

Birthplace in England Research— Implications of New Evidence

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ABSTRACT

This article discusses the implications of new evidence from recently published research on maternity services across England. The Birthplace in England Research Programme was commissioned in 2007 to address key gaps in the evidence and inform those who plan, deliver, and use maternity services. These included the pattern of current services and availability of different models of care; the ways in which maternal and infant outcomes differ between settings; their comparative cost-effectiveness; and the organizational features of maternity care systems that might affect the quality and safety of care.

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The last 10 years has seen clear policy direction on the importance of offering healthy women choice in where they give birth in England (Department of Health Partnerships for Children Families and Maternity, 2007). However, to date, the evidence on the quality, safety, and costs of different settings has been limited to small scale and inadequate studies. Maternity services in England are complex, covering a range of providers from community midwives supporting uncomplicated home births to specialist units delivering high dependency care for sick women and babies. Different models of care have developed in each locality, reflecting local patterns of services (Sandall et al., 2011). In addition to consultant-led obstetric units (OUs) based in hospital, many areas have midwife-led units, or birth centers, either as freestanding units or alongside hospital OUs (see Appendix).

WHAT CHOICES ARE AVAILABLE TO WOMEN IN ENGLAND?

Wherever women live, they are able to choose to have their baby in a consultant-led hospital OU. If women are healthy and their pregnancy is straightforward, they may also be able to choose midwife-led care in a midwifery unit or a home birth. Not all areas have midwifery units. All areas offer a *home birth service* usually to women with straightforward pregnancies. Of women giving birth in 2007, around 8.0% gave birth outside an OU—2.8% at home, around 3.0% in alongside midwifery units (AMUs), and just fewer than 2.0% in freestanding midwifery units (FMUs; Redshaw et al., 2011).

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For more information about the Birthplace in England research go to <https://www.npeu.ox.ac.uk/birthplace>

COMPARING OUTCOMES FOR MOTHERS AND BABIES BY PLANNED PLACE OF BIRTH

The prospective national study was designed to answer questions about the comparative safety and quality of different types of care for women judged to be at low risk of complications according to national clinical guidelines (National Institute for Health and Clinical Excellence [NICE], 2007). The study ran in England between 2008 and 2010 and this is the largest study of its kind in the world. It included almost all women who gave birth at home or in midwifery units (either AMUs or FMUs) in England, or who gave birth in a sample representing the different types and sizes of OUs spread across England. The study included information about nearly 65,000 low-risk women and their babies; all 17,000 planned home births, all 11,000 planned births in an FMU, all 17,000 planned births in an AMU, and a stratified sample of 20,000 births in an OU.

It compared outcomes by planned place of birth and provided descriptive data such as the proportion of women requiring transfer during labor from home or midwifery unit. Safety for the baby was measured by examining a composite adverse outcome that might be affected by the quality of intrapartum care. These included death of the baby and other potentially serious outcomes such as neonatal encephalopathy and meconium aspiration, together with some nonlife threatening, but sometimes disabling injuries such as brachial plexus injury. Harms to mothers were also recorded, such as serious perineal tears and need for blood transfusion.

The study compared how often women had a birth without medical intervention—sometimes called a “normal birth” (Maternity Care Working Party, 2007)—and how often women had medical interventions, such as an emergency Cesarean surgery or a forceps birth, and looked to see if there were differences between the birth settings. All the women included were at low risk of complications, so had broadly similar risks at the start of labor.

Detailed information not routinely available about labor care and outcomes was recorded by attending midwives, and additional data on adverse outcomes were collected after labor from neonatal and maternal medical records. Detailed analysis by intention to treat was carried out to adjust for differences in the characteristics of women in the different settings.

Findings

Overall, we found that harm to babies was low in all settings. After adjusting for differences in the

characteristics of women, there were no significant differences in safety for women who were not giving birth for the first time. However, for first-time mothers, there was a greater risk of harm to babies for planned home births (9.3 per 1,000 births as opposed to 5.3 per 1,000 births in OUs), but no difference between OUs and midwifery-led units.

Women were more likely to have a normal birth, with fewer interventions in planned home births and midwifery-led services. A woman's chances of an emergency cesarean surgery, for example, were approximately halved in first-time mothers planning to give birth in nonhospital settings, and even more substantially reduced for women having a second or subsequent baby.

We found that the transfer rate to hospital from the community during labor or immediately after birth was high for first-time mothers. Of those who planned to give birth at home, 45% were transferred to hospital and 36% from FMUs. Rates of transfer were much lower for mothers giving birth to second and subsequent babies, ranging from 9% to 13%. The most common reasons for transfer during labor included labor not progressing normally, the midwife having concerns about the baby (fetus), or the mother asking for an epidural. Transfers after the birth mainly happened because the placenta had not delivered normally or the mother needed to have stitches after the birth (Rowe, Fitzpatrick, Hollowell, & Kurinczuk, 2012; Rowe, Kurinczuk, Locock, & Fitzpatrick, 2012).

Lessons and Implications

The evidence presented here supports the policy of offering “low-risk” women a choice of birth setting. We concluded that midwifery units appear to be safe for babies and offer benefits to both the mother (with fewer interventions) and the baby (with more frequent initiation of breastfeeding). For women not giving birth for the first time, home births appear to be safe for babies and offer benefits to both the mother (with fewer interventions) and the baby (with more frequent initiation of breastfeeding). For women having their first baby, there is some evidence that planning to give birth at home carries greater risk of harm to the baby, although absolute risks are small in all settings.

The substantially lower incidence of major interventions, including cesarean surgery, in women planning to give birth in all three non-OU settings has potential future benefits to both the woman and the National Health Service (NHS; Birthplace Collaborating Group, 2011).

COST-EFFECTIVENESS

Detailed costing data were collected by different methods, including “bottom-up” and “top-down” costing methods. This involved thorough tracking of overheads, medical and midwifery staffing, medication and costs of transfer by planned place of birth. The cost estimates included all NHS costs associated with the birth itself, including the cost of any stay in hospital, midwifery unit, or neonatal unit immediately after the birth either by the mother or the baby. These estimates did not include longer term costs such as those associated with caring for babies who suffer serious birth injuries, or additional care required by women in subsequent pregnancies following a cesarean surgery or other birth complications. Three sets of cost-effectiveness analyses were carried out. The first was for the baby, the second for the mother, and the third related to the outcome of a “normal birth” as a desirable end.

Findings

Findings included the following:

- For low-risk women, the cost to the NHS of giving birth, including treatment costs from immediate clinical complications following birth, is lower for births planned at home or in midwifery units compared with OUs.
- After adjusting for differences in mothers giving birth in different settings, home births cost £367 less on average, planned FMUs £182 less, and AMUs £129 less than births in OUs. The cost differences were less for first-time mothers.
- The main cost drivers were unit overheads and staffing. This analysis showed substantial variability in costs between units.
- Analysis was based on average occupancy rates from the mapping study of different places of birth. Occupancy rates for FMUs (30%) were less than half that of OUs (65%) and much lower than alongside units (57%). Should occupancy rates rise in FMUs, they would become an increasingly cost-effective source of provision of maternity care.

Lessons and Implications

This study found that planned births in non-OUs were less costly and more cost-effective than births planned in OUs. However, for first-time mothers, there was an increased risk of harm to babies born following planned home births and the analysis did not take account of possible difference in longer term costs (Schroeder et al., 2012).

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ORGANIZATIONAL CASE STUDIES

Qualitative research was commissioned alongside the other studies to get better insights into how maternity services were delivered and experiences of care of staff and women.

Four maternity service providers were selected with high performance ratings, covering different configurations and rates of home birth. The configurations included combinations of OUs and different types of midwife-led units, including a hub and spoke model comprising an OU and a series of FMUs. This study used ethnographic methods, combining observation, documentary analysis, and 158 interviews with staff, women, and key stakeholders.

Findings

Of a range of findings, some key points emerged about organization of care, which includes the following:

- Variations existed at trust level in the support given to out-of-hospital births, including training for safety and teamwork across the maternity workforce.
- The deployment of community midwives across multiple settings was a key challenge for managers. There were also concerns about support and development for community midwives, often working in isolation with limited exposure to higher risk births. Some trusts had managed this by deploying midwives across community and hospital settings; for example, within team or caseload models. An interesting model was a hub and spoke, with an OU and linked midwifery units, offering potential for rotation of staff across settings to maintain skills.
- A key characteristic of high-performing services appeared to be strong midwifery and obstetric leadership and a culture of mutually supportive professional teamwork across settings.
- There was variation in the information provided by trusts to support choice for women.

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Lessons and Implications

This study provided useful contextual information to explain and interpret some of the other findings. It indicated uneven application of the policy of offering women choice of place of birth; variation in support for out-of-hospital births; challenges in maintaining skill levels for community midwives with limited exposure to more complex care; and organizational cultures in AMUs, which were not always distinct from those in OUs. The model of hub and spoke care, with an OU linked to several FMUs, appears to be a useful model to explore (McCourt, Rayment, Rance, & Sandall, 2012).

CONCLUSION

Childbirth educators, health professionals, women, and families making decisions about planned place of birth are balancing the slightly higher risk of poor perinatal outcomes for first-time mothers planning to give birth at home, along with the higher transfer rate against the chance of fewer interventions if they plan to give birth in an OU. The “best of both worlds” option for many women and staff is to plan to give birth in a midwifery unit where perinatal outcomes are good and maternal interventions are lower, and many hospitals are now setting up alongside midwifery units. However freestanding units have not increased, mainly because of the initial capital costs. There is a need to address why there is a higher frequency of major interventions and a relatively low proportion of “normal” births for low-risk women planning to give birth in OUs.

For the first time, we now have good information on the costs, safety, and quality of different NHS birth settings for low-risk women. We also know how services vary in different parts of the country and have some insights into the characteristics of those organizations that deliver high-quality care. However, it is unclear how the findings will be used by planners, women, and families and what the final impact will be on the choices and the way women give birth in England.

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Partners Women's Health Academic Centre. Her research on safety and quality improvement looks at both the translation of novel technologies into health care and innovative ways of organizing services differently to bridge "gaps" in care. Topics include "escalation" of care, implementation of surgical and e-health innovations, organizational and safety cultures in A and E and maternity, and the contribution of patients and families to safety. For the NIHR funded Birthplace in England research programme, she led case studies of how four high performing Trusts deliver safe and high-quality care.

APPENDIX

Alongside midwifery unit (AMU): These are co-located units that are in the same building or on the same site as an obstetric unit, again for low-risk women where midwives are lead professionals. Transfers to obstetric units are usually by wheelchair or by trolley/bed.

Freestanding midwifery unit (FMU): Sometimes called birth centers, these are led by midwives for low-risk women (sometimes with input from general practitioners). These units are geographically separate from hospital obstetric or consultant-led units. Transfer will normally involve a car or an ambulance.

Home-birth services: Labor care provided at home by community midwives.

Low-risk women: As defined in NICE guidelines for intrapartum care, excludes women at higher risk of complications, such as those with preexisting conditions, for example diabetes or preeclampsia or multiple pregnancies.

Obstetric unit (OU): Hospital-based care provided by a team with obstetricians taking responsibility for high-risk women and midwives taking responsibility for low-risk women (but caring for all women admitted). A full range of medical services should be available 24/7.