

Milton Keynes University Hospital NHS Foundation Trust

MBRRACE-UK perinatal mortality report: 2021 births

This report concerns stillbirths and neonatal deaths among the 3,762 babies born within your Trust in 2021, EXCLUDING births before 24 weeks gestational age and all terminations of pregnancy.

It includes details of the stillbirths and neonatal deaths for births that occurred in your Trust in 2021, as well as background information on all births. Neonatal deaths are reported by place of birth, irrespective of where the death occurred, as denominator data on the place of care is not available for all births.

Key messages

All deaths

1. Your stabilised & adjusted stillbirth rate is **3.16 per 1,000 total births**. This is around the average for similar Trusts & Health Boards.
2. Your stabilised & adjusted neonatal mortality rate is **1.01 per 1,000 live births**. This is around the average for similar Trusts & Health Boards.
3. Your stabilised & adjusted extended perinatal mortality rate is **4.17 per 1,000 total births**. This is around the average for similar Trusts & Health Boards.

Excluding deaths due to congenital anomalies

1. Your stabilised & adjusted stillbirth rate excluding deaths due to congenital anomalies is **2.98 per 1,000 total births**. This is around the average for similar Trusts & Health Boards.
2. Your stabilised & adjusted neonatal mortality rate excluding deaths due to congenital anomalies is **0.80 per 1,000 live births**. This is around the average for similar Trusts & Health Boards.
3. Your stabilised & adjusted extended perinatal mortality rate excluding deaths due to congenital anomalies is **3.78 per 1,000 total births**. This is around the average for similar Trusts & Health Boards.

Full details of your perinatal mortality rates can be found on page 2.

Recommended actions

The stabilised & adjusted mortality rates for your Trust were similar to, or lower than, those seen across similar Trusts and Health Boards. However, if the aspiration of your Trust is to seek rates comparable with the best performing countries, for example those in Scandinavia, ensure that a review using the Perinatal Mortality Review Tool (PMRT) has been carried out for all the deaths in this report to assess care, identify and implement service improvements to prevent future similar deaths.

Definitions

<i>Late fetal loss:</i>	A baby delivered between 22 ⁺⁰ and 23 ⁺⁶ weeks gestational age showing no signs of life, irrespective of when the death occurred.
<i>Stillbirth:</i>	A baby delivered at or after 24 ⁺⁰ weeks gestational age showing no signs of life, irrespective of when the death occurred.
<i>Neonatal death:</i>	A live born baby who died up to 28 completed days after birth.
<i>Extended perinatal death:</i>	A stillbirth or neonatal death.

1. Your perinatal mortality rates

The mortality rates are reported for babies born within your Trust at 24 weeks gestational age or later, excluding terminations of pregnancy. The **crude mortality rate** is the number of deaths for every 1,000 births (or 1,000 live births for neonatal mortality) and is a snapshot of mortality for your organisation for births in 2021. However, this can be misleading as a measure of the underlying (or long-term) mortality rate due to chance variation and differences between Trusts and Health Boards in the proportion of high risk pregnancies. The **stabilised & adjusted mortality rate** provides a more reliable estimate of the underlying mortality rate, accounting for mother's age, socio-economic deprivation, baby's sex and ethnicity, multiplicity, and (for neonatal deaths only) gestational age at birth. While it is not possible to adjust for all potential risk factors, these measures do provide an important insight into the perinatal mortality for births within your Trust in 2021.

To account for the wide variation in case-mix, all Trusts and Health Boards have been classified hierarchically into five comparator groups: (i) Level 3 Neonatal Intensive Care Unit (NICU) and surgical provision; (ii) Level 3 NICU; (iii) 4,000 or more births per annum at 22 weeks or later; (iv) 2,000-3,999 births per annum at 22 weeks or later; (v) under 2,000 births per annum at 22 weeks or later.

Your Trust has been included in the comparator group with 2,000-3,999 births per annum.

Perinatal mortality (all deaths)

Type of death	Number	Crude rate	Stabilised & adjusted rate (95% C.I.)	Comparison to the average for similar Trusts & Health Boards
Stillbirth	12	3.19	3.16 (2.45 to 4.07)	● Up to 5% higher or up to 5% lower
Neonatal	3	0.80	1.01 (0.64 to 1.61)	● Up to 5% higher or up to 5% lower
Extended perinatal	15	3.99	4.17 (3.39 to 5.35)	● Up to 5% higher or up to 5% lower

Perinatal mortality (excluding deaths due to congenital anomalies)

Type of death	Number	Crude rate	Stabilised & adjusted rate (95% C.I.)	Comparison to the average for similar Trusts & Health Boards
Stillbirth	11	2.92	2.98 (2.36 to 3.78)	● Up to 5% higher or up to 5% lower
Neonatal	3	0.80	0.80 (0.52 to 1.30)	● Up to 5% higher or up to 5% lower
Extended perinatal	14	3.72	3.78 (3.21 to 4.78)	● Up to 5% higher or up to 5% lower

Comparisons with similar Trusts, Health Boards and the UK average

Your estimated stabilised & adjusted mortality rate for each type of death has been compared with the average mortality rate for Trusts and Health Boards in the same comparator group and is shown below as a circle:



- more than 15% lower than the average for the group
- more than 5% and up to 15% lower than the average for the group
- up to 5% higher or up to 5% lower than the average for the group
- more than 5% higher than the average for the group

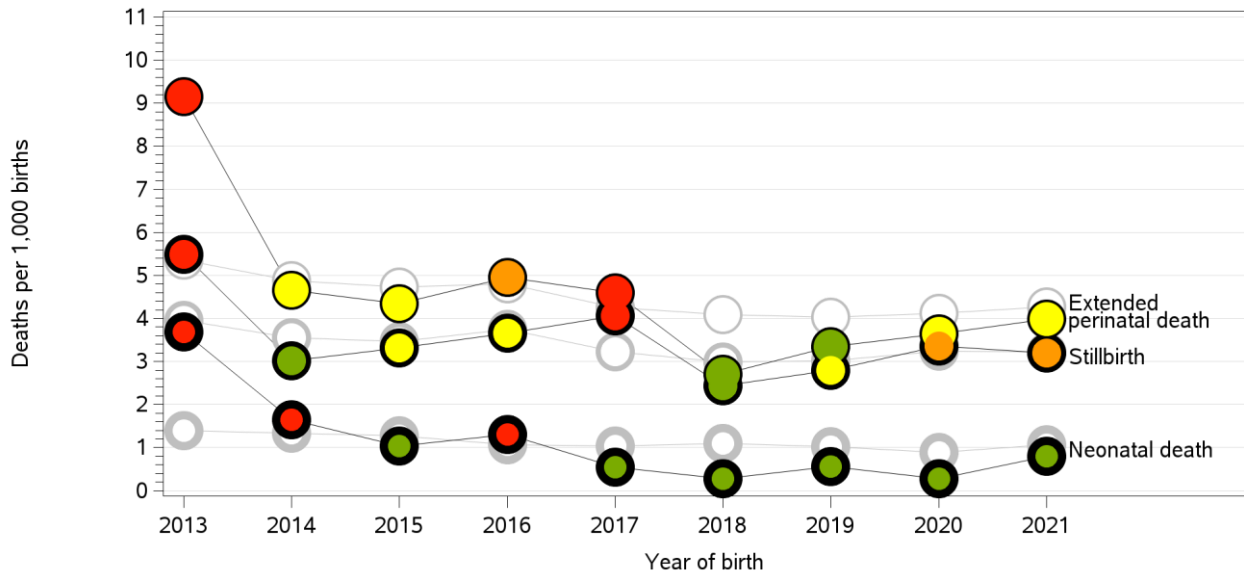
Trusts and Health Boards whose mortality rates are marked ● or ● should carry out an initial investigation of their data quality and possible contributing local factors that might explain the high rate. Irrespective of where they fall in the spectrum of national performance all Trusts and Health Boards should use the national PMRT to review all their stillbirths and neonatal deaths.

2. Mortality rates over time

Crude mortality by year of birth (all deaths)

Crude mortality rates for each type of death compared to the average mortality rate for Trusts and Health Boards in the same comparator group (shown in grey) by year of birth.

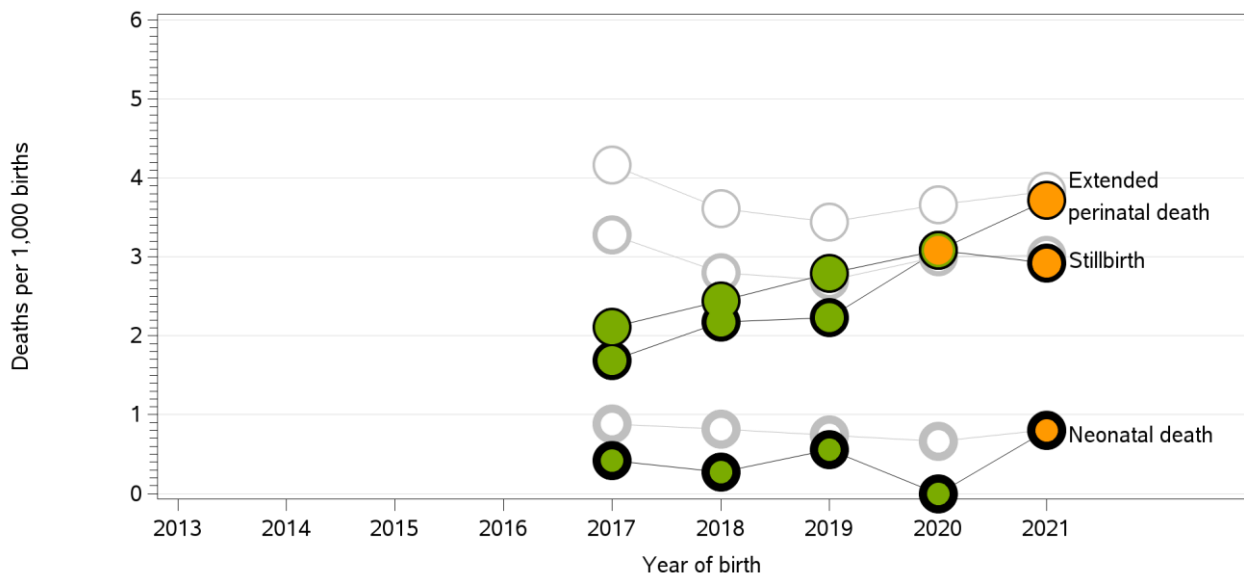
Due to updates to the data, these results might differ slightly from those in previous reports.



Crude mortality by year of birth (excluding deaths due to congenital anomalies)

Crude mortality rates for each type of death, excluding deaths due to congenital anomalies, compared to the average mortality rate for Trusts and Health Boards in the same comparator group (shown in grey) by year of birth. Rates are reported from 2017 onwards.

Due to updates to the data, these results might differ slightly from those in previous reports.

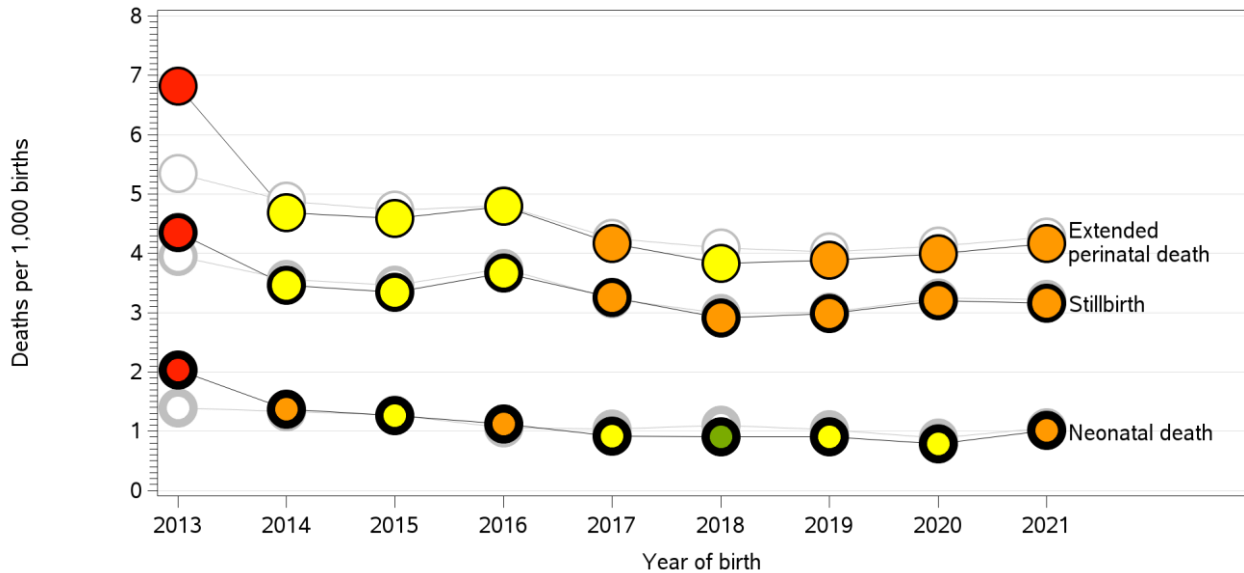


Mortality rates over time *continued*

Stabilised & adjusted mortality by year of birth (all deaths)

Stabilised & adjusted mortality rates for each type of death compared to the average mortality rate for Trusts and Health Boards in the same comparator group (shown in grey) by year of birth.

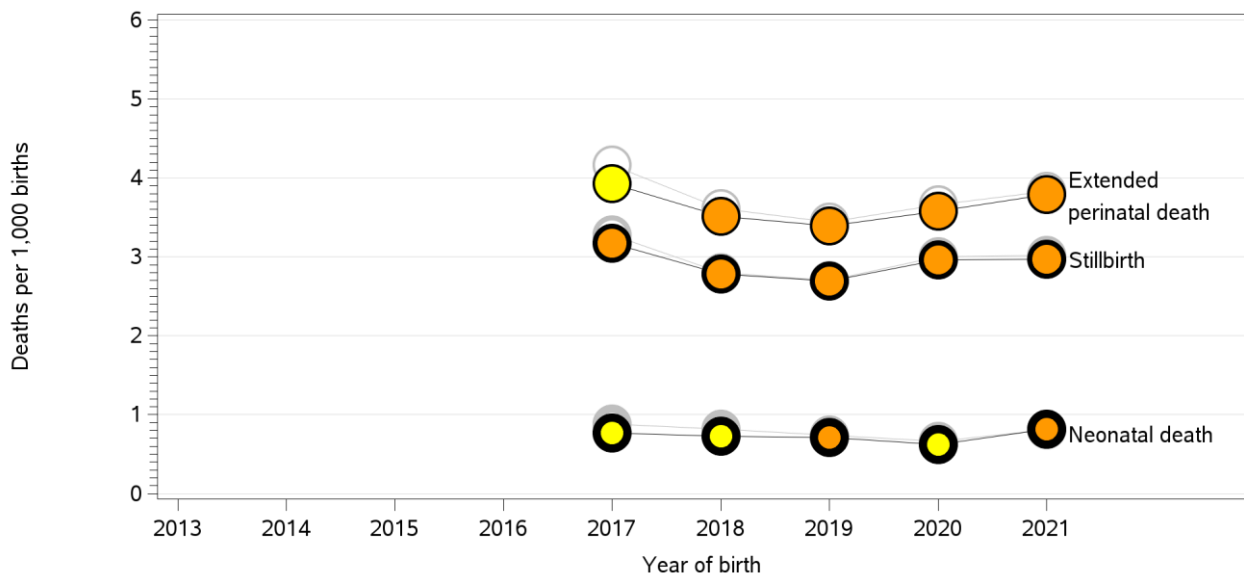
Due to updates to the data and improvements to the statistical methodology used, these results might differ slightly from those in previous reports.



Stabilised & adjusted mortality by year of birth (excluding deaths due to congenital anomalies)

Stabilised & adjusted mortality rates for each type of death, excluding deaths due to congenital anomalies, compared to the average mortality rate for Trusts and Health Boards in the same comparator group (shown in grey) by year of birth. Rates are reported from 2017 onwards.

Due to updates to the data and improvements to the statistical methodology used, these results might differ slightly from those in previous reports.



3. Your perinatal deaths

Deaths of babies born within your Trust

The crude mortality rates reported here are for babies born within your Trust, excluding births before 24 weeks gestational age and all terminations of pregnancy, together with the equivalent UK-wide rates.

These rates are subject to random variation, especially when the number of deaths is small. Stabilised & adjusted mortality rates are presented on page 2 which provide more reliable estimates of the underlying (long-term) mortality rates for your Trust.

Rates per 1,000 births		Stillbirths				Neonatal Deaths				Extended perinatal deaths			
		Antepartum		Intrapartum		Unknown		Early				Late	
Your Trust	Rate (N)	2.9	(11)	0.3	(1)	0.0	(0)	0.0	(0)	0.8	(3)	4.0	(15)
UK-wide	Rate	3.1		0.2		0.2		1.1		0.5		5.2	

The rates of extended perinatal death for your Trust, by gestational age at delivery, are shown below. Equivalent UK-wide rates are also shown for comparison.

Rates per 1,000 births		Extended perinatal deaths by gestational age									
		24 ⁺⁰ – 27 ⁺⁶		28 ⁺⁰ – 31 ⁺⁶		32 ⁺⁰ – 36 ⁺⁶		37 ⁺⁰ – 41 ⁺⁶		≥ 42 ⁺⁰	
Your Trust	Rate (N)	500.0	(3)	45.5	(1)	0.0	(0)	3.5	(11)	0.0	(0)
UK-wide	Rate	338.9		113.2		21.7		1.9		1.9	

Cause of death

The tables below describe the cause of death reported to MBRRACE-UK for stillbirths which occurred in your Trust and for neonatal deaths of babies who were born in your Trust. They are listed by the primary categories of the 'Cause Of Death & Associated Conditions' (CODAC) system of death classification.

Congenital anomaly is reported as the cause of death for all deaths where a congenital anomaly is coded as either the primary cause of death or an associated condition.

In order to ensure accurate, consistent reporting using the CODAC system of death classification, Trust and Health Board Perinatal Review groups should focus on the quality of cause of death coding.

		Infection		Neonatal		Intrapartum		Congenital anomaly		Fetal		
Stillbirths	Your Trust	% (N)	8.3%	(1)	0.0%	(0)	0.0%	(0)	8.3%	(1)	0.0%	(0)
	UK-wide	%	4.5%		1.7%		1.3%		9.3%		4.0%	
Neonatal Deaths	Your Trust	% (N)	0.0%	(0)	100%	(3)	0.0%	(0)	0.0%	(0)	0.0%	(0)
	UK-wide	%	7.7%		44.3%		2.2%		32.6%		3.8%	

		Cord		Placental		Maternal		Unknown		Missing		
Stillbirths	Your Trust	% (N)	8.3%	(1)	25.0%	(3)	8.3%	(1)	41.7%	(5)	0.0%	(0)
	UK-wide	%	4.7%		33.2%		3.9%		33.3%		4.2%	
Neonatal Deaths	Your Trust	% (N)	0.0%	(0)	0.0%	(0)	0.0%	(0)	0.0%	(0)	0.0%	(0)
	UK-wide	%	0.1%		3.0%		0.3%		4.5%		1.5%	

Your perinatal deaths *continued*

Place of neonatal death by gestational age

In the table below, information is shown that differentiates between the neonatal deaths of live born babies who were born and subsequently died within your Trust and those who were born within your Trust but died elsewhere. The percentage and number of babies in each group is shown by gestational age at birth.

Place of Death		Gestational group								
		24 ⁺⁰ – 27 ⁺⁶		28 ⁺⁰ – 31 ⁺⁶		32 ⁺⁰ – 36 ⁺⁶		37 ⁺⁰ – 41 ⁺⁶		≥ 42 ⁺⁰
Within your Trust	% (N)	0%	(0)	(0)	(0)	100%	(1)			(0)
Outside your Trust	% (N)	100%	(2)	(0)	(0)	0%	(0)			(0)

Post-mortem

The percentage of stillbirths and neonatal deaths for which parents were offered a post-mortem examination is given below, differentiating between those who were born and subsequently died within your Trust and those who were born within your Trust but died elsewhere.

For births within your Trust, a post-mortem was offered for 100% of stillbirths and 67% of neonatal deaths, compared with 98% and 92% UK-wide.

Place of Death		Post-mortem offered (as % of deaths)			
		Stillbirths		Neonatal Deaths	
Within your Trust	% (n/N)	100%	(12/12)	100%	(1/1)
Outside your Trust	% (n/N)			50%	(1/2)
UK-wide	%	98%		92%	

The percentage of post-mortems offered or for which consent was obtained and where the cause of death was reported to MBRRACE-UK as Unknown is shown below. You should ensure that the cause of death on the MBRRACE-UK data reporting system is updated once the post-mortem results are known.

		Post-mortem			
		Offered		Consent obtained	
Unknown cause of death	% (N)	100%	(5/5)	80%	(4/5)

Babies born at 22 to 23 weeks gestation

It is vital for MBRRACE-UK to be able to present perinatal mortality rates from 22 weeks gestational age onwards, as recommended by the World Health Organization, in order that UK rates can be compared internationally. As there is no statutory registration of late fetal losses at 22 and 23 weeks gestational age, it is vital that your Trust ensures that there is a rigorous system for reporting these deaths to MBRRACE-UK.

The number of late fetal losses at 22 and 23 weeks gestational age reported by your Trust for babies born in 2021 was 4. Please continue to review this information in order to ensure that all late fetal losses are reported to MBRRACE-UK.

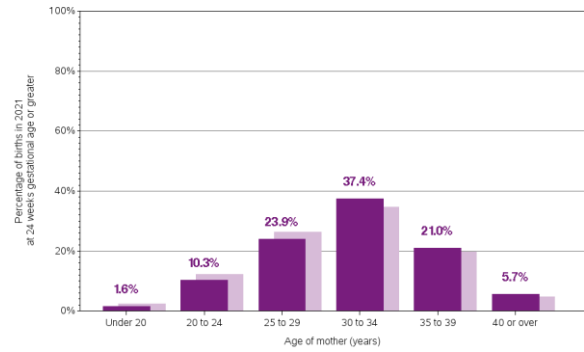
		Deaths at 22 ⁺⁰ to 23 ⁺⁶ weeks gestational age	
		Late fetal losses	Neonatal deaths
Your Trust	N	4	2

4. Your births

Age of mother

The proportion of mothers aged 35 years old or older was higher than that of the UK as a whole: 26.7% versus 24.5%.

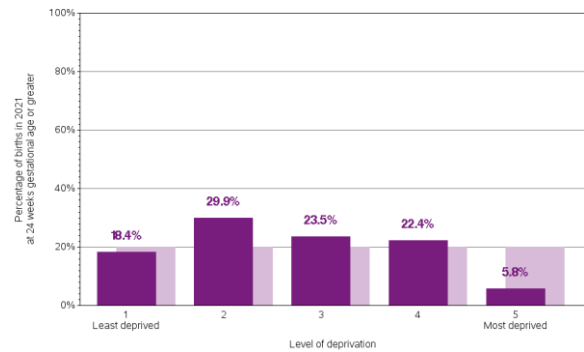
Across the UK the mothers were: 2.3% under 20; 12.2% 20 to 24; 26.3% 25 to 29; 34.7% 30 to 34; 19.8% 35 to 39; 4.7% 40 and over.



Socio-economic deprivation

This graph shows the distribution of births by level of deprivation, based on the postcode of the mother's residence and using the [Children in Low-Income Families Local Measure](#).

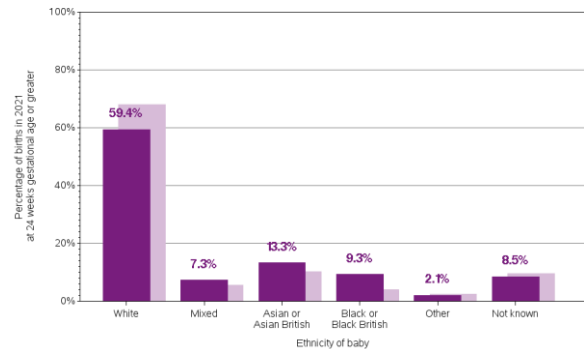
The mothers giving birth in your Trust were considerably less likely to live in areas of high deprivation than those giving birth across the UK as a whole.



Ethnicity of baby

The proportion of babies of non-White ethnicity was higher than that of the UK as a whole: 32.1% versus 22.3%.

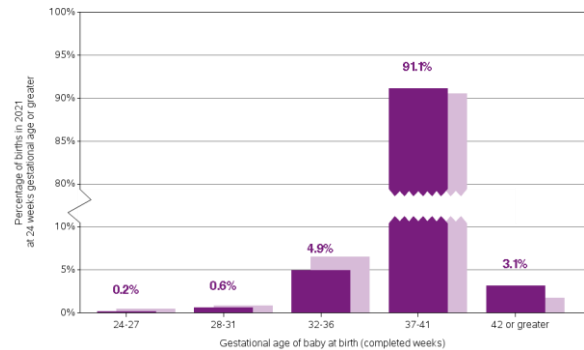
However, for 8.5% of your births the baby's ethnicity was reported as not known. This information is dependent on the accurate coding of babies' ethnicity within the routine reporting of all births.



Gestational age

In your Trust, 6 babies (0.2%) were born at 24 to 27 weeks gestational age, lower than the 0.4% seen in the UK as a whole. However, the percentage of babies born at 28 to 31 weeks was similar to the national average: 0.6% versus 0.8%.

In addition, 109 babies (3.1%) were born post-term (42 weeks or greater), a similar percentage to the UK average of 1.8%.

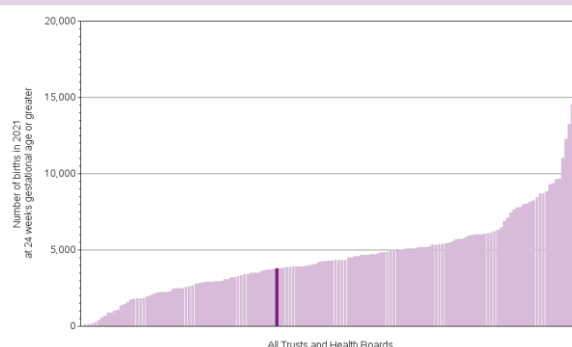


Your births *continued*

Number of births

There were 3,762 births in your Trust at 24 weeks gestational age or later, excluding terminations of pregnancy.

The purple line in the graph opposite shows that the number of births in your Trust puts you in the middle third of all Trusts and Health Boards in the UK.



Percentage of births taking place in your Trust by commissioning organisation

The table below provides the percentage and number of births in your Trust at 24 weeks gestational age or later from each of the commissioning organisations for which over 1% of their births at 24 weeks gestational age or later occurred within your Trust. These organisations are Sub-Integrated Care Boards (Sub-ICBs) in England, Health Boards in Scotland and Wales and Local Commissioning Groups (LCGs) in Northern Ireland.

In total, the births from these organisations accounted for 99.5% of your births at 24 weeks gestational age or later in 2021.

Commissioning organisation	% Births (N)	Commissioning organisation	% Births (N)
1. NHS Bedfordshire, Luton and Milton Keynes ICB - M1J4Y	28.8% (3529)	2. NHS Northamptonshire ICB - 78H	1.5% (130)
3. NHS Buckinghamshire, Oxfordshire and Berkshire West ICB - 14	1.5% (86)		

5. Data reporting

Completeness of key data items for DEATHS AT YOUR TRUST

It is vital that complete, accurate data is reported to MBRRACE-UK. For births in 2021, we received 100% of information on key data items for the deaths which occurred within your Trust.

The tables below provide details of completeness for key items in the data collection form. While the rest of this report concerns babies born within your Trust, these tables show the overall completeness of data for **deaths at your Trust no matter where they were born**. The percentage of data reported is given for each item, together with a coloured diamond denoting the level of completeness:

- ◆ less than 70.0% complete
- ◆ 70.0% to 84.9% complete
- ◆ 85.0% to 96.9% complete
- ◆ 97.0% to 99.9% complete
- ◆ 100% complete

These data items have been assessed as they are all readily available and essential to the accurate reporting of extended perinatal mortality for your Trust. We are pleased to report that 100% of the data items were completed for deaths reported by your Trust. Thank you for help and support.

Mother's details		Completeness	
Name		100.0%	◆
	UK-wide	100.0%	
Postcode of residence		100.0%	◆
	UK-wide	99.9%	
Ethnicity		100.0%	◆
	UK-wide	96.3%	
Age		100.0%	◆
	UK-wide	100.0%	

Birth		Completeness	
Type of onset of labour		100.0%	◆
	UK-wide	99.0%	
Actual place of birth		100.0%	◆
	UK-wide	99.4%	
Date and time of birth		100.0%	◆
	UK-wide	98.6%	
Final mode of birth		100.0%	◆
	UK-wide	99.5%	

Booking and antenatal care [†]		Completeness	
Smoking		100.0%	◆
	UK-wide	97.5%	
Body mass index		100.0%	◆
	UK-wide	100.0%	
Intended type of care at booking		100.0%	◆
	UK-wide	96.2%	
Estimated date of delivery		100.0%	◆
	UK-wide	97.0%	

Baby's outcome		Completeness	
Date death confirmed [‡]		100.0%	◆
	UK-wide	100.0%	
Whether alive at onset of care [‡]		100.0%	◆
	UK-wide	95.1%	
Whether admitted to NNU [§]		100.0%	◆
	UK-wide	99.9%	
Main cause of death		100.0%	◆
	UK-wide	96.7%	

Baby's characteristics		Completeness	
Birth weight		100.0%	◆
	UK-wide	98.6%	
Gestational age at birth		100.0%	◆
	UK-wide	98.9%	

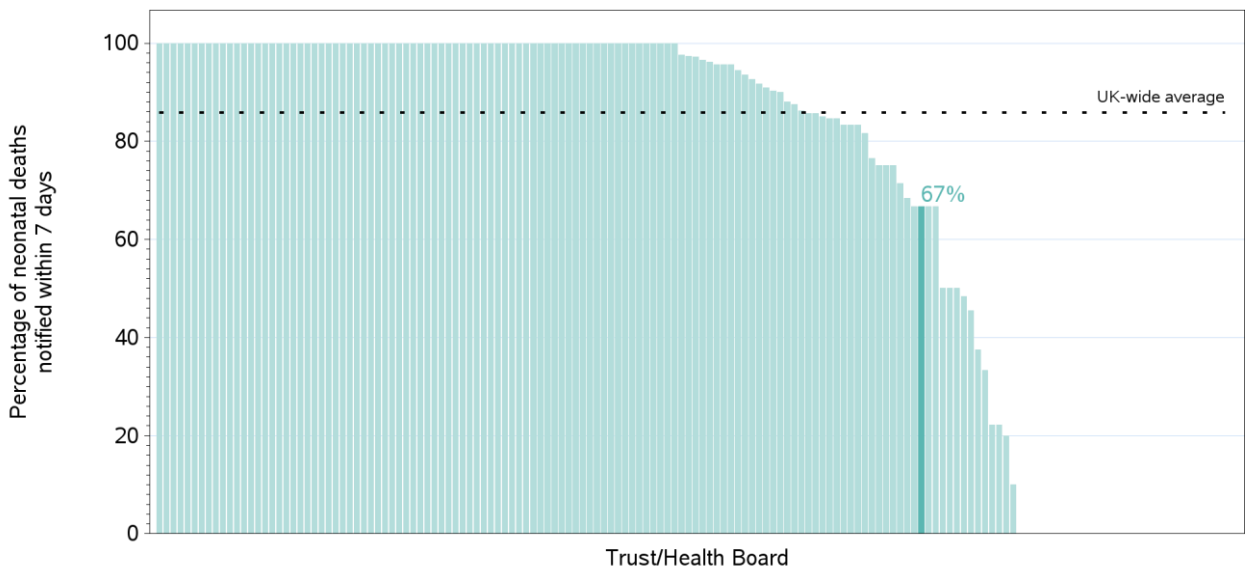
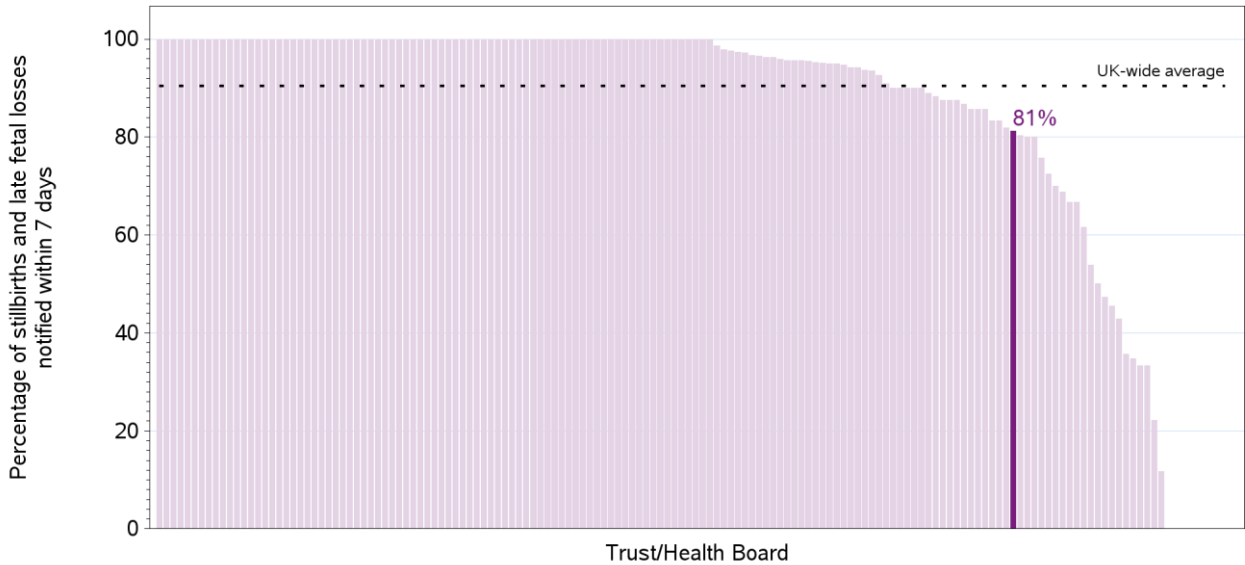
[†] excluding mothers reported as never booked; [‡] this data item is collected for stillbirths only; [§] this data item is collected for neonatal deaths only.

Percentage of deaths notified by your Trust within 7 days

The MBRRACE-UK timeliness benchmarks for the notification of deaths and completion of surveillance data are:

- 1) All deaths should be **notified** to MBRRACE-UK within 7 days of the death occurring. The full data does not have to be complete at this point.
- 2) Trusts and Health Boards should aim to **complete** data entry for each death within 90 days of the death occurring.

The graphs below show the percentage of stillbirths & late fetal losses and neonatal deaths notified by your Trust within the 7-day benchmark period.



About this report

MBRRACE-UK

This report presents one element of the work of MBRRACE-UK, a collaboration led from the National Perinatal Epidemiology Unit at the University of Oxford with members from the University of Leicester (who lead the perinatal aspects of the work), University of Birmingham, Bradford Institute for Health Research, The Newcastle upon Tyne Hospitals NHS Foundation Trust and Sands (Stillbirth and neonatal death charity).

MBRRACE-UK is commissioned by the Healthcare Quality Improvement Partnership on behalf of NHS England, NHS Wales, the Scottish Government Health and Social Care Directorate, the Northern Ireland Department of Health, Social Services and Public Safety, the States of Guernsey, the States of Jersey, and the Isle of Man Government.

Data sources

Deaths were reported to MBRRACE-UK by the Trust or Health Board where the death occurred. The information about births was obtained from routine sources – the Office for National Statistics, Personal Demographics Service, National Records of Scotland, Public Health Scotland, Northern Ireland Maternal and Child Health, States of Guernsey Health and Social Services Department, and States of Jersey Health Intelligence Unit. Home births are reported where the birth was registered via a Trust or Health Board. Births and deaths are attributed according to the configuration of Trusts and Health Boards on 1 September 2022.

Deaths from all causes except termination of pregnancy are reported, including those resulting from congenital anomalies. The information in this report may not match other local or national reported rates as births before 24 weeks gestational age have been excluded from most tables due to differences in reporting by Trusts and Health Boards. Further details on the methods we have used are included in the Technical Document available at <https://www.npeu.ox.ac.uk/mbrrace-uk/reports>.

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