Characteristics associated with intending and achieving a planned home birth in the UK: An observational study of 515,777 maternities in the North West Thames region, 1988-2000

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Keywords : Home birth, choice, risk, intrapartum transfer.

Abstract

Background & objectives : This study aims to identify factors which have an independent association with planned home birth. It investigates the social, demographic and obstetric profile of those who choose home birth as compared with those choosing hospital birth. This crucial evidence is lacking in the UK context and is needed when comparing pregnancy outcomes of different birth settings. Otherwise the comparison is problematic because observed differences in incidence of pregnancy outcomes may be due to the fact that different types of women choose different birth settings. It is important to understand these differences in order to control for them.

Method : This is an observational study involving secondary analysis of computerised maternity records from 15 hospitals in the former North West Thames Regional Health Authority (RHA) area. All pregnancies that resulted in a live or stillbirth in the years 1988-2000 are included (n=515,777). Two binary logistic regression models are used: one with intended place of birth at booking as the outcome, and the other with actual place of birth as the outcome.

Results : Women who are: parous, white European, aged 30+, living in a relatively affluent area, and partnered are most likely to intend a home birth. Among those who intend a home birth at the end of pregnancy, predictors of achieving a home birth include: an uncomplicated and relatively short labour, being parous, a low-risk pregnancy and being white European. The hospital providing maternity care predicts the outcome for both models.

Conclusions : Key variables robustly predict an intention to deliver at home, and the achievement of a planned home birth. Studies comparing the outcomes of different birth settings in the UK should control for these variables.

Introduction

Studies of place of birth tend to focus on comparing the birth outcomes of women giving birth in different settings (1, 2, 3, 4). Most of these studies show that, for low-risk pregnancies in developed countries, outcomes of planned home births are as good as – if not better than – those of planned hospital births. However, one of the problems inherent in these comparisons is the fact that women who have planned home births in the UK and other countries (e.g. the Netherlands and the USA) are not a random sub-set of the population of childbearing women (5, 6, 7, 8). Therefore, we cannot be sure that differences in outcomes are due to place of birth *per se*, or to the fact that the women who choose a home birth tend to be those who would have positive pregnancy outcomes regardless of where they gave birth (9, 10). It is important to understand the ways in which women who have planned home births differ from women who have planned hospital births, so that studies comparing the outcomes of different birth settings can take these differences into account in their design.

Previous research (5, 6, 8, 11) has concluded that women who have planned home births tend to be: older than average, white, middle-class and parous, tend to have had an uncomplicated pregnancy and tend not to have had a previous Caesarean section. Differences between the personal characteristics of women having planned home births and

those having planned hospital births have, however, only ever been estimated with respect to particular key factors in isolation as part of a single-variable analysis, and no attempt has been made to control for confounding. For example, age and parity are likely to be confounded because older women are more likely to have given birth before. The work of Anthony et al (2005) (5) indicates that age has an association with place of birth independent of parity, but they did not use multi-variable regression models to control for confounding. The current study provides a significant step forward by using, for the first time, a large-scale UK dataset and multi-variable models to identify women's characteristics which have an *independent* association with place of birth after adjustment for other related factors. The primary aim of this study, therefore, is to identify demographic, health and obstetric characteristics which have an independent association with intending and having a planned home birth.

In the UK, most pregnant women receive maternity care from the National Health Service (NHS), and in most parts of the UK, NHS maternity care providers are employed by individual NHS hospital trusts. Therefore, even if they are planning a home birth, most women receive antenatal, intrapartum and postnatal care from health professionals directly employed by a specific hospital (except those employing an independent midwife; this is rare (12)). UK vital registration data have revealed regional variations in take-up of home birth (7) and previous research has identified wide variations in home birth rates between NHS Trusts in England, even when rates were adjusted for age and parity (13). The extent to which hospital-level variations remain after factors other than age and parity are taken into account has never been quantitatively estimated in the UK. In addition to identifying individual-level characteristics that were associated with intending and having a home birth,

this paper does make such estimates, but does not attempt to explain which hospital-level characteristics might influence women's access to a home birth service. The data that might have allowed such explanations to be made were not available.

Methods

Study design

This is an observational study involving secondary analysis of maternity records, in which information was recorded contemporaneously as pregnancies progressed. The data come from pregnancies ending in the years 1988-2000 inclusive that were recorded on the St Mary's Maternity Information System (SMMIS), a computerised records system which was used by most of the hospitals within the former North West Thames Regional Health Authority (RHA) area. A total of 515,777 maternities from 15 hospitals were eligible for inclusion in this study, after the deletion of pregnancies that did not result in a live or still birth at one of the 15 hospitals.

About 80% of pregnancies in the RHA area at the time were captured on the SMMIS database (14), the remainder being those receiving care from the hospitals in the region which did not participate in the central collation of their data into this single database. The participating hospitals came from a wide range of types and locations, so there is no reason to suppose that the results are unrepresentative of the region as a whole. Studies have concluded that the completeness and quality of the information recorded within SMMIS is good. For example, studies comparing the information recorded on the computerised database against case notes found a very high degree of corroboration, and a high level of consistency across different hospitals (15, 16).

The SMMIS database is extremely useful for the study of pregnancy outcomes by place of birth, because it overcomes many of the problems inherent within other UK data sources. For example: (i) SMMIS contains a wealth of directly relevant demographic, health and obstetric information about individual women (over 200 items of information were recorded for each pregnancy), (ii) intended place of birth was recorded under the system as well as actual place of birth, thus allowing planned home births to be identified, (iii) the dataset contains a very large number of observations; over 6,000 planned home births were included, even though they made up only 1.2% of the total and (iv) it allowed the research team to objectively classify each pregnancy into a risk category, thus allowing the key covariate of pregnancy risk status to be included in the analysis.

A SMMIS record was created for each woman presenting for maternity care. In most cases, the record will have been created by a midwife at the 'booking appointment'. (A booking appointment is usually the woman's first consultation with a midwife, and usually takes place within the first trimester of pregnancy.) SMMIS recorded the woman's intended place of birth at booking. If the actual place of birth was different from the intended place of birth at booking, there was a field for maternity care providers to record the reason for and timing of the change. From this information, it was possible to identify women who changed their intention during pregnancy and those who attempted a home birth but were transferred to hospital during labour.

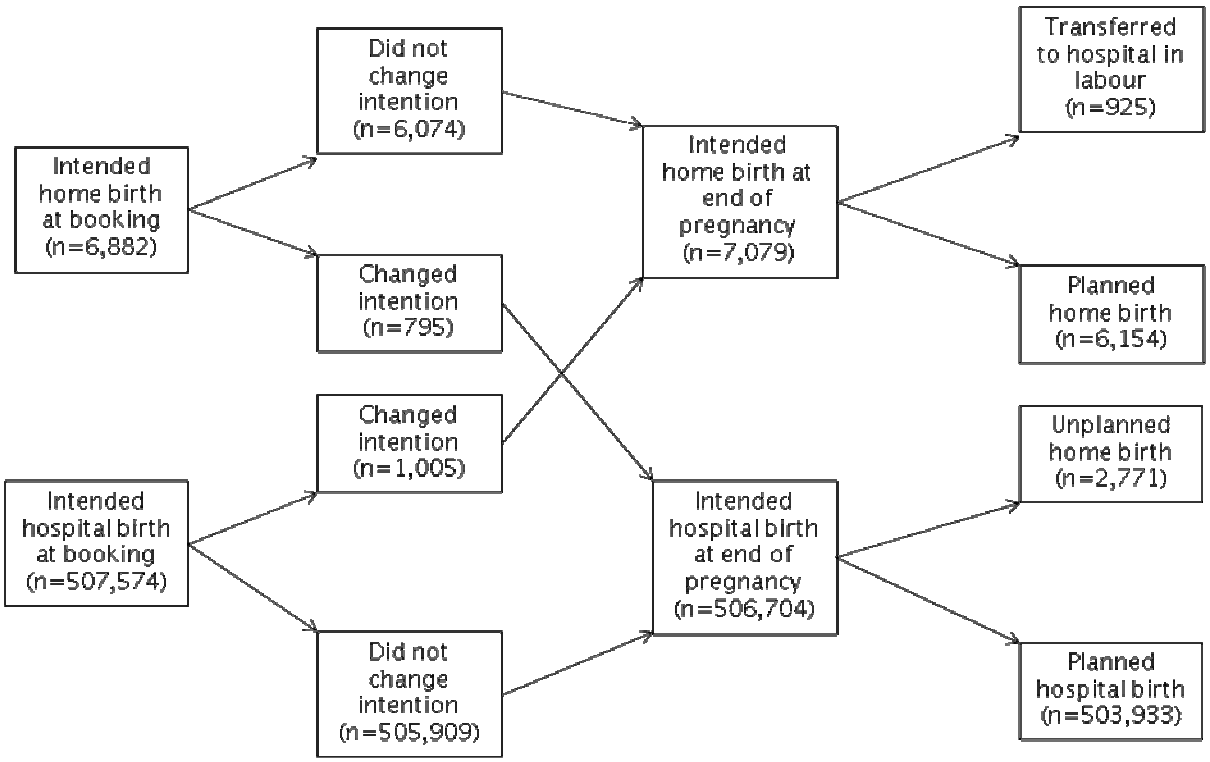
Covariates chosen to be included in the models were based on a review of past literature (particularly Chamberlain et al (1997) (6) and Redshaw et al (2007) (11)) and information

from other data sources including: (i) vital registration (17), (ii) the Growing up in Scotland birth cohort study (18) and (iii) the 2007 Healthcare Commission review of maternity services in England (19). Whilst these data sources provided useful insights into external factors such as period time trends in home birth rates and the mother's characteristics such as age and parity, they lacked the detailed information (e.g. on the woman's previous health and obstetric history) which was found in the SMMIS dataset. All the identified covariates were included in the model-building process (see Table 2 for a full list), but those without a statistically significant association with the outcome at the 95% level were excluded from the final models. The model was checked for collinearity in two ways: (i) extensive exploratory analysis identified covariates that were collinear and (ii) as the models were being built these covariates were checked to make sure there were sufficient observations with these combinations of characteristics and that the models were stable when pairs of collinear variables were included. Interaction terms were chosen *a priori* before the analysis commenced.

Statistical analyses

Figure 1 shows the numbers of women in the dataset following each path through pregnancy.

Figure 1: Paths through pregnancy, and numbers of women following each path



NB The 'changed intention' figures do not sum to the 'intention at booking' figures because it was not always possible to establish whether or not intentions changed between booking and the end of pregnancy. Such cases were included in the analysis of intention at booking, but excluded from analyses of changes in intention and actual place of birth.

Four binary logistic regression models were built to identify the characteristics associated with following different paths, as described in Table 1. The results of Models 1 and 3 are discussed in detail in this article; models 2a and 2b are not presented due to lack of space, but are summarised in the 'discussion and conclusions' section and full details are available on request.

Table 1: Stages of modelling, outcome variables and groups modelled at each stage

Model	Outcome variable	Group modelled
1	Intended place of birth at booking (home or hospital)	All
2a	Whether or not intended place of birth changed from hospital at booking to home before labour commenced	All who intended a hospital birth at booking
2b	Whether or not intended place of birth changed from home at booking to hospital before labour commenced	All who intended a home birth at booking

3	Actual place of birth (home or hospital)	All who intended a home birth at the end of pregnancy

Odds ratios and predicted probabilities were calculated for each outcome variable. For ease of interpretation, predicted probabilities are presented here, calculated on the basis of 'reference pregnancies'. For each covariate, a 'reference category' was selected, against which the other categories of that variable could be compared when interpreting each model. For most covariates, the reference category was the group most likely to have a planned home birth, but to aid model interpretation, in a few cases the numerically largest group was selected as a reference. Table 2 details the reference categories for each covariate in the 'intention at booking' and 'actual place of birth' models (models 1 and 3). Shaded cells represent covariates which did not feature in that model because they were found not to have a significant association with the outcome.

Table 2: Reference categories for 'intention at booking' and 'actual place of birth' models

Covariate	Reference category for 'intention at booking' model	Reference category for 'actual place of birth' model
Hospital (reference letter)	G	G
Year	1997-1998	
Ethnic group	White European	White European
Interpreter required		No
Age at childbirth	30-34	
Carstairs deprivation quintile	1 or 2 (least deprived)	
Partner status	Partnered	
Last baby low birthweight	No	
Previous termination(s)	No	
Previous miscarriage(s)	No	
Pre-pregnancy risk status	Low	
Pregnancy risk status		Low or medium
Parity	1	1+
Labour complications		No
Duration of stage 1 of labour		Less than 9 hours
Birthweight of current baby		2500g-3999g

The 'pre-pregnancy risk status', 'pregnancy risk status' and 'labour complications' variables were derived from International Classification of Diseases (ICD) codes (20) which were inputted into the SMMIS record by trained clerks based on physician diagnosis (21).

Pregnancies were classified according to NICE guidance issued in 2007 (22); they were classed as 'high-risk' if any of the conditions identified by NICE as "suggesting planned birth at an obstetric unit" were recorded, as 'medium-risk' if any of the conditions identified by NICE as "indicating individual assessment when planning place of birth" were recorded, and as 'low-risk' if none of these conditions was recorded. A pregnancy was classed as having complications in labour if any of the conditions listed by NICE as being indications for intrapartum transfer from home to hospital (e.g. signs of fetal distress) were present. The exception was 'maternal request for epidural anaesthesia', which was not recorded in SMMIS and is not necessarily indicative of a clinical complication. It should be noted that the data used in this analysis pre-dated the NICE guidance. No national guidance on risk classification and how it related to home birth existed in the UK in 1988-2000 (23), hence the decision to use the 2007 guidance. The use of the conditions listed in the guidance can be considered valid as an objective measure of elevated risk, but clinicians' and women's knowledge and opinions about risk at the time may not have been fully in line with the content of the 2007 guidance.

The predicted probability calculation assumes that the pregnancy in question has all the characteristics of a reference pregnancy except for the covariate under consideration (or covariates in the case of two-way interactions), and therefore shows the effect of changing just those covariates on the predicted probability of experiencing the outcome.

Results

First the factors predicting intended place of birth at the booking appointment are reviewed (model 1), followed by a discussion of factors predicting the likelihood of achieving a planned home birth (model 3). This article contains abridged results for reasons of space; the full model results including interactions can be accessed on-line at (insert web address).

Intended place of birth at booking (model 1)

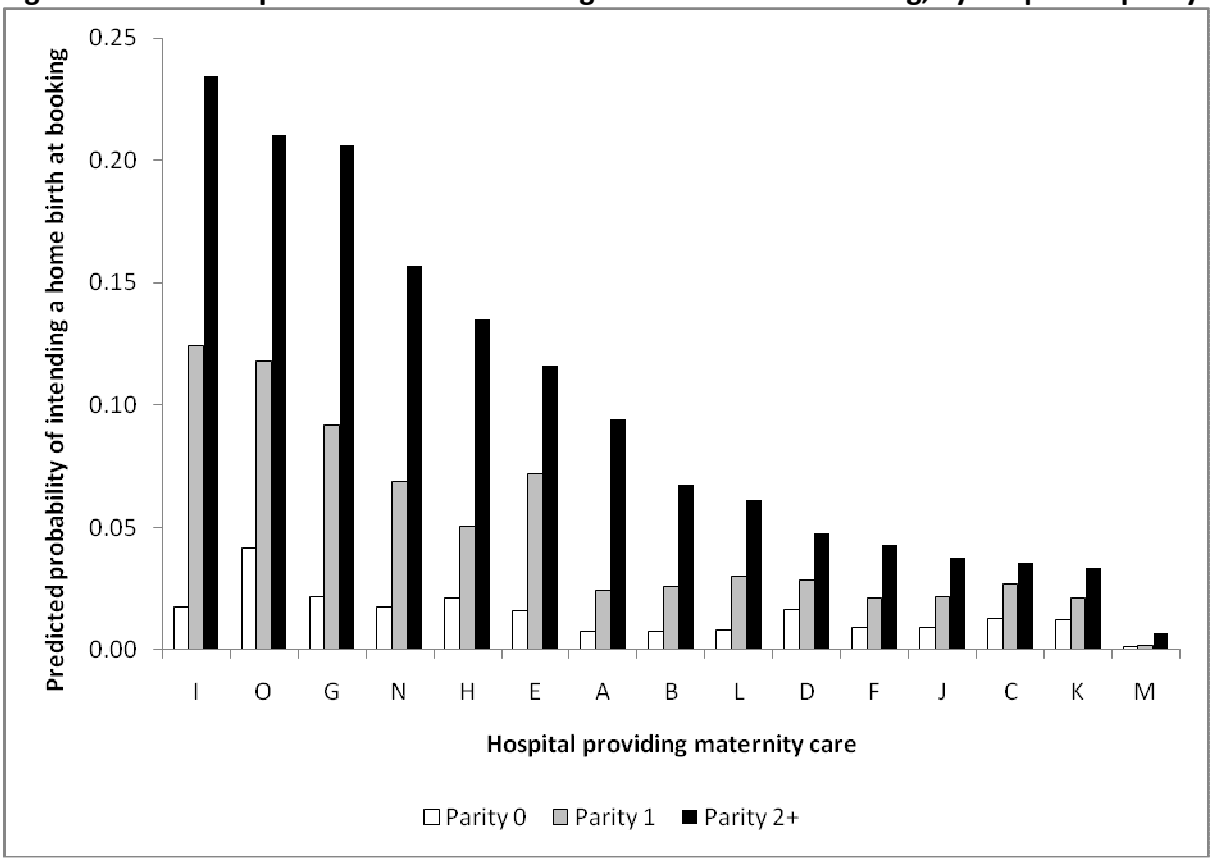
Numerous covariates predicted the intention at booking to have a home birth; the strongest predictors were parity, hospital and ethnic group. The results are presented here separately for covariates that had an independent association with intention at booking and for covariates which were involved in two-way interactions. The 'intention at booking' model contained four interaction terms (all of which involved hospital or parity): (i) hospital and year, (ii) hospital and parity, (iii) parity and mother's ethnic group and (iv) parity and mother's age at delivery.

The interaction between hospital and year showed that the time trend in intending a home birth at booking was different for different hospitals. Five hospitals showed steady increases over time, two showed very little change over the 13-year period, and six showed a relatively sharp drop between 1997-1998 and 1999-2000. One was unusual in that its predicted probability fell sharply after 1991-2.

The three interactions involving parity found that: (i) women having their first baby tended not to plan a home birth, regardless of their other characteristics and (ii) women having their third or subsequent baby were more likely to intend a home birth than those having

their second baby. Figure 2 shows that the difference between higher- and lower-parity women was considerably more marked in some hospitals than in others (hospitals are identified using a letter rather than the name of the hospital). Because factors such as pregnancy risk status and mother's socio-demographic profile were held constant in the model, these results indicate that inter-hospital variations in the proportion of women planning home birth were not simply due to different hospitals serving different types of women.

Figure 2: Predicted probabilities of intending a home birth at booking, by hospital & parity



There was also a marked difference in intended place of birth between higher- and lower-parity women in all ethnic groups except: Oriental, Mediterranean, Black African and South Asian. In these groups, women tended not to intend a home birth at booking, regardless of

their parity. The group most likely to intend a home birth at booking was White European women having their third or subsequent baby.

Women of parity 2 or higher were more likely to intend a home birth at booking, particularly if they were aged 30+. The model results for women aged 35+ were not significantly different from those for women aged 30-34, whereas the observed data showed that women aged 35+ were considerably less likely than those aged 30-34 to intend a home birth at booking. This indicates that the lower likelihood of women aged 35+ intending a home birth at booking was mainly accounted for by factors other than age (e.g. pregnancy risk status – older women were more likely to have high-risk pregnancies).

Table 3 details the observed data and predicted probabilities from the 'intended place of birth' model for the covariates which were not involved in interactions. It shows that, once other observed covariates were held constant, women who: lived in relatively affluent areas, were partnered, had no pre-existing high-risk factors (e.g. diabetes) and had had positive outcomes to previous pregnancies, were most likely to be recorded as having intended a home birth at booking. The observed figures show that women who had had one or more previous miscarriages were more likely than those who had had no miscarriages to intend a home birth, but once the figures were adjusted for the other covariates, the opposite was true. This is due to the observed data being confounded; older and higher-parity women were more likely both to have had previous miscarriages and to intend a home birth.

Table 3: Predictors of intending a home birth at booking: covariates not involved in interactions

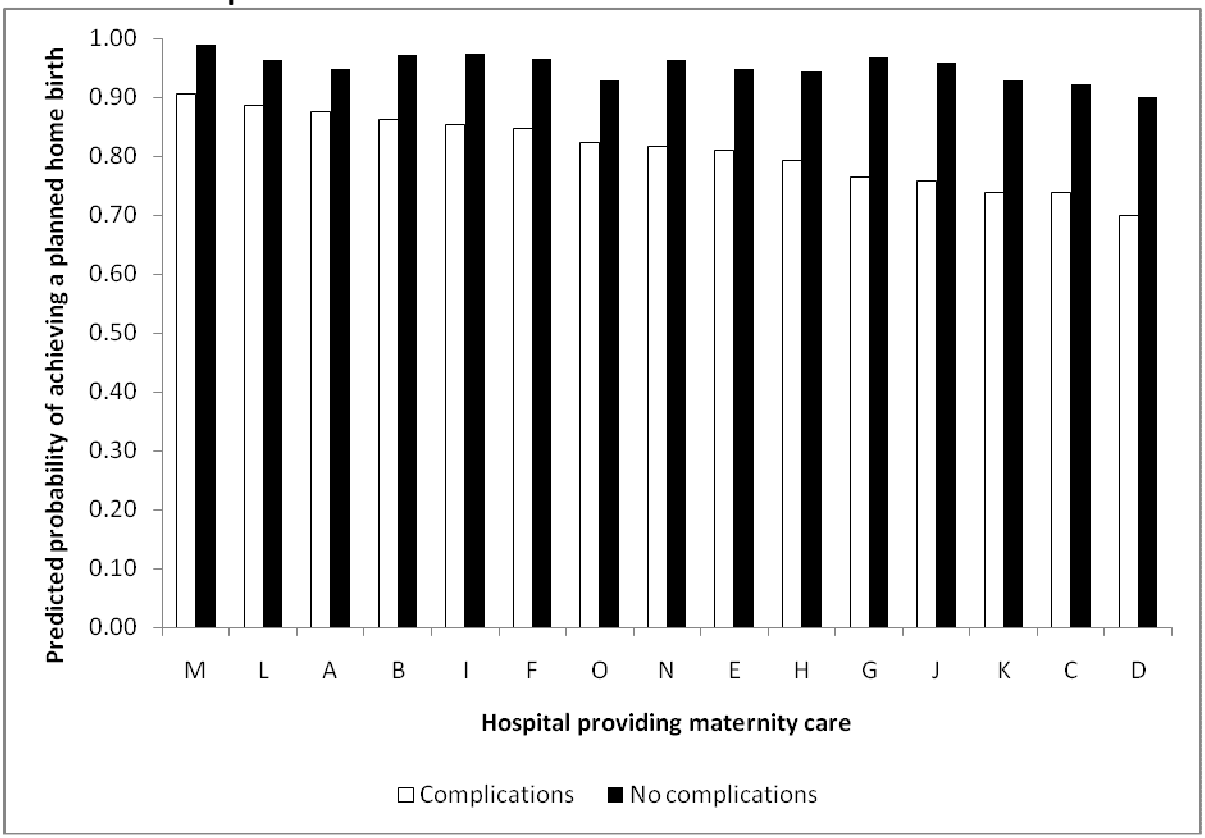
Covariate	Intended a home birth (observed)		Predicted probability	95% confidence interval
	N	%		
Pre-pregnancy risk status				
Low	5,961	1.50	0.092	0.080-0.104
Medium	504	1.18	0.060***	0.048-0.075
High	413	0.57	0.025***	0.020-0.032
Carstairs quintile				
1 or 2 (least deprived)	3,467	1.79	0.092	0.080-0.104
3 or 4	2,264	1.09	0.070***	0.058-0.084
5 (most deprived)	451	0.67	0.059***	0.047-0.075
Missing	696	1.52	0.133***	0.108-0.162
Partner status				
Single	551	0.78	0.065***	0.052-0.081
Partnered	6,327	1.43	0.092	0.080-0.104
Last baby low birthweight				
Yes	126	0.64	0.046***	0.034-0.062
No	6,752	1.37	0.092	0.080-0.104
Previous termination(s)				
Yes	792	1.07	0.074***	0.061-0.091
No	6,086	1.38	0.092	0.080-0.104
Previous miscarriage(s)				
Yes	1,555	1.52	0.080***	0.067-0.091
No	5,323	1.29	0.092	0.080-0.104

*** p<0.001 / ** p<0.01 / * p<0.05

Achieving a planned home birth (model 3)

Figure 1 shows that most of those who intended a home birth at the end of pregnancy went on to have one, with 13% being transferred to hospital during labour. Modelling of whether or not a planned home birth was achieved found that, unsurprisingly, the strongest predictor of achieving a planned home birth was an uncomplicated labour. However, the covariate indicating complications in labour interacted significantly with the hospital identifier; most of the variation by hospital was found in the group who experienced labour complications, as illustrated by Figure 3. There was relatively little variation by hospital among those who did not develop complications.

Figure 3: Predicted probabilities for achieving a planned home birth among those who intended a home birth at the end of pregnancy, by hospital and whether or not there were labour complications



The modelling also indicated that, even when hospital and labour complications were held constant, women experiencing relatively long labours, those having their first baby, those with high-risk pregnancies and those from certain minority ethnic groups were more likely to experience an intrapartum transfer to hospital after an attempt at a planned home birth. These results are detailed in Table 4. Note that 'failure to progress' was classed as a labour complication, so the results for 'duration of labour' show that a long labour was associated with intrapartum transfer even if failure to progress was not diagnosed.

Table 4: Predictors of achieving a planned home birth for those who intended a home birth at the end of pregnancy: covariates not involved in interactions

Covariate	Achieved a planned home birth (observed)		Predicted probability	95% confidence interval
	N	%		
Duration of stage 1 of labour				
<9 hours	5,244	91.39	0.967	0.956-0.975
9+ hours	705	64.62	0.911***	0.864-0.903
Missing	171	82.21	0.960	0.922-0.965
High-risk pregnancy				
Yes	655	72.30	0.898***	0.844-0.889
No	5,465	89.14	0.967	0.956-0.975
Birthweight of current baby				
<2500g	51	60.71	0.827***	0.683-0.857
2500-3999g	4,989	86.96	0.967	0.956-0.975
4000+g	1,080	88.82	0.974*	0.957-0.972
Parity				
0 (first baby)	645	64.95	0.918***	0.872-0.911
1+	5,475	90.59	0.967	0.956-0.975
Ethnic group				
White European	5,504	87.23	0.967	0.956-0.975
Black Caribbean	88	83.81	0.961	0.909-0.972
Oriental/Mediterranean/Black African/ South Asian	137	75.27	0.946**	0.895-0.952
Other	256	89.20	0.972	0.943-0.976
Missing	135	88.24	0.974	0.941-0.980
Interpreter required				
Yes	13	59.09	0.870**	0.626-0.938
No	6,107	87.06	0.967	0.956-0.975

*** p<0.001 / ** p<0.01 / * p<0.05

Discussion & conclusions

Study limitations

Some potentially useful individual- and hospital-level covariates were not included in the SMMIS database, which limits how much of the variation in home birth incidence can be explained by this analysis. At the individual level, notable omissions include: (i) mother's social class, (ii) mother's attitudes towards and beliefs about different places of birth, (iii) a measure of the skill and experience level of the midwife(ves) assigned to women planning a home birth and (iv) the distance from the woman's home to the nearest hospital obstetric

unit. Had these variables been included in the modelling, some of the other covariates may have become less strongly associated with the measured outcomes.

At the hospital level, much more could have been concluded had the database contained information on: the existence of an on-site midwife-led unit (MLU); staffing levels; the size, structure and experience of the midwifery team; the strength of midwifery leadership; the attitudes of senior medical professionals towards home birth; hospital referral status and the ease of travel within the hospital's catchment area. Unfortunately, however, attempts to locate this information from other sources were unsuccessful.

The SMMIS data relate to the period 1988-2000, so it cannot be assumed that the same patterns apply in the present day. For example, since the publication of *Maternity Matters* in 2007 (24), NHS trusts have been under more pressure to offer women a real choice about place of birth, so it is possible that there is now less variation by hospital. However, there is evidence from more recent data (13) to suggest that large variations by NHS Trust still existed in England as recently as 2007. At the level of the individual woman, however, the results of this study support those of previous studies (6, 11, 19), which suggests that the patterns are not specific to a particular point in time.

Similarly, the SMMIS data relate to a specific region, so these results cannot be assumed to have applied across the UK or to other countries. However, the North West Thames area was geographically large and demographically diverse, so there is reason to have confidence that the patterns identified in this analysis were reasonably typical of large parts of the UK, particularly as the results echo those of studies from other countries (5, 8).

Summary of results, discussion and conclusions

The use of multi-variable regression models represents a significant step forward from previous studies, which have tended to carry out single-variable analysis only. The following characteristics had an independent association with intending a home birth at booking (model 1), after other observed characteristics were held constant: parity (higher-parity women were more likely to intend a home birth), hospital providing care, mother's age (those aged 30+ at delivery were more likely to intend a home birth), ethnic group (women in the White European and Black Caribbean groups were more likely than those in other ethnic groups to intend a home birth), pregnancy risk status (women without pre-existing risk factors were most likely to intend a home birth), deprivation status (women living in more affluent areas were more likely to intend a home birth), relationship status (women with partners were more likely than unpartnered women to intend a home birth) and obstetric history (women who had had a low birthweight baby before, those who had had one or more previous miscarriages and those who had had one or more previous terminations of pregnancy were less likely to intend a home birth).

The full results of the models looking at changes in intended place of birth (models 2a and 2b) are not presented for reasons of space but are available on request. A change from home to hospital was most strongly predicted by having a high-risk pregnancy, and a change from hospital to home was most strongly predicted by being higher-parity and low-risk. Once again, hospital independently predicted change in both directions, even when the other covariates were held constant.

It is clear from Figure 1 that only a very small proportion of women in the SMMIS database (0.3%) changed their intended place of birth after the booking appointment. Those who intended a home birth at booking were more likely than those who intended a hospital birth at booking to change their intended place of birth. The fact that such a small proportion of women changed their intended place of birth after the booking appointment suggests that women were deciding on their place of birth at or before the booking appointment. It is unclear how much opportunity there was to revisit this decision as the pregnancy progressed. Neither NICE (25) nor the Care Quality Commission (19) (formerly the Healthcare Commission) recommends that the decision be taken at the booking appointment, and in parts of the UK which have been found to have high home birth rates, the decision was left until much later (26, 27). Maternity care providers should consider current practice in this regard, and not expect women to make this important decision before they are ready.

The following characteristics had an independent association with achieving a planned home birth (model 3), once other observed characteristics were held constant: labour complications (those experiencing complications were more likely to transfer to hospital after attempting a home birth - but not all did so, and not all transfers were due to labour complications), hospital providing care, duration of labour (women with shorter labours were more likely to achieve a planned home birth), pregnancy risk status (women with low-risk pregnancies were more likely to achieve a planned home birth), birthweight (those carrying low birthweight babies were less likely to achieve a planned home birth), parity (those having their first baby were less likely to achieve a planned home birth), ethnic group (women in the Oriental, Mediterranean, Black African and South Asian ethnic groups were

less likely than those from the White European and Black Caribbean groups to achieve a planned home birth) and English language skills (those listed as needing a interpreter were less likely to achieve a planned home birth).

Women having their first baby, those with longer labours and those with high-risk pregnancies were more likely to be transferred to hospital in labour after an attempt at a home birth, *regardless of whether or not they developed complications in labour*. This may be an indication that, in the absence of labour complications, these groups of women were more likely to request a transfer (e.g. to obtain epidural pain relief). On the other hand, seeing through a home delivery in these circumstances may require greater confidence and experience from the attending midwife(ves), and these results may be an indication that women and midwives tended to lack the confidence and/or experience to see through a home birth in less-than-ideal circumstances. Recent research has found that UK midwives tend to feel less confident when operating in low-technology settings, possibly because of the way they are trained and their early work experiences (19, 28). If the choice agenda is to be delivered effectively, this lack of confidence will need to be addressed.

The wide variations between hospitals in terms of the number of women opting for, and achieving, planned home birth persisted even when the different demographic and obstetric profiles of the women using the different hospitals were taken into account. This is an indication that women in this region at this time did not have equal access to informed choice on place of birth.

Similarly, the 'intention at booking' model (model 1) indicated that women from Oriental, Mediterranean, Black African and South Asian ethnic groups tended not to plan a home birth, even if they were higher-parity (even after Carstairs quintile and other potential confounders were held constant). This suggests that women from these ethnic groups may not have had equal access to informed choice. The findings from the 'actual place of birth' model (model 3) also indicated that women with limited spoken English were more likely to be transferred to hospital after attempting a planned home birth. This suggests that effective communication between the labouring woman and her birth attendant(s) is important if the woman's chances of a successful home birth are to be maximised.

This study has confirmed a number of findings from previous studies in the UK, US and Netherlands, e.g. that women having planned home births tend to be older, higher-parity, white, partnered, with uncomplicated pregnancies and labours and living in relatively affluent areas. It adds to what was already known in four main ways: (i) it has identified an association between a woman's obstetric history (e.g. previous miscarriages and terminations) and her birthplace intentions, (ii) it has separated the different stages of decision-making, allowing us to see how the woman's characteristics are associated with her intentions at different stages of pregnancy, (ii) it has confirmed that variations between hospitals exist even when the figures are adjusted for the fact that different hospitals have different user profiles and (iv) it has quantified, within a multivariable framework, for the first time in the UK, the ways in which women planning a home birth are a selected group. It is crucial for those designing studies to compare the safety of home and hospital birth to be aware of these, and to ensure that their studies control adequately for potential biases. Studies should ensure that information on these characteristics is collected for all study

subjects, and that the possibility of their causing bias is controlled through the use of matching or multi-variable analysis techniques. If studies do not do this, doubt will be cast on observed differences between the outcomes of home and hospital birth and the study results will be of limited use in contributing to the debate about the relative safety of different birth settings.

It is also important for clinicians and service managers to be aware of the questions raised about informed free choice of place of birth for all women, and to reconsider their policies and practices in terms of: (i) at what point, and on what bases, women are expected to make this important choice, (ii) the provision of opportunities to revisit/reconsider this choice later in pregnancy, and (iii) when and how decisions are made about transferring to hospital after attempting a home birth in the absence of clinical complications.

Contribution to authorship

AN was responsible for the study design and statistical analysis, with advice and guidance from AB and ZM. AN wrote the first draft of the paper; AB and ZM provided suggestions and all authors approved the final version.

Details of ethics approval

The Riverside Research Ethics Committee (REC) approved the project (REC reference number 08/H0706/42) on 17 April 2008.

Funding

This analysis forms part of Andrea Nove's PhD research. Her PhD is funded by the Economic and Social Research Council (ESRC).

Acknowledgements

We are grateful to Professor Phil Steer for providing the anonymised SMMIS records used in this analysis, and for his help with understanding and navigating the raw dataset. Dr Will Stones gave helpful advice on pregnancy risk classification. Dr Imelda Balchin provided advice on the use of ICD codes. All interpretation of data is the responsibility of the authors.

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