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**Centre for Maternal and Child Enquiries**

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# **Perinatal and Maternal Mortality Report Feedback Report**

**Northern Ireland**

## Methodology

### Perinatal

The findings in this report are based on stillbirths and neonatal deaths with a date of birth between 1 January 2008 and 31 December 2008 notified to AWPS/CMACE and reported to the Office for National Statistics (ONS). For maternity provider rates, denominators are based on live births reported to AWPS/CMACE by hospitals. For country rates, denominators are based on live births reported to ONS and NISRA-GRO.

Perinatal mortality rates for 2008 are assigned to a geographical area. Country specific findings are derived using maternal postcode of residence. Findings for maternity providers within Northern Ireland are derived using the place of death, and any deaths at home are allocated to the maternity provider that provided the care at the time of death.

Adjusted rates are calculated by excluding all terminations of pregnancy, all lethal congenital anomalies, all babies born at less than 22 weeks gestation and all babies born weighing less than 500g.

The definition of lethal congenital anomalies has changed for 2008. For 2005-2007 it was defined using the Wigglesworth classification. For 2008, CMACE's new cause of death classification has been used, of a congenital anomaly has been coded as the primary cause of death it has been included as a lethal congenital anomaly.

### Maternal

The findings in this report are based on maternal deaths, where the woman died between 1 January 2003 and 31 December 2007, notified to CMACE and reported to the Office for National Statistics (ONS). For country rates, denominators are based on maternities reported to ONS and NISRA-GRO. Maternal mortality rates are assigned to a geographical area using postcode of residence.

Variation in rates cannot be interpreted as direct indicators of the quality of care.

The definitions that are used within this report are detailed in the table below:

Definitions	
Stillbirth	A baby delivered with no signs of life after 24 completed weeks of pregnancy is registered as a stillbirth.
Early neonatal death	Death of a live born baby occurring less than 7 days from the time of birth.
Late neonatal death	Death of a live born baby occurring after the 7 <sup>th</sup> day and before 28 completed days from the time of birth.
Stillbirth rate	Number of stillbirths per 1,000 live births and stillbirths.
Perinatal mortality rate	Number of stillbirths and early neonatal deaths per 1,000 live births and stillbirths.
Neonatal mortality rate	Number of neonatal deaths per 1,000 live births.
National stillbirth rate	All stillbirths divided by all total births in England, Wales, Northern Ireland, Channel Islands and the Isle of Man.
Average stillbirth rate	Addition of all stillbirth rates divided by the number of rates.
National neonatal mortality rate	All neonatal deaths divided by all live births in England, Wales, Northern Ireland, Channel Islands and the Isle of Man.
Average neonatal mortality rate	Addition of all neonatal mortality rates divided by the number of rates.
Maternal mortality rate	Number of maternal deaths per 100,000 maternities.
Crown Dependencies	Channel Islands (Jersey and Guernsey) and Isle of Man.

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## Section 1: Perinatal deaths - the resident population of Northern Ireland

This section includes stillbirths and neonatal deaths whose mother's postcode lies within Northern Ireland, regardless of where they booked to deliver, delivered or died.

**Table 1**  
**Country stillbirth, perinatal and neonatal mortality rates: 2008.**

		Rate [95% CI]		
		Stillbirth <sup>2</sup>	Perinatal death <sup>2</sup>	Neonatal death <sup>3</sup>
Northern Ireland	Unadjusted	4.4 [3.7, 5.3]	7.2 [6.3, 8.3]	3.6 [2.9, 4.4]
	Adjusted <sup>1</sup>	3.5 [2.9, 4.3]	4.7 [4.0, 5.7]	1.7 [1.2, 2.3]
England, Wales, Northern Ireland and the Crown Dependencies	Adjusted <sup>1</sup>	3.8 [3.7, 4.0]	5.3 [5.2, 5.5]	2.0 [1.9, 2.1]

<sup>1</sup>Adjustments: terminations of pregnancy, lethal congenital anomalies, gestation <22 weeks and birth weight <500g are excluded

<sup>2</sup>Rate per 1,000 total births

<sup>3</sup>Rate per 1,000 live births

### Explanation: Table 1

Table 1 shows unadjusted and adjusted mortality rates for the resident population of Northern Ireland. The adjusted rates show the mortality rates by removing all terminations of pregnancy, lethal congenital anomalies, babies born at <22 weeks' gestation and <500g birth weight. The national mortality rates for England, Wales, Northern Ireland and the Crown Dependencies are also shown as a comparator.

**Table 2**  
**Trends of stillbirth, perinatal and neonatal mortality rates: 2005-2008.**

	Rate [95% CI]		
	Stillbirth <sup>1,2</sup>	Perinatal death <sup>1,2</sup>	Neonatal death <sup>1,3</sup>
2005	3.3 [2.7, 4.2]	5.4 [4.5, 6.4]	2.7 [2.1, 3.5]
2006	3.0 [2.4, 3.8]	4.2 [3.4, 5.1]	1.6 [1.2, 2.2]
2007	3.1 [2.5, 3.9]	4.1 [3.4, 5.0]	1.1 [0.8, 1.6]
2008	3.5 [2.9, 4.3]	4.7 [4.0, 5.7]	1.7 [1.2, 2.3]
Total	3.3 [2.9, 3.6]	4.6 [4.2, 5.0]	1.7 [1.5, 2.0]
$\chi^2$ p-value	0.74	0.17	0.001

<sup>1</sup>Adjusted by removing terminations of pregnancy, lethal congenital anomalies, gestation <22 weeks and birth weight <500g

<sup>2</sup>Rate per 1,000 total births

<sup>3</sup>Rate per 1,000 live births

### Explanation: Table 2

Table 2 shows the adjusted rates for the resident population of Northern Ireland in 2005, 2006, 2007 and 2008, the total rates over the four years and a p-value using a  $\chi^2$  test to test for a difference. If the p-value is greater than 0.05, then there is no statistically significant difference between the rates. However, if the p-value is less than 0.05, then there is a statistically significant difference between the rates. A smaller p-value indicates a more significant difference.

**Table 3**  
**Terminations of pregnancy, lethal congenital anomalies, gestation <22 weeks and birth weight <500g: 2008.**

	Stillbirths	Early neonatal deaths	Late neonatal deaths
<b>Deaths that are Excluded from Adjusted Rates</b>			
Terminations of pregnancy	6	14	0
Lethal congenital anomalies <sup>1</sup>	13	16	7
Gestation <22 weeks <sup>2</sup>	0	1	0
Birth weight <500g <sup>3</sup>	3	11	0
<b>Deaths that are Included in Adjusted Rates</b>			
Birth weight >=500g <sup>4</sup>	91	31	12
<b>Total</b>	<b>113</b>	<b>73</b>	<b>19</b>

<sup>1</sup>Excluding terminations of pregnancy

<sup>2</sup>Excluding terminations of pregnancy and lethal congenital anomalies

<sup>3</sup>Excluding terminations of pregnancy, lethal congenital anomalies and gestation <22 weeks

<sup>4</sup>Excluding terminations of pregnancy, lethal congenital anomalies, gestation <22 weeks and birth weight <500g

Explanation: Table 3

Table 3 shows the deaths that have been removed in the calculation of the adjusted rates. The figures in the birth weight >=500g row are those that are used to calculate the adjusted rates.

**Table 4**  
**Reported deaths by place of booking and place of death: 2008.**

	Stillbirths	Early neonatal deaths	Late neonatal deaths	Live births
Booked <sup>1</sup> and died within Northern Ireland	111	71	18	
Booked <sup>1</sup> elsewhere and died within Northern Ireland	0	0	0	
Booked <sup>1</sup> within Northern Ireland and died elsewhere	0	1	0	
Booked <sup>1</sup> elsewhere and died elsewhere	0	0	0	
Place of booking and/or death other <sup>2</sup>	2	1	1	
<b>Total</b>	<b>113</b>	<b>73</b>	<b>19</b>	<b>25631</b>

<sup>1</sup>Represents intended place of delivery at initial booking

<sup>2</sup>Place of booking and/or death other includes missing, unbooked, outside the hospital, outside the UK and not known

Explanation: Table 4

Table 4 shows where women who were resident within Northern Ireland booked and where their baby/babies died. In showing location of booking and death, Northern Ireland can assess deaths that may occur among babies that have been transferred into or out of Northern Ireland.

**Table 5**  
**Maternal characteristics among stillbirths and neonatal deaths: 2008.**

		n (%) <sup>1</sup>		
		Stillbirths <sup>2</sup>	Early neonatal deaths <sup>2</sup>	Late neonatal deaths <sup>2</sup>
Age (years)	<20	8 (7)	4 (6)	1 (5)
	20-24	21 (19)	8 (12)	3 (16)
	25-29	31 (28)	18 (26)	4 (21)
	30-34	28 (25)	22 (32)	6 (32)
	35-39	13 (12)	9 (13)	2 (11)
	40-44	10 (9)	8 (12)	3 (16)
	45+	0 (0)	0 (0)	0 (0)
	<i>Missing</i>	<i>0</i>	<i>0</i>	<i>0</i>
Ethnicity	White	105 (95)	66 (96)	18 (100)
	Black	2 (2)	1 (1)	0 (0)
	Asian	1 (1)	0 (0)	0 (0)
	Chinese	0 (0)	1 (1)	0 (0)
	Mixed	0 (0)	0 (0)	0 (0)
	Other	3 (3)	1 (1)	0 (0)
	<i>Missing</i>	<i>0</i>	<i>0</i>	<i>1</i>
Employed	Yes	77 (71)	47 (72)	12 (75)
	No	31 (29)	18 (28)	4 (25)
	<i>Missing</i>	<i>3</i>	<i>4</i>	<i>3</i>
Smoking status	Never	66 (61)	44 (67)	15 (83)
	Gave up prior to pregnancy	8 (7)	2 (3)	0 (0)
	Gave up during pregnancy	6 (6)	1 (2)	0 (0)
	Current	29 (27)	19 (29)	3 (17)
	<i>Missing</i>	<i>2</i>	<i>3</i>	<i>1</i>
BMI (kg/m <sup>2</sup> )	<18.5	1 (1)	0 (0)	0 (0)
	18.5-24.9	52 (48)	25 (44)	8 (44)
	25.0-29.9	37 (34)	23 (40)	8 (44)
	30.0+	18 (17)	9 (16)	2 (11)
	<i>Missing</i>	<i>3</i>	<i>12</i>	<i>1</i>

<sup>1</sup>Percentages are calculated after removing missing values

<sup>2</sup>Second and subsequent deaths from pregnancies with multiple losses are excluded from this table

[Explanation: Table 5](#)

Table 5 shows the characteristics of the women resident in Northern Ireland who had at least one stillbirth or neonatal death. Our national Perinatal Mortality Reports show that younger and older mothers, and mothers from ethnic minorities have a higher rate of stillbirths and neonatal deaths. Employment and smoking status are new variables and will be looked at for England, Wales and Northern Ireland in the Perinatal Mortality Report for 2008.

**Table 6**  
**Obstetric factors among stillbirths and neonatal deaths: 2008.**

		n (%) <sup>1</sup>		
		Stillbirths	Early neonatal deaths	Late neonatal deaths
Parity <sup>2</sup>	Nulliparous	60 (54)	27 (39)	8 (42)
	Multiparous	51 (46)	42 (61)	11 (58)
	Missing	0	0	0
Plurality <sup>2</sup>	Singleton	107 (96)	61 (88)	16 (84)
	Multiple	4 (4)	8 (12)	3 (16)
	Missing	0	0	0
Pre-existing medical problems <sup>2</sup>	Yes	19 (17)	19 (28)	7 (37)
	No	92 (83)	50 (72)	12 (63)
	Missing	0	0	0
Previous pregnancy problems <sup>2</sup>	Yes	28 (25)	17 (25)	1 (5)
	No	36 (32)	33 (48)	11 (58)
	No previous pregnancies	47 (42)	19 (28)	7 (37)
	Missing	0	0	0
Mode of delivery	Spontaneous vaginal	93 (82)	49 (67)	6 (33)
	Ventouse	1 (1)	2 (3)	0 (0)
	Forceps	2 (2)	2 (3)	0 (0)
	Caesarean section	17 (15)	20 (27)	12 (67)
	Missing	0	0	1
Presentation at delivery	Vertex	88 (79)	46 (65)	13 (72)
	Breech	24 (21)	20 (28)	3 (17)
	Compound	0 (0)	4 (6)	1 (6)
	Brow	0 (0)	0 (0)	0 (0)
	Face	0 (0)	1 (1)	1 (6)
	Missing	1	2	1

<sup>1</sup>Percentages are calculated after removing missing values

<sup>2</sup>Second and subsequent deaths from pregnancies with multiple losses are excluded

Explanation: Table 6

Table 6 shows the obstetric factors of the women resident in Northern Ireland who had at least one stillbirth or neonatal death. Our national Perinatal Mortality Reports show that multiples have a higher rate of stillbirths and neonatal deaths. The other factors are new variables and will be looked at for England, Wales and Northern Ireland in the Perinatal Mortality Report for 2008.

**Table 7**  
**Post mortems for stillbirths and neonatal deaths: 2008.**

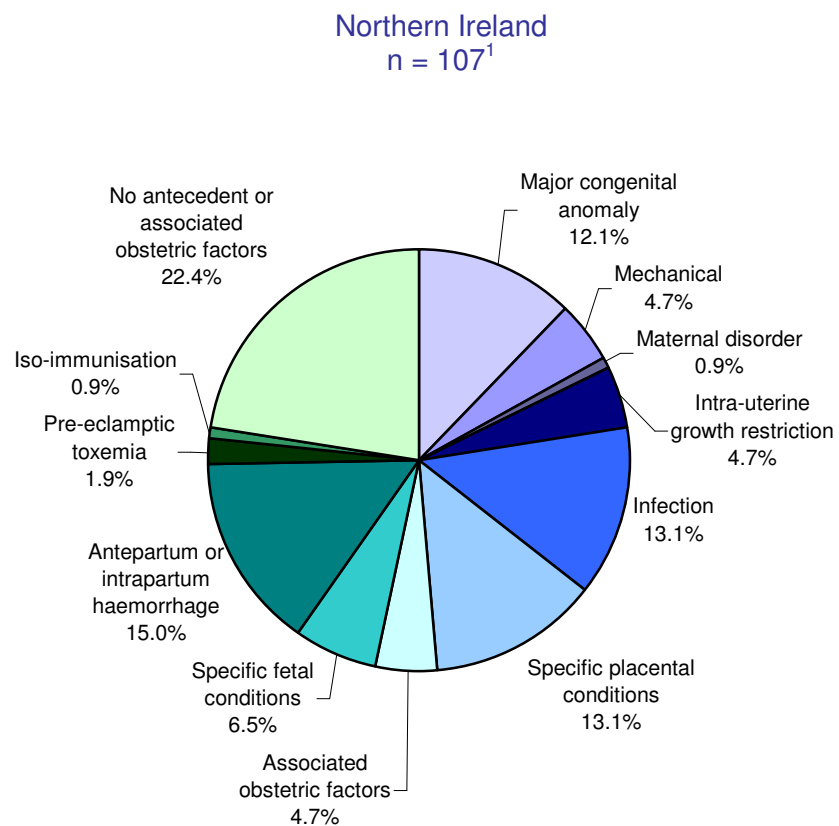
	Stillbirths	n (%) <sup>1</sup>		Total
		Early neonatal deaths	Late neonatal deaths	
Northern Ireland	73 (65)	22 (30)	9 (50)	104 (51)
England, Wales, Northern Ireland and the Crown Dependencies	1719 (48)	540 (31)	162 (33)	2421 (41)

<sup>1</sup>Percentages are calculated after removing missing values

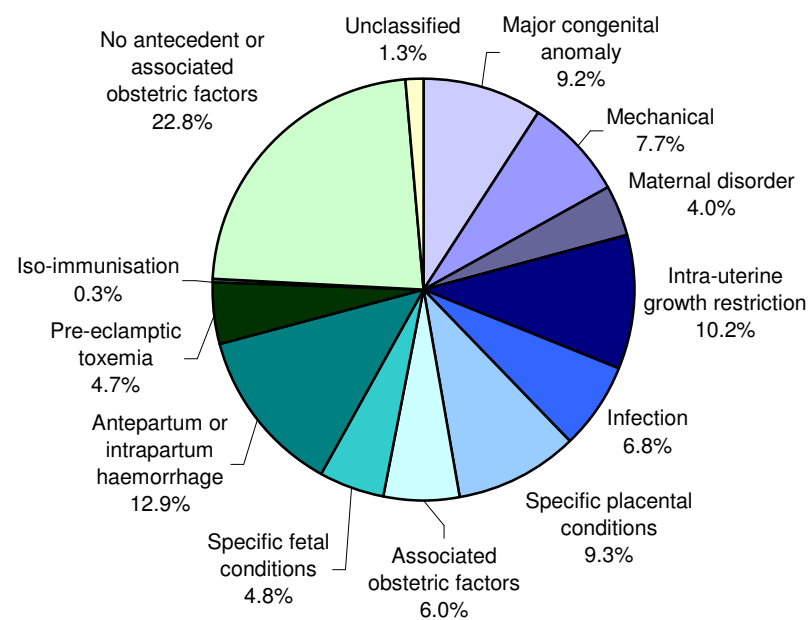
Explanation: Table 7

Table 7 shows the number and percentage of post mortems performed on stillbirths and on neonatal deaths of the resident population of Northern Ireland. It also provides comparison figures for England, Wales, Northern Ireland and the Crown Dependencies.

**Figure 1**  
**Percentage distribution of main causes of stillbirths: 2008.**

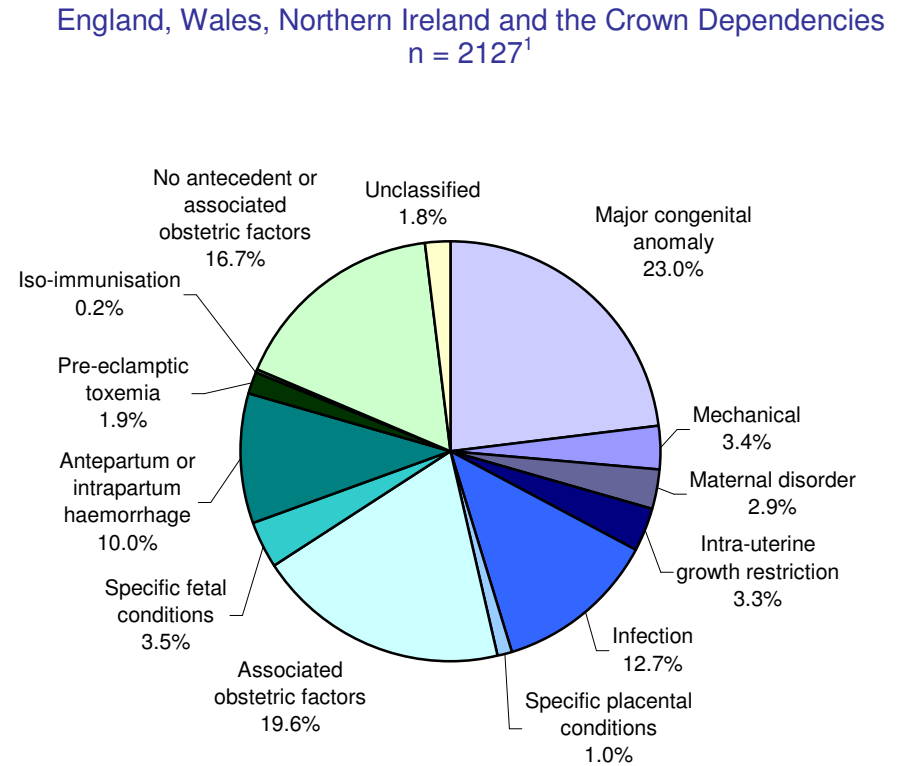
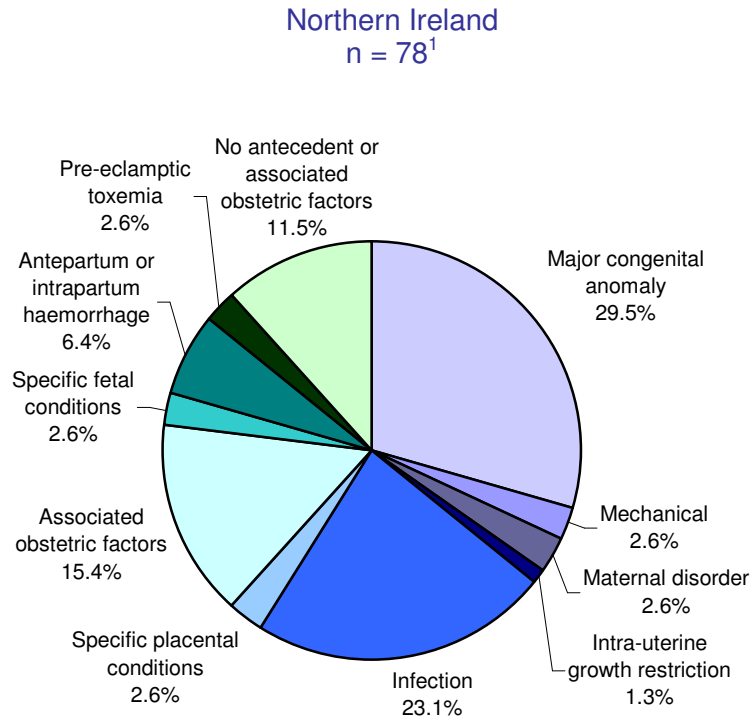


England, Wales, Northern Ireland and the Crown Dependencies  
n = 3275<sup>1</sup>



<sup>1</sup>These numbers are excluding terminations of pregnancy

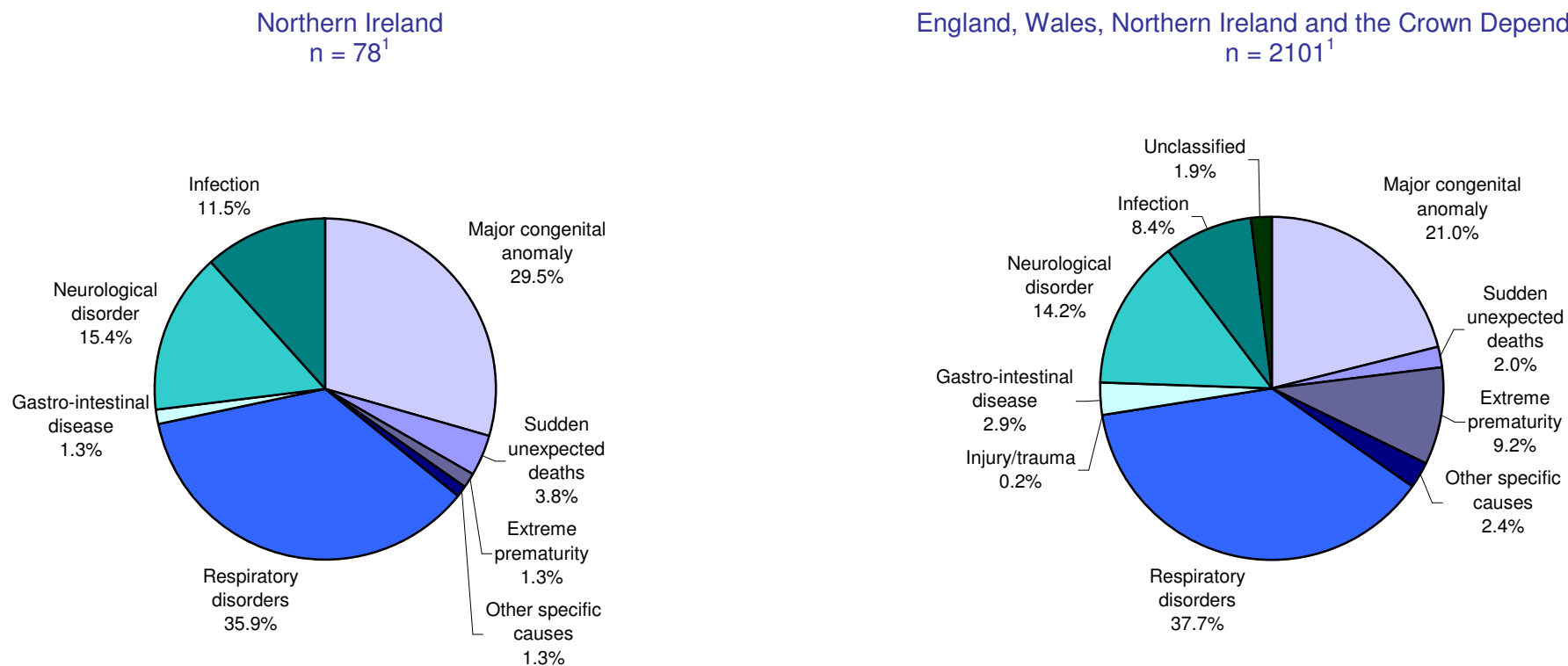
**Figure 2**  
**Percentage distribution of main causes of neonatal deaths using the maternal and fetal classification: 2008.**



<sup>1</sup>These numbers are excluding terminations of pregnancy



**Figure 3**  
**Percentage distribution of main causes of neonatal deaths using the neonatal classification: 2008.**

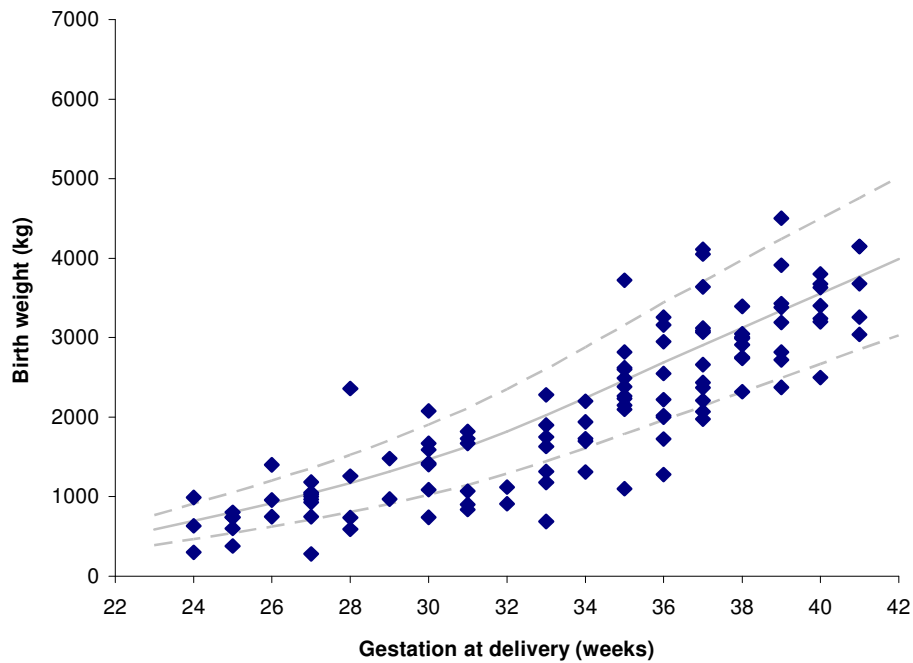


<sup>1</sup>These numbers are excluding terminations of pregnancy

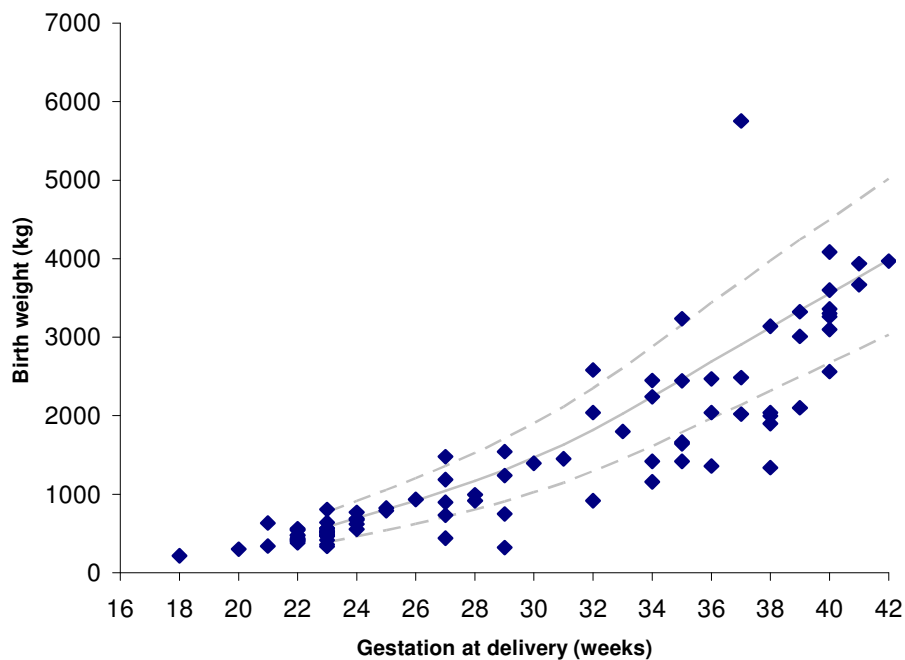
[Explanation: Figures 1, 2 and 3](#)

These pie charts show the distribution of cause of death for stillbirths and neonatal deaths of the resident population of "Anywhere\_s" and a comparison to England, Wales, Northern Ireland and the Crown Dependencies. The cause of death is classified using CMACE's new classification system. Stillbirths are classified only using the maternal and fetal classification. Neonatal deaths are classified using both the maternal and fetal classification and the neonatal classification.

**Figure 4**  
**Birth weight and gestational age distribution of stillbirths: 2008.**



**Figure 5**  
**Birth weight and gestational age distribution of neonatal deaths: 2008.**

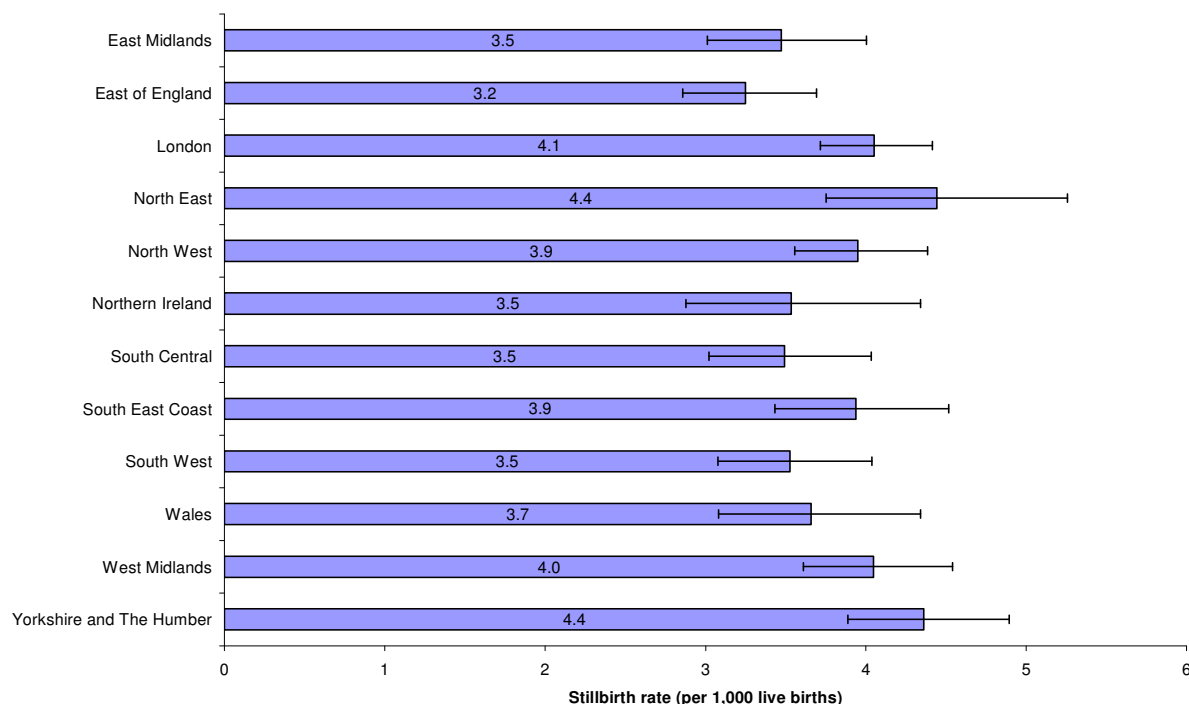


Explanation: Figures 4 and 5

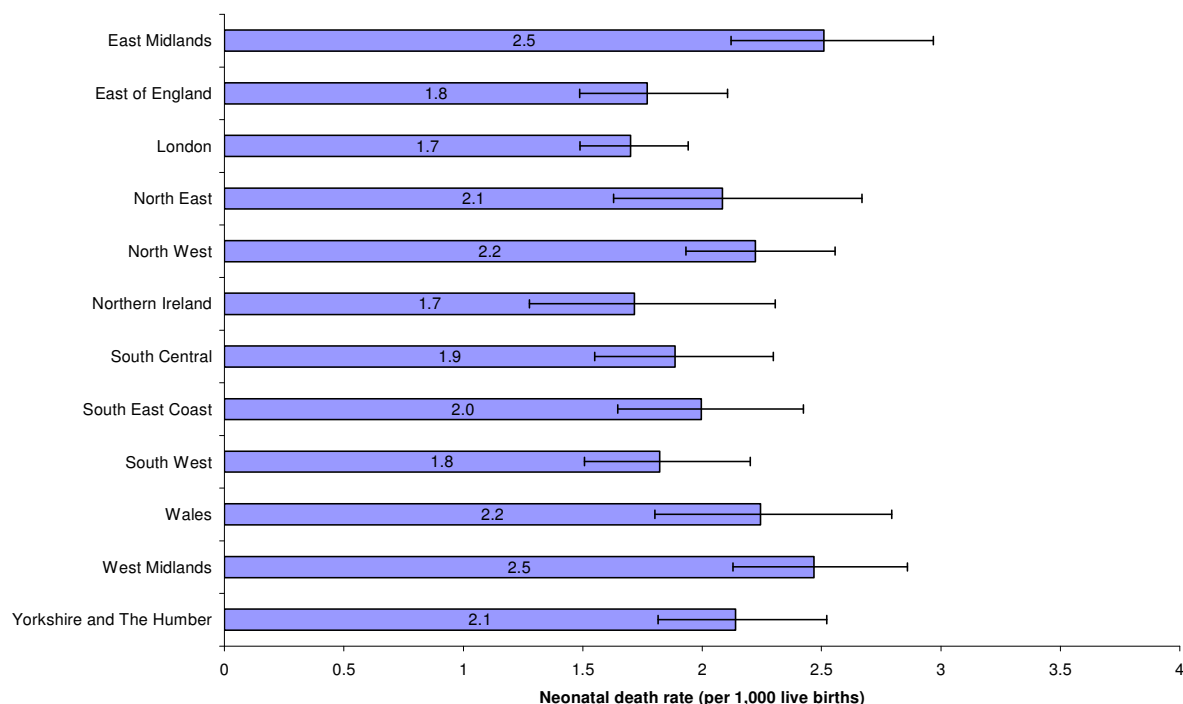
These scatter graphs show gestation at delivery against birth weight for stillbirths and neonatal deaths. Generally the scatter points will lie in a diagonal strip between the two dotted lines.<sup>1</sup> Any points that are below this strip are babies that are small for their gestational age (<3<sup>rd</sup> centile) and any points that are above this strip are babies that are large for their gestational age (>97<sup>th</sup> centile).

<sup>1</sup>Child Growth Foundation. *British 1990 Growth Reference for Height, Weight, BMI and Head Circumference analysis disk, 2001.*

**Figure 6**  
**Adjusted<sup>1</sup> stillbirth rates and 95% confidence intervals for the resident population of Wales, Northern Ireland and the SHAs in England: 2008.**



**Figure 7**  
**Adjusted<sup>1</sup> neonatal mortality rates and 95% confidence intervals for the resident population of Wales, Northern Ireland and the SHAs in England: 2008.**

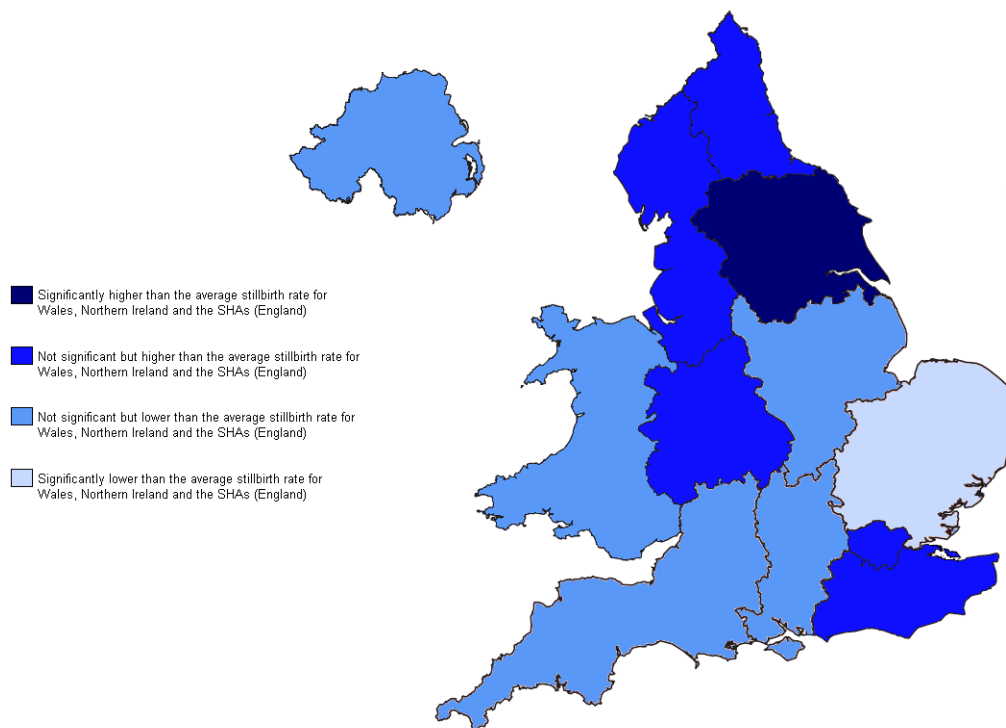


<sup>1</sup>The rates have been adjusted by removing all terminations of pregnancy, all lethal congenital anomalies, all babies <22 weeks gestation and all babies <500g in weight.

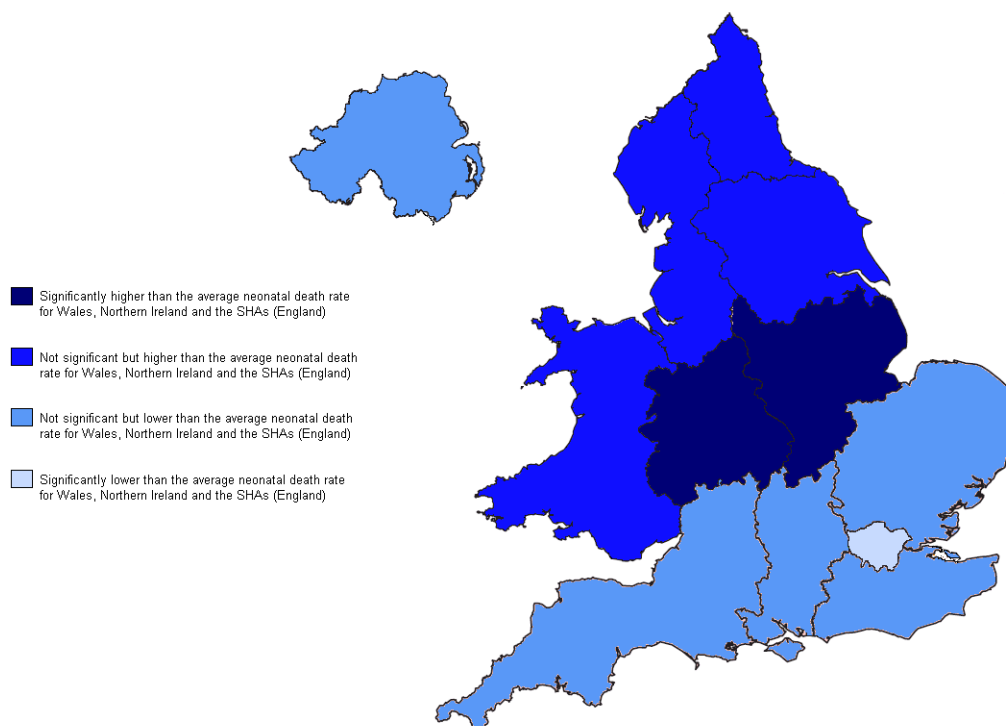
**Explanation: Figures 6 and 7**

Figures 6 and 7 show mortality rates for Wales, Northern Ireland and the SHAs in England and their 95% confidence intervals. If a confidence interval overlaps another then their mortality rates are not statistically significantly different from each other. If a confidence interval does not overlap another their mortality rates are statistically significantly different from each other.

**Figure 8**  
**Adjusted<sup>1</sup> stillbirth rates by Wales, Northern Ireland and SHAs in England: 2008.**



**Figure 9**  
**Adjusted<sup>1</sup> neonatal mortality rates by Wales, Northern Ireland and SHAs in England: 2008.**



<sup>1</sup>The rates have been adjusted by removing all terminations of pregnancy, all lethal congenital anomalies, all babies <22 weeks gestation and all babies <500g in weight.

## Section 2: Perinatal deaths – maternity providers within Northern Ireland

This section includes stillbirths and neonatal deaths that died in a maternity provider located in Northern Ireland.

**Table 8**  
**Maternity provider specific mortality rates within Northern Ireland: 2008.**

		Rate [95% CI]		
		Stillbirth <sup>2</sup>	Perinatal death <sup>2</sup>	Neonatal death <sup>3</sup>
<b>Belfast Health and Social Care Trust</b>				
Died within the Trust	Unadjusted	5.2 [3.7, 7.2]	11.0 [8.8, 13.8]	7.3 [5.5, 9.6]
	Adjusted <sup>1</sup>	3.8 [2.6, 5.6]	6.6 [4.9, 8.9]	3.7 [2.5, 5.5]
Booked, delivered and died within the Trust	Adjusted <sup>1</sup>	3.4 [2.3, 5.1]	5.0 [3.6, 7.0]	2.1 [1.2, 3.5]
<b>Northern Health and Social Care Trust</b>				
Died within the Trust	Unadjusted	4.5 [2.9, 6.9]	5.6 [3.8, 8.2]	1.6 [0.7, 3.3]
	Adjusted <sup>1</sup>	4.5 [2.9, 6.9]	5.1 [3.4, 7.7]	0.9 [0.3, 2.4]
Booked, delivered and died within the Trust	Adjusted <sup>1</sup>	4.2 [2.7, 6.6]	4.9 [3.2, 7.4]	0.9 [0.3, 2.4]
<b>South Eastern Health and Social Care Trust</b>				
Died within the Trust	Unadjusted	2.8 [1.6, 4.8]	3.7 [2.3, 5.9]	1.3 [0.6, 2.9]
	Adjusted <sup>1</sup>	2.1 [1.2, 4.0]	2.1 [1.2, 4.0]	0.2 [0.0, 1.5]
Booked, delivered and died within the Trust	Adjusted <sup>1</sup>	2.1 [1.2, 4.0]	2.1 [1.2, 4.0]	0.2 [0.0, 1.5]
<b>Southern Health and Social Care Trust</b>				
Died within the Trust	Unadjusted	4.6 [3.2, 6.7]	7.2 [5.4, 9.7]	3.1 [2.0, 4.9]
	Adjusted <sup>1</sup>	3.6 [2.4, 5.5]	4.4 [3.0, 6.5]	1.3 [0.7, 2.6]
Booked, delivered and died within the Trust	Adjusted <sup>1</sup>	3.6 [2.4, 5.5]	4.3 [2.9, 6.3]	1.0 [0.4, 2.2]
<b>Western Health and Social Care Trust</b>				
Died within the Trust	Unadjusted	4.5 [2.9, 7.1]	6.9 [4.8, 10.0]	2.9 [1.6, 5.1]
	Adjusted <sup>1</sup>	3.6 [2.2, 5.9]	5.0 [3.3, 7.7]	1.7 [0.8, 3.5]
Booked, delivered and died within the Trust	Adjusted <sup>1</sup>	3.6 [2.2, 5.9]	4.3 [2.7, 6.8]	1.0 [0.4, 2.6]

<sup>1</sup>Adjustments: terminations of pregnancy, lethal congenital anomalies, gestation <22 weeks and birth weight <500g are excluded

<sup>2</sup>Rate per 1,000 total births

<sup>3</sup>Rate per 1,000 live births

### Explanation: Table 8

Table 8 shows the stillbirth, perinatal and neonatal mortality rates for the maternity providers that are located within Northern Ireland. The unadjusted rates show the crude mortality rates for these maternity providers. The adjusted rates show the mortality rates for the maternity providers by removing all terminations of pregnancy, lethal congenital anomalies, babies born at <22 weeks' gestation and <500g birth weight.

The table shows rates for cases that **died** within the maternity provider which includes all cases regardless of where they booked to deliver i.e. babies who transferred into the maternity provider from other maternity providers. It also shows rates for cases that **booked, delivered and died** within the maternity provider which excludes the babies that transferred into the maternity provider after booking. The difference between the two rates shows the impact of transfers into a specific maternity provider on its mortality rates, and is likely to be affected by case mix of the transfers.

**Table 9**  
**Maternity provider specific trends of mortality rates within Northern Ireland: 2005-2008.**

	Rate [95% CI]		
	Stillbirth <sup>2,3</sup>	Perinatal death <sup>2,3</sup>	Neonatal death <sup>2,4</sup>
<b>Belfast Health and Social Care Trust</b>			
2005 <sup>1</sup>	3.2 [2.1, 5.0]	6.9 [5.1, 9.3]	6.0 [4.3, 8.2]
2006 <sup>1</sup>	3.4 [2.3, 5.2]	5.3 [3.8, 7.4]	2.7 [1.7, 4.3]
2007	2.7 [1.7, 4.3]	4.5 [3.1, 6.4]	2.3 [1.4, 3.7]
2008	3.8 [2.6, 5.6]	6.6 [4.9, 8.9]	3.7 [2.5, 5.5]
Total	3.3 [2.7, 4.1]	5.8 [5.0, 6.8]	3.6 [3.0, 4.4]
$\chi^2$ p-value	0.71	0.23	0.002
<b>Northern Health and Social Care Trust</b>			
2005 <sup>1</sup>	3.4 [1.9, 6.0]	4.9 [3.0, 7.8]	1.4 [0.6, 3.4]
2006 <sup>1</sup>	1.8 [0.9, 3.9]	2.9 [1.6, 5.2]	1.3 [0.5, 3.2]
2007	4.0 [2.5, 6.4]	4.4 [2.9, 6.9]	0.4 [0.1, 1.8]
2008	4.5 [2.9, 6.9]	5.1 [3.4, 7.7]	0.9 [0.3, 2.4]
Total	3.5 [2.7, 4.5]	4.4 [3.5, 5.5]	1.0 [0.6, 1.6]
$\chi^2$ p-value	0.21	0.44	0.48
<b>South Eastern Health and Social Care Trust</b>			
2005 <sup>1</sup>	4.0 [2.4, 6.7]	4.3 [2.6, 7.0]	0.3 [0.0, 1.9]
2006 <sup>1</sup>	4.2 [2.5, 6.8]	4.4 [2.7, 7.1]	0.5 [0.1, 2.1]
2007	1.4 [0.6, 3.2]	2.2 [1.1, 4.1]	0.7 [0.2, 2.2]
2008	2.1 [1.2, 4.0]	2.1 [1.2, 4.0]	0.2 [0.0, 1.5]
Total	2.9 [2.2, 3.8]	3.2 [2.4, 4.2]	0.4 [0.2, 0.9]
$\chi^2$ p-value	0.05	0.10	0.66
<b>Southern Health and Social Care Trust</b>			
2005 <sup>1</sup>	3.7 [2.4, 5.8]	4.9 [3.3, 7.2]	1.4 [0.7, 2.9]
2006 <sup>1</sup>	1.7 [0.9, 3.2]	3.1 [1.9, 5.0]	1.5 [0.7, 2.9]
2007	3.6 [2.3, 5.5]	4.4 [3.0, 6.5]	0.9 [0.4, 2.1]
2008	3.6 [2.4, 5.5]	4.4 [3.0, 6.5]	1.3 [0.7, 2.6]
Total	3.2 [2.5, 4.0]	4.2 [3.5, 5.2]	1.2 [0.9, 1.8]
$\chi^2$ p-value	0.16	0.53	0.79
<b>Western Health and Social Care Trust</b>			
2005 <sup>1</sup>	3.2 [1.8, 5.6]	5.8 [3.8, 8.8]	2.9 [1.6, 5.3]
2006 <sup>1</sup>	3.6 [2.1, 6.0]	3.8 [2.3, 6.4]	0.8 [0.2, 2.4]
2007	4.0 [2.5, 6.6]	4.5 [2.9, 7.2]	0.5 [0.1, 2.0]
2008	3.6 [2.2, 5.9]	5.0 [3.3, 7.7]	1.7 [0.8, 3.5]
Total	3.6 [2.8, 4.7]	4.8 [3.8, 6.0]	1.5 [1.0, 2.2]
$\chi^2$ p-value	0.94	0.64	0.02

<sup>1</sup>These rates may differ to those previously reported, please see methodology

<sup>2</sup>Adjusted by removing terminations of pregnancy, lethal congenital anomalies, gestation <22 weeks and birth weight <500g

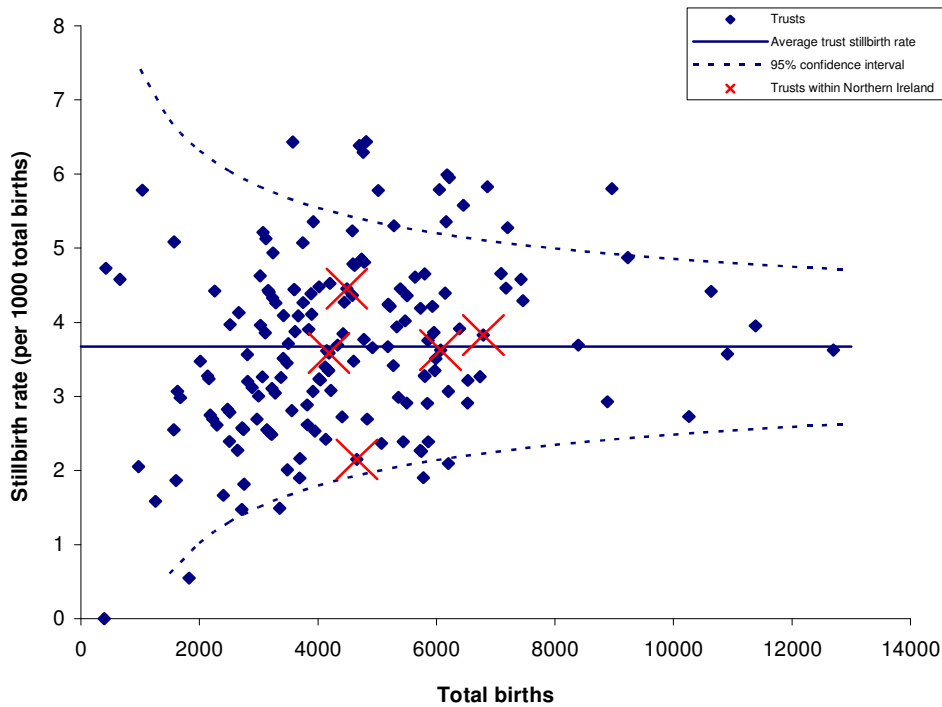
<sup>3</sup>Rate per 1,000 total births

<sup>4</sup>Rate per 1,000 live births

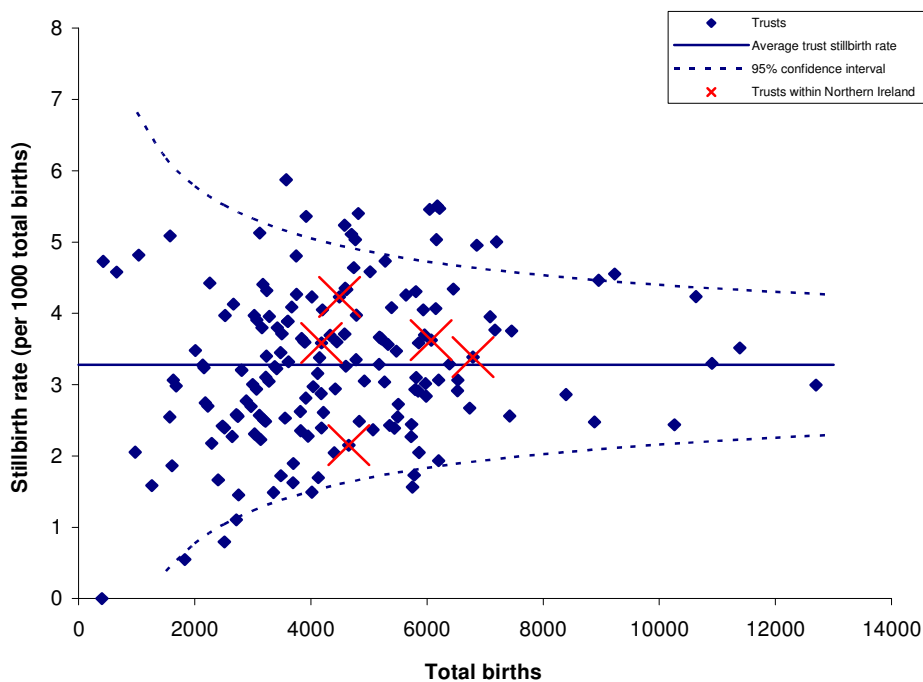
**Explanation: Table 9**

Table 9 shows the adjusted rates for cases that died within the maternity provider in 2005, 2006, 2007 and 2008, the total rates over the four years and a p-value using a  $\chi^2$  test to test for a difference. If the p-value is greater than 0.05, then there is no statistically significant difference between the rates. However, if the p-value is less than 0.05, then there is a statistically significant difference between the rates. A smaller p-value indicates a more significant difference.

**Figure 10**  
 Adjusted<sup>1</sup> stillbirth rates compared to the average maternity provider stillbirth rate and associated 95% confidence intervals for all cases that died at maternity providers within Northern Ireland; England, Wales, Northern Ireland and the Crown Dependencies: 2008.

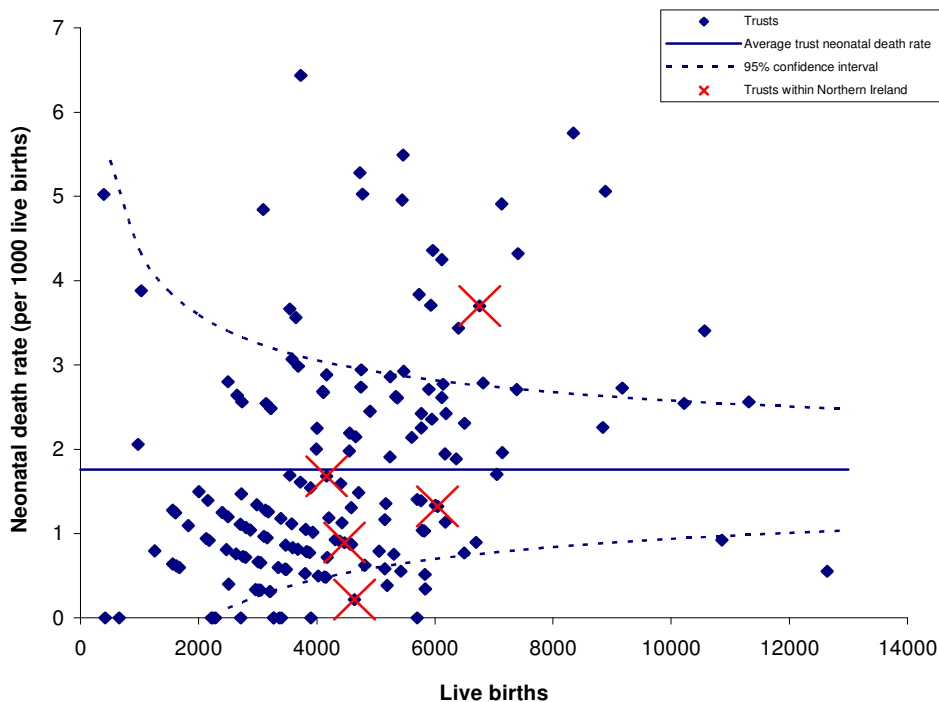


**Figure 11**  
 Adjusted<sup>1</sup> stillbirth rates compared to the average maternity provider stillbirth rate and associated 95% confidence intervals for all cases that booked, delivered and died at maternity providers within Northern Ireland; England, Wales, Northern Ireland and the Crown Dependencies: 2008.

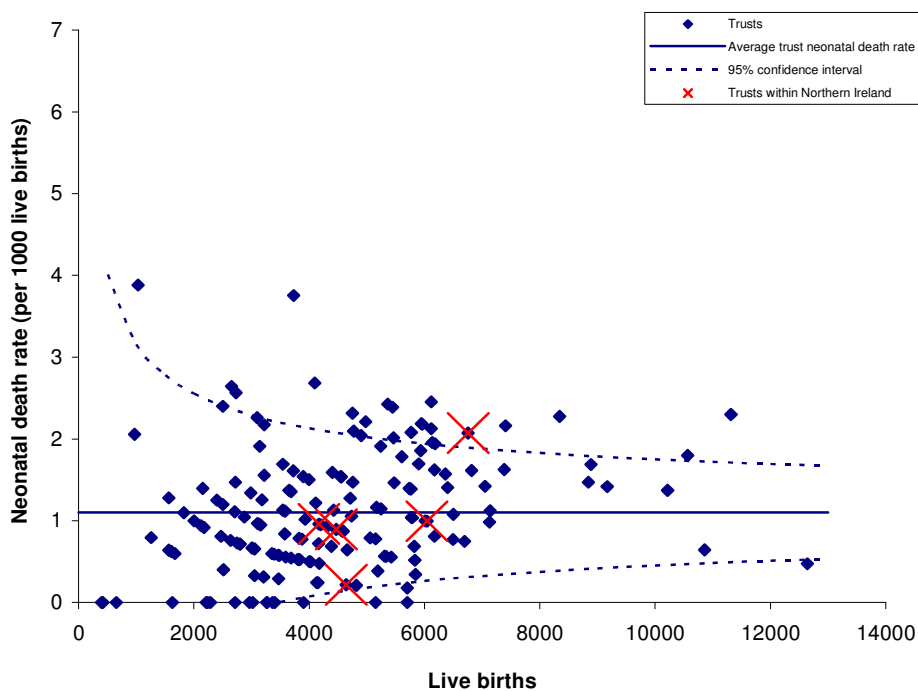


<sup>1</sup>The rates have been adjusted by removing all terminations of pregnancy, all lethal congenital anomalies, all babies <22 weeks gestation and all babies <500g in weight.

**Figure 12**  
 Adjusted<sup>1</sup> neonatal mortality rates compared to the average maternity provider neonatal mortality rate and associated 95% confidence intervals for all cases that died at maternity providers within Northern Ireland; England, Wales, Northern Ireland and the Crown Dependencies: 2008.



**Figure 13**  
 Adjusted<sup>1</sup> neonatal mortality rates compared to the average maternity provider neonatal mortality rate and associated 95% confidence intervals for all cases that booked, delivered and died at maternity providers within Northern Ireland; England, Wales, Northern Ireland and the Crown Dependencies: 2008.



<sup>1</sup>The rates have been adjusted by removing all terminations of pregnancy, all lethal congenital anomalies, all babies <22 weeks gestation and all babies <500g in weight.



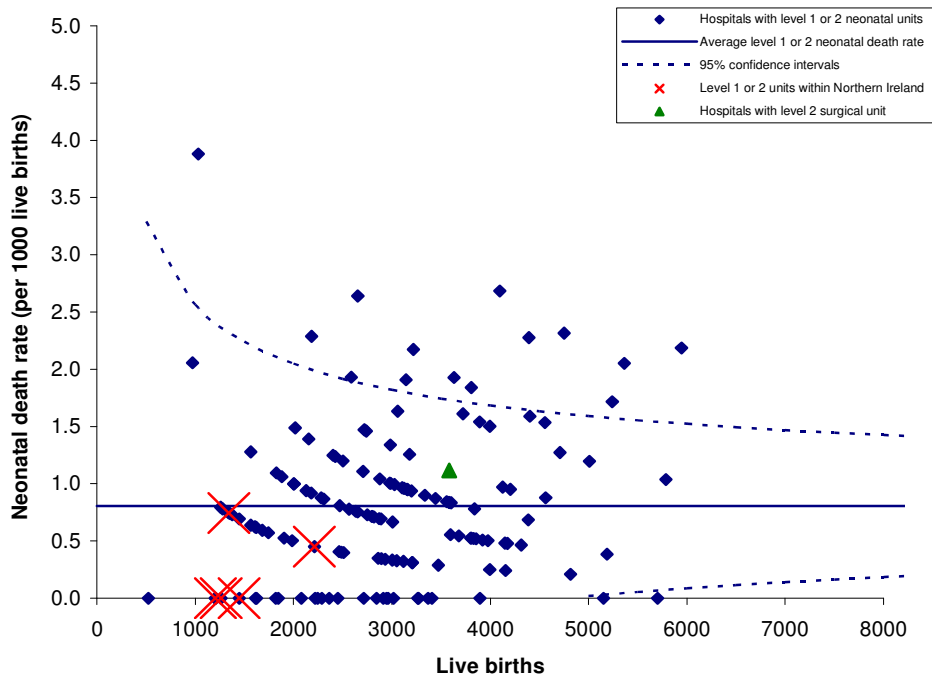
Explanation: Figures 10 to 13

Figures 10 to 13 show mortality rates for maternity providers within Northern Ireland plotted against the total number of births per year, the average maternity provider rate and associated 95% confidence intervals. If a maternity provider lies within the 95% confidence interval (dotted lines), it has a mortality rate that is statistically consistent with the average maternity provider rate (solid horizontal line). If a maternity provider lies outside the 95% confidence interval, then it has a mortality rate that is significantly different from the average maternity provider rate. The red crosses denote the positions of the maternity providers within Northern Ireland.

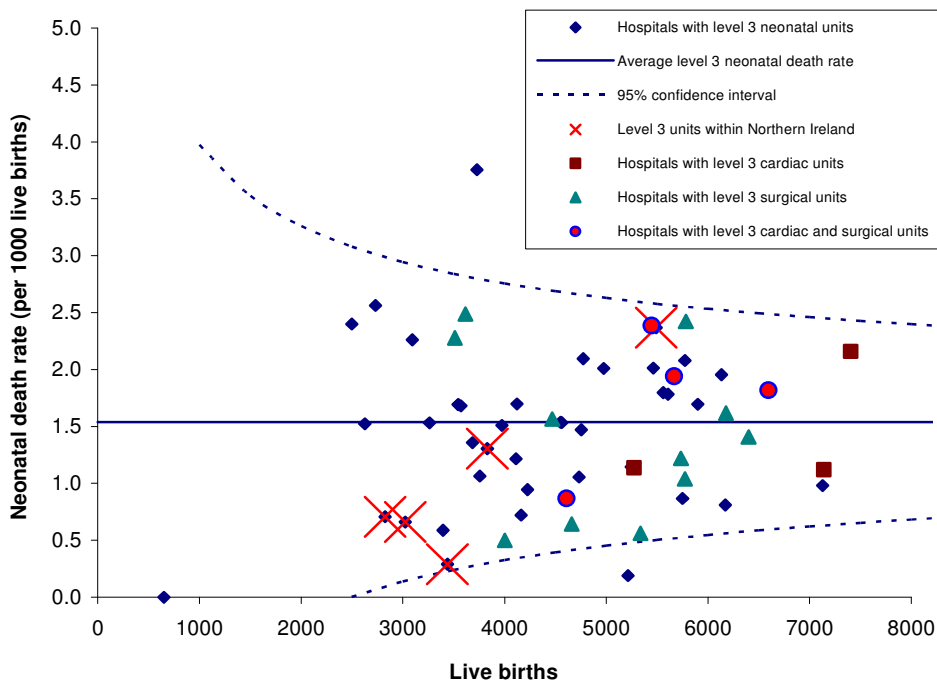
Figure 10 shows the stillbirth rate for all babies that **died** at maternity providers within Northern Ireland and figure 11 shows the stillbirth rate for all babies that **booked, delivered and died** at maternity providers within Northern Ireland.

Figure 12 shows the neonatal mortality rate for all babies that **died** at maternity providers within Northern Ireland and figure 13 shows the neonatal mortality rate for all babies that **booked, delivered and died** at maternity providers within Northern Ireland. Figure 12 includes all the cases accepted from other maternity providers during pregnancy or after delivery that subsequently die. Figure 13 excludes these babies. A specific maternity provider may have a different position in Figures 12 and 13 depending on the case mix of babies accepted from other maternity providers.

**Figure 14**  
**Adjusted<sup>1</sup> neonatal mortality rates for hospitals within Northern Ireland with level 1 or level 2 neonatal units compared to the average level 1 or level 2 neonatal mortality rate and associated 95% confidence intervals for all cases that booked, delivered and died at the hospital; England, Wales, Northern Ireland and the Crown Dependencies: 2008.**



**Figure 15**  
**Adjusted<sup>1</sup> neonatal mortality rates for hospitals within Northern Ireland with level 3 neonatal units compared to the average level 3 neonatal mortality rate and associated 95% confidence intervals for all cases that booked, delivered and died at the hospital; England, Wales, Northern Ireland and the Crown Dependencies: 2008.**



<sup>1</sup>The rates have been adjusted by removing all terminations of pregnancy, all lethal congenital anomalies, all babies <22 weeks gestation and all babies <500g in weight and transfers into the hospital.

Explanation: Figures 14 and 15

Figures 14 and 15 show mortality rates for hospitals within Northern Ireland plotted against the total number of live births per year, the average rate and associated 95% confidence intervals. If a hospital lies within the 95% confidence interval (dotted lines), it has a mortality rate that is statistically consistent with the average hospital rate (solid horizontal line). If a hospital lies outside the 95% confidence interval, then it has a mortality rate that is significantly different from the average hospital rate. The red crosses denote the positions of the hospitals within Northern Ireland.

Figure 14 shows the neonatal mortality rate for all babies that booked, delivered and died at a hospital with a level 1 or a level 2 neonatal unit. Figure 15 shows the neonatal mortality rate for all babies that booked, delivered and died at a hospital with a level 3 neonatal unit and highlights separately the hospitals with an associated neonatal surgical/cardiac centre. This allows comparisons between hospitals providing the same level of neonatal care, as they are more likely to have cases of similar severity or complexity.

## Section 3: Maternal deaths - the resident population of Northern Ireland

This section includes maternal deaths whose postcode lies within Northern Ireland

### ***How is a maternal death ascertained?***

Surveillance inclusion criteria for maternal deaths are:

- Any direct maternal death occurring during pregnancy, or within 42 days of delivery or termination of pregnancy.
- Any indirect maternal death occurring during pregnancy, or within 42 days of delivery or termination of pregnancy.

Direct death is defined as resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium), from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above.

Indirect death is defined as resulting from previous existing disease, or disease that developed during pregnancy and which was not due to direct obstetric causes, but which was aggravated by the physiologic effects of pregnancy.

Maternal deaths are notified to the CMACE office where the woman was resident. A maternal death notification (MDN) form is completed. A maternal death report (MDR) form is sent to those involved in the care of the woman.

The MDR and anonymised case notes are assessed cause and type of death.

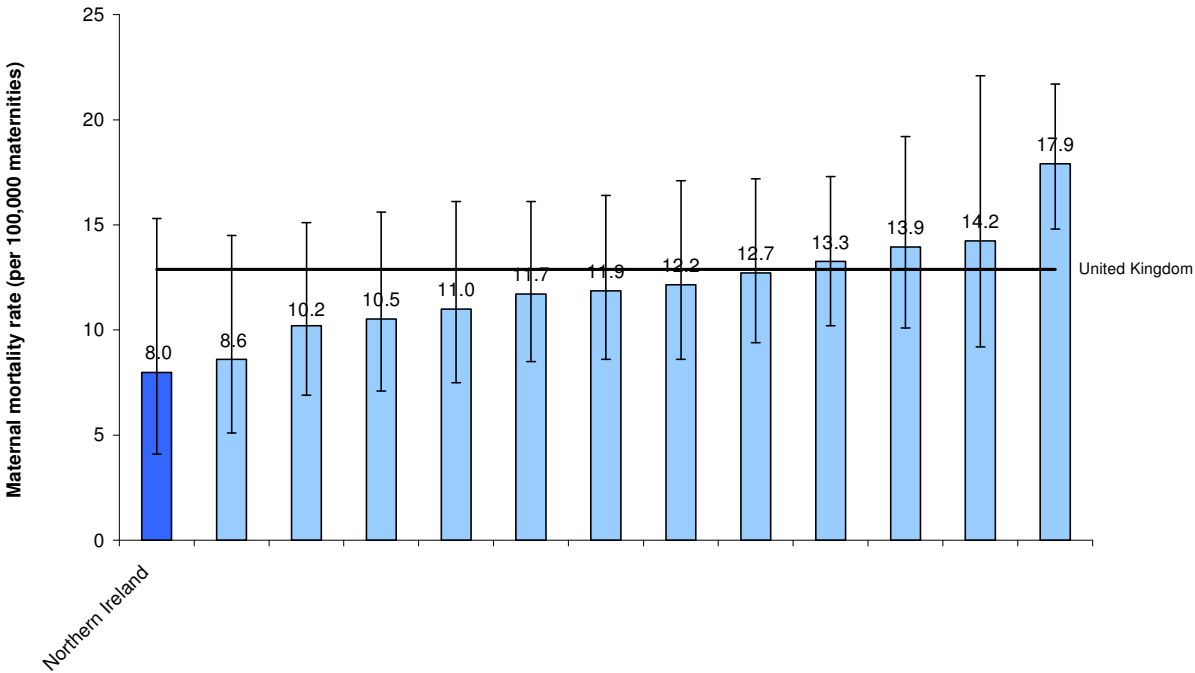
### ***How is the rate calculated?***

The rate for the SHA/country is calculated by dividing the number of maternal deaths of residents between 2003 and 2007 by the number of maternities and by multiplying the result by 100,000.

### ***What does the rate mean?***

The rate is the number of maternal deaths in the SHA or country per 100,000 maternities. The 95% confidence intervals are also shown on the graph. If the confidence interval overlaps the line for the UK then the rate is not significantly different from the UK rate, but if the confidence interval does not overlap the line for the UK then the rate is significantly different from the UK rate. If the confidence interval overlaps another confidence interval for another SHA or country then the rates are not significantly different, however if they do not overlap then they are significantly different.

**Figure 16**  
**Maternal mortality rates for Northern Ireland, Scotland, Wales and the SHAs in England: 2003-2007.**



For 3 deaths between 2003 and 2007, region of residence is not known as the postcode is missing.

Please note that the figures are based on the best available data, but that reclassification could lead to revisions for the final two years' data (i.e. 2006-2007).