

North Somerset PCT Maternity Health Equity Audit Short Report

Purpose and methods

Health equity audit 'identifies how fairly services or other resources are distributed in relation to the health needs of different groups and areas, and the priority action to provide services relative to need'. The aim of this audit was to quantify differences in indicators of maternity care and social circumstances for different groups of women. This will help inform plans to target services according to need. This short report describes the first stage: compiling and analysing a retrospective data profile.

Local trusts provided advice and data from their 'Stork' maternity databases, based on their experience in conducting similar audits in-house. The outcomes and indicators were selected from the recent expert paper on 'Modernising Maternity Care' (2006), which was endorsed by the Royal College of Obstetricians and Gynaecologists, the Royal College of Midwives and the National Childbirth Trust. Definitions of all variables used in this audit are provided in Appendix 1.

Records were included in the audit if they included delivery of a single baby at term between 1st January 2003 and 31st December 2005. Records were excluded if they featured any of the following: premature deliveries (less than 37 weeks gestation); post term deliveries (after 42 weeks gestation); deliveries of multiple babies, deliveries of stillborn babies. Normal length of gestation has been suggested to vary between ethnic groups. Data on the sub-group of excluded deliveries is being assessed separately for any pattern of inequality relevant to service planning. As most exclusions imply abnormality, the data presented in this report represents a 'best scenario' of full term deliveries resulting in the birth of a single live baby. It was not possible to allow for co morbidity in mothers because data recording for this varied between local trusts. Home births represent about 3% of deliveries and were excluded because of uncertainty about completeness of data. Missing data on birth weight was noted in 20% of included records. Premature or multiple births were also excluded, so low birth weight is underreported in our dataset and caution is needed in interpreting results involving birth weight as an outcome or confounder.

Most delivery records relate to one individual: a small number will relate to the same woman using the service to deliver twice in the 2 yr study period. We use both 'women' and 'deliveries' when describing the results. Data was not individually identifiable so no adjustment was made for women delivering twice in our study period. Women were assigned to a PCT on the basis of the GP they were registered with, but to quintiles of disadvantage on the basis of their postcode.

Initially we compared differences in access to maternity services and outcomes according to: mother's ethnic origin, mother's country of birth, and socio-economic status. Differences in proportions were tested using the chi-square test and logistic regression used to adjust for confounding. Readers are advised to refer to the full report of this HEA for details of the indicators used, supporting evidence of their relevance and other information regarding the methodology.

Results

Only statistically significant results are noted in the text below: all results are presented in Table A, Appendix 1.

Demography

We obtained records of 5959 deliveries of women registered with North Somerset GP practices between January 2003 and December 2005 (an additional 7,635 women from South Gloucestershire PCT & 15,315 women from Bristol PCT made up the 28,909 total sample in the audit).

Table 1 Numbers (%) women with demographic characteristics by primary care trust or acute trust.

Characteristics	Primary Care Trust			Hospital Trust		
	Bristol	S. Gloucs	N.Somerset	NBT	UBHT	Weston
Caucasian	11904 (77.7)	7154 (93.7)	5519 (92.6)	11613 (90.1)	8031 (74.5)	890 (91.6)
BME	3411 (22.3)	481 (6.3)	440 (7.4)	1274 (9.9)	2745 (25.5)	82 (8.4)
UK born	12259 (80.5)	6949 (91.5)	5479 (92.3)	11379 (88.7)	8420 (78.9)	888 (91.9)
Born outside the UK	2963 (19.5)	647 (8.5)	456 (7.7)	1452 (11.3)	2251 (21.1)	78 (8.1)
Resident in least deprived quintile	2236 (14.7)	1619 (21.5)	1283 (21.5)	2438 (19.2)	1427 (14.0)	177 (18.2)
Resident in most deprived quintile	4665 (30.6)	1607 (21.3)	1034 (17.4)	2896 (22.8)	3394 (33.4)	113 (11.6)
Nulliparous	8301 (54.2)	4167 (54.6)	3376 (56.7)	6976 (54.1)	5837 (54.2)	656 (67.5)
Mean age of mother at delivery	28.99	29.66	29.73	29.44	28.96	28.00
Mothers in risk age*	673 (4.4)	223 (2.9)	226 (3.8)	445 (3.4)	489 (4.5)	33 (3.4)

* Mothers' risk age - <18 years and >40 years

Analysis of included records for women from North Somerset showed that:

- 7.4% were from Black & Minority Ethnic (BME) groups;
- 7.7% were born outside the UK.
- 17.4% lived in the most disadvantaged quintile of N Somerset post coded addresses. 21.5% lived in the least disadvantaged quintile.
- 3.8% were in the 'risk age' group (less than 18 years or over 40 years). The mean age for all women included in the audit was 28.9 years.

Booking late at antenatal care

- 39.1% records showed booking after 12 weeks of pregnancy
- 47.4% BME women booked late compared with 38.5% Caucasian women. 46.1% non-UK-born women booked late compared with 38.5% of UK-born women. These differences lost statistical significance after adjusting for socio-demographic variables, parity and risk age.
- 34.5% of women in the most disadvantaged quintile booked late compared with 38.9% in the least disadvantaged quintile. Statistical significance was lost when there was adjustment for socio-demographic variables, parity and risk age.

Booking very late at antenatal care

- 5.1% records showed booking after 20 weeks of pregnancy.
- 7.3% BME booked very late compared with 4.9% Caucasian women. 10.4% non-UK born women booked late compared with 4.4% UK born. Statistical significance was lost when there was adjustment for socio-demographic variables, parity and risk age. 6.0% of women in the most disadvantaged quintile booked very late compared with 3.1% in the least disadvantaged quintile of Bristol addresses. Statistical significance remained after adjustment.

Women having a normal delivery

- 51.0% of deliveries were recorded as 'normal'.
- There was an absence of statistical association between ethnicity and normal delivery before and after adjustments for socioeconomic variables, parity, 'risk age', birth weight, and mothers smoking during pregnancy. The results for place of birth and socioeconomic status were similar.

Women having an elective or emergency Caesarean section

- 23.3% of deliveries were by Caesarean section.
- There was no statistically significant association between ethnicity, place of birth, or socioeconomic status and having a Caesarean section, either prior to or after adjustments for intermediate variables.

Women having an emergency Caesarean section

- 12.2% of deliveries were by emergency Caesarean section.
- There was no statistically significant association between ethnicity, place of birth, or socioeconomic status and having an emergency Caesarean section, either prior to or after adjustments for intermediate variables.

Women initiating breast feeding

- 75.1% of records showed that breastfeeding was initiated.
- 82.2% BME women initiated breastfeeding compared with 77.6% Caucasian women. Statistical significance was lost after adjustment.
- 88.6% non-UK born women initiated breastfeeding compared with 77.2% UK-born. Statistical significance remained after adjustment.
- 80.0% of women from the most disadvantaged quintile initiated breastfeeding compared with 76.6% from the least disadvantaged quintile. Statistical significance was achieved after adjustment for intermediate variables.

Women smoking during pregnancy

- 15.1% women smoked during pregnancy. 10.6% BME smoked compared with 16.1% Caucasian women. Ethnicity lost the statistically significant association after adjustments.
- 6.6% non-UK born women smoked compared with 16.4% UK-born women. This difference retained statistical significance following adjustments.
- There was no statistically significant difference between the most and least disadvantaged quintiles in relation to smoking during pregnancy.

Women giving birth to low birth weight babies

- Low birth weight was recorded in approximately 1% of deliveries, but many low birth weight babies will have been missed in our dataset as preterm deliveries were excluded. 0.8% deliveries of BME women were of low birth weight babies compared with 1.3% for Caucasian women. 1.3% of deliveries to non-UK born women were of low birth weight babies compared with 1.3% of UK born. 1.4% of deliveries of women in the most disadvantaged quintile were of low birth weight babies compared with 1.2% in the least disadvantaged quintile. These comparisons did not reach statistically significant levels at either pre or post adjustment for intermediate variables.

Conclusions

Data issues

In general the percentages of records where specific data items were missing were low, but recording of birth weight was an important exception with about 20% of records lacking this data. Combined with exclusions, this might explain the unexpectedly low results seen. These results are inconsistent with national datasets indicating low birth weight rates for BNSSG and England that are 2-3 times higher. There has not been a formal data validation but face validity has been checked with trust staff. Differences in recording co-morbidity between trusts limited the analysis. Data on women's' first languages could have provided a useful indicator for service planning.

Comparisons with national benchmarks

We have provided national data relevant to the indicators where possible (table B appendix 1). As our data collection and analysis methods differ from those used in the national sources, these can only provide a perspective, rather than direct and appropriate comparators.

Women from BME groups and non-UK born women

- Just under a tenth of deliveries of women registered with a North Somerset PCT GP were to women from BME groups or to women who were not born in the UK. Although these are classified as 'minority' groups, they nonetheless represent a sizable number of service users with needs relating to culture, language and faith.
- Late and very late booking are relatively common in these groups.
- Initiation of breastfeeding and smoking during pregnancy were recorded at relatively favourable rates.

Women from the most disadvantaged quintile of N Somerset residences

- Less than one fifth of babies are born to women living in the most disadvantaged one-fifth of N Somerset residences.
- There were no statistically significant differences between percentages of women smoking during pregnancy or initiating breastfeeding compared with the least disadvantage quintile. This contrasts with significant findings for Bristol and S Gloucs.
- Very late booking was relatively common.

Next steps

At this stage the health equity audit provides a data profile that can be used to estimate the size of groups with specific needs, and to clarify what these needs are. It has implications for resource allocation in relation to need, for early antenatal care (particular timing-sensitive antenatal screening), breastfeeding support and smoking cessation services. The next stage is to discuss these findings with stakeholders in order to plan appropriate responses.

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The longer in-depth version of this report can be found at:

http://www.avon.nhs.uk/phnet/Publications/hea/nsom_mat_hea_long_report

Appendix 1:

Variables and definitions used in the maternity health equity audit

Breastfeeding initiated - Mothers known to have initiated breastfeeding at time of birth.

Co-morbidity - Any concurrent illness that is likely to affect birth outcome; eg. Diabetes, HIV, pre-eclampsia, epilepsy

Ethnicity - The ethnicity a woman reports herself as at booking – using the ONS Census Classification. Coded as ‘Caucasian’ or ‘Black & Minority Ethnic’ (BME).

Low birth weight baby – weighs less than 2500g but 1500g or more

Nulliparous - A woman who has never given birth to a baby before this pregnancy

Place of birth - The country a woman reports as being born in. Coded as ‘UK’ or ‘Non-UK’.

PCT - Primary Care Trust in which the GP of the pregnant woman is registered.

Risk age - age of mother in years at time of delivery <18 years and >40

Socio-demographic variables - place of birth, ethnicity and socio-economic status (as defined above)

Socio-economic status - National Indices of Multiple Deprivation score given to postcode of residence of woman. Grouped into centiles, ‘most’ and ‘least’

Trust - Hospital Trust the pregnant woman delivers at.

Very low birth weight baby – weighs less than 1500g

Women booking late at antenatal care - First antenatal visit after 12 weeks gestation. Calculated using Estimated Due Date (EDD – 196)

Women booking very late at antenatal care - First antenatal visit after 20 weeks gestation. Calculated using Estimated Due Date -140

Women having a normal delivery - Singleton birth at term without surgical intervention, use of instruments, induction, epidural or general anaesthetic

Women having a Caesarean Section - Singleton delivery of baby via surgical method, delivered at term

Women having an emergency Caesarean section - Singleton delivery of a baby via surgical method recorded as an emergency procedure, delivered at term

Women smoking during pregnancy - Mother reporting that she is still smoking at the time of delivery

Table A Summary of North Somerset PCT results of the maternity services health equity audit

Indicator	Caucasian (%)	BME (%)	Unadj. OR (95% CI)	UK born (%)	Non-UK born (%)	Unadj. OR (95% CI)	Least disadvantaged quintile (%)	Most disadvantaged quintile (%)	Unadj. OR (95% CI)
Late booking	2123 (38.5)	208 (47.4)	1.37 (1.13-1.66)	2106 (38.5)	208 (46.1)	1.37 (1.13-1.66)	498 (38.9)	357 (34.5)	0.83* (0.70-0.99)
Very late booking	270 (4.9)	32 (7.3)	1.52 (1.04-2.23)	242 (4.4)	47 (10.4)	2.51 (1.81-3.49)	40 (3.1)	62 (6.0)	1.98* (1.32-2.97)
Normal delivery	2873 (52.1)	221 (50.2)	0.93 (0.76-1.13)	2850 (52.0)	233 (51.1)	0.96 (0.79-1.17)	655 (51.1)	520 (50.3)	0.97 (0.82-1.14)
Any Caesarean Section	1277 (23.1)	113 (25.7)	1.15 (0.92-1.43)	1272 (23.2)	114 (25.0)	1.10 (0.88-1.38)	295 (22.9)	263 (25.4)	1.14 (0.94-1.38)
Emergency Caesarean Section	669 (12.1)	59 (13.4)	1.12 (0.84-1.49)	663 (12.1)	63 (13.8)	1.16 (0.88-1.54)	155 (12.1)	130 (12.6)	1.04 (0.82-1.34)
Breastfeeding	4133 (77.6)	355 (82.2)	1.33 (1.03-1.71)	4086 (77.2)	388 (88.6)	2.29* (1.69-3.10)	941 (76.6)	796 (80.0)	1.22* (0.99-1.50)
Smoking	865 (16.1)	46 (10.6)	0.62 (0.45-0.85)	876 (16.4)	29 (6.6)	0.36* (0.24-0.53)	198 (15.9)	150 (15.0)	0.93 (0.74-1.17)
Low birth weight	<i>61</i> <i>(1.3)</i>	<i>3</i> <i>(0.8)</i>	<i>0.61</i> <i>(0.18-1.93)</i>	<i>57</i> <i>(1.3)</i>	<i>5</i> <i>(1.3)</i>	<i>1.07</i> <i>(0.43-2.68)</i>	<i>12</i> <i>(1.2)</i>	<i>12</i> <i>(1.4)</i>	<i>1.20</i> <i>(0.54-2.69)</i>

Note

Statistically significant results are highlighted in bold.

Results in italics should be treated with caution because of missing data.

* indicates that statistical significance was attained after adjustment for confounding.

Total North Somerset sample size = 5959 records

Table B BNSSG Maternity Health Equity Audit: Local results compared with nationally reported findings

Indicator	National findings¹	NBT	UBHT	WAHT	S Glos PCT	Bristol PCT	N.Somerset PCT
Late booking	Not available	37.5%	39.3%	49.7%	30.7%	40.8%	39.2%
Very late booking	11% Caucasian, 20% BME women ²	5.5%	8.9%	5.1%	4.4%	7.1%	4.8%
Normal delivery	46.4% (21.3-64%) ³	52.1%	44.3%	98.1%	49.7%	48.3%	51%
Any Caesarean section	22.7% ²	23.6%	21.8%	-	24.3%	21.6%	23.3%
Emergency Caesarean Section	Not available	12.8%	12.2%	-	12.8%	12.1%	12.2%
Breastfeeding	71% ⁴	74.5%	75.2%	71.8%	74.9%	74.7%	75.1%
Smoking	20% ³	16.5%	17.7%	24.6%	13.7%	18.8%	15.1%
Low birth weight	7.6% ⁵	1.5%	2.1%	<1%	<2%	<2%	1%

¹ Indicators in 'Modernising Maternity Care' 2nd edition DH 2006

² Lewis G & Drife J (2004) Why Mothers Die 2000-2002 the sixth report of the Confidential Enquiries into Maternal Deaths in the UK. London. RCOG. www.cemach.org.uk/publications/WMD2000_2002/content.htm

³ DH (2006) NHS Maternity Statistics 2004-5. www.ic.nhs.uk/pubs/maternity/eng2005

⁴ Hamlyn B, Brooker, S Oleinikova K et al (2002) *Infant Feeding 2000*. 6th Ed. London. TSO

⁵ Macfarlane A & Mugford M (2000) *Birth Count: Statistics of Pregnancy and Childbirth*. Vol 1 text 2nd Ed. London. TSO