1.19 [0.53, 2.66]</td>
</tr>
<tr>
<td>Neonatal intensive care unit admission</td>
<td>3</td>
<td>4786</td>
<td>1.09 [0.89, 1.35]</td>
</tr>
<tr>
<td>Perinatal mortality at term, excluding lethal anomaly</td>
<td>4</td>
<td>8926</td>
<td>1.74 [0.98, 3.10]</td>
</tr>
</tbody>
</table>

Discussion

The lower rates of analgesia are probably related to a number of factors: increased support during labour as one-to-one care is often a feature of birth centre care, and accrued benefits of continuity or carer, again a typical feature of midwifery-led schemes. Both of these features of care are known to reduce the requirements for pharmaceutical analgesia\textsuperscript{21, 22}. In addition, the explicit ethos and emphasis on a low-tech birth, undertaken as naturally as possible, probably reduces the requests for analgesic drugs. Finally, integrated birth centres (IBCs) do not provide epidural services on-site and, as women therefore have to transfer to the nearby delivery suite if they chose this option, this raises the threshold for access. The lower rates of augmentation may reflect the greater emphasis on active birth and mobilisation during labour. Fewer operative births may result from a combination of mobilisation, intermittent auscultation and absence of anaesthesia.

These outcomes suggest something of a reversal of the cascade of intervention linked to the centralisation of birth that has been apparent in recent decades. Both Williams and Downe demonstrated this cascade in their relatively recent UK studies of low-risk primigravid women\textsuperscript{23, 24}.

A trend to higher perinatal mortality in primigravid women in IBCs has been commented on by Gottvall and colleagues\textsuperscript{25}, who undertook a ten-year retrospective review of the Stockholm birth centre. They chose an external obstetrician to scrutinise cases of perinatal death in their study. It would be more appropriate to have an expert birth centre midwife making this judgement, or a multi-disciplinary group working together, to minimise the opportunity for any prejudice against out-of-hospital care to introduce bias. Close scrutiny of perinatal deaths in Waldenstrom's\textsuperscript{20} original Stockholm trial, included in the Cochrane review, reveals that sub-optimal care in some cases of perinatal death occurred after transfer\textsuperscript{26}. However, Gottvall\textsuperscript{25} does not comment on this. Instead, both she and Hodnett\textsuperscript{14, 15} mention that a midwifery orientation towards normality may be reducing the effectiveness of staff in picking up possible complications in the birth centre setting, but not addressing the quality of care after transfer. Further research is needed to address the stage at which any sub-optimal care occurs, as well as the causes and consequences.

Alongside the Gottvall and Hodnett 'deficit model' hypothesis, another question to explore would be whether there is a 'benefit model'. Do midwives working in IBCs, with appropriate support from colleagues within the clinical network to whom they refer if complications arise, have a 'lower index of suspicion', which results in appropriate referrals, but fewer unnecessary transfers, and higher normal birth/good outcome rates?

It is crucial that there is not a premature rush to judgement before further research has been conducted. The data available currently for IBCs show a non-statistically significant trend around perinatal mortality. This means that continuous clinical audit and further research is needed to monitor and investigate what contributes both to high quality care and sub-optimal care. The data does not constitute evidence to discourage birth centre use.

Midwives who work in hospitals that provide birthing centre facilities stress the need to have this area both physically separate and philosophically different from conventional labour wards. This is because the powerful culture of obstetrically dominated labour wards flows over to low-risk areas unless a clear demarcation line is drawn between the two\textsuperscript{27}. Typically, this involves the use of inappropriate interventions e.g. routine electronic fetal monitoring on women in normal labour\textsuperscript{28}.

**Organisation and philosophy of care**

**Support and relationships**

Alongside the evidence presented so far sits another body of work to do with the relational aspects of maternity care. These include studies of continuity of care\textsuperscript{22} and continuous support during labour\textsuperscript{21}. Both are almost certainly relevant to birth centre care, which generally addresses these relational elements well.

Hodnett's review of continuity of care showed that women experiencing this form of care were:

- less likely to be admitted to hospital antenatally;
- less likely to have drugs for pain relief during labour;
- less likely that their babies needed resuscitation;
- less likely to have an episiotomy.

There were no detectable differences in perinatal mortality\textsuperscript{22}.

The systematic review of continuous support in labour also showed these benefits and, in addition, a lowering of caesarean section rate\textsuperscript{21}. Recently, Hodnett et al. identified the importance of the beliefs and practices of the birth environment to labour and birth interventions. Her study comparing continuous support with routine care in a highly interventionist setting showed, in contrast to earlier studies, no difference in rates of intervention\textsuperscript{33}. She hypothesised that a highly interventionist environment can nullify the benefits of one-to-one care. This resonates with the findings of Esposito and Coyle et al.\textsuperscript{29, 31, 32}, which emphasise the importance of a carer's attitude and beliefs about birth in birth centre settings.

**Size of maternity units**

Historically, isolated general practitioner units in the UK catered for usually no more than 500 births per year, with many between 100 and 300\textsuperscript{4}. While some of the smaller units (less than 300 births per year) have closed, those with 300 to 500 births per year have tended to remain open. There is no evidence-based rationale for this capacity, but there are some pragmatic and commonsense reasons. For many years, women have complained about assembly-line birth in larger and larger units, and recently Perkins\textsuperscript{34} has argued forcefully that an industrial model has been transferred from the business world to health care, using USA maternity services as an exemplar. FSBCOs promote a local ethos and are frequently situated in rural areas, towns or the outskirts of cities. Up to 500 births per annum means the number of women using the unit at any one time are too few to allow an organisational imperative to process women through the system to operate.

IBCs generally have a higher throughput of women (continued overleaf...)
because they are attached to medium or large consult ant units. Annual birth rates can be as high as 2,000, and this begins to affect relationships between women and the staff, and how women are cared for. With more women in labour and more staff employed, the logistics of organisation begin to undermine the personal and informal style of care within the birth centre model. It becomes possible to break care into tasks, and divide these up between different staff, and the opportunities for holistic care from one person are reduced. These reflections, and strong anecdotal experience from a variety of differently sized units, suggest there is a need for research on the effect of unit size on one-to-one relationships and the delivery of midwifery care. In the meantime, the combination of available evidence on outcomes and the emerging understanding of these processes support midwifery units scaling down in size, rather than scaling up.

Summary

Evidence from research into 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 reduced for mothers booking care at IBFs, and probably for those using FSBCs.
- Studies of maternal experience show high levels of satisfaction with both FSBC and IBC 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.
- Further high quality research and audit is needed to provide clearer evidence of what contributes to good outcomes, and how different sized and differently organised units compare.

References:


See also research item on birth centres in Research Roundup on page 23 of this edition of New Digest.)

Statistics Digest: England

English Maternity Statistics have been published for the year ending 31 March 2003. In England, statistics are collected for ‘number of deliveries’, i.e. women giving birth rather than ‘number of births’ i.e. babies born.

- There were 548,000 deliveries in hospital in England in 2002-03.

- There was no change in the caesarean rate, which remained at 22%. Of these, 9.3% were planned (elective) and 12.7% were emergency caesareans. It is the first year in 20 years that the caesarean rate has not increased. It has shown a gradual year-on-year increase from 10.1% in 1984. The ratio of elective caesareans and emergency caesareans has also remained the same. The caesarean rate varies between NHS regions, with women in the East of England region being most likely to have their baby by caesarean (24.2%) and women in the East Midlands being least likely to have a caesarean (19.8%).

- The proportion of women having their babies induced has gone down 1%, from 21.5% in 2001-02 to 20.5% in 2002-03. This is continuing the trend of falling rates of induction which peaked in 1999-2000 at 21.8%. The induction rate also varies around the country, with women in the North West region being most likely to have their baby induced (22.2%) and women in London being least likely to have an induction (17.7%).

- The ‘normal birth rate’ for England has begun to rise after many years of decline. The rate rose 2% on the previous year to an estimated 47% of deliveries, including those without induction, epidural or other anaesthesia, instrumental or caesarean section. The ‘normal birth rate’ for maternity units in England has been included in the Department of Health’s bulletin for the first time.

- 10.5% of deliveries were instrumental deliveries. Of these, 3.4% used forceps and 7.1% used ventouse.

- 13% of women had an episiotomy.

  During delivery about 33% of women had an epidural, general or spinal anaesthetic.

Live births - mode of delivery

<table>
<thead>
<tr>
<th>Mode of Delivery</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous vaginal birth (excluding breech)</td>
<td>66.9%</td>
</tr>
<tr>
<td>Emergency Caesarean Section</td>
<td>12.7%</td>
</tr>
<tr>
<td>Elective Caesarean Section</td>
<td>9.3%</td>
</tr>
<tr>
<td>Vacuum Extraction</td>
<td>7.1%</td>
</tr>
<tr>
<td>Forceps Cephalic</td>
<td>3.4%</td>
</tr>
<tr>
<td>Breech (vaginal)</td>
<td>0.4%</td>
</tr>
<tr>
<td>Other</td>
<td>0.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Sources


- See also: www.birthchoiceuk.com/Professionals/BirthChoiceUKFrame.htm