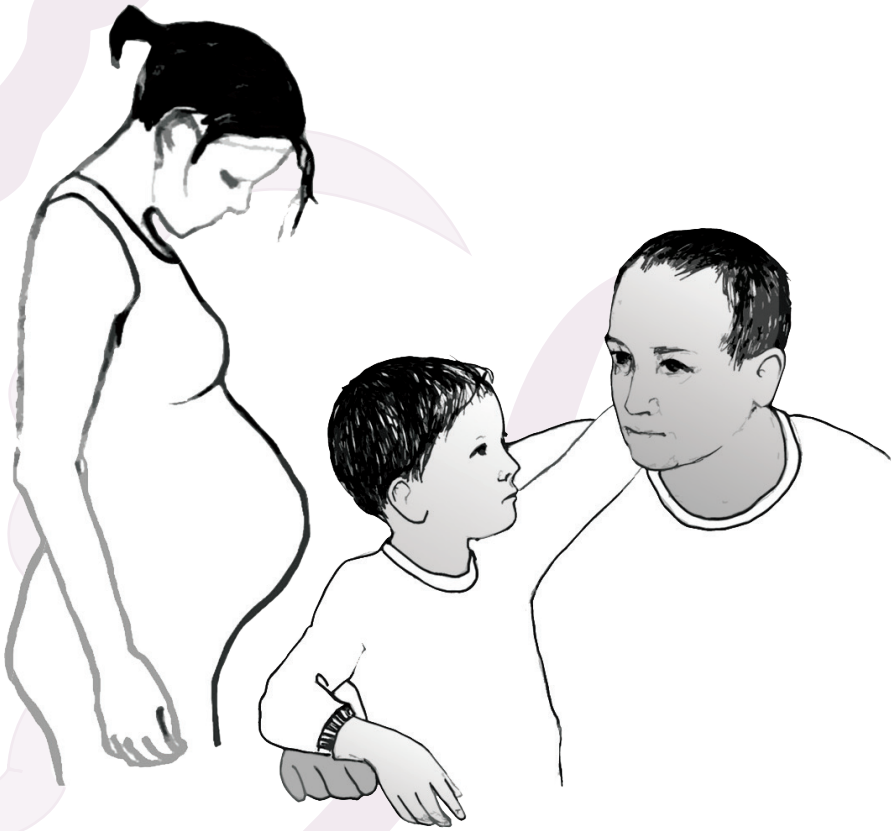
Maternal, Newborn and Infant Clinical Outcome Review Programme

MBRRACE-UK
Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK

MBRRACE-UK
Perinatal Mortality Surveillance Report

UK Perinatal Deaths for Births from January to December 2016

Summary Report



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January to December 2016

Summary Report

Elizabeth S Draper, Ian D Gallimore, Jennifer J Kurinczuk,
Peter W Smith, Thomas Boby, Lucy K Smith, Bradley N Manktelow

on behalf of the MBRRACE-UK collaboration

June 2018

Department of Health Sciences
University of Leicester
George Davies Centre
University Road
Leicester LE1 7RH

Funding

The Healthcare Quality Improvement Partnership (HQIP) is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement in patient outcomes and, in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP), comprising around 40 projects covering care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual projects, other devolved administrations and crown dependencies.

More details can be found at: www.hqip.org.uk/national-programmes.

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Introduction to Summary Report

This is the summary of the MBRRACE-UK Perinatal Mortality Surveillance Report for births in 2016 within the United Kingdom and the Crown Dependencies. The full report is only available as a downloadable document, which can be found on the MBRRACE-UK website (https://www.npeu.ox.ac.uk/mbrrace-uk/reports).

This summary report contains the Executive Summary (including the Key Findings and Recommendations) together with a summary of births and extended perinatal deaths in the UK and Crown Dependencies and the reported mortality rates for Trusts and Health Boards in the UK.

Acknowledgements

It is with grateful thanks that the MBRRACE-UK collaboration would like to acknowledge the contribution of the many healthcare professionals and staff from the health service and other organisations who were involved in the reporting of perinatal deaths in the UK. Without the generous contribution of their time and expertise it would not have been possible to produce this report. It is only through this collaborative effort that it has been possible to conduct this national perinatal mortality surveillance and to continue the UK tradition of national self-audit to improve care for mothers, babies and their families. Particular thanks go to:

- All MBRRACE-UK Lead Reporters and other staff in NHS Trusts, Health Boards and Health and Social Care Trusts across the UK and those from the Crown Dependencies, whose contribution made it possible to carry out this surveillance
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- Health and Social Services Department, States of Guernsey
- Health Intelligence Unit, Public Health Services, Jersey
- NHS Digital
- The Maternal, Newborn and Infant Clinical Outcome Review Independent Advisory Group
- Healthcare Quality Improvement Partnership
- MBRRACE-UK Third Sector Stakeholder Group Representatives
- MBRRACE-UK Royal College and Professional Association Stakeholder Group Representatives

Foreword

In this, the publication of the fourth year of MBRRACE-UK perinatal mortality surveillance data, I am pleased that alongside presenting the data for deaths in 2016, we are now able to report further information about time trends. However, before reflecting on the statistics it's important that we remember that each number in this report represents the tragic death of a much wanted baby, two bereaved parents, other grieving family members, and a future life full of promise never realised.

At first sight the headline figures appear a little disappointing with the overall national extended perinatal mortality rate in 2016 being essentially unchanged from 2015. However, taking the long view, we can see that over the past four years, since we began reporting MBRRACE-UK data, the rate has decreased overall such that things are generally moving in the right direction. We must also remember that these overall national rates do not take into account the increasing clinical and social complexity of the women and babies for whom our maternity and neonatal services provide care. Furthermore, national initiatives, for example, the Saving Babies' Lives Stillbirth Care Bundle in England, was only launched in 2016 and therefore we cannot expect to see an impact of this initiative in the 2016 data reported here.

Nevertheless, we must not be complacent. We know from the findings of the MBRRACE-UK confidential enquiry into term intrapartum deaths (published in November last year) that improvements in care which may have made a difference to the outcome were evident in about 80% of the deaths reviewed, and from the earlier enquiry into term antepartum stillbirths that potential improvements were identified in 60% of the deaths. These findings suggest that with improvements to the organisation and systems of care provided to mothers and their babies, a decrease in the mortality rate of babies reaching term is indeed possible.

The figures in this report also highlight that in order to make substantial inroads into the overall perinatal mortality rate and meet the various national ambitions, stretch aims and aspirations, there will need to be a greater focus on preterm mortality. About 70% of all extended perinatal deaths occur before term and nearly 40% occur extremely preterm at less than 28 weeks' gestation. Compared with babies who die at term, the circumstances of care and the train of events prior to death are likely to be different for the majority of deaths preterm. So whilst the improvements in care designed to prevent deaths at term are likely to have some an impact on preterm deaths, other strategies will also be required to prevent births and deaths earlier in pregnancy.

Importantly, we also need to acknowledge the contribution of congenital anomalies at 1 in 6 of all extended perinatal deaths, recognising that for the majority of babies with anomalies who die, their deaths are likely to be inevitable. Furthermore, we need to remember that for some Trusts and Health Boards, particularly the tertiary centres with neonatal surgical provision, and in Northern Ireland where termination of pregnancy is only legal in exceptional circumstances, the proportion of their deaths associated with congenital anomalies will be much higher than 1 in 6 and this will be reflected in higher neonatal mortality rates in particular. The best that maternity and neonatal services can provide in these circumstances is high quality compassionate and empathic care.

It's well established that babies who are conceived as one of a multiple pregnancy are at greater risk of perinatal death than their singleton counterparts. As such it is heartening to see that since 2014 there has been nearly a halving in the rate of stillbirths in twins and although the reduction in neonatal deaths is smaller at 30% both represent a statistically significant decrease, indicating this is unlikely to be a chance finding. Multiple births will be the subject of the next MBRRACE-UK confidential enquiry which will start shortly and be published in 2019, thereby enabling us to identify service improvements to further narrow the gap in mortality between multiples and singletons.

There is no single solution to reducing the number of babies dying. A complex series of service quality improvements will be required to ensure that every potentially preventable death is indeed prevented. At the same time these solutions must also ensure that this does not result in an unacceptably high rate of intervention across the maternity population, which would bring its own set of unwanted outcomes and complications. To maximise the number of potentially preventable deaths which we actually prevent will require a clear understanding of where improvements in care can be made and for some areas we do require further research.

The national MBRRACE-UK confidential enquiries and the Each Baby Counts reports provide valuable learning and point us in the direction of general service improvements. However, the identification of areas of local service improvement and implementation of the actions needed to achieve these improvements can only come from the learning resulting from robust local reviews of the circumstances, cause and the care provided when a baby has died. We know from both the MBRRACE-UK enquiries and review of local reviews carried out by Each Baby Counts that the quality of many local reviews themselves would benefit from improvement. The development and launch of the national Perinatal Mortality Review Tool (PMRT) earlier this year is designed to support high quality, multidisciplinary local review of the care provided at all stages of the maternity and neonatal pathway on the basis of "review once, review well".

It's important to recognise however, that the PMRT is only a tool and the reports and actions resulting from reviews conducted using the tool will only be as good as the effort and resources put into the review process. Conducting high quality reviews using the PMRT will require a multidisciplinary group with sufficient time set to carry out the reviews, and with sufficient support ahead of the review meeting to gather the necessary information about the care provided in order to enable robust discussions at the meeting. Crucially the PMRT enables the inclusion of the parents' perspectives and any concerns about the care they received so that these can be considered as part of the review process; obtaining these perspectives will require empathic conversations with parents which will also take time and cannot be rushed.

I am delighted to say that at the time of writing, all but one of the Trusts and Health Boards across England, Scotland and Wales have registered to use the PMRT and that 90% have started using the tool to review their deaths. This is a welcome development alongside all the other initiatives underway across the four nations designed to prevent avoidable perinatal deaths and to care for parents whose baby has died.

Professor Jennifer J Kurinczuk

National Programme Lead MBRRACE-UK/PMRT
Director, National Perinatal Epidemiology Unit
Co-director, Policy Research Unit in Maternal Health and Care
Nuffield Department of Population Health
University of Oxford

Definitions used in this report

Late fetal loss	A baby delivered between 22^{+0} and 23^{+6} weeks gestational age showing no signs of life, irrespective of when the death occurred.
Stillbirth	A baby delivered at or after 24^{+0} weeks gestational age showing no signs of life, irrespective of when the death occurred.
Antepartum stillbirth	A baby delivered at or after 24^{+0} weeks gestational age showing no signs of life and known to have died before the onset of care in labour.
Intrapartum stillbirth	A baby delivered at or after 24^{+0} weeks gestational age showing no signs of life and known to have been alive at the onset of care in labour.
Neonatal death	A liveborn baby (born at 20^{+0} weeks gestational age or later, or with a birthweight of 400g or more where an accurate estimate of gestation is not available), who died before 28 completed days after birth.
Early neonatal death	A liveborn baby (born at 20^{+0} weeks gestational age or later, or with a birthweight of 400g or more where an accurate estimate of gestation is not available), who died before 7 completed days after birth.
Late neonatal death	A liveborn baby (born at 20^{+0} weeks gestational age or later, or with a birthweight of 400g or more where an accurate estimate of gestation is not available), who died after 7 completed days but before 28 completed days after birth.
Perinatal death	A stillbirth or early neonatal death.
Extended perinatal death	A stillbirth or neonatal death.
Termination of pregnancy	The deliberate ending of a pregnancy, normally carried out before the embryo or fetus is capable of independent life.

Executive Summary

Background

This is the fourth MBRRACE-UK Perinatal Mortality Surveillance Report and provides information on extended perinatal deaths in the UK and Crown Dependencies arising from births during 2016. MBRRACE-UK are commissioned by the Healthcare Quality Improvement Partnership (HQIP) to undertake the Maternal, Newborn and Infant Clinical Outcome Review Programme (MNI-CORP) on behalf of NHS England, the Welsh Government, the Scottish Government Health and Social Care Directorate, the Northern Ireland Department of Health, the States of Guernsey, the States of Jersey, and the Isle of Man Government.

The aims of the MNI-CORP are to collect, analyse and report national surveillance data and conduct national confidential enquiries in order to stimulate and evaluate improvements in health care for mothers and babies.

As in the surveillance reports for 2013 to 2015, the main report summarised here focuses on the surveillance of all late fetal losses (22^{+0} to 23^{+6} weeks gestational age), stillbirths, and neonatal deaths, with data presented by country, by geographical area (commissioners and individual Sustainability and Transformation Partnerships (STPs) or country of residence), by health care provider (Trusts or Health Boards and Neonatal Networks) and by Local Authority.

The availability of four years of data from across the UK (a cohort of well over two million births) and improving quality of the data submitted to MBRRACE-UK has permitted, in addition, an exploration of:

- time trends in the offer and consent for post-mortems for stillbirths and neonatal deaths;
- a review of referrals to the coroner and procurator fiscal by Neonatal Network;
- time trends in stillbirth, neonatal, and extended perinatal mortality rates for the UK and each of the constituent countries;
- improvements in data quality over time.

Methods

Deaths to be reported to MBRRACE-UK since 1 January 2013 through the secure online reporting system are:

- *late fetal losses*: a baby delivered between 22^{+0} and 23^{+6} weeks gestational age showing no signs of life, irrespective of when the death occurred;
- *stillbirths*: a baby delivered at or after 24^{+0} weeks gestational age showing no signs of life, irrespective of when the death occurred;
- *neonatal deaths*: a liveborn baby (born at 20^{+0} weeks gestational age or later, or with a birthweight of 400g or more where an accurate estimate of gestation is not available) who died before 28 completed days after birth.

Individual level information on all births in the UK is obtained in order to generate mortality rates adjusted for maternal, baby, and socio-demographic risk factors. This information is acquired through the collaboration of the following organisations: Patient Demographic Service (PDS) and Office for National Statistics (ONS) birth registration data (for England, Wales, and the Isle of Man); National Records Scotland (NRS) and Information Services Division (ISD) (for Scotland); Northern Ireland Maternity System (NIMATS) (for Northern Ireland); the Health and Social Services Department (for the Bailiwick of Guernsey); and Health Intelligence Unit (for the Bailiwick of Jersey). The data is amalgamated to give a single dataset of births for the whole of the UK and the Crown Dependencies. This data is then amalgamated with the information about the deaths to obtain the final data for analysis.

Analysis

The main findings of the report are represented in a combination of maps and tables showing both the crude and the stabilised & adjusted mortality rates for stillbirths, neonatal deaths, and extended perinatal deaths (stillbirths and neonatal deaths combined). Stabilisation is designed to take account of some of the random variation inherent in this type of data and adjustment takes account of some of the factors known to affect perinatal mortality rates in particular populations, e.g. the level of social deprivation.

In order to ensure comparability of mortality rates, data is shown after excluding births occurring at less than 24^{+0} weeks gestational age and terminations of pregnancy. Analysis of data for countries, commissioning organisations, Local Authorities, and populations covered by STPs is based on mother's postcode at the time of birth. Analysis of data for Trusts and Health Boards as well as Neonatal Networks is based on the place of birth. For comparison purposes, the mortality rates for individual organisations are presented compared to the UK average, except for Trusts and Health Boards where the average mortality in organisations providing similar levels of services is used.

This year's report contains for the first time national gestation specific numbers and mortality rates for babies born at 22^{+0} to 23^{+6} weeks gestational age.

Key findings

1. There has been little change in the rate of extended perinatal mortality in the UK in 2016: 5.64 per 1,000 total births for babies born at 24^{+0} weeks gestational age or later compared with 5.61 in 2015. However this represents an overall fall from 6.04 deaths per 1,000 total births in 2013.

2. The stillbirth rate for the UK in 2016 has remained fairly static at 3.93 per 1,000 total births. This follows a three year period of reduction from 4.20 to 3.87 stillbirths per 1,000 total births (2013 to 2015).

3. The rate of neonatal mortality in the UK has shown a slow but steady decline over the period 2013 to 2016 from 1.84 to 1.72 deaths per 1,000 live births.

4. The timing of the reporting of deaths to MBRRACE-UK in 2016 shows a wide variation across the four countries of the UK. Data entry was started within 6 months of a death for 95.1% of cases in Wales, 86.7% in England, 71.7% in Northern Ireland and 64.0% in Scotland.

5. All stabilised & adjusted stillbirth rates for commissioning groups, Trusts and Health Boards, Neonatal Networks and Local Authorities now fall within 10% of the UK or their comparator average. Wider variation is seen for neonatal mortality rates.

6. For the Trusts and Health Boards which care for the most complex pregnancies and deliveries, the reported neonatal mortality rates show a wide variation, with rates of between 1.78 and 3.52 per 1,000 live births in those with level 3 Neonatal Intensive Care Units (NICUs) and surgical provision and significantly lower rates in the small units delivering less than 2,000 births per annum (0.97 to 1.18). This variation reflects both the high risk case-mix in the Trusts and Health Boards with level 3 NICUs and surgical provision which cannot be fully accounted for by stabilisation & adjustment as well as any variation in the quality of care provision.

7. The marked regional variation in crude rates of neonatal mortality for STPs is clear. However, the variation in the stabilised & adjusted rates of neonatal mortality has reduced in 2016, with rates ranging from 1.44 to 2.05 deaths per 1,000 live births.

8. Significant variation in the rates of extended perinatal mortality across the UK persist, even after taking into account the effects of chance and the case-mix differences we are able to account for, with stabilised & adjusted extended perinatal mortality rates for commissioning organisations ranging from 5.32 to 6.29 deaths per 1,000 total births.

9. There has been a small increase in the rate of consent for post-mortem for stillbirth from 47.2% to 49.4% (2014 to 2016) and a small decrease for neonatal deaths from 29.1% to 28.6% over the same period. However, the offer of a post-mortem to parents was reported in almost all stillbirths (97.8%) and for 81.3% of neonatal deaths.

10. There has been a small but non-significant improvement in the percentage of stillbirths in the UK for which placental histology is carried out: 89.9% in 2016 compared to 88.8% in 2015.

11. Relative to singletons there has been a significant reduction in both the stillbirth and neonatal death rate ratios associated with twin pregnancies over the period 2014 to 2016, reducing from 2.8 (95% CI, 2.47 to 3.17) to 1.6 (95% CI, 1.36 to 1.88) for stillbirths and from 4.91 (95% CI, 4.20 to 5.73) to 3.33 (95% CI, 2.80 to 3.98) for neonatal deaths.

12. There is a steady improvement in data quality overall, although there continues to be a problem with the completion of some maternal data especially carbon monoxide exposure monitoring (43.1% complete).

Recommendations

1. In order to achieve the various UK Governments' ambitions renewed efforts need to be focused on reducing stillbirths and continuing the slow but steady decline in neonatal mortality rates observed since 2013.

2. In order to facilitate the close working between MBRRACE-UK and the Perinatal Mortality Review Tool (PMRT), within Trusts and Health Boards all stillbirths and neonatal deaths should be notified to MBRRACE-UK via the joint web-based system as soon as possible following the death.

3. Commissioning organisations should review both their crude and their stabilised & adjusted mortality rates to facilitate the identification of high risk populations and to target interventions for known inequalities.

4. Trusts and Health Boards with a stabilised & adjusted stillbirth, neonatal mortality or extended perinatal mortality rate that falls into the red or amber band should carry out an initial investigation of their data quality and possible contributing local factors.

5. Irrespective of where they fall in the spectrum of national performance all Trusts and Health Boards should use the national PMRT to review all their stillbirths and neonatal deaths.

6. Trusts and Health Boards should ensure that the data provided to MBRRACE-UK is of the highest quality. This is of particular importance for those providing the most complex care to particularly high-risk mothers and babies as this will permit more appropriate sub-analyses and comparisons.

7. A national forum should be established by NHS England, the Scottish government, NHS Wales, and the Northern Ireland Department of Health, in conjunction with professional bodies and national healthcare advisors responsible for clinical standards in relevant specialties, to agree an appropriate benchmark against which stillbirth and neonatal mortality rates should be monitored across the UK. This process should be facilitated by HQIP.

8. Public health initiatives should continue to be developed to reduce the impact of known risk factors for stillbirth and neonatal death; for example, smoking and obesity.

9. Trust and Health Board Perinatal Review groups should focus on the quality of cause of death coding.

10. All parents of babies who die should be provided with unbiased counselling for post-mortem to enable them to make an informed decision.

11. Placental histology should be undertaken for all stillbirths and if possible all anticipated neonatal deaths, preferably by a perinatal pathologist.

12. All Trusts and Health Boards should endeavour to improve the quality and completeness of data reported to MBRRACE-UK and for routine inpatient, and birth and death registration purposes. Children's hospitals should continue to develop and embed systems that allow for consistent liaison with birth hospitals to facilitate the collection of maternal information.

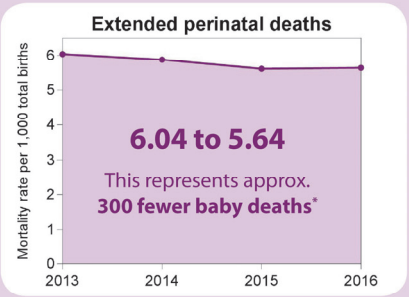
Baby deaths in the UK – the national picture for 2016

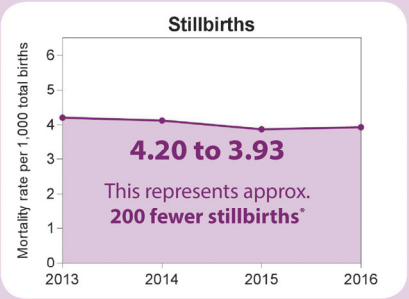
780,043 births
of babies delivered from 24 weeks of pregnancy, excluding terminations of pregnancy

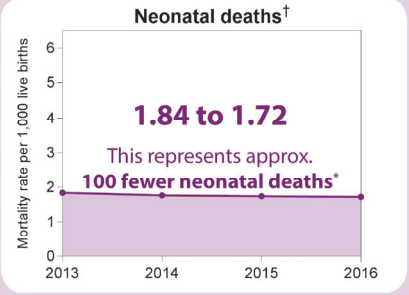
3,065 stillbirths

1,337 neonatal deaths

Overall reduced mortality rates between 2013 and 2016







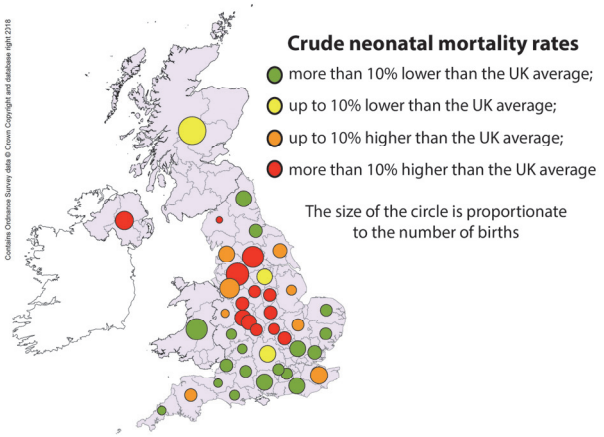
* in 2016 compared with 2013
† a baby born at any time during pregnancy who lives, even briefly, but dies within 4 weeks of birth.

Improved survival for twins

The stillbirth rate in twins has reduced by **almost half** since 2014

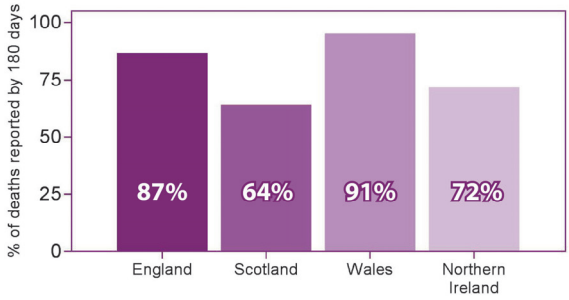
Neonatal deaths in twins have reduced by **almost a third** during the same period

Regional variation still evident in England



Data by STP Footprint (England) and Country (Scotland, Wales and Northern Ireland)

Wide variation in the timing of reporting of deaths to MBRRACE-UK



Post-mortem examination continues to vary between stillbirths and neonatal deaths

Almost all parents of stillborn babies were offfered a post-mortem

Of these parents, **1 in 2** consented to a post-mortem

8 out of 10 parents of babies who died neonatally were offered a post-mortem

Of these parents, **1 in 3** consented to a post-mortem

Placental histology was carried out for:

9 out of 10 stillbirths

but for only

7 out of 10 neonatal deaths which occurred on day 1, or were related to problems during delivery

Perinatal mortality rates in the UK: 2016

The data in this summary report relates to the information available for the UK about the rates of stillbirth, neonatal death, and extended perinatal death (stillbirth and neonatal deaths combined) for births that occurred in 2016 at 24^{+0} weeks gestational age or later (excluding terminations of pregnancy).

Deaths reported to MBRRACE-UK are:

- *late fetal losses*: a baby delivered between 22^{+0} and 23^{+6} weeks gestational age showing no signs of life, irrespective of when the death occurred;
- *stillbirths*: a baby delivered at or after 24^{+0} weeks gestational age showing no signs of life, irrespective of when the death occurred;
- *neonatal deaths*: a baby born alive at 20^{+0} weeks gestational age or later, or with a birthweight of 400g or more (where an accurate estimate of gestation is not available), who died before 28 completed days after birth.

These definitions also include any late fetal loss, stillbirth, or neonatal death resulting from a termination of pregnancy.

In an effort to ensure complete data collection and to facilitate international comparisons, the eligibility criteria for MBRRACE-UK are based on gestational age at delivery irrespective of when the death occurred. Therefore, all births delivered from 22^{+0} weeks gestational age showing no signs of life must be reported, irrespective of when the death occurred; the date of delivery and date of confirmation of death are both reported for these deaths.

In order to facilitate the comparability of mortality rates between organisations, births less than 24^{+0} weeks gestational age and terminations of pregnancy have been excluded from the mortality rates reported in the main maps and tables of the main report and in this summary report. This avoids the influence of the wide disparity in the classification of babies born before 24^{+0} weeks gestational age as a neonatal death or a fetal loss as well as the known variation in the rate of termination of pregnancy for congenital anomaly across the UK. The mortality rates reported include all eligible deaths, including deaths due to congenital anomalies.

However, this year we have also included national mortality rates for the late fetal losses and neonatal deaths of 22 and 23 weeks gestational age in the tables where the numbers and rates of stillbirths, neonatal deaths and extended perinatal mortality are presented by gestational age band (Table 3 and Table 4).

Mortality rates for the UK as a whole, the four countries of the UK, and the Crown Dependencies

The data shown in Table 1 and Table 2 below is derived from a number of sources in addition to the information submitted via the MBRRACE-UK reporting system: ONS, PDS, NRS, ISD, NISRA, Health and Social Services Department (Bailiwick of Guernsey), and the Health Intelligence Unit (Bailiwick of Jersey).

The data shown in these tables this year has been revised from previous reports. Here, the UK total is based on all births for the UK (irrespective of country of residence) whereas the number of births for each individual UK country and the Crown Dependencies is based on those births for which the country of residence of the mother was known.

Using the UK total of births irrespective of country of mother's residence, the total number of births at 24^{+0} weeks or greater gestational age (excluding terminations of pregnancy) in 2016 was slightly lower than in 2015: (780,043 versus 783,144 births, respectively). However, there was a small increase in the total number of stillbirths (3,065 in 2016 compared with 3,032 in 2015) alongside a small decrease in the number of neonatal

deaths (1,337 in 2016 compared with 1,360 in 2015). These combined changes led to a very small increase in the reported mortality rates for 2016 across the UK as a whole; the crude extended perinatal mortality rate was 5.64 per 1,000 total births (5.61 in 2015), comprising 3.93 stillbirths per 1,000 total births (3.87 in 2015) and 1.72 neonatal deaths per 1,000 live births (1.74 in 2015).

In addition to the UK totals, in Table 1 the number of births, stillbirths, neonatal deaths and extended perinatal deaths are shown separately for the four countries of the UK and the Crown Dependencies, based on the mother's country of residence. The associated mortality rates are shown in Table 2. Overall rates of stillbirth and type of stillbirth showed no significant variation between countries. However, in 2016 the rate of stillbirth was highest for Wales at 4.4 per 1,000 total births compared with the other UK countries. Despite the lowest rate of stillbirth being in Scotland (3.67 per 1,000 total births), this was a small increase on their stillbirth rate in 2015 (3.47 per 1,000 total births). Conversely, Wales had the lowest rate of neonatal mortality in 2016 at 1.43 per 1,000 live births, with the highest neonatal mortality rate being in Northern Ireland (2.20 per 1,000 live births). It is important to note that stillbirth and neonatal mortality rates in Northern Ireland are affected by differences in the law relating to termination of pregnancy, with more babies affected by major congenital anomalies being carried into the later stages of pregnancy and resulting in early neonatal deaths (see Chapter 6). The number of babies born in the Crown Dependencies is too few to permit reliable comparison with the four countries of the UK.

Table 1: Number of births, stillbirths, neonatal deaths, and extended perinatal deaths by country of residence: United Kingdom and Crown Dependencies, for births in 2016

Number[§]	UK[^]	England	Scotland	Wales	Northern Ireland[◦]	Crown Dep.
Total births	**780,043**	**665,533**	**54,705**	**33,077**	**24,170**	**2,381**
Live births	**776,978**	**662,922**	**54,504**	**32,930**	**24,074**	**2,373**
Stillbirths	**3,065**	**2,611**	**201**	**147**	**96**	**8**
Antepartum	2,692	2,289	179	128	86	8
Intrapartum	265	229	17	13	6	0
Unknown timing	108	93	5	6	4	0
Neonatal deaths	**1,337**	**1,141**	**92**	**47**	**53**	**3**
Early neonatal deaths	930	789	62	37	38	3
Late neonatal deaths	407	352	30	10	15	0
Perinatal deaths	**3,995**	**3,400**	**263**	**184**	**134**	**11**
Extended perinatal deaths	**4,402**	**3,752**	**293**	**194**	**149**	**11**

[§] excluding terminations of pregnancy and births <24^{+0} weeks gestational age
[^] including the Crown Dependencies
[◦] different laws exist in Northern Ireland for the termination of pregnancy
Data sources: MBRRACE-UK, ONS, PDS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

Table 2: Stillbirth, neonatal, and extended perinatal mortality rates (95% confidence intervals (CIs)) by country of residence: United kingdom and Crown Dependencies, for births in 2016

Rate per 1,000 births[§]	UK[^]	England	Scotland	Wales	Northern Ireland[○]	Crown Dep.
Stillbirths[†]	**3.93**	**3.92**	**3.67**	**4.44**	**3.97**	**3.36**
	(3.79 to 4.07)	**(3.77 to 4.07)**	**(3.17 to 4.18)**	**(3.73 to 5.16)**	**(3.18 to 4.76)**	**(1.04 to 5.68)**
Antepartum[†]	3.45	3.44	3.27	3.87	3.56	3.36
	(3.32 to 3.58)	(3.30 to 3.58)	(2.79 to 3.75)	(3.20 to 4.54)	(2.81 to 4.31)	(1.04 to 5.68)
Intrapartum[†]	0.34	0.34	0.31	0.39	0.25	0.00
	(0.30 to 0.38)	(0.30 to 0.39)	(0.16 to 0.46)	(0.18 to 0.61)	(0.05 to 0.45)	(0.00 to 0.00)
Unknown timing[†]	0.14	0.14	0.09	0.18	0.17	0.00
	(0.11 to 0.16)	(0.11 to 0.17)	(0.01 to 0.17)	(0.04 to 0.33)	(0.00 to 0.33)	(0.00 to 0.00)
Neonatal deaths[‡]	**1.72**	**1.72**	**1.69**	**1.43**	**2.20**	**1.26**
	(1.63 to 1.81)	**(1.62 to 1.82)**	**(1.34 to 2.03)**	**(1.02 to 1.84)**	**(1.61 to 2.79)**	**(0.00 to 2.69)**
Early neonatal deaths[‡]	1.20	1.19	1.14	1.12	1.58	1.26
	(1.12 to 1.27)	(1.11 to 1.27)	(0.85 to 1.42)	(0.76 to 1.49)	(1.08 to 2.08)	(0.00 to 2.69)
Late neonatal deaths[‡]	0.52	0.53	0.55	0.30	0.62	0.00
	(0.47 to 0.57)	(0.48 to 0.59)	(0.35 to 0.75)	(0.12 to 0.49)	(0.31 to 0.94)	(0.00 to 0.00)
Perinatal deaths[†]	**5.12**	**5.11**	**4.81**	**5.56**	**5.54**	**4.62**
	(4.96 to 5.28)	**(4.94 to 5.28)**	**(4.23 to 5.39)**	**(4.76 to 6.36)**	**(4.61 to 6.48)**	**(1.90 to 7.34)**
Extended perinatal deaths[†]	**5.64**	**5.64**	**5.36**	**5.87**	**6.16**	**4.62**
	(5.48 to 5.81)	**(5.46 to 5.82)**	**(4.74 to 5.97)**	**(5.04 to 6.69)**	**(5.18 to 7.15)**	**(1.90 to 7.34)**

[†] per 1,000 total births
[‡] per 1,000 live births
[§] excluding terminations of pregnancy and births <24^{+0} weeks gestational age
[○] different laws exist in Northern Ireland for the termination of pregnancy
[^] including the Crown Dependencies
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

In Table 3 and Table 4 the various categories of stillbirth and neonatal death are shown based on the whole UK data and subdivided by gestational age at birth. This year the details for late fetal losses and neonatal deaths of babies born at 22 and 23 weeks gestational age are also included. Once again this data illustrates the marked impact of preterm birth in relation to both stillbirth and neonatal death rates in the UK, with almost two-thirds of both stillbirths and neonatal deaths being born before 37 weeks gestational age. Of these, around a third of registrable stillbirths (≥24 weeks gestational age) occurred in babies who were very preterm (<28 weeks gestational age) and just under half of neonatal deaths were babies born very preterm, illustrating the size of this problem in the UK. Including babies born at 22^{+0} to 23^{+6} weeks gestation increases the percentage of deaths occurring among babies born preterm to nearly 50% of stillbirths and late fetal losses and 55% of neonatal deaths. Government initiatives to reduce stillbirth and neonatal death rates, if they are to succeed, will need to focus on ways of reducing the number of preterm births.

Table 3: Number of births, stillbirths, neonatal deaths, and extended perinatal deaths by gestational age at birth: United Kingdom and Crown Dependencies, for births in 2016

Number[§]	Gestational age at birth (weeks)					
	22+0-23+6	24+0-27+6	28+0-31+6	32+0-36+6	37+0-41+6○	≥42+0
Total births	**1,040**	**3,269**	**6,620**	**50,371**	**678,093**	**18,277**
Live births	**511**	**2,552**	**6,108**	**49,585**	**677,062**	**18,258**
Stillbirths	**529**	**717**	**512**	**786**	**1,031**	**19**
Antepartum	299	594	468	715	905	10
Intrapartum	171	88	32	46	91	8
Unknown timing	59	35	12	25	35	1
Neonatal deaths	**360**	**404**	**177**	**275**	**468**	**9**
Early neonatal deaths	320	274	133	198	312	9
Late neonatal deaths	40	130	44	77	156	0
Perinatal deaths	**849**	**991**	**645**	**984**	**1,343**	**28**
Extended perinatal deaths	**889**	**1,121**	**689**	**1,061**	**1,499**	**28**

§ excluding terminations of pregnancy
○ births with missing information for gestational ages were excluded (N=23,413)
Data sources: MBRRACE-UK, ONS, PDS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

Table 4: Stillbirth, neonatal, and extended perinatal mortality rates (95% CIs) by gestational age at birth: United Kingdom and Crown Dependencies, for births in 2016

Rate per 1,000 births[§]	Gestational age at birth (weeks)					
	22+0-23+6	24+0-27+6	28+0-31+6	32+0-36+6	37+0-41+6○	≥42+0
Stillbirths[†]	**508.65**	**219.33**	**77.34**	**15.60**	**1.52**	**1.04**
	(478.3 to 539.0)	**(205.2 to 233.5)**	**(70.9 to 83.8)**	**(14.5 to 16.7)**	**(1.4 to 1.6)**	**(0.6 to 1.5)**
Antepartum[†]	287.50	181.71	70.69	14.19	1.33	0.55
	(260.0 to 315.0)	(168.5 to 194.9)	(64.5 to 76.9)	(13.2 to 15.2)	(1.3 to 1.4)	(0.2 to 0.9)
Intrapartum[†]	164.42	26.92	4.83	0.91	0.13	0.44
	(141.9 to 187.0)	(21.4 to 32.5)	(3.2 to 6.5)	(0.7 to 1.2)	(0.1 to 0.2)	(0.1 to 0.7)
Unknown timing[†]	56.73	10.71	1.81	0.50	0.05	0.05
	(42.7 to 70.8)	(7.2 to 14.2)	(0.8 to 2.8)	(0.3 to 0.7)	(0.0 to 0.1)	(0.00 to 0.2)
Neonatal deaths[‡]	**704.50**	**158.31**	**28.98**	**5.55**	**0.69**	**0.49**
	(664.9 to 744.0)	**(144.1 to 172.5)**	**(24.8 to 33.2)**	**(4.9 to 6.2)**	**(0.6 to 0.8)**	**(0.2 to 0.8)**
Early neonatal deaths[‡]	626.22	107.37	21.77	3.99	0.46	0.49
	(587.3 to 668.1)	(95.4 to 119.4)	(18.1 to 25.4)	(3.4 to 4.6)	(0.4 to 0.5)	(0.2 to 0.8)
Late neonatal deaths[‡]	78.28	50.94	7.20	1.55	0.23	0.00
	(55.0 to 101.6)	(42.4 to 59.5)	(5.1 to 9.3)	(1.2 to 1.9)	(0.2 to 0.3)	(0.0 to 0.0)
Perinatal deaths[†]	**816.35**	**303.15**	**97.43**	**19.54**	**1.98**	**1.53**
	(792.8 to 839.8)	**(287.4 to 318.9)**	**(90.3 to 104.6)**	**(18.3 to 20.7)**	**(1.9 to 2.1)**	**(1.0 to 2.1)**
Extended perinatal deaths[†]	**854.81**	**342.92**	**104.08**	**21.06**	**2.21**	**1.53**
	(833.4 to 876.2)	**(326.7 to 359.2)**	**(96.7 to 111.4)**	**(19.8 to 22.3)**	**(2.1 to 2.3)**	**(1.0 to 2.1)**

§ excluding terminations of pregnancy
○ births with missing information for gestational ages were excluded (N=23,413)
† per 1,000 total births
‡ per 1,000 live births
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

Time trends

The data shown in Figure 2 and Table 5 shows the trends in the various mortality rates for the UK and the devolved nations over the four years of the MBRRACE-UK programme: 2013 to 2016. The data is equivalent to that included in Table 1, where the UK total is based on all births for the UK (irrespective of country of residence) and the number of births for each individual UK country and the Crown Dependencies is based on those births for which the country of residence of the mother was known. The smaller devolved nations are most affected by short term variations and so the data for the larger population of the UK as a whole is probably the most informative. There has been a very small increase in the extended perinatal mortality in the UK in 2016 in contrast to the declining trend shown over the first three years of the MBRRACE-UK programme. This due to a small increase in the rate of stillbirth in 2016 with the rate of neonatal mortality remaining largely unchanged.

Figure 1: Stillbirth, neonatal, and extended perinatal mortality rates for the UK and by country of residence: United Kingdom, for births in 2016

† per 1,000 total births
‡ per 1,000 live births
Excluding terminations of pregnancy and births <24^{+0} weeks gestational age
Different laws exist in Northern Ireland for the termination of pregnancy
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

Table 5: Stillbirth, neonatal, and extended perinatal mortality rates for the UK and by country of residence: United Kingdom, for births from 2013 to 2016

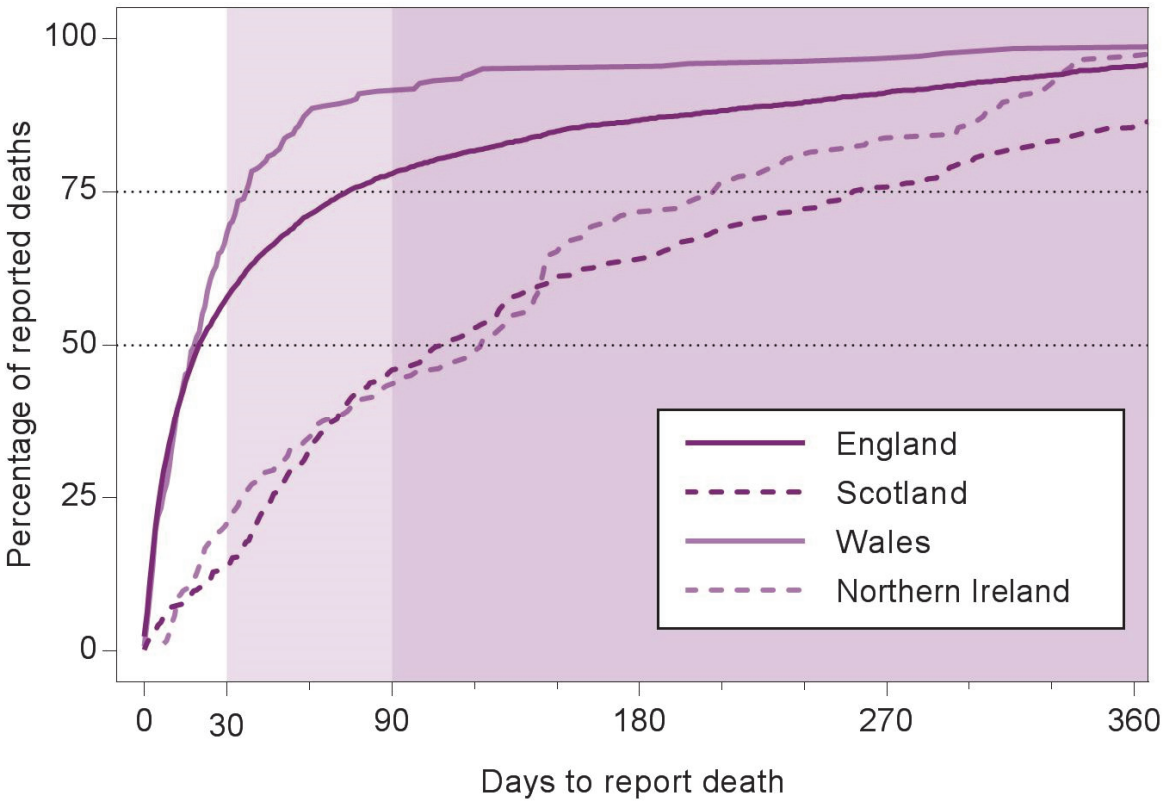
Rate per 1,000 births[§]	UK[^]	England	Scotland	Wales	Northern Ireland[○]	Crown Dep.
Stillbirths[†]						
2013	4.20 (4.06 to 4.35)	4.26 (4.10 to 4.42)	3.78 (3.30 to 4.32)	3.78 (3.18 to 4.50)	4.33 (3.58 to 5.24)	3.25 (1.65 to 6.40)
2014	4.12 (3.98 to 4.326	4.19 (4.04 to 4.35)	3.69 (3.19 to 4.19)	4.71 (3.98 to 5.44)	3.76 (2.99 to 4.52)	1.24 (0.00 to 2.64)
2015	3.87 (3.73 to 4.01)	3.93 (3.78 to 4.08)	3.47 (2.98 to 3.96)	4.10 (3.41 to 4.78)	3.24 (2.53 to 3.95)	1.67 (0.03 to 3.3)
2016	3.93 (3.79 to 4.07)	3.92 (3.77 to 4.07)	3.67 (3.17 to 4.18)	4.44 (3.73 to 5.16)	3.97 (3.18 to 4.76)	3.36 (1.04 to 5.68)
Neonatal deaths[‡]						
2013	1.84 (1.75 to 1.94)	1.83 (1.73 to 1.94)	1.66 (1.36 to 2.04)	1.90 (1.49 to 2.42)	2.44 (1.89 to 3.15)	1.22 (0.42 to 3.59)
2014	1.76 (1.67 to 1.86)	1.73 (1.63 to 1.83)	1.86 (1.51 to 2.22)	1.67 (1.23 to 2.10)	2.99 (2.31 to 3.68)	1.24 (0.00 to 2.65)
2015	1.74 (1.65 to 1.84)	1.71 (1.62 to 1.81)	1.26 (0.96 to 1.55)	2.10 (1.61 to 2.59)	3.21 (2.5 to 3.92)	1.25 (0.00 to 2.67)
2016	1.72 (1.63 to 1.81)	1.72 (1.62 to 1.82)	1.69 (1.34 to 2.03)	1.43 (1.02 to 1.84)	2.2 (1.61 to 2.79)	1.26 (0 to 2.69)
Extended perinatal deaths[†]						
2013	6.04 (5.87 to 6.21)	6.09 (5.90 to 6.28)	5.43 (4.86 to 6.08)	5.68 (4.93 to 6.53)	6.76 (5.81 to 7.87)	4.47 (2.50 to 7.98)
2014	5.88 (5.71 to 6.04)	5.91 (5.73 to 6.10)	5.55 (4.93 to 6.16)	6.37 (5.52 to 7.22)	6.74 (5.71 to 7.76)	2.48 (0.50 to 4.46)
2015	5.61 (5.44 to 5.77)	5.64 (5.46 to 5.81)	4.72 (4.15 to 5.29)	6.19 (5.35 to 7.03)	6.44 (5.44 to 7.44)	2.92 (0.76 to 5.08)
2016	5.64 (5.48 to 5.281	5.64 (5.46 to 5.82)	5.36 (4.74to 5.97)	5.87 (5.04 to 6.69)	6.16 (5.18 to 67.15	4.62 (1.90 to 7.34)

[§] excluding terminations of pregnancy and births <24^{+0} weeks gestational age
[^] including the Crown Dependencies
[○] different laws exist in Northern Ireland for the termination of pregnancy
[†] per 1,000 total births
[‡] per 1,000 live births
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

Timing of reporting

Over the past year the Perinatal Mortality Review Tool has been developed and launched for use across the UK. The web-based system used for MBRRACE-UK and the PMRT are linked to allow for the sharing of data between these two programmes and to prevent the need for any duplicate data entry. In order to maximise the efficiency of this shared data the PMRT is reliant on timely data entry onto the MBRRACE-UK system. Analysis of the timing of the reporting of deaths on the MBRRACE-UK system for 2016 shows a wide variation across the four countries of the UK (see Figure 2). Whilst in both England and Wales data entry for half of their cases is started within 20 days of the occurrence of the death, in Scotland and Northern Ireland cases are started significantly later, with half of the cases only having been started by 108 and 123 days, respectively. By the 180th day following a death, data entry has started for 95.1% cases in Wales, 86.7% in England, 71.7% in Northern Ireland and 64.0% in Scotland. Data entry is carried out centrally in Northern Ireland by the NIMACH office which accounts in part for their delayed reporting.

Figure 2: Timing of reporting of late fetal losses, stillbirths and neonatal deaths via the MBRRACE-UK web-based system in days since death: 2016



Data source: MBRRACE-UK

Mortality rates for individual Trusts and Health Boards

The data presented here summarises the stillbirth, neonatal mortality, and extended perinatal mortality rates for births in 2016 for individual Trusts and Health Boards. Babies have been allocated based on the Trust or Health Board in which they were born irrespective of where they died. These mortality rates are presented in two different ways: as a 'crude' mortality rate and as a 'stabilised & adjusted' mortality rate.

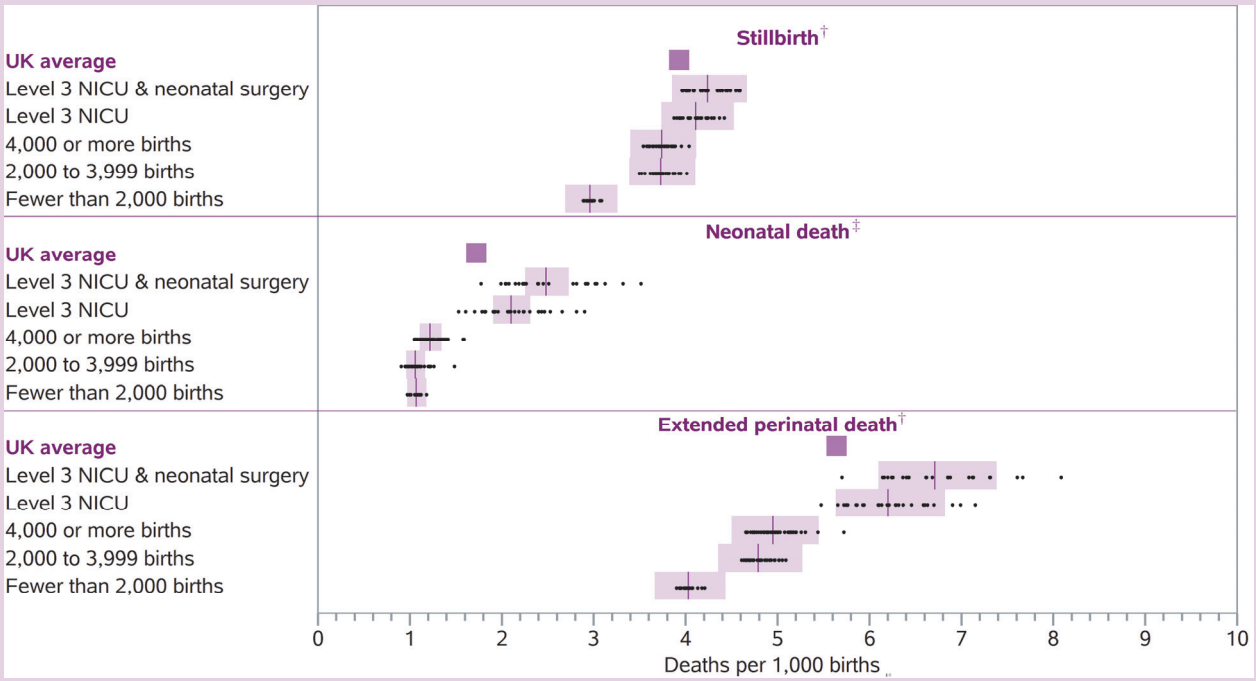
In addition, to account for the wide variation in case-mix, Trusts and Health Boards have been classified hierarchically into five mutually exclusive comparator groups, based on their level of service provision:

1. Level 3 NICU and Neonatal Surgery.
2. Level 3 NICU.
3. 4,000 or more births per annum at 24 weeks or later.
4. 2,000-3,999 births per annum at 24 weeks or later.
5. Under 2,000 births per annum at 24 weeks or later.

In Figure 3 the extent to which this classification reflects the risk profiles of the different types of unit is demonstrated. The average mortality rate for each comparator group is shown as a vertical purple line, with a shaded box representing ±10% from the average.

This categorisation is useful as it allows units to consider their performance in relation to a comparator group of broadly similar units. However, we recognise that there are some limitations in the approach we have taken. This particularly affects units that happen to fall on the boundary between categories and, within the group that provides Level 3 neonatal intensive care and have neonatal surgical provision, i.e. those units which provide intensive care to the most high risk cases. The latter includes units that are the focus for delivery of babies known to have a major cardiac anomaly and those units with a particularly high number of births with major congenital anomalies (e.g. Belfast). Such units will inevitably have higher rates of mortality when compared to otherwise similar services who do not provide intensive care for these types of babies. Individual detailed Trust and Health Board reports are produced to facilitate discussions of the findings from this report at Trust and Health Board level. These have been uploaded onto the MBRRACE-UK web-based system and lead reporters and quality managers have been notified and so are available via MBRRACE-UK reporters.

Figure 3: Stabilised & adjusted mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016



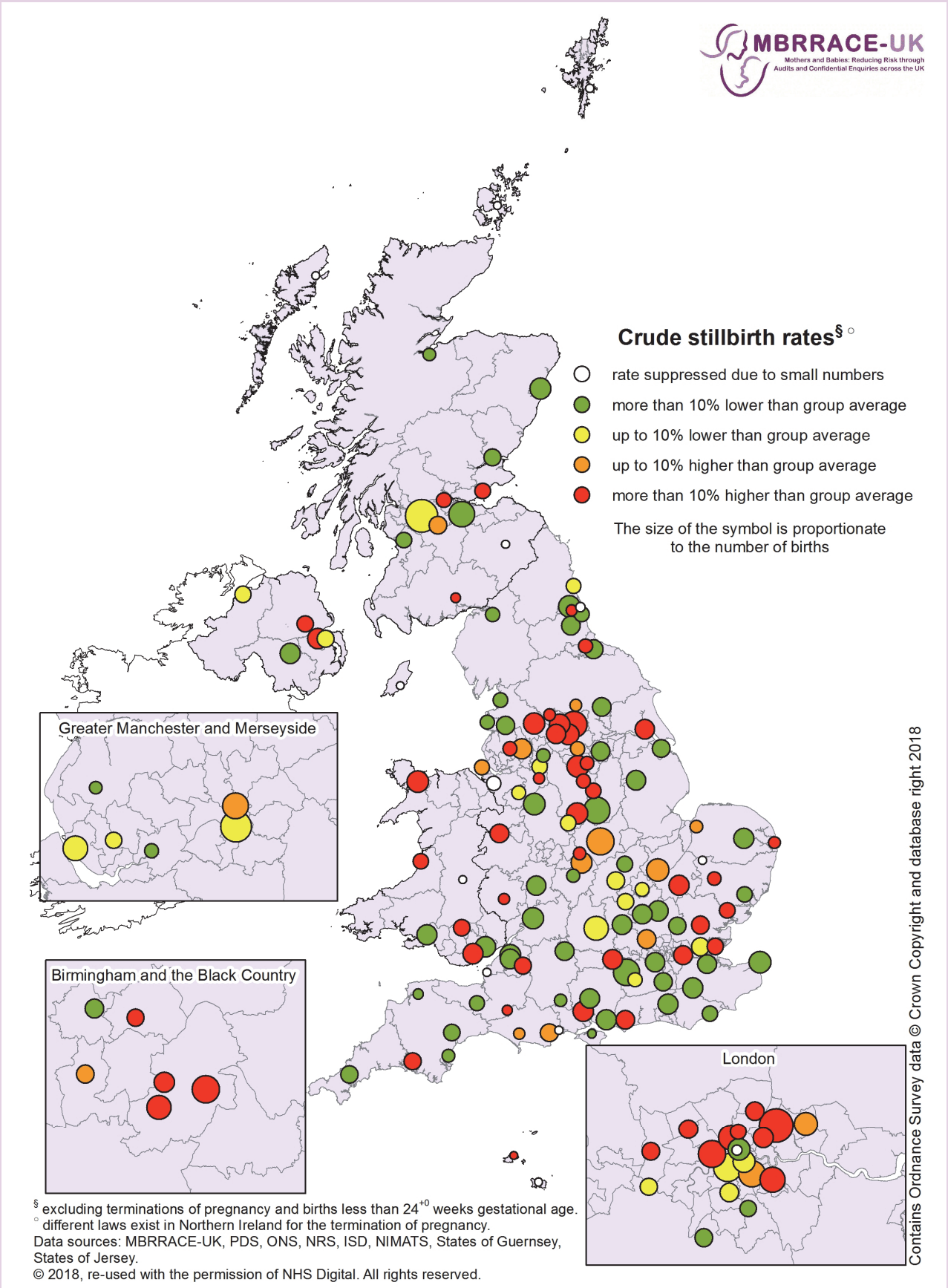
The crude and the stabilised & adjusted stillbirth, neonatal mortality and extended perinatal mortality rates for UK Trusts and Health Boards are presented in Figures 4, 5, 6, 7, 8 and 9 and Tables 6, 7, 8, 9 and 10. E Each of the tables contains data for one of the five comparator groups. The average mortality rate used in each of the five tables is that of the relevant comparator group; for example, the reported mortality rates for Trusts and Health Boards with neonatal surgical provision and Level 3 NICUs have been compared to the average mortality rate derived from all of the Trusts and Health Boards providing this level of care and neonatal surgical provision. It is important to note that this is in contrast to the stabilised & adjusted data presented in the rest of the report relating to commissioning organisations, STPs, neonatal networks and local authorities, where the comparison is in relation to the UK average for births in 2016.

The colour coding used in the maps and tables is:

- green: more than 10% lower than the average;
- yellow: up to 10% lower than the average;
- amber: up to 10% higher than the average;
- red: more than 10% higher than the average.

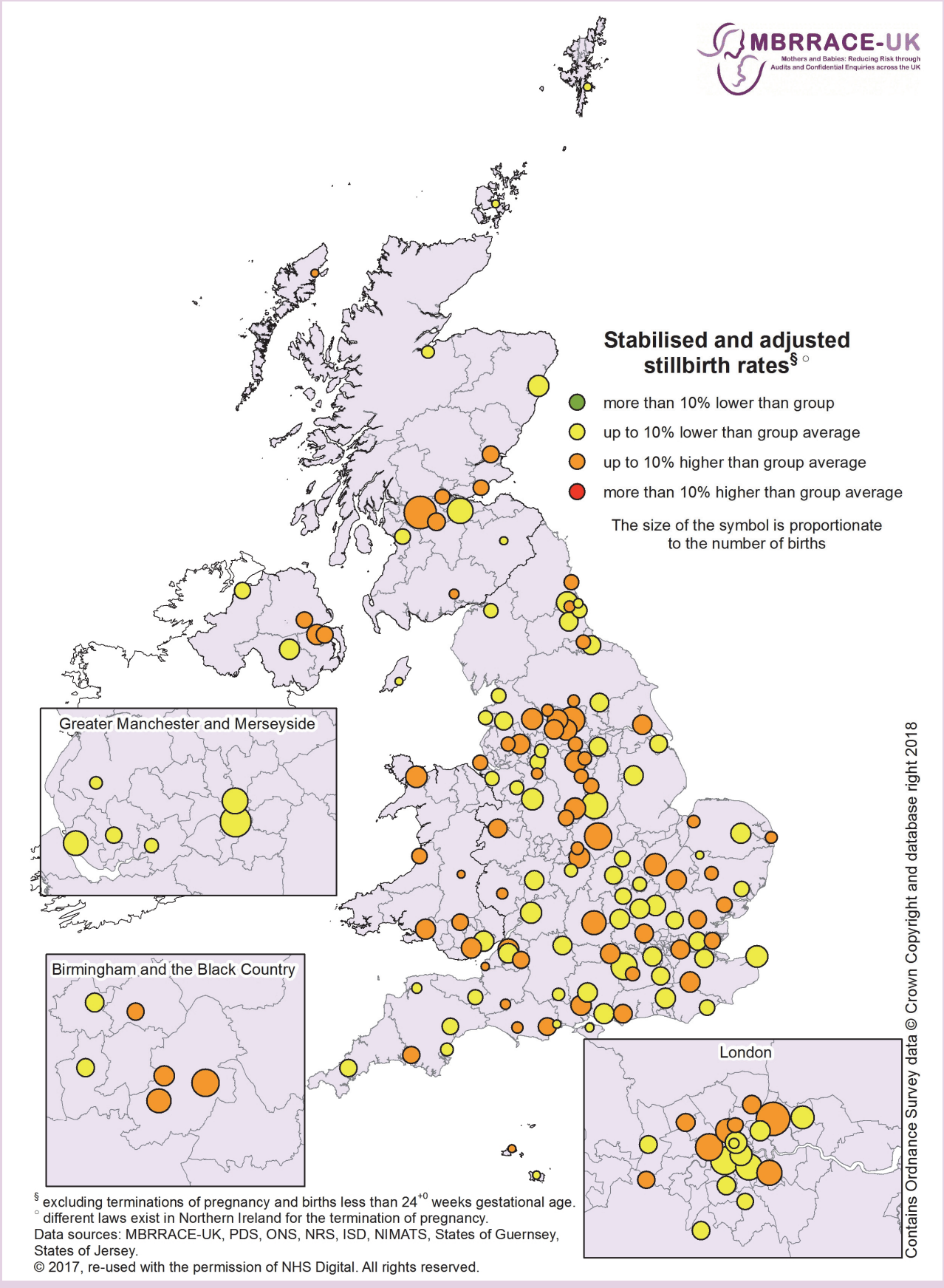
The size of the circles on each map represents the number of births in the population covered by the particular organisation, although there is a minimum size in order that the colour can be adequately seen.

Figure 4: Crude stillbirth mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016



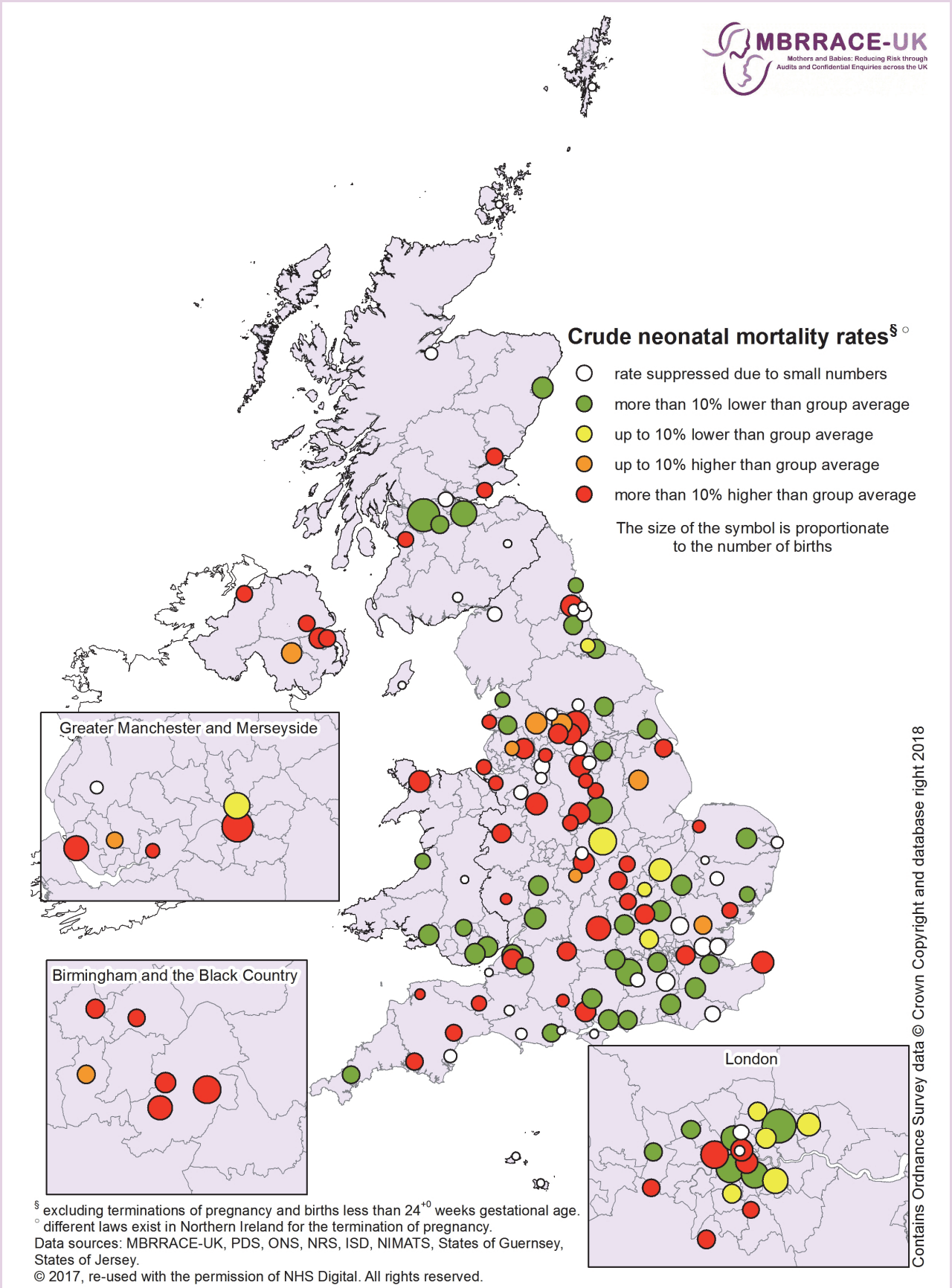
§ excluding terminations of pregnancy and births less than 24^{+0} weeks gestational age.
◦ different laws exist in Northern Ireland for the termination of pregnancy.
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey.

Figure 5: Stabilised & adjusted stillbirth mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016



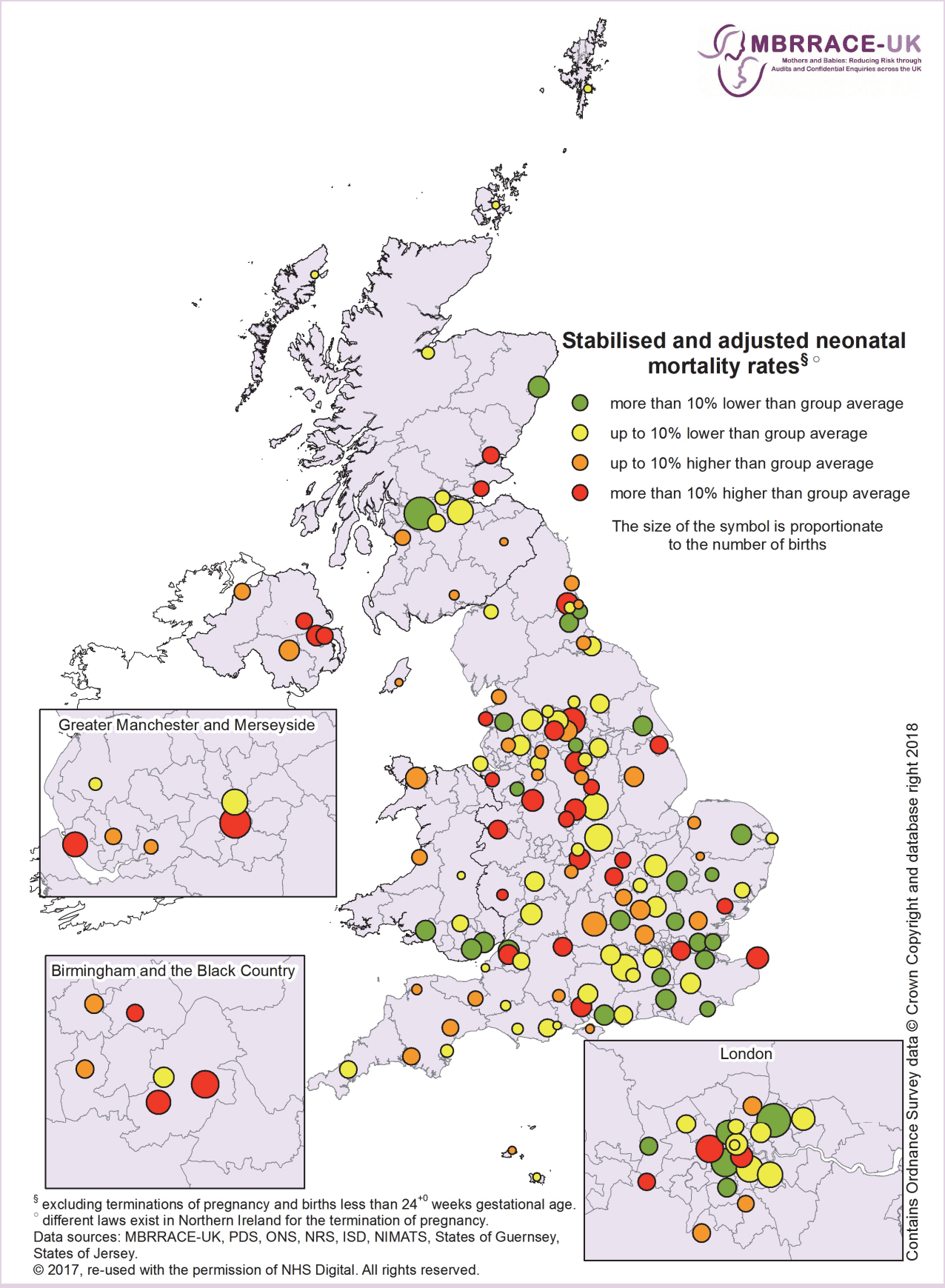
§ excluding terminations of pregnancy and births less than 24^{+0} weeks gestational age.
○ different laws exist in Northern Ireland for the termination of pregnancy.
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey.

Figure 6: Crude neonatal mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016



§ excluding terminations of pregnancy and births less than 24^{+0} weeks gestational age.
◦ different laws exist in Northern Ireland for the termination of pregnancy.
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey.

Figure 7: Stabilised & adjusted neonatal mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016



§ excluding terminations of pregnancy and births less than 24^{+0} weeks gestational age.
◦ different laws exist in Northern Ireland for the termination of pregnancy.
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey.

Figure 8: Crude extended perinatal mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016

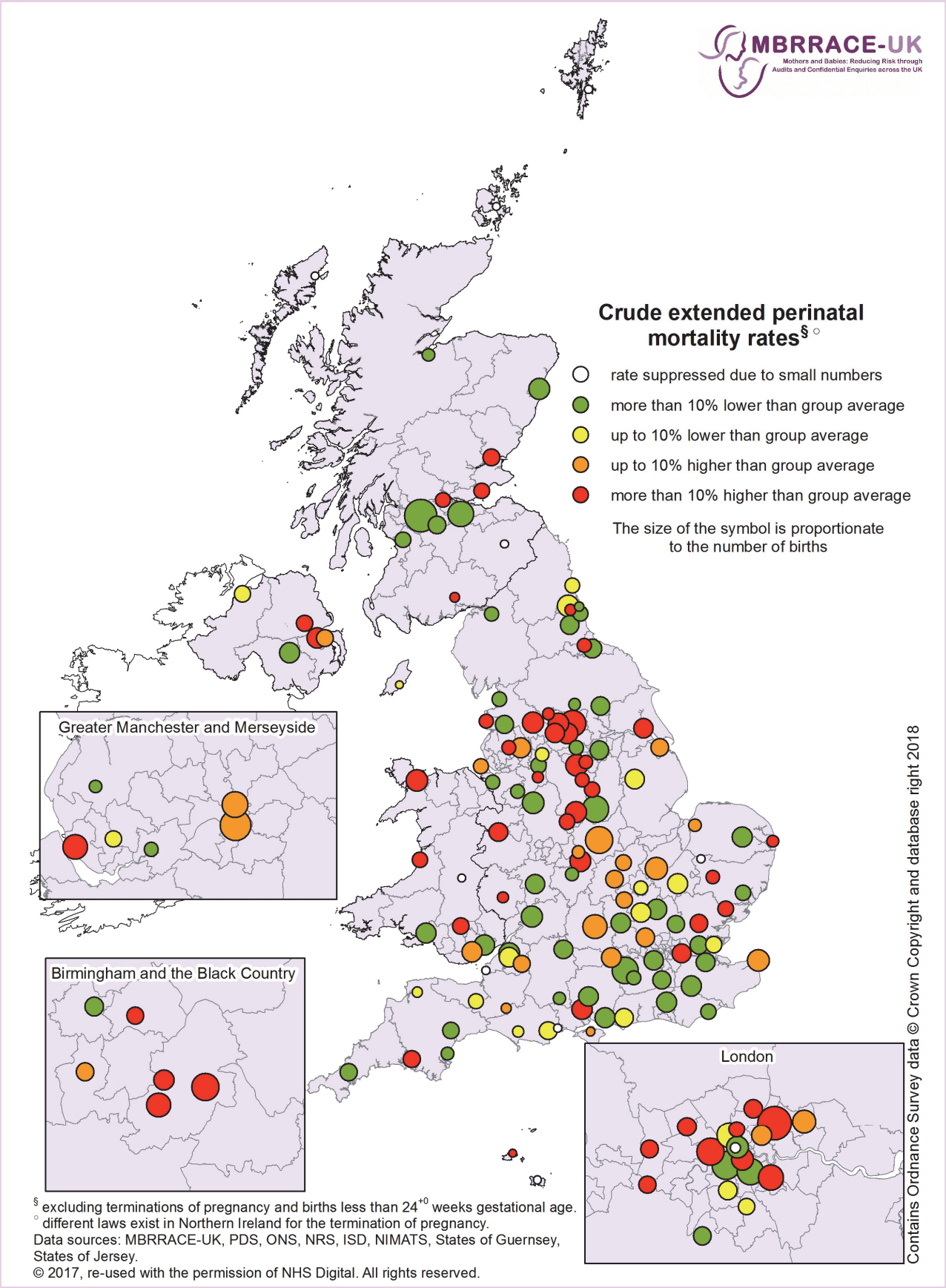
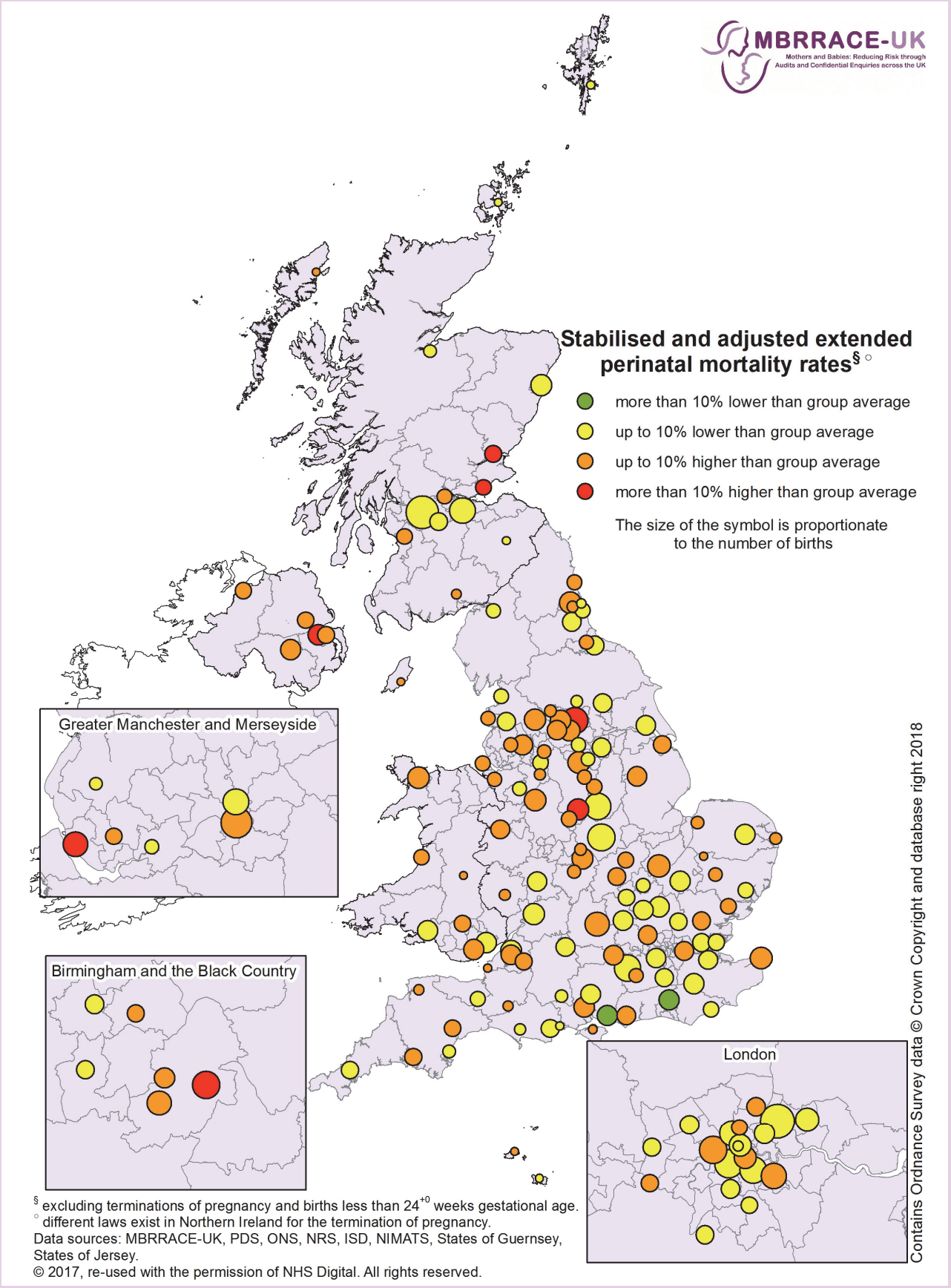


Figure 9: Stabilised & adjusted extended perinatal mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016



§ excluding terminations of pregnancy and births less than 24^{+0} weeks gestational age.
○ different laws exist in Northern Ireland for the termination of pregnancy.
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey.

Table 6: Crude and stabilised & adjusted stillbirth, neonatal, and extended perinatal mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016
FOR TRUSTS AND HEALTH BOARDS WITH NEONATAL SURGICAL PROVISION AND A LEVEL 3 NICU

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
Average for comparator group			4.24		2.48		6.71	
ENGLAND								
Barts Health NHS Trust	16,697	6.17	4.45 (3.76 to 5.41)	2.23	2.19 (1.57 to 3.02)	8.38	6.64 (6.04 to 8.29)	
Birmingham Women's and Children's NHS Foundation Trust	8,397	5.24	4.36 (3.54 to 5.21)	3.95	2.93 (2.15 to 4.28)	9.17	7.32 (6.47 to 9.28)	
Brighton and Sussex University Hospitals NHS Trust	5,873	2.21	4.02 (3.21 to 4.92)	0.68	1.78 (1.12 to 2.75)	2.89	5.72 (4.86 to 7.48)	
Cambridge University Hospitals NHS Foundation Trust	5,734	4.71	4.47 (3.59 to 5.56)	1.58	2.08 (1.40 to 3.05)	6.28	6.43 (5.59 to 8.35)	
Chelsea and Westminster Hospital NHS Foundation Trust	11,479	3.92	4.10 (3.38 to 4.89)	1.40	2.04 (1.43 to 2.94)	5.31	6.16 (5.57 to 7.74)	
Guy's and St Thomas' NHS Foundation Trust	6,918	4.19	4.09 (3.32 to 4.97)	3.48	2.78 (2.00 to 3.97)	7.66	6.88 (6.12 to 8.82)	
Hull and East Yorkshire Hospitals NHS Trust	5,495	5.64	4.56 (3.62 to 5.65)	1.83	2.23 (1.59 to 3.27)	7.46	6.72 (5.97 to 8.65)	
King's College Hospital NHS Foundation Trust	9,843	4.27	4.20 (3.49 to 5.01)	1.84	2.45 (1.73 to 3.48)	6.10	6.64 (6.01 to 8.35)	
Liverpool Women's NHS Foundation Trust	8,863	3.95	4.24 (3.51 to 5.00)	4.19	3.32 (2.36 to 4.75)	8.12	7.65 (6.79 to 9.92)	
Manchester University NHS Foundation Trust	13,746	4.22	4.18 (3.51 to 4.90)	2.92	2.93 (2.16 to 4.07)	7.13	7.09 (6.38 to 8.94)	
Norfolk and Norwich University Hospitals NHS Foundation Trust	5,877	3.40	4.22 (3.43 to 4.98)	1.02	1.99 (1.28 to 2.87)	4.42	6.18 (5.47 to 7.87)	
Nottingham University Hospitals NHS Trust	9,819	3.36	4.05 (3.27 to 4.82)	2.04	2.40 (1.72 to 3.41)	5.40	6.44 (5.78 to 8.15)	
Oxford University Hospitals NHS Trust	8,420	4.16	4.39 (3.63 to 5.22)	3.10	2.51 (1.85 to 3.46)	7.24	6.87 (6.12 to 8.79)	
Sheffield Teaching Hospitals NHS Foundation Trust	7,053	4.82	4.37 (3.55 to 5.26)	3.70	2.91 (2.04 to 3.97)	8.51	7.32 (6.41 to 9.29)	
St George's University Hospitals NHS Foundation Trust	5,207	4.03	4.17 (3.47 to 4.95)	2.31	2.15 (1.50 to 3.01)	6.34	6.26 (5.61 to 8.00)	
The Leeds Teaching Hospitals NHS Trust	10,031	5.68	4.61 (3.72 to 5.67)	3.11	3.03 (2.10 to 4.17)	8.77	7.62 (6.71 to 9.70)	

Organisation	Total births[§]	Rate per 1,000 births[§]						
		Stillbirth[†]		Neonatal[‡]		Extended perinatal[†]		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)[#]	
The Newcastle upon Tyne Hospitals NHS Foundation Trust	6,710	2.83	4.03 (3.22 to 4.99)	3.74	3.02 (2.13 to 4.25)	6.56	7.11 (6.16 to 9.31)	●
University College London Hospitals NHS Foundation Trust	6,839	2.92	3.97 (3.06 to 4.91)	3.08	2.45 (1.82 to 3.47)	6.00	6.43 (5.65 to 8.27)	●
University Hospital Southampton NHS Foundation Trust	5,793	5.18	4.50 (3.58 to 5.58)	3.30	2.82 (1.97 to 4.08)	8.46	7.33 (6.42 to 9.49)	●
University Hospitals Bristol NHS Foundation Trust	5,430	3.13	4.10 (3.31 to 4.88)	3.14	3.13 (2.10 to 4.62)	6.26	7.14 (6.22 to 9.24)	●
University Hospitals of Leicester NHS Trust	10,606	4.43	4.25 (3.50 to 4.91)	2.37	2.39 (1.70 to 3.26)	6.79	6.63 (6.03 to 8.34)	●
SCOTLAND								
NHS Grampian	6,367	2.04	3.98 (3.05 to 4.83)	1.26	2.24 (1.49 to 3.30)	3.30	6.21 (5.36 to 8.06)	●
NHS Greater Glasgow and Clyde	15,015	4.06	4.36 (3.63 to 5.12)	1.47	2.05 (1.44 to 2.86)	5.53	6.39 (5.73 to 7.83)	●
NHS Lothian	9,540	2.73	4.01 (3.26 to 4.89)	1.68	2.27 (1.56 to 3.15)	4.40	6.27 (5.53 to 8.03)	●
WALES								
Cardiff and Vale University Health Board	5,955	6.05	4.59 (3.67 to 5.76)	1.18	2.25 (1.48 to 3.28)	7.22	6.89 (6.07 to 8.90)	●
NORTHERN IRELAND[◦]								
Belfast Health and Social Care Trust	5,928	4.89	4.42 (3.59 to 5.28)	4.92	3.52 (2.42 to 4.92)	9.78	8.07 (7.02 to 10.50)	●

[§] excluding terminations of pregnancy and births <24^{+0} weeks gestational age
[†] per 1,000 total births
[‡] per 1,000 live births
[#] colours represent variation from comparator group average extended perinatal mortality rate
[◦] different laws exist in Northern Ireland for the termination of pregnancy
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

Table 7: Crude and stabilised & adjusted stillbirth, neonatal, and extended perinatal mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016
FOR TRUSTS AND HEALTH BOARDS WITH A LEVEL 3 NICU

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
Average for comparator group			4.11		2.10		6.20	
ENGLAND								
Ashford and St Peter's Hospital NHS Foundation Trust	4,155	3.85	4.15 (3.39 to 5.07)	3.14	2.40 (1.66 to 3.45)	6.98	6.59 (5.73 to 8.53)	
Bolton NHS Foundation Trust	6,064	4.29	4.14 (3.39 to 5.01)	2.32	2.10 (1.46 to 3.04)	6.60	6.23 (5.40 to 7.95)	
Bradford Teaching Hospitals NHS Foundation Trust	5,926	6.75	4.38 (3.63 to 5.58)	2.21	1.96 (1.38 to 2.90)	8.94	6.31 (5.61 to 8.16)	
City Hospitals Sunderland NHS Foundation Trust	3,255	*	3.96 (3.13 to 4.84)	*	1.71 (1.06 to 2.65)	2.46	5.67 (4.89 to 7.33)	
East Kent Hospitals University NHS Foundation Trust	7,029	3.70	4.12 (3.38 to 4.98)	2.57	2.53 (1.72 to 3.75)	6.26	6.63 (5.79 to 8.45)	
East Lancashire Hospitals NHS Trust	6,542	6.11	4.43 (3.56 to 5.64)	2.31	2.08 (1.41 to 3.03)	8.41	6.48 (5.56 to 8.40)	
Heart of England NHS Foundation Trust	10,337	5.42	4.32 (3.63 to 5.36)	3.11	2.90 (2.03 to 4.21)	8.51	7.15 (6.43 to 9.22)	
Homerton University Hospital NHS Foundation Trust	5,732	4.54	4.04 (3.33 to 4.91)	2.10	1.93 (1.32 to 2.83)	6.63	5.95 (5.25 to 7.70)	
Imperial College Healthcare NHS Trust	10,657	5.16	4.23 (3.59 to 5.06)	3.02	2.47 (1.74 to 3.48)	8.16	6.70 (6.05 to 8.49)	
Lancashire Teaching Hospitals NHS Foundation Trust	4,680	3.63	4.12 (3.34 to 4.94)	1.07	1.79 (1.12 to 2.67)	4.70	5.87 (5.01 to 7.52)	
Luton and Dunstable University Hospital NHS Foundation Trust	5,400	3.70	3.98 (3.29 to 4.70)	2.42	2.23 (1.52 to 3.21)	6.11	6.20 (5.40 to 7.94)	
Medway NHS Foundation Trust	5,095	2.16	3.88 (3.00 to 4.74)	1.38	1.91 (1.28 to 2.82)	3.53	5.78 (4.91 to 7.52)	
North Bristol NHS Trust	6,375	3.61	4.13 (3.43 to 4.93)	0.94	1.82 (1.20 to 2.70)	4.55	5.96 (5.18 to 7.52)	
North Tees and Hartlepool NHS Foundation Trust	3,025	5.29	4.25 (3.54 to 5.17)	1.99	2.14 (1.47 to 3.24)	7.27	6.38 (5.57 to 8.23)	
Plymouth Hospitals NHS Trust	4,263	4.93	4.29 (3.52 to 5.20)	2.59	2.31 (1.53 to 3.35)	7.51	6.60 (5.70 to 8.50)	
Portsmouth Hospitals NHS Trust	5,932	3.20	4.06 (3.30 to 4.93)	0.68	1.53 (0.95 to 2.41)	3.88	5.49 (4.69 to 7.18)	
South Tees Hospitals NHS Foundation Trust	5,165	2.71	3.95 (3.18 to 4.85)	1.36	1.93 (1.29 to 2.86)	4.07	5.88 (5.04 to 7.61)	
The Pennine Acute Hospitals NHS Trust	9,626	4.26	4.06 (3.42 to 4.95)	2.09	2.07 (1.49 to 2.90)	6.34	6.12 (5.47 to 7.76)	
The Royal Wolverhampton NHS Trust	4,921	2.84	3.91 (2.98 to 4.73)	2.45	2.19 (1.52 to 3.22)	5.28	6.10 (5.21 to 8.02)	

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
University Hospitals Coventry and Warwickshire NHS Trust	6,250	4.48	4.17 (3.47 to 5.02)	2.89	2.44 (1.65 to 3.50)	7.36	6.61 (5.78 to 8.42)	
University Hospitals of North Midlands NHS Trust	6,702	2.83	3.94 (3.12 to 4.82)	2.39	2.40 (1.62 to 3.58)	5.22	6.32 (5.41 to 8.15)	
Wirral University Teaching Hospital NHS Foundation Trust	3,353	4.18	4.18 (3.45 to 5.08)	2.40	2.07 (1.36 to 3.07)	6.56	6.22 (5.34 to 8.21)	
SCOTLAND								
NHS Ayrshire & Arran	3,427	2.92	4.05 (3.27 to 4.87)	2.34	2.24 (1.51 to 3.29)	5.25	6.29 (5.50 to 8.13)	
NHS Fife	3,421	5.55	4.32 (3.54 to 5.37)	3.53	2.66 (1.72 to 4.10)	9.06	6.98 (5.96 to 9.16)	
NHS Lanarkshire	4,552	4.39	4.24 (3.44 to 5.15)	1.10	1.92 (1.24 to 2.92)	5.49	6.15 (5.40 to 7.88)	
NHS Tayside	4,220	3.55	4.12 (3.36 to 4.96)	3.33	2.81 (1.83 to 4.31)	6.87	6.89 (5.93 to 8.98)	
WALES								
Abertawe Bro Morgannwg University Health Board	5,958	3.69	4.13 (3.39 to 4.95)	0.51	1.61 (1.01 to 2.48)	4.20	5.74 (4.99 to 7.29)	
Aneurin Bevan University Health Board	5,958	2.69	3.94 (3.20 to 4.80)	1.01	1.81 (1.22 to 2.67)	3.69	5.76 (4.98 to 7.33)	

§ excluding terminations of pregnancy and births <24^{+0} weeks gestational age
† per 1,000 total births
‡ per 1,000 live births
# colours represent variation from comparator group average extended perinatal mortality rate
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

Table 8: Crude and stabilised & adjusted stillbirth, neonatal, and extended perinatal mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016
FOR TRUSTS AND HEALTH BOARDS WITH 4,000 OR MORE BIRTHS ≥24+0 WEEKS GESTATIONAL AGE PER ANNUM

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
Average for comparator group			3.74		1.22		4.95	
ENGLAND								
Barking, Havering and Redbridge University Hospitals NHS Trust	8,030	3.99	3.62 (3.04 to 4.29)	1.13	1.17 (0.78 to 1.71)	5.11	4.78 (4.24 to 5.82)	
Basildon and Thurrock University Hospitals NHS Foundation Trust	4,659	*	3.73 (3.14 to 4.39)	*	1.07 (0.69 to 1.66)	4.08	4.80 (4.25 to 5.92)	
Buckinghamshire Healthcare NHS Trust	5,373	2.61	3.60 (2.93 to 4.30)	0.56	1.10 (0.69 to 1.77)	3.16	4.71 (4.11 to 5.87)	
Calderdale and Huddersfield NHS Foundation Trust	5,634	4.26	3.79 (3.20 to 4.43)	1.96	1.39 (0.95 to 2.16)	6.21	5.20 (4.59 to 6.51)	
County Durham and Darlington NHS Foundation Trust	5,221	3.26	3.71 (3.10 to 4.35)	0.58	1.07 (0.67 to 1.58)	3.83	4.76 (4.10 to 5.89)	
Dartford and Gravesham NHS Trust	5,039	4.37	3.82 (3.21 to 4.63)	1.59	1.35 (0.90 to 2.00)	5.95	5.16 (4.55 to 6.51)	
Derby Teaching Hospitals NHS Foundation Trust	6,207	5.48	4.05 (3.27 to 5.11)	2.92	1.59 (1.07 to 2.40)	8.38	5.72 (4.97 to 7.40)	
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	5,077	3.35	3.71 (3.15 to 4.40)	0.99	1.15 (0.74 to 1.71)	4.33	4.86 (4.29 to 5.99)	
East and North Hertfordshire NHS Trust	5,748	2.09	3.54 (2.81 to 4.24)	0.87	1.12 (0.75 to 1.67)	2.96	4.66 (4.03 to 5.73)	
Epsom and St Helier University Hospitals NHS Trust	4,870	2.46	3.60 (2.93 to 4.38)	1.44	1.30 (0.85 to 1.99)	3.90	4.90 (4.16 to 6.10)	
Frimley Health NHS Foundation Trust	10,127	3.06	3.58 (2.95 to 4.33)	0.99	1.16 (0.80 to 1.71)	4.05	4.73 (4.15 to 5.92)	
Gloucestershire Hospitals NHS Foundation Trust	6,463	2.79	3.65 (3.01 to 4.35)	1.09	1.18 (0.79 to 1.84)	3.87	4.83 (4.23 to 6.04)	
Great Western Hospitals NHS Foundation Trust	5,020	2.19	3.58 (2.93 to 4.30)	1.60	1.37 (0.87 to 2.11)	3.78	4.95 (4.23 to 6.18)	
Hampshire Hospitals NHS Foundation Trust	5,559	3.06	3.72 (3.08 to 4.38)	0.90	1.18 (0.81 to 1.79)	3.96	4.90 (4.32 to 6.01)	
Kingston Hospital NHS Foundation Trust	5,696	2.11	3.54 (2.81 to 4.28)	0.70	1.14 (0.74 to 1.84)	2.81	4.68 (4.05 to 5.85)	
Lewisham and Greenwich NHS Trust	8,741	5.26	3.88 (3.31 to 4.61)	1.15	1.15 (0.79 to 1.75)	6.41	5.02 (4.49 to 6.29)	

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
London North West Healthcare NHS Trust	5,191	5.39	3.82 (3.26 to 4.60)	0.97	1.14 (0.76 to 1.73)	6.36	4.95 (4.45 to 6.13)	
Maidstone and Tunbridge Wells NHS Trust	5,890	3.23	3.75 (3.14 to 4.43)	0.85	1.19 (0.81 to 1.87)	4.07	4.93 (4.31 to 6.15)	
Mid Essex Hospital Services NHS Trust	4,775	4.40	3.90 (3.24 to 4.70)	1.26	1.32 (0.85 to 2.12)	5.65	5.21 (4.56 to 6.44)	
North Middlesex University Hospital NHS Trust	5,174	5.22	3.80 (3.21 to 4.45)	1.17	1.24 (0.83 to 1.89)	6.38	5.03 (4.48 to 6.27)	
North West Anglia NHS Foundation Trust	7,177	4.04	3.82 (3.16 to 4.61)	1.12	1.20 (0.79 to 1.81)	5.16	5.02 (4.41 to 6.18)	
Northampton General Hospital NHS Trust	4,847	3.51	3.72 (3.12 to 4.44)	1.86	1.41 (0.94 to 2.16)	5.36	5.14 (4.54 to 6.42)	
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	4,517	3.10	3.68 (3.07 to 4.34)	2.22	1.40 (0.92 to 2.21)	5.31	5.12 (4.47 to 6.48)	
Poole Hospital NHS Foundation Trust	4,580	3.93	3.81 (3.11 to 4.60)	0.66	1.14 (0.73 to 1.78)	4.59	4.95 (4.34 to 6.21)	
Royal Berkshire NHS Foundation Trust	5,454	4.40	3.85 (3.19 to 4.65)	0.92	1.15 (0.77 to 1.83)	5.32	4.99 (4.41 to 6.20)	
Royal Cornwall Hospitals NHS Trust	4,302	3.02	3.71 (3.08 to 4.44)	0.93	1.18 (0.77 to 1.77)	3.95	4.88 (4.24 to 6.05)	
Royal Devon and Exeter NHS Foundation Trust	4,043	2.47	3.66 (3.00 to 4.35)	1.49	1.31 (0.85 to 2.03)	3.96	4.97 (4.37 to 6.22)	
Royal Free London NHS Foundation Trust	8,694	4.14	3.77 (3.23 to 4.47)	0.69	1.08 (0.70 to 1.65)	4.83	4.87 (4.38 to 6.05)	
Royal United Hospitals Bath NHS Foundation Trust	4,247	4.24	3.87 (3.23 to 4.65)	0.95	1.17 (0.79 to 1.80)	5.18	5.01 (4.38 to 6.32)	
Sandwell and West Birmingham Hospitals NHS Trust	5,779	5.71	3.79 (3.25 to 4.48)	1.57	1.19 (0.82 to 1.77)	7.27	4.97 (4.47 to 6.08)	
St Helens and Knowsley Teaching Hospitals NHS Trust	3,998	3.50	3.74 (3.11 to 4.49)	1.26	1.27 (0.84 to 1.93)	4.75	5.01 (4.39 to 6.24)	
Surrey and Sussex Healthcare NHS Trust	4,587	*	3.71 (3.13 to 4.46)	*	1.05 (0.67 to 1.64)	3.71	4.75 (4.20 to 5.93)	
The Dudley Group NHS Foundation Trust	4,503	3.78	3.73 (3.10 to 4.42)	1.34	1.23 (0.83 to 1.87)	5.11	4.95 (4.32 to 6.16)	
The Hillingdon Hospitals NHS Foundation Trust	4,860	4.73	3.71 (3.08 to 4.39)	0.83	1.11 (0.72 to 1.75)	5.56	4.83 (4.21 to 5.93)	
The Mid Yorkshire Hospitals NHS Trust	6,351	4.25	3.78 (3.20 to 4.60)	1.74	1.30 (0.88 to 1.92)	5.98	5.08 (4.50 to 6.40)	
The Princess Alexandra Hospital NHS Trust	4,258	*	3.60 (2.97 to 4.31)	*	1.08 (0.67 to 1.73)	2.58	4.67 (3.98 to 5.89)	
The Shrewsbury and Telford Hospital NHS Trust	4,948	4.45	3.87 (3.24 to 4.77)	1.83	1.38 (0.93 to 2.22)	6.27	5.27 (4.60 to 6.71)	
United Lincolnshire Hospitals NHS Trust	5,334	3.37	3.74 (3.12 to 4.42)	1.32	1.27 (0.84 to 1.98)	4.69	5.01 (4.45 to 6.21)	
Walsall Healthcare NHS Trust	4,388	4.56	3.78 (3.21 to 4.42)	3.21	1.58 (1.04 to 2.54)	7.75	5.43 (4.77 to 6.93)	

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
West Hertfordshire Hospitals NHS Trust	4,982	3.81	3.77 (3.12 to 4.51)	1.21	1.24 (0.85 to 1.94)	5.02	5.00 (4.45 to 6.31)	●
Western Sussex Hospitals NHS Foundation Trust	5,064	4.15	3.86 (3.18 to 4.67)	0.79	1.15 (0.75 to 1.78)	4.94	4.99 (4.43 to 6.31)	●
Worcestershire Acute Hospitals NHS Trust	5,626	3.38	3.74 (3.12 to 4.49)	1.07	1.17 (0.80 to 1.73)	4.44	4.90 (4.32 to 6.10)	●
York Teaching Hospital NHS Foundation Trust	4,965	2.82	3.69 (3.07 to 4.39)	1.01	1.20 (0.80 to 1.91)	3.83	4.89 (4.29 to 6.09)	●
WALES								
Betsi Cadwaladr University Health Board	6,620	4.23	3.88 (3.24 to 4.71)	1.52	1.25 (0.86 to 1.84)	5.74	5.12 (4.49 to 6.37)	●
NORTHERN IRELAND◦								
Northern Health and Social Care Trust	4,042	5.20	3.96 (3.32 to 4.86)	1.49	1.36 (0.89 to 2.13)	6.68	5.31 (4.66 to 6.81)	●
South Eastern Health and Social Care Trust	4,388	3.65	3.79 (3.16 to 4.47)	1.60	1.39 (0.92 to 2.18)	5.24	5.18 (4.58 to 6.41)	●
Southern Health and Social Care Trust	5,973	2.68	3.64 (3.00 to 4.29)	1.34	1.34 (0.89 to 2.07)	4.02	4.98 (4.36 to 6.18)	●

§ excluding terminations of pregnancy and births <24^{+0} weeks gestational age
† per 1,000 total births
‡ per 1,000 live births
# colours represent variation from comparator group average extended perinatal mortality rate
* entry suppressed because of small number of deaths
◦ different laws exist in Northern Ireland for the termination of pregnancy
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

Table 9: Crude and stabilised & adjusted stillbirth, neonatal, and extended perinatal mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016
FOR TRUSTS AND HEALTH BOARDS WITH 2,000 TO 3,999 BIRTHS ≥24^{+0} WEEKS GESTATIONAL AGE PER ANNUM

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
Average for comparator group			3.73		1.06		4.79	
ENGLAND								
Airedale NHS Foundation Trust	2,174	*	3.81 (3.12 to 4.69)	*	0.99 (0.60 to 1.55)	5.52	4.80 (4.18 to 5.90)	
Barnsley Hospital NHS Foundation Trust	3,034	*	3.75 (3.08 to 4.56)	*	0.96 (0.60 to 1.60)	4.28	4.71 (4.10 to 5.89)	
Bedford Hospital NHS Trust	2,941	3.40	3.69 (3.05 to 4.49)	1.02	1.05 (0.67 to 1.62)	4.42	4.74 (4.11 to 5.88)	
Blackpool Teaching Hospitals NHS Foundation Trust	3,000	3.00	3.67 (2.95 to 4.39)	2.34	1.22 (0.79 to 1.94)	5.33	4.93 (4.29 to 6.10)	
Burton Hospitals NHS Foundation Trust	3,539	3.67	3.74 (3.01 to 4.50)	1.99	1.22 (0.78 to 1.88)	5.65	4.97 (4.31 to 6.15)	
Chesterfield Royal Hospital NHS Foundation Trust	2,919	5.14	3.87 (3.20 to 4.88)	1.38	1.11 (0.72 to 1.74)	6.51	4.97 (4.27 to 6.25)	
Colchester Hospital University NHS Foundation Trust	3,738	4.55	3.82 (3.16 to 4.73)	1.88	1.23 (0.76 to 1.98)	6.42	5.05 (4.38 to 6.33)	
Countess of Chester Hospital NHS Foundation Trust	3,057	*	3.50 (2.70 to 4.35)	*	1.49 (0.91 to 2.62)	3.93	5.00 (4.14 to 6.61)	
Croydon Health Services NHS Trust	3,867	3.10	3.52 (2.74 to 4.41)	1.56	1.09 (0.70 to 1.72)	4.65	4.61 (3.93 to 5.88)	
East Sussex Healthcare NHS Trust	3,406	*	3.69 (3.01 to 4.45)	*	0.96 (0.60 to 1.49)	3.52	4.65 (4.05 to 5.72)	
George Eliot Hospital NHS Trust	2,190	*	3.76 (3.08 to 4.64)	*	1.05 (0.67 to 1.73)	5.02	4.81 (4.13 to 6.06)	
James Paget University Hospitals NHS Foundation Trust	2,160	*	3.82 (3.15 to 4.70)	*	1.06 (0.65 to 1.69)	6.02	4.87 (4.30 to 6.10)	
Kettering General Hospital NHS Foundation Trust	3,662	3.28	3.69 (3.05 to 4.40)	1.92	1.20 (0.78 to 1.91)	5.19	4.91 (4.29 to 6.10)	
Mid Cheshire Hospitals NHS Foundation Trust	2,897	*	3.73 (3.07 to 4.50)	*	0.95 (0.59 to 1.54)	3.80	4.66 (4.02 to 5.79)	
Milton Keynes University Hospital NHS Foundation Trust	3,837	3.65	3.67 (2.98 to 4.45)	1.31	1.12 (0.70 to 1.79)	4.95	4.79 (4.15 to 5.92)	
North Cumbria University Hospitals NHS Trust	3,015	*	3.64 (2.99 to 4.38)	*	1.03 (0.64 to 1.68)	2.99	4.67 (4.03 to 5.70)	
Northumbria Healthcare NHS Foundation Trust	3,342	3.59	3.74 (3.08 to 4.41)	0.90	1.07 (0.67 to 1.72)	4.49	4.80 (4.16 to 5.83)	

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
Royal Surrey County Hospital NHS Foundation Trust	3,008	*	3.76 (3.15 to 4.72)	*	1.05 (0.65 to 1.73)	4.32	4.81 (4.25 to 6.02)	
Salisbury NHS Foundation Trust	2,350	1.70	3.62 (2.86 to 4.39)	1.28	1.09 (0.67 to 1.81)	2.98	4.72 (3.96 to 5.92)	
Sherwood Forest Hospitals NHS Foundation Trust	3,455	4.63	3.82 (3.10 to 4.68)	2.04	1.26 (0.79 to 2.11)	6.66	5.09 (4.37 to 6.43)	
South Devon Healthcare NHS Foundation Trust	2,266	*	3.62 (2.90 to 4.35)	*	1.02 (0.62 to 1.66)	2.21	4.64 (3.94 to 5.73)	
South Warwickshire NHS Foundation Trust	2,746	2.91	3.70 (2.98 to 4.50)	1.10	1.12 (0.67 to 1.84)	4.01	4.81 (4.12 to 5.98)	
Southend University Hospital NHS Foundation Trust	3,823	*	3.79 (3.09 to 4.70)	*	0.91 (0.55 to 1.42)	4.45	4.67 (4.01 to 5.86)	
Southport & Ormskirk Hospital NHS Trust	2,378	*	3.67 (2.96 to 4.46)	*	1.01 (0.63 to 1.71)	2.94	4.69 (3.98 to 5.74)	
Stockport NHS Foundation Trust	3,434	*	3.73 (3.09 to 4.47)	*	0.98 (0.61 to 1.60)	4.08	4.69 (4.04 to 5.84)	
Tameside Hospital NHS Foundation Trust	2,495	2.81	3.65 (2.98 to 4.40)	1.61	1.16 (0.72 to 1.88)	4.41	4.80 (4.14 to 5.97)	
Taunton and Somerset NHS Foundation Trust	3,305	3.33	3.72 (3.08 to 4.51)	1.21	1.07 (0.68 to 1.73)	4.54	4.79 (4.15 to 6.05)	
The Ipswich Hospital NHS Trust	3,702	2.97	3.67 (2.90 to 4.39)	0.81	1.03 (0.63 to 1.59)	3.78	4.70 (4.06 to 5.72)	
The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust	2,339	3.85	3.75 (3.12 to 4.57)	1.29	1.08 (0.67 to 1.72)	5.13	4.82 (4.22 to 5.98)	
The Rotherham NHS Foundation Trust	2,703	*	3.82 (3.13 to 4.74)	*	0.97 (0.59 to 1.52)	5.55	4.79 (4.08 to 6.05)	
University Hospitals of Morecambe Bay NHS Foundation Trust	3,168	2.84	3.68 (2.98 to 4.46)	0.95	1.07 (0.66 to 1.74)	3.79	4.75 (4.12 to 5.93)	
Warrington and Halton Hospitals NHS Foundation Trust	2,917	1.37	3.56 (2.86 to 4.45)	1.37	1.12 (0.71 to 1.73)	2.74	4.68 (4.02 to 5.92)	
West Suffolk NHS Foundation Trust	2,525	*	3.89 (3.20 to 4.83)	*	0.95 (0.59 to 1.51)	5.54	4.83 (4.18 to 6.08)	
Whittington Health	3,715	*	3.83 (3.13 to 4.72)	*	0.98 (0.61 to 1.58)	5.92	4.81 (4.15 to 6.01)	
Wrightington, Wigan and Leigh NHS Foundation Trust	2,773	4.33	3.79 (3.13 to 4.59)	1.09	1.08 (0.67 to 1.72)	5.41	4.87 (4.22 to 5.99)	
SCOTLAND								
NHS Forth Valley	3,134	*	4.02 (3.24 to 5.23)	*	1.00 (0.61 to 1.55)	7.34	4.98 (4.24 to 6.43)	
NHS Highland	2,230	*	3.68 (2.98 to 4.39)	*	1.01 (0.60 to 1.58)	3.14	4.69 (4.02 to 5.74)	
WALES								
Cwm Taf University Health Board	3,951	5.57	3.93 (3.17 to 4.86)	0.76	0.99 (0.65 to 1.53)	6.33	4.90 (4.19 to 6.19)	
Hywel Dda University Health Board	3,430	5.83	3.95 (3.21 to 4.94)	0.88	1.07 (0.66 to 1.71)	6.71	5.02 (4.29 to 6.33)	

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
NORTHERN IRELAND◦								
Western Health and Social Care Trust	3,980	3.52	3.72 (2.98 to 4.48)	1.26	1.08 (0.69 to 1.69)	4.77	4.80 (4.11 to 6.04)	●

§ excluding terminations of pregnancy and births <24^{+0} weeks gestational age
† per 1,000 total births
‡ per 1,000 live births
# colours represent variation from comparator group average extended perinatal mortality rate
* entry suppressed because of small number of deaths
◦ different laws exist in Northern Ireland for the termination of pregnancy
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

Table 10: Crude and stabilised & adjusted stillbirth, neonatal, and extended perinatal mortality rates by NHS Trust (England), Health Board (Scotland and Wales), Health and Social Care Trust (Northern Ireland), and Crown Dependency based on place of birth: United Kingdom and Crown Dependencies, for births in 2016
FOR TRUSTS AND HEALTH BOARDS WITH FEWER THAN 2,000 BIRTHS ≥24+0 WEEKS GESTATIONAL AGE PER ANNUM

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
Average for comparator group			2.96		1.07		4.03	
ENGLAND								
Dorset County Hospital NHS Foundation Trust	1,907	*	2.98 (2.13 to 4.01)	*	0.99 (0.50 to 1.69)	3.67	3.96 (3.03 to 5.53)	○
East Cheshire NHS Trust	1,728	*	3.00 (2.16 to 4.15)	*	1.09 (0.59 to 1.90)	4.63	4.08 (3.18 to 5.75)	○
Gateshead Health NHS Foundation Trust	1,888	*	2.99 (2.21 to 4.07)	*	1.07 (0.56 to 1.89)	4.77	4.05 (3.19 to 5.74)	○
Harrogate and District NHS Foundation Trust	1,959	*	2.99 (2.08 to 4.00)	*	0.97 (0.48 to 1.65)	3.06	3.95 (2.98 to 5.53)	○
Isle of Wight NHS Trust	1,132	*	2.95 (2.11 to 4.03)	*	1.09 (0.59 to 2.01)	4.42	4.05 (3.13 to 5.94)	○
Northern Devon Healthcare NHS Trust	1,587	1.89	2.93 (2.01 to 3.93)	1.89	1.12 (0.62 to 1.92)	3.78	4.06 (3.09 to 5.78)	○
RAF Lakenheath (48th Medical Group)	448	*	2.94 (1.98 to 3.93)	*	1.11 (0.58 to 2.01)	*	4.03 (3.18 to 5.72)	○
South Tyneside NHS Foundation Trust	1,308	*	2.89 (1.98 to 3.86)	*	1.10 (0.61 to 2.05)	2.29	3.99 (3.03 to 5.64)	○
The Portland Hospital for Women and Children	1,539	*	2.90 (1.97 to 3.82)	*	1.00 (0.50 to 1.64)	*	3.91 (2.87 to 5.27)	○
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	292	*	2.95 (2.02 to 3.96)	*	1.06 (0.53 to 1.85)	*	4.00 (3.11 to 5.67)	○
Weston Area Health NHS Trust	151	*	2.98 (2.10 to 4.05)	*	1.06 (0.55 to 1.86)	*	4.04 (3.06 to 5.74)	○
Wye Valley NHS Trust	1,783	3.93	3.01 (2.17 to 4.18)	2.25	1.18 (0.68 to 2.18)	6.17	4.21 (3.34 to 6.19)	○
Yeovil District Hospital NHS Foundation Trust	1,485	*	2.99 (2.16 to 4.07)	*	1.05 (0.55 to 1.85)	4.04	4.04 (3.11 to 5.59)	○
SCOTLAND								
NHS Borders	1,015	*	2.92 (1.95 to 3.94)	*	1.07 (0.55 to 1.90)	*	3.99 (3.06 to 5.63)	○
NHS Dumfries & Galloway	1,276	*	3.09 (2.36 to 4.40)	*	1.10 (0.62 to 1.96)	8.62	4.18 (3.45 to 6.18)	○
NHS Orkney	124	*	2.96 (2.06 to 3.97)	*	1.06 (0.53 to 1.87)	*	4.02 (3.10 to 5.62)	○
NHS Shetland	145	*	2.96 (2.01 to 4.07)	*	1.06 (0.55 to 1.87)	*	4.02 (3.00 to 5.65)	○
NHS Western Isles	194	*	2.98 (2.10 to 4.07)	*	1.06 (0.51 to 1.86)	*	4.04 (3.11 to 5.66)	○

Organisation	Total births§	Rate per 1,000 births§						
		Stillbirth†		Neonatal‡		Extended perinatal†		
		Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)	Crude	Stabilised & adjusted (95% CI)#	
WALES								
Powys Teaching Health Board	250	*	2.98 (2.11 to 4.18)	*	1.06 (0.54 to 1.88)	*	4.03 (3.10 to 5.74)	●
ISLE OF MAN								
Department of Health	754	*	2.94 (2.05 to 3.94)	*	1.11 (0.63 to 2.02)	3.98	4.07 (3.19 to 5.81)	●
STATES OF GUERNSEY								
Health & Social Services	599	*	3.07 (2.29 to 4.33)	*	1.08 (0.58 to 1.90)	11.69	4.14 (3.36 to 5.96)	●
STATES OF JERSEY								
Health & Social Services	1,010	*	2.93 (1.99 to 4.02)	*	1.01 (0.52 to 1.71)	*	3.94 (3.00 to 5.54)	●

§ excluding terminations of pregnancy and births <24^{+0} weeks gestational age
† per 1,000 total births
‡ per 1,000 live births
# colours represent variation from comparator group average extended perinatal mortality rate
* entry suppressed because of small number of deaths
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey

MBRRACE-UK

Department of Health Sciences
University of Leicester
George Davies Centre
University Road
Leicester
LE1 7RH

Tel: +44-116 252 5425
Email: mbrrace-uk@npeu.ox.ac.uk
Web: www.npeu.ox.ac.uk/mbrrace-uk

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