

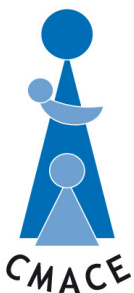


GOVERNMENT OFFICE
FOR THE NORTH WEST



North West Report of Child Deaths 2008/2009

**A collaboration between NW Directors of Children's Services,
NW Local Safeguarding Children Boards, GONW, NHSNW,
DHNW and CMACE**



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The GONW Safeguarding Team led the establishment of the collaboration and provided support and encouragement throughout.

Tom Hennell provided denominator data.

CMACE staff based in Manchester and at its Central Office in London collated the data, maintained the regional database and prepared the report.

Glossary

BMI	Body mass index
BPD	Bronchopulmonary dysplasia
CAMHS	Children and Adolescent Mental Health Services
CDOP	Child Death Overview Panel
CEMACH	Confidential Enquiry into Maternal and Child Health (now CMACE)
CMACE	Centre for Maternal and Child Enquiries
DCSF	Department for Children, Schools and Families
GONW	Government Office North West
IMD	Index of Multiple Deprivation
LSCB	Local Safeguarding Children Boards
NHSNW	NHS North West
NNU	Neonatal unit
NWPH	North West Public Health, Department of Health North West
ONS	Office of National Statistics
PDN	Perinatal death notification form
RTA	Road traffic accident
SCR	Serious case review
SUDI	Sudden unexpected death in infancy

1 Commentary

Introduction

All local authorities in England were required to collect information relevant to deaths of resident children and to set up child death review panels by 1st April 2008. There were 22 Local Safeguarding Children Boards in 2008/9 in the North West region. They were supported by the Government Office North West Regional Safeguarding Strategy Board. The Government Office North West commissioned the Centre for Maternal and Child Enquiries (CMACE) to coordinate child death data collection across the region by providing a regional database and data collection services. In addition, CMACE was commissioned to provide an analysis of the first year of regional data as summarised in this report. The regional collaboration in regards to child death data was voluntary for the 22 LSCBs within the region, and all LSCBs participated. The work was sponsored by the Government Office North West (GONW), NHS North West (NHSNW) and North West Public Health (NWPB) Department of Health North West.

It should be noted that this is the first year of child death data collection, and as such, the value of this analysis for the regional collaboration is not so much to provide definitive answers as to provide direction for the future and highlight potential areas for development within the system.

Data Capture

The data in this report is an amalgamation of reports from 22 LSCBs within a geographically defined area. Case ascertainment is thought to be high making the data epidemiologically informative and a useful source of hypotheses for further study. As combined and more complete data from other geographical regions are identified and national data aggregated, the information yield obtainable from reports such as this will increase. Meanwhile there are a number of comparisons that can be drawn and others that remain more elusive. The closest thing to a national benchmark to compare these data to is currently the child death review *Why Children Die*. This was a study undertaken by CEMACH on all child deaths in 2006, and reported in May 2008, of children who lived or died in Wales, Northern Ireland and the South West, West Midlands and North East of England. However there will be important epidemiological differences between the populations of these regions themselves and between them collectively and the North West. Furthermore the distribution and characteristics of deaths within the North West would benefit from further comparison with denominator data from the total North West population itself.

Unexpected and Preventable Deaths

The primary aim of data collection from LSCBs is to identify preventable deaths. Common themes emerging from these deaths can be reasonably expected to reveal opportunities to reduce the child death rate and make a significant impact upon child health, since for every death there will be “near miss” events carrying with them an associated morbidity. There is, however, an inherent difference between the *Why Children Die* review and the remit and function of Child Death Overview Panels. Firstly, cases selected for review in *Why Children Die* were not selected by the time-defined “unexpected” criterion. Secondly, there are challenges for Child Death Overview Panels in labelling a death as “preventable,” as they take into account the benefits of hindsight that they enjoy. In this report, the unexpected / preventable status of the case was not sought for neonatal cases. Furthermore and for similar reasons, some of the participating boards chose not to make this determination in any of the cases that were considered. The problem was largely circumvented in the *Why Children Die* study by disaggregating the complex factors anticipated to be present in relation to each death and classifying *them* as avoidable / potentially avoidable rather than the death itself. The North West data shows that both unexpected deaths and the percentage of deaths described as preventable increase in the higher age groups. This probably reflects the percentage of cases due to trauma and the way in which panels have interpreted traumatic death with regards to preventability.

Reporting to Coroners and Conducting Serious Case Reviews

There are remarkable differences in the working practices of individual coroners across the country, but where we have an assessment (220 of the 670 deaths) the high proportion of child deaths reported to coroners in the North West is notable. This might be due to:

- the recognition of avoidable factors / preventable deaths through the activities of CDOPs
- the impact of Public Service Announcement Delivery Agreement 13 (Revised July 2009)
- local coronial requirements.

It is also laudable since it will help to assuage concerns over the accuracy of information entered on medical certificates of the cause of death.

In this report, we have focused on cause of death as identified at notification stage, as there was insufficient information on cause of death as reviewed at Child Death Overview Panels. The cause of death reported to us at notification stage included cases where the possibility for considering a serious case review may have been considered, for example:

- 14 deaths resulting from deliberately inflicted injury, abuse or neglect
- 18 deaths from suicide or deliberate self-inflicted harm.

There were complications in attempting to identify the extent to which such deaths result in a serious case review. The information is currently requested at the point of notification on Form A. The decision to conduct a serious case review will rarely have been made at this point, and the notifying individuals may not be part of that decision-making process. In order to begin to provide an overview of this issue, we therefore matched the deaths reported to us by cause of death against the data held by the NWGO on whether there had been a serious incident notification and also whether a serious case review was undertaken. This showed that of the 14 deaths from deliberately inflicted injury, abuse or neglect, 11 had resulted in a serious incident notification and of these, 6 led to a serious case review. In the remaining 3 cases, there was no serious incident notification or serious case review undertaken. In the 15 cases of death due to suicide and 3 of deliberate self-inflicted harm, 11 resulted in a serious incident notification, and, of these, 2 led to a serious case review. In the remaining 7 cases, there was no notification made or serious case review undertaken. We understand that 3 cases of suicide indicated at notification stage were subsequently reclassified by Child Death Overview Panels.

This appears to be an area meriting further analysis, including matching to factors other than cause of death, for example, whether the child was subject to a child protection plan. We would propose to carry out such further matching only after further consultation with stakeholders in the North West.

Suicides and Homicides

A higher rate of suicide of children was found in the CEMACH death review and subsequently described in the *Why Children Die* report (26 cases) than was expected from comparison with data from the Office for National Statistics. After extensive consultation and data comparison, this higher rate was ascribed to differences in the method of data collection resulting from death registration and for confidential enquiry purposes. Specifically, the CEMACH study questionnaire included a direct question ("Was this a suicide?"), whereas death certificates (the source of data for the Office for National Statistics (ONS)) may contain less explicit entries that result in cases not being recorded by ONS as a suicide.

A similar phenomenon may be occurring in the North West in relation to suicide, in that the new death review processes may be fostering greater recognition of suicides. Nevertheless, it is difficult to be sure what the true rate of suicide is in the North West. At notification stage, 15 suicides of children were recorded. We were notified of consideration by Child Death Overview Panels of 8 out of these 15 suspected suicides and they confirmed the cause of death as suicide in 5 of these cases.

In common with *Why Children Die*, there is little evidence of prior involvement with child and adolescent mental health services amongst the children for whom suicide was suspected.

Additionally, there appear to have been more homicides in the North West in 2008/9 than in the whole of the area covered by *Why Children Die* in 2006 (13 compared to 12).

Location of Death

The majority of deaths in older children occurred in hospital, despite high proportions of them occurring to children who might be anticipated to have life-limiting disability or chronic illness. Difficulty in predicting or accepting the life-limiting nature of some childhood diseases prevents them from dying in less clinical and more homely surroundings (only 3% died in a hospice in the North West in keeping with the 2% reported by *Why Children Die*).

When looking at the hospital deaths in more detail, the largest groups of both unexpected and preventable deaths were classified as having occurred in the emergency department. Experience from the *Why Children Die* study suggests that this will represent the diagnosis of death or the endpoint of resuscitation attempts, and the preventable element or factor will, in the vast majority of cases, not relate to the care in the emergency department. Hence it might be useful in future to define the place where the incident/injury or illness that led to death commenced. The other contrast in the data relating to hospital deaths is the low proportion of deaths that occur in intensive care. This is at first surprising, but may be partially explained by the export of complex cardiac and liver cases out of the region, if there is a specific problem with data capture when North West residents die outside the region.

Deprivation

Child death is more common amongst the more deprived elements of the population. The proportion of deaths in this group is accentuated in the North West data compared to *Why Children Die*. Furthermore, the proportion of neonatal deaths, which is also closely linked to deprivation, is also greater amongst the North West data. This accentuated effect reflects the greater prevailing levels of deprivation in the North West compared to the areas involved in *Why Children Die*.

Sudden Unexplained Death in Infancy

Fifty-five cases of sudden unexplained death in infancy amongst 386 deaths is a higher proportion than that in *Why Children Die*. A representative sample of these cases had lower rates of being put to sleep on their back than in *Why Children Die* and higher rates of parental smoking. The rates of co-sleeping and not sleeping in a cot were comparable.

Data Quality

Despite the impression that case ascertainment has been high, many data fields were sparsely populated. There were distinct patterns in the distribution of high levels of missing data with varying performance between LSCBs. Where proportions have been quoted in this report, missing data has been excluded. We have had to interpret these data carefully and restrict comment to cases where total numbers of cases are significant in comparison to *Why Children Die*.

2 Key Findings

This is the first year of the regional collaboration on child death data collection using the DCSF dataset. There are three key findings relating to ways in which the process could be developed to enhance its future value. There are four key findings based on the analysis of cause of death. At this early stage in the collaboration, the findings identify areas which merit further investigation rather than definitive conclusions.

Process

1. To ensure more consistent practice in the region, the development of criteria to apply across the North West for whether a child death is preventable or potentially preventable would be valuable. Once developed, it would be useful to monitor how these criteria are used in practice in the assessment of preventability and to provide feedback to CDOPs.
2. There is great variability in rates of completion of the child death data collection variables mandated by the DCSF both between different LSCBs and for individual data collection items. Discussion amongst the LSCBs about this variability would help ensure that key data is collected as widely as possible. Feedback to LSCBs on how they compare with other authorities would be valuable.
3. A potential benefit of the child death data collection system is to link with the serious case reviews to identify whether they are conducted where expected. In 2008/9, information on whether a serious case review was conducted into the death required a separate matching exercise with data held by the NWGO. This is because information was sought at notification stage. Better information on whether a serious case review has been or should be undertaken would be available when the CDOP assesses the death and completes Form C.

Analysis of cause of death

1. It is difficult to determine how many deaths of children are due to suicide or deliberate self-harm. The CEMACH study on child deaths in 2006 in 3 regions of England, in Wales and in Northern Ireland indicated that current systems of classification substantially understate the number of children who take their own lives. This also appears to apply in the North West. Further work on how many children take their own lives and whether services are available and being used to reduce such deaths may be beneficial.
2. The leading cause of accidental death in children in the North West was Road Traffic Accidents, which was identified as the cause of death of 29 children.
3. This report confirms that since Sudden Unexpected Death in Infancy (SUDI) is a major cause of child death in the North West, greater effort to ensure the collection of the additional information required by the DCSF supplementary form on this would be beneficial. Preliminary review of the data suggests that there may be a need to reinforce health education messages on issues such as supine rather than prone sleeping, co-sleeping, smoking and so on. Similar issues were raised by the data collected on levels of maternal obesity and late booking in respect of neonatal deaths, where there may be opportunities for enhancing preconception and/or antenatal health education messages.
4. Chromosomal, genetic and congenital anomalies were the cause of the highest number of non-accidental child deaths, with 42 in the neonatal period and 89 between the ages of 28 days and 18 years. Whilst it was considered that such deaths were rarely preventable, the partners in the regional collaboration may wish to consider any policy implications.

3 Summary

Overview

Table 1 shows the number of deaths of children that were resident within the North West region that died between April 2008 and March 2009. In 2008/2009, there were 670 children whose deaths were notified. Table 1 shows the proportions of deaths that were during the neonatal period (less than 28 days after birth) and among children 28 days or older. Overall, 42% of the deaths occurred in infants less than 28 days old (neonatal) and 58% were among children 28 days or older. These proportions are consistent with national data.

Table 1
Deaths among children resident in the North West 2008/9

	Number	Percentage ¹
Neonatal deaths (0-27 days)	284	42.4
Child deaths (28 days - 18 years)	386	57.6
Total child deaths (0 days - 18 years)	670	

¹ Percentages are calculated excluding any not known or missing values.

Unexpected and Preventable Deaths

There was large variability across the participating CDOPs in regards to the number of child deaths reviewed during the year. The highest rate of review by panel was 89% of resident child deaths. Four CDOPs did not report on the percentage of cases reviewed. Establishing regional guidance on panel review processes may be helpful to those CDOPs that struggled to review cases.

Working Together to Safeguard Children states the following definition of an unexpected death of a child:

In this guidance an unexpected death is defined as the death of a child that was not anticipated as a significant possibility 24 hours before the death, or where there was a similarly unexpected collapse leading to or precipitating the events that led to the death. The designated paediatrician responsible for unexpected deaths in childhood should be consulted where professionals are uncertain about whether the death is unexpected. If in doubt, these procedures should be followed until the available evidence enables a different decision to be made.

The number of unexpected deaths as determined by the Child Death Overview Panels (CDOPs) is shown in Table 2. CDOPs considered deaths to be unexpected in 66% of deaths for children 28 days to 18 years. CDOPs also classified deaths as not preventable, potentially preventable, or preventable. Among children (28 days to 18 years), CDOPs identified 43 deaths (30%) that were either preventable (9 deaths) or potentially preventable (34 deaths).

Table 2
Summary of reviews by Child Death Overview Panels, children ages 28 days to 18 years, North West Region 2008/9

	Number	Percentage ¹
Child deaths reviewed by CDOP	177	45.9
Unexpected child deaths	105	65.6
Preventable child deaths ²	43	29.9

¹ Percentages are calculated excluding any not known or missing values.

² Includes 9 "preventable" and 34 "potentially preventable" deaths. All columns headed "preventable" in the remainder of the report include all 43 of these deaths

Note: Data on the review of deaths by CDOPs in Table 2 was taken at the time of closure of the main database on 30 June 2009. As CDOPs continued both to review deaths occurring in 2008/9 after 30 June 2009 and also report the outcome of such reviews to us after

that date, we reviewed the position in respect of information provided to us. As at 11 September 2009, we had been notified of 219 reviews of deaths of children aged 28 days to 18 years, i.e. 56.7% of all such child deaths. The percentage of child deaths considered unexpected has remained the same at 66% whilst the percentage considered preventable reduced slightly to 28%. According to the data submitted to us, there was considerable variation in the extent to which deaths at each LSCB were reviewed by the related CDOP. It appears that for 7 of the 22 LSCBs, the related CDOP reviewed less than 50% of the deaths, whilst for 4 of the LSCBs, 80% or more of the deaths were reviewed by the CDOP.

Investigations of death

Table 3 shows the number of deaths that had a post mortem examination and/or were reported to the coroner. Among children (28 days to 18 years), 57% had a post mortem examination and 88% were reported to the coroner. Among infants less than 28 days, 15% had a post mortem examination and 19% were reported to the coroner.

Table 3
Investigations of deaths, North West Region 2008/9

Investigations	Number (Percentage ¹)		
	Neonatal Deaths (0-27 days)	Child Deaths (28 days – 18 years)	TOTAL
Was a post mortem conducted?			
Yes	31 (14.8)	128 (57.4)	159 (37.3)
No	172 (85.2)	95 (42.6)	267 (62.7)
Was the death reported to the coroner?			
Yes	50 (18.7)	172 (88.2)	222 (48.1)
No	217 (81.3)	23 (11.8)	240 (51.9)

¹ Percentages are calculated excluding any not known or missing values.

4 Socio-Demographic Factors

Neonatal Deaths

Table 4 shows the distribution of socio-demographic factors among the neonates that died. Approximately 55% of the infants that died were male and 45% were female. The majority of infants that died were White (82%). A very small proportion of the infants were asylum seekers (1.6%). Over half of the infants were resident in the most deprived quintile.

Table 4
Socio-demographic factors of neonatal deaths, North West Region 2008/9

Characteristic	Number (Percentage ¹)
	Neonates (0-27 days)
Sex	
Male	155 (55.4)
Female	125 (44.6)
Ethnicity	
White	213 (81.6)
Black	12 (4.6)
Asian	29 (11.1)
Chinese	--
Mixed	4 (1.5)
Other	3 (1.1)
Asylum seeker	
Yes	2 (1.6)
No	122 (98.4)
Deprivation	
1 (least deprived)	14 (4.9)
2	38 (13.4)
3	33 (11.7)
4	44 (15.5)
5 (most deprived)	154 (54.4)

¹ Percentages are calculated excluding any not known or missing values.

Child Deaths

Table 5 shows the distribution of socio-demographic factors among the children ages 28 days to 18 years that died. Approximately 56% of the children that died were male and 44% were female. The majority of children that died were White (76%). A very small proportion of the children were asylum seekers (0.7%). Over half of the children were resident in the most deprived quintile. A further discussion of the impact of deprivation on child mortality in the North West is provided on pages 14 and 15.

Table 5
Socio-demographic factors of children that died, North West Region 2008/9

Characteristic	Number (Percentage ¹)
	Child Deaths (28 days-18years)
Sex	
Male	214 (55.7)
Female	170 (44.3)
Age	
0-27 days	--
28-364 days	137 (35.5)
1-4 years	86 (22.3)
5-9 years	40 (10.4)
10-14 years	45 (11.7)
15-18 years	78 (20.2)
Ethnicity	
White	153 (76.1)
Black	7 (3.5)
Asian	34 (16.9)
Chinese	3 (1.5)
Mixed	3 (1.5)
Other	1 (0.5)
Asylum seeker	
Yes	1 (0.7)
No	148 (99.3)
Deprivation	
1 (least deprived)	23 (6.3)
2	46 (12.6)
3	33 (9.0)
4	62 (17.0)
5 (most deprived)	201 (55.1)
Education	
Not in education	140 (55.8)
Nursery	7 (2.8)
School	87 (34.7)
College	9 (3.6)
Left education - unemployed	2 (0.8)
Left education - employed	5 (2.0)

¹ Percentages are calculated excluding any not known or missing values.

Age

The largest proportion of deaths of children ages 28 days to 18 years was among infants (28 days to 364 days). Among these infants, 26% of deaths were classified as unexpected and 12% as preventable or potentially preventable.

As seen in Figure 1, the middle years (1-4 years, 5-9 years, and 10-14 years) represented smaller relative proportions of child deaths compared to infants and teens. Teens (15-18 years) represented 20% of total deaths. Among teen deaths (15-18 years), 32% were identified as unexpected and 17% as preventable or potentially preventable (Table 6).

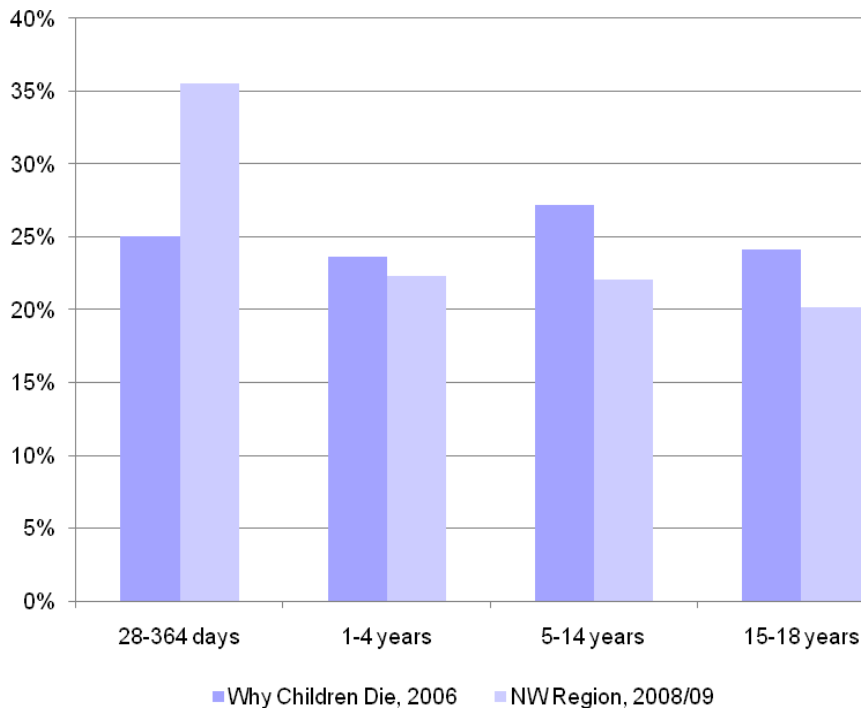
As seen in Figure 1, the main difference in the relative proportions among age groups between North West 2008/9 and *Why Children Die* data from 2006 is that the North West had a higher proportion of infants. The regions included in the *Why Children Die: A Pilot Study 2006* were England (South West, North East and West Midlands), Wales and Northern Ireland.

Table 6
Unexpected and preventable deaths by age group, North West Region 2008/9

Age	Number (% of children in that age group ¹)		Total Child Deaths (28 days- 18years)
	Unexpected	Preventable	
28-364 days	35 (25.5)	16 (11.7)	137
1-4 years	23 (26.7)	8 (9.3)	86
5-9 years	8 (20.0)	1 (2.5)	40
10-14 years	14 (31.1)	5 (11.1)	45
15-18 years	25 (32.1)	13 (16.7)	78
Total	105 (27.2)	43 (11.1)	386

¹ Percentages are calculated excluding any not known or missing values.

Figure 1
Age distribution of child deaths, children ages 28 days to 18 years: Comparison between
***Why Children Die* 2006 to North West Region 2008/9**



Ethnicity and Asylum Seekers

As seen in Table 7, the majority of children ages 28 days to 18 years were White. The proportion of deaths that were unexpected varied by ethnicity, with 57% of deaths among Black children classified as unexpected while only 31-38% of other ethnic groups were unexpected. It should be noted, though, that numbers are very small in the ethnicity subcategories. The proportion of deaths classified as preventable or potentially preventable was similar across groups (13-15%).

Table 7
Unexpected and preventable deaths by ethnicity group, North West Region 2008/9

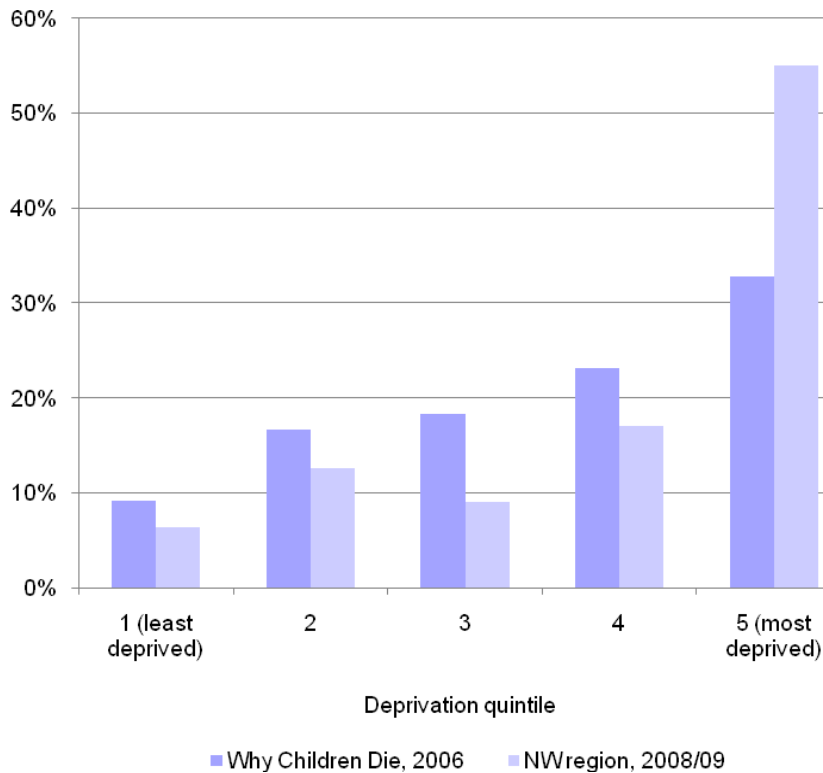
Ethnicity	Number (% of children in that ethnicity group¹)		Total Child Deaths (28 days-18years)
	Unexpected	Preventable	
White	48 (31.4)	20 (13.1)	153
Black	4 (57.1)	1 (14.3)	7
Asian	13 (38.2)	5 (14.7)	34
Chinese	--	--	3
Mixed	--	--	3
Other	--	--	1
Total	65 (32.3)	26 (12.9)	201

¹ Percentages are calculated excluding any not known or missing values.

Deprivation

The majority of children that died were resident in the areas within the most deprived quintile. Among children ages 28 days to 18 years, 201 children (55% of the total number of children) lived in the most deprived quintile. As seen in Figure 2, children (28 days to 18 years) within the North West had a higher proportion of residence in the lowest quintile compared to *Why Children Die* data from 2006. The proportions of children in quintiles 1-4 were relatively lower when compared to the 2006 data from three English regions (South West, North East and West Midlands). This is likely due to a high rate of deprivation in the North West compared to other regions. The North West has a relatively high rate of deprivation with “over 50% of the North West population falling within the two most deprived national quintiles and nearly a third in the most deprived national quintile.”^a

Figure 2
Deprivation quintile (based on postcode of residence) among child deaths (28 days to 18 years): Comparison between *Why Children Die* (three English regions) 2006 to North West Region 2008/9



^a From Wood, J. et al *Where Wealth Means Health, Illustrating Inequalities in the North West*. January 2006.

As seen in Table 8, among children ages 28 days to 18 years, the rate of unexpected deaths and preventable deaths did not demonstrate a trend by level of deprivation.

Table 8
Unexpected and preventable deaths by quintile of deprivation group, North West Region 2008/9

Deprivation Quintile	Number (% of children in that deprivation group ¹)		Total Child Deaths (28 days- 18years)
	Unexpected	Preventable	
1 (least deprived)	7 (30.4)	--	23
2	15 (32.6)	6 (13.0)	46
3	8 (24.2)	3 (9.1)	33
4	16 (25.8)	11 (17.7)	62
5 (most deprived)	52 (25.9)	18 (9.0)	201
Total	98 (26.8)	38 (10.4)	365

¹ Percentages are calculated excluding any not known or missing values.

Table 9 identifies the increasing risk of death of a child as deprivation increases, as determined by IMD quintiles. The proportion of children in each deprivation quintile in 2007 (0 – 19 years) is used as a proxy to enable this analysis to be carried out. There is no reason to consider that proportions of deprivation in each quintile will have changed significantly between 2007 and 2008/09 or as a result of the addition of young people aged 18. The table shows that a child in the most deprived quintile was 2.9 times more likely to die in 2008/09 than a child in the least deprived quintile.

Table 9
Rate ratio of death of children (0-18 years) in North West by deprivation quintile

Deprivation Quintile	Child Deaths 2008/09	Child Population 2007	Rate Ratio
	0 – 18 years	0 – 19 years ²	
	N (% ¹)	N in 000s (%)	
1 (least deprived)	37 (5.7)	190 (11.2)	1.0
2	84 (13.0)	251 (14.8)	1.7
3	66 (10.2)	284 (16.8)	1.2
4	106 (16.4)	347 (20.6)	1.6
5 (most deprived)	355 (54.8)	619 (36.6)	2.9

¹ Percentages are calculated excluding any not known or missing values.

² Denominator data on IMD deprivation quintiles was provided by Department of Health North West

Education

The majority of school age children were in school, with 96% of five to nine year old children; 93% of ten to fourteen year old children; and, 62% of fifteen to eighteen year olds (Table 10). Of the fifteen to eighteen year olds, 18% were in college and 16% had left education. Of the five children that were school age but were not in education, four children had chronic illnesses and died an expected death (planned palliative care). One child that did not have any medical conditions was 17 years old and therefore was not legally obliged to attend school.

Table 10
Educational status by age, children 28 days to 18 years, North West Region 2008/9

Education Status	Number					Number (Percentage ¹)
	28-365 days	1-4 years	5-9 years	10-14 years	15-18 years	Total Child Deaths (28 days to 18 years)
Not in Education	97	38	1	2	2	140 (55.8)
Nursery	--	7	--	--	--	7 (2.8)
School	--	4	27	25	31	87 (34.7)
College (6th Form College)	--	--	--	--	9	9 (3.6)
Left education	--	--	--	--	8	8 (3.2)
TOTAL	97	49	28	27	50	251
Missing	40	37	12	18	28	135

¹ Percentages are calculated excluding any not known or missing values.

5 Details of the Deaths

Timing

Table 11 shows the distributions of child deaths by day of the week among all children, 0 days to 18 years. Deaths were fairly evenly distributed across the days of the week with a range of 11-16% of deaths occurring each day.

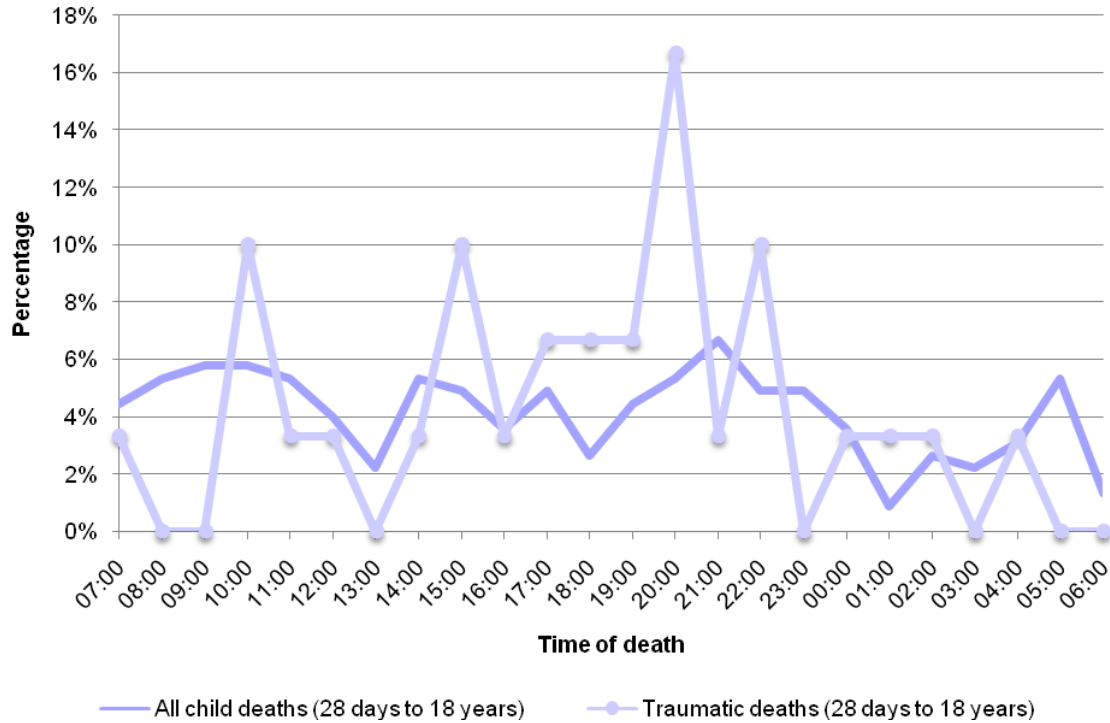
Table 11
Day of death, North West Region 2008/9

Day	Number (Percentage ¹)		
	Neonatal Deaths (0-27 days)	Child Deaths (28 days – 18 years)	TOTAL
Monday	42 (14.8)	64 (16.6)	106 (15.8)
Tuesday	37 (13.0)	50 (13.0)	87 (13.0)
Wednesday	45 (15.8)	50 (13.0)	95 (14.2)
Thursday	44 (15.5)	58 (15.0)	102 (15.2)
Friday	49 (17.3)	60 (15.5)	109 (16.3)
Saturday	28 (9.9)	48 (12.4)	76 (11.3)
Sunday	39 (13.7)	56 (14.5)	95 (14.2)
Total	284	386	670

¹ Percentages are calculated excluding any not known or missing values.

Figure 3 illustrates the proportion of deaths among all children ages 28 days to 18 years, as well as the children that died due to trauma. While there is not a clear trend among all children, there are a few peak times for traumatic deaths including 10:00am-11:00am; 3:00pm-4:00pm; 8:00pm-9:00pm; and 10:00pm-11:00pm.

Figure 3
Time of death for all deaths and traumatic deaths, children ages 28 days to 18 years, North West Region 2008/9



Figures 4 and 5 show the month and season of death for children (ages 28 days to 18 years) whose death was due to road traffic accidents, infection, or SUDI. Winter includes the months of December, January, and February, with each season thereafter also having three months. A strong seasonal pattern emerges. SUDI deaths occurred most often in December (17.5% of SUDI deaths) and least often in September (1.8%).

Figure 4
Month of death for deaths due to RTA, infection, and SUDI, children ages 28 days to 18 years, North West Region 2008/9

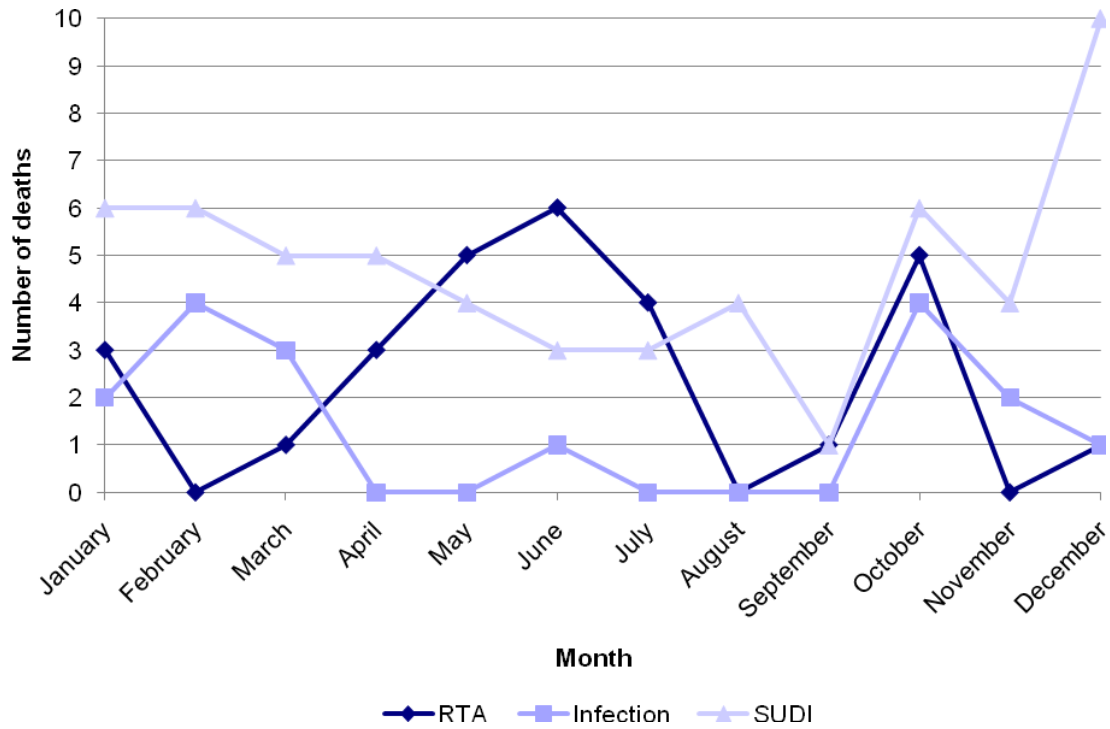
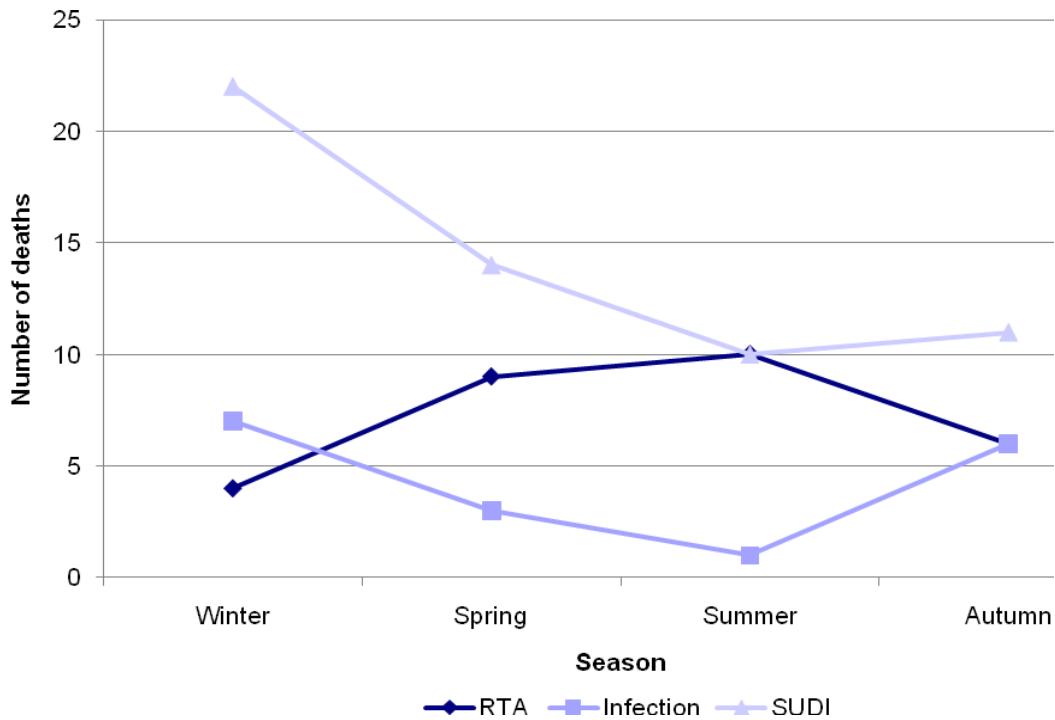


Figure 5
Season of death for deaths due to RTA, infection, and SUDI, children ages 28 days to 18 years, North West Region 2008/9



Mode of Death

Table 12 shows the mode of death for child deaths (28 days to 18 years) in the North West in 2008/9. Of all deaths among children ages 28 days to 18 years, 23% were expected deaths including planned palliative care. Of the 109 children that died were found dead or collapsed, 46% were unexpected deaths and 19% were preventable or possibly preventable. Similarly, of the 64 children whose deaths were witnessed events, 38% were unexpected and 20% were preventable or potentially preventable deaths.

Table 12
Mode of death, children ages 28 days to 18 years, North West Region 2008/9

Mode of Death	Number (% of children in that group ¹)		Total Child Deaths (28 days to 18 years)
	Unexpected	Preventable	
Expected death: planned palliative care	7 (10.6)	--	66
Found dead/collapsed	50 (45.9)	21 (19.3)	109
Witnessed event	24 (37.5)	13 (20.3)	64
Active withdrawal of treatment	14 (27.5)	6 (11.8)	51
Brain stem death	2 (66.7)	--	3
Total	97 (33.1)	40 (13.7)	293

¹ Percentages are calculated excluding any not known or missing values.

Place of Death

Table 13 shows the location of death among children ages 28 days to 18 years that died. Of the 78 children that died in the emergency department, 53% were unexpected deaths and 24% were preventable or potentially preventable. Of the 55 children that died at home, 31% were unexpected and 15% were preventable or potentially preventable.

Table 13
Place of death, children ages 28 days to 18 years, North West Region 2008/9

Location	Number (% of children in that group ¹)		Total Child Deaths (28 days to 18 years)
	Unexpected	Preventable	
Acute hospital			
Emergency department	41 (52.6)	19 (24.4)	78
Paediatric ward	5 (19.2)	--	26
Neonatal unit	1 (6.7)	--	15
Intensive care unit	19 (33.9)	6 (10.7)	56
Other	3 (30.0)	--	10
Department unknown	6 (24.0)	--	25
Home of normal residence	17 (30.9)	8 (14.5)	55
Other private residence	1 (33.3)	--	3
Foster home	--	--	1
Residential care	--	--	--
Public place	5 (2.9)	6 (35.3)	17
School	--	--	--
Hospice	--	--	10
Mental health inpatient unit	--	--	--
Abroad	2 (50.0)	2 (50.0)	4
Other	2 (50.0)	2 (50.0)	4
Total	102 (33.6)	43 (14.1)	304

¹ Percentages are calculated excluding any not known or missing values.

Table 14 shows the distribution of deaths within hospitals for the participating regions of the UK 2006 and the North West 2008/9. *Why Children Die* data had a higher proportion of deaths that occurred within the intensive care units compared to the North West (40% versus 27%). The North West had a higher proportion of deaths within the Emergency Department compared to the regions included in *Why Children Die* (37% versus 27%).

Table 14
Location of deaths in hospital, children ages 28 days to 17 years, *Why Children Die* 2006 compared to North West Region 2008/9

Hospital Department	<i>Why Children Die</i> 2006		North West 2008/9	
	Number	Percentage	Number	Percentage
Intensive care unit	227	40.2	56	26.7
Emergency department	152	26.9	78	37.1
Paediatric ward	103	18.2	26	12.4
Neonatal unit	57	10.1	15	7.1
Other/Unknown	26	4.6	35	16.7
Total	565	100	210	100

Table 15 shows the location of death among children that had an expected death with planned palliative care. Of the 65 children with expected deaths, 68% died in hospital, 17% died at home, and 14% died in hospice.

Table 15
Place of death for children whose mode of death was “Expected death: Planned palliative care,” children ages 28 days to 18 years, North West Region 2008/9

Location	Number	Percentage¹
Hospital	44	67.7
Home	11	16.9
Foster home	1	1.5
Hospice	9	13.8
Total	65	100

¹ Percentages are calculated excluding any not known or missing values.

6 Cause of Death

Overall Classification of Deaths

Table 16 shows the cause of child deaths for the North West 2008/9. When notifications were first received, CMACE coded a provisional cause of death for 369 children ages 28 days to 18 years. When the Child Death Overview Panels review individual cases, a collective decision may be recorded as to primary the cause of death. The number of children that were categorised for each cause of death is provided in Table 16. CDOP decisions were submitted for 144 cases; since the selection of which cases were reviewed may be based on various methods by each CDOP, the relative proportions for this categorisation is not provided.

Chromosomal, genetic and congenital anomalies accounted for the largest group of deaths (24%). Sudden unexpected and unexplained deaths was the second largest group (17%), and trauma and other external factors was the third largest group (12%).

Table 16
Cause of death, children ages 28 days to 18 years, North West Region 2008/9

	Number (Percentage) ¹	
	Provisional	CDOP
Deliberately inflicted injury, abuse or neglect	14 (3.8)	4
Severe abuse	1	
Suspected homicide	13	
Severe neglect leading to death	--	
Deaths from war, terrorism or other mass violence	--	
Suicide or deliberate self-inflicted harm	18 (4.9)	5
Suicide	15	
Alcohol abuse	--	
Drug abuse	1	
Other forms of self-harm	2	
Trauma and other external factors	45 (12.2)	19
Road traffic accident	29	
Head injury, other or multiple trauma	5	
Burn injury	3	
Drowning	5	
Unintentional self-poisoning	--	
Anaphylaxis & other extrinsic factors	3	
Malignancy	35 (9.5)	13
Solid tumours	17	
Leukaemias & lymphomas	12	
Malignant proliferative conditions such as histiocytosis	6	
Acute medical or surgical condition	26 (7.0)	9
Chronic medical condition	37 (10.0)	19
Chromosomal, genetic and congenital anomalies	89 (24.1)	26
Perinatal / neonatal event	27 (7.3)	16
Prematurity	26	
Birth-related injury	1	
Other	--	
Infection	17 (4.6)	13
Sudden unexpected, unexplained death	61 (16.5)	20
SUDI	55	
Unascertained at any age	6	
Total	369	144

¹ Percentages are calculated excluding any not known or missing values.

Among neonatal deaths, respiratory disorders (primarily stemming from prematurity) were the leading cause of death (46.5%), and major congenital anomalies were the second most frequent cause of death (20%) (Table 17).

Table 17
Cause of death, neonates, North West Region 2008/9

	Number	Percentage¹
Major Congenital Anomaly	42	19.7
Central nervous system	4	
Cardiovascular system	6	
Respiratory system	3	
Gastro-intestinal system	--	
Urinary tract	5	
Musculo-skeletal system	4	
Multiple anomalies	9	
Chromosomal disorders	6	
Metabolic Disorders	1	
Other	4	
Extreme prematurity (less than 21+6 weeks)	29	10.2
Respiratory disorders	99	46.5
Severe pulmonary immaturity	58	
Surfactant deficiency lung disease	20	
Pulmonary hypoplasia	9	
Meconium aspiration syndrome	--	
Primary persistent pulmonary hypertension	1	
Chronic lung disease / bronchopulmonary dysplasia (BPD)	1	
Other (includes pulmonary haemorrhage)	10	
Gastro-intestinal disease	2	0.9
Necrotising enterocolitis (NEC)	2	
Other	--	
Neurological disorder	17	8.0
Hypoxic-ischaemic encephalopathy (HIE)	13	
Intraventricular / Periventricular haemorrhage	3	
Other	1	
Infection	15	7
Generalised (sepsis)	10	
Pneumonia	--	
Meningitis	4	
Other	1	
Injury / Trauma	--	--
Other specific causes	7	3.3
Malignancies / tumours	1	
Other	6	
Sudden unexpected deaths	2	0.9
SUDI	--	
Infant deaths – Cause unascertained	2	

¹ Percentages are calculated excluding any not known or missing values.

Table 18 illustrates the provisional causes of death by age group. In this way, we can see which causes of death are more prevalent within different age groups.

Table 18
Provisional cause of death by age, North West Region 2008/9

	Number (Percentage) ¹				
	28-364 days	1-4 years	5-9 years	10-14 years	15-18 years
Deliberately inflicted injury, abuse or neglect	2 (1.5)	5 (6.6)	1 (2.6)	--	6 (7.9)
Severe abuse	--	1	--	--	--
Suspected homicide	2	4	1	--	6
Severe neglect leading to death	--	--	--	--	--
Suicide or deliberate self-inflicted harm	--	--	1 (2.6)	6 (14.0)	11 (14.5)
Suicide	--	--	1	6	8
Alcohol abuse	--	--	--	--	--
Drug abuse	--	--	--	--	1
Other forms of self-harm	--	--	--	--	2
Trauma and other external factors	1 (0.7)	11 (14.5)	5 (12.8)	10 (23.3)	18 (23.7)
Road traffic accident	--	5	3	5	16
Head injury, other or multiple trauma	--	2	1	2	--
Burn injury	--	2	1	--	--
Drowning	--	1	--	2	2
Unintentional self-poisoning	--	--	--	--	--
Anaphylaxis & other extrinsic factors	1	1	--	1	--
Malignancy	2 (1.5)	6 (7.9)	12 (30.8)	5 (11.6)	10 (13.2)
Solid tumours	1	3	6	4	3
Leukaemias & lymphomas	1	2	5	--	4
Malignant proliferative conditions	--	1	1	1	3
Acute medical or surgical condition	6 (4.4)	7 (9.2)	2 (5.1)	7 (16.3)	4 (5.3)
Chronic medical condition	4 (3.0)	9 (11.8)	5 (12.8)	8 (18.6)	11 (15.4)
Chromosomal, genetic and congenital anomalies	40 (29.6)	25 (32.9)	8 (20.5)	6 (14.0)	10 (13.2)
Perinatal / neonatal event	26 (19.3)	--	1 (2.6)	--	--
Prematurity	26	--	--	--	--
Birth-related injury	--	--	1	--	--
Other	--	--	--	--	--
Infection	4 (3.0)	5 (6.6)	3 (7.7)	1 (2.3)	4 (5.3)
Sudden unexpected, unexplained death	50 (37.0)	8 (10.5)	1 (2.6)	--	2 (2.6)
SUDI	47	8	--	--	--
Unexplained death of an older child	3	--	1	--	2
TOTAL	135	76	39	43	76
Missing	2	10	1	2	2

¹ Percentages are calculated excluding any not known or missing values.

Table 19 shows the deaths that were classified by the notifier as unexpected and by the CDOP as preventable (including potentially preventable) by cause of death, both at notification and as determined by the CDOP. Deaths due to external factors or deliberate harm were most likely to be considered preventable or potentially preventable. For example, 100% of deaths due to suspected homicide that were assessed by CDOP were considered preventable or potentially preventable, whereas only 22.2% of deaths due to acute medical or surgical conditions were assessed as preventable or potentially preventable.

Table 19
Unexpected and preventable deaths, children ages 28 days to 18 years, North West Region 2008/9

	Number (% of children in that cause of death group ¹)			
	Provisional cause of death		CDOP classification of death	
	Unexpected	Preventable	Unexpected	Preventable
Deliberately inflicted injury, abuse or neglect	3 (75)	3 (100)	4 (100)	4 (100)
Suicide or deliberate self-inflicted harm	7 (87.5)	4 (66.7)	5 (100)	3 (60)
Trauma and other external factors	20 (95.2)	15 (93.8)	17 (94.4)	18 (94.7)
Malignancy	3 (23.1)	--	2 (16.7)	--
Acute medical or surgical condition	17 (89.5)	3 (17.6)	8 (88.9)	2 (22.2)
Chronic medical condition	10 (45.5)	--	8 (47.1)	2 (10.5)
Chromosomal, genetic and congenital anomalies	14 (42.4)	1 (2.9)	11 (52.4)	--
Perinatal / neonatal event	3 (42.9)	1 (8.3)	2 (22.2)	--
Infection	4 (100)	1 (25)	10 (83.3)	1 (7.7)
Sudden unexpected, unexplained death	23 (88.5)	15 (68.2)	19 (95)	13 (65)
Total	104 (66.2)	43 (30.1)	86 (67.7)	43 (29.9)

¹ Percentages are calculated excluding any not known or missing values.

Non-natural Deaths and Events

Further information surrounding the circumstances of deaths were recorded through events occurring that led to the death. Table 20 shows the number of these events among the total deaths in the North West 2008/9. Table 20 shows a comparison of deaths due to non-natural events between the North West 2008/9 and the *Why Children Die* participating regions 2006. The comparison shows that most events were generally similar proportions between the two groups. The North West had a significantly higher percentage of apparent suicide ($p < 0.0001$) and homicide ($p < 0.0001$) compared to the regions that participated in *Why Children Die*.

Table 20
Events known to have occurred, children ages 28 days to 18 years, North West Region 2008/9

Events	<i>Why Children Die</i> 2006		North West 2008/9	
	Number	Percentage ¹	Number	Percentage ¹
Road traffic accident	108	47.2	26	43.3
Apparent suicide	26	11.4	12	20.0
Apparent homicide	12	5.2	9	15.0
Drowning	22	9.6	5	8.3
Other accident	25	10.9	5	8.3
Falls	16	7.0	NA	NA
Fires/burns	12	5.2	2	3.3
Substance misuse	8	3.5	1	1.7
Poisoning	--	--	--	--
Total	229	100	60	100

¹ Percentages are calculated excluding any not known or missing values.

Table 21 shows additional information that is known for children that were classified as having a sudden infant death. Of 30 children ages 28 days to 18 years that were reported to have died due to SUDI, 56% were put to sleep on their back and 47% were not co-sleeping. Information on smoking in the house was only reported for 13 cases, 11 of whom had members of the household that smoked.

Table 21
SUDI supplemental information, children ages 28 days to 18 years, North West Region
2008/9

SUDI-related Questions	Number	Percentage ¹
What position was child put to sleep on?		
Back	10	55.6
Front	6	33.3
Side	2	11.1
Not known	9	--
Was the child sleeping with another person at the time of death?		
Yes	16	53.3
No	14	46.7
Where was the child put to sleep?		
Bed	15	50
Cot	4	13.3
Carry cot	1	3.3
Sofa	3	10
Moses basket	1	3.3
Car chair	0	--
Pram	1	3.3
Other	5	16.7
Did any members of the household smoke?		
Yes	11	84.6
No	2	15.4
Not known	8	--

¹ Percentages are calculated excluding any not known or missing values.

A total of 18 deaths were initially categorised as suicide or other forms of self-inflicted harm when received by either the LSCB or CMACE. Of these 18 deaths, 12 had 'suicide' reported on Form B as an event known to have occurred. Table 22 shows the age distribution of these deaths.

Table 22
Age of cases with provisional cause of death as suicide or other forms of self-inflicted harm, children ages 28 days to 18 years, North West Region 2008/9

Age	Number	Percentage
8	1	5.6
9	--	--
10	--	--
11	1	5.6
12	2	11.1
13	2	11.1
14	1	5.6
15	4	22.2
16	2	11.1
17	5	27.8

Medical Conditions

Table 23 shows medical conditions that were present at time of death among children ages 28 days to 18 years. The most common conditions were congenital (13%).

Table 23
Medical conditions present at the time of death, children ages 28 days to 18 years, North West Region 2008/9

Condition	Number	Percentage¹
None	51	13.2
Congenital condition	50	13.0
Cardiac disease	34	8.8
Respiratory disease	29	7.5
Neurological disease	29	7.5
Perinatal condition	22	5.7
Gastrointestinal/liver disease	14	3.6
Neoplastic disease	14	3.6
Metabolic disease	10	2.6
Renal/urinary disease	10	2.6
Haematological disease	7	1.8
Endocrine disease	4	1.0
Mental and behavioural disorder	4	1.0
Other	67	17.4

¹ Percentages are calculated excluding any not known or missing values.

7 History of the Children

Information about children's health and circumstances prior to death may help inform the overall picture of these children, as well as providing more information when considering intervention strategies.

Previous Medical Conditions among Children

Table 24 shows previous medical conditions among children (ages 28 days to 18 years) that died.

Table 24
Previous history of medical conditions, ages 28 days to 18 years, North West Region 2008/9

Condition	Number	Percentage ¹
None	71	18.4
Congenital condition	44	11.4
Cardiac disease	33	8.5
Neurological disease	26	6.7
Perinatal condition	24	6.2
Respiratory disease	24	6.2
Metabolic disease	10	2.6
Gastrointestinal/liver disease	10	2.6
Neoplastic disease	6	1.6
Endocrine disease	5	1.3
Mental and behavioural disorder	5	1.3
Renal/urinary disease	4	1.0
Haematological disease	2	0.5
Other	37	9.6

¹ Percentages are calculated excluding any not known or missing values.

Maternal Factors among Neonatal Deaths

Table 25 shows information about antenatal care among mothers of infants (less than 28 days) that died. Of 233 mothers with reported gestational age at booking, 61% booked before 12 weeks, 31% booked 12-20 weeks, and 7% booked later than 20 weeks of gestation. The average gestation at booking among neonates that died was 12 weeks plus 5 days (range 4 weeks plus 3 days to 31 weeks plus 4 days).

Table 25
Late booking for antenatal care, neonates, North West Region 2008/9

Antenatal Care	Number	Percentage¹
Booked before 12 weeks	143	61.4
Booked later than 12-20 weeks	73	31.3
Booked later than 20 weeks	17	7.3
Total	233	100

¹ Percentages are calculated excluding any not known or missing values. 34 women had missing gestation at booking.

Table 26 shows maternal Body Mass Index (BMI) at booking for mothers of neonates that died. Of the 241 women with known values, 46% had a normal BMI at booking, 23% were overweight, 14% were obese, and 12% were very obese.

Table 26
Mother's BMI at booking, neonates, North West Region 2008/9

BMI group	Number	Percentage¹
Underweight: <18.5	13	5.4
Normal: 18.5-24.9	111	46.1
Over weight: 25-29.9	55	22.8
Obese: 30-34.9	34	14.1
Very obese: ≥35	28	11.6
Total	241	100

¹ Percentages are calculated excluding any not known or missing values. 43 women had missing BMI at booking.

Care Provision

Table 27 shows the care that was received by children for children ages 28 days to 18 years. Table 28 shows care that was provided to neonates before they died.

Table 27
Care before death, children ages 28 days to 18 years, North West Region 2008/9

	Number (Percentage ¹)		
	Total Child Deaths (28 days to 18 years)	Unexpected	Preventable
Hospital (longer than 3 months or from birth)			
Yes	41 (23.0)	8 (19.5)	3 (7.3)
No	137 (77.0)	60 (43.8)	26 (19.0)
Seen by GP (within 3 months prior to death)			
Yes	40 (11.0)	14 (35.0)	3 (7.5)
No	324 (89.0)	91 (28.1)	40 (12.3)
Seen by health visitor (within 3 months prior to death)			
Yes	33 (9.1)	17 (51.5)	8 (24.2)
No	331 (90.1)	88 (26.6)	35 (10.6)
Seen by school nurse (within 3 months prior to death)			
Yes	3 (0.8)	--	--
No	361 (99.2)	105 (29.1)	43 (11.9)
Seen by practice nurse (within 3 months prior to death)			
Yes	--	--	--
No	364	105 (28.8)	43 (11.8)
Medication prior to death			
None	58	36 (62.1)	23 (39.7)
Antibiotics	41	8 (19.5)	2 (4.9)
Insulin	1	1 (100)	--
Asthma prevention/treatment	7	1 (14.3)	1 (14.3)
Anticonvulsants	12	4 (33.3)	--
Corticosteroids	8	--	--
Antidepressants	--	--	--
Methylphenidate	--	--	--
Major tranquilisers	4	--	--
Other	76	14 (18.4)	--
Surgery within the last 30 days			
None	142 (85.5)	58 (40.8)	28 (19.7)
Intra-cranial	--	--	--
Intra-thoracic	4 (2.4)	--	--
Intra-abdominal	7 (4.2)	--	--
Other	12 (7.2)	7 (58.3)	1 (8.3)

¹ Percentages are calculated excluding any not known or missing values.

Table 28
Care before death, neonates, North West Region, 2008/9

Admitted to a neonatal unit	Number	Percentage ¹
Yes	145	54.9
No	119	45.1

¹ Percentages are calculated excluding any not known or missing values.

Table 29 shows the children ages 28 days to 18 years that died who had developmental delays, impairment and disabilities. The rate of unexpected and preventable or potentially preventable deaths is also shown. For example, among 22 children that died who had a visual impairment, 23% were unexpected deaths and 9% were preventable or potentially preventable.

Table 29
Developmental delay, impairment or disability, children ages 28 days to 18 years, North West Region 2008/9

Delay, impairment or disability	Number (%) ¹		Total Child Deaths (28 days to 18 years)
	Unexpected	Preventable	
Hearing impairment	3 (27.3)	--	11
Visual impairment	5 (22.7)	2 (9.1)	22
Learning impairment	5 (17.9)	1 (3.6)	28
Speech, language and communication disorder	8 (25.8)	3 (9.7)	31
Motor impairment	7 (20.0)	1 (2.9)	35
Associated problem, e.g. behaviour	--	--	4
Other	4 (17.4)	3 (13.0)	23

¹ Percentages are calculated excluding any not known or missing values.

Family and Social Risk Factors

Information regarding the family and social background of children that died may offer information about at-risk children and potential strategies for intervention. Table 30 shows children ages 28 days to 18 years that died who were under child protection plans or subject to statutory powers. For example, of the 5 children who had a child protection plan at the time of death, 2 deaths were unexpected. Of the 7 children who had previously had a child protection plan, 3 deaths were unexpected and 1 was preventable or potentially preventable.

Table 30
Child protection and statutory orders, children ages 28 days to 18 years, North West Region 2008/9

	Number (% ¹)		Total Child Deaths (28 days to 18 years)
	Unexpected	Preventable	
Child protection plan			
At time of death	2 (40.0)	--	5
Previously	3 (42.9)	1 (14.3)	7
Not at all	69 (34.0)	32 (15.8)	203
Most recent child protection plan			
Physical abuse	3 (75.0)	1 (25.0)	4
Neglect	--	--	--
Emotional abuse	1 (33.3)	--	3
Sexual abuse	--	--	1
Statutory orders			
At time of death	1 (25.0)	--	4
Previously	4 (100)	2 (50.0)	4
Not at all	65 (33.2)	28 (14.3)	196
Most recent statutory orders			
Police powers of protection	1 (100)	--	1
Emergency protection order	1 (100)	--	1
Interim care order	--	--	--
Care order	--	--	3
Supervision order	--	--	--
Residence order	--	--	--
Section 20 (Children Act 1989)	2 (100)	--	2
Antisocial behaviour order	1 (100)	1 (100)	1
Other court order	--	--	--

¹ Percentages are calculated excluding any not known or missing values.

Table 31 shows children ages 28 days to 18 years that died who had additional social and family risk factors. Of the 8 children that had been assessed as a child in need, 3 deaths were unexpected and 1 was preventable or potentially preventable. Of the 27 children ages 28 days to 18 years who experienced domestic violence in their homes, 17 deaths were unexpected and 11 were preventable or potentially preventable.

Among neonates that died, 3 neonates had siblings that were subject to a child protection plan at the time of death, and 2 neonates had domestic violence in their household (Table 32).

Table 31
Social/family risk factors, children ages 28 days to 18 years, North West Region 2008/9

	Number (Percentage ¹)		Total Child Deaths (28 days to 18 years)
	Unexpected	Preventable	
Child assessed as a child in need			
At the time of death	3 (37.5)	1 (12.5)	8
Previously	6 (33.3)	2 (11.1)	18
Not at all	51 (30.7)	22 (13.3)	166
Siblings subject to child protection plan			
At the time of death	1 (50.0)	1 (50.0)	2
Previously	7 (58.3)	2 (16.7)	12
Not at all	51 (31.7)	20 (12.4)	161
Siblings subject to any statutory orders			
At the time of death	--	--	2
Previously	1 (25.0)	--	4
Not at all	55 (32.4)	22 (12.9)	170
Domestic violence in the household			
Yes	17 (63.0)	11 (40.7)	27
No	37 (41.6)	14 (15.7)	89

¹ Percentages are calculated excluding any not known or missing values.

Table 32
Social/family risk factors among neonatal deaths, North West Region 2008/9

	Number (Percentage ¹)
	Neonates (0-27 days)
Siblings subject to child protection plan	
At the time of death	3 (2.4)
Not at all	121 (97.6)
Domestic violence in the household	
Yes	2 (1.6)
No	122 (98.4)

¹ Percentages are calculated excluding any not known or missing values.

Table 33 shows the agencies that were involved with children prior to their death.

Table 33
Agencies involved with the child, North West Region 2008/9

	Number (Percentage) ¹		Average (Range)	
	Neonates (0-27 days)	Child Deaths (28 days to 18 years)	Years between first contact and death ²	Years between most recent contact and death ²
Health	--	49 (12.7)	5.47 (0-17.7)	0.24 (0-7.1)
Hospital in-patient	--	68 (17.6)	2.64 (0-16.5)	0.42 (0-5.8)
Hospital out-patient	--	43 (11.1)	2.89 (0-12.1)	0.66 (0-7.0)
Emergency dept	--	30 (7.8)	1.85 (0-7.6)	0.61 (0-6.1)
GP	--	39 (10.1)	5.87 (0.1-17.9)	0.44 (0-2.4)
Health visitor	--	39 (10.1)	3.19 (0-17.1)	1.34 (0-10.2)
School nurse	--	22 (5.7)	6.31 (2.0-10.8)	2.26 (0-6.8)
CAMHS	--	5 (1.3)	2.84 (0-7.7)	2.47 (0.1-6.5)
Other Health	1 (16.7)	18 (4.7)	2.17 (0-6.99)	0.14 (0-0.5)
Police	--	7 (1.8)	4.23 (1.8-7.8)	0
Children's social care	3 (50.0)	19 (4.9)	5.88 (0-15.4)	1.34 (0.3-3.7)
School/nursery etc	--	8 (2.1)	3.12 (0.2-6.0)	0.01 (0.01-0.01)
Connexions	--	2 (0.5)	3.33 (2.7-4.0)	0.03 (0.03-0.03)
Probation	--	2 (0.5)	4.16 (0.6-7.7)	--
Other	2 (33.3)	242 (62.7)	1.59 (0.1-9.1)	0.49 (0-3.0)

¹ Percentages are calculated excluding any not known or missing values.

² For children ages 28 days to 18 years.

8 Details of the Children's Families

Even for children that did not have known social or family risk factors, information about children's living arrangements prior to their deaths may be informative for the regional assessment of deaths. Table 34 shows the family members and other adults with whom children were living. Of the children ages 28 days to 18 years that died, 168 children were living with both mother and father.

Table 34
Who the child was living with at the time of death, children ages 28 days to 18 years, North West Region 2008/9

Adults	Number (Percentage ¹)		Total Child Deaths (28 days to 18 years)
	Unexpected	Preventable	
Mother only	13 (27.7)	4 (8.5)	47
Father only	3 (75.0)	3 (75.0)	4
Mother and Father together	64 (38.1)	20 (11.9)	168
Mother + 1 or more other ²	11 (31.4)	7 (20.0)	35
Father + 1 or more other ²	--	--	2
Others only ²	14 (13.5)	9 (8.7)	104
Foster carers	--	--	--
Private fostering	--	--	--
Residential unit	1 (33.3)	--	3

¹ Percentages are calculated excluding any not known or missing values.

² The "other" group includes other relatives, parent's partner, long-term hospital, hospice, etc

Table 35 shows characteristics of family members with whom children were living. For example, of the 27 children whose mothers were known to the police, 18 deaths were unexpected and 12 were preventable or potentially preventable. Of the 39 children whose fathers were known to the police, 27 deaths were unexpected and 12 were preventable or potentially preventable.

Among neonates that died, 26% had mothers that smoked, 2% had a family member that misused alcohol, and 3.4% had a family member that misused drugs (Table 36).

Table 35
Family and Environment, children ages 28 days to 18 years, North West Region 2008/9

Factor	Number (Percentage ¹) - unless otherwise stated								
	Mother			Father			Other significant adult		
	Unexpected	Preventable	Child Deaths (28 days to 18 years)	Unexpected	Preventable	Child Deaths (28 days to 18 years)	Unexpected	Preventable	Child Deaths (28 days to 18 years)
Age – Average (Range)	32.2 (17-55)	32.1 (17-49)	31.3 (16-55)	34.6 (19-57)	36.7 (21-57)	35.3 (16-58)	34.4 (17-53)	39.6 (19-53)	37.6 (17-60)
Smoker	16	8	36	13	8	25	--	--	2
Learning disability		1	7	1	--	2	--	--	--
Mental health issues	8	1	17	2	--	5	--	--	--
Alcohol misuse	8	4	12	6	2	8	1	1	2
Substance misuse	5	3	9	8	3	10	--	--	--
Known to police	18	12	27	27	12	39	3	2	4

¹ Percentages are calculated excluding any not known or missing values.

Table 36
Family and Environment, neonates, North West Region 2008/9

Factor	Number (Percentage ¹) – unless otherwise stated
	Parent or other Significant Adult
Maternal Age Average ² (Range) ²	29.4 (16-46)
Maternal Smoking ²	67 (26.0)
Learning disability	2 (1.6)
Mental health issues	7 (5.6)
Alcohol misuse	3 (2.0)
Substance misuse	5 (3.4)

¹ Percentages are calculated excluding any not known or missing values.

² Mother only

9 Data Quality and Completion Rates

The following section is intended to inform the regional collaboration in regards to the data quality and completion in the first year. The completion rates of various data items may offer insight into variables and information that are inherently difficult to obtain. For example, whether cases were reported to the registrar and the level of case review were very poorly completed (Figure 6) and this may be due to inability of notifiers to provide this information if the death has happened recently. Details of the parent or other carers also have very low completion rates, which may indicate that these factors are inherently problematic (Figure 7). For neonatal deaths, the variables that are collected by the CMACE supplementary form are more likely to have lower completion rates (Figure 8). This may be due to difficulty in finding these items in maternal case notes.

Figure 6
Completion rates for variables from Notification form (Form A), children ages 28 days to 18 years, North West Region 2008/9

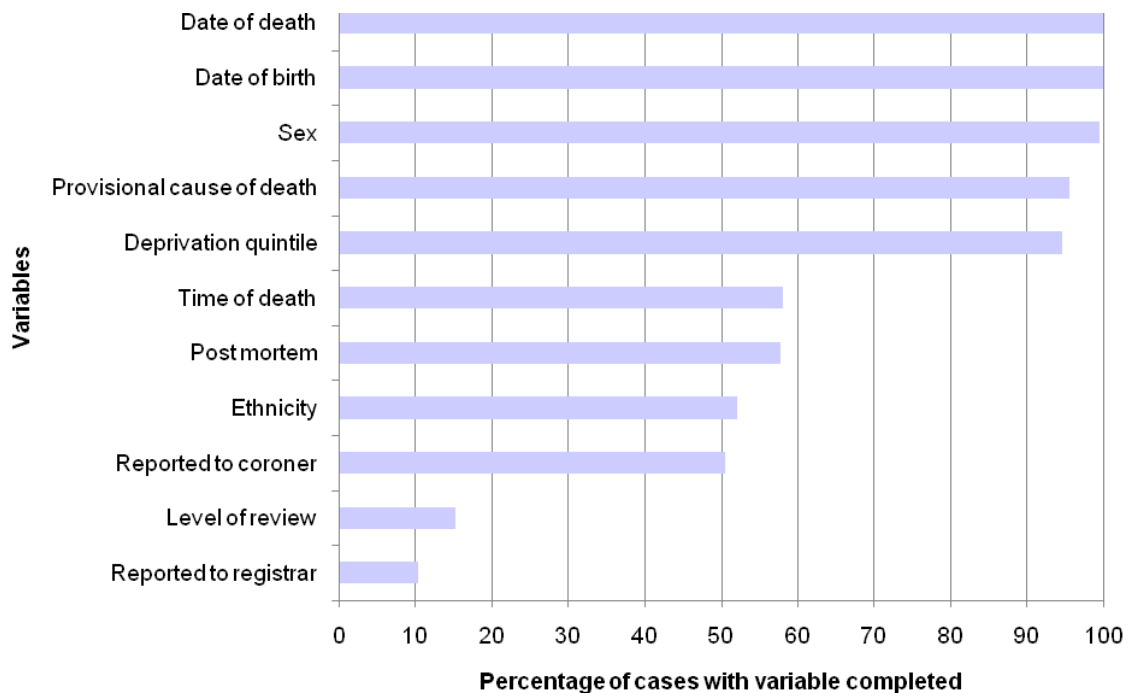


Figure 7
Completion rates for Form B, children ages 28 days to 18 years, North West Region 2008/9

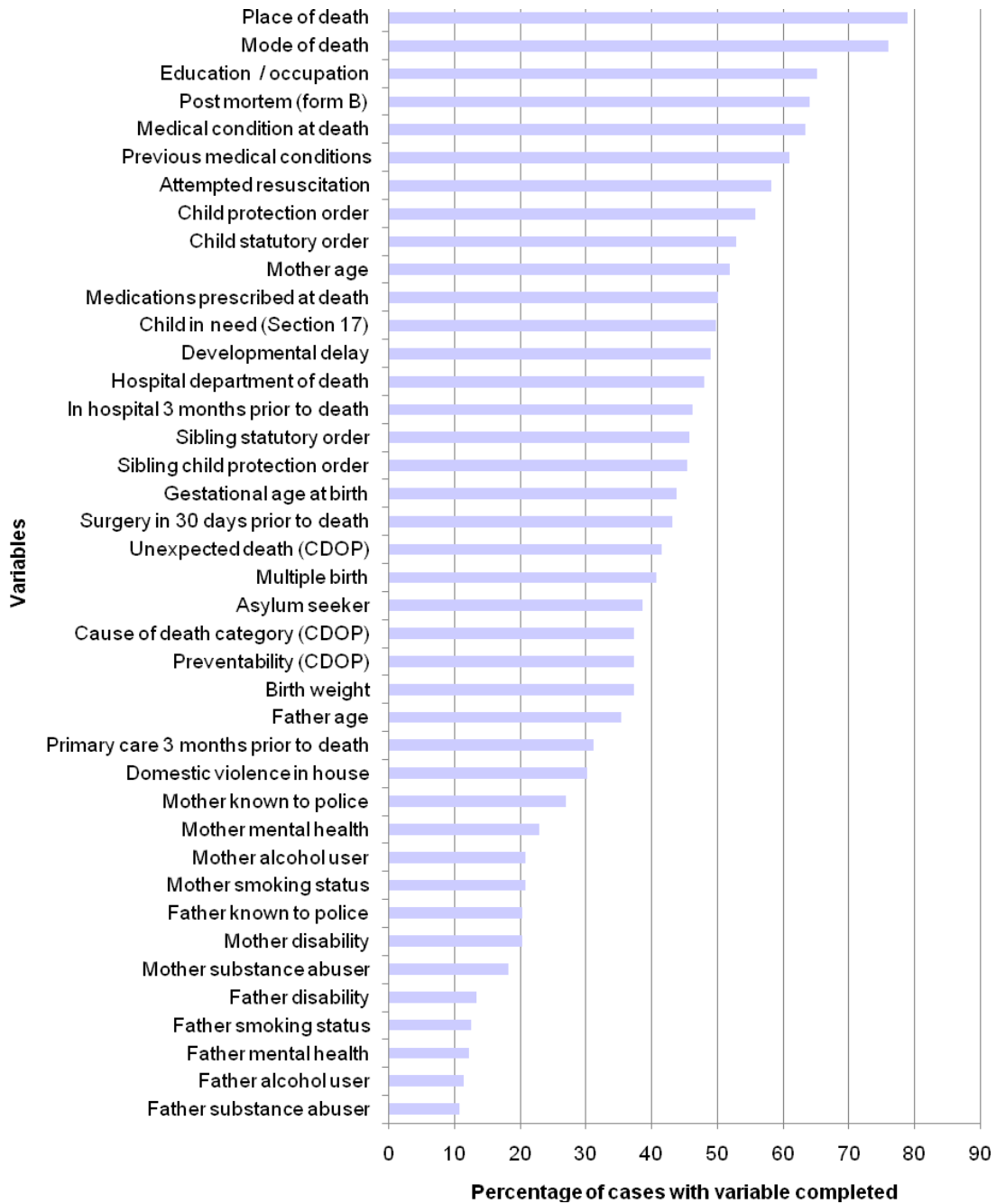
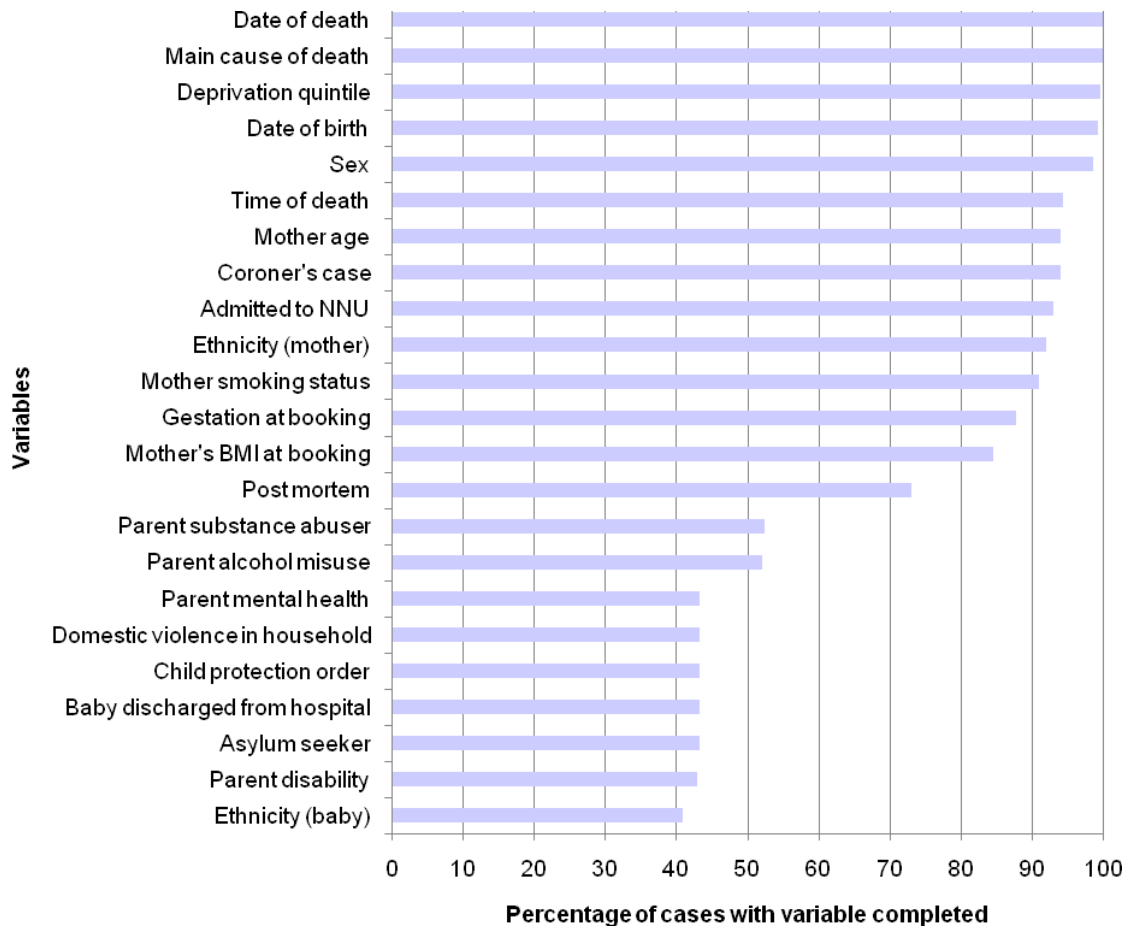


Figure 8
Completion rates for PDN and supplemental form, neonates, North West Region 2008/9



The variables that have high rates of completion as opposed to low rates of completion are shown in Tables 37 and 38. The number of LSCBs that had the highest and lowest completion rates for each variable is also shown. This information may give the regional collaboration more information about the variables that are difficult to collect versus whether some authorities are struggling more than others to obtain data.

Table 37
Best completed variables

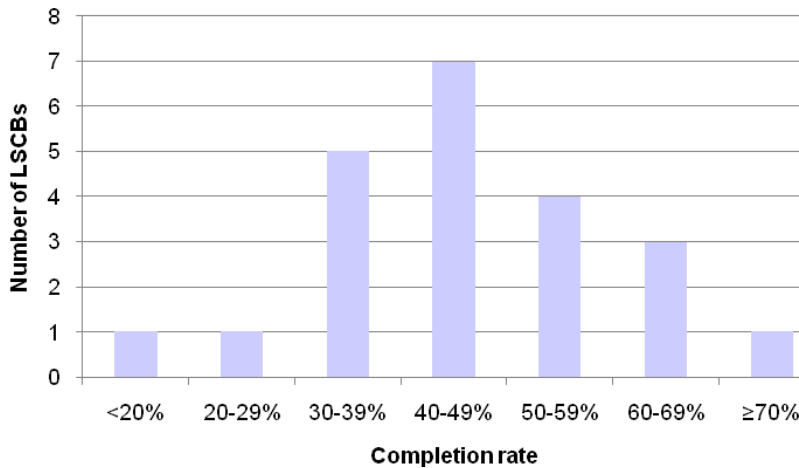
	Overall (average) completion rate	Completion rate of highest authority	Number of authorities with this rate	Completion rate of lowest authority	Number of authorities with this rate
Sex	99.5%	100%	20	80%	1
Provisional cause of death	95.6%	100%	15	80%	1
Deprivation quintile	94.6%	100%	7	79%	1
Place of death	78.8%	100%	7	23%	1
Mode of death	75.9%	100%	4	23%	1
Education / occupation	65.0%	100%	3	19%	1
Post mortem (form B)	64.0%	100%	3	23%	1
Medical condition at death	63.2%	100%	2	23%	1
Previous medical conditions	60.9%	100%	1	23%	1
Attempted resuscitation	58.0%	100%	1	19%	1
Time of death	58.0%	100%	2	0%	2

Table 38
Worst completed variables

	Overall (average) completion rate	Completion rate of highest authority	Number of authorities with this rate	Completion rate of lowest authority	Number of authorities with this rate
Reported to registrar	10.4%	32%	1	0%	12
Father substance abuser	10.6%	57%	1	0%	7
Father alcohol user	11.4%	57%	1	0%	6
Father mental health	12.2%	57%	1	0%	5
Father smoking status	12.4%	57%	1	0%	2
Father disability	13.2%	57%	1	0%	5
Level of review	15.3%	71%	1	0%	8
Mother substance abuser	18.1%	86%	1	0%	1
Mother disability	20.2%	86%	1	0%	2
Father known to police	20.2%	71%	1	0%	2

Figure 9 shows the overall completion rate among LSCBs. Of 22 LSCBs, one authority had an overall total completion rate of 71%. The median completion rate was 40-49% with seven authorities achieving this rate.

Figure 9
Average completion rate for all variables, Forms A and B, for each LSCB, children ages 28 days to 18 years, North West Region 2008/9



Some LSCBs have queried whether the smaller authorities may achieve a higher completion rate due to the small number of cases for which information must be retrieved. We have attempted to provide information on the impact of the size of the LSCB on data completion without identifying the LSCB. Table 39 provides information on the varying rates of completion by size of LSCB. Group 1 provides information about the smallest 5 LSCBs by reference to their number of child deaths. Group 2 contains the results of the next 5 LSCBs. Groups 3, 4 and 5 each contain the results of 4 LSCBs, with Group 5 representing the largest 4 in terms of numbers of deaths. There appears to be some relationship between size of LSCB and data completion rates for those LSCBs with most child deaths.

Table 39
Average completion rate for variables on Forms A and B, for LSCBs grouped together by size, children ages 28 days to 18 years, North West Region 2008/9

Group	Average number of deaths	Average completion rate
1	5.6	48%
2	10.4	54%
3	15.5	48%
4	22.3	41%
5	38.8	40%