You & your Baby

A national survey of health and care

2018

NPEU
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UNIVERSITY OF OXFORD

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First published in 2020 by:
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ISBN: 978-0-9956854-5-1

Acknowledgements

Most thanks are due to the many women who participated in the survey.

The Office for National Statistics drew the sample and managed the mailings but bear no responsibility for the analysis or interpretation of the results. Ciconi printed and prepared the survey packs, set up the online survey and managed the data entry.

Siân Harrison and Andy Kirk designed the survey logo and brand.

Members of the Advisory Group commented on the methodology, topic areas to be covered and the draft questionnaire.

This is an independent report from a study which is funded by the NIHR Policy Research Programme in the Department of Health & Social Care. The views expressed are not necessarily those of the Department.

This report should be cited as:

Harrison S, Alderdice F, Henderson J, Quigley MA. You and Your Baby: A national survey of health and care. Oxford: National Perinatal Epidemiology Unit, University of Oxford, 2020. ISBN: 978-0-9956854-5-1

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Executive Summary

The population of women and families living in England and accessing maternity healthcare services is constantly changing. Therefore, there is a continuing need to collect information regarding the views and experiences of women who have recently given birth.

The You and Your Baby Survey was carried out in 2018 using similar methods to those employed by the National Perinatal Epidemiology Unit for the National Maternity Surveys in 2006, 2010 and 2014. The main difference was that the women were surveyed 6 months after giving birth in the You and Your Baby Survey due to the introduction of new topics which were relevant later in the postnatal period; women were surveyed 3 months after giving birth in previous surveys. A random sample of 16,000 women giving birth in England over a two-week period during October 2017 was selected by the Office for National Statistics from birth registration records. Women whose baby had died and mothers aged younger than 16 years were not included. Women could take part in the survey by post, over the telephone or online.

The You and Your Baby Survey asked women about their experiences during pregnancy, around the time of labour and birth, and the postnatal period. In addition to demographic and clinical details, women were asked about infant feeding, maternal and infant health, smoking and vaping, returning to work and future pregnancy plans.

The overall response rate to the You and Your Baby Survey was 29%, with responses from 4,509 women. Due to the response rate being lower in particular groups of women (e.g. younger women, unmarried women, women born outside of the UK, women living in less advantaged areas in England, and women who had given birth before), survey weights were used to help reduce the effect of non-response bias. The median age of the babies when the women responded to the survey was 31 weeks (interquartile range=31-34 weeks).

For most analyses, the results are presented for all of the women who responded to the survey; for some analyses, the results are also presented separately for women according to whether they had given birth before, the mode by which they gave birth to their baby, or the gestational age of the baby at the time of their birth. The findings from the You and

Your Baby Survey provide a picture of current practice and a point of comparison with the past and for the future.

Key Findings

Key findings from the You and Your Baby Survey are presented to facilitate comparison with previous National Maternity Surveys, other maternal and infant surveys, and national routine data.

Pregnancy

- Three-quarters (74%) of pregnancies were described as planned.
- Booking appointments were carried out within the first 10 weeks of pregnancy for 70% of women and within the first 12 weeks for 87% of women.
- Over a quarter (27%) of women reported that they had experienced a pregnancy related problem.
- One in ten (10%) women had a long-term health problem which complicated their pregnancy.

Labour and birth

- The majority of women gave birth in hospital (88%) or in a birth centre separate from hospital (9%). Only a minority of women gave birth at home (3%).
- Over half (61%) of births were spontaneous vaginal births, 12% involved instrumental assistance and 27% were caesarean sections.
- The multiple birth rate was 2%.
- There were marginally more male babies (51%) than female babies born to women in the survey.
- The proportion of babies who were preterm (being born before 37 weeks' gestation) was 8%.
- The proportion of babies who were low birth weight (weighing less than 2,500 grams) was 7%.
- Most women who gave birth at 37 weeks' gestation or later held their baby (95%) and had skin-to-skin contact (93%) within the first hour after the birth.
- A third (34%) of women felt that their experience was more or less as they had expected, while 41% felt it was better than expected and 25% of women felt that the experience had been worse than they were expecting.

Postnatal care

- For women who gave birth in hospital or in a birth centre separate from hospital, half (50%) were discharged within 24 hours. The median length of hospital stay was 1 day (interquartile range (IQR)=1-3 days).
- Approximately one in eight babies were admitted for neonatal care (12%).
- The median number of contacts women had with midwives or health visitors during the postnatal period was three home visits (IQR=2-4), one clinic visit (IQR=0-3) and one telephone contact (IQR=0-2).
- The median age of babies at their last contact with a midwife or health visitor worker was four weeks (IQR=2-8 weeks).

Infant feeding

- The majority (85%) of women had initiated breastfeeding.
- Less than half (45%) of women breastfed their baby for six months or longer.
- Of those women who initiated breastfeeding, 30% would have liked more help.
- The majority (82%) of women had given formula milk to their baby.
- Over half of women initiated formula milk either from birth (32%) or within the first eight weeks after birth (29%).
- More than half (54%) of women introduced solid food to their baby before they were six months of age and 38% introduced solid food at six months.

Maternal health and care

- At their pregnancy booking appointment, 78% of women were asked about their mental health and 75% were asked about their own / family mental health history.
- When asked about their pregnancy, 13% of women reported suffering from anxiety, 7% reported suffering from depression and 4% reported suffering from both anxiety and depression.
- The majority (83%) of women reported that they had a health professional who they could talk to about personal or sensitive issues during their pregnancy.
- The majority (91%) of women had a postnatal check-up of their own health with their GP.
- Overall, 29% of women reported suffering from anxiety and 16% reported suffering from depression at some point during the postnatal period.
- Approximately one in five postnatal women were either not asked about their mental health (16%) or could not recall being asked about their mental health (5%) during the postnatal period.

- The sources of general support identified most frequently by women were partners / spouses (80%), family (76%) and friends (59%).

Infant health

- The most frequent health problems experienced by babies since birth were a common cold (62%), a cough (45%), colic (44%), high temperature (29%), and constipation (29%).
- The median number of GP appointments attended by babies was two (IQR=1-4) and the median number of visits to a baby clinic was also two (IQR=0-5).

Smoking and vaping

- One in ten (10%) women reported smoking tobacco at any point during their pregnancy and 9% reported smoking tobacco after they were aware of their pregnancy.
- A small number of women used an electronic cigarette or vaping device during their pregnancy (4%).
- In terms of passive smoking, 18% of women lived with somebody who smoked tobacco during their pregnancy.

Return to work

- Almost two-thirds of women were either on paid maternity leave (54%) or unpaid maternity leave (6%).
- A small number of women (9%) were in paid work and just over half (52%) of women (who weren't already in paid work) were intending to return to paid work before their baby was 12 months old.
- Most women were using or intending to use grandparents (50%), nurseries (40%), and / or spouses / partners (34%) for childcare after returning to work.
- Over half (54%) of the spouses / partners of women had taken paternity leave and a further 2% had taken shared parental leave.

Future pregnancy planning

- Less than half (44%) of women were planning another pregnancy.
- One in ten (10%) women who were planning another pregnancy were actively preparing for their next pregnancy.

Figures and Tables

Figures

Tables

1. National Maternity Surveys

1.1 Overview

Population-based National Maternity Surveys were carried out in England by the Audit Commission in 1995[1] and latterly by the National Perinatal Epidemiology Unit (NPEU) in 2006[2], 2010[3] and 2014[4]. The National Maternity Surveys document the views of women with recent experience of maternity care and provide important information regarding changes in maternity services over time. The Care Quality Commission (CQC) also conducts regular maternity surveys, which evaluate the safety, effectiveness and quality of care provided.[5]

As part of a programme of work by the Department of Health and Social Care funded NIHR Policy Research Unit for Maternal Health and Care (PRU-MHC), a further NPEU large-scale survey, the You and Your Baby Survey, was carried out in 2018. Findings from the You and You Baby Survey provide a benchmark of current maternal and infant health and care, enable comparison with findings from the earlier surveys, and establish a further point of comparison for future national and local surveys.

The previous National Maternity Surveys carried out by the NPEU explored women's experiences of care throughout pregnancy, labour and birth, and the first three months of the postnatal period. The You and Your Baby Survey covered these periods and also focussed on the postnatal period up to six months.

1.2 Background to the You and Your Baby Survey

The postnatal period is an important time of transition for mothers, babies and their families. The first six months, in particular, is a critical period, during which time many mothers are adapting to parenthood, need family and social support, and are planning their return to work. Infant feeding patterns change dramatically at around six months, most notably due to the introduction of solid food. Mothers are also particularly at risk of experiencing mental health problems during this period. The need to support women at

[1] Audit Commission. First Class Delivery: Improving Maternity Services in England and Wales. London: Audit Commission, 1997.
[2] Redshaw M, Rowe R, Hockley C, et al. Recorded Delivery: a national survey of women's experience of maternity care 2006. Oxford: National Perinatal Epidemiology Unit, 2007.
[3] Redshaw M, Heikkila K. Delivered with care: a national survey of women's experience of maternity care 2010. Oxford: National Perinatal Epidemiology Unit, 2010.
[4] Redshaw M, Henderson J. Safely delivered: a national survey of women's experience of maternity care 2014. Oxford: National Perinatal Epidemiology Unit, 2014.
[5] https://www.cqc.org.uk/publications/surveys/maternity-services-survey-2018. Accessed 16 Jan 2020.

this time and to improve their experiences of maternity and postnatal care at both the national and local levels has been emphasised in the National Maternity Review.[6]

In England, women who have recently given birth and who are considered to be at low risk of complications have only a few routine postnatal checks and most women will have no routine checks after the first 6-8 weeks. Infants have several routine health checks in the first 6-8 weeks, after which they are not routinely reviewed again until an assessment at 9-12 months, except for their routine immunisations (at 2, 3, 4, 12-13 months and beyond). Hence, there is very little routine monitoring or collection of information about the health and care of mothers and their babies in the postnatal period between 6-8 weeks and 9-12 months.

1.3 Aims

The main aim of the You and Your Baby Survey was to explore the health and care of mothers and their babies during pregnancy, labour and birth, and the first six months of the postnatal period. The survey also aimed to: explore infant feeding practices; estimate the prevalence of anxiety and depression in women during pregnancy and the postnatal period; estimate the prevalence of smoking and vaping in women during pregnancy and the postnatal period; explore women's plans to return to work after childbirth; and explore women's plans for further pregnancies. As these data are not currently collected at this point in the postnatal period, either routinely or as part of regular surveys, the You and Your Baby Survey provides unique information, which can be used to help improve postnatal monitoring and support and can guide policies in the postnatal period, relating to routine postnatal checks, weaning and supporting return to work.

2. Methods

The methods employed in the You and Your Baby Survey were similar to those used in the earlier National Maternity Surveys in terms of the design of the survey, the method of sampling, the data collection procedures and the questionnaire. The main difference was that women were surveyed at six rather than three months postnatally.

[6] https://www.england.nhs.uk/wp-content/uploads/2016/02/national-maternity-review-report.pdf. Accessed 16 Jan 2020.

2.1 Pilot surveys

In preparation for the You and Your Baby Survey, a pilot survey was conducted in 2016, with the aim of testing the survey methods and the content of the questionnaire. The same questionnaire was sent out to women who were either three months postpartum or six months postpartum. The overall response rate to the pilot survey was 28.0% (28.7% for the women who were three months postpartum and 27.3% for the women who were six months postpartum), which was considerably lower than we had anticipated based on our projections from response rates to previous National Maternity Surveys.

Due to the response rate being lower than we expected, changes were made to the recruitment methods and to the questionnaire and a second pilot survey was conducted in 2017. The specific amendments were: sending pre-notification of survey selection to women, redesigning the questionnaire and study documentation, shortening the questionnaire, sending an additional reminder and including Quick Response (QR) codes on the questionnaires to facilitate access to the online questionnaire. As with the 2016 pilot survey, the questionnaire was sent out to women who were either three months postpartum or six months postpartum. The response rate to the amended 2017 pilot survey was significantly higher (32.0%, p=0.002) (33.1% for the women who were three months postpartum and 30.3% for the women who were six months postpartum) than to the initial 2016 pilot survey. Therefore, the You and Your Baby Survey adopted the methods used in the 2017 pilot survey. A detailed description and comparison of the pilot surveys (three month postpartum data only) has been published separately.[7]

Based on the response rate to the 2017 pilot survey, we calculated that we needed to invite 16,000 women to participate in the You and Your Baby Survey. This would generate a sample size of 5,120 women if we achieved the same overall response rate as in the 2017 pilot survey (32%), or a sample size of 4,800 women if the response rate was in line with the women who were six months postpartum (30%) in the 2017 pilot survey. We calculated that a sample size of 4,800 women would be sufficient to estimate the prevalence of most outcomes with reasonable precision, and we would have adequate power to compare the key outcomes in subgroups of women, such as different age-groups, socio-economic groups or ethnic groups. For example, we would have at least 90% power to estimate a range of effects such as a difference between 50% and 45% (e.g. for the prevalence of breastfeeding at 2 months), a difference between 10% and 7% (e.g. for the prevalence of

[7] Harrison S, Alderdice F, Henderson J, Quigley MA. Methods to increase response rates to a population-based maternity survey: a comparison of two pilot surveys. BMC Medical Research Methodology, 2019;19:65.

postnatal depression) and a difference between 4% and 2.3% (e.g. for the prevalence of vaping during pregnancy).

2.2 Design and sample

The You and Your Baby Survey was a population-based cross-sectional postal survey of women who had recently given birth. A random sample of 16,000 women was identified by staff at the Office for National Statistics (ONS) using the birth registration record of their recent baby. The women were all aged 16 years or older, living in England at the time of birth registration, and had given birth to their babies within a two-week period during October 2017. Following checks on infant deaths made by ONS, women whose baby had died were excluded from the sample. Women who had experienced a multiple birth were asked to complete the questionnaire for their first-born baby only.

The You and Your Baby Survey was distributed to women later in the postnatal period compared to the earlier surveys (at six months postpartum compared to three months postpartum). This was because some of the topics that we wanted to explore were more relevant to women later in the postnatal period (e.g. introduction of solid food, plans for returning to work).

Although the women in the You and Your Baby Survey gave birth in October 2017, the survey was conducted in 2018, hence we refer to the 2018 survey throughout this report. A similar discrepancy occurred with the 2010 National Maternity Survey, whereby the women actually gave birth at the end of 2009. This was not the case for the 2006 and 2014 National maternity Surveys, as the surveys were conducted in the same year as the women had given birth.

Ethical approval for the study was obtained from the NRES committee for London Bloomsbury (REC reference 18/LO/0271) on 22 February 2018.

2.3 Data collection

To ensure women's anonymity and to protect their personal details, the survey mailings were managed by ONS. The questionnaires were posted to women by ONS and the women returned them directly to the research team at the NPEU. A pre-notification card was sent out to inform all of the women that they had been selected to receive a questionnaire and to provide contact details for the study team and a link to the website should more details be required. A questionnaire pack was then posted to the women when

their baby was six months old. The pack contained an invitation letter, an information leaflet, a Freephone contact number sheet with information in 19 different languages, a questionnaire and a Freepost return envelope.

The pre-notification cards were posted in March 2018 and the initial mail-out of questionnaires took place in April 2018 when the babies were six months old. Reminder letters and additional questionnaires were posted to non-respondents using a tailored reminder system. The first reminder was posted in May 2018, three weeks after the initial questionnaire, and a final reminder was sent out in June 2018, after a further four weeks. The final reminder included an optional non-participation form for women to indicate their reasons for deciding not to take part in the survey.

Women were offered three different response options: 1) to complete the questionnaire on paper and post it to the NPEU; 2) to complete and submit the questionnaire online using a link from the NPEU website or a QR code printed on the paper questionnaire, a unique ID number and an individual password; or 3) to complete the questionnaire over the telephone with an interviewer from the NPEU and a Language Line interpreter, if required.

2.4 The questionnaire

The You and Your Baby questionnaire had a similar format to the questionnaires used in 2006 for 'Recorded Delivery', in 2010 for 'Delivered with Care' and in 2014 for 'Safely Delivered'. However, some questions were added, adjustments were made to other questions to ensure the questionnaire reflected current issues of interest, and some questions were removed altogether. The questionnaire was shortened to 16 pages (including the cover page and a blank page for optional additional information) compared to 24 pages in the 2014 National Maternity Survey. Women were guided through questions about their pregnancy, labour and birth, and the postnatal period, and asked to share their views and experiences. The questionnaire required approximately 15-20 minutes to complete.

The questionnaire (and revised questionnaire) were tested in the 2016 and 2017 pilot surveys and, based on feedback from representatives from the target population and from the project Advisory Group, revisions were made to optimise the design and format of the

questionnaire used in the You and Your Baby Survey. Full details of the questionnaire content are shown in **Appendix A**. Further details about the Advisory Group members and their role in the You and Your Baby Survey are provided in **Appendix B**.

2.5 Analysis

2.5.1 Response rates and survey weights

For our initial analysis, we explored the response rates and the characteristics of the respondents to the You and Your Baby Survey. We compared the response rates and respondent characteristics to those from previous National Maternity Surveys.

Sociodemographic data on respondents and non-respondents were provided by ONS. These data included: age group (16-19, 20-24, 25-29, 30-34, 35-39 or 40+ years); marital status at birth registration (married, joint registration by both parents living at the same address, joint registration by both parents living at different addresses, or sole registration); mother's country of birth; index of multiple deprivation (IMD) for mother's address (grouped into quintiles); region of residence (grouped into nine regions); parity (primiparous (first-time mother) or multiparous (previous live birth)); sex of baby; and whether it was a singleton or multiple birth. We compared the sociodemographic characteristics of the women who responded to the You and Your Baby Survey with those women who were selected but who did not respond. We also compared the sociodemographic characteristics of the women who participated in the You and You Baby Survey via different modes (e.g. postal / telephone and online). Differences between groups (e.g. respondents and non-respondents, postal / telephone respondents and online respondents) were compared using Chi-Square tests and the significance level was set at $p<0.05$ for all analyses.

The sociodemographic variables were fitted in a logistic regression model with response / non-response (to the You and Your Baby Survey) as the outcome, and the resulting coefficients (adjusted log odds ratios) were used to derive survey weights. The weights were applied to the You and Your Baby Survey data to reduce the effect of non-response bias. For further details on the survey weights, see section 3.4 and **Appendix C**.

2.5.2 Statistical analysis

For our main analysis, survey-weighted descriptive statistics, such as medians and proportions, were estimated for the women who responded to the You and Your Baby Survey. For the majority of variables, the proportion of missing data was small (less than

5%) and therefore most results are based on a complete-case analysis. For most analyses, descriptive data are presented for the whole group of respondents. For some analyses, descriptive data are presented separately across subgroups, for example, by parity, mode of birth or gestational age.

Where available, prevalence estimates (with 95% confidence intervals (CI)) are compared with estimates from national routine data pertaining to the same period of births (2017), for example, data published by ONS or public bodies sponsored by the Department of Health and Social Care (e.g. NHS Digital, Public Health England). Where such data are unavailable, results are compared with those from similar surveys undertaken in other studies as appropriate, for example, previous NPEU National Maternity Surveys (2014 or earlier) or the UK Infant Feeding Surveys (2010 or earlier). For some data, trends over time are presented. When comparing to other survey data, it is important to note that the findings presented from previous National Maternity Surveys are all unweighted. Therefore, when comparisons are made with previous National Maternity Surveys, unweighted data are reported for the You and Your Baby Survey, in addition to weighted data.

Analyses were undertaken using SPSS version 25.0 and STATA version 15.1 as appropriate.

3. Response

3.1 Response to the You and Your Baby Survey

The flow of recruitment, the number of questionnaires returned in the You and Your Baby Survey and a breakdown of returns according to mode of response are shown in **Figure 1**. Of the 15,528 eligible women who received a questionnaire pack, 4,509 women returned questionnaires which were used in the data analysis; 11,019 women either did not respond to the survey or returned blank questionnaires. Forty women (0.3%) returned the non-participation form to indicate their reasons for deciding not to participate in the survey. The most frequently selected reasons were being too busy, the questionnaire being too long and concern regarding sharing personal data.

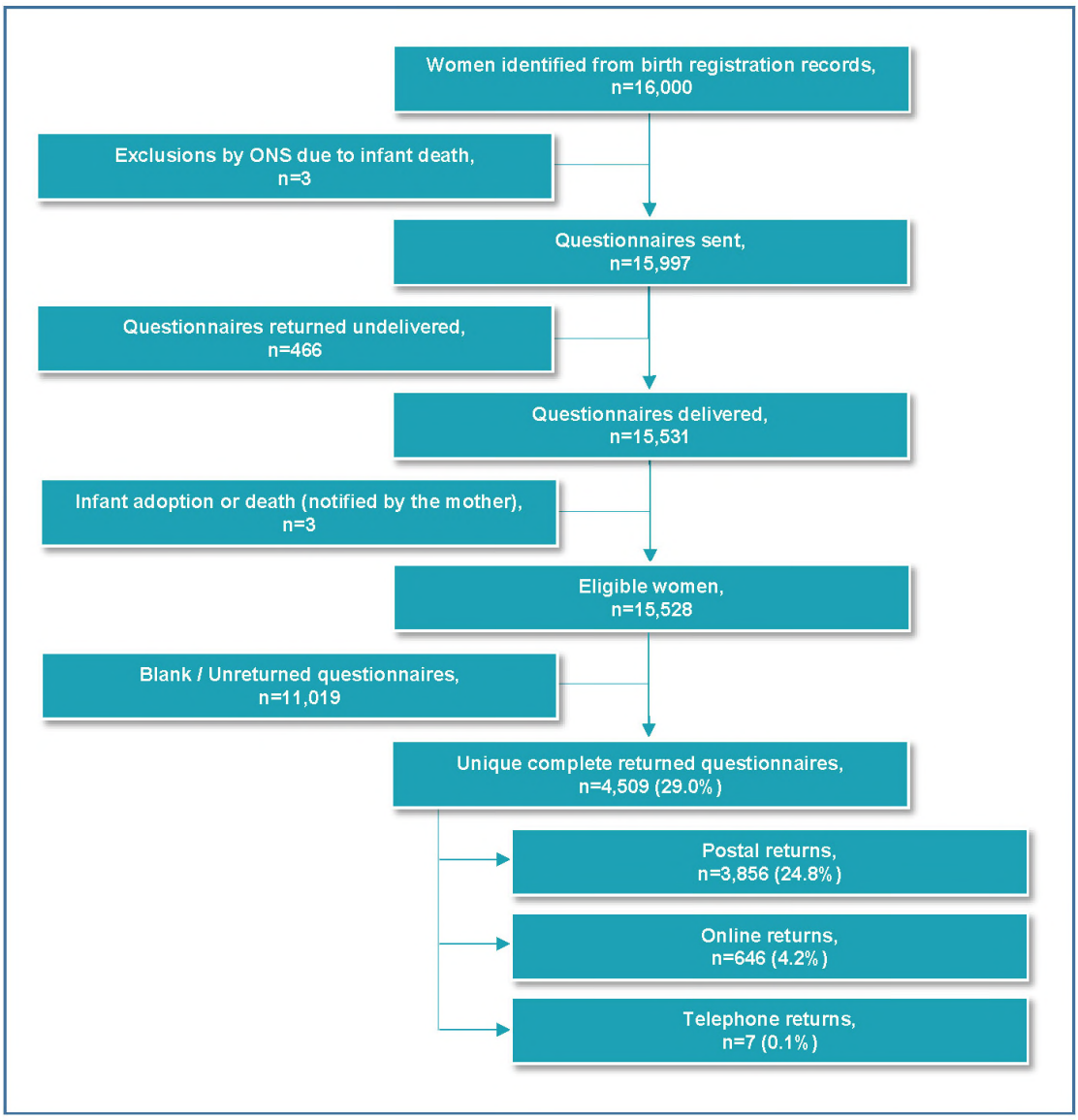

Figure 1: Flowchart of recruitment

The overall response rate to the You and Your Baby Survey was 29.0% (4,509 out of 15,528); the majority of respondents opted to complete and return the postal questionnaire (24.8%) rather than to take part online (4.2%) or over the telephone (0.1%).

Figure 2 shows the overall response rates to the previous National Maternity Surveys in 2006, 2010 and 2014 and to the You and Your Baby Survey in 2018, together with a breakdown of the response rates by mode of response. The overall response rate declined with each successive survey: 62.6% in 2006, 54.1% in 2010, 46.7% in 2014, and 29.0% in 2018. The breakdown by mode of response shows a decline in the postal response rate with each successive survey with no change in the response rate to the online survey. Therefore, the online response rate, as a proportion of the overall response rate, almost

doubled from 7.4% in 2010 (392 out of 5,333 women) to 14.3% in 2018 (646 out of 4,509 women; p<0.0001).

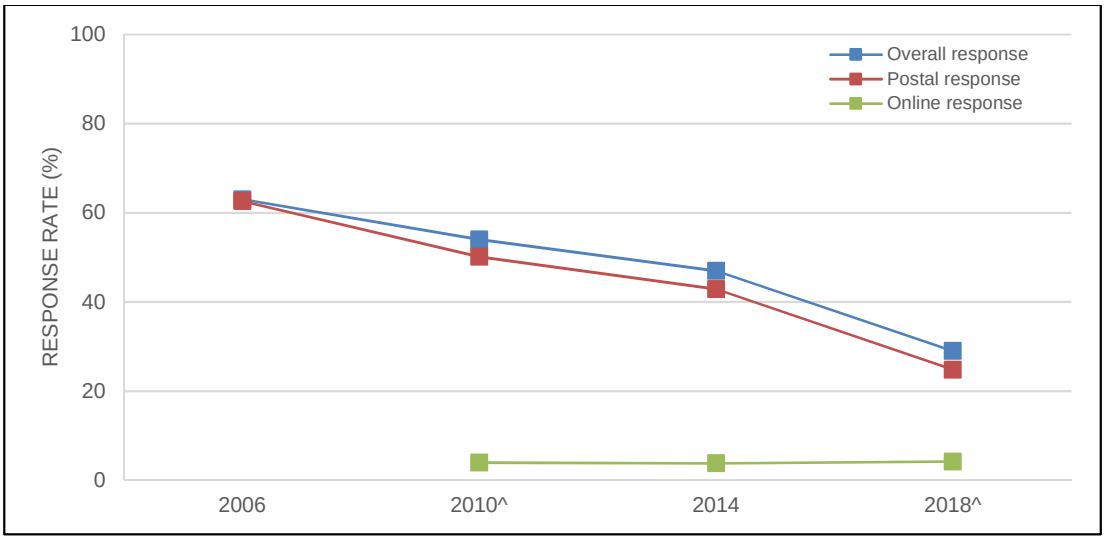

Figure 2: Response rates to the National Maternity Surveys

^ Women gave birth in 2009, survey conducted in 2010
Women gave birth in 2017, survey conducted in 2018

It is important to note that the You and Your Baby Survey was distributed to the women when their baby was six months old whereas the previous National Maternity Surveys were distributed to the women when their baby was three months old.

The response rates to the maternity services surveys carried out by the Care Quality Commission have followed a similar pattern to the NPEU National Maternity Surveys with the response rate declining from 59% in 2007[8] to 37% in 2018[5].

3.2 The women who responded to the You and Your Baby Survey

Summary data describing the characteristics of the overall sample (N=15,528) and of (all) respondents (N=4,509) and non-respondents (N=11,019) to the You and Your Baby Survey are presented in **Table 1**.

The majority (84.8%) of the respondents to the You and Your Baby Survey were aged between 25 and 39 years and the median age of the women was 32 years (interquartile range (IQR)=29-36 years). Almost two-thirds of the women registered their baby in married names (63.5%) and 29.3% registered their baby in joint (unmarried) names living at the same address. Only small numbers of women registered their baby in joint names living at

[8] http://nhssurveys.org/Filestore/CQC/2007_Maternity_services_survey_report.pdf. Accessed 16 Jan 2020.

different addresses (4.8%) or in their sole name (2.4%). Over three-quarters of the women who responded to the survey were born in the UK (77.2%). The women born outside the UK came from many parts of the world, principally Poland (2.4%), India (1.3%), Romania (1.3%), Pakistan (1.1%) and Germany (1.1%). Forty-four percent of respondents were living in areas in the two most advantaged quintiles on the IMD and slightly under half of the respondents were living in London or the South of England (46.2%). Slightly over half of the respondents were primiparous (51.5%).

Chi-square tests were used to compare the characteristics of the respondents to the non-respondents. The 4,509 women who responded to the You and Your Baby Survey were more likely to be older, married, born in the UK, living in more advantaged areas of England, and primiparous compared to the 11,019 women who were invited to take part in the survey but who did not respond ($p<0.001$).

Summary data describing the characteristics of the respondents to the You and Your Baby Survey according to mode of response are also presented in **Table 1**. Chi-square tests were used to compare the 3,863 respondents who took part via post / telephone and the 646 respondents who participated online. There were no marked differences between the women who responded by post / telephone or online in terms of age, marital status at birth registration, IMD or region of residence ($p>0.05$). However, a higher proportion of the women responding online were born outside of the UK (30.7%) compared to the women who responded via post / telephone (21.5%) and a higher proportion of the women responding online were primiparous (56.3%) compared to the women who responded via post / telephone (50.6%). These differences were statistically significant ($p<0.01$).

The age of the babies at the time their mothers took part in the survey varied between 26 and 49 weeks depending on how quickly women completed and returned the questionnaire. The median age of infants when the questionnaire was completed was 31 weeks (IQR=31-34 weeks).

Table 1: Summary of respondent (postal/telephone and online) and non-respondent characteristics

	Postal/telephone respondents		Online respondents		p-value[1]	All respondents		Non-respondents		p-value[2]	Overall sample	
	N=3,863		N=646			N=4,509		N=11,019			N=15,528	
Maternal data	**n**	**%**	**n**	**%**		**n**	**%**	**n**	**%**		**n**	**%**
Age group					0.364					<0.001		
16-19 years	56	1.4	3	0.5		59	1.3	334	3.0		393	2.5
20-24 years	314	8.1	45	7.0		359	8.0	1749	15.9		2108	13.6
25-29 years	901	23.3	154	23.8		1055	23.4	3114	28.3		4169	26.8
30-34 years	1462	37.8	251	38.9		1713	38.0	3496	31.7		5209	33.5
35-39 years	902	23.3	152	23.5		1054	23.4	1899	17.2		2953	19.0
40+ years	228	5.9	41	6.3		269	6.0	427	3.9		696	4.5
Marital status at birth registration					0.221					<0.001		
Married	2432	63.0	433	67.0		2865	63.5	5339	48.5		8204	52.8
Joint registration (same address)	1152	29.8	170	26.3		1322	29.3	3631	33.0		4953	31.9
Joint registration (different address)	189	4.9	27	4.2		216	4.8	1415	12.8		1631	10.5
Sole registration	90	2.3	16	2.5		106	2.4	634	5.8		740	4.8
Country of birth					<0.001					<0.001		
UK	3031	78.5	448	69.3		3479	77.2	7611	69.1		11090	71.4
Outside UK	832	21.5	198	30.7		1030	22.8	3408	30.9		4438	28.6
Index of multiple deprivation (IMD)					0.579					<0.001		
1st (most deprived)	595	15.4	111	17.2		706	15.7	3390	30.8		4096	26.4
2nd	738	19.1	131	20.3		869	19.3	2537	23.0		3406	21.9
3rd	814	21.1	131	20.3		945	21.0	1986	18.0		2931	18.9
4th	874	22.6	132	20.4		1006	22.3	1702	15.4		2708	17.4
5th (least deprived)	842	21.8	141	21.8		983	21.8	1404	12.7		2387	15.4
Region of residence					0.554					<0.001		
North East	139	3.6	22	3.4		161	3.6	505	4.6		666	4.3
North West	423	11.0	82	12.7		505	11.2	1492	13.5		1997	12.9
Yorkshire & the Humber	364	9.4	56	8.7		420	9.3	1101	10.0		1521	9.8
East Midlands	318	8.2	50	7.7		368	8.2	939	8.5		1307	8.4
West Midlands	357	9.2	67	10.4		424	9.4	1264	11.5		1688	10.9
East of England	471	12.2	78	12.1		549	12.2	1152	10.5		1701	11.0
London	661	17.1	121	18.7		782	17.3	2296	20.8		3078	19.8
South East	748	19.4	121	18.7		869	19.3	1566	14.2		2435	15.7
South West	382	9.9	49	7.6		431	9.6	704	6.4		1135	7.3
Parity					0.007					<0.001		
Primiparous	1956	50.6	364	56.3		2320	51.5	4253	38.6		6573	42.3
Multiparous	1907	49.4	282	43.7		2189	48.5	6766	61.4		8955	57.7

[1] Significance level for Chi-square test comparing postal / telephone respondents and online respondents
[2] Significance level for Chi-square test comparing respondents and non-respondents

3.3 Comparison with respondents to the previous National Maternity Surveys

Table 2 shows a breakdown of the respondents to each of the National Maternity Surveys according to key sociodemographic characteristics. Across all surveys, there were more responses from older, married women who were born in the UK and who were living in more advantaged areas. The majority of respondents across all of the surveys self-identified as being from White backgrounds (86.7% in 2018), had left full-time education at 19 years of age or over (65.5% in 2018), and were living with their spouses / partners at the time they participated in the surveys (89.7% in 2018). In the 2006 survey, there were more responses from multiparous women but, in more recent surveys, similar numbers of primiparous and multiparous women have responded, with the balance tipping towards primiparous women in 2018 (51.5%). There were some changes in the characteristics of respondents over time, for example, small decreases in younger mothers and sole registrations, and more marked increases in mothers born outside the UK and mothers leaving full-time education at 19 years of age or over. These changes reflect the shifting sociodemographic characteristics of women who give birth and the characteristics of those who respond to surveys.

Table 2: Comparison of National Maternity Survey respondent characteristics

Year of survey	**2006**		**2010**		**2014**		**2018**	
(Year mother gave birth)	**(2006)**		**(2009)**		**(2014)**		**(2017)**	
	n	**%**	**n**	**%**	**n**	**%**	**N**	**%**
Age group								
16-19 years	115	3.9	179	3.4	101	2.2	59	1.3
20-24 years	452	15.4	729	13.7	538	11.8	359	8.0
25-29 years	702	23.9	1376	25.8	1228	26.9	1055	23.4
30-34 years	959	32.7	1740	32.6	1587	34.7	1713	38.0
35-39 years	601	20.5	1068	20.0	874	19.1	1054	23.4
40+ years	105	3.6	240	4.5	241	5.3	269	6.0
Total	2934	100	5332	100	4569	100	4509	100
Marital status at birth registration								
Married	N/A	62.5	3278	61.5	2744	60.1	2865	63.5
Joint registration (same address)	N/A	27.7	1550	29.1	1395	30.5	1322	29.3
Joint registration (different address)	N/A	5.8	311	5.8	291	6.4	216	4.8
Sole registration	N/A	3.9	193	3.6	139	3.0	106	2.4
Total		100	5332	100	4569	100	4509	100
Index of multiple deprivation (IMD)								
1st (most deprived)	601	20.3	1091	20.5	894	19.6	706	15.7
2nd	576	19.5	1013	19.0	977	21.4	869	19.3
3rd	624	21.1	1131	21.2	935	20.5	945	21.0
4th	551	18.7	1041	19.5	865	18.9	1006	22.3
5th (least deprived)	602	20.4	1055	19.8	899	19.7	983	21.8
Total	2954	100	5331	100	4570	100	4509	100
Country of birth								
UK	2402	83.3	4180	78.4	3485	76.3	3479	77.2
Outside UK	480	16.7	1152	21.6	1084	23.7	1030	22.8
Total	2882	100	5332	100	4569	100	4509	100

Region of residence								
North East	N/A	4.9	230	4.3	191	4.2	161	3.6
North West	N/A	13.5	642	12.0	589	12.9	505	11.2
Yorkshire and Humber	N/A	10.3	509	9.5	434	9.5	420	9.3
East Midlands	N/A	9.1	407	7.6	383	8.4	368	8.2
West Midlands	N/A	11.0	501	9.4	426	9.3	424	9.4
Eastern	N/A	10.9	643	12.1	524	11.5	549	12.2
London	N/A	12.5	915	17.2	780	17.1	782	17.3
South East	N/A	17.8	952	17.9	793	17.4	869	19.3
South West	N/A	10.0	533	10.0	441	9.7	431	9.6
Total		100	5332	100	4561	100	4509	100
Ethnicity								
White British	2353	80.6	4487	85.7*	3710	83.9*	3299	75.7
White Other	199	6.8					480	11.0
Mixed	40	1.4	99	1.9	87	2.0	101	2.3
Asian	201	6.9	386	7.4	442	10.0	274	6.3
Black	105	3.6	202	3.9	159	3.6	102	2.3
Chinese / Other	21	0.7	63	1.2	23	0.5	101	2.3
Total	2919	100	5237	100	4421	100	4357	100
Age when leaving full-time education								
16 years or less	828	28.6	1150	22.3	756	16.9	493	11.1
17 or 18 years	869	30.0	1398	27.1	1209	27.0	1045	23.4
19 years or over	1195	41.3	2617	50.7	2509	56.1	2883	65.5
Total	2892	100	5165	100	4474	100	4460	100
Currently living with spouse/partner								
Yes	2592	88.0	4654	87.9	3980	87.1	4045	89.7
No / not stated	352	12.0	639	12.1	591	12.9	464	10.3
Total	2944	100	5293	100	4571	100	4509	100
Parity								
Primiparous	1165	41.0	2610	50.1	2206	49.9	2320	51.5
Multiparous	1679	59.0	2603	49.9	2217	50.1	2189	48.5
Total	2844	100	5213	100	4423	100	4509	100

* White British and White Other were combined in 2010 and 2014 surveys

3.4 Survey weights and external validity of data

Surveys are prone to possible bias due to non-response. As response rates to surveys decline, the risk of non-response bias increases. Previous National Maternity Surveys have achieved significantly higher response rates (47-63%) than the You and Your Baby Survey and have not used weighting in the analysis. The response rate to the You and Your Baby Survey was 29%. An analysis of sociodemographic data from birth registration records showed that there were differences between the respondents and non-respondents for key variables (age, marital status at birth registration, country of birth, IMD, region of residence, and parity; **Table 1**). Therefore, these variables were fitted in a logistic regression model with response / non-response (to the You and Your Baby Survey) as the outcome, and the resulting coefficients (adjusted log odds ratios) were used to derive survey weights. The survey weights were applied to the survey data to make the data more representative of all eligible women in the sampling frame, which in turn may reduce the effect of non-response bias. Further details of how the weights were created and validated are shown in **Appendix C**.

4. Survey findings

The survey findings are presented in the following nine sections: 1) pregnancy; 2) labour and birth; 3) postnatal care; 4) infant feeding; 5) maternal health and care; 6) infant health; 7) smoking and vaping; 8) return to work; and 9) future pregnancy planning.

4.1 Pregnancy

Summary data on pregnancy for the respondents to the You and Your Baby Survey are presented in **Table 3**.

Table 3: Summary of pregnancy data

	All respondents (N=4509)	
	n*	%^
Pregnancy planning (N=4467)		
Planned	3630	74.1
Unplanned	837	25.9
Mother's reaction to pregnancy (N=4402)		
Overjoyed	2741	57.5
Pleased	861	20.1
Mixed feelings	730	19.9
A bit unhappy	18	0.5
Very unhappy	40	1.6
No particular feelings	12	0.4
Timing of booking appointment (N=4351)		
Within 10 weeks	3144	70.2
Between 11-12 weeks	754	17.1
Between 13-18 weeks	344	9.1
Later than 18 weeks	109	3.7
Complex pregnancy		
Pregnancy-related problem (N=4484)	1264	26.8
Long-term health problem which affected pregnancy (N=4480)	429	9.6

* Unweighted totals
^ Weighted prevalence

4.1.1 Pregnancy planning and mother's reaction to pregnancy

Women were asked whether they had planned their pregnancy and how they felt when they realised they were pregnant. **Table 3** shows that the majority of pregnancies were described as planned (74.1%) and that most women reported being either overjoyed (57.5%) or pleased (20.1%) about the pregnancy. Few women reported being unhappy about the pregnancy (2.1%) but one in five women (19.9%) described themselves as having mixed feelings.

Figure 3 shows pregnancy planning by age group and by level of deprivation (IMD). Pregnancies were more likely to be unplanned in younger women: 70.8% of pregnancies were unplanned in women aged 19 years or younger compared to 15.7% in women aged 30-34 years. Pregnancies were also more likely to be unplanned in women living in less advantaged areas: 36.4% of pregnancies were unplanned in women from the most deprived quintile on the IMD compared to 15.9% in women from the least deprived quintile.

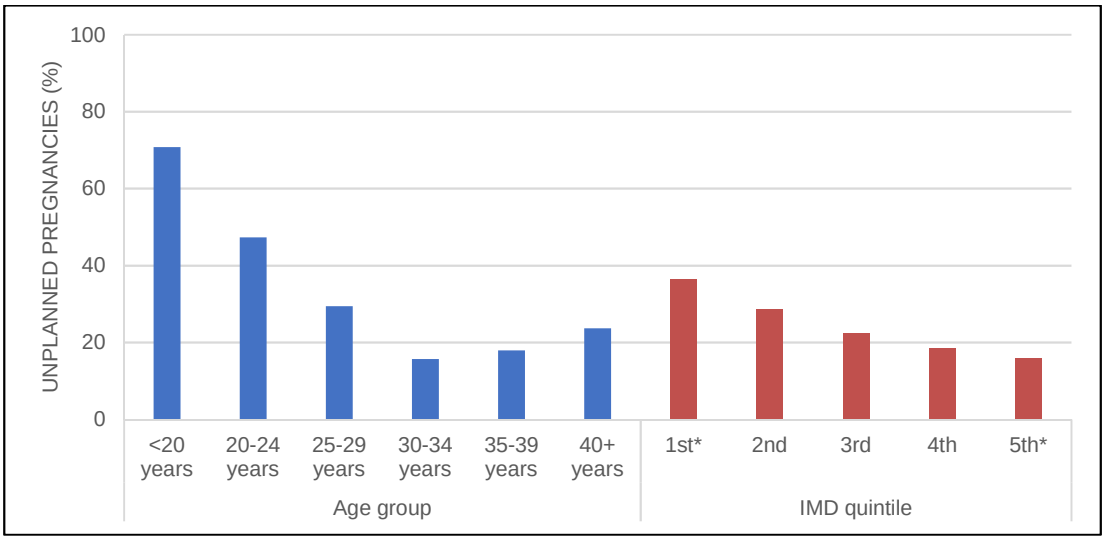

Figure 3: Unplanned pregnancies by maternal age group and level of deprivation (IMD)

* 1st quintile: most deprived, 5th quintile: least deprived

4.1.2 Timing of pregnancy booking appointment

The booking appointment at which women have their history taken and are given their pregnancy notes, usually by a midwife, is an important marker in planning care. According to the National Institute for Health and Care Excellence (NICE), pregnancy booking should ideally be carried out by 10 weeks' gestation.[9] In the You and Your Baby Survey, 70.2% (95%CI: 68.5-71.8) of women reported having their pregnancy booking within the first 10 weeks of pregnancy and this rose to 87.2% (95%CI: 85.8-88.5) of women within the first 12 weeks (**Table 3**). These figures are consistent with national routine data for England in 2017-2018 which show that 69% of women had their booking appointment within the first 10 weeks of pregnancy and 87% of women had their booking appointment within the first 12 weeks (NHS Digital Maternity Services Dataset (MSDS))[10]. Small numbers of women who took part in the You and Your Baby Survey had their pregnancy booking appointment between 13 and 18 weeks (9.1%) or even later in their pregnancy (3.7%).

[9] https://www.nice.org.uk/guidance/qs22/chapter/quality-statement-1-services-access-to-antenatal-care. Accessed 16 Jan 2020.
[10] https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/2017-18 (Data Quality Comparison Analysis). Accessed 16 Jan 2020.

Figure 4 shows the proportion of women who attended their booking appointment by 10 weeks' gestation across the National Maternity Surveys. The rate rose from 50.4% in the 2006 survey to 71.3% in the 2014 survey and then declined slightly again to 70.2% in the 2018 survey (the unweighted prevalence in the You and Your Baby Survey was 72.3%).

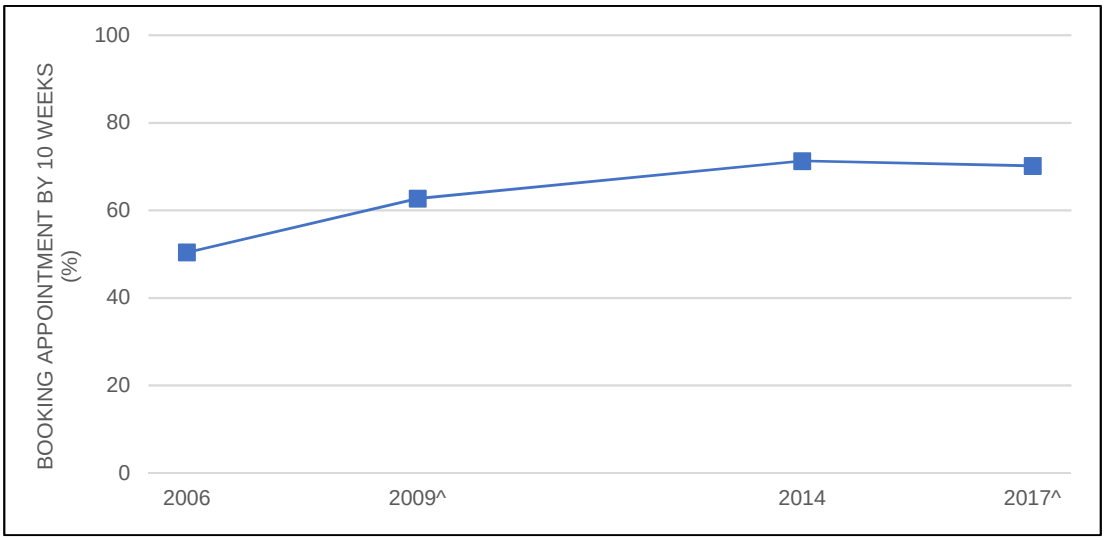

Figure 4: Booking appointments attended by 10 weeks' gestation by year of birth

^ Women gave birth in 2009, survey conducted in 2010
Women gave birth in 2017, survey conducted in 2018

4.1.3 Complex pregnancies

Women with more complex pregnancies may be managed in different ways, with specialist clinics, day assessment units and admissions to hospital. The You and Your Baby Survey asked women whether they had any pregnancy-specific problems which affected them or their baby or whether they had any long-term health problems which made their pregnancy difficult. **Table 3** shows that over a quarter of women (26.8%) reported that they had experienced a pregnancy-related problem, the most common being gestational diabetes (4.4%), bleeding / low-lying placenta (4.0%), pelvic girdle pain (2.9%), pre-eclampsia / HELLP syndrome (1.7%), and severe sickness (1.5%). One in ten women (9.6%) had a long-term health problem that complicated their pregnancy (**Table 3**). The most commonly reported problems were high blood pressure (4.3%), diabetes (3.2%), back problems (2.8%) and thyroid problems (1.2%). The proportion of women reporting a long-term health problem that complicated their pregnancy was unchanged from the 2010 and 2014 National Maternity Surveys.[3] [4]

4.2 Labour and birth

Summary data on labour and birth for the respondents to the You and Your Baby Survey are presented in **Table 4**.

Table 4: Summary of labour and birth data

			All respondents (N=4509)	
			n*	%^
Place of birth (N=4502)				
Home			135	3.1
Birth centre separate to hospital			425	8.7
Hospital			3919	87.6
Other			23	0.6
Mode of birth (N=4500)				
Spontaneous vaginal			2545	60.7
Forceps			392	7.1
Ventouse			250	4.9
Caesarean section			1313	27.3
Type of caesarean section	**All caesareans (N=1301)**			**(N=4488)**
Planned and carried out before labour started	545	42.2	545	11.4
Planned but carried out after labour started	100	7.9	100	2.1
Unplanned	656	49.9	656	13.5
Singleton or multiple birth (N=4509)				
Single baby			4399	97.8
Twins or more			110	2.2
Sex of baby (N=4509)				
Male			2312	51.1
Female			2197	48.9
Gestational age in weeks (N=4446)				
<32 weeks			49	1.2
32-36 weeks			272	6.4
37+ weeks			4125	92.4
Median gestational age in weeks (IQR) (N=4446)				40 (38-40)
Birth weight in grams (N=4367)				
<1500 grams			40	1.0
1500- 2499 grams			258	6.1
2500+ grams			4069	92.9
Median birth weight in grams (IQR) (N=4367)				3402 (3033-3750)
When the mother first held the baby (N=4455)				
Immediately			3093	70.9
Not immediately but within an hour			1085	22.5
More than one hour later			277	6.6
When mother and baby first had skin-to-skin contact (N=4383)				
Immediately			2848	67.2
Not immediately but within an hour			1138	24.0
More than one hour later			397	8.7
Experience of labour and birth (N=4467)				
Better than expected			1731	40.7
More or less as expected			1517	34.0
Worse than expected			1219	25.3
Median total score on Birth Satisfaction Scale – Revised (IQR) (N=3996) (maximum possible score = 40)				26 (21-31)

* Unweighted totals
^ Weighted prevalence

4.2.1 Place of birth

Most pregnant women in England give birth in an NHS hospital maternity unit. The majority of the women in the You and Your Baby Survey gave birth in hospital (87.6%) or in a birth centre separate from hospital (8.7%). Only a minority of women gave birth at home (3.1%, 95%CI: 2.6-3.8) (**Table 4**).

The proportion of women giving birth at home in the You and Your Baby Survey is only marginally higher than the most recent national routine data, which indicate that 2.1% of women gave birth at home in England in 2017.[11] Therefore, despite recommendations for more low-risk multiparous women to give birth at home[12], the rate of home births remains low. **Figure 5** shows the rates of home birth reported by ONS annually from 1994 to 2017 and in the National Maternity Surveys from 2006 to 2018 (the unweighted rate in the You and Your Baby Survey was 3.0%). It was not possible to estimate the home birth rate in the 2014 National Maternity Survey due to an inconsistency in the question wording. The rate of women giving birth at home has changed very little across the period from 1994 to 2017.

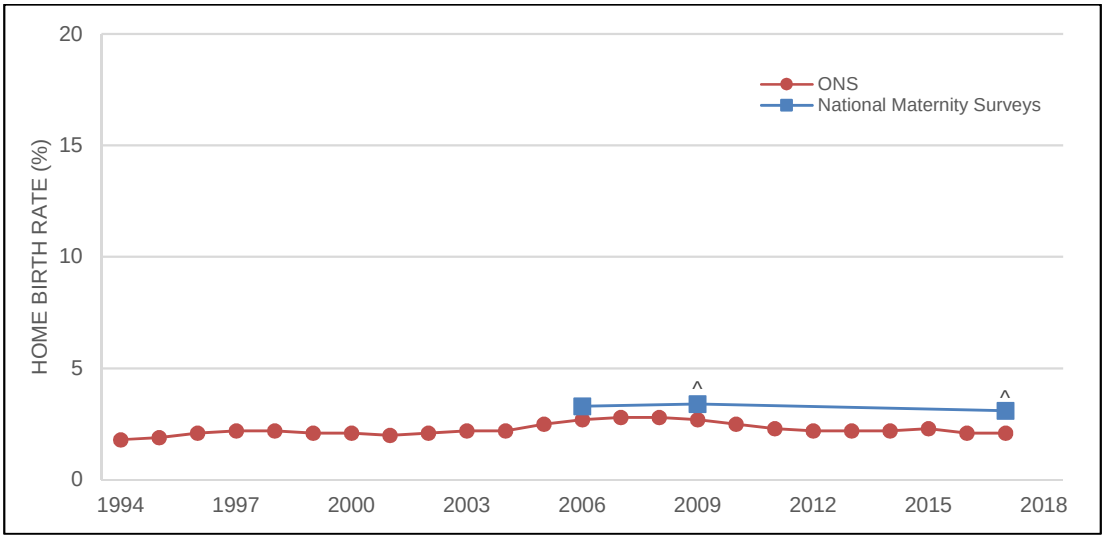

Figure 5: Rates of home birth by year of birth

^ Women gave birth in 2009, survey conducted in 2010
Women gave birth in 2017, survey conducted in 2018

4.2.2 Mode of birth

NICE recommends that pregnant women should be offered evidence-based information and support to enable them to make informed decisions about childbirth.[13] Over half of the

[11] https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthcharacteristicsinenglandandwales/2017. Accessed 16 Jan 2020.
[12] https://www.nhs.uk/news/pregnancy-and-child/new-advice-encourages-more-home-births/. Accessed 16 Jan 2020.
[13] https://www.nice.org.uk/guidance/cg62/chapter/1-guidance. Accessed 16 Jan 2020.

women who took part in the You and Your Baby Survey had spontaneous vaginal births (60.7%), 12.0% of births involved instrumental assistance (forceps or ventouse) and 27.3% (95%CI: 25.8-28.8) of births were caesarean sections **(Table 4)**.

The data from the You and Your Baby Survey are consistent with national routine data for all women giving birth in England, which show that, in October 2017 (the month in which the women in the You and Your Baby Survey gave birth), 58% of births were spontaneous vaginal births, 11% involved instrumental assistance and 28% were caesarean sections (NHS Digital MSDS).[14] The annual caesarean section rate for 2017-18 was also 28%.[15]

Comparisons with previous National Maternity Surveys would suggest that the caesarean section rate is gradually rising among maternity survey respondents: 22.8% in the 2006 survey, 24.8% in the 2010 survey, 26.4% in the 2014 survey and 27.3% in the 2018 survey (the unweighted prevalence in the You and Your Baby Survey was 29.2%). This trend is displayed in **Figure 6** and is consistent with national data (annual data from the Department of Health and Social Care, currently NHS Digital, are also displayed). Various reasons have been suggested for the increase in the rate of caesarean sections, including rising maternal age at first pregnancy, technological advances that have improved the safety of the procedure, changes in women's preferences, and a growing proportion of women who have previously had a caesarean section.[16]

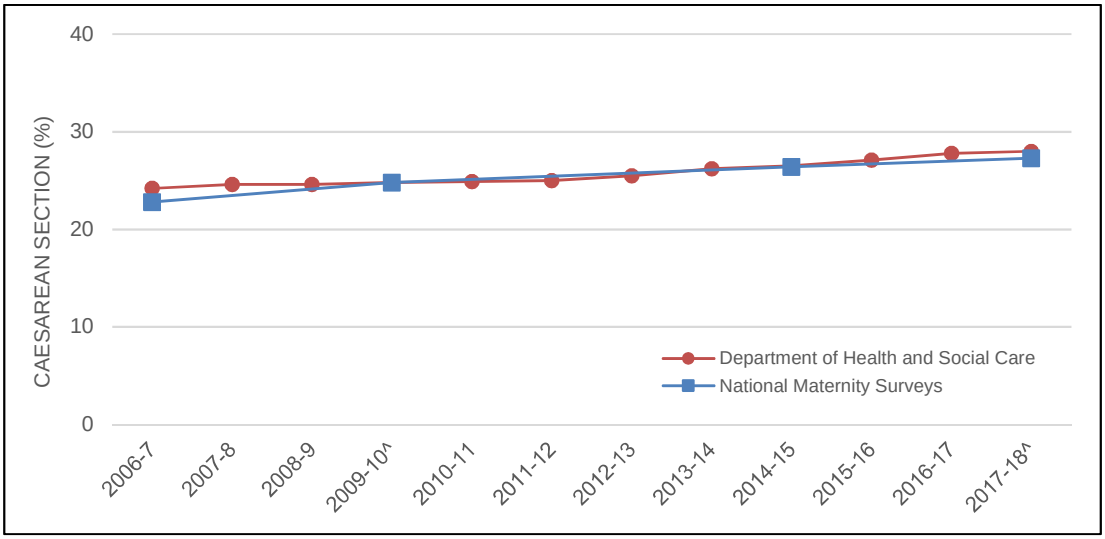

Figure 6: Rates of caesarean section by year of birth

^ Women gave birth in 2009, survey conducted in 2010
Women gave birth in 2017, survey conducted in 2018

[14] https://digital.nhs.uk/data-and-information/publications/statistical/maternity-services-monthly-statistics/october-2017. Accessed 16 Jan 2020.
[15] https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/2017-18. Accessed 16 Jan 2020.
[16] Bragg F, Cromwell DA, Edozien LC, Gurol-Urganci I, Mahmood TA, Templeton A, et al. Variation in rates of caesarean section among English NHS trusts after accounting for maternal and clinical risk: cross sectional study. BMJ, 2010;341:c5065

Figure 7 shows the mode of birth for all women who took part in the You and Your Baby Survey and a breakdown of mode of birth according to parity. First-time mothers were more likely to have an instrumental vaginal birth (forceps or ventouse) (21.3%) or a caesarean section (29.9%) compared with women who had given birth before (5.2% for instrumental vaginal birth; 25.3% for caesarean section).

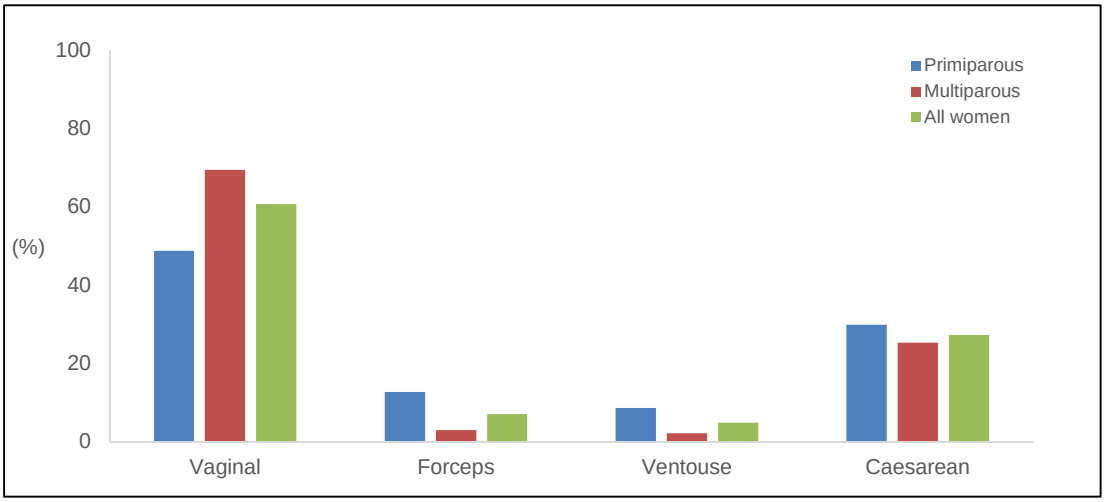

Figure 7: Mode of birth for primiparous, multiparous and all women

For those women who had a caesarean section, 49.9% were unplanned, 42.2% were planned and carried out before labour had started and 7.9% were planned but carried out after labour had started (**Table 4**). **Figure 8** shows the type of caesarean section for all women in the You and Your Baby Survey who gave birth via this mode and a breakdown of type of caesarean section according to parity. The women who were first-time mothers were far more likely to have an unplanned caesarean section (72.0%) compared to women who had given birth before (31.0%).

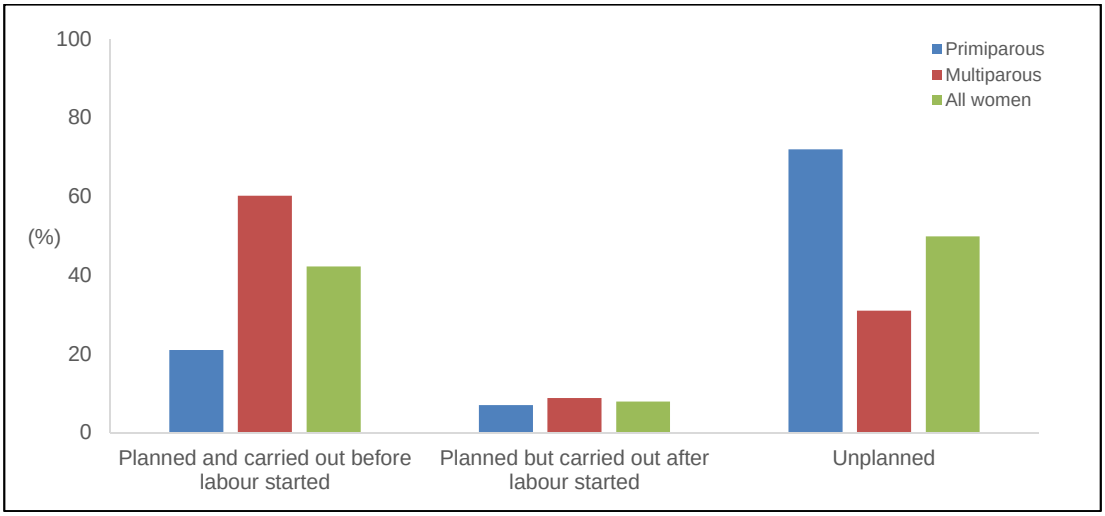

Figure 8: Type of caesarean section (among all women who had a CS) for primiparous, multiparous and all women

4.2.3 Multiple births and sex of babies

A total of 110 respondents to the You and Your Baby Survey had given birth to more than one baby in their most recent pregnancy (2.2%, 95%CI: 1.8-2.8) (**Table 4**). This is marginally higher than national routine data, which indicate a multiple birth rate of 1.6% in England and Wales during 2017 (ONS).[11]

There were slightly more male babies than female babies born to the women in the You and Your Baby Survey (51.1%, 95%CI: 49.4-52.8) (**Table 4**). This is consistent with national routine data, which indicate that 51.3% of babies born in England and Wales during 2017 were male (ONS).[11]

4.2.4 Gestational age and birth weight

The median gestational age for the babies born to the women in the You and You Baby Survey was 40 weeks (IQR=38-40 weeks) (**Table 4**). A small proportion of babies were preterm, being born before 37 weeks' gestation (7.6%, 95%CI: 6.7-8.6). Our data on gestational age are consistent with national routine data, which show that 8.0% of the babies born in England during 2017 were preterm (ONS).[11]

The median birth weight of the babies born to the women in the You and Your Baby Survey was 3,402 grams (IQR=3,033-3,750 grams) (**Table 4**). The proportion of babies who were low birth weight (weighing less than 2,500 grams) was 7.1% (95%CI: 6.3-8.1). Our data on birth weight are consistent with national routine data, which also show that 7.1% of the babies born in England during 2017 were low birth weight (ONS).[11]

4.2.5 Holding the baby and skin-to-skin contact

Contact with their infants soon after birth is thought to be reassuring and beneficial for women and their babies and supportive of successful breastfeeding.[17] Women in the You and Your Baby Survey were asked about holding their baby and having skin-to-skin contact shortly after the birth. Overall, 70.9% of women held their baby immediately or within the first hour (93.4%) and 67.2% had skin-to-skin contact immediately or within the first hour (91.3%) after the birth (**Table 4**).

Table 5 shows how soon women held their baby and had skin-to-skin contact after the birth according to gestational age. For the women who gave birth at 37 weeks' gestation or later (term), 95.1% held their baby within the first hour (72.7% immediately) and 92.9%

[17] https://digital.nhs.uk/data-and-information/publications/statistical/infant-feeding-survey/infant-feeding-survey-uk-2010. Accessed 16 Jan 2020.

(95%CI: 91.9-93.7) had skin-to-skin contact within the first hour (68.9% immediately). For the women who had their baby before 37 weeks' gestation (preterm), 72.9% held their baby within the first hour (49.4% immediately) and 70.2% had skin-to-skin contact within the first hour (45.5% immediately).

Table 5: Contact by gestational age, mode of birth and admission to neonatal care

	Holding the baby				Skin-to-skin contact			
	Immediate		Within 1 hour		Immediate		Within 1 hour	
	n*	%^	n*	%^	n*	%^	n*	%^
Gestational age								
Preterm (<37 weeks)	149	49.4	223	72.9	126	45.5	201	70.2
Term (37 weeks and over)	2904	72.7	3901	95.1	2683	68.9	3732	92.9
Mode of birth								
Spontaneous vaginal	2272	88.8	2469	96.9	2170	86.7	2423	97.1
Forceps	232	59.1	360	92.1	192	50.9	330	87.3
Ventouse	188	77.1	237	97.2	168	70.8	220	91.1
Caesarean	400	32.5	1111	85.1	318	26.6	1012	79.1
Admission to neonatal care								
Yes	238	47.1	366	69.0	200	42.5	319	63.8
No	2836	73.9	3791	96.6	2629	70.3	3646	94.9

* Unweighted totals
^ Weighted prevalence

National routine data from October 2017 (the month in which the women in the You and Your Baby Survey gave birth) indicate that, among women who gave birth at 37 weeks' gestation or later, 79% had skin-to-skin contact with their baby within one hour of birth (NHS Digital MSDS).[14] The annual rate of skin-to-skin contact within one hour in 2017-18 was 81%.[15] Therefore, a higher proportion of women in the You and Your Baby Survey reported skin-to-skin contact with their baby within an hour of birth compared to national published estimates. This may be due to non-response bias in the You and Your Baby Survey; however, it is also important to note that there are completeness and/or quality issues with NHS Digital MSDS data: "*the partial coverage of the MSDS both geographically and over time means that figures from the MSDS should not be interpreted as England level figures for 2017-18*" [15] (see **Appendix C** for further details).

Table 5 also shows how soon women held their baby and had skin-to-skin contact according to mode of birth and whether or not their baby was admitted to neonatal care. Overall, women were more likely to hold their baby and to have skin-to-skin contact immediately or within the first hour if they had a spontaneous vaginal birth compared to those women who had an instrumental birth or caesarean section (women who had a ventouse birth were as likely to hold their baby within the first hour as those women who had a spontaneous vaginal birth). Women were also more likely to hold their baby and to have skin-to-skin contact immediately or within the first hour if their baby was not admitted to neonatal care.

4.2.6 Experience of labour and birth

Women in the You and Your Baby Survey were asked how their experiences of labour and birth met with their expectations. A third of all women felt that their experience was more or less as they had expected (34.0%), while 40.7% felt it was better than expected and 25.3% felt that the experience had been worse than they were expecting (**Table 4**). **Figure 9** shows the results for all women and for primiparous and multiparous women separately. First-time mothers were almost twice as likely to experience the labour and birth as worse than they were expecting (34.9%) compared to women who had given birth before (18.2%).

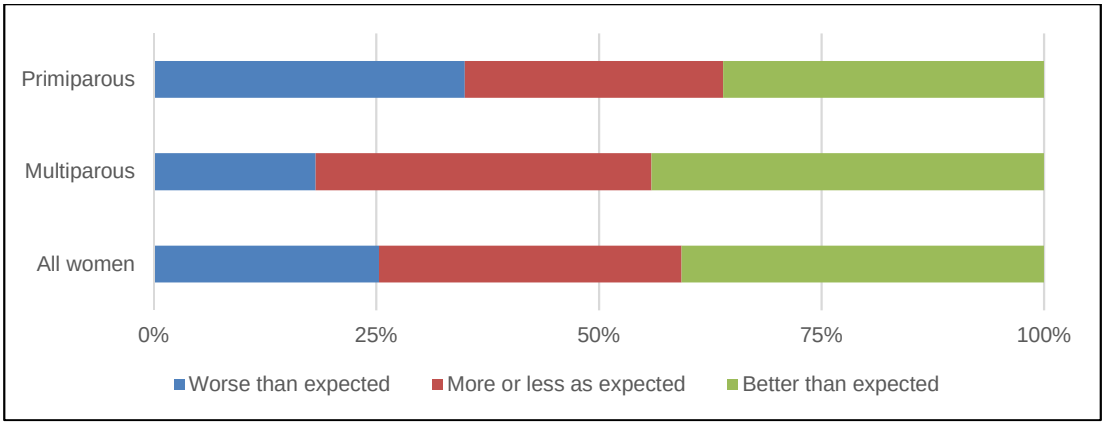

Figure 9: Experience of labour for primiparous, multiparous and all women

4.2.7 Satisfaction with labour and birth

The 10-item Birth Satisfaction Scale-Revised (BSS-R) was embedded within the You and Your Baby Survey. The BSS-R assesses women's perceptions of birth on a five-point Likert-type scale (0-4; strongly disagree to strongly agree) in order to determine women's satisfaction with their birth experience.[18] Six items on the scale are worded positively and four items are worded negatively.

The median total score on the BSS-R for the women who took part in the You and Your Baby Survey was 26 (IQR=21-31) out of a possible total score of 40 (Table 4). Therefore, overall the women in the survey were moderately satisfied with their care around the time of labour and birth.

Figure 10 shows the women's responses to the individual items on the BSS-R. The majority of women reported that the delivery room was clean and hygienic (93.8%), the staff communicated well with them during labour (82.7%), and they felt well supported

[18] Hollins Martin CJ, Martin CR. Development and psychometric properties of the Birth Satisfaction Scale-Revised (BSS-R). Midwifery, 2014;30(6):610-619

during their labour and birth (83.5%). A third of women felt that they were not at all distressed during labour (33.7%). However, almost another third of women found giving birth a distressing experience (29.7%) and felt out of control during their birth experience (29.8%). Over forty percent of women felt very anxious during the labour and birth (40.7%) and 24.0% found their labour excessively long. Less than half of the women felt they came through childbirth unscathed (48.3%).

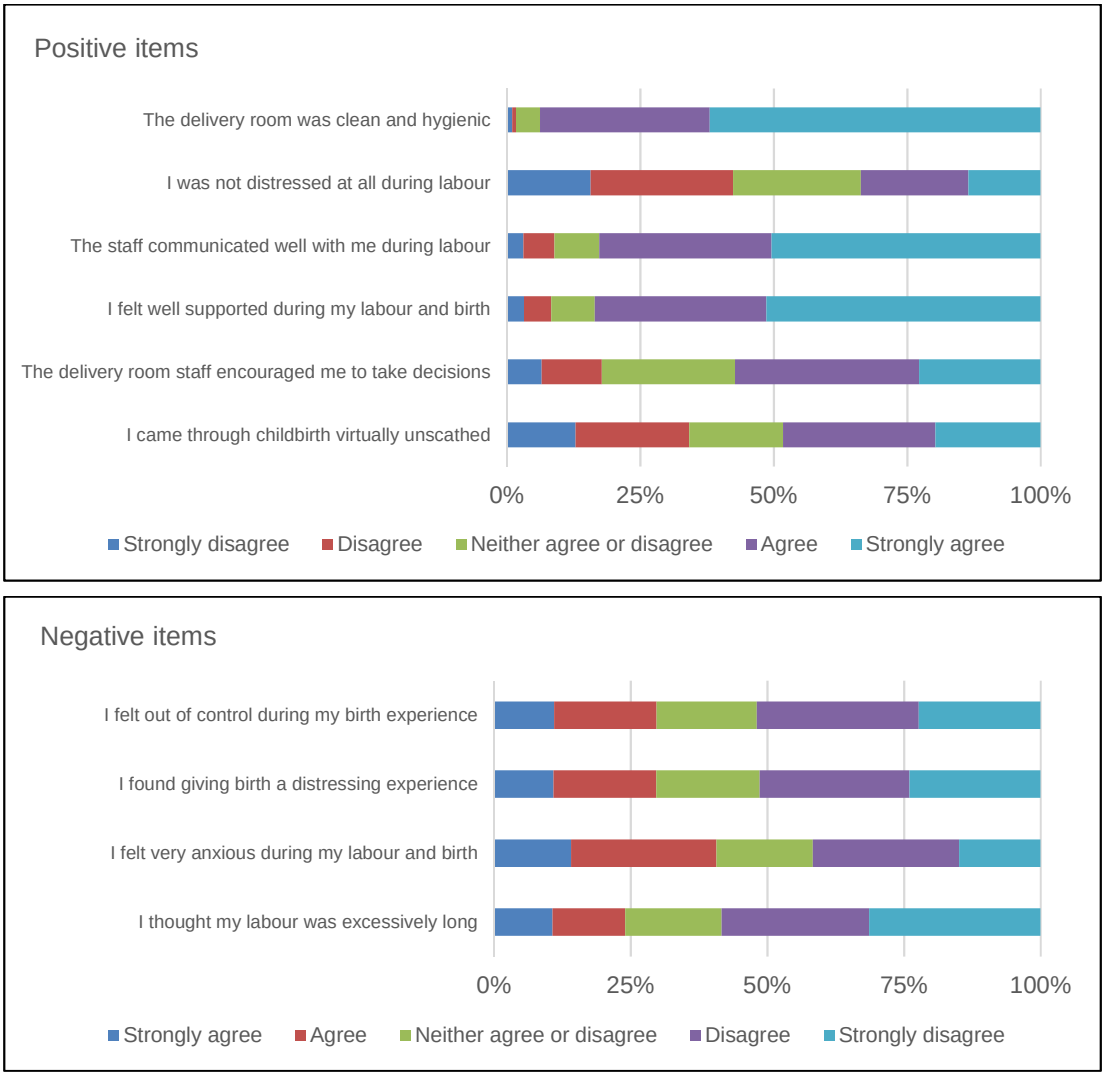

Figure 10: Responses to the Birth Satisfaction Scale-Revised for all women

4.3 Postnatal care

Summary data on postnatal care for the respondents to the You and Your Baby Survey are presented in **Table 6**.

Table 6: Summary of postnatal care data

	All respondents (N=4509)	
	n*	%^
Mother's length of hospital stay (N=4322)		
≤ 1 day (24 hours)	2034	49.6
> 1 day to 2 days	1034	22.5
> 2 days to 3 days	505	11.3
> 3 days to 5 days	435	9.6
> 5 days to 7 days	202	4.5
> 7 days	112	2.4
Median length of hospital stay in days (IQR) (N=4322)		1.1 (0.9-3.0)
Baby stayed in neonatal care (N=4482)		
No	3942	88.1
Yes	540	11.9
Length of neonatal stay (N=523)		
≤ 1 day (24 hours)	143	27.1
> 1 day to 7 days	236	44.8
> 7 days to 28 days	102	19.5
> 28 days	42	8.6
Median length of neonatal stay in days (IQR) (N=522)		3.0 (1.0-9.0)
Median number of postnatal follow-up contacts with midwife / maternity support worker (IQR)		
Home visits (N=4399)		3.0 (2.0-4.0)
Clinic visits (N=3880)		1.0 (0.0-3.0)
Telephone contacts (N=3853)		1.0 (0.0-2.0)
Median age of baby at last contact with midwife/health visitor in weeks (IQR) (N=4201)		4.0 (2.0-8.0)

* Unweighted totals
^ Weighted prevalence

4.3.1 Length of hospital stay

Depending on the type of birth and whether or not there are complications, the length of time women stay in hospital after giving birth can vary from a few hours to several weeks, or, for some women, even longer. For the women who gave birth in hospital or in a birth centre separate from hospital, half (49.6%) were discharged within 24 hours and 72.1% were discharged within 2 days; a small number of women stayed in hospital for more than 7 days after giving birth (2.4%) (**Table 6**). The median length of stay for the women who gave birth in hospital or in a birth centre separate from hospital was 1.1 days (IQR=0.9-3.0 days).

Table 7 shows the median length of hospital stay for the women who gave birth in hospital or in a birth centre separate from hospital according to parity, mode of birth and gestational age. Overall, primiparous women, women who had an instrumental birth or caesarean section and women who gave birth to a preterm baby tended to have longer stays in hospital following the birth.

Table 7: Mothers' length of hospital stay by parity, mode of birth and gestational age

	N*	Median^ (days)	IQR^ (days)	Range^ (days)
Parity				
Primiparous	2273	2.0	1.0-3.0	0-56
Multiparous	2049	1.0	0.5-2.0	0-35
Mode of birth				
Spontaneous vaginal	2375	1.0	0.5-2.0	0-27
Instrumental (forceps or ventouse)	635	2.0	1.0-3.0	0-14
Caesarean section	1309	2.0	2.0-4.0	0-56
Gestational age				
Preterm (<37 weeks)	317	3.0	2.0-6.0	0-53
Term (37+ weeks)	3946	1.0	0.8-2.0	0-56

* Unweighted totals
^ Weighted descriptive statistics

4.3.2 Admissions to neonatal care

Approximately one in eight babies born to the women in the You and Your Baby Survey were admitted for neonatal care (11.9%) (**Table 6**). Almost three-quarters of the babies were discharged within 7 days (71.9%); a small number of babies stayed in neonatal care for longer than 28 days (8.6%). **Figure 11** shows the neonatal care admissions according to mode of birth, gestational age and birth weight. Babies born by caesarean section were more likely to be admitted for neonatal care (18.6%) compared to babies born by spontaneous vaginal birth (8.5%) or instrumental vaginal birth (13.0%). Babies were more likely to be admitted for neonatal care if they were preterm (45.8%) or low birth weight (46.1%) compared to term (9.1%) and normal weight babies (9.2%).

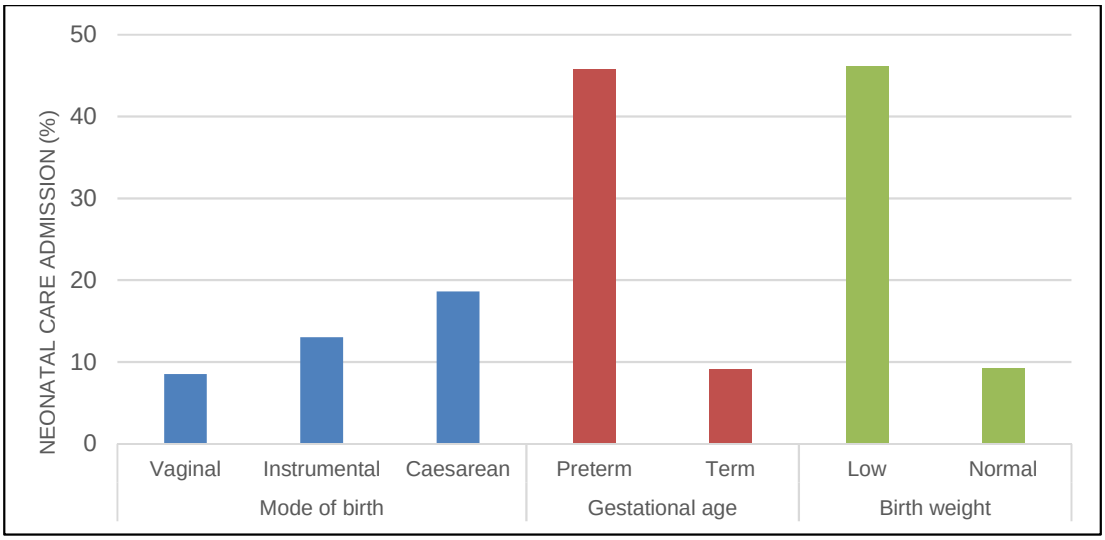

Figure 11: Neonatal admission by mode of birth, gestational age and birth weight

The median length of stay for all babies admitted for neonatal care was 3 days (IQR=1-9 days) (**Table 6**). **Table 8** shows the median length of stay in neonatal care for babies according to mode of birth, gestational age and birth weight. On average, babies born by caesarean section, prior to 37 weeks' gestation and with low birth weight tended to stay longer in neonatal care.

Table 8: Length of neonatal stay by mode of birth, gestational age and birth weight

	N*	Median^ (days)	IQR^ (days)	Range^ (days)
Mode of birth				
Spontaneous vaginal	207	3.0	1.0-7.0	1-150
Instrumental (forceps or ventouse)	80	2.0	1.0-6.0	1-161
Caesarean section	233	4.0	2.0-14.0	1-280
Gestational age				
Pre-term (<37 weeks)	158	14.0	5.0-35.0	1-161
Term (37+ weeks)	356	2.0	1.0-5.0	1-280
Birth weight				
Low birth weight (<2500 grams)	145	14.0	5.0-42.0	1-161
Normal birth weight (2500+ grams)	361	2.0	1.0-5.0	1-280

* Unweighted totals
^ Weighted descriptive statistics

4.3.3 Home visits

The amount of contact new mothers have with healthcare professionals in the postnatal period varies by region, available resources and by the needs of individual families. The median number of contacts the women in the You and Your Baby Survey had with midwives or maternity support workers during the postnatal period was three home visits (IQR=2-4), one clinic visit (IQR=0-3) and one telephone contact (IQR=0-2) (**Table 6**). The median age of the babies at their last contact with a midwife or maternity worker was four weeks (IQR=2-8 weeks).

4.4 Infant feeding

Summary data on infant feeding from the respondents to the You and Your Baby Survey are presented in **Table 9**.

Table 9: Summary of infant feeding data

	All respondents (N=4509)	
	n*	%^
Mother initiated breastfeeding (N=4496)		
No	497	14.7
Yes	3999	85.3

Duration of breastfeeding (N=4461)		
(Never breastfed)	(497)	(14.8)
Less than 6 weeks	908	21.2
6-8 weeks	181	3.6
9-13 weeks	346	8.2
14-25 weeks	317	6.8
26 weeks or longer	2212	45.3
Sources of breastfeeding help and advice[+] (N=3999)		
Midwife	2965	69.9
Other Health Professional	1377	30.0
Partner / Friend / Relative	1619	38.5
Breastfeeding Support Group	1029	22.9
Peer Supporter	289	5.7
Online support / Social media	725	16.2
No advice	142	4.8
No advice needed	467	13.3
Satisfaction with breastfeeding help/support (N=3953)		
Wanted/needed more help/support	1226	30.4
Did not want/need more help/support	2727	69.6
Ever used a breast pump (N=3981)		
No	652	21.5
Yes	3329	78.5
Reasons for using a breast pump[+] (N=3329)		
To allow others to feed	1571	45.3
To increase or maintain supply	1401	41.8
Due to engorged breasts	1286	40.2
When separated from the baby	1129	31.7
Due to problems latching on	981	28.8
Baby ever given donor milk (N=4463)		
Yes	40	0.9
No	4410	98.6
Not sure	13	0.5
Mother initiated formula feeding (N=4484)		
No	799	17.6
Yes	3685	82.4
Timing of initiation of formula feeding (N=4447)		
(Never formula fed)	(799)	(17.8)
From birth	1254	31.7
Not from birth but before 8 weeks	1376	28.6
9-13 weeks	331	7.5
14-25 weeks	405	8.6
26 weeks or later	282	5.8
Mother introduced solid food to baby (N=4490)		
No	227	6.0
Yes	4263	94.0
Timing of introduction of solid food (N=4343)		
≤ 4 months (0-17 weeks)	633	17.4
> 4 months up to 5 months (18-22 weeks)	1236	27.9
> 5 months up to 6 months (23-26 weeks)	2180	46.5
> 6 months or not at time of survey (>26 weeks)	294	8.2

* Unweighted totals
^ Weighted prevalence
[+] Multiple options could be selected

4.4.1 Breastfeeding and formula feeding

Current national and international guidance recommends exclusive breastfeeding for newborn babies and for the first six months of infancy.[19] [20] Breastfeeding initiation and continuation is also recommended within the Department of Health and Social Care Healthy Child Programme.[21] The majority of women who responded to the You and Your Baby Survey had initiated breastfeeding (85.3%, 95%CI: 83.9-86.6). This includes all babies who were put to the breast at all, even if it was on one occasion only, and also includes those babies who were given expressed breastmilk. The breastfeeding initiation rate for women in the You and Your Baby Survey was considerably higher than national routine data, which shows the breastfeeding initiation rate (proportion of babies who received breast milk as their first feed) for October 2017 (the month in which the women in the You and Your Baby Survey gave birth) was 75% (Department of Health and Social Care, currently NHS Digital MSDS).[14] The annual breastfeeding initiation rate for 2017-18 was 74%.[15] The rate may be higher in the You and Your Baby Survey due to non-response bias; however, due to the aforementioned data completeness and/or quality issues, MSDS data may not be nationally representative[15] (see **Appendix C**). It is also noteworthy that our figure was only slightly higher than the initial breastfeeding rate of 83% for England reported in the Infant Feeding Survey in 2010.[22]

Figure 12 shows the breastfeeding initiation rates reported by the Department of Health and Social Care for England from 2005-6 to 2017-8, in the Infant Feeding Survey from 1980 to 2010 (for England and Wales up until 2000 and then for England only), and in the National Maternity Surveys for England from 2006 to 2018. The figure is an updated and modified version of a graph published by Oakley (2016).[23] Overall the trend shows an increase in the rate of breastfeeding initiation from 67% for babies born in 1980 to 85.3% for babies born in 2017 (the unweighted rate in the You and Your Baby Survey was 88.9%). However, as stated, the rates reported by the Department of Health and Social Care are consistently lower than the rates found in the Infant Feeding Surveys and the National Maternity Surveys.

[19] http://www.who.int/nutrition/topics/infantfeeding_recommendation/en/index.html. Accessed 16 Jan 2020.
[20] http://www.nice.org.uk/nicemedia/live/11943/40097/40097.pdf. Accessed 16 Jan 2020.
[21] https://www.gov.uk/government/publications/healthy-child-programme-pregnancy-and-the-first-5-years-of-life. Accessed 16 Jan 2020.
[22] https://digital.nhs.uk/data-and-information/publications/statistical/infant-feeding-survey/infant-feeding-survey-uk-2010. Accessed 16 Jan 2020.
[23] Oakley LL, Kurinczuk JJ, Renfrew MJ, and Quigley MA. Breastfeeding in England: Time Trends 2005-2006 to 2012-2013 and Inequalities by Area Profile. Maternal and Child Nutrition, 2016;12:440-451.

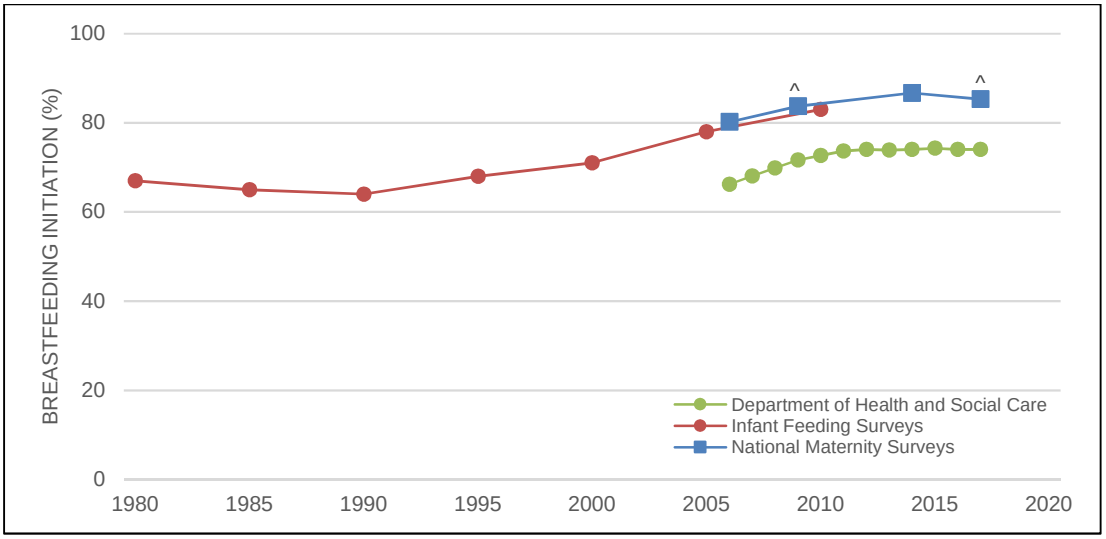

Figure 12: Rates of breastfeeding initiation by year of birth

^ Women gave birth in 2009, survey conducted in 2010
Women gave birth in 2017, survey conducted in 2018

Almost two thirds of the women in the You and Your Baby Survey were still breastfeeding when their baby was eight weeks old (61.8%, 95%CI: 60.1-63.5) and slightly under half of the women breastfed their baby for six months or longer (45.3%); many women were still breastfeeding at the time they participated in the survey. The breastfeeding rate at eight weeks reported by women in the You and Your Baby Survey was considerably higher than national routine data, which shows the breastfeeding rate at 6-8 weeks for October-December 2017 was 43.8% (Department of Health and Social Care, currently Public Health England (PHE)).[24] The annual breastfeeding rate at 6-8 weeks in 2017-18 was 43.1%.[24] The rate in the You and Your Baby Survey may be higher due to non-response bias; however, as with NHS Digital, PHE may have issues with data quality: *"The denominator in this indicator implicitly assumes that all infants whose breastfeeding status at 6-8 weeks after birth is unknown were not breastfeeding. This will result in an underestimate of the percentage of infants breastfeeding"* (see **Appendix C** for further details).

Figure 13 shows the changes in the proportion of mothers who were giving their baby any breast milk at birth, six weeks and six months as reported in the Infant Feeding Surveys from 1995 to 2010 and in the You and Your Baby Survey in 2018. The trend shows that the proportion of mothers breastfeeding at each of these time-points has increased over time. Therefore, more survey mothers are initiating breastfeeding and continuing to breastfeed for longer although, as stated, our survey data may over-estimate breastfeeding rates due to non-response bias.

[24] https://www.gov.uk/government/statistics/breastfeeding-at-6-to-8-weeks-after-birth-annual-data. Accessed 16 Jan 2020.

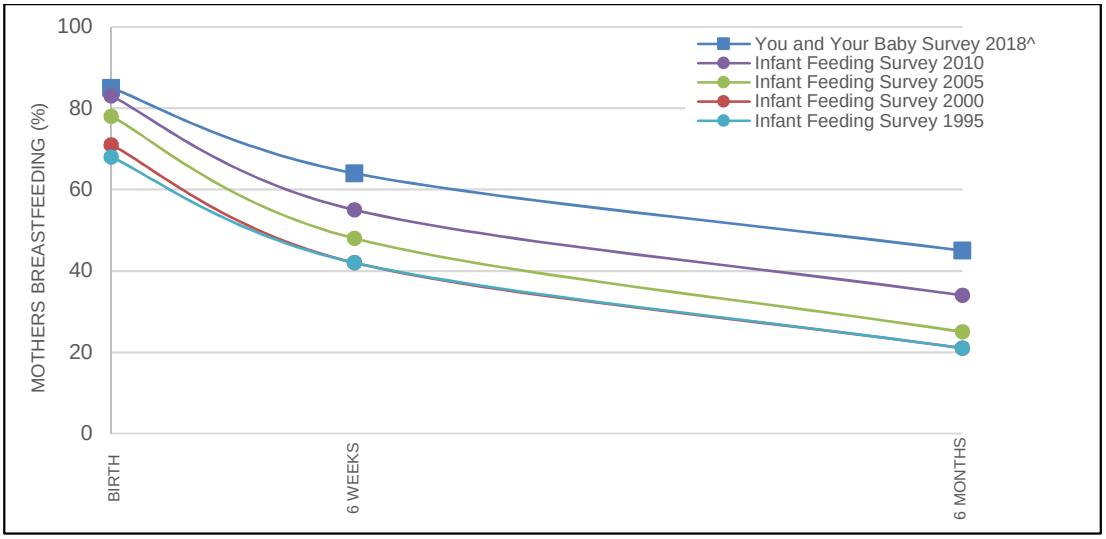

Figure 13: Proportion of mothers breastfeeding their baby at birth, 6 weeks and 6 months by year

^ Women gave birth in 2017, survey conducted in 2018

The women in the You and Your Baby Survey who reported that they had initiated breastfeeding were asked whether they had ever used a breast pump and 78.5% reported that they had made use of these. The most commonly cited reasons for using a breast pump were: to allow others to feed the baby (45.3%), to increase or maintain supply (41.8%), because of engorged breasts (40.2%), to replace feeding when separated from the baby (31.7%), and due to problems with the baby latching on (28.8%). Very few women reported that their baby had ever been given donor breast milk (0.9%; 4.9% for preterm babies and 0.5% for term babies).

Four out of five women had given formula milk to their baby at the time they took part in the You and Your Baby Survey (82.4%). Over half of the women had given formula milk to their baby either from birth (31.7%) or within the first eight weeks after birth (28.6%).

4.4.2 Breastfeeding support

Women were asked about a range of possible sources of help and advice regarding breastfeeding and could give multiple responses to the question. The women who reported breastfeeding in the You and Your Baby Survey received help and advice from midwives (69.9%), partners, relatives and friends (38.5%), and other health professionals, such as health visitors and lactation consultants (30.0%). Almost a quarter of women received support from breastfeeding support groups (22.9%). Around one in eight women reported that they did not require any advice (13.3%), yet almost a third of women reported that they would have liked more help with breastfeeding (30.4%).

4.4.3 Introduction of solids

The UK health departments currently recommend that solid foods should be introduced to babies when they are around six months old.[25] The women in the You and Your Baby Survey were asked whether they had introduced solid food to their baby and, if so, the age of their baby when they were first given solid food. Women could specify the age of their baby in weeks or in months. The majority of the women who took part in the You and Your Baby Survey had introduced solid food to their baby (94.0%) (**Table 9**). Overall, 17.4% (95%CI: 16.1-18.9) of mothers had introduced solid food by four months (or by the end of their baby's 17th week); 45.3% (95%CI: 43.6-47.0) had introduced solid food by five months (or by the end of their baby's 22nd week) and 91.8% (95%CI: 90.6-92.8) of mothers had introduced solid food to their baby by the time they were six months (or by the end of their 26th week). A minority of women introduced solid food to their baby when they were older than six months or had not yet introduced solid food to their baby at the time they took part in the survey (8.2%).

The Infant Feeding Survey in 2010 found that 28% of mothers had introduced solid food to their baby by four months (17 weeks), 75% of mothers had introduced solid food by five months (22 weeks), and the majority of mothers (94%) had introduced solid food by the time their baby was six months old (26 weeks).[22] These estimates are higher than our findings in the You and Your Baby Survey. **Figure 14** shows the proportion of mothers who had introduced solid food to their baby by age four, five and six months in the 2005 and 2010 Infant Feeding Surveys and in the 2018 You and Your Baby Survey. The trend shows that, over time, mothers have tended to wait longer before introducing solid food to their baby (50% of babies born in 2005 had been introduced to solid food by 4 months compared to 17.4% in 2017).

Over a third (37.8%) of the women in the You and Your Baby Survey reported introducing solid food to their baby when they were exactly six months (or 26 weeks) of age. Therefore, combining this proportion with the women who had introduced solid food after six months or had yet to introduce solid food (8.2%), indicates that just under half of all the women (46.0%) in the survey introduced solid food to their baby in line with the current recommendations.

[25] https://www.nhs.uk/conditions/pregnancy-and-baby/solid-foods-weaning. Accessed 16 Jan 2020.

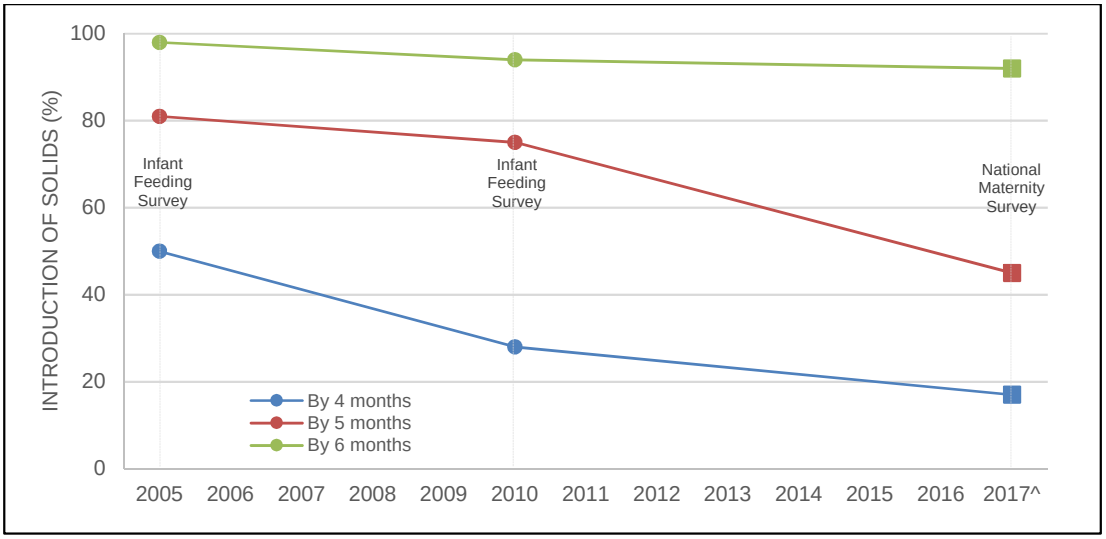

Figure 14: Introduction of solid food by 4, 5 and 6 months by year of birth

^ Women gave birth in 2017, survey conducted in 2018

4.5 Maternal health and care

Summary data on maternal health and care for the respondents to the You and Your Baby Survey are presented in **Table 10**.

Table 10: Summary of maternal health and care data

	All respondents (N=4509)	
	n*	%^
Physical health after childbirth (N=4454)		
Very well	916	23.2
Quite well	2024	44.8
Quite unwell	1026	21.4
Very unwell	488	10.6
Physical health 6+ months after childbirth (N=4491)		
Very well	2169	48.0
Quite well	2039	44.8
Quite unwell	261	6.7
Very unwell	22	0.6
Fatigue 6+ months after childbirth (N=4484)		
Not very tired	1174	28.6
Quite tired	2158	45.8
Very tired	900	19.4
Exhausted all the time	252	6.1
Maternal postnatal check-up of their own health with GP (N=4471)		
Yes	4120	90.6
No	351	9.4
Asked about mental health at booking appointment (N=4483)		
Yes	3600	77.5
No	336	9.3
Don't know	547	13.2

Asked about mental health history at booking appointment (N=4463)		
Yes	3509	75.4
No	451	13.0
Don't know	503	11.7
Had a health professional to talk to about personal issues during pregnancy (N=4472)		
Always	2155	47.0
To some extent	1698	35.7
No	619	17.3
Had a mental health problem during pregnancy (N=4509)		
Anxiety	578	13.4
Depression	255	6.9
Anxiety and depression	172	4.4
Asked about mental health during the postnatal period (N=4474)		
Yes	3652	78.3
No	607	16.4
Don't know	215	5.3
Had a mental health problem during the postnatal period (N=4509)		
Anxiety	1309	28.9
Depression	639	16.4
Comorbid anxiety and depression	467	11.8
Sources of support[+] (N=4509)		
Partner	3866	80.4
Family	3518	76.3
Friends	2852	59.4
Colleagues	362	7.0
Health professionals	495	11.9
Social media	347	7.8
Mother felt their baby belonged to them (N=4432)		
During pregnancy	2585	60.1
Immediately after birth	796	18.9
In the first few days	448	8.9
In the first few weeks	424	8.7
Only recently	153	3.0
Not quite yet	26	0.5
Mother's description of her baby (N=4470)		
More difficult than most	339	7.7
About average	1923	42.5
Easier than most	2208	49.8

* Unweighted totals
^ Weighted prevalence
[+] Multiple options could be selected

4.5.1 Maternal physical health

Women were asked how they had been feeling physically in the days prior to completing the You and Your Baby Survey. Similar numbers of respondents described feeling quite well (44.8%) and very well (48.0%) and only a minority of women described feeling unwell six months after giving birth (7.3%) (**Table 10**). This is substantially lower than the proportion of women who reported feeling unwell in the first few days following childbirth

(32.0%). In terms of fatigue, a quarter of women reported that they were either feeling very tired (19.4%) or exhausted all the time (6.1%) six months after giving birth.

Figure 15 shows the physical health problems reported by the women in the You and Your Baby Survey at three different time-points during the postnatal period: one month, three months and six months after the birth. The most commonly reported health problems one month after the birth were painful breasts (46.5%), painful wound (39.9%) and fatigue (35.1%). Three months after the birth, fatigue was the most commonly reported physical health problem (25.5%) followed by painful sexual intercourse (14.2%) and painful breasts (13.3%). Six months after the birth, fatigue was still the most commonly reported problem (17.4%) followed by sleep problems (not related to the baby) (8.5%) and painful sexual intercourse (8.3%). Almost all health problems were most prevalent one month (rather than three or six months) after the birth and tended to decrease by three months and decrease further by six months after the birth.

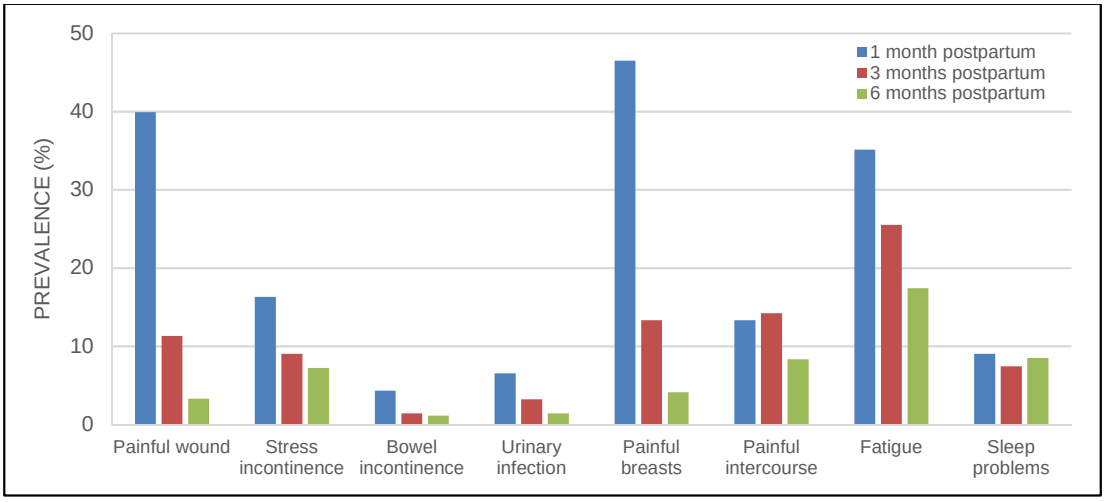

Figure 15: Physical health problems at three time-points during the postnatal period

All women should have a postnatal check-up of their own health with their GP about 6-8 weeks after their baby's birth to make sure they feel well and are recovering properly.[26] The majority of women who took part in the You and Your Baby Survey reported that they had a postnatal check-up of their own health with their GP (90.6%) (**Table 6**). Although this proportion is high, one in every ten women who took part in the survey had no follow-up by their GP after giving birth. One possible reason for this is that some GP surgeries do not routinely offer a postnatal check-up, hence the onus is on the mother to request an appointment.

[26] https://www.nhs.uk/conditions/pregnancy-and-baby/postnatal-check/. Accessed 16 Jan 2020.

Figure 16 shows the proportion of women who reported that they had a postnatal check-up of their own health with their GP across the National Maternity Surveys. The rate has remained consistent at between 85% and 91% across the surveys (the unweighted rate in the You and Your Baby Survey was 92.1%).

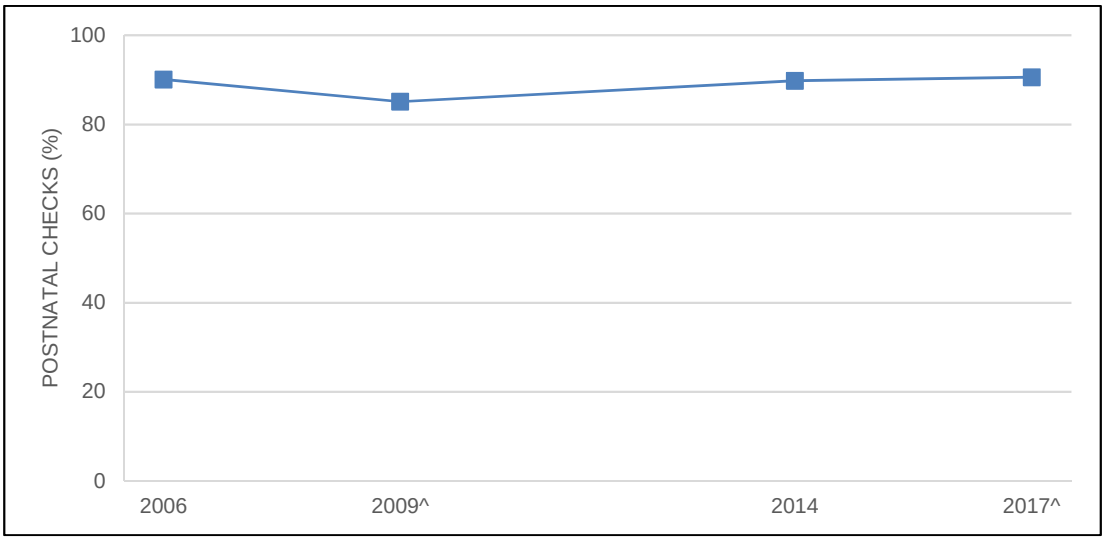

Figure 16: Maternal postnatal check-ups by year of birth

^ Women gave birth in 2009, survey conducted in 2010
Women gave birth in 2017, survey conducted in 2018

4.5.2 Maternal mental health

There is considerable concern about women's mental health both during and after pregnancy and recent guidance makes recommendations for the effective identification and treatment of women's mental health problems around the time of pregnancy and childbirth.[27] In the You and Your Baby Survey women were asked whether, around the time of booking for their pregnancy care, they had been asked about their emotional and mental health. A total of 77.5% of women had been asked (**Table 10**). They were also asked specifically whether staff enquired about past mental health problems / family history of mental health problems, with 75.4% of women indicating that they had been asked.

Women in the You and your Baby Survey were asked whether they had experienced anxiety or depression during their pregnancy and / or during the postnatal period. **Figure 17** shows the prevalence of anxiety and depression reported by the women during pregnancy and at three different time-points during the postnatal period: one month, three months and six months after the birth. During pregnancy, 13.4% (95%CI: 12.3-14.7) of women reported suffering from anxiety, 6.9% (95%CI: 6.0-7.9) reported suffering from depression and 4.4% (95%CI: 3.7-5.2) reported suffering from both anxiety and

[27] https://www.nice.org.uk/guidance/cg192/chapter/introduction. Accessed 16 Jan 2020.

depression. Women were asked whether they had a health professional who they could talk to about personal or sensitive issues during their pregnancy and 82.7% reported that they had, at least to some extent (**Table 10**).

Overall, 28.9% (95%CI: 27.3-30.4) of women reported suffering from anxiety, 16.4% (95%CI: 15.1-17.8) reported suffering from depression, and 11.8% (95%CI: 10.7-13.0) reported suffering from both anxiety and depression at some point during the postnatal period (**Table 10**). Anxiety and depression were most prevalent one month after the birth (18.0% (95%CI: 16.7-19.3) and 9.5% (95%CI: 8.5-10.7) respectively). Anxiety declined by three months (14.2%, 95%CI: 13.0-15.4) and declined further by six months (12.3%, 95%CI: 11.2-13.5) whereas depression declined by three months (6.9%, 95%CI: 6.0-7.8) and then remained stable at six months (6.8%, 95%CI: 6.0-7.8). Some women reported experiencing both anxiety and depression during the postnatal period: 6.9% (95%CI: 6.0-7.9) one month after the birth, 5.3% (95%CI: 4.5-6.1) three months after the birth and 5.1% (95%CI: 4.4-6.0) six months after the birth (**Figure 18**).

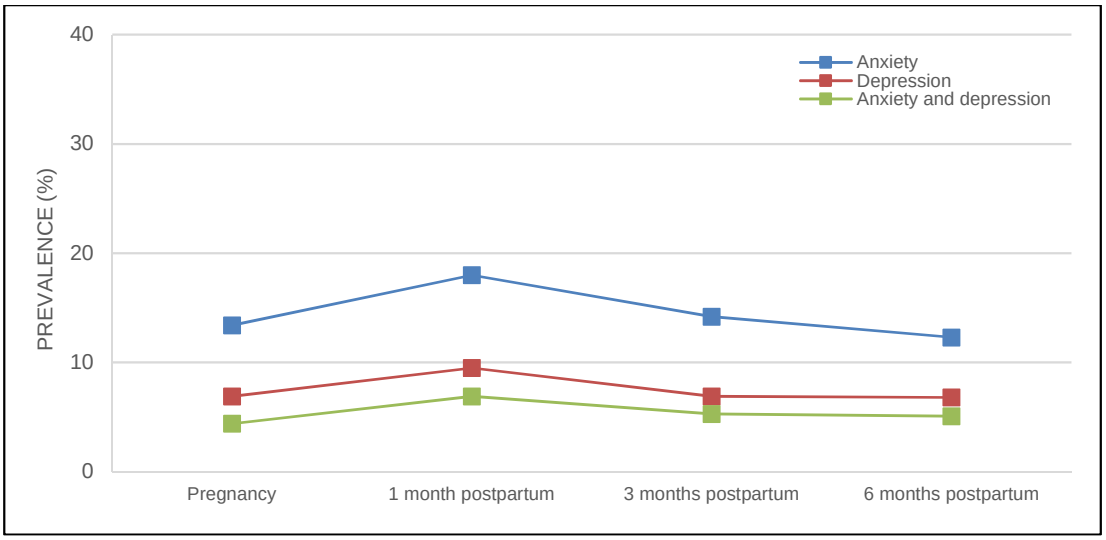

Figure 17: Anxiety and depression during pregnancy and at three time-points during the postnatal period

There are no national routine data available on the prevalence of anxiety and depression in women during pregnancy and the postnatal period. The Avon Longitudinal Study of Parents and Children (ALSPAC), a large cohort study in the early 1990s in the Avon area of England, found that 13.6% of women had depression during pregnancy, 9.2% of women had depression 8 weeks after giving birth and 8.1% of women had depression 8 months

after giving birth.[28] These estimates are higher than we found in the You and Your Baby Survey.

A recent systematic review reported an overall prevalence of 22.9% for self-reported anxiety during pregnancy.[29] This is also higher than we found in the You and Your Baby Survey. However, the prevalence and pattern of self-reported anxiety during the postnatal period was similar to our findings: 17.8% at 1-4 weeks, 14.9% at 5-12 weeks, and 14.8% at >24 weeks. Another recent systematic review reported an overall prevalence of 6.3% for comorbid anxiety and depression during pregnancy. [30] Again, this is slightly higher than we found in the You and Your Baby Survey. However, as with anxiety, the prevalence and pattern of self-reported comorbid anxiety and depression during the postnatal period was similar to our findings: 6.3% for 1-4 weeks, 5.8% for 5-12 weeks, and 5.2% for >24 weeks. The discrepancies between the published data and the You and Your Baby Survey may be due to the different methods of assessment, non-response bias or reporting bias in our survey.

Figure 18 shows the prevalence of anxiety and depression during pregnancy and during the postnatal period reported across the National Maternity Surveys. Data on anxiety were available from 2010 and data on depression were available from 2006. Overall, the prevalence of anxiety during pregnancy in the 2018 survey (13.4%) was almost the same as in the 2010 survey (13.9%), yet the rate of anxiety at any point during the postnatal period increased from 21.2% in 2010 to 28.9% in 2018. There was a decrease in the prevalence of depression during pregnancy from 9.3% in the 2006 survey to 6.9% in the 2018 survey. The rate of depression during the postnatal period in the 2018 survey (16.4%) was almost the same as in the 2006 survey (16.2%), however the prevalence dropped in the intervening surveys in 2010 (13.8%) and 2014 (11.6%). It is important to note that the earlier surveys asked women about their mental health three months after giving birth whereas women were asked about their mental health six months after giving birth in the You and Your baby Survey.

Anxiety was more prevalent than depression during pregnancy and during the postnatal period in each of the National Maternity Surveys. The unweighted prevalence in the You and Your Baby Survey was 12.8% for anxiety and 5.7% for depression during pregnancy, and 29.0% for anxiety and 14.2% for depression during the postnatal period.

[28] Evans J, Heron J, Francomb H, Oke S, Golding J. Cohort study of depressed mood during pregnancy and after childbirth. BMJ, 2001;323:257
[29] Dennis C-L, Falah-Hassani K, Shiri R. Prevalence of antenatal and postnatal anxiety: Systematic review and meta-analysis. British Journal of Psychiatry. Cambridge University Press, 2017;210(5):315–23.
[30] Falah-Hassani K, Shiri R, Dennis C-L. The prevalence of antenatal and postnatal co-morbid anxiety and depression: a meta-analysis. Psychological Medicine. Cambridge University Press, 2017;47(12):2041–53.

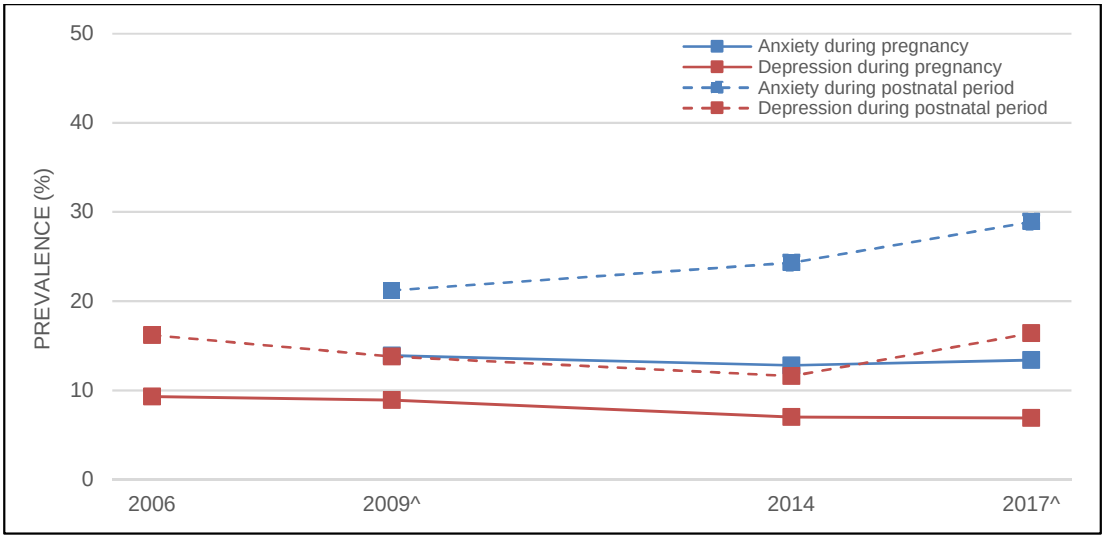

Figure 18: Anxiety and depression during pregnancy and the postnatal period by year of birth

^ Women gave birth in 2009, survey conducted in 2010
Women gave birth in 2017, survey conducted in 2018

The postnatal period is an extremely vulnerable time for women and it is critical that all women undergo mental health screening. More than one in five postnatal women who took part in the You and Your Baby Survey were not asked about their mental health (16.4%) or could not recall being asked about their mental health (5.3%) during the postnatal period. The women in the You and Your Baby Survey were asked about their sources of general support. The most commonly identified sources of support were partners / spouses (80.4%), family (76.3%) and friends (59.4%). To a lesser extent, health professionals (11.9%) and colleagues (7.0%) provided support. Social media was also identified as a source of support by some women (7.8%) (**Table 10**).

4.5.3 Maternal adjustment to motherhood

Adjustment to motherhood for the first time or with a subsequent baby is a process unique to each individual. The You and Your Baby Survey asked women to recall when they first felt that their baby belonged to them. Over half (60.1%) felt their baby belonged to them during pregnancy, 18.9% felt this was immediately after giving birth and a further 8.9% in the first few days. For some women, it was within the first few weeks and for a minority it was only shortly before taking part in the survey (3.0%) or still not at the time of the survey (0.5%).

The women were asked how they would describe their baby in terms of whether they were easier, about average, or more difficult when compared to other babies. Half of the women described their baby as being easier than most (49.8%), 42.5% described their baby as

about average and 7.7% described their baby as being more difficult than most other babies (**Table 10**).

4.6 Infant health

Summary data on infant health for the respondents to the You and Your Baby Survey are presented in **Table 11**.

Table 11: Summary of infant health data

	All respondents (N=4509)	
	n*	%^
Infant health problems since birth (N=4509)+		
Common cold	2949	61.5
Cough	2044	44.8
Colic	2043	43.5
High temperature	1362	29.3
Constipation	1285	29.1
Jaundice	1193	25.7
Reflux	1136	23.9
Vomiting	1000	22.3
Rash	806	18.4
Diarrhoea	804	18.0
Not gaining weight	791	15.3
Tongue tie	697	13.9
Eye problems	577	12.1
Thrush	443	10.8
Chest problems	397	9.6
Ear problems	148	3.4
Gaining too much weight	63	1.7
Urinary tract infection	60	1.6
Infant health problems at the time of the survey (N=4383)		
Yes	778	16.9
No	3605	83.1
Infant health problems at the time of the survey (N=4383)		
Allergies / intolerances	192	4.4
Eczema	165	3.8
Reflux	161	3.7
Blocked tear duct	117	2.7
Congenital abnormalities	82	1.9
Infant healthcare appointments (N=4509)		
Median number of GP visits (IQR)		2 (1-4)
Median number of baby clinic visits (IQR)		2 (0-5)
Median number of A&E visits (IQR)		0 (0-1)
Median number of outpatient appointments (IQR)		0 (0-1)

* Unweighted totals
^ Weighted prevalence
+ Multiple options could be selected

4.6.1 Infant health problems

The women who took part in the You and Your Baby Survey were asked about their baby's health and the most frequently reported health problems experienced since birth were a common cold (61.5%), cough (44.8%), colic (43.5%), high temperature (29.3%), constipation (29.1%), jaundice (25.7%) and reflux (23.9%) (**Table 11**). When asked whether their baby had any current health problems, 16.9% indicated that they did. The most commonly reported infant health problems at the time the women took part in the survey were allergies and intolerances (principally milk) (4.4%), eczema (3.8%), reflux (3.7%), blocked tear duct (2.7%) and congenital abnormalities (1.9%).

4.6.2 Infant healthcare appointments

The women were also asked how many times their baby had attended a healthcare appointment since their birth. The median number of GP appointments attended was two (IQR=1-4) and the median number of visits to a baby clinic was also two (IQR=0-5). The majority of babies had not visited an accident and emergency department or attended an outpatient appointment (**Table 11**).

4.7 Smoking and Vaping

Summary data on smoking and vaping for the respondents to the You and Your Baby Survey are presented in **Table 12**. The prevalence is reported for the respondents overall and for the women who indicated they had ever smoked tobacco / used an electronic cigarette or vaping device.

Table 12: Summary of smoking and vaping data

		All respondents (N=4509)	
	n*	**%^ (ever smoked / used)**	**%^ (overall)**
Tobacco use			
Ever smoked tobacco			**(N=4488)**
No	3010	-	65.5
Yes	1478	-	34.5
Smoked tobacco during the 3 months before pregnancy		**(N=1458)**	**(N=4468)**
No	768	44.8	81.1
Yes	690	55.2	18.9
Smoked tobacco after aware of pregnancy		**(N=1456)**	**(N=4466)**
No	1200	74.9	91.4
Yes	256	25.1	8.6
Smoked tobacco during pregnancy		**(N=1447)**	**(N=4457)**
No	1141	70.7	90.1

Yes	306	29.3	9.9
Smoked tobacco during final trimester		**(N=1443)**	**(N=4453)**
No	1246	79.5	93.0
Yes	197	20.5	7.0
Smoked tobacco since the birth		**(N=1458)**	**(N=4468)**
No	1009	61.6	86.9
Yes	449	38.4	13.1
E-cigarette use / vaping			
Ever used e-cigarettes / vaping device			**(N=4424)**
No	3954	-	87.5
Yes	470	-	12.5
Used e-cigarette / vaping device after aware of pregnancy		**(N=467)**	**(N=4421)**
No	368	77.2	97.1
Yes	99	22.8	2.8
Used e-cigarette / vaping device during pregnancy		**(N=457)**	**(N=4411)**
No	343	71.5	96.5
Yes	114	28.5	3.5
E-cigarettes / vaping device contained nicotine		**(N=431)**	
Always	198	43.4	-
Sometimes	116	28.5	-
No, never	71	15.6	-
I don't know	46	12.5	-
Passive smoking			
Lived with smoker during pregnancy			**(N=4387)**
No	3711	-	81.7
Partner	569	-	14.9
Somebody else	107	-	3.4
Live with smoker currently			**(N=4408)**
No	3834	-	84.4
Partner	492	-	12.9
Somebody else	82	-	2.6

* Unweighted totals
^ Weighted prevalence
+ Multiple options could be selected

4.7.1 Tobacco use

Reducing smoking during pregnancy is one of the three national ambitions in the Tobacco Control Plan published in July 2017.[31] The women who took part in the You and Your Baby Survey were asked about tobacco smoking before, during and after pregnancy. Just over a third of the women reported that they had ever smoked tobacco cigarettes (34.5%). Overall, 18.9% of the women smoked at any point during the three months before pregnancy. One in ten women reported smoking at any point during their pregnancy (9.9%) and 8.6% reported smoking after they were aware of their pregnancy. The prevalence of

[31] https://www.gov.uk/government/publications/towards-a-smoke-free-generation-tobacco-control-plan-for-england. Accessed 16 Jan 2020.

smoking during the final trimester of pregnancy was 7.0% (95%CI: 6.0-8.1). The prevalence increased to 13.1% of women smoking after the birth of their baby (**Table 12**). Therefore, the number of women who smoked tobacco fell from pre-pregnancy to during pregnancy and then increased slightly again post-pregnancy. However, the overall number of respondents to the You and Your Baby who smoked at all around the time of their pregnancy was relatively small.

National routine data from Quarter 3 of 2017-18 indicate that 10.8% of women were smoking tobacco at the time they gave birth (NHS Digital Smoking at Time of Delivery (SATOD) data collection).[32] The annual smoking at the time of delivery rate in 2017-18 was also 10.8%.[32] **Figure 19** shows the annual prevalence of tobacco smoking at the time of birth from 2010-11 to 2017-18 according to routinely collected data from the Department of Health and Social Care (currently NHS Digital) and the prevalence of tobacco smoking during the final trimester of pregnancy in the You and Your Baby Survey in 2018 (the unweighted prevalence in the You and Your Baby Survey was 4.5%). The prevalence in the routine data is higher than the survey data, which may be due to the different methods of data collection, non-response bias or reporting bias in our survey.

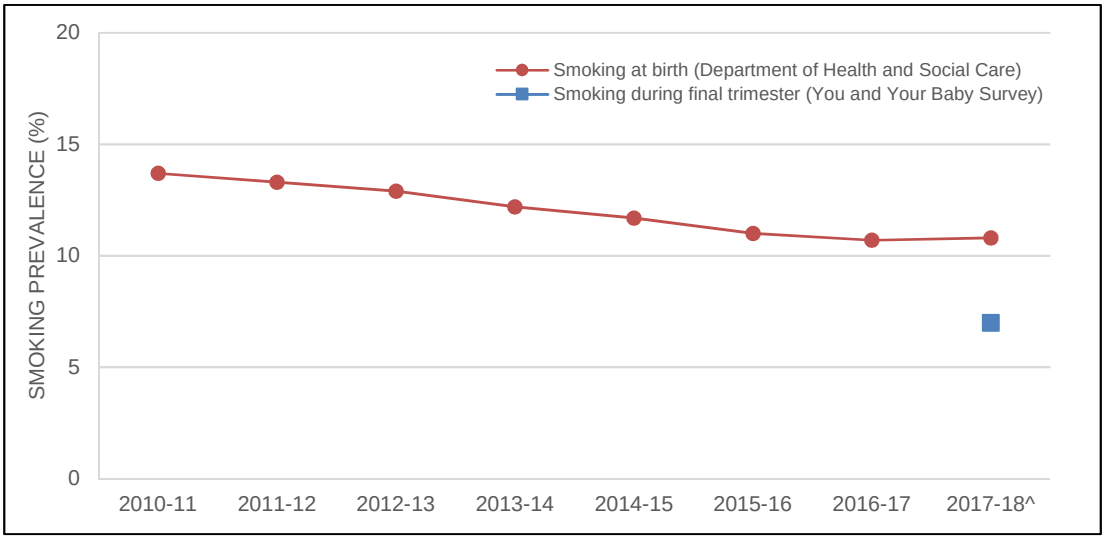

Figure 19: Prevalence of tobacco smoking at birth / during final trimester by year of birth

^ Women gave birth in 2017, survey conducted in 2018

4.7.2 Electronic cigarette use

The women who took part in the You and Your Baby Survey were also asked about their use of electronic cigarettes or vaping devices. Approximately one in eight women reported

[32] https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-women-s-smoking-status-at-time-of-delivery-england/statistics-on-women-s-smoking-status-at-time-of-delivery-england-quarter-3-2017-18. Accessed 16 Jan 2020.

that they had ever used an electronic cigarette or vaping device (12.5%, 95%CI: 11.4-13.8). A small number of women reported using an electronic cigarette or vaping during their pregnancy (3.5%, 95%CI: 2.8-4.3); 2.8% (95%CI: 2.3-3.6) used such a device after they were aware of their pregnancy. Of the women who reported ever using an electronic cigarette or vaping device, the majority contained nicotine, at least some of the time (71.9%) (**Table 12**).

There are no routine data available on the prevalence of vaping in women specifically during pregnancy but there are data on vaping in women generally. Data from 2017 show that 16.9% of women aged 16 years and over (so not specifically around pregnancy) surveyed in England reported ever having used a vaping device and 4.4% identified as current users (ONS).[33] Therefore, the prevalence of vaping ever and vaping during pregnancy in the women who responded to the You and Your Baby Survey was slightly lower than the published estimates for the general population of women, although these two data sources are not directly comparable and the estimates from our survey may be prone to non-response bias or reporting bias.

A recent study in the United States used nationally representative data from the National Health Interview Survey (NHIS) to estimate the prevalence of electronic cigarette use among pregnant women and non-pregnant women aged 18 to 44 years.[34] The weighted prevalence of current electronic cigarette use was 3.6% for pregnant women, which is consistent with the findings from the You and Your Baby Survey.

4.7.3 Passive smoking

In terms of passive smoking, 18.3% of the women lived with somebody who smoked tobacco during their pregnancy and 15.5% of the women were living with somebody who smoked tobacco at the time that they took part in the You and Your Baby Survey (**Table 12**).

4.8 Return to work

Summary data on return to work following childbirth for the respondents to the You and Your Baby Survey are presented in **Table 13**.

[33] https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/datasets/ecigaretteuseinengland. Accessed 16 Jan 2020.
[34] Liu B, Xu G, Rong S, et al. National Estimates of e-Cigarette Use Among Pregnant and Nonpregnant Women of Reproductive Age in the United States, 2014-2017. JAMA Pediatr, Published online April 29, 2019. doi:10.1001/jamapediatrics.2019.0658

Table 13: Summary of return to work data

	All respondents (N=4509)	
	n*	%^
Employment (N=4455)		
In paid employment	422	8.8
On paid maternity leave	2764	54.4
On unpaid maternity leave	316	6.4
Not in paid employment or on maternity leave	953	30.4
Median number of weekly hours in current employment (IQR) (N=408)		24 (16-36) hours
Median age of baby on return to work (IQR) (N=402)		22 (13-26) weeks
Intending to return to work within 12 months (N=3946)		
Yes (not including already returned to work)	2210	51.5
No	1135	29.2
Undecided	601	19.4
Childcare provision after returning to work[+] (N=2632)		
Grandparent	1341	49.9
Nursery	1125	40.2
Spouse / Partner	885	33.9
Childminder / Nanny	472	17.7
Other family	207	8.7
Friend	68	2.8
Undecided	119	5.4
Reasons for returning to work[+] (N=2632)		
Needing the money	2150	81.9
Wanting to	1191	44.8
Always planned to	1098	39.2
Work is important	732	25.7
Need to for career	611	21.0
Have no choice	517	19.7
Sharing childcare with spouse / partner	217	7.5
Paternity leave / shared parental leave (n=4324)		
Paternity leave	2616	54.1
Shared parental leave	121	2.1
None	1187	29.4
Not applicable	400	14.4

* Unweighted totals
^ Weighted prevalence
[+] Multiple options could be selected

In the UK, statutory maternity leave is 52 weeks for eligible employees.[35] The women who took part in the You and Your Baby survey were asked about their current employment and future employment plans. Over half of the women were either on paid maternity leave (54.4%, 95%CI: 52.6-56.1) or unpaid maternity leave (6.4%), 8.8% of women were in paid employment and 30.4% were not on maternity leave or in paid employment at the time they completed the survey. Of those women who were not already in paid work, just over half (51.5%) indicated that they were intending to return to work before their baby was 12

[35] https://www.gov.uk/maternity-pay-leave/leave. Accessed 16 Jan 2020.

months old, 29.2% were not intending to work before their baby was 12 months old, and 19.4% were undecided (**Table 13**).

Data collected in 2011 in the Growing up in Scotland study showed that 57% of mothers were in paid work or on paid maternity leave when their baby was aged 10 months. [36] This is consistent with our finding that 63.2% (95%CI: 61.4-65.0) of women had either already returned to work or were on paid maternity leave when their baby was approximately 6-8 months old. The 2010 Infant Feeding Survey found that, when the babies were approximately 8-10 months old, nearly three in ten (29%) mothers had returned to work and 31% were on paid maternity leave.[22] **Figure 20** shows the proportion of mothers on paid maternity leave when their baby was 4-6 months and 8-10 months reported by the Infant Feeding Survey (2000-2010) and the proportion of mothers who were on paid maternity leave when their baby was approximately 6-8 months old in the You and Your Baby Survey in 2018. Overall, it shows an increasing trend for mothers to take longer maternity leave, which reflects the changes in maternity leave policy during this period.

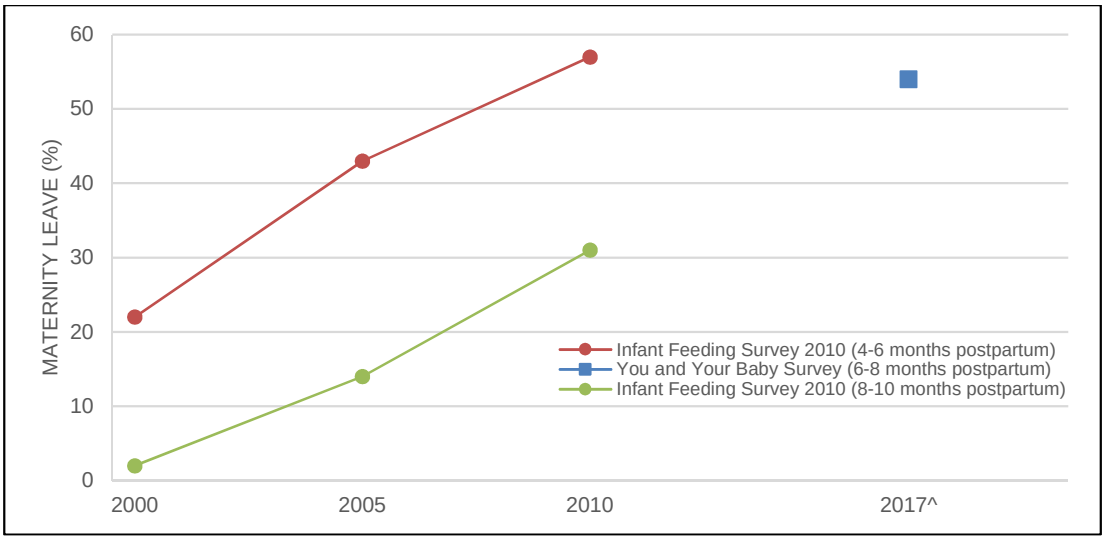

Figure 20: Proportion of mothers on paid maternity leave by year of birth

^ Women gave birth in 2017, survey conducted in 2018

For the women in the You and Your Baby Survey who were in paid employment, the median number of hours they were working each week was 24 (IQR=16-36) and the median age of the babies at the time they returned to work was 22 weeks (IQR=13-26 weeks) (**Table 13**).

The women in the You and Your Baby Survey were asked about provision of childcare after returning to work and could select multiple responses. The most frequently selected

[36] https://growingupinscotland.org.uk/about-gus/. Accessed 16 Jan 2020.

options were grandparent (49.9%), nursery (40.2%), and spouse / partner (33.9%). Childminders (17.7%) and other family members (8.7%) were also to be utilised. Some mothers had yet to decide how their child would be cared for (5.4%). The reasons for returning to work cited most frequently were: needing the money (81.9%), wanting to (44.8%), and having always planned to (39.2%) (**Table 13**).

The Growing up in Scotland study also found that grandparents were the most common providers of childcare, used by 69% of the families; 27% of families used nurseries, 18% used 'other informal care' (friends and siblings) while 10% of families used childminders. Many families used more than one childcare provider; the most common form of 'multiple' childcare arrangement was the child's grandparent(s) plus some other form of care, usually nursery.[36] This is consistent with the findings from the You and Your Baby Survey.

Over half of the women who took part in the You and Your Baby Survey indicated that their spouses / partners had taken paternity leave when their babies were born (54.1%) and a further 2.1% had shared parental leave with their spouses / partners (**Table 13**).

4.9 Future pregnancy planning

Summary data on future pregnancy planning for the respondents to the You and Your Baby Survey are presented in **Table 14**.

Table 14: Summary of future pregnancy planning data

	All respondents (N=4509)	
	n*	%^
Planning another pregnancy (N=4409)		
No	2274	56.5
Yes	2135	43.5
Timescale (N=2100)		
Currently pregnant	32	2.0
Within 6 months	115	4.7
In 6-12 months	296	12.4
In 12-24 months	693	29.0
In more than 24 months	620	33.0
Unsure	344	18.9
Preparing for another pregnancy (N=2108)		
Yes	218	9.9
No	1890	90.1

* Unweighted totals
^ Weighted prevalence

Less than half of the women who responded to the You and Your Baby Survey reported that they were planning another pregnancy (43.5%). Of these women, the majority were intending to become pregnant again either in the next 12-24 months (29.0%) or in more

than 24 months' time (33.0%). Only one in ten (9.9%) of the women who were planning another pregnancy were actively preparing for their next pregnancy at the time they took part in the survey (**Table 14**).

5. Conclusion

This report is based on a large national survey of the views and experiences of women giving birth in England in 2017. A total of 4,509 women from different sociodemographic groups living across different regions of England completed the survey at six months postpartum. The representativeness and pattern of response was similar to that of other surveys of women after childbirth, with a higher proportion of older women, married women, women who were born in the UK and women living in more advantaged areas taking part. The response rate was 29%, which may affect the generalisability of the findings to the wider population. Survey weights were applied to the data to reduce the effect of non-response bias and to improve the generalisability of the findings. However, the weights were created to account for a specific set of sociodemographic variables and it is possible that some prevalence estimates are nevertheless prone to bias.

Women were asked about their experiences around the time of pregnancy, labour and birth, and the postnatal period. In addition to providing clinical details, they were asked about specific topics of interest, including infant feeding, maternal and infant health, smoking and vaping, returning to work and future pregnancy plans.

The findings from the survey were largely consistent with national routine data for clinical characteristics of pregnancy and childbirth. For example, the data on the timing of the booking appointment, place of birth, mode of birth, multiple birth rate, gestational age and birth weight were all similar to the published estimates pertaining to the same time period. Therefore, the women who took part in the You and Your Baby Survey were generally representative of women in the target population for these key clinical variables. One important difference between the women who took part in the You and Your Baby Survey and women in the target population was that the survey respondents were more likely to be first-time mothers.

The survey findings show that breastfeeding initiation and duration have increased since the last Infant Feeding Survey was carried out in 2010, although it should be noted that the rate of breastfeeding in the survey respondents was higher than the rate observed in routine data sources. Women in the You and Your Baby Survey were also waiting longer before introducing solid food to their babies, compared to the women who took part in the

2010 Infant Feeding Survey. These patterns in infant feeding practices continue a longer-term trend following changes to the guidelines by the Department of Health in 2003.

A significant proportion of the women in the You and Your Baby Survey reported experiencing mental health problems around the time of pregnancy and / or during the postnatal period. There are no routine data for the rates of anxiety and depression specifically around the time of pregnancy, but comparison with existing systematic review evidence suggests that our figures approximate those found in other studies. Not all women who took part in the survey were asked about their mental health during pregnancy and / or the postnatal period and not all women had a review of their own health by their GP after giving birth. Given the extent and the potential implications of mental health problems during the perinatal period, it is vital that the NICE guidelines are adhered to and that women at risk are identified and offered the support they need.

The prevalence of tobacco smoking during pregnancy was low in the You and Your Baby Survey compared to the published routine data, although there were important differences in the timing and methods of data collection. Despite the low estimate in this survey and the declining rates observed in the routine data, continued efforts are required to eliminate the risks posed from smoking tobacco during pregnancy. The You and Your Baby Survey is the first UK maternity survey to assess prevalence of electronic cigarette use (vaping) in women during pregnancy and the postnatal period. We found low rates of vaping, which were slightly below published estimates for women in general (there are no routine data on vaping specifically during pregnancy), although our figures were consistent with a recent estimate in pregnant women in the United States.

Around six months after giving birth, many women who took part in the You and Your Baby Survey were still on maternity leave, either paid or unpaid. A small proportion of women had returned to work and many more were planning to return to work before their baby was 12 months old. Comparing our data with previous survey data from 2010-11 (Infant Feeding Survey and Growing up in Scotland) suggests that women are tending to take more time off work following childbirth. This continues a longer-term trend following changes to statutory maternity leave entitlement in 2007. Almost half of the women in the You and Your Baby Survey were planning a future pregnancy but only a minority were actually pregnant or actively preparing for another pregnancy at the time of the survey.

Taken together, the findings suggest that there have been some positive changes in recent years in terms of infant feeding practices, smoking behaviours around the time of pregnancy and return to work patterns following childbirth. These developments continue longer-term trends which reflect changes in legislation and policy. One significant and

ongoing challenge that this survey has highlighted is the need to tackle maternal mental health problems, which, according to our findings, continue to affect a substantial number of women during pregnancy and for many months after childbirth.

This is the first large population-based survey in England to explore women's health and care experiences six months after childbirth. Studies often focus on pregnancy and the early postnatal period, however, there are important milestones and challenges later in the postnatal period, which receive less attention. By surveying women six months after childbirth, important topics of interest, including breastfeeding practices and the introduction of solid food, mental health problems continuing or developing after pregnancy and childbirth, smoking and vaping behaviour patterns during the postnatal period, and planning for returning to work and future pregnancies can be explored in addition to topics specific to pregnancy and childbirth.

Surveying women's views and understanding their different experiences of pregnancy, childbirth and the postnatal period provides essential feedback on maternal and infant health, the way that maternity care and changes in relevant policies work for women and their families, and areas of care that require further development. It is important to strive for maternity care that delivers healthy and positive experiences of pregnancy, childbirth and early parenthood for all women giving birth in England.

Appendix A: Questionnaire content

Your pregnancy	Singleton or multiple pregnancy Sex of baby Gestational age Birth weight Pregnancy planning and reaction to pregnancy Timing of booking appointment Mental health assessment at booking appointment Health professional contact for personal issues Mental health problems during pregnancy Long-term health problems affecting pregnancy Specific pregnancy-related problems
Your labour and the birth of your baby	Place of birth Mode of birth Holding the baby and skin-to-skin contact Labour and birth expectations Satisfaction with labour and birth
After the birth of your baby	Maternal length of hospital stay after childbirth Admission for neonatal care Contact with health care professionals after the birth Age of baby at last contact with health care professionals Maternal postnatal check-up Maternal postnatal mental health assessment Maternal physical wellbeing after the birth
Your baby	Comparison of baby to other babies (in terms of ease / difficulty) Baby's health problems Baby's visits to health care facilities
Feeding your baby	Initiation of breastfeeding Duration of breastfeeding Sources of help for breastfeeding Use of breast pump and reasons for use Use of donor breast milk Initiation of formula feeding Introduction of solid food
Your health and wellbeing	Maternal physical health Maternal fatigue Maternal mental health Maternal physical and mental health problems one, three and six months after the birth Maternal adjustment to motherhood Sources of support
Your lifestyle	Tobacco use before, during and after pregnancy Electronic cigarette / vaping device use during pregnancy Passive smoking during and after pregnancy
Work	Current or intended return to work Current or intended hours of work Baby's age or expected age at return to work Child care arrangements Reasons for return to work Paternity leave / shared parental leave
The future	Future pregnancy planning Timescale for future pregnancy Pregnancy preparations
You and your household	Age Education Previous pregnancy Previous birth Household residents Long-term physical health problems / disabilities Long-term mental health problems Country of birth Length of time living in the UK Ethnicity

Appendix B: Advisory Group

We wish to acknowledge the contribution of the Advisory Group, who provided input on the survey methodology, survey topics, and dissemination strategy.

The Advisory Group was comprised of nine members:

- Phyll Buchanan (Director of the Breastfeeding Network)
- Chris Cuthbert (Big Lottery Fund)
- Abi Davey (Midwife)
- Caroline Edwards (Lay Representative)
- Joanna Garstang (Consultant Community Paediatrician)
- Jenny Ingram (Senior Research Fellow in Academic Child Health)
- Fiona Rodden (Lay Representative)
- Judy Shakespeare (Clinical Champion for Perinatal Mental Health)
- Sylvia Woolley (Specialist Health Visitor)

Further PPI input on the dissemination strategy was provided by our PPI Co-Leads on the NIHR Policy Research Unit in Maternal and Neonatal Health and Care: Charlotte Bevan and Rachel Plachchinski.

Appendix C: Survey weights and external validity of data

The response rate to the You and Your Baby Survey was 29%. An analysis of sociodemographic data from birth registration records showed that there were differences between the respondents and non-respondents on key variables (age, marital status at birth registration, country of birth, IMD, region of residence and parity). Therefore, these variables were fitted in a logistic regression model with response / non-response as the outcome, and the resulting coefficients (adjusted log odds ratios) were used to derive survey weights. The survey weights were applied to the survey data to reduce the effect of non-response bias. **Table A1** shows the distribution of the variables that were used to create the survey weights. The distribution of the variables in the weighted survey data is consistent with the distribution of the variables in the ONS sample, which is representative of the population from which the sample was drawn.

Table A1: Distribution of variables used to create survey weights

	ONS Sample (N=15,528) %	Respondents (N=4,509) unweighted %	Respondents (N=4,509) weighted %
Age			
<25 years	16.1	9.3	16.3
25-29 years	26.8	23.4	26.9
30-34 years	33.5	38.0	33.4
35+ years	23.5	29.3	23.3
Marital status			
Married	52.8	63.5	52.8
Joint names, same address	31.9	29.3	31.6
Other	15.3	7.1	15.6
Country / region of birth			
UK	71.4	77.2	70.9
Bangladesh	1.2	0.5	1.3
India	2.0	1.3	2.0
Pakistan	2.6	1.1	2.9
Africa	4.7	2.9	4.8
Europe	12.3	12.0	12.2
Other	5.9	5.1	5.9
Index of Multiple Deprivation (IMD)			
1st – most deprived	26.4	15.7	27.0
2nd	21.9	19.3	22.2
3rd	18.9	21.0	18.4
4th	17.4	22.3	17.1
5th – least deprived	15.4	21.8	15.2
Region of residence			
North East	4.3	3.6	4.0
North West	12.9	11.2	12.8
Yorkshire and the Humber	9.8	9.3	9.8
East Midlands	8.4	8.2	8.7
West Midlands	10.9	9.4	11.0
East of England	11.0	12.2	11.1
London	19.8	17.3	20.1
South East	15.7	19.3	15.3
South West	7.3	9.6	7.3
Parity			
Primiparous	42.3	51.5	42.2
Multiparous	57.7	48.5	57.8

Estimates of selected maternity indicators based on routine national data were available from published reports, and these were used to assess the external validity of the survey data. **Table A2** shows how the unweighted and weighted survey data compare with estimates from published reports.

For some indicators, the weighted estimates from survey data were close to estimates from published data, particularly where we were able to compare the survey data to ONS data, which is the gold standard in terms of completeness and quality. Where there were discrepancies between the estimates from survey data and the estimates from published data, the sources of the published data may be subject to completeness and/or quality issues.

Estimates reported by NHS Digital from the Maternity Services Dataset (MSDS) for caesarean section, skin-to-skin contact, gestational age at booking appointment and breastfeeding initiation were based on a subset of all registered births during 2017-18. NHS Digital advise caution in interpreting data from the MSDS: *"The MSDS is a maturing, national-level dataset. As the number of deliveries recorded in the MSDS is only 78 per cent of the number of deliveries recorded in HES, the partial coverage of the MSDS both geographically and over time means that figures from the MSDS should not be interpreted as England level figures for 2017-18."* [15]

Estimates of breastfeeding rates at 6-8 weeks reported by Public Health England (PHE) are known to be an underestimate of the true rates: *"The denominator in this indicator implicitly assumes that all infants whose breastfeeding status at 6-8 weeks after birth is unknown were not breastfeeding. This will result in an underestimate of the percentage of infants breastfeeding."* [24] The impact of excluding the infants whose breastfeeding status is unknown on the breastfeeding rate at 6-8 weeks in 2017-18 reported by PHE is shown in footnote 7 to **Table A2**.

Table A2: External validity of unweighted and weighted survey data

	Published data		**You and Your Baby Survey data**	
	Source	%	Respondents unweighted %	Respondents weighted %
Multiple birth (N=4,509)*	ONS[1]	1.6	2.4	2.2
Home birth (N=4,502)*	ONS[1]	2.1	3.0	3.1
Gestational age (N=4,446)*	ONS[2]			
<32 weeks		1.3	1.1	1.2
32-36 weeks		6.7	6.1	6.4
37+ weeks		92.0	92.8	92.4
Birth weight (N=4,367)*	ONS[2]			
<1500 grams		1.0	0.9	1.0
1500-2499 grams		6.1	5.9	6.1

2500+ grams		92.9	93.2	92.9
Caesarean section (N=4,500)*	NHS Digital MSDS[3]	28.0	29.2	27.3
Ethnicity[#] (N=4,509)*	ONS[1]			
White British		59.5	73.2	66.9
White Other		11.6	10.6	10.9
Bangladeshi		1.5	0.8	1.5
Indian		3.1	2.3	2.6
Pakistani		4.1	1.7	3.1
Black African		3.3	1.8	3.2
Black Caribbean		0.8	0.3	0.4
Other		11.5	5.9	7.1
Not stated / Unknown		4.5	3.4	4.3
Skin-to-skin, within 1 hour (37+ weeks gestation only) (N=4,383)*	NHS Digital MSDS[4]	79.0	92.8	92.9
Booking appointment (N=4,351)*	NHS Digital MSDS[5]			
Within 10 weeks		69.0	72.3	70.2
Within 12 weeks		87.0	89.6	87.2
Breastfeeding initiation (N=4,496)*	NHS Digital MSDS[6]	75.0	89.0	85.3
Breastfeeding at 6-8 weeks (N=4,461)*	PHE[7]	43.8	66.1	61.8
Smoking at birth (N=4,453)*	NHS Digital SATOD[8]	10.8	4.4	7.0
Vaping (all women aged 16+ years)	ONS[9]			
Ever (N=4,424)*		16.9	10.6	12.5
Current (N=4,411)*		4.4	2.6	3.5

All published data are for live births.

[1] ONS Birth characteristics 2017 (England and Wales, not stated excluded except for ethnicity). https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthcharacteristicsinenglandandwales/2017. Accessed 16 Jan 2020.

[2] ONS Birth characteristics 2017 (England, not stated excluded). https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthcharacteristicsinenglandandwales/2017. Accessed 16 Jan 2020.

[3] NHS Digital MSDS Monthly Statistics (October 2017) (based on 12,872/45,257 babies with recorded mode of birth). https://digital.nhs.uk/data-and-information/publications/statistical/maternity-services-monthly-statistics/october-2017. Accessed 16 Jan 2020.

[4] NHS Digital MSDS Monthly Statistics (October 2017) (based on 28,582/36,026 women with recorded skin-to-skin contact). https://digital.nhs.uk/data-and-information/publications/statistical/maternity-services-monthly-statistics/october-2017. Accessed 16 Jan 2020.

[5] NHS Digital Maternity Services Dataset 2017-18: Data Quality Comparison Analysis (based on 338,041/486,789 (10 weeks) and 422,071/486,789 (12 weeks) deliveries with recorded gestational age at booking appointment). https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/2017-18. Accessed 16 Jan 2020.

[6] NHS Digital MSDS Monthly Statistics (October 2017) (based on 27,024/36,226 babies with recorded first feed type). https://digital.nhs.uk/data-and-information/publications/statistical/maternity-services-monthly-statistics/october-2017. Accessed 16 Jan 2020.

[7] Public Health England Quarter 3 (Oct-Dec 2017) (based on 68,791/157,128 babies due a 6-8 week review with recorded or unrecorded breastfeeding status at 6-8 weeks; if those with unrecorded status are excluded from the denominator, the rate increases to 50.0% (68,791/137,554). https://www.gov.uk/government/statistics/breastfeeding-at-6-to-8-weeks-after-birth-annual-data. Accessed 16 Jan 2020.

[8] NHS Digital statistics on women's smoking status at time of delivery: England, Quarter 3, 2017-18 (based on 16,216/149,949 women with recorded smoking status). https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-women-s-smoking-status-at-time-of-delivery-england/statistics-on-women-s-smoking-status-at-time-of-delivery-england-quarter-3-2017-18. Accessed 16 Jan 2020.

[9] ONS E-cigarette use in England 2017 (women only but not specific to women during pregnancy). https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/datasets/ecigaretteuseinengland. Accessed 16 Jan 2020.

[#] ONS publish baby's ethnicity as stated by the mother, survey reports mother's self-identified ethnicity

* Total number of You and Your Baby survey respondents providing data


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