DEVELOPMENT AND PILOT TESTING OF THE QUESTIONNAIRE FOR USE IN NHS TRUST-BASED MATERNITY SURVEY

Project Team

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1 Introduction

The Department of Health and the Healthcare Commission funded a national survey of women's experiences of maternity services in 2006. The survey was designed by the National Perinatal Epidemiology Unit (NPEU) and was undertaken by the Office for National Statistics. It was primarily intended to provide a baseline for the National Service Framework for Children, Young People and Maternity Services[1] and to provide comparisons with the last national survey of recent mothers which was undertaken by the Audit Commission in 1995.[2]

As part of the national patient survey programme coordinated by the Healthcare Commission, a further survey of recent mothers was planned for 2007-08 to provide trust-level results of women's experiences of maternity care. Data from the survey will provide information about women's views and experiences for use by local service commissioners and providers; help providers identify service areas that require improvement; input to the Healthcare Commission's Annual Health Check and provide evidence for its service review of maternity services.

This report outlines the research undertaken to develop and test a questionnaire for use in the trust-level maternity survey. The aims of the survey development were to:

- devise a sampling strategy that would be workable in all acute NHS trusts which provide maternity care
- identify potential problems that may be encountered when surveying users of maternity services
- develop a questionnaire based on the one used in the 2006 National Maternity Survey
- test the face validity of the questionnaire, sampling method and data collection method in a mailed pilot survey in trusts with differing birth rates and organisational characteristics.

[1] Department of Health. National Service Framework for Children, Young People and Maternity Services. 2004. DH Publications, London.

[2] Audit Commission, First Class Delivery: Improving Maternity Services in England and Wales, 1997, Audit Commission, London.

2 Background

Understanding the experience and perspectives of childbearing women is key in the effective auditing and development of maternity services. The actual experiences and views of women who have recently given birth can be used to inform and improve care, and services overall, both nationally and locally.

Research in the United Kingdom over the last two decades has focused on user experiences, clinical aspects of maternity care and maternal health and wellbeing after birth with a view to informing policy, understanding the psychosocial issues associated with pregnancy and childbirth and improving services[3,4,5].

The focus in the Changing Childbirth report was on accessible, appropriate care that is women-centred and this continues to be foremost in the minds of health professionals working in maternity care, user groups and those planning and developing maternity services. This is no more evident than in the National Service Framework for Children, Young People and Maternity Services that was published in 2004[6], with a clear commitment to women and their families in a local as well as a national context[7].

The national survey of women's views carried out by the Audit Commission in 1995[8,9] , and the local maternity audits that followed, were part of a rolling programme in which the organisation of care and user views were documented as a way of suggesting areas for improvement and encouraging change. The 1995 survey, based on a random sample of women selected by birth registration, provided the framework for planning and designing the 2006 National Maternity Survey and the current work to develop a survey instrument for the national programme of local surveys within individual NHS trusts in 2007.

The development of the survey questionnaire used in the national survey and in the pilot work for the local trust level surveys was also informed by the work of the National Institute for Clinical Excellence, and in particular by the published and draft guidelines relating to routine antenatal care, intra-partum care,

[3]Green JM, Coupland VA, Kitzinger JV. Great expectations. A prospective study of women's expectations and experiences of childbirth. 2nd Edn. Hale, England: Books for Midwives Press, 1988.

[4] Gready,M., Newburn,M, Dodds,R. and Gauge,S. Birth choices: women's expectations and experiences. National Childbirth Trust, London 1995.

[5] Green, J, Baston, H, Easton, S and McCormick, F. (2003) Greater Expectations: Summary Report, University of Leeds.

[6] Department of Health, National Service Framework for Children, Young People and Maternity Services. 2004. DH Publications, London.

[7] Department of Health, Supporting Local Delivery. 2004, DH Publications, London.

[8] Audit Commission, First Class Delivery: Improving Maternity Services in England and Wales, 1997, Audit Commission, London.

[9] Garcia, J., Redshaw, M., Fitzsimons, B. and Keene, J. First class delivery: a national survey of women's views of maternity care. 1998. Audit Commission, London.

routine postnatal care and perinatal mental health[10,11,12,13]. By addressing some of the recommendations for practice in the survey instrument it will be possible for trusts and the Healthcare Commission to assess the extent to which these are current practice and will provide a baseline against which comparisons can later be made.

[10] National Institute for Clinical Excellence. Antenatal Care: Routine care for the healthy pregnant woman. London: NICE 2003.

[11] National Institute for Clinical Excellence. Routine postnatal care of women and babies. London: NICE 2006.

[12]National Institute for Clinical Excellence, Antenatal and postnatal mental health (APMH) draft (to be published in 2007)

[13] National Institute for Clinical Excellence ,Intrapartum care: management and delivery of care to women in labour draft (to be published in 2007)

3 Sampling Review

3.1 Introduction

Preliminary research for the maternity survey raised several sampling issues. The first was that the sample population needed to be carefully and accurately defined. Firstly. it was recognised that, due to the potentially sensitive subject matter, women who had a stillbirth or whose infant had died should be excluded from the survey. Furthermore, women who had a stillbirth or whose infant had died represent a specific subset of women whose experiences are likely to be very different and for whom much of the questionnaire would not be applicable. Other research methods, such as an interviewer-based survey might be more appropriate for this group of women. Second, it was unclear whether women who had a home birth and/or those women whose baby was hospitalised at the time of the survey should be included or not in the sample.

Before designing a sampling strategy for the new survey, it was necessary to gather more information about the possible exclusions mentioned above, namely whether it would be feasible for trusts to apply these restrictions given the data captured in their hospital information systems. It was also necessary to see whether they were collecting high quality data on parity and multiple births that could be easily included on modified patient lists. This stage was particularly important in light of variations in databases across trusts, which makes the design of a strategy that could be universally applied more difficult.

3.2 Methods

Survey leads in acute hospital trusts offering maternity services were identified using the Acute Surveys Co-ordination Centre contact list. In most cases, researchers from the Co-ordination Centre telephoned the hospital switchboard and asked to be connected with the trust IT manager. If this was not possible, contacts from the A&E and outpatients surveys were contacted, and asked to refer the researcher to the appropriate IT contact. A series of questions (see Figure 1) about respective hospital information systems were asked over the telephone and if requested, a follow-up email was sent.

During summer 2005 over 60 trusts were contacted, of which 24 provided detailed feedback.

Figure 1: Questions to trusts about maternity systems

- Do you have separate Patient Administration Systems (PAS) and maternity databases? If yes, does data from the maternity database feed into PAS?
- Are you able to link records between mothers and their infants?
- Would it be possible to exclude mothers whose infants had died prior to the survey (approx. 3 months from birth to survey) from the sample?
- Would it be possible to exclude mothers whose infants are inpatients at the time of the survey?
- Would it be possible to exclude women who have experienced a stillbirth?
- Do you collect information on home births? If so, how complete are these data?
- Do you collect information on parity and multiple births? How is parity defined? How are multiple births defined?

3.3 Overview of information systems

There is considerable variation between trusts in the information systems they use to collect and store maternity data. Approximately 50% of trusts have maternity data elements incorporated into their patient administration system databases (PAS). These data elements include all the mandatory Hospital Episode Statistics (HES) variables, such as birth outcome and parity. Because maternity information is stored directly in PAS for these trusts, records on mothers and infants should be linkable. For some, the infant's NHS number should be recorded on the mother's record. For others, linkages can be done through patient name, postal code and date of birth.

The remaining 50% of trusts have separate maternity databases, which house all maternity clinical data, including information on birth outcomes, parity and multiple births. For these trusts, PAS only stores basic demographic and contact details for maternity patients. The issue with these maternity databases is twofold:

- Maternity databases do not store any information about the health of the child. Consequently, in order to track the infant's health over time, maternity records would need to be either integrated in PAS, or easily linked to PAS.
- For some trusts, it would not be possible to gather all the necessary sample data from the maternity database alone. Instead, information would need to be combined from both the maternity database and PAS.

Despite these problems, trusts using two separate systems reported that they would still be able to provide the required sample data and link records between mothers and infants.

3.4 Possible exclusions

Based on the literature review and previous maternity surveys, it was recommended that women who died, women who had a stillbirth, or whose infant had died prior to the survey should be excluded from the sample. There was some concern regarding how feasible it would be to apply these criteria however, particularly those which required mothers' and infants' records to be linked.

Trusts that were consulted provided overwhelmingly positive feedback regarding the proposed exclusions. While some acknowledged that the process of linking records might be time consuming and require some manual checking, noone rejected the exclusions as either unreasonable or unmanageable.

Stillbirths

Stillbirth information is captured in either the maternity or PAS database, depending on the trust. Whether this information is recorded on the mother's or infant's record also varies by trust (e.g. for one trust, a stillbirth is registered as a live birth followed by a neonatal death). Twenty-two of the 24 responding trusts reported that stillbirths could be easily excluded from the sample. Two trusts were unsure whether this information could be excluded.

Neonatal deaths

In order to exclude mothers whose infants have died, the following is required:

- Mothers and infants records must be able to be linked; in most cases, an infant's NHS number should be recorded on a mother's record in the maternity database.
- If the infant's NHS number is recorded on a mother's record in the maternity database, the maternity database must be able to be linked to PAS, which will allow review of the infant's medical history. If these systems are not linked, this would have to be done manually.
- Once the infant's records have been reviewed in PAS and deaths have been eliminated from the sample, infant names should be run through the NHS Strategic Tracing Service (NSTS) to detect any deaths occurring outside the hospital.
- Twenty-two trusts reported that they would be able to exclude from the sample mothers whose infants have died. However, several emphasised that the process would be laborious, time consuming and that they might miss some cases. Others stated that only deaths occurring in the hospital would be detected.

Of the two remaining trusts, one was unsure if it would be possible to exclude these cases and one claimed that it would have to be done manually at the ward level.

Hospitalised infants

Some previous maternity surveys have excluded mothers whose infants are very sick at the time of the survey. It would be very difficult to identify these infants, although as a proxy measure for 'extreme' sickness, mothers of those infants who are in hospital at the time of the survey could be excluded. If this exclusion criterion was applied, it would only be possible to exclude infants that are inpatients in the same hospital where they were delivered.

However, following a project management (stakeholder) meeting in May 2006 it was decided that the sample should be as 'inclusive' as possible in order that the findings of the survey are representative of all women who gave birth during the sampling period. Furthermore, obtaining feedback from those mothers whose infants are in hospital at the time of the survey is important as their experiences as a group could differ to those women whose infants were not hospitalised.

Home births

Feedback from trusts regarding data capture on home births was mixed. Only 4 of the 24 trusts reported that data on women who had home births was routinely collected and of high quality. While some of the other trusts did collect information on home births, there were problems with data quality and timeliness. The majority of trusts either did not collect information on women who had home births or did not store information on these women in a format that would allow them to be included in the sample.

The following is a summary of responses:

- Four trusts collected data on women who had home births in their maternity databases. Women who had home births could be easily identified in the sample.
- Six trusts collected data on women who had home births in their maternity databases but claimed the data was incomplete and of variable quality. However, those women who had home births who were included could be easily identified in the sample.
- Four trusts collected high level data on home births only (e.g. overall counts) but could not relate this information to actual mothers and their infants.
- Four trusts did not collect any information on women who had home births in either their maternity or PAS databases.
- Two trusts did not collect any information on women who had home births in their hospital information databases. This information was captured on a PCT level and recorded in a separate information system.
- One trust collected data on women who had home births in their outpatients database only. Information would need to be linked between their maternity, PAS and outpatients systems to draw up a sample that included home births.

- One trust collected data on women who had home births in their maternity system but reported a significant time lag between these births and information being entered into the system.
- One trust only collected data on women who had home births for those who delivered at home and were subsequently admitted to the hospital.
- One trust only kept a manual log of women who had had home births

Although the review revealed that many trusts did not collect information on women who had home births, it was decided that these women must be included in the sample where possible, even if this could only be reliably reported at an aggregate national level. Obtaining feedback about women's experiences of having a home birth is important, particularly as current policy is to promote choice for women in relation to their pregnancy care and place of birth, including at home.[14]

The 2006 National Maternity Survey, developed by NPEU with sampling carried out by the Office for National Statistics, included women who had home births in the sample. As the trust-based maternity survey was a complementary exercise to the national survey, the inclusion of women who had home births was felt to be necessary. Moreover, the main review of trusts information systems was undertaken in 2005, and it was expected that for many trusts the data available on home births would have improved by the time of the survey in summer 2007.

3.5 Demographic & Other Variables

A number of demographic variables, including parity and multiple birth, have been found to have an association with women's experiences with maternity services.[15]

Parity

Nineteen trusts reported that they routinely collect parity data in either their maternity or PAS databases. Only two trusts are definitely not currently collecting this information. Three trusts were unsure whether information on parity is being collected.

The definition of parity appears to vary across trusts. Some definitions include:

- Number of previous pregnancies, including stillbirths and miscarriages
- Number of previous deliveries
- Number of previous pregnancies of 24 weeks gestation or over plus any previous pregnancies less than 24 weeks gestation resulting in a LIVE birth

For the purposes of the 2006 National Maternity Survey "parity" was based on women having previously given birth.

[14] Nursing & Midwifery Council. Midwives and home birth. NMC Circular 8-2006, 13 March 2006.

[15] Audit Commission, First Class Delivery: Improving Maternity Services in England and Wales, 1997, Audit Commission, London.

Many trusts are in the process of either updating the maternity modules of their databases or overhauling their entire information systems. Once these changes are implemented, parity data should be available for all trusts. Furthermore, the definition of parity should be standardised for all trusts using similar information systems.

Multiple births

Twenty-one trusts reported that they collect information on multiple births. Only one trust does not collect this information and an additional two were unsure whether this information is included in either their PAS or maternity databases. As with parity however, once systems are overhauled, information on multiple births should be consistently available.

The definition of multiple birth appears to be standardised across trusts.

Place of birth

It is important to know the exact hospital site/unit where a baby was delivered primarily because, in our subsequent analysis, we will want to assess the extent to which differences in women's reported experiences relate to differences in the organisation of the unit where they gave birth. Many trusts have more than one hospital and/or a combination of consultant-led and midwifery-led units. During October 2006, 24 trusts were contacted to find out if they could identify the exact unit where a baby was delivered from their IT systems. These trusts were contacted because they had a combination of midwifery and consultant-led units, and in many cases these units were located within the same hospital site. Responses were received from 15 trusts and are summarised below:

- 11 trusts reported that they could distinguish the unit of delivery from their information systems.
- 2 trusts reported that their PAS system does not currently record which unit a baby is born in, although both trusts are in the process of implementing new software that should include this function in the future. One of the trusts said they have an in-house system that does record the information, whilst the other trust records the information on the maternity records. However, this trust commented that for one of the hospital sites, identifying unit of delivery would presently be very time consuming and would require a lot of interventions to obtain the information.
- 1 trust can identify which hospital a baby was born in, and if the consultant and midwifery-led units were separate wards then it would be possible to identify which one the baby was born on. However, if the consultant and midwifery-led units are treated as one ward then they would not be able to distinguish between the two different units.
- 1 trust reported that they do not currently have a discrete midwifery-led unit (although this is planned for early 2007) and that they record deliveries by the type of care that women receive (i.e. if midwives have been the lead clinician then this is recorded as "Midwifery Led" and vice versa for Consultant led care).

3.6 Sampling recommendations

Based on trust feedback and discussions with the survey project management group, the recommendations regarding drawing the sample for the trust-based maternity survey were:

- **Women who had a stillbirth, or whose infant died should be excluded**:
- **Women who had a home birth should be included in the sample**
- **Women whose infant is hospitalised at the time of the survey should be included**
- **Data on parity** should be included on the list of patient information submitted by trusts. The vast majority of trusts reported that they are collecting reliable data on parity. The overriding concern regarding this data element remains the slight variations in definition across trusts. However, with the movement towards standardised information systems across trusts, this should be less of an issue in the future. Information on parity can also be obtained from respondents by including questions in the survey on women's obstetric history. It is important that parity is reported by trusts and respondents to reduce the , where possible, to provide any missing information on parity in the response data.
- **Unit of delivery (location of birth)** should be included in the sample information for all women, so that analysis by the organisational structure of maternity care (i.e. consultant or midwifery-led care) can be undertaken. If there is more than one unit within a hospital (i.e. a consultant-led unit and a midwifery-led unit), trusts should indicate in which unit the baby was born.
- **Multiple birth data** could also be included on the list of patient information, but is less important than parity. For that reason, this information will be collected from respondents by including a question in the survey that asks women if they had a 'single baby', 'twins', or 'triplets/quads or more'.

4 Questionnaire design & development

4.1 The research questions

The questions that the pilot survey aimed to address in this feasibility study were:

- How effective is the instrument developed in providing a current picture of women's experience of care in individual trusts?
- How effective is the process of sampling and data collection planned in collecting data from women experiencing care in individual trusts?
- How effectively will the analysis of the pilot trust-based data from individual women contribute to the annual health check, assist trusts in identifying areas for improvement and provide evidence for the Acute Hospital Portfolio?

4.2 The survey instrument

The instrument developed for the trust-level survey was based on the 28 page questionnaire used for the National Maternity Survey carried out by NPEU in 2006, with ONS selecting a random sample of women who had recently given birth in one specific week in England. In turn this had taken as its starting point the 43 page questionnaire used for the 1995 national survey of recent mothers and the local audits that followed. Many aspects of maternity care have changed since 1995 and the survey instrument reflected this. Detailed information about the development of the National Maternity Survey 2006 questionnaire can be found in the report of this survey[16].

For the National Maternity Survey a series of cognitive interviews with women with young babies were carried out to test the comprehensibility of the instructions, the relevance of the topics covered and whether any issues had been omitted. Women's recall of their maternity care and the general acceptability of the questionnaire were also explored. Interviewees were recruited via community groups and personal contacts. The key findings from the cognitive interviews were:

- General approval for the appearance, style and layout.
- General comments that length was manageable.
- Women voiced a need to be able to indicate where there is variation in quality of care. This is difficult to do when questions ask about "midwives" or "staff".

[16] Redshaw M, Rowe R, Hockley C, Brocklehurst. National survey of women's views of maternity care: Survey of recent mothers 2006. Draft final report to Department of Health. Oxford: National Perinatal Epidemiology Unit, 2006. To be published on NPEU website: http://www.npeu.ox.ac.uk/

- Women had some difficulties with questions about "choice". Women recognise that choice is often constrained by individual factors and circumstances so feel uncomfortable answering simple questions about "choice".

In the light of these comments, a number of changes were made to the questionnaire.

Like the National Maternity Survey, the trust-level survey instrument aimed to collect information on the care provided and women's experience of that care. The format of the questionnaire followed the stages of pregnancy, labour and birth, postnatal care in hospital, postnatal care at home and included short sections on babies born at home, infant feeding and babies requiring special care, as well as demographic details. The specific content areas addressed in the pilot testing for local trusts were largely the same as those in the National Survey: access to care; access to information; communication; the facilities available; choice, continuity and perceived quality of care. In order to understand and interpret women's responses in relation to these different aspects of care appropriately, the survey instrument also included questions about clinical aspects of their care such as numbers of ultrasound scans, overnight hospital antenatal stays, mode of delivery, use of pain relief and episiotomy.

4.3 Questionnaire development

A number of strategies were used in designing the questionnaire that aimed to maximise response rates[17] [18].

While maintaining and adding to the range of topics covered, consistency of question format was improved, some questions were combined, response formats simplified, and overall length was reduced to 16 pages, including the cover. The questionnaire was printed with blue text and was clearly identifiable as a maternity survey with a block of four photographs of women and babies used to illustrate the cover.

Changes and refinements agreed with the project management group included more details about contact with health professionals, choice about place of birth at the start of pregnancy, antenatal education, 'dating' and 'anomaly' scans, cleanliness and hygiene, hospital postnatal care, including food, baby checks and advice about infant care and more slightly more detailed questions on the language spoken at home, disability and current health status.

[17] Edwards P, Roberts I, Clarke M, DiGuiseppi C, Pratap S, Wentz R, Kwan I, Cooper R. Methods to increase response rates to postal questionnaires. *Cochrane Database of Methodology Reviews* 2003, Issue 4.

[18] Dillon, D. Mail and internet surveys: the tailored design method. 2000. Wiley, New York.

Questions that were left out included those that required open-text responses other than the final question giving women the opportunity to say anything else that they wished about their maternity care. Also excluded were questions about women's health problems in pregnancy and during the postnatal period, their worries about the labour and birth, reasons for transfer, reasons for induction and for caesarean section. It was considered that responses to these would be of less use to trusts and the data from the national maternity survey include this information.

5 Mailed Pilot Survey

5.1 Introduction

The purpose of this pilot survey was to test the face validity of the questionnaire and to test the sampling and data collection methods before using the questionnaire in the devolved maternity survey, scheduled to take place in late Spring 2007.

5.2 Methods

To ensure that the sampling method would be appropriate across all trusts, seven trusts were selected to participate in the pilot that were diverse in terms of the structure of maternity services, the type and size of organisation, and their geographical location.

An application to obtain ethical approval for the pilot survey was submitted to Southampton and South West Hampshire Research Ethics Committee (REC) on 19th June 2006. However, it was the ethics committee's view that the project did not require to be ethically reviewed under the terms of the governance arrangements for RECs as they felt the study was 'service evaluation'.

Trusts were sent guidance notes on how to draw a sample of eligible women. Each trust was required to provide a sample of all women who gave birth in May 2006, excluding stillbirths, neonatal deaths, post natal deaths, maternal deaths and women aged under 16 at the time of birth. Trusts with less than 200 women who gave birth in May, sampled back into April and, if necessary, March. The trusts checked for deceased women and infants using the National Strategic Tracing Service (NSTS) and trust records. Additionally, someone from the midwifery team was required to validate the sample as a further check to avoid sending out a questionnaire to a woman who had a stillbirth or whose baby had died since birth.

To comply with the Data Protection Act, all trusts agreed to allow two named researchers at the Picker Institute to organise the mailing of questionnaires by working under the terms of an honorary contract. Before sending out the questionnaires to women, a unique number was assigned to each woman, which corresponded to numbers printed on the questionnaires. Questionnaires were then mailed to all women, approximately three months post partum, on 31st July 2006 (n=2772 across all 7 trusts). Two weeks after the mailing, a reminder letter was sent out to all women who had not returned their questionnaire. A second reminder along with a replacement questionnaire was sent to non-respondents one month after the original mailing. The data provided here includes all completed questionnaires returned by 13th October 2006.

5.3 Response rates

The response rates for all seven trusts (A-G) that participated in the pilot survey are shown in Table 1. The pilot maternity survey achieved an average response rate of 59% (after adjusting for questionnaires returned undelivered or sent to women who were ineligible), which is comparable to the national 2005 adult acute hospital inpatient survey. The adjusted response rates ranged from 43% to 72% across trusts. The lower than average response rates at two of the trusts (A & D), may be partly attributed to the higher levels of women from Black and Minority Ethnic (BME) groups within their local populations.

Table 1 Response rates

	A	B	C	D	E	F	G	Overall
Completed useable questionnaire	213	327	334	205	141	246	126	**1592**
Returned undelivered or woman moved house	8	9	12	9	3	12	5	**58**
Woman too ill, opted out or returned blank questionnaire	13	13	7	4	2	3	1	**43**
Women not eligible	0	4[19]	0	0	0	0	0	**4**
Questionnaire not returned	273	226	151	212	54	94	65	**1075**
Sum	507	579	504	430	200	355	197	**2772**
Raw Response Rate (%)	42%	56%	66%	48%	71%	69%	64%	**57%**
Adjusted denominator	499	566	492	421	197	343	192	**2710**
Adjusted Response Rate (%)	**43%**	**58%**	**68%**	**49%**	**72%**	**72%**	**66%**	**59%**

5.4 Freephone calls

The covering letters and questionnaires sent to participants provided a freephone number that participants could call if they had any queries about how to complete the questionnaire or if they wished to opt out of the survey.

Across all 7 trusts participating in the maternity survey there were 35 calls to the FREEPHONE, representing 1.3% of the women surveyed. The calls can be grouped as follows:

- 10 called to say they had received a reminder but not the original mailing and that they would like to receive a copy of the questionnaire

[19] Three women had incomplete addresses (i.e. just a name and postcode), and one answered the questionnaire based on her experiences of pregnancy/birth regarding all her children.

- 8 completed the questionnaire over the phone with the help of a researcher [7 required an interpreter provided by Language Line]
- 5 had a question about how to complete the questionnaire or a general query about the survey
- 5 called to opt out of the survey [1 required an interpreter]
- 3 reported they had received reminders but had returned the questionnaire some time ago
- 1 called to say the recipient was not known at the address
- 1 relative called to say recipient was not currently resident in the UK
- 1 reported a change of address
- 1 requested another freepost envelope to return the questionnaire

5.5 Non-response bias

The pilot trusts supplied the age and ethnic group of the women included in the sample. Using this information and the outcome of each sample member (i.e. whether they returned a completed questionnaire or not), the response rates were calculated for age and ethnic groups. It is important to compare the response rates for different demographic groups of responders and non-responders to the survey, as the responders may not be representative of all sampled women.

Age

The response rates by age group are shown in Table 2. The response rates increase with age, with a large difference between women aged 16 to 18 years (39%) and those aged 35 years or over (67%). The differences in response rates between age groups were significant (Chi square=80, df=4, $p<0.001$), indicating that the achieved sample was not representative of some age groups.

Table 2 Response rates by age group

Age group	Did not respond / Opted out		Responded		
	Count	Percent	Count	Percent	Total
16-18 years	46	61%	29	39%	75
19-24 years	314	52%	286	48%	600
25 to 29 years	329	44%	414	56%	743
30-34 years	258	34%	508	66%	766
35 years and over	171	33%	355	67%	526
Total	1118	41%	1592	59%	2710

Ethnic group

Information on the ethnic group was available for 83% of the women sampled. The response rates by ethnic group are shown in Table 3. There was a large difference between the White (65%) and the non-White group (44%), which was statistically significant (Chi-square=86, df=1, $p<0.001$). There were significant differences between all ethnic groups, with particularly low response rates amongst the Asian women (41%) and the Chinese and 'other' ethnic groups (39%). These differences were statistically significant (Chi square=92, df=4, $p<0.001$).

Table 3 Response rates by ethnic group

Ethnic group	Did not respond / Opted out		Responded		
	Count	Percent	Count	Percent	Total
White	583	35%	1076	65%	1659
Non-white	357	56%	276	44%	633
Mixed	20	44%	25	56%	45
Black or black British	78	51%	76	49%	154
Asian or Asian British	216	59%	148	41%	364
Chinese & other	43	61%	27	39%	70
Total	940	41%	1352	59%	2292

This analysis has shown that one of the limitations to the feasibility study is that, in common with many other research studies, younger mothers and

minority ethnic women were less likely to participate. There was limited use of 'Language-line' (i.e. translation service) by non-English speaking participants in the pilot survey (i.e. 8 calls representing 0.3% of women sampled).

5.6 Item non-response

The combined dataset from the pilot trusts was used to calculate the non-response rate for each question. The item non-response rate is the number of missing values on a question, as a percentage of the total number of respondents who could have answered the question.

The results of this analysis showed that for the majority of questions in the survey (61%), the item non-response rate was less than 3% (see appendix 1). The item non-response rate ranged from 0% to 72%. However, questions with a particularly high non-response rate (e.g. 72%), were questions not applicable to all respondents anyway (i.e. respondents skipped the question rather than ticking the appropriate response option such as 'Does not apply').

The analysis was useful for highlighting the questions which appeared to cause respondents the most difficulty or confusion and/or where the layout or structure of the questionnaire could be improved. Most of the questions generating a high item non-response rate (i.e. over 5.5%), were removed or amended for the main survey. The amendments made to the questionnaire following the pilot survey are outlined in section 5.10.

5.7 Analysis by sub-group

It is important to examine the extent to which women's experiences of maternity care were influenced by their demographic characteristics, parity, and the type of delivery they had. This was undertaken as a preliminary analysis to establish which variables, if any, should be used to standardise the 2007 maternity survey results. To undertake this analysis, individual responses to evaluative questions were scored using a scale of 0 to 100, with higher scores reflecting better experience. An overall experience score was a simple average of all applicable responses to eighty evaluative questions. These questions were also grouped into domains to reflect the main stages of care received during pregnancy and childbirth, with mean scores calculated for 'antenatal care' (31 items), 'care during labour and birth' (15 items), 'care in hospital after the birth' (15 items) and 'postnatal care' (11 items)

Demographic characteristics

Table 4 shows that the mean scores generally increase by age for each of the domains of care. An analysis of variance test showed that the differences in mean scores between age groups are statistically significant for the overall mean score, and for the 'care during labour and birth' and 'postnatal care' domains. The finding that younger women reported a less positive experience of their care is consistent with other national patient surveys, which showed that

older patients generally answer more favourably about their experience than younger patients.[20]

Table 4 Mean domain scores by age

	Age group	N	Mean Score	95% CI for Mean Lower	95% CI for Mean Upper	Sig.
Overall mean score	16-18	29	**70**	64.58	74.67	0.01
	19-24	286	**76**	74.00	77.08	
	25-29	414	**76**	74.44	76.96	
	30-34	508	**77**	75.86	78.01	
	35 +	355	**77**	75.99	78.60	
	Total	1592	76	75.68	76.94	
Antenatal care	16-18	29	**68**	62.71	73.38	0.13
	19-24	286	**74**	72.68	76.09	
	25-29	414	**75**	73.23	76.18	
	30-34	508	**75**	74.08	76.46	
	35 +	355	**75**	73.49	76.55	
	Total	1592	75	74.06	75.49	
Care during labour and birth	16-18	29	**71**	64.39	78.23	0.03
	19-24	286	**77**	75.03	79.02	
	25-29	414	**78**	76.04	79.34	
	30-34	508	**79**	77.50	80.46	
	35 +	355	**80**	78.17	81.78	
	Total	1592	78	77.53	79.22	
Care in hospital after the birth	16-18	29	**68**	60.89	76.06	0.50
	19-24	286	**71**	68.73	73.38	
	25-29	413	**71**	69.52	73.22	
	30-34	507	**72**	70.62	74.07	
	35 +	355	**73**	71.18	75.01	
	Total	1590	72	71.01	72.91	
Postnatal care	16-18	29	**72**	63.26	81.10	0.00
	19-24	286	**82**	80.10	84.31	
	25-29	413	**82**	79.99	83.53	
	30-34	506	**85**	83.22	86.38	
	35 +	355	**86**	84.11	87.46	
	Total	1589	84	82.65	84.41	

Respondents to the survey from BME ethnic groups were less positive about their experiences of care than women from White ethnic groups (Table 5). An independent T-test showed that the differences in the mean scores between White and BME groups were statistically significant for all the different domains of care, with the exception of 'care in hospital after the birth'. The analysis could not be broken down by ethnic group further (i.e. disaggregate the BME group) due to the small number of respondents in each of these ethnic groups.

[20] Commission for Healthcare Audit and Inspection. Variations in the experiences of patients using the NHS services in England: Analysis of the Healthcare Commission's 2004/2005 survey of patients. London, November 2006.

Table 5 Mean domain scores by ethnic group

	Ethnic group	N	Mean	Sig.
Overall mean rating	White	1261	**77**	<0.001
	Non-white	328	**74**	
Antenatal care	White	1261	**75**	<0.001
	Non-white	328	**72**	
Care during labour and birth	White	1261	**79**	0.02
	Non-white	328	**76**	
Care in hospital after the birth	White	1260	**72**	0.48
	Non-white	327	**71**	
Postnatal care	White	1259	**85**	<0.001
	Non-white	327	**77**	

*Ethnic group from response data, or sample information if response missing

Parity

As stated in section 3.5, some of the pilot trusts were unable to provide information on parity. Therefore, responses from the two survey questions on women's previous pregnancies and births were analysed to establish if their reported experiences of care were influenced by their obstetric history. Table 6 shows that, in general, women who had a previous pregnancy had higher mean scores - indicating a more positive experience - for each of the domains of care (with the exception of women's experiences of antenatal care where woman who had not had a previous pregnant were more positive). Table 7 shows that although the overall mean score was higher for those women that had previously given birth compared with those who had not (77 compared with 74), this difference was not statistically significant (p=0.15). At domain level, women's reported experiences of 'care during labour and birth' and 'care in hospital after the birth' were significantly better (i.e. significantly higher mean scores) if they had previously given birth. However, for the other domains, the differences in the mean scores were not significant.

Table 6 Mean domain scores by self-reported parity (previous pregnancy)

	Previous Pregnancy?	N	Mean score	Sig.
Overall mean score	Yes	967	**77**	0.14
	No	609	**76**	
Antenatal care	Yes	967	**74**	0.10
	No	609	**76**	
Care during labour and birth	Yes	967	**79**	0.02
	No	609	**77**	
Care in hospital after the birth	Yes	967	**73**	0.01
	No	609	**70**	
Postnatal care	Yes	966	**85**	0.00
	No	608	**82**	

Table 7 Mean domain scores by self-reported parity (previous births)

		N	Mean score	95% CI for Mean Lower	95% CI for Mean Upper	Sig.
Overall mean score	None	41	**74**	70.05	77.47	0.15
	1 or more	876	**77**	75.89	77.62	
	Total	917	77	75.77	77.46	
Antenatal care	None	41	**73**	69.07	77.74	0.77
	1 or more	876	**74**	73.13	75.10	
	Total	917	74	73.12	75.04	
Care during labour and birth	None	41	**74**	68.74	78.65	0.04
	1 or more	876	**79**	78.20	80.52	
	Total	917	79	77.98	80.24	
Care in hospital after the birth	None	41	**68**	61.86	73.84	0.08
	1 or more	876	**73**	71.97	74.54	
	Total	917	73	71.76	74.27	
Postnatal care	None	41	**82**	77.60	86.54	0.30
	1 or more	875	**85**	83.79	86.13	
	Total	916	85	83.70	85.97	

Delivery type

Women who had a normal (vaginal) birth reported a more positive experience of their care overall, compared with women who had an assisted delivery or a caesarean (Table 8). However, a more complex picture emerges when the different periods of maternity care (i.e. different domains) are examined. The mean scores for the 'antenatal care' domain were significantly higher for those women that had a delivery using forceps. The mean domain scores for 'care during labour & birth' and 'care in hospital after the birth' were significantly higher - reflecting more positive experiences - for those women that had a normal (vaginal) birth (although women that had a caesarean also had a high score for their 'care during labour & birth'). However, in contrast to the overall mean score, the scores for these domains were lower for women that had an assisted delivery compared with women who had a caesarean. The mean scores for the 'postnatal care' domain were significantly higher for women that had a delivery using forceps (86) or a normal delivery (84), compared with women who had a caesarean (82) or a delivery using a vacuum cap (80).

Table 8 Mean domain scores by delivery type

	Delivery type	N	Mean score	95% CI for Mean Lower	Upper	Sig
Overall mean score	Normal (vaginal) birth	1055	**77**	76.42	77.98	0.00
	Delivery using forceps	53	**76**	72.80	79.34	
	Delivery using a vacuum cap	112	**75**	72.90	77.30	
	A caesarean	363	**74**	73.00	75.61	
	Total	1583	76	75.72	76.98	
Antenatal care	Normal (vaginal) birth	1055	**75**	74.31	76.09	0.01
	Delivery using forceps	53	**78**	74.82	81.62	
	Delivery using a vacuum cap	112	**76**	73.65	78.52	
	A caesarean	363	**73**	71.31	74.27	
	Total	1583	75	74.09	75.53	
Care during labour and birth	Normal (vaginal) birth	1055	**79**	78.07	80.09	0.02
	Delivery using forceps	53	**73**	68.39	78.40	
	Delivery using a vacuum cap	112	**75**	72.35	78.51	
	A caesarean	363	**78**	76.38	80.12	
	Total	1583	78	77.60	79.29	
Care in hospital after the birth	Normal (vaginal) birth	1055	**74**	72.50	74.81	0.00
	Delivery using forceps	53	**68**	62.69	73.79	
	Delivery using a vacuum cap	112	**68**	64.79	71.89	
	A caesarean	362	**69**	67.08	71.05	
	Total	1582	72	71.09	73.00	
Postnatal care	Normal (vaginal) birth	1053	**84**	83.24	85.38	0.03
	Delivery using forceps	53	**86**	80.78	90.31	
	Delivery using a vacuum cap	112	**80**	76.94	83.84	
	A caesarean	362	**82**	79.93	83.76	
	Total	1580	84	82.62	84.40	

5.8 Open text responses

Space was allocated at the end of the questionnaire for respondents to write their own comments about their experiences of care whilst they were pregnant or since they had their baby.

Of the respondents to the survey, 54% wrote a comment about their care. Analysis showed (*Tables 1-9 in appendix 2)* that women were more likely to write a comment if:

- they were aged 30 years or older
- White
- English or an African language was spoken most often at home
- they left full time education when they were aged 19 or over
- they had not previously given birth
- their self-reported health status was ‘poor’ or ‘very poor’
- they rated their overall care as ‘poor’ during a) pregnancy b) labour and birth and c) postnatal care.

The type of delivery women had, whether or not they had a more 'at risk' pregnancy (i.e. stayed in hospital during pregnancy) and whether or not they had a multiple birth were not significantly associated with whether or not they added a freetext comment. Whilst open text responses are of value to individual trusts, this analysis shows that it is important to note that the respondents who write their own comments are not representative of all sampled women.

5.9 Conclusions and recommendations: sampling methodology

The pilot survey showed that, overall, trusts were able to follow the sampling instructions and carry out the necessary checks, such as ensuring women who had a stillbirth were not included in the sample. However, the pilot survey highlighted some sampling issues, which are listed below with recommendations for the main survey:

- Trusts were told to include all eligible women who delivered during May 2006, by using the ICD10 delivery codes (080-084) and delivery dates. However, a few of the pilot trusts informed the Acute Co-ordination Centre that not all eligible women would be identified using ICD10 codes alone and so these trusts also used other methods of selecting women, such as the Office of Population Censuses and Surveys (OPCS) procedure codes and admission codes. Unfortunately, one pilot trust did not include all eligible women in their sample as they used ICD10 delivery codes alone which did not identify all women who gave birth in the sampling period.

The guidance notes on drawing a sample should be amended for the main survey, so that the instructions are less specific to ensure trusts include all eligible women in the sample.

- Four out of the seven pilot trusts were not able to distinguish home births on their information system, although for one of these trusts there were 3 respondents who reported their baby was born at home.

The 2007 guidance manual will need to emphasise that home births should be included in the sample, and that if they are not recorded on the hospital information system, it will require a manual check of the records held by midwives.

- Two trusts do not record parity on their information systems so were unable to include this information in the sample. As expected, the definition of parity varied between the pilot trusts (i.e. live issues from viable pregnancies / number of previous pregnancies). There appeared to be a lack of agreement between parity recorded on trust information systems and responses to survey questions on previous pregnancies and births.

If data are to be weighted by parity in the 2007 survey, results from the pilot suggest that using response information on parity may be more reliable than trust records.

- One of the pilot trusts removed a woman from the sample as she had a concealed pregnancy and the baby was fostered. Two other women were also excluded by the trust as their babies were discharged to foster care. The trust felt that women who have babies taken into care should be excluded from the survey due to its sensitivity – particularly if the mother did not want her baby to go into care.

The list of women to be excluded from the survey should be expanded in the sampling guidance notes for the main survey, to advise trusts to exclude women who had concealed pregnancies and/or whose babies were discharged into care. Some trusts may not store this information on their hospital information systems, although the validation of the sample by midwives should identify these women.

- The pilot showed that women from Black and minority ethnic (BME) groups appeared to be slower to respond to the survey. Analysis of the response pattern showed that 12% of the respondents from BME groups returned their questionnaire after the original cut-off deadline, compared with 6% of White respondents. The length of time the fieldwork stage was left open was therefore extended.

To help maintain or increase the response rates to the 2007 survey, particularly for women from BME groups, it is important that an increased length of time is allocated to the fieldwork stage so that the cut-off date for receiving completed questionnaires can be extended.

- As stated in section 5.5, one of the limitations to the feasibility study was that, in common with many other research studies, younger mothers, minority ethnic women and non-English speaking women were less likely to participate in the survey. It is important to recognise the need to obtain the views of younger mothers and those women from minority ethnic groups.

The Acute Co-ordination Centre is currently carrying out development work, on behalf of the Healthcare Commission, on how to increase response rates amongst BME and seldom heard groups. This work should help identify potential strategies for increasing response rates. The guidance manual will include a section on 'collecting data from non-English speaking populations' to highlight to trusts that using other methods other than surveys (e.g. community based focus-groups) might be a more appropriate way of obtaining the views from groups of women with limited understanding of English.

5.10 Conclusions and recommendations: questionnaire

As discussed in section 4, the questionnaire had already been tested before the pilot survey. The face validity of the questionnaire was supported by the quality of the responses received and the small number of calls made to the FREEPHONE helpline (i.e. 1.3% of women surveyed).

The pilot survey did highlight some areas which required further amendment to lower the percentage of missing responses to some questions and to respond to women's feedback. The following changes were made to the questionnaire following the pilot:

Section A

- **A3 'When was you baby born?'**

Some respondents answered this question based on their first child (i.e. born in a previous year). This may be because the question prompt stated 'please fill in this question about the baby who was born first'.

The question prompt was changed to read 'If you had more than one baby this time, please fill in this question about the baby who was born first'

There was a high non-response rate (13%) to the second part of this question on the time of birth. This was partly because some women did not indicate whether the time of birth was 'am' or 'pm' and so the time could not be converted to 24 hour time.

Given that this question will be recoded into time periods for analyses (i.e. day time vs. night time deliveries), the question was amended to include specific response options corresponding to an overall time period when their baby was born, e.g. Day time [06.00am-6.00pm] and Night time [6.01pm-05.59am].

Section B

- **B7 'Did you get enough information from a midwife or doctor to help you decide where to have your baby?'**

The response options were altered to correspond to those used in the other questions about information provision (i.e. E3, G3) to: 'Yes, definitely' 'Yes, to some extent', 'No, but I would have liked some information', 'No, but I did not need this information' and 'Don't know / Can't remember.'

- **B8 'Were you given a copy of The Pregnancy Book?'**

Some women wrote on the questionnaire that they already had a copy of 'The Pregnancy Book' from a previous pregnancy.

The response options were expanded to include 'No, I already had one'.

- **B11 'Who did you see for your antenatal check-ups?'**

In order to ensure accurate cleaning of responses to questions B13 and B14, this question should be changed from a 'tick all that apply' question to one where respondents have to clearly indicate whether or not they saw each of the different health professionals.

The question was therefore re-structured so that respondents simply tick 'yes' or 'no' as to whether they saw each of the health professionals for their check-ups:

B11. Did you see any of the following health professional(s) for your antenatal check-ups?

Midwife	1 ☐ Yes	2 ☐ No
GP (family doctor)	1 ☐ Yes	2 ☐ No
Hospital doctor	1 ☐ Yes	2 ☐ No
Other	1 ☐ Yes	2 ☐ No

- **B13 & B14 'If you saw a midwife/hospital doctor about your pregnancy, did you see the same one every time?'**

These questions did not make it clear to respondents that they refer to seeing the midwife/doctor for antenatal check-ups and not about their pregnancy in general. Furthermore, some respondents appeared to have some difficulty in answering the question if they had only seen the health professional once.

The questions were re-phrased to read 'If you saw a midwife/hospital doctor for your antenatal check-ups, did you see the same one every time?' The response options were expanded to include 'I only saw a midwife **once**' / 'I only saw a hospital doctor **once**'.

- **B16 'Do you feel that you had a choice about whether to have a screening test for Down's syndrome?' and B17 'Were the reasons for having a screening test for Down's syndrome clearly explained to you?'**

Some women wrote on the questionnaire that they 'did not know' or 'can't remember' the answer to these questions

The response option 'Don't know/ Can't remember' was therefore added to each question.

- **B21 While you were pregnant, but before you went into labour (or your labour was induced)…a) did you stay in hospital overnight? b) did you stay in hospital during the day?**

The results to this question appeared to overestimate the number of women who said that they had stayed in hospital overnight before going into labour as women who stayed in hospital overnight before induction were including this as an overnight stay.

The wording of this question has been amended for the main survey to make it clearer to women to exclude any stays overnight before induction:

B21 While you were **pregnant**, but before you went into labour did you stay in hospital overnight? (If your labour was induced and you had to stay overnight immediately before induction, please **do not** include that stay here). The second part of this question (i.e. any hospital stays during the day) was removed.

- **B23 'During your pregnancy were you offered any antenatal classes at the hospital or local clinic?'**

The pilot revealed that many women who were offered classes do not complete the second part of this question (i.e. If yes, do you agree or disagree with the following statements?) if they did not actually attend the classes. Item non-response rates were high for these questions, ranging from 21.2% to 23.8%. Furthermore, some respondents commented they went to NCT/private classes and others commented that classes were not required as it was their 2nd or 3rd child.

Question B23 was deleted and the wording to question B24 ('Did you attend the antenatal classes at the hospital or local clinic?') was revised to read 'During your pregnancy, did you attend any antenatal classes provided by the NHS?' Three extra response options were also added:
'No, I attended private antenatal classes (e.g. NCT)'
'No, I did not need to attend the classes' and
'No, I did not attend for some other reason'

The second part of B23 about the quality of the classes was re-structured as a new question for respondents to answer only if they had *attended* classes *provided by the NHS*. The response options were also changed from being statements that respondents either 'agreed' or 'disagreed' with to simple 'Yes' and 'No' responses.

- **B25 'Thinking about your antenatal care, were you…'**

A few respondents mistakenly thought this question was still asking about antenatal classes, rather than their antenatal care overall. This is likely to explain the higher non-response rates to this question, when compared with the corresponding 'overall' questions about care during labour and birth and care in hospital after birth.

To emphasise that this is an 'overall' question about antenatal care, the question wording was revised to read 'Overall, thinking about your antenatal care, were you…' The words 'antenatal care' were also put in bold font.

Section C

- **C2 'How did your labour start?'**

This question did not appear to work very well in the pilot survey because some women ticked that their labour started naturally and then also ticked that certain procedures/treatment were used to induce their labour.

To improve data quality, the question was spilt into two questions, with an instruction for those women whose labour stated naturally to skip the question that asked about whether any treatments were carried out to induce labour:

C2. How did your labour start?

1 ☐ It started naturally ➔ **Go to C5**
2 ☐ It was induced (started off) ➔ **Go to C3**

C3. If your labour was induced, were any of the following used? *Please tick all that apply*

1 ☐ I was given a vaginal gel or pessary to induce (start) my labour
2 ☐ My waters were broken by a doctor or a midwife (amniotomy)
3 ☐ I was given a drip (in my hand or arm) to induce (start) my labour

- **C8a 'Where was your baby born?'** This question appeared to cause some confusion for respondents to the pilot, with a high percentage of women resporting that their baby was born in a midwife-led unit in a trust where there is only a consultant-led unit etc....

The response options were therefore simplified to:
In hospital (please write in hospital name) _____
In a birth centre/maternity unit, separate from hospital (please write in unit name) _____
At home
Other

Trusts participating in the main survey will be required to provide the site code for where the baby was born, which should enable the results to be analysed by the structure of services (i.e. consultant-led or midwifery-led units).

- **C11'If your baby was born by caesarean was this...'**

A large proportion of women who did not have a caesarean missed out this question, rather than ticking the response option 'My baby was not born by caesarean'. This accounts for the high item non-response rate (i.e.47%). One

respondent commented that the caesarean was carried out due to an unforeseen problem *before* labour, rather than during labour.

Skip instructions have been added to the previous question to instruct those women whose baby was not born by caesarean to miss out this question. The word 'before' was added to the third response option (i.e. 'The result of an unforeseen problem before or during labour')

- **C14 'If you had a vaginal birth, while your baby was being born did you have an episiotomy (cut) or a tear?'**

Some respondents ticked two response options to this question (i.e. they had an episiotomy and a tear).

This question was re-structured into two separate questions:
'While your baby was being born were you given an episiotomy (cut)?'
'While your baby was being born did you have a tear?'

In order to establish the number of women who had a serious tear, an extra question was added – 'Was this a serious tear which involved your back passage (third or fourth degree tear)?' – only to be answered by those women that ticked 'Yes' to the previous question that asked if they had a tear.

- **C18 'Did you have confidence and trust in the staff caring for you during your labour and birth?'**

Some respondents found this question difficult to answer as only "yes" or "no" options were offered, and wrote on the questionnaire that they only had confidence & trust in staff to *some extent* as they had not met them before and/or some staff were rude and/or staff were good at the start but then not later etc...

The response options were expanded to read: 'Yes, definitely' 'Yes, to some extent' 'No' and 'Don't Know / Can't remember'.

Section D

- **D2 'Why did you have your baby at home?**

Benchmarking data could not be produced for this question (and others in section D on home births) as it would be highly unlikely that a trust would have at least the required 30 respondents to these questions. For many trusts these questions may be only answered by one or two respondents, so the results will not be very useful at trust level.

As the results from section D can only really be used for a national evaluation, this question was deleted as the National Maternity Survey will provide this information.

- **D4 'What happened in the first few hours after the birth of your baby?'**

The pilot showed that respondents did not complete this 'tick all that apply' question correctly (i.e. they did not all tick whether the baby went to hospital or stayed at home). Secondly, it was not clear from this question whether women went into hospital at all following the birth (and not just the first few hours following birth), which is important in terms of knowing which responses should be removed during data cleaning from section E – 'Care in hospital after the birth.'

This question was re-worded to:
'After the birth, did you or your baby go to hospital?'
The response options were also altered to enable respondents to tick just one option.

- **D5 'How long after your baby was born did your midwife or GP leave?'**

There was a high non-response rate to this question, particularly in terms of women responding about how long the GP stayed at their home following the birth (i.e. 72%), but not surprising as relatively few GPs are engaged in this aspect of maternity care.

This question was deleted due to the high number of missing responses and for the same reasons as removing question D2.

Section E

- **E6 'How much food were you given?'**

This question could not be answered by women who did not have any hospital food, which might explain the higher non-response rate to this question (4%), when compared with question E7 (Overall how would you rate the hospital food during your postnatal stay?), which included the response option 'I did not have any hospital food (non-response rate – 1.5%).

The response options were expanded to include 'I did not have any hospital food'

Section F

- **F4 'Thinking about feeding your baby, did you feel that midwives and other carers gave you a) consistent advice b) practical help and c) active support and encouragement?'**

Some respondents wrote comments on the questionnaire that they did not need this help or advice because it was not their first baby.

The last response option was extended to read 'Didn't want or need this'.

Section G

- **G2 'How long was your baby in neonatal care in total?'**

There was a high level of missing responses to this question (10%), and many respondents incorrectly answered more than one part of the question (i.e. wrote in the number of hours and days or the number of days and weeks).

Given that the responses from this question will be recoded into categorical groupings, such groupings could be used as response options to simplify the data cleaning process: 1 day or less, 2-7 days, 8-14 days, 15-30 days, 31 days or more.

Section H

- **H8 'Were you given information or offered advice about contraception at your postnatal check?'**

The pilot highlighted that women who did not have a postnatal check may have still been given contraception advice by a midwife/health visitor.

The words 'at your postnatal check' in the question were removed, in addition to the fourth response option 'I did not have a postnatal check' (Note: the number of women who did not have a postnatal check can be ascertained from question H7)

Section J

- **J7 'In what country were you born?'**

This question proved to be extremely time consuming, both in terms of data entry and analysis – particularly as some respondents wrote the name of the county where they were born rather than the country. The usefulness of the results from this question was also queried following the pilot. Although the aim of the question was to enable trusts to use this information when analysing their results, because of the small numbers of women born in some countries, we would not be able to provide such feedback to trusts as it could lead to individuals being identified.

The question was therefore removed in preparation for the devolved survey.

- **J8 'What language do you speak most often at home?'**

Some respondents ticked more than one response option to this question.

A question prompt 'please tick one box only' was added, and the word 'most' was emphasised in the question by putting it in bold font.

Appendix 1: Item non-response

Please note: questions with a non-response rate over 5.5% are shaded.

	Maternity Pilot Survey Questions	Non-response rate (%)
A1	Please write in today's date	**7.8**
A2	Did you give birth to a single baby, twins or more in your most recent pregnancy?	**0.3**
A3a	When was your baby born (date)?	**3.6**
A3b	When was your baby born (time)?	**12.7**
A4	Roughly how many weeks pregnant were you when your baby was born?	**2.5**
A5	How much did your baby weigh at birth?	**2.1**
B1	Which health professional did you go to first about your pregnancy care?	**0.4**
B2	Roughly how many weeks pregnant were you when you first saw this health professional about your pregnancy care?	**1.9**
B3	Were you able to see this person as soon as you wanted?	**1.3**
B4	Roughly how many weeks pregnant were you when you had your 'booking' appointment?	**5.3**
B5	At the start of your pregnancy did you have a choice about where you could have your baby?	**0.4**
B6	Were you given the choice of having your baby at home?	**0.8**
B7	Did you get enough information from a midwife or doctor to help you decide where to have your baby?	**0.8**
B8	Were you given a copy of The Pregnancy Book?	**1.3**
B9	Roughly how many antenatal check-ups did you have in total?	**0.7**
B10	During your pregnancy were you given a choice about where your antenatal check-ups would take place?	**0.5**
B11	Who did you see for your antenatal check-ups?	**0.6**
B12	Were you given a choice about who would carry out your antenatal check-ups?	**1.1**
B13	If you saw a midwife about your pregnancy, did you see the same one every time?	**0.1**
B14	If you saw a hospital doctor about your pregnancy, did you see the same one every time?	**0.7**
B15	Did you have any screening tests to check whether your baby might have Down's syndrome?	**1.3**
B16	Do you feel that you had a choice about whether or not to have a screening test for Down's syndrome?	**2.6**
B17	Were the reasons for having a screening test for Down's syndrome clearly explained to you?	**5.3**
B18a	Did you have a dating scan?	**2.3**
B18b	Was the reason for this scan clearly explained to you?	**11.4**
B18c	Do you feel you had a choice about having this scan?	**16.1**
B19a	Did you have a scan at around 20 weeks of pregnancy?	**1.2**
B19b	Was the reason for this scan clearly explained to you?	**7.2**
B19c	Do you feel you had a choice about having this scan?	**13.5**
B20	Roughly how many ultrasound scans did you have in total during this pregnancy?	**1.4**
B21a	While you were pregnant, but before you went into labour, or your labour was induced, did you stay in hospital overnight?	**4.5**
B21b	While you were pregnant, but before you went into labour, or your labour was induced, did you stay in hospital during the day?	**11.2**
B22	During your pregnancy did you have the name and telephone number of a midwife you could contact if you were worried?	**0.6**
B23	During your pregnancy were you offered any antenatal classes at the hospital or local clinic?	**1.1**
B23a	The classes were at the right stage in pregnancy for me (agree/disagree)	**21.2**
B23b	The classes were at a convenient time of day for me (agree/disagree)	**21.1**
B23c	The classes were at a convenient location for me (agree/disagree)	**21.1**
B23d	My partner or someone of my choice was allowed to attend (agree/disagree)	**22.0**
B23e	The classes were too few in number for me (agree/disagree)	**22.9**
B23f	The content of the classes was what I wanted (agree/disagree)	**23.8**

B24a	Did you attend the antenatal classes at the hospital or local clinic?	**7.2**
B24b	If yes, did your partner or someone of your choice attend with you?	**1.2**
B25a	Thinking about your antenatal care, were you spoken to in a way you could understand?	**5.2**
B25b	Thinking about your antenatal care, were you treated with respect and dignity?	**5.5**
B25c	Thinking about your antenatal care, were you treated with kindness and understanding?	**5.5**
B25d	Thinking about your antenatal care, were you given the information or explanations you needed?	**5.3**
B25e	Thinking about your antenatal care, were you involved enough in decisions about your care?	**5.5**
C1	Roughly how long did your labour last?	**9.2**
C2	How did your labour start?	**22.7**
C3	Do you feel you had any choice about whether your labour would be induced?	**6.0**
C4	During your labour, were you able to move around and choose the position that made you feel most comfortable?	**4.6**
C5a	For your labour and birth in the hospital, how clean were the labour and delivery rooms you were in?	**4.4**
C5b	For your labour and birth in the hospital, how clean were the toilets and bathrooms you used at this time?	**5.6**
C6	During your labour and birth, did you use any of the following to help relieve the pain?	**3.9**
C7	During your labour and birth, did you feel you got the pain relief you wanted?	**3.9**
C8	Where was your baby born?	**1.4**
C9	Were you transferred during your labour for medical reasons or concerns?	**2.6**
C10	Thinking about the birth of your baby, what kind of delivery did you have?	**0.6**
C11	If your baby was born by caesarean was this...?	**47.0***
C12	Where did you give birth?	**2.8**
C13	What position were you in when your baby was born?	**3.3**
C14	If you had a vaginal birth, while your baby was being born did you have an episiotomy, cut or a tear?	**3.7**
C15	If you had an episiotomy, cut, or a tear requiring stitches, how long after your baby was born were the stitches done?	**32.9***
C16	Altogether, how many different midwives looked after you during your labour and the birth of your baby?	**1.7**
C17	Had you met any of the staff who looked after you during your labour and the birth before you went into labour?	**0.8**
C18	Did you have confidence and trust in the staff caring for you during your labour and birth?	**1.1**
C19a	Did you have your husband, partner or a companion with you during labour and at the birth of your baby?	**7.7**
C19b	Were they with you as much as you wanted?	**2.6**
C19c	If your husband, partner or companion was not with you for as much as you wanted, why was this?	7.1
C20	Were you left alone by midwives or doctors at a time when it worried you?	**1.8**
C21a	Thinking about the care you received during your labour and birth, were you spoken to in a way you could understand?	**0.6**
C21b	Thinking about the care you received during your labour and birth, were you treated with respect and dignity?	**1.1**
C21c	Thinking about the care you received during your labour and birth, were you treated with kindness and understanding?	**1.6**
C21d	Thinking about the care you received during your labour and birth, were you given the information or explanations you needed?	**1.3**
C21e	Thinking about the care you received during your labour and birth, were you involved enough in decisions about your care?	**1.6**
D1	Before your baby was born, did you plan to have your baby at home?	**0**
D2	Why did you have your baby at home?	**0**
D3a	Were you given information about the sorts of pain relief that would be available at home?	**5.3**

* The high non-response rates to these questions reflect the fact that they were not applicable to all respondents. A large proportion of respondents missed out the question completely, rather than ticking the non-specific response option to indicate the question did not apply to them (e.g. 'Does not apply'). Skip instructions were therefore added to the questionnaire in preparation for the 2007 survey.

D3b	Were you given information about the monitoring of the baby that would be available at home?	**5.3**
D3c	Were you given information about the distance and location of the nearest hospital?	**5.3**
D3d	Were you given information about the sorts of emergency back-up that would be available?	**5.3**
D4	What happened in the first few hours after the birth of your baby?	**0**
D5a	How long after your baby was born did your midwife leave?	**5.6**
D5b	How long after your baby was born did your GP leave?	**72.2***
E1	How long did you stay in hospital after your baby was born?	**1.5**
E2	Looking back, do you feel that the length of your stay in hospital was…?	**0.9**
E3	Were you given enough information about your own recovery after the birth?	**0.8**
E4a	Did your baby have a newborn examination or 'baby check' before you were discharged home?	**0.5**
E4b	Who carried out this examination or baby check?	**1.1**
E5	During your postnatal stay were you offered a choice of food?	**1.1**
E6	How much food were you given?	**4.0**
E7	Overall how would you rate the hospital food during your postnatal stay?	**1.5**
E8a	In the hospital, how clean was the hospital room or ward you were in?	**0.6**
E8b	In the hospital, how clean were the toilets and bathrooms that you used?	**0.8**
E9a	Thinking about the postnatal care you received in hospital, were you spoken to in a way you could understand?	**1.1**
E9b	Thinking about the postnatal care you received in hospital, were you treated with respect and dignity?	**1.3**
E9c	Thinking about the postnatal care you received in hospital, were you treated with kindness and understanding?	**1.6**
E9d	Thinking about the postnatal care you received in hospital, were you given the information or explanations you needed?	**1.7**
F1	During your pregnancy did your midwife discuss infant feeding with you?	**0.8**
F2	Did you ever put your baby to the breast?	**0.6**
F3	In the first few days after the birth how was your baby fed?	**0.5**
F4a	Thinking about feeding your baby, breast or bottle, did you feel that midwives and other carers gave you consistent advice?	**1.1**
F4b	Thinking about feeding your baby, breast or bottle, did you feel that midwives and other carers gave you practical help?	**1.8**
F4c	Thinking about feeding your baby, breast or bottle, did you feel that midwives and other carers gave you active support and encouragement?	**2.1**
G1	Was your baby cared for in a neonatal unit at all?	**16.7**
G2	How long was your baby in neonatal care in total (days)?	**10**
G3	Were you given enough information about why your baby was admitted for neonatal care?	**6**
G4	Is your baby still in a neonatal unit now?	**7.6**
H1	After your baby's birth were you visited at home by a midwife?	**0.8**
H2	When you were at home after the birth of your baby did you have the name and telephone number of a midwife or health visitor you could contact if you were worried?	**0.9**
H3	How many times in total did you see a midwife after you went home?	**2.5**
H4	How old was your baby when you had the last visit or contact with the midwife?	**5.9**
H5	Would you have liked to have seen a midwife…?	**1.4**
H6a	In the six weeks after the birth of your baby did you receive help and advice from health professionals about your baby's crying?	**1.1**
H6b	In the six weeks after the birth of your baby did you receive help and advice from health professionals about your baby's sleeping position?	**1.0**
H6c	In the six weeks after the birth of your baby did you receive help and advice from health professionals about feeding your baby?	**1.2**
H6d	In the six weeks after the birth of your baby did you receive help and advice from health professionals about your baby's skin care?	**0.9**
H6e	In the six weeks after the birth of your baby did you receive help and advice from health professionals about your baby's health and progress?	**1.1**
H7	Did you have a postnatal check-up of your own health?	**0.9**
H8	Were you given information or offered advice about contraception at your postnatal check?	**1.9**
H9a	Overall, how would you rate the care received during your pregnancy?	**0.6**

H9b	Overall, how would you rate the care received during your labour and birth?	**0.8**
H9c	Overall, how would you rate the care received during your care after the birth?	**1.1**
J1	Have you had a previous pregnancy?	**1.0**
J2	How many babies have you given birth to before this pregnancy?	**6.7**
J3	When were you born?	**5.2**
J4	How old were you when left full-time education?	**2.7**
J5	Which of the following people live with you?	**0.8**
J6	To which of these ethnic groups would you say you belong?	**1.9**
J8	What language do you speak most often at home?	**1.8**
J9a	Do you have a long-standing physical or mental health problem or disability?	**1.0**
J9b	Does this problem or disability affect your day to day activities?	**17.1**
J10	Overall, how would you rate your health over the past 4 weeks?	**1.2**
J11	Is there anything else you would like to tell us about your care?	**46.2**[♣]

[♣] Note: this was an optional open-ended question for respondents to write their own comments if there was anything else they wanted to feedback about their care.

Appendix 2 Characteristics of respondents who included open text comments

Table 1 The inclusion of a freetext comment by respondent age

		J11 Is there anything else you would like to tell us about your care?		
		No comment	Comment	Total
Age group from response or sample age if missing	16-18	15	14	29
		51.7%	48.3%	100.0%
	19-24	162	124	286
		56.6%	43.4%	100.0%
	25-29	202	212	414
		48.8%	51.2%	100.0%
	30-34	215	293	508
		42.3%	57.7%	100.0%
	35 and over	141	214	355
		39.7%	60.3%	100.0%
Total		735	857	1592
		46.2%	53.8%	100.0%

[Chi-Square=23, df=4, p<0.001]

Table 2 The inclusion of a freetext comment by the ethnic group of respondents

		J11 Is there anything else you would like to tell us about your care?		
		No comment	Comment	Total
Ethnic group from response data else sample information if response missing	White	546	715	1261
		43.3%	56.7%	100.0%
	Mixed	15	18	33
		45.5%	54.5%	100.0%
	Asian or Asian British	99	87	186
		53.2%	46.8%	100.0%
	Black or Black British	55	31	86
		64.0%	36.0%	100.0%
	Chinese or Other Ethnic Group	18	5	23
		78.3%	21.7%	100.0%
Total		733	856	1589
		46.1%	53.9%	100.0%

[Chi-Square=28, df=4, p<0.001]

Table 3 The inclusion of a freetext comment by the language spoken most often at home

		J11 Is there anything else you would like to tell us about your care?		
		No comment	Comment	Total
J8 What language do you speak most often at home?	English	593	798	1391
		42.6%	57.4%	100.0%
	Other European language	34	15	49
		69.4%	30.6%	100.0%
	Asian language	47	18	65
		72.3%	27.7%	100.0%
	African language	5	7	12
		41.7%	58.3%	100.0%
	Other, including British sign language	37	10	47
		78.7%	21.3%	100.0%
Total		716	848	1564
		45.8%	54.2%	100.0%

[Chi-Square=56, df=4, p<0.001]

Table 4 The inclusion of a freetext comment by respondents' age when left full-time education

		J11 Is there anything else you would like to tell us about your care?		
		No comment	Comment	Total
J4 How old were you when left full-time education?	16 years or less	229	210	439
		52.2%	47.8%	100.0%
	17 or 18 years	233	294	527
		44.2%	55.8%	100.0%
	19 years or over	227	325	552
		41.1%	58.9%	100.0%
	Still in full-time education	16	15	31
		51.6%	48.4%	100.0%
Total		705	844	1549
		45.5%	54.5%	100.0%

[Chi-Square=13, df=3, p=0.005]

Table 5 The inclusion of a freetext comment by respondents' overall rating of care in pregnancy

		J11 Is there anything else you would like to tell us about your care?		
		No comment	Comment	Total
H9a Overall, how would you rate the care received during your pregnancy?	Excellent	292	321	613
		47.6%	52.4%	100.0%
	Very good	244	242	486
		50.2%	49.8%	100.0%
	Good	143	165	308
		46.4%	53.6%	100.0%
	Fair	42	83	125
		33.6%	66.4%	100.0%
	Poor	9	42	51
		17.6%	82.4%	100.0%
Total		730	853	1583
		46.1%	53.9%	100.0%

[Chi-Square=28, df=4, p<0.001]

Table 6 The inclusion of a freetext comment by respondents' overall rating of care during labour and birth

		J11 Is there anything else you would like to tell us about your care?		
		No comment	Comment	Total
H9b Overall, how would you rate the care received during your labour and birth?	Excellent	376	410	786
		47.8%	52.2%	100.0%
	Very good	193	191	384
		50.3%	49.7%	100.0%
	Good	115	104	219
		52.5%	47.5%	100.0%
	Fair	28	84	112
		25.0%	75.0%	100.0%
	Poor	16	62	78
		20.5%	79.5%	100.0%
Total		728	851	1579
		46.1%	53.9%	100.0%

[Chi-Square=48, df=4, p<0.001]

Table 7 The inclusion of a freetext comment by respondents' overall rating of care in after the birth

		J11 Is there anything else you would like to tell us about your care?		
		No comment	Comment	Total
H9c Overall, how would you rate the care received during your care after the birth?	Excellent	255	253	508
		50.2%	49.8%	100.0%
	Very good	250	229	479
		52.2%	47.8%	100.0%
	Good	141	180	321
		43.9%	56.1%	100.0%
	Fair	65	93	158
		41.1%	58.9%	100.0%
	Poor	15	94	109
		13.8%	86.2%	100.0%
Total		726	849	1575
		46.1%	53.9%	100.0%

[Chi-Square=59, df=4, p<0.001]

Table 8 The inclusion of a freetext comment by respondents' self-reported health status

		J11 Is there anything else you would like to tell us about your care?		
		No comment	Comment	Total
J10 Overall, how would you rate your health over the past 4 weeks?	Excellent or Very Good	477	510	987
		48.3%	51.7%	100.0%
	Good or Fair	229	312	541
		42.3%	57.7%	100.0%
	Poor or Very Poor	16	29	45
		35.6%	64.4%	100.0%
Total		722	851	1573
		45.9%	54.1%	100.0%

[Chi-Square=7, df=2, p=0.029]

Table 9 The inclusion of a freetext comment by respondents' obstetric history

		J11 Is there anything else you would like to tell us about your care?		
		No comment	Comment	Total
How many babies have you given birth to before this pregnancy?	None	13	28	41
		31.7%	68.3%	100.0%
	1 or more	433	443	876
		49.4%	50.6%	100.0%
Total		446	471	917
		48.6%	51.4%	100.0%

[Chi-Square=5, df=1, p=0.026]