

# National Maternity and Perinatal Audit

## Ethnic and Socio-economic Inequalities in NHS Maternity and Perinatal Care for Women and their Babies

Assessing care using data from births between 1 April 2015 and  
31 March 2018 across England, Scotland and Wales

Supplementary tables



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The methods used for producing these results can be found in the full report on [Ethnic and Socio-economic Inequalities in NHS Maternity and Perinatal Care for Women and their Babies](#) and the definitions of the measures can be found in the [NMPA Clinical Report on 2016/17 births](#).

# Results for Great Britain

**Table 1** Results for Great Britain stratified by ethnic group

| Measure  | Ethnic group <sup>a</sup> |                  |                  |                  |
|--|---------------------------|------------------|------------------|------------------|
|  | White                     | South Asian      | Black            | Other            |
| <b>Spontaneous vaginal birth</b>                 |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 516 880/824 313           | 67 214/112 664   | 27 506/45 029    | 36 005/58 517    |
| Crude rate [95% CI] (%)                          | 62.8 [62.7–62.9]          | 59.5 [59.2–59.8] | 60.7 [60.2–61.2] | 61.4 [61.0–61.8] |
| <b>Induction of labour</b>                       |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 239 291/796 308           | 29 189/110 787   | 11 154/43 871    | 14 495/57 189    |
| Crude rate [95% CI] (%)                          | 30.0 [29.9–30.1]          | 26.6 [26.3–26.9] | 25.4 [25.0–25.9] | 25.4 [25.0–25.8] |
| <b>Assisted vaginal birth</b>                    |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 101 865/822 803           | 14 629/112 405   | 2 930/44 930     | 7 336/58 374     |
| Crude rate [95% CI] (%)                          | 12.4 [12.3–12.5]          | 13.0 [12.8–13.2] | 6.6 [6.3–6.8]    | 12.6 [12.3–12.8] |
| <b>Caesarean birth (any)</b>                     |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 203 460/822 803           | 30 481/112 405   | 14 476/44 930    | 14 987/58 374    |
| Crude rate [95% CI] (%)                          | 24.6 [24.6–24.7]          | 27.3 [27.1–27.6] | 32.5 [32.1–33.0] | 25.9 [25.5–26.2] |
| <b>Elective caesarean birth</b>                  |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 93 862/822 803            | 11 286/112 405   | 5 379/44 930     | 6 178/58 374     |
| Crude rate [95% CI] (%)                          | 11.4 [11.3–11.4]          | 10.2 [10.0–10.4] | 12.3 [12.0–12.6] | 10.7 [10.5–11.0] |
| <b>Emergency caesarean birth</b>                 |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 109 598/822 803           | 19 195/112 405   | 9 097/44 930     | 8 809/58 374     |
| Crude rate [95% CI] (%)                          | 13.3 [13.2–13.4]          | 17.1 [16.9–17.4] | 20.2 [19.8–20.6] | 15.1 [14.8–15.4] |
| <b>Birth without intervention (definition 1)</b> |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 91 797/250 199            | 13 012/35 174    | 5 159/12 262     | 7 190/18 154     |
| Crude rate [95% CI] (%)                          | 36.7 [36.5–36.9]          | 37.0 [36.5–37.5] | 42.1 [41.2–42.9] | 39.6 [38.9–40.3] |
| <b>Birth without intervention (definition 2)</b> |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 189 037/465 171           | 21 982/53 030    | 9 257/19 838     | 12 879/29 424    |
| Crude rate [95% CI] (%)                          | 40.8 [40.7–40.9]          | 40.8 [40.3–41.2] | 45.9 [45.2–46.7] | 43.2 [42.7–43.8] |
| <b>Episiotomy</b>                                |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 124 024/581 279           | 18 809/76 451    | 3 906/28 294     | 9 023/40 424     |
| Crude rate [95% CI] (%)                          | 21.3 [21.2–21.4]          | 24.7 [24.4–25.0] | 14.0 [13.6–14.4] | 22.4 [22.0–22.8] |

NMPA: Ethnic and socioeconomic inequalities

| Measure   | Ethnic group <sup>a</sup> |                  |                  |                  |
|---|---------------------------|------------------|------------------|------------------|
|   | White                     | South Asian      | Black            | Other            |
| <b>Third/fourth degree tear</b>                         |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 20 777/606 134            | 4 045/80 702     | 864/30 021       | 1 517/42 489     |
| Crude rate [95% CI] (%)                                 | 3.43 [3.38–3.48]          | 5.07 [4.91–5.23] | 2.94 [2.74–3.15] | 3.60 [3.42–3.78] |
| <b>Postpartum haemorrhage ≥1500 ml</b>                  |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 17 597/662 974            | 2 377/91 843     | 1 324/36 514     | 1 513/48 103     |
| Crude rate [95% CI] (%)                                 | 2.65 [2.61–2.69]          | 2.60 [2.49–2.70] | 3.61 [3.42–3.81] | 3.15 [2.99–3.30] |
| <b>VBAC attempted (among those eligible)</b>            |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 25 168/65 329             | 5 867/10 930     | 2 164/4 342      | 2 117/4 844      |
| Crude rate [95% CI] (%)                                 | 38.7 [38.3–39.0]          | 53.4 [52.4–54.4] | 49.5 [47.9–51.0] | 43.3 [41.9–44.8] |
| <b>VBAC successful (among those who attempted VBAC)</b> |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 15 266/25 168             | 3 279/5 867      | 1 011/2 164      | 1 185/2 117      |
| Crude rate [95% CI] (%)                                 | 60.9 [60.3–61.5]          | 55.7 [54.4–57.0] | 46.6 [44.4–48.8] | 55.7 [53.6–57.9] |
| <b>Overall VBAC (among those eligible)</b>              |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 16 441/67 932             | 3 399/11 166     | 1 070/4 496      | 1 237/4 982      |
| Crude rate [95% CI] (%)                                 | 24.4 [24.0–24.7]          | 30.1 [29.2–31.0] | 23.5 [22.2–24.8] | 24.5 [23.3–25.7] |
| <b>Unplanned maternal readmission</b>                   |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 21 834/771 713            | 3 329/105 586    | 1 566/40 874     | 1 815/54 165     |
| Crude rate [95% CI] (%)                                 | 2.82 [2.78–2.86]          | 3.19 [3.07–3.30] | 3.85 [3.65–4.05] | 3.36 [3.20–3.51] |
| <b>Smoking at birth</b>                                 |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 98 215/687 334            | 1 366/102 145    | 1 176/41 999     | 3 763/52 786     |
| Crude rate [95% CI] (%)                                 | 14.3 [14.2–14.4]          | 1.3 [1.3–1.4]    | 2.8 [2.6–3.0]    | 7.1 [6.9–7.3]    |
| <b>Smoking cessation</b>                                |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 18 171/92 223             | 505/1 528        | 416/1 285        | 842/3 731        |
| Crude rate [95% CI] (%)                                 | 19.7 [19.4–20.0]          | 32.9 [30.4–35.4] | 32.5 [29.7–35.3] | 22.5 [21.2–23.9] |
| <b>SGA at/after 40 weeks of gestation</b>               |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 26 019/47 738             | 6 712/13 861     | 2 023/3 696      | 2 342/4 340      |
| Crude rate [95% CI] (%)                                 | 54.6 [54.1–55.0]          | 48.6 [47.7–49.5] | 55.2 [53.5–56.9] | 54.0 [52.5–55.5] |
| <b>Skin-to-skin within 1 hour of birth</b>              |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 447 234/551 471           | 49 201/65 603    | 19 644/26 460    | 28 629/36 171    |
| Crude rate [95% CI] (%)                                 | 81.1 [81.0–81.2]          | 75.0 [74.7–75.3] | 74.2 [73.7–74.8] | 79.1 [78.7–79.6] |
| <b>Apgar score &lt;7 at 5 minutes</b>                   |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 10 617/743 257            | 913/92 904       | 629/36 967       | 566/50 587       |
| Crude rate [95% CI] (%)                                 | 1.43 [1.40–1.46]          | 0.99 [0.92–1.06] | 1.71 [1.57–1.85] | 1.11 [1.01–1.20] |

NMPA: Ethnic and socioeconomic inequalities

| Measure                                | Ethnic group <sup>a</sup> |                     |                     |                     |
|--|---------------------------|---------------------|---------------------|---------------------|
|  | White                     | South Asian         | Black               | Other               |
| <b>Breast milk at first feed</b>       |                           |                     |                     |                     |
| Numerator/denominator (n)              | 440 976/634 130           | 63 654/77 243       | 27 643/31 603       | 35 323/41 505       |
| Crude rate [95% CI] (%)                | 69.6 [69.5–69.7]          | 82.6 [82.3–82.9]    | 87.5 [87.1–87.9]    | 85.3 [84.9–85.6]    |
| <b>Breast milk at discharge</b>        |                           |                     |                     |                     |
| Numerator/denominator (n)              | 401 403/624 399           | 70 650/84 179       | 30 720/34 234       | 36 761/43 216       |
| Crude rate [95% CI] (%)                | 64.5 [64.4–64.6]          | 83.9 [83.6–84.1]    | 89.9 [89.6–90.2]    | 85.0 [84.7–85.4]    |
| <b>Neonatal unit admission at term</b> |                           |                     |                     |                     |
| Numerator/denominator (n)              | 38 539/729 154            | 5 768/101 423       | 2 428/41 244        | 2 511/51 632        |
| Crude rate [95% CI] (%)                | 5.28 [5.22–5.33]          | 5.73 [5.57–5.88]    | 5.88 [5.64–6.11]    | 4.86 [4.67–5.05]    |
| <b>Preterm neonatal unit admission</b> |                           |                     |                     |                     |
| Numerator/denominator (n)              | 14 741/35 587             | 1 802/5 379         | 679/1 898           | 774/2 273           |
| Crude rate [95% CI] (%)                | 41.4 [40.9–41.9]          | 33.1 [31.8–34.4]    | 36.4 [34.0–38.7]    | 34.8 [32.7–36.9]    |
| <b>Mechanical ventilation at term</b>  |                           |                     |                     |                     |
| Numerator/denominator (n)              | 3 569/729 154             | 598/101 423         | 316/41 244          | 281/51 632          |
| Crude rate [95% CI] (%)                | 0.491 [0.475–0.507]       | 0.586 [0.537–0.635] | 0.736 [0.654–0.817] | 0.534 [0.470–0.597] |
| <b>Encephalopathy</b>                  |                           |                     |                     |                     |
| Numerator/denominator (n)              | 1 253/758 566             | 201/105 908         | 92/42 791           | 79/53 546           |
| Crude rate [95% CI] (%)                | 0.169 [0.160–0.179]       | 0.190 [0.163–0.216] | 0.220 [0.175–0.264] | 0.152 [0.118–0.185] |

<sup>a</sup> Ethnic group is recorded in the NMPA dataset using ONS 16+1 categories from 2001 UK census<sup>2</sup> and subsequently collapsed into four categories.

**Table 2** Results for Great Britain stratified by IMD

| Measure  | IMD <sup>b</sup>   |                  |                  |                  |                   |
|--|--------------------|------------------|------------------|------------------|-------------------|
|  | 1 = least deprived | 2                | 3                | 4                | 5 = most deprived |
| <b>Spontaneous vaginal birth</b>                 |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 90 669/154 327     | 103 689/173 198  | 119 065/194 305  | 146 302/233 115  | 187 880/285 578   |
| Crude rate [95% CI] (%)                          | 58.8 [58.6–59.1]   | 59.9 [59.7–060]  | 61.3 [61.1–61.5] | 62.7 [62.5–62.9] | 65.8 [65.6–65.9]  |
| <b>Induction of labour</b>                       |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 40 117/148 671     | 48 018/167 169   | 54 829/188 936   | 67 030/226 577   | 84 135/276 802    |
| Crude rate [95% CI] (%)                          | 26.9 [26.7–27.1]   | 28.7 [28.5–029]  | 29.0 [28.8–29.2] | 29.6 [29.4–29.8] | 30.4 [30.3–30.6]  |
| <b>Assisted vaginal birth</b>                    |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 21 398/154 008     | 23 458/172 831   | 25 227/193 878   | 27 859/232 649   | 28 818/285 146    |
| Crude rate [95% CI] (%)                          | 13.9 [13.7–14.1]   | 13.6 [13.4–014]  | 13.0 [12.9–13.2] | 12.0 [11.8–12.1] | 10.1 [10.0–10.2]  |
| <b>Caesarean birth (any)</b>                     |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 41 819/154 008     | 45 507/172 831   | 49 401/193 878   | 58 350/232 649   | 68 327/285 146    |
| Crude rate [95% CI] (%)                          | 27.1 [26.9–27.3]   | 26.3 [26.1–26.5] | 25.5 [25.3–25.7] | 25.1 [24.9–25.3] | 24.0 [23.8–24.2]  |
| <b>Elective caesarean birth</b>                  |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 20 751/154 008     | 20 898/172 831   | 21 837/193 878   | 24 358/232 649   | 28 861/285 146    |
| Crude rate [95% CI] (%)                          | 13.4 [13.2–13.6]   | 12.1 [11.9–12.2] | 11.3 [11.1–11.4] | 10.5 [10.4–10.6] | 10.2 [10.0–10.3]  |
| <b>Emergency caesarean birth</b>                 |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 21 068/154 008     | 24 609/172 831   | 27 564/193 878   | 33 992/232 649   | 39 466/285 146    |
| Crude rate [95% CI] (%)                          | 13.7 [13.5–13.8]   | 14.2 [14.1–14.4] | 14.2 [14.1–14.4] | 14.6 [14.5–14.8] | 13.8 [13.7–14.0]  |
| <b>Birth without intervention (definition 1)</b> |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 17 521/47 539      | 19 093/53 342    | 22 600/61 391    | 27 730/73 468    | 30 214/80 049     |
| Crude rate [95% CI] (%)                          | 36.9 [36.4–37.3]   | 35.8 [35.4–036]  | 36.8 [36.4–37.2] | 37.7 [37.4–38.1] | 37.7 [37.4–38.1]  |
| <b>Birth without intervention (definition 2)</b> |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 35 691/89 909      | 39 268/99 370    | 44 735/109 894   | 52 646/126 590   | 60 815/141 700    |
| Crude rate [95% CI] (%)                          | 39.8 [39.5–40.1]   | 39.6 [39.3–39.9] | 40.6 [40.4–40.9] | 41.6 [41.3–41.8] | 42.9 [42.7–43.2]  |
| <b>Episiotomy</b>                                |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 25 918/106 099     | 28 591/120 011   | 30 650/136 226   | 34 461/164 549   | 36 142/199 563    |
| Crude rate [95% CI] (%)                          | 24.4 [24.1–24.6]   | 23.8 [23.6–024]  | 22.5 [22.3–22.7] | 20.9 [20.8–21.1] | 18.1 [18.0–18.3]  |
| <b>Third/fourth degree tear</b>                  |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 4 997/110 151      | 5 144/124 627    | 5 370/141 546    | 5 813/171 301    | 5 879/211 721     |
| Crude rate [95% CI] (%)                          | 4.53 [4.41–4.65]   | 4.12 [4.01–4.24] | 3.79 [3.69–3.89] | 3.39 [3.31–3.48] | 2.77 [2.70–2.84]  |

NMPA: Ethnic and socioeconomic inequalities

| Measure   | IMD <sup>b</sup>   |                  |                  |                  |                   |
|---|--------------------|------------------|------------------|------------------|-------------------|
|   | 1 = least deprived | 2                | 3                | 4                | 5 = most deprived |
| <b>Postpartum haemorrhage ≥1500 ml</b>                  |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 3 929/128 293      | 4 102/141 439    | 4 526/159 892    | 5 082/190 948    | 5 172/218 862     |
| Crude rate [95% CI] (%)                                 | 3.06 [2.97–3.15]   | 2.90 [2.82–2.99] | 2.83 [2.75–2.91] | 2.66 [2.59–2.73] | 2.36 [2.30–2.43]  |
| <b>VBAC attempted (among those eligible)</b>            |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 5 569/15 073       | 5 953/15 331     | 6 535/16 094     | 8 015/18 408     | 9 244/20 539      |
| Crude rate [95% CI] (%)                                 | 37.0 [36.3–37.8]   | 38.9 [38.2–040]  | 40.6 [39.8–41.3] | 43.4 [42.7–44.1] | 44.8 [44.1–45.5]  |
| <b>VBAC successful (among those who attempted VBAC)</b> |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 3 423/5 569        | 3 597/5 953      | 3 863/6 535      | 4 624/8 015      | 5 234/9 244       |
| Crude rate [95% CI] (%)                                 | 61.7 [60.4–63.0]   | 60.6 [59.4–062]  | 59.1 [57.9–60.3] | 57.6 [56.5–58.7] | 56.4 [55.4–57.4]  |
| <b>Overall VBAC (among those eligible)</b>              |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 3 740/15 711       | 3 831/15 894     | 4 109/16 617     | 4 890/19 009     | 5 577/21 345      |
| Crude rate [95% CI] (%)                                 | 23.9 [23.2–24.6]   | 24.2 [23.6–025]  | 24.7 [24.1–25.4] | 25.6 [25.0–26.2] | 26.0 [25.4–26.6]  |
| <b>Unplanned maternal readmission</b>                   |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 4 218/143 360      | 4 838/161 218    | 5 369/180 875    | 6 457/218 139    | 7 662/268 746     |
| Crude rate [95% CI] (%)                                 | 2.93 [2.85–3.02]   | 3.00 [2.91–3.08] | 2.97 [2.89–3.05] | 2.96 [2.89–3.03] | 2.85 [2.79–2.92]  |
| <b>Smoking at birth</b>                                 |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 5 670/133 988      | 10 395/147 962   | 15 947/166 419   | 25 949/199 738   | 46 559/236 157    |
| Crude rate [95% CI] (%)                                 | 4.2 [4.1–4.3]      | 7.0 [6.9–007]    | 9.6 [9.4–9.7]    | 13.0 [12.8–13.1] | 19.7 [19.6–19.9]  |
| <b>Smoking cessation</b>                                |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 1 593/5 945        | 2 512/10 305     | 3 505/15 384     | 5 071/24 525     | 7 253/42 608      |
| Crude rate [95% CI] (%)                                 | 26.8 [25.7–27.9]   | 24.4 [23.6–025]  | 22.8 [22.1–23.4] | 20.7 [20.2–21.2] | 17.0 [16.7–17.4]  |
| <b>SGA at/after 40 weeks of gestation</b>               |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 4 685/8 006        | 5 471/9 588      | 6 591/11 838     | 8 742/16 624     | 11 607/23 579     |
| Crude rate [95% CI] (%)                                 | 58.5 [57.4–59.6]   | 57.1 [56.1–058]  | 55.7 [54.8–56.6] | 52.6 [51.8–53.3] | 49.2 [48.6–49.9]  |
| <b>Skin-to-skin within 1 hour of birth</b>              |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 91 006/107 695     | 98 516/119 435   | 108 775/133 617  | 119 970/152 480  | 126 441/166 478   |
| Crude rate [95% CI] (%)                                 | 84.5 [84.3–84.7]   | 82.5 [82.3–083]  | 81.4 [81.2–81.6] | 78.7 [78.5–78.9] | 76.0 [75.7–76.2]  |
| <b>Apgar score &lt;7 at 5 minutes</b>                   |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 1 565/144 866      | 2 110/159 133    | 2 478/176 776    | 2 947/201 385    | 3 625/241 555     |
| Crude rate [95% CI] (%)                                 | 1.08 [1.02–1.13]   | 1.33 [1.27–1.38] | 1.40 [1.35–1.46] | 1.46 [1.41–1.52] | 1.50 [1.45–1.55]  |
| <b>Breast milk at first feed</b>                        |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 105 638/127 114    | 107 189/135 512  | 114 524/151 659  | 119 653/170 008  | 120 592/200 188   |
| Crude rate [95% CI] (%)                                 | 83.1 [82.9–83.3]   | 79.1 [78.9–79.3] | 75.5 [75.3–75.7] | 70.4 [70.1–70.6] | 60.1 [59.9–60.3]  |

NMPA: Ethnic and socioeconomic inequalities

| Measure                                | IMD <sup>b</sup>    |                     |                     |                     |                     |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|
|  | 1 = least deprived  | 2                   | 3                   | 4                   | 5 = most deprived   |
| <b>Breast milk at discharge</b>        |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 95 405/120 206      | 98 893/132 329      | 106 949/149 228     | 117 902/174 698     | 120 385/209 567     |
| Crude rate [95% CI] (%)                | 79.4 [79.2–79.6]    | 74.8 [74.6–075]     | 71.6 [71.4–71.8]    | 67.4 [67.2–67.6]    | 57.3 [57.1–57.5]    |
| <b>Neonatal unit admission at term</b> |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 6 709/136 910       | 7 913/152 091       | 9 115/170 707       | 11 108/205 905      | 14 401/257 840      |
| Crude rate [95% CI] (%)                | 4.89 [4.78–5.01]    | 5.20 [5.09–5.31]    | 5.34 [5.23–5.45]    | 5.40 [5.30–5.50]    | 5.59 [5.50–5.67]    |
| <b>Preterm neonatal unit admission</b> |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 2 304/5 427         | 2 682/6 485         | 3 233/7 704         | 4 037/10 253        | 5 740/15 268        |
| Crude rate [95% CI] (%)                | 42.5 [41.1–43.8]    | 41.3 [40.2–043]     | 42.0 [40.9–43.1]    | 39.4 [38.4–40.3]    | 37.6 [36.8–38.4]    |
| <b>Mechanical ventilation at term</b>  |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 543/136 910         | 728/152 091         | 833/170 707         | 1 190/205 905       | 1 470/257 840       |
| Crude rate [95% CI] (%)                | 0.397 [0.364–0.431] | 0.479 [0.444–0.513] | 0.488 [0.455–0.521] | 0.577 [0.544–0.610] | 0.570 [0.541–0.599] |
| <b>Encephalopathy</b>                  |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 196/141 402         | 278/157 481         | 299/177 127         | 358/214 331         | 494/270 470         |
| Crude rate [95% CI] (%)                | 0.140 [0.120–0.161] | 0.179 [0.157–0.201] | 0.171 [0.151–0.191] | 0.171 [0.153–0.189] | 0.189 [0.172–0.206] |

<sup>b</sup> The IMD quintile is derived from the recorded standardised socio-economic IMD rank of the individual's local area based on their postcode.<sup>3</sup> As the areas used are of different granularity, the three individual countries are not directly comparable.



# Results for England

**Table 3** Results for England stratified by ethnic group

| Measure  | Ethnic group <sup>a</sup> |                  |                  |                  |
|--|---------------------------|------------------|------------------|------------------|
|  | White                     | South Asian      | Black            | Other            |
| <b>Spontaneous vaginal birth</b>                 |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 462 748/732 818           | 65 239/109 180   | 26 691/43 564    | 33 951/55 138    |
| Crude rate [95% CI] (%)                          | 63.1 [63.0–63.3]          | 59.8 [59.5–60.0] | 61.3 [60.8–61.7] | 61.6 [61.2–62.0] |
| <b>Induction of labour</b>                       |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 208 235/704 976           | 28 153/107 304   | 10 779/42 406    | 13 552/53 812    |
| Crude rate [95% CI] (%)                          | 29.5 [29.4–29.6]          | 26.2 [26.0–26.5] | 25.4 [25.0–25.8] | 25.2 [24.8–25.6] |
| <b>Assisted vaginal birth</b>                    |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 91 193/731 369            | 14 184/108 921   | 2 820/43 466     | 6 932/55 001     |
| Crude rate [95% CI] (%)                          | 12.5 [12.4–12.5]          | 13.0 [12.8–13.2] | 6.5 [6.3–6.7]    | 12.6 [12.3–12.9] |
| <b>Caesarean birth (any)</b>                     |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 176 830/731 369           | 29 417/108 921   | 13 937/43 466    | 14 072/55 001    |
| Crude rate [95% CI] (%)                          | 24.2 [24.1–24.3]          | 27.0 [26.7–27.3] | 32.1 [31.6–32.5] | 25.6 [25.2–25.9] |
| <b>Elective caesarean birth</b>                  |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 80 873/731 369            | 10 840/108 921   | 5 128/43 466     | 5 750/55 001     |
| Crude rate [95% CI] (%)                          | 11.1 [11.0–11.1]          | 10.0 [9.8–10.1]  | 11.8 [11.5–12.1] | 10.5 [10.2–10.7] |
| <b>Emergency caesarean birth</b>                 |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 95 957/731 369            | 18 577/108 921   | 8 809/43 466     | 8 322/55 001     |
| Crude rate [95% CI] (%)                          | 13.1 [13.0–13.2]          | 17.1 [16.8–17.3] | 20.3 [19.9–20.6] | 15.1 [14.8–15.4] |
| <b>Birth without intervention (definition 1)</b> |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 91 797/250 199            | 13 012/35 174    | 5 159/12 262     | 7 190/18 154     |
| Crude rate [95% CI] (%)                          | 36.7 [36.5–36.9]          | 37.0 [36.5–37.5] | 42.1 [41.2–42.9] | 39.6 [38.9–40.3] |
| <b>Birth without intervention (definition 2)</b> |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 167 430/398 681           | 21 173/50 615    | 8 904/18 894     | 12 236/27 623    |
| Crude rate [95% CI] (%)                          | 42.0 [41.8–42.1]          | 41.8 [41.4–42.3] | 47.1 [46.4–47.8] | 44.3 [43.7–44.9] |
| <b>Episiotomy</b>                                |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 109 417/517 633           | 18 183/74 074    | 3 753/27 387     | 8 463/38 006     |
| Crude rate [95% CI] (%)                          | 21.1 [21.0–21.2]          | 24.5 [24.2–24.9] | 13.7 [13.3–14.1] | 22.3 [21.8–22.7] |

NMPA: Ethnic and socioeconomic inequalities

| Measure   | Ethnic group <sup>a</sup> |                  |                  |                  |
|---|---------------------------|------------------|------------------|------------------|
|   | White                     | South Asian      | Black            | Other            |
| <b>Third/fourth degree tear</b>                         |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 18 762/545 298            | 3 905/78 334     | 828/29 109       | 1 440/40 188     |
| Crude rate [95% CI] (%)                                 | 3.44 [3.39–3.49]          | 4.99 [4.83–5.14] | 2.84 [2.65–3.04] | 3.58 [3.40–3.76] |
| <b>Postpartum haemorrhage ≥1500 ml</b>                  |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 16 783/641 174            | 2 352/91 013     | 1 313/36 144     | 1 464/46 598     |
| Crude rate [95% CI] (%)                                 | 2.62 [2.58–2.66]          | 2.58 [2.48–2.69] | 3.63 [3.44–3.83] | 3.14 [2.98–3.30] |
| <b>VBAC attempted (among those eligible)</b>            |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 22 719/57 587             | 5 697/10 591     | 2 091/4 174      | 2 023/4 578      |
| Crude rate [95% CI] (%)                                 | 39.5 [39.1–39.9]          | 53.8 [52.8–54.7] | 50.1 [48.6–51.6] | 44.2 [42.8–45.6] |
| <b>VBAC successful (among those who attempted VBAC)</b> |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 14 037/22 719             | 3 194/5 697      | 982/2 091        | 1 137/2 023      |
| Crude rate [95% CI] (%)                                 | 61.8 [61.2–62.4]          | 56.1 [54.8–57.4] | 47.0 [44.8–49.1] | 56.2 [54.0–58.4] |
| <b>Overall VBAC (among those eligible)</b>              |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 15 207/60 170             | 3 313/10 827     | 1 041/4 328      | 1 189/4 716      |
| Crude rate [95% CI] (%)                                 | 25.3 [24.9–25.6]          | 30.6 [29.7–31.5] | 24.1 [22.8–25.3] | 25.2 [24.0–26.5] |
| <b>Unplanned maternal readmission</b>                   |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 18 853/682 000            | 3 203/102 160    | 1 507/39 435     | 1 700/50 921     |
| Crude rate [95% CI] (%)                                 | 2.76 [2.73–2.80]          | 3.14 [3.03–3.24] | 3.82 [3.63–4.01] | 3.34 [3.18–3.49] |
| <b>Smoking at birth</b>                                 |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 94 136/663 935            | 1 353/101 256    | 1 167/41 611     | 3 572/51 174     |
| Crude rate [95% CI] (%)                                 | 14.2 [14.1–14.3]          | 1.3 [1.3–1.4]    | 2.8 [2.6–3.0]    | 7.0 [6.8–7.2]    |
| <b>Smoking cessation</b>                                |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 17 238/87 384             | 500/1 511        | 411/1 271        | 778/3 480        |
| Crude rate [95% CI] (%)                                 | 19.7 [19.5–20.0]          | 33.1 [30.7–35.5] | 32.3 [29.8–34.9] | 22.4 [21.0–23.7] |
| <b>SGA at/after 40 weeks of gestation</b>               |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 23 815/43 478             | 6 552/13 555     | 1 966/3 608      | 2 231/4 147      |
| Crude rate [95% CI] (%)                                 | 54.8 [54.3–55.2]          | 48.3 [47.5–49.2] | 54.5 [52.9–56.1] | 53.8 [52.3–55.3] |
| <b>Skin-to-skin within 1 hour of birth</b>              |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 447 234/551 471           | 49 201/65 603    | 19 644/26 460    | 28 629/36 171    |
| Crude rate [95% CI] (%)                                 | 81.1 [81.0–81.2]          | 75.0 [74.7–75.3] | 74.2 [73.7–74.8] | 79.1 [78.7–79.6] |
| <b>Apgar score &lt;7 at 5 minutes</b>                   |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 9 320/653 022             | 875/89 465       | 602/35 526       | 542/47 248       |
| Crude rate [95% CI] (%)                                 | 1.43 [1.40–1.46]          | 0.98 [0.91–1.04] | 1.69 [1.56–1.83] | 1.15 [1.05–1.24] |

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| Measure                                | Ethnic group <sup>a</sup> |                     |                     |                     |
|--|---------------------------|---------------------|---------------------|---------------------|
|  | White                     | South Asian         | Black               | Other               |
| <b>Breast milk at first feed</b>       |                           |                     |                     |                     |
| Numerator/denominator (n)              | 398 117/566 139           | 61 565/74 799       | 26 654/30 479       | 33 103/38 731       |
| Crude rate [95% CI] (%)                | 70.3 [70.2–70.4]          | 82.3 [82.0–82.6]    | 87.5 [87.1–87.8]    | 85.5 [85.1–85.8]    |
| <b>Breast milk at discharge</b>        |                           |                     |                     |                     |
| Numerator/denominator (n)              | 362 079/551 753           | 68 346/81 399       | 29 655/33 079       | 35 109/41 254       |
| Crude rate [95% CI] (%)                | 65.6 [65.5–65.7]          | 84.0 [83.7–84.2]    | 89.6 [89.3–90.0]    | 85.1 [84.8–85.4]    |
| <b>Neonatal unit admission at term</b> |                           |                     |                     |                     |
| Numerator/denominator (n)              | 35 043/671 718            | 5 640/99 462        | 2 380/40 393        | 2 443/50 182        |
| Crude rate [95% CI] (%)                | 5.22 [5.16–5.27]          | 5.67 [5.53–5.81]    | 5.89 [5.66–6.12]    | 4.87 [4.68–5.06]    |
| <b>Preterm neonatal unit admission</b> |                           |                     |                     |                     |
| Numerator/denominator (n)              | 13 397/32 288             | 1 767/5 246         | 662/1 861           | 744/2 211           |
| Crude rate [95% CI] (%)                | 41.5 [41.0–42.0]          | 33.7 [32.4–35.0]    | 35.6 [33.4–37.7]    | 33.6 [31.7–35.6]    |
| <b>Mechanical ventilation at term</b>  |                           |                     |                     |                     |
| Numerator/denominator (n)              | 3 343/671 718             | 588/99 462          | 315/40 393          | 277/50 182          |
| Crude rate [95% CI] (%)                | 0.498 [0.481–0.515]       | 0.591 [0.544–0.639] | 0.780 [0.694–0.866] | 0.552 [0.487–0.617] |
| <b>Encephalopathy</b>                  |                           |                     |                     |                     |
| Numerator/denominator (n)              | 1 182/698 391             | 197/103 841         | 92/41 906           | 79/52 044           |
| Crude rate [95% CI] (%)                | 0.169 [0.160–0.179]       | 0.190 [0.163–0.216] | 0.220 [0.175–0.264] | 0.152 [0.118–0.185] |

<sup>a</sup> Ethnic group is recorded in the NMPA dataset using ONS 16+1 categories from 2001 UK census<sup>2</sup> and subsequently collapsed into four categories.

**Table 4** Results for England stratified by IMD

| Measure  | IMD <sup>b</sup>   |                  |                  |                  |                   |
|--|--------------------|------------------|------------------|------------------|-------------------|
|  | 1 = least deprived | 2                | 3                | 4                | 5 = most deprived |
| <b>Spontaneous vaginal birth</b>                 |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 81 147/136 963     | 93 677/155 369   | 108 304/176 095  | 133 547/211 963  | 171 954/260 310   |
| Crude rate [95% CI] (%)                          | 59.2 [59.0–59.5]   | 60.3 [60.0–60.5] | 61.5 [61.3–61.7] | 63.0 [62.8–63.2] | 66.1 [65.9–66.2]  |
| <b>Induction of labour</b>                       |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 34 900/131 334     | 42 164/149 414   | 48 803/170 775   | 59 586/205 441   | 75 266/251 534    |
| Crude rate [95% CI] (%)                          | 26.6 [26.3–26.8]   | 28.2 [28.0–28.4] | 28.6 [28.4–28.8] | 29.0 [28.8–29.2] | 29.9 [29.7–30.1]  |
| <b>Assisted vaginal birth</b>                    |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 18 925/136 657     | 21 139/155 016   | 23 116/175 679   | 25 493/211 505   | 26 456/259 900    |
| Crude rate [95% CI] (%)                          | 13.8 [13.7–14.0]   | 13.6 [13.5–13.8] | 13.2 [13.0–13.3] | 12.1 [11.9–12.2] | 10.2 [10.1–10.3]  |
| <b>Caesarean birth (any)</b>                     |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 36 463/136 657     | 40 023/155 016   | 44 074/175 679   | 52 327/211 505   | 61 369/259 900    |
| Crude rate [95% CI] (%)                          | 26.7 [26.4–26.9]   | 25.8 [25.6–26.0] | 25.1 [24.9–25.3] | 24.7 [24.6–24.9] | 23.6 [23.4–23.8]  |
| <b>Elective caesarean birth</b>                  |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 17 943/136 657     | 18 250/155 016   | 19 304/175 679   | 21 586/211 505   | 25 508/259 900    |
| Crude rate [95% CI] (%)                          | 13.1 [13.0–13.3]   | 11.8 [11.6–11.9] | 11.0 [10.8–11.1] | 10.2 [10.1–10.3] | 9.8 [9.7–9.9]     |
| <b>Emergency caesarean birth</b>                 |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 18 520/136 657     | 21 773/155 016   | 24 770/175 679   | 30 741/211 505   | 35 861/259 900    |
| Crude rate [95% CI] (%)                          | 13.6 [13.4–13.7]   | 14.0 [13.9–14.2] | 14.1 [13.9–14.3] | 14.5 [14.4–14.7] | 13.8 [13.7–13.9]  |
| <b>Birth without intervention (definition 1)</b> |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 17 521/47 539      | 19 093/53 342    | 22 600/61 391    | 27 730/73 468    | 30 214/80 049     |
| Crude rate [95% CI] (%)                          | 36.9 [36.4–37.3]   | 35.8 [35.4–36.2] | 36.8 [36.4–37.2] | 37.7 [37.4–38.1] | 37.7 [37.4–38.1]  |
| <b>Birth without intervention (definition 2)</b> |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 31 839/77 634      | 35 168/86 394    | 40 421/96 787    | 47 545/111 072   | 54 770/123 926    |
| Crude rate [95% CI] (%)                          | 41.0 [40.7–41.4]   | 40.7 [40.4–41.0] | 41.8 [41.5–42.1] | 42.8 [42.5–43.1] | 44.2 [43.9–44.5]  |
| <b>Episiotomy</b>                                |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 22 589/94 262      | 25 519/107 866   | 27 767/123 581   | 31 258/149 666   | 32 683/181 725    |
| Crude rate [95% CI] (%)                          | 24.0 [23.7–24.2]   | 23.7 [23.4–23.9] | 22.5 [22.2–22.7] | 20.9 [20.7–21.1] | 18.0 [17.8–18.2]  |
| <b>Third/fourth degree tear</b>                  |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 4 435/98 749       | 4 696/113 309    | 4 960/129 659    | 5 389/157 059    | 5 455/194 153     |
| Crude rate [95% CI] (%)                          | 4.49 [4.36–4.62]   | 4.14 [4.03–4.26] | 3.83 [3.72–3.93] | 3.43 [3.34–3.52] | 2.81 [2.74–2.88]  |

NMPA: Ethnic and socioeconomic inequalities

| Measure   | IMD <sup>b</sup>   |                  |                  |                  |                   |
|---|--------------------|------------------|------------------|------------------|-------------------|
|   | 1 = least deprived | 2                | 3                | 4                | 5 = most deprived |
| <b>Postpartum haemorrhage ≥1500 ml</b>                  |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 3 755/124 258      | 3 936/137 559    | 4 349/155 361    | 4 884/185 566    | 4 988/212 185     |
| Crude rate [95% CI] (%)                                 | 3.02 [2.93–3.12]   | 2.86 [2.77–2.95] | 2.80 [2.72–2.88] | 2.63 [2.56–2.70] | 2.35 [2.29–2.42]  |
| <b>VBAC attempted (among those eligible)</b>            |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 5 008/13 364       | 5 395/13 621     | 6 050/14 550     | 7 431/16 714     | 8 646/18 681      |
| Crude rate [95% CI] (%)                                 | 37.5 [36.7–38.3]   | 39.6 [38.8–40.4] | 41.6 [40.8–42.4] | 44.5 [43.7–45.2] | 46.3 [45.6–47.0]  |
| <b>VBAC successful (among those who attempted VBAC)</b> |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 3 129/5 008        | 3 318/5 395      | 3 624/6 050      | 4 340/7 431      | 4 939/8 646       |
| Crude rate [95% CI] (%)                                 | 62.5 [61.1–63.8]   | 61.5 [60.2–62.8] | 59.9 [58.7–61.1] | 58.4 [57.3–59.5] | 57.1 [56.1–58.2]  |
| <b>Overall VBAC (among those eligible)</b>              |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 3 443/13 999       | 3 551/14 176     | 3 869/15 067     | 4 605/17 312     | 5 282/19 487      |
| Crude rate [95% CI] (%)                                 | 24.6 [23.9–25.3]   | 25.0 [24.3–25.8] | 25.7 [25.0–26.4] | 26.6 [25.9–27.3] | 27.1 [26.5–27.7]  |
| <b>Unplanned maternal readmission</b>                   |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 3 634/126 315      | 4 220/143 722    | 4 794/163 076    | 5 786/197 417    | 6 829/243 986     |
| Crude rate [95% CI] (%)                                 | 2.88 [2.78–2.97]   | 2.94 [2.85–3.02] | 2.94 [2.86–3.02] | 2.93 [2.86–3.01] | 2.80 [2.73–2.86]  |
| <b>Smoking at birth</b>                                 |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 5 473/129 731      | 9 943/143 767    | 15 248/161 541   | 24 864/193 971   | 44 700/228 966    |
| Crude rate [95% CI] (%)                                 | 4.2 [4.1–4.3]      | 6.9 [6.8–7.0]    | 9.4 [9.3–9.6]    | 12.8 [12.7–13.0] | 19.5 [19.4–19.7]  |
| <b>Smoking cessation</b>                                |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 1 519/5 684        | 2 396/9 761      | 3 327/14 550     | 4 795/23 207     | 6 890/40 444      |
| Crude rate [95% CI] (%)                                 | 26.7 [25.6–27.9]   | 24.5 [23.7–25.4] | 22.9 [22.2–23.5] | 20.7 [20.1–21.2] | 17.0 [16.7–17.4]  |
| <b>SGA at/after 40 weeks of gestation</b>               |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 4 322/7 381        | 5 105/8 922      | 6 184/11 078     | 8 178/15 531     | 10 775/21 876     |
| Crude rate [95% CI] (%)                                 | 58.6 [57.4–59.7]   | 57.2 [56.2–58.2] | 55.8 [54.9–56.7] | 52.7 [51.9–53.4] | 49.3 [48.6–49.9]  |
| <b>Skin-to-skin within 1 hour of birth</b>              |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 91 006/107 695     | 98 516/119 435   | 108 775/133 617  | 119 970/152 480  | 126 441/166 478   |
| Crude rate [95% CI] (%)                                 | 84.5 [84.3–84.7]   | 82.5 [82.3–82.7] | 81.4 [81.2–81.6] | 78.7 [78.5–78.9] | 76.0 [75.7–76.2]  |
| <b>Apgar score &lt;7 at 5 minutes</b>                   |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 1 355/127 684      | 1 900/141 544    | 2 215/158 822    | 2 633/180 511    | 3 236/216 700     |
| Crude rate [95% CI] (%)                                 | 1.06 [1.01–1.12]   | 1.34 [1.28–1.40] | 1.39 [1.34–1.45] | 1.46 [1.40–1.51] | 1.49 [1.44–1.54]  |
| <b>Breast milk at first feed</b>                        |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 94 353/113 302     | 96 737/121 391   | 104 933/137 289  | 110 638/154 264  | 112 778/183 902   |
| Crude rate [95% CI] (%)                                 | 83.3 [83.1–83.5]   | 79.7 [79.5–79.9] | 76.4 [76.2–76.7] | 71.7 [71.5–71.9] | 61.3 [61.1–61.5]  |

NMPA: Ethnic and socioeconomic inequalities

| Measure                                | IMD <sup>b</sup>    |                     |                     |                     |                     |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|
|  | 1 = least deprived  | 2                   | 3                   | 4                   | 5 = most deprived   |
| <b>Breast milk at discharge</b>        |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 84 670/106 294      | 88 937/117 760      | 98 553/135 050      | 109 957/158 197     | 113 072/190 184     |
| Crude rate [95% CI] (%)                | 79.7 [79.4–79.9]    | 75.5 [75.3–75.8]    | 73.0 [72.7–73.2]    | 69.5 [69.3–69.7]    | 59.5 [59.2–59.7]    |
| <b>Neonatal unit admission at term</b> |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 6 123/127 019       | 7 248/140 805       | 8 433/159 697       | 10 295/193 003      | 13 407/241 231      |
| Crude rate [95% CI] (%)                | 4.82 [4.70–4.94]    | 5.15 [5.03–5.26]    | 5.28 [5.17–5.39]    | 5.33 [5.23–5.43]    | 5.56 [5.47–5.65]    |
| <b>Preterm neonatal unit admission</b> |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 2 103/4 959         | 2 449/5 936         | 2 983/7 130         | 3 723/9 460         | 5 312/14 121        |
| Crude rate [95% CI] (%)                | 42.4 [41.0–43.8]    | 41.3 [40.0–42.5]    | 41.8 [40.7–43.0]    | 39.4 [38.4–40.3]    | 37.6 [36.8–38.4]    |
| <b>Mechanical ventilation at term</b>  |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 513/127 019         | 675/140 805         | 789/159 697         | 1 137/193 003       | 1 409/241 231       |
| Crude rate [95% CI] (%)                | 0.404 [0.369–0.439] | 0.479 [0.443–0.515] | 0.494 [0.460–0.528] | 0.589 [0.555–0.623] | 0.584 [0.554–0.615] |
| <b>Encephalopathy</b>                  |                     |                     |                     |                     |                     |
| Numerator/denominator (n)              | 184/131 120         | 261/145 741         | 283/165 639         | 344/200 788         | 478/252 894         |
| Crude rate [95% CI] (%)                | 0.140 [0.120–0.161] | 0.179 [0.157–0.201] | 0.171 [0.151–0.191] | 0.171 [0.153–0.189] | 0.189 [0.172–0.206] |

<sup>b</sup> The IMD quintile is derived from the recorded standardised socio-economic IMD rank of the individual's local area based on their postcode.<sup>3</sup> As the areas used are of different granularity, the three individual countries are not directly comparable.

# Results for Scotland

**Table 5** Results for Scotland stratified by ethnic group

| Measure  | Ethnic group <sup>a</sup> |                  |                  |                  |
|--|---------------------------|------------------|------------------|------------------|
|  | White                     | South Asian      | Black            | Other            |
| <b>Spontaneous vaginal birth</b>                 |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 39 788/69 336             | 1 466/2 648      | 591/1 095        | 1 070/1 863      |
| Crude rate [95% CI] (%)                          | 57.4 [57.0–57.8]          | 55.4 [53.5–57.3] | 54.0 [51.0–56.9] | 57.4 [55.2–59.7] |
| <b>Induction of labour</b>                       |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 23 531/69 173             | 788/2 647        | 279/1 095        | 490/1 861        |
| Crude rate [95% CI] (%)                          | 34.0 [33.7–34.4]          | 29.8 [28.0–31.5] | 25.5 [22.9–28.1] | 26.3 [24.3–28.3] |
| <b>Assisted vaginal birth</b>                    |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 8 353/69 300              | 333/2 648        | 71/1 095         | 227/1 860        |
| Crude rate [95% CI] (%)                          | 12.1 [11.8–12.3]          | 12.6 [11.3–13.8] | 6.5 [5.0–7.9]    | 12.2 [10.7–13.7] |
| <b>Caesarean birth (any)</b>                     |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 21 159/69 300             | 849/2 648        | 433/1 095        | 563/1 860        |
| Crude rate [95% CI] (%)                          | 30.5 [30.2–30.9]          | 32.1 [30.3–33.8] | 39.5 [36.6–42.4] | 30.3 [28.2–32.4] |
| <b>Elective caesarean birth</b>                  |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 10 373/69 300             | 355/2 648        | 199/1 095        | 260/1 860        |
| Crude rate [95% CI] (%)                          | 15.0 [14.7–15.2]          | 13.4 [12.1–14.7] | 18.2 [15.9–20.5] | 14.0 [12.4–15.6] |
| <b>Emergency caesarean birth</b>                 |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 10 786/69 300             | 494/2 648        | 234/1 095        | 303/1 860        |
| Crude rate [95% CI] (%)                          | 15.6 [15.3–15.8]          | 18.7 [17.2–20.1] | 21.4 [18.9–23.8] | 16.3 [14.6–18.0] |
| <b>Birth without intervention (definition 2)</b> |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 20 147/62 016             | 794/2 372        | 348/931          | 606/1 655        |
| Crude rate [95% CI] (%)                          | 32.5 [32.1–32.9]          | 33.5 [31.6–35.4] | 37.4 [34.3–40.5] | 36.6 [34.3–38.9] |
| <b>Episiotomy</b>                                |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 11 444/47 603             | 475/1 768        | 98/651           | 314/1 277        |
| Crude rate [95% CI] (%)                          | 24.0 [23.7–24.4]          | 26.9 [24.8–28.9] | 15.1 [12.3–17.8] | 24.6 [22.2–27.0] |
| <b>Third/fourth degree tear</b>                  |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 1 600/48 015              | 112/1 799        | 27/662           | 55/1 296         |
| Crude rate [95% CI] (%)                          | 3.33 [3.17–3.49]          | 6.23 [5.11–7.34] | 4.08 [2.57–5.59] | 4.24 [3.15–5.34] |

NMPA: Ethnic and socioeconomic inequalities

| Measure   | Ethnic group <sup>a</sup> |                     |                      |                     |
|---|---------------------------|---------------------|----------------------|---------------------|
|   | White                     | South Asian         | Black                | Other               |
| <b>VBAC attempted (among those eligible)</b>            |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 1 659/5 870               | 130/262             | 60/140               | 59/164              |
| Crude rate [95% CI] (%)                                 | 28.3 [27.1–29.4]          | 49.6 [43.6–55.7]    | 42.9 [34.7–51.1]     | 36.0 [28.6–43.3]    |
| <b>VBAC successful (among those who attempted VBAC)</b> |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 793/1 659                 | 59/130              | 22/60                | 27/59               |
| Crude rate [95% CI] (%)                                 | 47.8 [45.4–50.2]          | 45.4 [36.8–53.9]    | 36.7 [24.5–48.9]     | 45.8 [33.1–58.5]    |
| <b>Overall VBAC (among those eligible)</b>              |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 794/5 890                 | 59/262              | 22/140               | 27/164              |
| Crude rate [95% CI] (%)                                 | 13.5 [12.6–14.4]          | 22.5 [17.5–27.6]    | 15.7 [9.7–21.7]      | 16.5 [10.8–22.1]    |
| <b>Unplanned maternal readmission</b>                   |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 2 245/69 333              | 98/2 648            | 42/1 095             | 65/1 863            |
| Crude rate [95% CI] (%)                                 | 3.24 [3.11–3.37]          | 3.70 [2.98–4.42]    | 3.84 [2.70–4.97]     | 3.49 [2.66–4.32]    |
| <b>SGA at/after 40 weeks of gestation</b>               |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 1 515/3 003               | 98/205              | 37/58                | 50/89               |
| Crude rate [95% CI] (%)                                 | 50.4 [48.7–52.2]          | 47.8 [41.0–54.6]    | 63.8 [51.4–76.2]     | 56.2 [45.9–66.5]    |
| <b>Apgar score &lt;7 at 5 minutes</b>                   |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 1 011/68 221              | 31/2 610            | 21/1 077             | 15/1 833            |
| Crude rate [95% CI] (%)                                 | 1.48 [1.39–1.57]          | 1.19 [0.77–1.60]    | 1.95 [1.12–2.78]     | 0.82 [0.41–1.23]    |
| <b>Breast milk at first feed</b>                        |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 29 931/45 602             | 1 420/1 602         | 690/756              | 1 089/1 223         |
| Crude rate [95% CI] (%)                                 | 65.6 [65.2–66.1]          | 88.6 [87.1–90.2]    | 91.3 [89.3–93.3]     | 89.0 [87.3–90.8]    |
| <b>Breast milk at discharge</b>                         |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 39 324/72 646             | 2 304/2 780         | 1 065/1 155          | 1 652/1 962         |
| Crude rate [95% CI] (%)                                 | 54.1 [53.8–54.5]          | 82.9 [81.5–84.3]    | 92.2 [90.7–93.8]     | 84.2 [82.6–85.8]    |
| <b>Neonatal unit admission at term</b>                  |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 3 496/57 436              | 128/1 961           | 48/851               | 68/1 450            |
| Crude rate [95% CI] (%)                                 | 6.09 [5.89–6.28]          | 6.53 [5.43–7.62]    | 5.64 [4.09–7.19]     | 4.69 [3.60–5.78]    |
| <b>Preterm neonatal unit admission</b>                  |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 1 344/3 299               | 35/133              | 17/37                | 30/62               |
| Crude rate [95% CI] (%)                                 | 40.7 [39.1–42.4]          | 26.3 [18.8–33.8]    | 45.9 [29.9–62.0]     | 48.4 [35.9–60.8]    |
| <b>Mechanical ventilation at term</b>                   |                           |                     |                      |                     |
| Numerator/denominator (n)                               | 226/57 436                | 10/1 961            | less than 5/851      | less than 5/1 450   |
| Crude rate [95% CI] (%)                                 | 0.393 [0.342–0.445]       | 0.510 [0.195–0.825] | 0.118 [-0.113–0.348] | 0.276 [0.006–0.546] |



NMPA: Ethnic and socioeconomic inequalities

| Measure                   | Ethnic group <sup>a</sup> |                     |       |         |
|---------------------------|---------------------------|---------------------|-------|---------|
|                           | White                     | South Asian         | Black | Other   |
| <b>Encephalopathy</b>     |                           |                     |       |         |
| Numerator/denominator (n) | 71/60 175                 | less than 5/2 067   | 0/885 | 0/1 502 |
| Crude rate [95% CI] (%)   | 0.118 [0.091–0.145]       | 0.194 [0.004–0.383] | -     | -       |

<sup>a</sup> Ethnic group is recorded in the NMPA dataset using ONS 16+1 categories from 2001 UK census<sup>2</sup> and subsequently collapsed into four categories.

**Table 6** Results for Scotland stratified by IMD

| Measure  | IMD <sup>b</sup>   |                  |                  |                  |                   |
|--|--------------------|------------------|------------------|------------------|-------------------|
|  | 1 = least deprived | 2                | 3                | 4                | 5 = most deprived |
| <b>Spontaneous vaginal birth</b>                 |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 7 022/13 282       | 7 588/13 873     | 7 759/13 588     | 9 210/15 688     | 11 336/18 511     |
| Crude rate [95% CI] (%)                          | 52.9 [52.0–53.7]   | 54.7 [53.9–55.5] | 57.1 [56.3–57.9] | 58.7 [57.9–59.5] | 61.2 [60.5–61.9]  |
| <b>Induction of labour</b>                       |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 3 940/13 255       | 4 557/13 799     | 4 505/13 539     | 5 519/15 672     | 6 567/18 511      |
| Crude rate [95% CI] (%)                          | 29.7 [28.9–30.5]   | 33.0 [32.2–33.8] | 33.3 [32.5–34.1] | 35.2 [34.5–36.0] | 35.5 [34.8–36.2]  |
| <b>Assisted vaginal birth</b>                    |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 1 924/13 272       | 1 872/13 867     | 1 620/13 583     | 1 817/15 682     | 1 751/18 499      |
| Crude rate [95% CI] (%)                          | 14.5 [13.9–15.1]   | 13.5 [12.9–14.1] | 11.9 [11.4–12.5] | 11.6 [11.1–12.1] | 9.5 [9.0–9.9]     |
| <b>Caesarean birth (any)</b>                     |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 4 326/13 272       | 4 407/13 867     | 4 204/13 583     | 4 655/15 682     | 5 412/18 499      |
| Crude rate [95% CI] (%)                          | 32.6 [31.8–33.4]   | 31.8 [31.0–32.6] | 31.0 [30.2–31.7] | 29.7 [29.0–30.4] | 29.3 [28.6–29.9]  |
| <b>Elective caesarean birth</b>                  |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 2 254/13 272       | 2 141/13 867     | 2 007/13 583     | 2 154/15 682     | 2 631/18 499      |
| Crude rate [95% CI] (%)                          | 17.0 [16.3–17.6]   | 15.4 [14.8–16.0] | 14.8 [14.2–15.4] | 13.7 [13.2–14.3] | 14.2 [13.7–14.7]  |
| <b>Emergency caesarean birth</b>                 |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 2 072/13 272       | 2 266/13 867     | 2 197/13 583     | 2 501/15 682     | 2 781/18 499      |
| Crude rate [95% CI] (%)                          | 15.6 [15.0–16.2]   | 16.3 [15.7–17.0] | 16.2 [15.6–16.8] | 15.9 [15.4–16.5] | 15.0 [14.5–15.5]  |
| <b>Birth without intervention (definition 2)</b> |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 3 745/11 898       | 3 896/12 349     | 3 974/12 147     | 4 649/14 100     | 5 631/16 480      |
| Crude rate [95% CI] (%)                          | 31.5 [30.6–32.3]   | 31.5 [30.7–32.4] | 32.7 [31.9–33.6] | 33.0 [32.2–33.7] | 34.2 [33.4–34.9]  |
| <b>Episiotomy</b>                                |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 2 594/8 871        | 2 482/9 371      | 2 211/9 275      | 2 422/10 916     | 2 622/12 866      |
| Crude rate [95% CI] (%)                          | 29.2 [28.3–30.2]   | 26.5 [25.6–27.4] | 23.8 [23.0–24.7] | 22.2 [21.4–23.0] | 20.4 [19.7–21.1]  |
| <b>Third/fourth degree tear</b>                  |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 444/8 933          | 384/9 436        | 322/9 338        | 335/11 004       | 309/13 061        |
| Crude rate [95% CI] (%)                          | 4.97 [4.52–5.42]   | 4.07 [3.67–4.47] | 3.45 [3.08–3.82] | 3.04 [2.72–3.37] | 2.37 [2.11–2.63]  |
| <b>VBAC attempted (among those eligible)</b>     |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                        | 407/1 322          | 419/1 348        | 339/1 185        | 387/1 223        | 356/1 358         |
| Crude rate [95% CI] (%)                          | 30.8 [28.3–33.3]   | 31.1 [28.6–33.6] | 28.6 [26.0–31.2] | 31.6 [29.0–34.3] | 26.2 [23.9–28.6]  |

NMPA: Ethnic and socioeconomic inequalities

| Measure   | IMD <sup>b</sup>    |                     |                     |                     |                     |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|
|   | 1 = least deprived  | 2                   | 3                   | 4                   | 5 = most deprived   |
| <b>VBAC successful (among those who attempted VBAC)</b> |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 203/407             | 206/419             | 154/339             | 178/387             | 160/356             |
| Crude rate [95% CI] (%)                                 | 49.9 [45.0–54.7]    | 49.2 [44.4–54.0]    | 45.4 [40.1–50.7]    | 46.0 [41.0–51.0]    | 44.9 [39.8–50.1]    |
| <b>Overall VBAC (among those eligible)</b>              |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 204/1 325           | 206/1 356           | 154/1 191           | 178/1 226           | 160/1 358           |
| Crude rate [95% CI] (%)                                 | 15.4 [13.5–17.3]    | 15.2 [13.3–17.1]    | 12.9 [11.0–14.8]    | 14.5 [12.5–16.5]    | 11.8 [10.1–13.5]    |
| <b>Unplanned maternal readmission</b>                   |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 450/13 282          | 484/13 872          | 424/13 587          | 493/15 688          | 599/18 510          |
| Crude rate [95% CI] (%)                                 | 3.39 [3.08–3.70]    | 3.49 [3.18–3.79]    | 3.12 [2.83–3.41]    | 3.14 [2.87–3.42]    | 3.24 [2.98–3.49]    |
| <b>SGA at/after 40 weeks of gestation</b>               |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 424/8 933           | 480/9 436           | 534/9 338           | 750/11 004          | 1 167/13 061        |
| Crude rate [95% CI] (%)                                 | 58.3 [53.6–62.9]    | 52.1 [47.6–56.6]    | 51.3 [47.1–55.6]    | 50.1 [46.6–53.7]    | 47.4 [44.5–50.3]    |
| <b>Apgar score &lt;7 at 5 minutes</b>                   |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 171/13 116          | 166/13 664          | 205/13 367          | 241/15 441          | 295/18 153          |
| Crude rate [95% CI] (%)                                 | 1.30 [1.11–1.50]    | 1.21 [1.03–1.40]    | 1.53 [1.33–1.74]    | 1.56 [1.37–1.76]    | 1.63 [1.44–1.81]    |
| <b>Breast milk at first feed</b>                        |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 8 154/9 713         | 7 692/10 100        | 6 675/9 688         | 6 014/10 234        | 4 595/9 448         |
| Crude rate [95% CI] (%)                                 | 83.9 [83.2–84.7]    | 76.2 [75.3–77.0]    | 68.9 [68.0–69.8]    | 58.8 [57.8–59.7]    | 48.6 [47.6–49.6]    |
| <b>Breast milk at discharge</b>                         |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 10 735/13 912       | 9 956/14 569        | 8 396/14 178        | 7 945/16 501        | 7 313/19 383        |
| Crude rate [95% CI] (%)                                 | 77.2 [76.5–77.9]    | 68.3 [67.6–69.1]    | 59.2 [58.4–60.0]    | 48.1 [47.4–48.9]    | 37.7 [37.0–38.4]    |
| <b>Neonatal unit admission at term</b>                  |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 586/9 891           | 665/11 286          | 682/11 010          | 813/12 902          | 994/16 609          |
| Crude rate [95% CI] (%)                                 | 5.92 [5.46–6.39]    | 5.89 [5.46–6.33]    | 6.19 [5.74–6.64]    | 6.30 [5.88–6.72]    | 5.98 [5.62–6.35]    |
| <b>Preterm neonatal unit admission</b>                  |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 201/468             | 233/549             | 250/574             | 314/793             | 428/1 147           |
| Crude rate [95% CI] (%)                                 | 42.9 [38.5–47.4]    | 42.4 [38.3–46.6]    | 43.6 [39.5–47.6]    | 39.6 [36.2–43.0]    | 37.3 [34.5–40.1]    |
| <b>Mechanical ventilation at term</b>                   |                     |                     |                     |                     |                     |
| Numerator/denominator (n)                               | 30/9 891            | 53/11 286           | 44/11 010           | 53/12 902           | 61/16 609           |
| Crude rate [95% CI] (%)                                 | 0.303 [0.195–0.412] | 0.470 [0.343–0.596] | 0.400 [0.282–0.517] | 0.411 [0.300–0.521] | 0.367 [0.275–0.459] |

NMPA: Ethnic and socioeconomic inequalities

| Measure                   | IMD <sup>b</sup>    |                     |                     |                     |                     |
|---------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                           | 1 = least deprived  | 2                   | 3                   | 4                   | 5 = most deprived   |
| <b>Encephalopathy</b>     |                     |                     |                     |                     |                     |
| Numerator/denominator (n) | 12/10 282           | 17/11 740           | 16/11 488           | 14/13 543           | 16/17 576           |
| Crude rate [95% CI] (%)   | 0.117 [0.051–0.183] | 0.145 [0.076–0.214] | 0.139 [0.071–0.207] | 0.103 [0.049–0.158] | 0.091 [0.046–0.136] |

<sup>b</sup> The IMD quintile is derived from the recorded standardised socio-economic IMD rank of the individual's local area based on their postcode.<sup>3</sup> As the areas used are of different granularity, the three individual countries are not directly comparable.

# Results for Wales

**Table 7** Results for Wales stratified by Ethnic group

| Measure  | Ethnic group <sup>a</sup> |                  |                  |                  |
|--|---------------------------|------------------|------------------|------------------|
|  | White                     | South Asian      | Black            | Other            |
| <b>Spontaneous vaginal birth</b>                 |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 14 344/22 159             | 509/836          | 224/370          | 984/1 516        |
| Crude rate [95% CI] (%)                          | 64.7 [64.1–65.4]          | 60.9 [57.6–64.2] | 60.5 [55.6–65.5] | 64.9 [62.5–67.3] |
| <b>Induction of labour</b>                       |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 7 525/22 159              | 248/836          | 96/370           | 453/1 516        |
| Crude rate [95% CI] (%)                          | 34.0 [33.3–34.6]          | 29.7 [26.6–32.8] | 25.9 [21.5–30.4] | 29.9 [27.6–32.2] |
| <b>Assisted vaginal birth</b>                    |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 2 319/22 134              | 112/836          | 39/369           | 177/1 513        |
| Crude rate [95% CI] (%)                          | 10.5 [10.1–10.9]          | 13.4 [11.1–15.7] | 10.6 [7.4–13.7]  | 11.7 [10.1–13.3] |
| <b>Caesarean birth (any)</b>                     |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 5 471/22 134              | 215/836          | 106/369          | 352/1 513        |
| Crude rate [95% CI] (%)                          | 24.7 [24.1–25.3]          | 25.7 [22.8–28.7] | 28.7 [24.1–33.3] | 23.3 [21.1–25.4] |
| <b>Elective caesarean birth</b>                  |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 2 616/22 134              | 91/836           | 52/369           | 168/1 513        |
| Crude rate [95% CI] (%)                          | 11.8 [11.4–12.2]          | 10.9 [8.8–13.0]  | 14.1 [10.5–17.6] | 11.1 [9.5–12.7]  |
| <b>Emergency caesarean birth</b>                 |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 2 855/22 134              | 124/836          | 54/369           | 184/1 513        |
| Crude rate [95% CI] (%)                          | 12.9 [12.5–13.3]          | 14.8 [12.4–17.2] | 14.6 [11.0–18.2] | 12.2 [10.5–13.8] |
| <b>Birth without intervention (definition 2)</b> |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 1 460/4 474               | 15/43            | 5/13             | 37/146           |
| Crude rate [95% CI] (%)                          | 32.6 [31.3–34.0]          | 34.9 [20.6–49.1] | 38.5 [12.0–64.9] | 25.3 [18.3–32.4] |
| <b>Episiotomy</b>                                |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 3 163/16 043              | 151/609          | 55/256           | 246/1 141        |
| Crude rate [95% CI] (%)                          | 19.7 [19.1–20.3]          | 24.8 [21.4–28.2] | 21.5 [16.5–26.5] | 21.6 [19.2–23.9] |
| <b>Third/fourth degree tear</b>                  |                           |                  |                  |                  |
| Numerator/denominator (n)                        | 415/12 821                | 28/569           | 9/250            | 22/1 005         |
| Crude rate [95% CI] (%)                          | 3.24 [2.93–3.54]          | 4.92 [3.14–6.70] | 3.60 [1.29–5.91] | 2.19 [1.28–3.09] |

NMPA: Ethnic and socioeconomic inequalities

| Measure   | Ethnic group <sup>a</sup> |                  |                  |                  |
|---|---------------------------|------------------|------------------|------------------|
|   | White                     | South Asian      | Black            | Other            |
| <b>Postpartum haemorrhage ≥1500 ml</b>                  |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 814/21 800                | 25/830           | 11/370           | 49/1 505         |
| Crude rate [95% CI] (%)                                 | 3.73 [3.48–3.99]          | 3.01 [1.85–4.17] | 2.97 [1.24–4.70] | 3.26 [2.36–4.15] |
| <b>VBAC attempted (among those eligible)</b>            |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 790/1 872                 | 40/77            | 13/28            | 35/102           |
| Crude rate [95% CI] (%)                                 | 42.2 [40.0–44.4]          | 51.9 [40.8–63.1] | 46.4 [28.0–64.9] | 34.3 [25.1–43.5] |
| <b>VBAC successful (among those who attempted VBAC)</b> |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 436/790                   | 26/40            | 7/13             | 21/35            |
| Crude rate [95% CI] (%)                                 | 55.2 [51.7–58.7]          | 65.0 [50.2–79.8] | 53.8 [26.7–80.9] | 60.0 [43.8–76.2] |
| <b>Overall VBAC (among those eligible)</b>              |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 440/1 872                 | 27/77            | 7/28             | 21/102           |
| Crude rate [95% CI] (%)                                 | 23.5 [21.6–25.4]          | 35.1 [24.4–45.7] | 25.0 [9.0–41.0]  | 20.6 [12.7–28.4] |
| <b>Unplanned maternal readmission</b>                   |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 736/20 380                | 28/778           | 17/344           | 50/1 381         |
| Crude rate [95% CI] (%)                                 | 3.61 [3.36–3.87]          | 3.60 [2.29–4.91] | 4.94 [2.65–7.23] | 3.62 [2.64–4.61] |
| <b>Smoking at birth</b>                                 |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 4 079/23 399              | 13/889           | 9/388            | 191/1 612        |
| Crude rate [95% CI] (%)                                 | 17.4 [16.9–17.9]          | 1.5 [0.7–2.3]    | 2.3 [0.8–3.8]    | 11.8 [10.3–13.4] |
| <b>Smoking cessation</b>                                |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 933/4 839                 | 5/17             | 5/14             | 64/251           |
| Crude rate [95% CI] (%)                                 | 19.3 [18.2–20.4]          | 29.4 [7.8–51.1]  | 35.7 [10.6–60.8] | 25.5 [20.1–30.9] |
| <b>SGA at/after 40 weeks of gestation</b>               |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 689/1 257                 | 62/101           | 20/30            | 61/104           |
| Crude rate [95% CI] (%)                                 | 54.8 [52.1–57.6]          | 61.4 [51.9–70.9] | 66.7 [49.8–83.5] | 58.7 [49.2–68.1] |
| <b>Apgar score &lt;7 at 5 minutes</b>                   |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 286/22 014                | 7/829            | 6/364            | 9/1506           |
| Crude rate [95% CI] (%)                                 | 1.30 [1.15–1.45]          | 0.84 [0.22–1.47] | 1.65 [0.34–2.96] | 0.60 [0.21–0.99] |
| <b>Breast milk at first feed</b>                        |                           |                  |                  |                  |
| Numerator/denominator (n)                               | 12 928/22 389             | 669/842          | 299/368          | 1 131/1 551      |
| Crude rate [95% CI] (%)                                 | 57.7 [57.1–58.4]          | 79.5 [76.7–82.2] | 81.2 [77.3–85.2] | 72.9 [70.7–75.1] |

<sup>a</sup> Ethnic group is recorded in the NMPA dataset using ONS 16+1 categories from 2001 UK census<sup>2</sup> and subsequently collapsed into four categories.

**Table 8** Results for Wales stratified by IMD

| Measure                                | IMD <sup>b</sup>   |                  |                  |                  |                   |
|--|--------------------|------------------|------------------|------------------|-------------------|
|  | 1 = least deprived | 2                | 3                | 4                | 5 = most deprived |
| <b>Spontaneous vaginal birth</b>       |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 2 500/4 082        | 2 424/3 956      | 3 002/4 622      | 3 545/5 464      | 4 590/6 757       |
| Crude rate [95% CI] (%)                | 61.2 [59.7–62.7]   | 61.3 [59.8–62.8] | 65.0 [63.6–66.3] | 64.9 [63.6–66.1] | 67.9 [66.8–69.0]  |
| <b>Induction of labour</b>             |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 1 277/4 082        | 1 297/3 956      | 1 521/4 622      | 1 925/5 464      | 2 302/6 757       |
| Crude rate [95% CI] (%)                | 31.3 [29.9–32.7]   | 32.8 [31.3–34.2] | 32.9 [31.6–34.3] | 35.2 [34.0–36.5] | 34.1 [32.9–35.2]  |
| <b>Assisted vaginal birth</b>          |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 549/4 079          | 447/3 948        | 491/4 616        | 549/5 462        | 611/6 747         |
| Crude rate [95% CI] (%)                | 13.5 [12.4–14.5]   | 11.3 [10.3–12.3] | 10.6 [9.7–11.5]  | 10.1 [9.3–10.8]  | 9.1 [8.4–9.7]     |
| <b>Caesarean birth (any)</b>           |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 1 030/4 079        | 1 077/3 948      | 1 123/4 616      | 1 368/5 462      | 1 546/6 747       |
| Crude rate [95% CI] (%)                | 25.3 [23.9–26.6]   | 27.3 [25.9–28.7] | 24.3 [23.1–25.6] | 25.0 [23.9–26.2] | 22.9 [21.9–23.9]  |
| <b>Elective caesarean birth</b>        |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 554/4 079          | 507/3 948        | 526/4 616        | 618/5 462        | 722/6 747         |
| Crude rate [95% CI] (%)                | 13.6 [12.5–14.6]   | 12.8 [11.8–13.9] | 11.4 [10.5–12.3] | 11.3 [10.5–12.2] | 10.7 [10.0–11.4]  |
| <b>Emergency caesarean birth</b>       |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 476/4 079          | 570/3 948        | 597/4 616        | 750/5 462        | 824/6 747         |
| Crude rate [95% CI] (%)                | 11.7 [10.7–12.7]   | 14.4 [13.3–15.5] | 12.9 [12.0–13.9] | 13.7 [12.8–14.6] | 12.2 [11.4–13.0]  |
| <b>Birth without intervention</b>      |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 107/377            | 204/627          | 340/960          | 452/1 418        | 414/1 294         |
| Crude rate [95% CI] (%)                | 28.4 [23.8–32.9]   | 32.5 [28.9–36.2] | 35.4 [32.4–38.4] | 31.9 [29.5–34.3] | 32.0 [29.5–34.5]  |
| <b>Episiotomy</b>                      |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 735/2 966          | 590/2 774        | 672/3 370        | 781/3 967        | 837/4 972         |
| Crude rate [95% CI] (%)                | 24.8 [23.2–26.3]   | 21.3 [19.7–22.8] | 19.9 [18.6–21.3] | 19.7 [18.5–20.9] | 16.8 [15.8–17.9]  |
| <b>Third/fourth degree tear</b>        |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 118/2 469          | 64/1 882         | 88/2 549         | 89/3 238         | 115/4 507         |
| Crude rate [95% CI] (%)                | 4.78 [3.94–5.62]   | 3.40 [2.58–4.22] | 3.45 [2.74–4.16] | 2.75 [2.19–3.31] | 2.55 [2.09–3.01]  |
| <b>Postpartum haemorrhage ≥1500 ml</b> |                    |                  |                  |                  |                   |
| Numerator/denominator (n)              | 174/4 035          | 166/3 880        | 177/4 531        | 198/5 382        | 184/6 677         |
| Crude rate [95% CI] (%)                | 4.31 [3.69–4.94]   | 4.28 [3.64–4.92] | 3.91 [3.34–4.47] | 3.68 [3.18–4.18] | 2.76 [2.36–3.15]  |

NMPA: Ethnic and socioeconomic inequalities

| Measure   | IMD <sup>b</sup>   |                  |                  |                  |                   |
|---|--------------------|------------------|------------------|------------------|-------------------|
|   | 1 = least deprived | 2                | 3                | 4                | 5 = most deprived |
| <b>VBAC attempted (among those eligible)</b>            |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 154/387            | 139/362          | 146/359          | 197/471          | 242/500           |
| Crude rate [95% CI] (%)                                 | 39.8 [34.9–44.7]   | 38.4 [33.4–43.4] | 40.7 [35.6–45.7] | 41.8 [37.4–46.3] | 48.4 [44.0–52.8]  |
| <b>VBAC successful (among those who attempted VBAC)</b> |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 91/154             | 73/139           | 85/146           | 106/197          | 135/242           |
| Crude rate [95% CI] (%)                                 | 59.1 [51.3–66.9]   | 52.5 [44.2–60.8] | 58.2 [50.2–66.2] | 53.8 [46.8–60.8] | 55.8 [49.5–62.0]  |
| <b>Overall VBAC (among those eligible)</b>              |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 93/387             | 74/362           | 86/359           | 107/471          | 135/500           |
| Crude rate [95% CI] (%)                                 | 24.0 [19.8–28.3]   | 20.4 [16.3–24.6] | 24.0 [19.5–28.4] | 22.7 [18.9–26.5] | 27.0 [23.1–30.9]  |
| <b>Unplanned maternal readmission</b>                   |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 134/3 763          | 134/3 624        | 151/4 212        | 178/5 034        | 234/6 250         |
| Crude rate [95% CI] (%)                                 | 3.56 [2.97–4.15]   | 3.70 [3.08–4.31] | 3.59 [3.02–4.15] | 3.54 [3.03–4.05] | 3.74 [3.27–4.21]  |
| <b>Smoking at birth</b>                                 |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 197/4 257          | 452/4 195        | 699/4 878        | 1 085/5 767      | 1 859/7 191       |
| Crude rate [95% CI] (%)                                 | 4.6 [4.0–5.3]      | 10.8 [9.8–11.7]  | 14.3 [13.3–15.3] | 18.8 [17.8–19.8] | 25.9 [24.8–26.9]  |
| <b>Smoking cessation</b>                                |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 74/261             | 116/544          | 178/834          | 276/1 318        | 363/2 164         |
| Crude rate [95% CI] (%)                                 | 28.4 [22.9–33.8]   | 21.3 [17.9–24.8] | 21.3 [18.6–24.1] | 20.9 [18.7–23.1] | 16.8 [15.2–18.3]  |
| <b>SGA at/after 40 weeks of gestation</b>               |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 116/201            | 116/186          | 133/226          | 188/343          | 279/536           |
| Crude rate [95% CI] (%)                                 | 57.7 [50.9–64.5]   | 62.4 [55.4–69.3] | 58.8 [52.4–65.3] | 54.8 [49.5–60.1] | 52.1 [47.8–56.3]  |
| <b>Apgar score &lt;7 at 5 minutes</b>                   |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 39/4 066           | 44/3 925         | 58/4 587         | 73/5 433         | 94/6 702          |
| Crude rate [95% CI] (%)                                 | 0.96 [0.66–1.26]   | 1.12 [0.79–1.45] | 1.26 [0.94–1.59] | 1.34 [1.04–1.65] | 1.40 [1.12–1.68]  |
| <b>Breast milk at first feed</b>                        |                    |                  |                  |                  |                   |
| Numerator/denominator (n)                               | 3 131/4 099        | 2 760/4 021      | 2 916/4 682      | 3 001/5 510      | 3 219/6 838       |
| Crude rate [95% CI] (%)                                 | 76.4 [75.1–77.7]   | 68.6 [67.2–70.1] | 62.3 [60.9–63.7] | 54.5 [53.1–55.8] | 47.1 [45.9–48.3]  |

<sup>b</sup> The IMD quintile is derived from the recorded standardised socio-economic IMD rank of the individual's local area based on their postcode.<sup>3</sup> As the areas used are of different granularity, the three individual countries are not directly comparable.