



## The Birthplace in England Research Programme – what have we learned?

### Q&A briefing on place of birth for NCT practitioners and parents wanting detailed information

*Boxed statements in bold are direct quotes from the Birthplace Programme reports.*

**This Q&A from the NCT should be read in conjunction with the *Birthplace Research Programme - Background Q&A* available at <https://www.npeu.ox.ac.uk/birthplace>**

#### Q: What did the Birthplace research programme set out to do?

There are several studies within the Birthplace programme, including.

**A mapping maternity care study** – which examines the configuration of maternity care in England and how maternity services in 2010 had changed and developed, since the Healthcare Commission's Maternity Service Review was carried out in 2007.

**A national prospective cohort study** – which investigates the effects of planned place of birth at the start of labour care for healthy ('low-risk') women focuses on outcomes related to **safety** for the baby and the mother, **obstetric interventions** experienced and the likelihood of experiencing positive outcomes including a '**normal birth**' (where labour starts spontaneously, there is no use of epidural and the baby is born without assistance of episiotomy, ventouse, forceps or caesarean) and **breastfeeding** initiation. The four planned places for birth are:

- **home,**
- **freestanding midwifery units (FMUs),**
- **alongside midwifery units (AMUs), and**
- **obstetric units (OUs).<sup>1</sup>**

**A cost-effectiveness analysis** – which looks at the costs of care planned in the four different places and these are related to the health and wellbeing outcomes in the cohort study, and the likelihood of receiving one-to-one midwifery care

**Qualitative research on the organisation of care in four case studies** - this study looks at how maternity services are organised and how they function in four different NHS trusts, selected from the group that the Healthcare Commission regarded as being 'top performing'. In each case study the geography of the area, the population and the places offered for birth are different. The study investigates access to choice of place of birth, women's experiences, management of care, and workforce issues.

**There have also been two 'adjunct' studies as part of the Birthplace programme.** A mixed-methods study - on women's experiences of transferring to the hospital labour ward for care during labour and a qualitative study of women's experiences of home birth.

## Q: What are the main results of the study?

**Giving birth is generally very safe for healthy women with a straightforward ('low-risk') pregnancy. 'Adverse outcomes' for babies are rare regardless of where mothers plan to give birth, occurring overall, in just 4 or 5 births in every 1000. These, adverse outcomes (see below) are serious, or potentially serious events, but thankfully they are rare.**

*All the results from the Birthplace study discussed below are for **healthy women with a straightforward pregnancy** and they refer to **outcomes for births in different settings** analysed according to where the **birth was planned at the start of labour care.***

### **Midwifery units**

Planning to give birth in a midwifery unit results in no differences in adverse outcomes for their babies (deaths and serious, or potentially serious, health complications), compared with planning to give birth in an obstetric unit. This applied to the babies for women who had given birth previously and to first-time mothers.

Midwifery units also offer benefits for the mother. The research found that there were fewer individual obstetric interventions - mothers were significantly less likely to have an assisted delivery, caesarean section or an episiotomy. What is more, more women had no major obstetric interventions throughout their labour and birth. This is what is meant by being more likely to have a 'normal birth', which is defined as occurring when labour starts spontaneously, there is no use of epidural, spinal or general anaesthesia and the baby is born without the assistance of episiotomy, ventouse, forceps or caesarean.<sup>2,3</sup>

### **Home births**

Women planning a home birth were more likely than women planning for birth in other settings to have a normal birth: 88% of planned home births are 'normal births' compared to just under 60% of planned obstetric unit births.

For women having a second or subsequent baby, home births are safe for the baby and offer benefits for the mother.

For women having a first baby, a planned home birth increases the risk for the baby somewhat. In all groups of women there were at least 990/1000 births without adverse outcomes. There were 9.3 adverse outcomes for babies per 1000 planned home births compared with 5.3 per 1000 for births planned in obstetric units, and this finding was statistically significant. So there may be around 4 extra adverse outcomes in every 1000 planned home births compared with births planned in obstetric units.

### **Transfers**

Transfers to hospital from planned home births and midwifery units are relatively frequent, particularly among first-time mothers. Transfers are one of the reasons why planned home and midwifery unit births are as safe as they are, enabling additional care to be provided when it is needed.

Birthplace findings generally support women with healthy, straightforward pregnancies having free choice of place of birth, based on where they would feel most comfortable giving birth.

### **Q: Are planned midwifery unit births as safe as births planned for a hospital obstetric unit?**

**The study cannot prove with absolute certainty that there are no differences in safety between the settings but, overall, the study found that proportions of babies with an adverse outcome were similar in births planned in midwifery units (AMUs and FMUs) compared with births planned in obstetric units. For women who did not have complications when they presented for care in labour, outcomes were almost identical in births planned in midwifery units and obstetric units (3.1 adverse perinatal outcomes per 1000 births for births planned in an obstetric unit compared with 3.2 per 1000 births in freestanding midwifery units and 3.4 per 1000 births in alongside midwifery units).**

**Midwifery units were also safe for the mother, and women who planned birth in a midwifery unit were significantly more likely to have a 'normal birth' without medical interventions, and were less likely to have their baby delivered by caesarean section, forceps or ventouse. For example, more than three quarters of all women in the planned home and midwifery unit groups had a 'normal birth' without medical interventions, compared with 58% of women in the obstetric unit group.**

**Source:** *Birthplace in England Programme - Background Q&A.*

### **Q: What is most useful for expectant parents about this study?**

The study results are important for parents because they provide detailed, up to date information about the four different places for planning birth. The results are specific to England. The study compares planning to use a 'midwifery unit' or birth centre with planning a hospital birth. It also compares planning to have a home birth with planning for a hospital birth. The main focus of the study is outcomes for women who are 'low risk', i.e. those who are healthy, with a straightforward pregnancy, no previous obstetric complications that might affect this pregnancy. The study finds that there are positive reasons for considering planning to use a birth centre or to have a home birth.

### **Q: Do the results apply to Wales, Scotland and Northern Ireland, as well as England?**

The results do not apply directly in Wales, Scotland or Northern Ireland. In all of these countries the healthcare system under the NHS is broadly similar to the system in England, and midwifery education and midwife-led care are fairly similar. In terms of these and other characteristics known to affect maternity services, on the whole Wales is most like England. However, in Scotland the geography is different with large parts of the country being rural and remote, including areas of high land and islands separated from the main land, which pose particular communication and transport challenges. In Northern Ireland the culture of the maternity services is more medicalised with fewer midwifery units and less experience of home birth.

## Q: Why should women consider planning birth away from the hospital labour ward?

Previous research shows that women may want to plan for home birth or birth in a maternity unit run by midwives (a 'birth centre') because:

- it is a less clinical environment with more comfort and privacy
- there is a focus on supporting women and keeping birth 'normal' – avoiding interventions where possible
- they are less likely to experience a range of medical procedures which some people prefer to avoid
- mothers and babies are less likely to be separated after birth allowing skin-to-skin care and easier breastfeeding.

'Out of hospital' birth is associated with a variety of potential benefits, mainly due to the reduced chance of having an operative birth (forceps or caesarean birth). These include:

- less postnatal pain,
- faster recovery after the birth,
- less likelihood of mothers being separated from their baby (babies often go into the nursery for a period of observation following a forceps or caesarean birth),
- more options in a subsequent pregnancy (women with a scar from a caesarean will be considered higher risk),
- after a caesarean birth, women's fertility may also be slightly reduced<sup>4</sup> and unexplained stillbirth may increase,<sup>5</sup> though some research shows no difference in having a second viable pregnancy after a caesarean in a first pregnancy<sup>6,7</sup> and further research is needed.<sup>5,7</sup>

**The Birthplace study shows that women who plan to give birth at home or in a birth centre are:**

- significantly less likely to have episiotomy, forceps, ventouse or caesarean section.\*
- significantly more likely to have a 'normal birth'.\*

**Source:** *Birthplace Research Programme - Background Q&A*

**A Normal birth** – 'Normal birth' is defined as occurring when labour starts spontaneously, there is no use of epidural, spinal or general anaesthetic and the baby is born without the assistance of episiotomy, ventouse, forceps or caesarean.<sup>2,3</sup>

\*Some women who plan a home birth or to use a birth centre need to transfer to hospital care, and they may have an assisted birth, but for the whole group of women planning care out of hospital intervention rates are lower.

## Q: Are there risks associated with home birth compared with planning for a hospital birth?

Risks for these 'low risk' women were low in all settings, with over 990 babies in every 1000 born healthy and well. For 'low risk' women who have previously had a baby, there was no difference in the risk of an adverse outcome for the baby (a serious or potentially serious complication, including a small number of deaths), between those planning to have their baby in a hospital obstetric unit and those planning a home birth.

For 'low-risk' first-time mothers there was a difference for those planning to have their baby in hospital and those planning a home birth. In round numbers, the risk of an adverse outcome for the baby was greater for those planning a home birth:

- 1 in 190 - for women planning to have their baby in hospital
- 1 in 110 - for women planning a home birth.

So, while overall, the chance of an adverse outcome was small in these 'low risk' mothers wherever the birth was planned. However, the chance of an adverse outcome was about 1.75 times greater for first-time mothers who were planning for a home birth at the start of their care in labour. (Actual numbers (to nearest whole number): planned OU births 1 in 189 vs. planned home births 1 in 108.)

This can also be expressed another way.

**'In the subgroup analysis stratified by parity, there was an increased incidence of the primary outcome for nulliparous women in the planned home birth group (weighted incidence 9.3 per 1000 births, 95% confidence interval 6.5 to 13.1) compared with the obstetric unit group (weighted incidence 5.3, 3.9 to 7.3).'**

**Source:** Birthplace in England Collaborative Group. Perinatal and maternal outcomes by planned place of birth for healthy women with low risk pregnancies: the Birthplace in England national prospective cohort study *BMJ* 2011;343:d7400.

### Q: What is meant by an 'adverse outcome'?

In the Birthplace research the authors used a combined measurement to assess safety for babies. The combined measurement was made up of all of the following:

- stillbirths during labour and early neonatal deaths (within 7 days of birth), and
- conditions associated with trauma (harm) at birth, the baby becoming distressed or being deprived of oxygen during labour.

These conditions and evidence of distress or birth asphyxia were 'signs' or a 'clinical diagnosis' of neonatal encephalopathy, meconium aspiration syndrome (this can involve complications caused by the baby inhaling meconium, passed from their bowel into the amniotic fluid surrounding them while in the womb), brachial plexus injury (injury to the nerves that control the muscles of the fingers, hand, arm, and shoulder, including Erb's Palsy), and a fractured humerus (the bone of the upper arm connecting the shoulder to the elbow) or clavicle (collar bone, connecting the shoulder to the chest).

**There were 250 primary outcome events and an overall weighted incidence of 4.3 per**

**1000 births (95% confidence interval 3.3 to 5.5). Intrapartum stillbirths and early neonatal deaths accounted for 13% of events, neonatal encephalopathy for 46%, meconium aspiration syndrome for 30%, brachial plexus injury for 8%, and fractured humerus or clavicle for 4%.**

**Source:** Birthplace in England Collaborative Group. Perinatal and maternal outcomes by planned place of birth for healthy women with low risk pregnancies: the Birthplace in England national prospective cohort study *BMJ* 2011;343:d7400.

### **Q: Where should women book if they want the safest place to have their baby?**

For healthy women with a straightforward pregnancy adverse birth outcomes are uncommon. For women expecting a second or subsequent baby, there was no significant difference between planning for a home birth, using a birth centre separate from hospital in the community, a birth centre on the same site as a full maternity hospital or a hospital labour ward in terms of having a live, healthy baby. For women expecting their first baby, the Birthplace study finds that the risk of an adverse outcome for the baby among those who planned a home birth was a little higher, with 1 in 110 births having an adverse outcome, rather than 1 in 190 from planned hospital births. This is a statistically significant finding. All the other planned birth settings have the same chance of adverse outcomes for babies.

### **Q: Where should women book if they want fewest interventions?**

The Birthplace study found that many more women had a 'normal birth' with low levels of intervention if they planned to have their baby away from the hospital labour ward, as the following overall normal birth rates for all mothers who were low-risk at the start of labour care demonstrate:

- 58% for planned births in an obstetric unit
- 76% for planned births at a birth centre attached to hospital
- 83% for planned births at a free-standing birth centre
- 88% for planned births at home.

### **Q: How do women know in advance whether they will want an epidural?**

Some women know that they would prefer to not to have drugs for pain relief, including an epidural. Previous research shows that midwives who care for women at home and in birth centres are experienced in supporting women using encouragement, different positions, immersion in water and massage to help them cope physically and emotionally during labour.

### **Q: Where can women get the midwifery support they need?**

The Birthplace study did not ask women about the quality of midwifery support they received but it does show that births without obstetric and anaesthetic interventions were much more common in midwifery-led care settings (home births and birth centre care). Other studies have suggested that this is partly the result of a different philosophy of care in different settings, with hospital labour wards tending to have more of a focus on monitoring and medicalised care. In contrast, midwives working in birth centres and providing care for home births tend to focus more on providing a calm,

comfortable environment, respecting privacy and disturbing women as little as possible. In these settings, emotional and practical support from midwives and others is considered highly important.

### **Q: Did Birthplace compare safety and adverse outcomes for mothers as well as for babies?**

The study considered the following measures as indicators of adverse outcomes for 'low risk' women, comparing outcomes for all non-OU settings with OU outcomes. The following list provides a summary of findings for each outcome examined (only statistically significant differences are reported):

- Third and fourth-degree tears – no differences
- The need for a blood transfusion - lower in births planned in FMUs
- Emergency caesarean section – lower in all births planned in non-OU settings (see below)
- Combined forceps and ventouse delivery rates – lower in all births planned in non-OU settings (though when separated there was no difference the forceps rates in planned AMU and planned OU births)
- Admission to higher level care – lower in FMUs
- Maternal deaths – there were no maternal deaths in any setting.

Emergency caesarean section rates were significantly higher in obstetric units than in the three other settings. The rates for each group of 'low risk' women were:

- 11% for planned births in an obstetric unit (nullips 16%; multips 5.3%)
- 4% for planned births at a midwifery unit attached to hospital (nullips 7.7% vs. 16% for OU births; multips 1% vs. 5.3% for OU births )
- 4% for planned births at a freestanding midwifery unit (nullips 6.7% vs. 16% for OU births; multips 0.7% vs. 5.3% for OU births)
- 3% for planned births at home (nullips 8.5% vs. 16% for OU births; multips 0.6% vs. 5.3% for OU births).

### **Q: Did Birthplace compare what positive outcomes for mothers and babies?**

The study was very large and needed to be as complete as possible so, apart from collecting additional data for the small number of cases in which there were serious or potentially serious adverse outcomes, the available data were limited to those measures where data are collected routinely. This means that the number of positive outcomes where comparisons can be made for the different planned places for birth is limited. The study measured three 'positive' outcomes for mothers and/or babies: immersion in water (i.e. use of a birth pool at any stage during labour), having a normal birth, and whether the mother breastfed her baby at least once. The results are:

- immersion in water – a minimum of three times greater for births planned in all non-OU settings
- normal birth – higher for births planned in all non OU settings
- initiated breastfeeding - higher for births planned at home and in an FMU.

### **Q: How many women plan to give birth in each of the different settings?**

In year ending March 2007, 1.1% of births were in freestanding midwifery units, 3.1% in alongside midwifery units, 3% at home and the rest (97%) in obstetric units. In the follow up survey of NHS trusts in England conducted at the end of 2010, the number of identified alongside midwifery units had risen from 26 to 53 (100%) and freestanding midwifery units had increased from 56 to 59. It seems probable that the proportion of births in these units will have increased (no follow-up data on access on actual place of birth were collected), but still be available to only a small minority as capacity is generally low in midwifery units.

By 2010, 50% of NHS trusts still had no midwifery unit (either freestanding in the community or alongside the obstetric unit). This limits the choices for birth available to women.

### **Q: What other things do women need to think about to help them decide?**

When deciding where to have their baby, it is helpful for women to know about the arrangements for getting extra care if they need it during labour. Transfers to hospital from planned home births and midwifery units are relatively frequent, particularly among first-time mothers. Transfers are one of the reasons why planned home and midwifery unit births are as safe as they are, enabling additional care to be provided when it is needed.

- For first-time mothers planning care 'out of hospital', at least one in three were transferred to the hospital labour ward during labour or immediately after the birth, with variation depending on the setting in which they had planned their care. Transfer rates from planned: home birth - 45%, freestanding midwifery unit - 36%, alongside midwifery unit - 40%.
- For women who had had a baby before, transfer rates were around 10%, varying a little depending on where planned: home birth - 12%, freestanding midwifery unit - 9%, alongside midwifery unit - 13%.

### **Q: Do outcomes vary depending on the size of maternity unit or midwifery staffing levels?**

The Birthplace programme has not been able to explore whether there is any association between the size of either hospital obstetric units or birth centres and outcomes for women or babies. Nor was it able to explore whether midwifery or medical staffing levels, seniority or years of experience affect outcomes. As serious or potentially serious adverse outcomes for women and babies are rare in a 'low risk' population who continue to be assessed as pregnancy develops, the small numbers make it impossible to drill down to ask a lot of specific questions. Birthplace looked solely at outcomes by planned place of birth, and also carried out further analysis by parity (whether women were first-time mothers or had had a baby before).

The Birthplace mapping study found a large variation between NHS trusts and between different regions in England in the way maternity services are configured (some have higher home birth rates, some have both freestanding and alongside birth centres, and some have no midwife-led units). It was not possible to link the data collected about the way services are configured and managed with outcomes for women and babies.



### Q: Don't women having a hospital birth have more interventions because they need them?

The study compares 'like with like' by focusing on 'low-risk' women, i.e. only those considered most suitable for midwifery-led, community-based care for pregnancy and birth. Any other differences among the groups of mothers in terms of age, socio-economic background, education, etc. which might affect outcomes are accounted for statistically with appropriate weighting. There was some additional analysis to further correct for differences in complicating factors identified at the start of labour care. The substantially higher odds of interventions being seen in obstetric units remained.

The Birthplace study compared outcomes by where women planned to give birth, not by where they actually gave birth, which makes sure that the obstetric unit group were not disproportionately made up of those with complications. Outcomes for women and babies transferred to hospital from home or midwifery units during labour (and immediately afterwards) were analysed in the 'planned home birth' and 'planned midwifery unit' groups. So the number of interventions in midwifery units and home births do not represent births that started out as being clinically more straightforward.

### Q: How do the costs of care compare in different NHS settings?

The Birthplace economic evaluation compared the costs to the NHS of care planned in each of the four different settings.

On average, costs per birth were highest for planned obstetric unit births and lowest for planned home births. Average costs were as follows:

- £1631 for a planned birth in an obstetric unit
- £1461 for a planned birth in an alongside midwifery unit (AMU)
- £1435 for a planned birth in a freestanding midwifery unit (FMU)
- £1067 for a planned home birth.

**These figures include all NHS costs associated with the birth itself – for example midwifery care during labour and immediately after the birth, the cost of any medical care and procedures needed in hospital, and the cost of any stay in hospital, midwifery unit, or neonatal unit immediately after the birth either by the mother or the baby. The costs for planned home and midwifery unit births take account of interventions and treatment that a woman may receive if she is transferred into hospital during labour or after the birth.**

**The costs do not include any longer term costs of care.**

**Source: Birthplace Research programme – Background Q&A**

### Q: Will this change NCT's policy on choice of place of birth?

NCT supports and informs women and their partners to make decisions that feel right for them and their family. Our policy on this will not change. We believe it is important for parents to have reliable evidence-based information that addresses their questions and concerns, and access to services that meet their needs.

We believe that all women should have access to a dependable, high-quality home birth service and that all areas of the country should offer women access to a local birth centre, freestanding in the community or close to the labour ward in an obstetric hospital (an alongside midwifery unit).

For women who are healthy and have a straightforward pregnancy, the choice of using a birth centre or planning for a home birth has much to recommend it. Generally, the results in terms of adverse outcomes for babies were reassuring in this study. For those who have had a baby before there was no difference in adverse outcomes between the different birth settings. For first-time mothers there was a small increase in adverse outcomes. Parents should have this explained to them so that they can make up their mind where they would like to plan to have their baby.

Mary Newburn, Head of Research and Information. November 2011.

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