

Annual Report of
Child Deaths in Bury,
Oldham & Rochdale
2015/16

Contents

1.0	Executive Summary.....	4
1.1	Key Findings for Bury, Oldham and Rochdale	4
2.0	Introduction	6
3.0	CDOP Background	7
3.1	Panel Membership	8
3.2	Panel Attendance	9
4.0	Population.....	11
4.1	Overview of Bury, Oldham and Rochdale population aged under 18 years	11
4.2	Ethnicity.....	11
4.3	Index of Multiple Deprivation (IMD).....	12
5.0	2015/16 Reviews by CDOP.....	13
5.1	Notified Cases 2015/16	13
5.2	Closed Cases 2015/16	13
5.3	Duration of Reviews	15
5.4	Causes of death	15
5.5	Location of death.....	19
5.6	Expected / unexpected deaths	19
5.7	Modifiable factors	20
5.8	Age at death.....	22
5.9	Low birth weight	23
5.10	Socio-Demographic Characteristics.....	24
5.10.1	Gender	24
5.10.2	Ethnicity	25
5.10.3	Deprivation.....	27
5.10.4	Smoking status of the mother	29
5.10.5	Maternal BMI	30
5.11	Other factors	30
5.11.1	Domestic Violence	30
5.11.2	Consanguinity.....	30
5.11.3	Mental health of parents / carers.....	30
5.11.4	Suicide or self-harm	31
5.11.5	Road traffic collisions	31
5.11.6	Co-sleeping.....	31
5.11.7	Housing & Living Conditions	31

5.11.8	Late Booking.....	31
5.11.9	Parental Alcohol/Drug Use.....	31
5.11.10	Access to medical care.....	31
5.11.11	Additional Factors.....	32
6.0	Acknowledgements.....	33

1.0 Executive Summary

This report presents data for all child deaths (0-18 years) recorded in Bury, Oldham and Rochdale (BOR) during the period 1st April 2015 to 31st March 2016. Data was collected from the Child Death Overview Panel (CDOP) for these areas, as well as the other Greater Manchester (GM) CDOPs as a collective. Whilst some data is presented as notified cases, the majority comprises of that from closed cases as this is more complete.

The findings from this data are used to inform local strategic planning on the best way to safeguard and reduce harm in children, in order to promote better outcomes in the future.

The responsibility for determining the cause of death rests with the coroner or doctor who signs the death certificate, not the CDOP. The function of the CDOP is to evaluate information about the child's death, identify lessons to be learnt and inform an understanding of all child deaths at a local and national level.

Depending on the complexity of a case, the time from notification to closure can vary and may span more than one calendar year. This vast majority of this report only considers cases closed during 2015/16, meaning the CDOP will have been notified of some of these cases before 2015/16.

1.1 Key Findings for Bury, Oldham and Rochdale

Bury, Oldham and Rochdale have an estimated combined population of 151,813 people under 18 years old. This population has a higher percentage of Black and Minority Ethnic (BME) groups than the North West average. Oldham and Rochdale also have a higher level of deprivation than the North West average, whereas Bury has slightly lower.

In Bury, Oldham and Rochdale (BOR) in 2015/16, a total of 60 child deaths were notified and 74 cases were closed. This is a slight reduction in the total number of cases closed in 2014/15 (81) but numbers remain unchanged for Bury and Rochdale in isolation. At 4.80 per 10,000 population, Oldham's notification rate was much higher than that of the other local authorities and Greater Manchester. BOR closed the largest proportion of cases in Greater Manchester (31%).

On average, it took the BOR CDOP 274 days to close each case. Cases from Rochdale took the shortest time and cases from Oldham took the longest. The largest proportion of deaths were assigned to the category 'Chromosomal / Genetic / Congenital' (28%) and the second largest to 'Perinatal / Neonatal' (22%). The majority of deaths were categorised as having a health related cause (84%).

In Oldham and Rochdale, the majority of deaths occurred in hospital but in Bury an equivalent percentage occurred at home. There were no cases of death occurring in a hospice. Of the 74 closed cases, 62% were classified as expected, similar to the Greater Manchester proportion.

There was one case that was classified as having 'Insufficient Information' to determine whether or not there were modifiable factors that contributed to the death. The majority of

other cases (77%) had no identified modifiable factors, with the highest proportion of cases with modifiable factors coming from Oldham (38%). The specific modifiable factors recorded included consanguinity, road traffic collision, parent / carer smoking, maternal smoking in pregnancy & co-sleeping.

For all the 2015-16 BOR closed cases, there was an over-representation of males at 55%, although this was slightly less than the swing for Greater Manchester (58%). Over half (54%) of the deaths closed by the CDOP were in children under the age of 12 months. In Bury and Rochdale, in the largest proportion of cases, death occurred in the neonatal period, whereas in Oldham the greatest number fell into the 28-364 days age bracket. Smoking was felt to be a relevant factor in 6 cases of 40 (infants under 1 year).

The Black and Minority Ethnic populations (BME) are also over-represented with death rates as high as 5.17 per 10,000 population in Oldham, compared to the contrasting 0.54 per 10,000 for the White group. BME groups are over-represented throughout GM but rates are among the highest in these 3 boroughs. When examined by category of cause of death, BME groups represent the majority of cases assigned to the categories 'Chronic medical condition', 'Chromosomal / genetic / congenital' and 'Infection'. Further analysis of individual cases would be required to attempt to determine any themes or relationships.

Despite a minority of residents living in the most deprived 10%, a considerable majority of cases came from the most deprived areas of the boroughs, those in the 1st and 2nd Quintile. Across the CDOP, these areas represented 77% of cases, rising to 90% in Oldham when looked at individually. This disparity was generally no different when broken down by age bracket, except for the 5-9years age group where cases were spread slightly more evenly (although there were only 6 cases in this group).

2.0 Introduction

This is the Annual Report of Child Deaths in Bury, Oldham and Rochdale (BOR) for 1st April 2015 to 31st March 2016. The report aims to present the data from the local Child Death Overview Panel (CDOP) and make observations about trends and factors contributing to the deaths, with an ultimate aim that it may be used to improve child safety and well-being and ultimately prevent future avoidable deaths. The CDOP links closely with the Local Safeguarding Children Boards in order to help safeguard the lives of children in the future and all data is reported annually to the Department for Education (DfE).

3.0 CDOP Background

In 2008 it became the statutory responsibility of the Local Safeguarding Children Boards to review the death of every child up to the ages of 18 years, excluding those who were stillborn or planned termination of pregnancy performed within the law. In April of that year, Bury, Oldham and Rochdale came together to form a tripartite arrangement in order to review a larger combined population and provide a wider dataset on which to conduct analysis.

The Bury, Rochdale and Oldham CDOP is 1 of 4 CDOPs in Greater Manchester which are split into the Coroner's jurisdiction:

<i>Manchester North</i>	Bury, Rochdale and Oldham CDOP
<i>Manchester South</i>	Tameside, Trafford and Stockport CDOP
<i>Manchester West</i>	Bolton, Salford and Wigan CDOP
<i>Manchester City</i>	Manchester CDOP

3.1 Panel Membership

The Child Death Overview Panel (CDOP) membership is made up of multi-agency professionals from across the three local authorities (Table 1). Some posts change during the year through rotation of post to other areas (or other reasons) and so may only be filled for a proportion of time, or may have a different representative.

Table 1: CDOP Membership 2015-16			
Area	Name	Agency	Position
Bury	Jon Hobday	Public Health	(Chair) – Consultant in Public Health
Bury	Maxine Lomax	CCG	Designated Nurse for Safeguarding
Bury	Sarah Davidson	Pennine Care Community and Mental Health Services	Named Nurse Safeguarding Adults and Children
Oldham / Bury	David Devane / Lesley Davidson	Education	Safeguarding Advisor to School
Bury / Rochdale	Rob Rifkin / Vacant Post	CCG	Designated Doctor
Rochdale	Alison Kelly	CCG	Designated Nurse
Rochdale	Anna Oddy	Pennine Care – Palliative Care	Children’s Complex Care Coordinator and Palliative Care Specialist Nurse
Rochdale	Aliette Atkinson	Pennine Care – Mental Health & Community Services	Named Nurse Safeguarding Children & Adults (Community Services & Mental Health)
Rochdale / Oldham	Sandra Bruce / Vacant Post	Social Care	Service Manager, Safeguarding
Oldham	Chris Howard	Pennine Care	Paediatrician
Oldham	Claire Smith	CCG	Designated Nurse
Oldham	Eileen Mills	Bridgewater	Named Nurse Safeguarding Children
All 3 areas	Deepak Upadhyay	Pennine Acute – Rapid Response Team	(Interim) SUDC Paediatrician
All 3 areas	Michael Montford	Greater Manchester Police	Detective Chief Inspector
All 3 areas	Kim Gaskell / Nikki Gibson	Pennine Acute – Safeguarding, Midwifery	Named Nurse for Safeguarding Children

Source: BOR CDOP 2015/16

3.2 Panel Attendance

Table 2 shows the attendance of the panel members at each meeting throughout the year.

Table 2: Panel Member Attendance at Meetings Throughout 2015-16							
Name	Organisation	Month of Meeting					
		Apr	Jun	Aug	Oct	Dec	Feb
Jon Hobday	CDOP Chair, Bury Public Health	-	CANCELLED	CANCELLED	✓	✓	✓
Aliette Atkinson	Rochdale, Pennine Care (Mental Health)	-			-	-	✓
Alison Kelly	Rochdale CCG, Designated Nurse						✓
Andrea Fallon	CDOP Chair, Oldham Public Health	✓			-	-	-
Anna Oddy	Rochdale Palliative Care	-			-	-	✓
Dr Abdul Rehman	SUDC Paediatrician	✓			-	-	-
Caroline McKenna	(Interim) Oldham, Social Care	-			-	-	X
Christopher Bridge	Greater Manchester Police	✓			-	-	-
Dr Chris Howard	Paediatrician, Oldham Pennine Care	✓			✓	✓	✓
Claire Smith	Oldham CCG, Designated Nurse	-			-	-	X
David Devane	Oldham, Education	✓			✓	-	-
David Warren	Greater Manchester Police	✓			-	-	-
Dr Deepak Upadhyay	(Acting) SUDC Paediatrician	-			✓	X	✓
Eileen Mills	Oldham, Pennine Care (Mental Health)	✓			X	X	-
Kim Gaskell	Pennine Acute Trust, Safeguarding	✓			-	-	-
Lesley Davidson	Bury, Education	-			-	✓	✓
Maxine Lomax	Bury CCG, Designated Nurse	✓			✓	✓	✓
Michael Montford	Greater Manchester Police	-			X	X	✓
Nicola Gibson	Pennine Acute Trust, Safeguarding	-			-	✓	X
Dr Rob Rifkin	HMR & Bury CCG, Designated Doctor	X			X	X	-
Sandra Bruce	Rochdale Social Care	✓	X	X	-		

Stephanie Davern	Oldham LSCB, CDOP Officer	✓			✓	✓	✓
Guests							
Marie Flanagan	On behalf of Eileen Mills	-	-	-	✓	✓	-
Tony Philbin	On behalf of Sandra Bruce	-	-	-	✓	✓	-
Anna Oddy	(Observer) Rochdale Palliative Care	-	-	-	-	✓	-
Anu Singh	(Observer) GMP	-	-	-	-	✓	-
Bin Hooi Low	(Observer) Paediatric Registrar	-	-	-	-	✓	-
Kirsty Leyden	On behalf of Michael Montford	-	-	-	-	✓	-

Source: BOR CDOP 2015/16

4.0 Population

4.1 Overview of Bury, Oldham and Rochdale population aged under 18 years

Bury, Oldham and Rochdale are each separate local authorities, brought together for the purposes of the CDOP. Table 3 demonstrates the number of children living within each borough under the CDOP and the total population for the three combined. Bury has the smallest population and Oldham has the largest, this has been the case since the CDOP was established.

Table 3: Number of children aged under 18 years in Bury, Oldham and Rochdale	
CDOP	Under-18 Population Size
Bury	42653
Oldham	58305
Rochdale	50855
Bury, Oldham & Rochdale (BOR)	151,813

Source: ONS 2015 mid-year estimate (MYE) Data

4.2 Ethnicity

Ethnicity is recorded as one of two categories for all closed cases: White or Black and Minority Ethnic (BME). Different ethnic groups often have different health needs and problems so it is important to understand the local population. By using data from the 2011 census we can extrapolate the estimated child populations of Local Authorities by ethnicity. Across the 0-18years population throughout GM, 75% identify as White and 25% as BME. In BOR, these figures are 72% White and 28% BME. As shown in Table 4, Oldham has the highest proportion of children identifying as BME (23%), Bury the least (18%) and Rochdale in between (29%). Rochdale and Oldham both have a higher proportion of BME children than the GM and North-West average.

Table 4: Estimated Child Population by Ethnic Group for Bury, Oldham and Rochdale (mid-2015 population data applying 2011 census ethnicity breakdown)				
Area	White		BME	
Bury	35,146	82%	7,507	18%
Oldham	37,024	63%	21,281	37%
Rochdale	36,107	71%	14,748	29%
BOR	108,277	72%	43,536	28%
Greater Manchester	464,710	75%	157,105	25%
North-West	1,282,511	84%	238,854	16%

Source: ONS, 2015

4.3 Index of Multiple Deprivation (IMD)

The Index of Multiple Deprivation applies a score to an area to represent its level of deprivation for ease of comparison. Scoring was revised in 2015 and a slightly different methodology was employed, resulting in small variations in the average scores from 2010 to 2015 for some areas. A higher score represents a higher level of deprivation. As can be seen in Table 5, Oldham and Rochdale both score higher (are more deprived) than the North West average. This is also reflected in the proportion of the population living in the most deprived areas: Oldham and Rochdale both have a greater percentage (23% and 28% respectively) than the North West average (20%) whereas Bury has half of this average (10%).

Table 5: Average IMD 2015 score and percentage in the most deprived 10% for Bury, Oldham and Rochdale (source ONS)

Current Code	Former Code	Area	Average IMD 2010 score	Average IMD 2015 score	% of people in an area in most deprived 10%
E08000002	00BM	Bury	22.23	21.76	10%
E08000004	00BP	Oldham	30.41	30.29	23%
E08000005	00BQ	Rochdale	33.85	33.68	28%
-	-	North West	27.11	28.04	20%

Source: ONS, 2015

5.0 2015/16 Reviews by CDOP

5.1 Notified Cases 2015/16

Between 1st April 2015 and 31st March 2016, Bury, Oldham and Rochdale (BOR) CDOP were notified of 60 deaths. Table 6 shows the distribution of these cases throughout the local authorities and compares it to the GM data. The largest proportion of notified deaths was in Oldham, which has the biggest population of the three local authorities and so would be expected to have the most notified deaths. However, when looking at the number of notified cases per 10,000 population, it is clear that Oldham had a notification rate (4.8 per 10,000 population) considerably above that of the other two local authorities and the Greater Manchester area as a whole. Oldham also had the greatest number of notified cases per 10,000 population of all the Greater Manchester local authorities. Due to the relatively small number of cases, it is difficult to attribute causality to this finding and it may be due to normal variation. It will be important to look at any trends year-on-year when more annual data is available in the future.

Table 6: Number, percentage and rate per 10,000 of notified deaths across BOR, 2015/16				
Local Authority	Total Deaths Notified (number)	Percentage of overall GM child deaths	Population 0-17 yrs 2015	Notified cases per 10,000 population
Bury	14	6%	42653	3.28
Oldham	28	11%	58305	4.80
Rochdale	18	7%	50855	3.54
BOR	60	24%	151813	3.95
Greater Manchester	246	-	621815	3.96

Source: GM CDOPs 2015/16

5.2 Closed Cases 2015/16

Between 31st March 2015 and 1st April 2016, Bury, Oldham and Rochdale CDOP closed 74 cases. Of the 60 2015/16 notified cases, 36 (60%) were closed the same year, meaning the remainder of closed deaths occurred in 2015/14 or earlier. BOR closed the largest number of cases of all the GM CDOPs, together totalling 31% of cases closed throughout GM, despite being the second smallest population of all 4 CDOPs.

Table 7 shows the distribution of closed cases by local authority and comparison to the total GM CDOP cases closed.

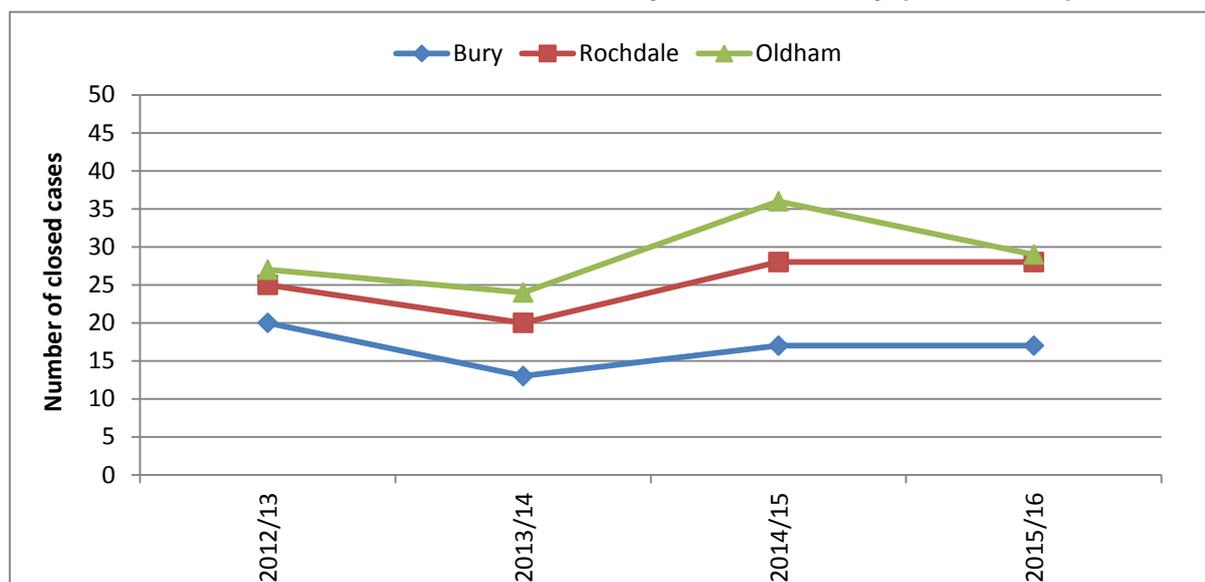
Table 7: Number and percentage of deaths (cases closed) 2015/16 by local authority and CDOP		
Local Authority	Total Cases Closed	Percentage of overall GM deaths (cases closed)
Bury	17	7%

Oldham	29	12%
Rochdale	28	12%
BOR	74	31%
Greater Manchester	236	100%

Source: GM CDOPs 2015/16

There is year on year variation regarding the number of number of cases closed but it is difficult to determine any trends because of the relatively small number of cases each year. **Error! Reference source not found.** and Table 8 show the year-on-year values for number of closed cases for each local authority.

Chart 1: Number of Closed Cases by Local Authority (2012 - 2016)



Source: GM CDOPs 2015/16

Table 8: Number of Cases Closed per Year by Local Authority and Throughout Greater Manchester 2012-2016

Area	0-17 population 2015	Number of cases closed 2012/13	Number of cases closed 2013/14	Number of cases closed 2014/15	Number of cases closed 2015/16	Average over four years
Bury	42,653	20	13	17	17	17
Oldham	50,855	27	24	36	29	29
Rochdale	58,305	25	20	28	28	25
BOR	151,813	72	57	81	74	71
Greater Manchester	621,815	267	216	262	236	245

Source: GM CDOPs 2015/16

5.3 Duration of Reviews

In order to close a case, the panel must ensure there is enough information available to permit a full review of the circumstances surrounding the death and consider all factors that may have had an impact. The duration of the case review is taken from the date of the death until the date the case is closed. The duration of review will vary for each case as they are affected by a number of different factors. Information must be gathered from a number of agencies and sources and collated appropriately; the CDOP may be notified of the case at different time points after each death has occurred; the conclusion of other potentially lengthy review processes need to be taken into account, such as those involving the Coroner, Crown Prosecution Service (CPS) and / or safeguarding boards, for example Serious Case Reviews (SCRs).

The 74 cases closed by BOR in 2015/16 took varying lengths of time to close. Oldham took the longest average number of days to close a case (369), but it is possible this may have been skewed by one or more lengthy case(s), which we are unable to determine without more in-depth analysis. The average number of days taken in BOR is not dissimilar from the GM average.

Table 9 shows the average length of days taken to close a case in each local authority, alongside the GM average.

Table 9: Average Number of Days to Close a Case by Local Authority	
Area	Average days to close
Bury	258
Oldham	369
Rochdale	196
BOR total	274
Greater Manchester	234

Source: GM CDOPs 2015/16

5.4 Causes of death

At the close of a case, the CDOP must complete a *Form C Analysis Proforma* and assign the cause of death to one of 10 categories, as per national guidance. The categories are classified hierarchically so that if there is felt to be more than once cause of death, the highest ranking category will be the recorded cause. In order to maintain consistency, the four GM CDOP chairs regularly discuss a small number of cases from each CDOP.

1. **Deliberately inflicted injury, abuse or neglect**

This includes suffocation, shaking injury, knifing, shooting, poisoning & other means of probable or definite homicide; also deaths from war, terrorism or other mass violence;

includes severe neglect leading to death.

2. Suicide or deliberate self-inflicted harm

This includes hanging, shooting, self-poisoning with paracetamol, death by self-asphyxia, from solvent inhalation, alcohol or drug abuse, or other form of self-harm. It will usually apply to adolescents rather than younger children.

3. Trauma and other external factors

This includes isolated head injury, other or multiple trauma, burn injury, drowning, unintentional self-poisoning in pre-school children, anaphylaxis & other extrinsic factors. Excludes deliberately inflicted injury, abuse or neglect. (category 1).

4. Malignancy

Solid tumours, leukaemias & lymphomas, and malignant proliferative conditions such as histiocytosis, even if the final event leading to death was infection, haemorrhage etc.

5. Acute medical or surgical condition

For example, Kawasaki disease, acute nephritis, intestinal volvulus, diabetic ketoacidosis, acute asthma, intussusception, appendicitis; sudden unexpected deaths with epilepsy.

6. Chronic medical condition

For example, Crohn's disease, liver disease, immune deficiencies, even if the final event leading to death was infection, haemorrhage etc. Includes cerebral palsy with clear post-perinatal cause.

7. Chromosomal, genetic and congenital anomalies

Trisomies, other chromosomal disorders, single gene defects, neurodegenerative disease, cystic fibrosis, and other congenital anomalies including cardiac.

8. Perinatal/neonatal event

Death ultimately related to perinatal events, e.g. sequelae of prematurity, antepartum and intrapartum anoxia, bronchopulmonary dysplasia, post-haemorrhagic hydrocephalus, irrespective of age at death. It includes cerebral palsy without evidence of cause, and includes congenital or early-onset bacterial infection (onset in the first postnatal week).

9. Infection

Any primary infection (ie, not a complication of one of the above categories), arising after the first postnatal week, or after discharge of a preterm baby. This would include septicaemia, pneumonia, meningitis, HIV infection etc.

10. Sudden unexpected, unexplained death

Where the pathological diagnosis is either 'SIDS' or 'unascertained', at any age. Excludes Sudden Unexpected Death in Epilepsy (category 5).

Table 10 and Chart 2 show the number of closed cases by category of death. When all three areas are combined, the highest number of deaths was assigned to the "Chromosomal

/ genetic / congenital” category (21, 28%). This was also true for Bury (6, 35%) and Rochdale (10, 36%) when considered individually but in Oldham the category with the highest number was “Perinatal / neonatal” (7, 24%). This suggests that the highest proportion of deaths were attributed to causes that occurred before or shortly after birth. **Chart 3** shows the proportion of deaths for each category for BOR combined.

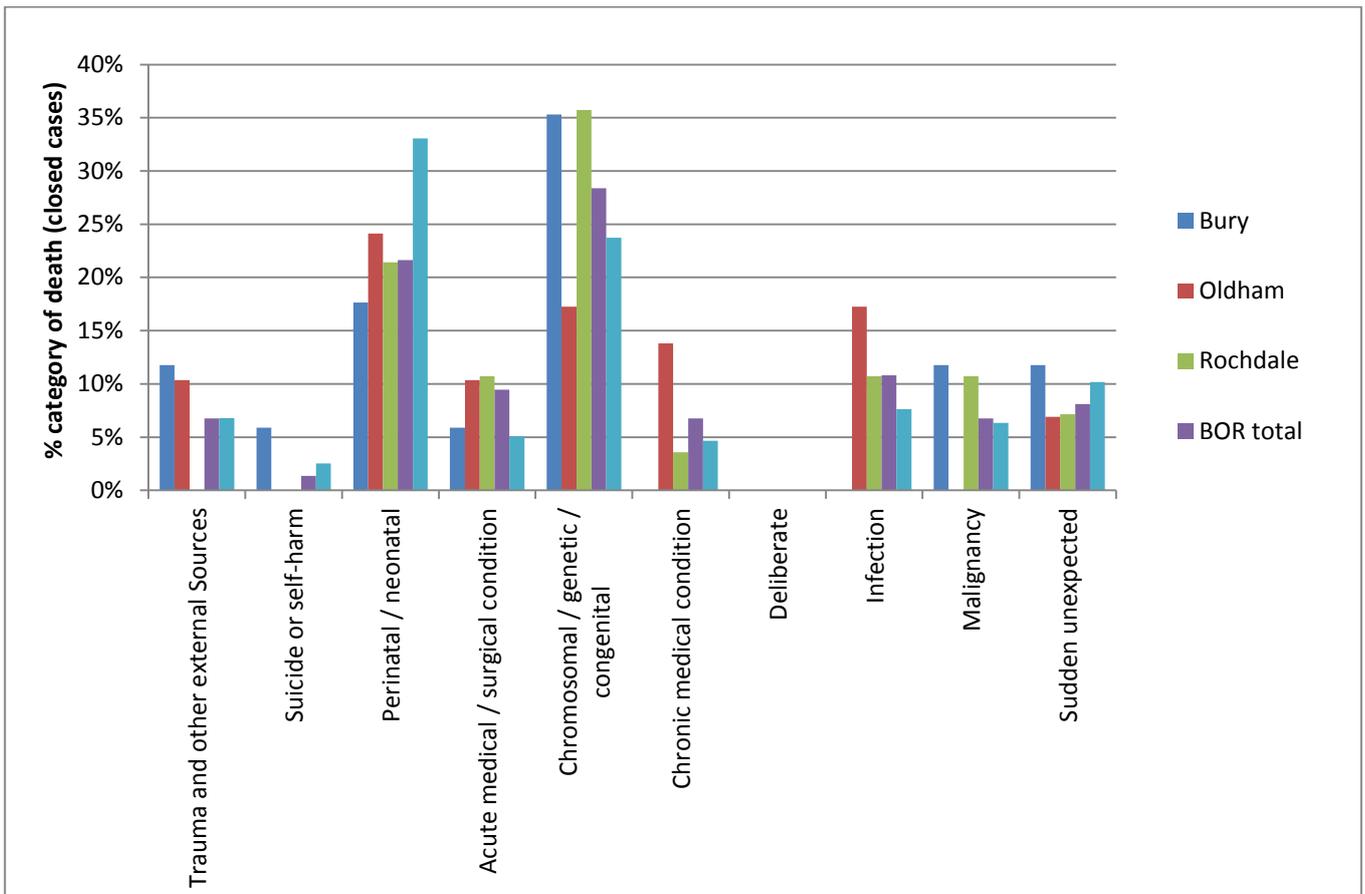
When grouped into categories relating to the child’s health (malignancy; acute medical / surgical condition; chronic medical condition; chromosomal / genetic / congenital; perinatal / neonatal; infection) and non-health related (deliberate; suicide / self harm; trauma / external sources; sudden unexpected), the majority of cases fall into health related categories (62, 84%).

Table 10: Number of Closed Cases in Each Local Authority by Category of Death 2015/16

Category	Bury		Oldham		Rochdale		BOR		Greater Manchester	
	No	%	No	%	No	%	No	%	No	%
Deliberate	0	0%	0	0%	0	0%	0	0%	0	0%
Suicide / self-harm	1	6%	0	0%	0	0%	1	1%	6	3%
Trauma and other external sources	2	12%	3	10%	0	0%	5	7%	16	7%
Malignancy	2	12%	0	0%	3	11%	5	7%	15	6%
Acute medical / surgical condition	1	6%	3	10%	3	11%	7	10%	12	5%
Chronic medical condition	0	0%	4	14%	1	4%	5	7%	11	5%
Chromosomal / genetic / congenital	6	35%	5	17%	10	36%	21	28%	56	24%
Perinatal / neonatal	3	18%	7	24%	6	21%	16	22%	78	33%
Infection	0	0%	5	17%	3	11%	8	11%	18	8%
Sudden unexpected	2	12%	2	7%	2	7%	6	8%	24	10%
Total	17	-	29	-	28	-	74	-	236	-

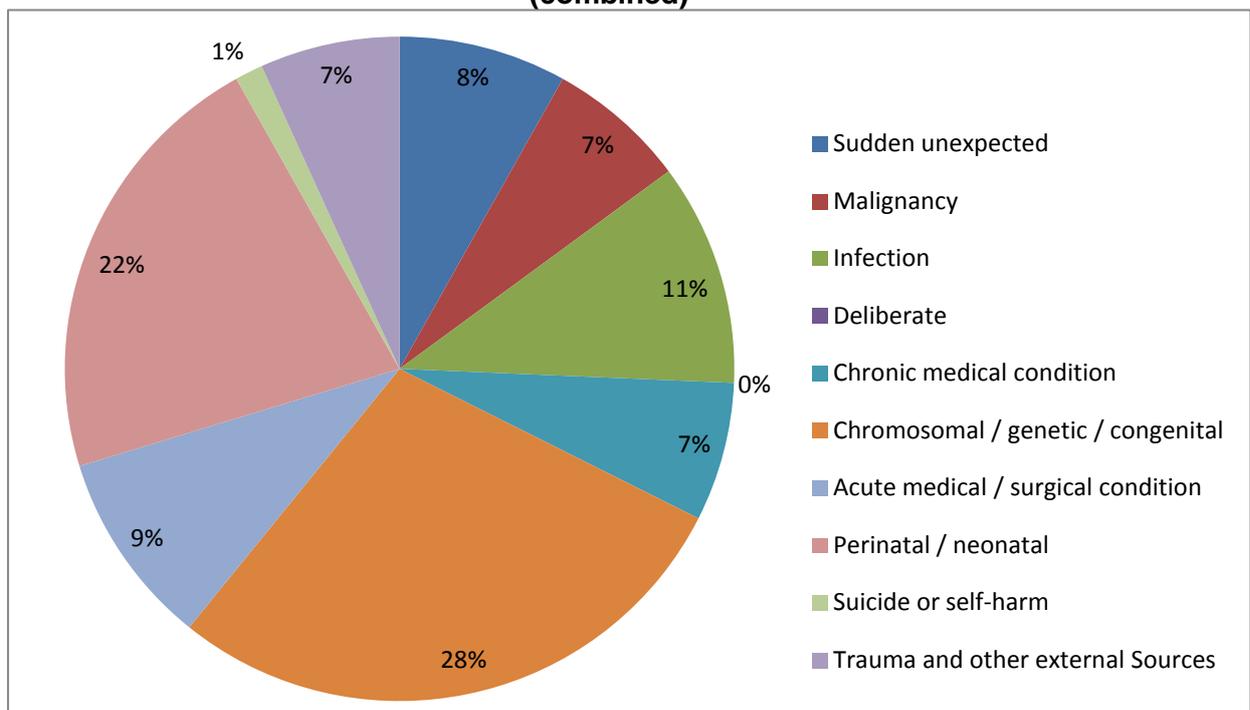
Source GM CDOPs 2015/16

Chart 2: Proportion of Deaths Assigned to Each Category for Closed Cases in Bury, Oldham, Rochdale and Greater Manchester (2015/16)



Source GM CDOPs 2015/16

Chart 3: Category of Cause of Death for Closed Cases in Bury, Oldham and Rochdale (combined)



Source GM CDOPs 2015/16

5.5 Location of death

Table 11 shows the location of the death for each of the three areas and Greater Manchester as a whole. In Bury, an equal number of deaths occurred at home and in the hospital (47%). This is unusual by comparison to Oldham, Rochdale and the Greater Manchester distributions, in which the majority of deaths occurred in hospital (59-68%), with home being the second most frequent place (29-34%). No deaths occurred in a hospice throughout Bury, Oldham and Rochdale. Deaths at home are more likely to be “Sudden unexpected” or as a result of patient/family choice in children with long term conditions in the terminal stages of their illness.

Table 11: Location of Death by Local Authority 2015/16				
Area	Hospital	Home	Hospice	Other
Bury	47%	47%	0%	6%
Oldham	59%	34%	0%	7%
Rochdale	68%	32%	0%	0%
Greater Manchester	64%	29%	2%	5%

Source: GM CDOPs 2015/16

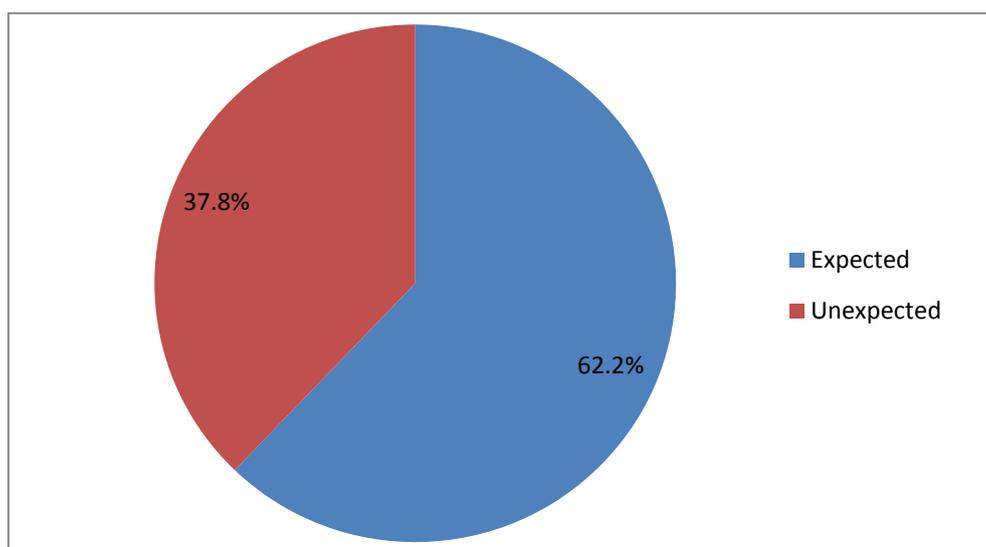
5.6 Expected / unexpected deaths

When a death is reported by a CDOP, it must be assigned either ‘expected’ or ‘unexpected’ classification. As can be seen in Table 12 and Chart 4, for the 74 deaths across BOR, the majority of deaths were expected (62%) and this was also true for Great Manchester as a whole (65%). The individual areas follow a similar trend, except for Oldham, where 52% of deaths were unexpected.

Table 12: Expected versus Unexpected Deaths by Local Authority (2015/16)					
LA	Expected		Unexpected		Total N°
	N°	%	N°	%	
Bury	11	65%	6	35%	17
Oldham	14	48%	15	52%	29
Rochdale	21	75%	7	25%	28
BOR	46	62%	28	38%	74
Greater Manchester	153	65%	83	35%	236

Source: GM CDOPs 2015/16

Chart 4: Bury, Oldham and Rochdale Expected vs. Unexpected Deaths



Source: GM CDOPs 2015/16

5.7 Modifiable factors

The CDOP analyses if there are any relevant environmental, extrinsic, medical or personal factors that may have contributed to the child's death and applies a score of relevance to them as per the following categories.

- 0 - Information not available
- 1 - No factors identified or factors identified but are unlikely to have contributed to the death
- 2 - Factors identified that may have contributed to vulnerability, ill-health or death
- 3 - Factors identified that provide a complete and sufficient explanation for the death

In some cases, there will be certain elements that, with removal or change, could have reduced the risk of death to the child. The presence of these modifiable factors must be considered by the CDOP for all cases before closure. The case will then be categorised as follows.

1. Modifiable factors identified

The panel have identified one or more factors, in any domain, which may have contributed to the death of the child and which, by means of locally or nationally achievable interventions, could be modified to reduce the risk of future child deaths

2. No Modifiable factors identified

The panel have not identified any potentially modifiable factors in relation to this death

3. Inadequate information upon which to make a judgement

NB this category should be used very rarely.

Since category 3 (Inadequate information) should only be used rarely, we would expect the majority of cases to fall into categories 1 or 2. This is the case for Bury, Oldham and

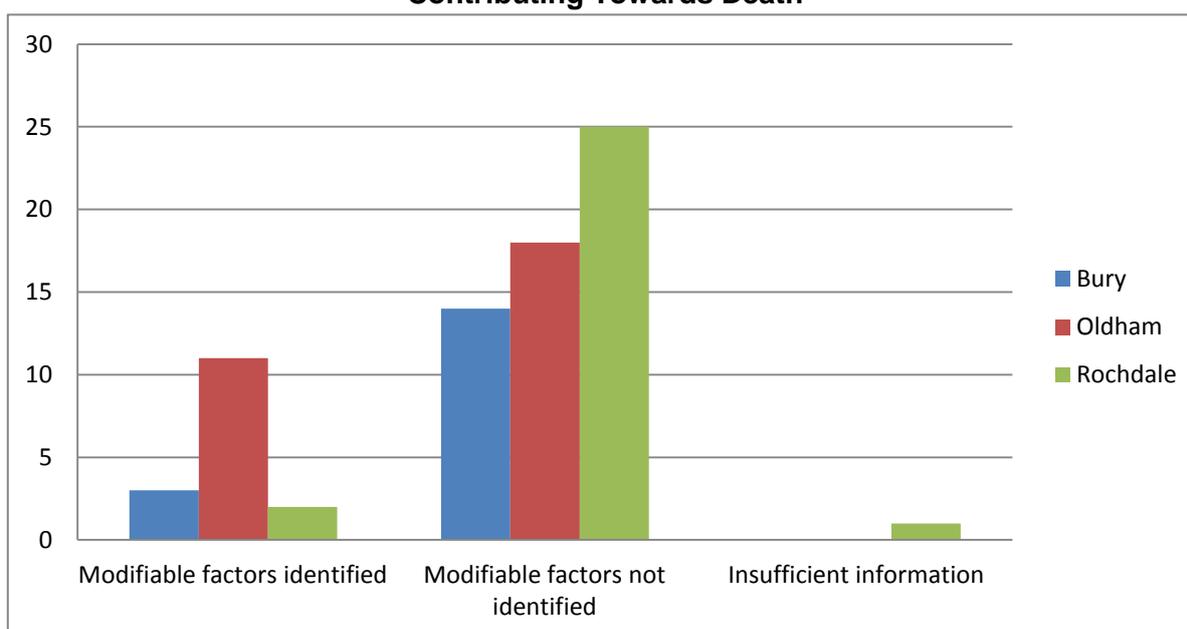
Rochdale, which only have one case in category 3 between them, occurring in Rochdale. The majority of cases in all three areas had no identified modifiable factors, with an average of 77% across the CDOP. Oldham had the highest number of cases with modifiable factors identified (11, 38%), which could possibly be linked to the finding that Oldham had a higher proportion of unexpected deaths than the other areas. It stands to reason that if a death is expected, measures would have been put in place to try and prevent the death before it became inevitable, thereby leaving lesser chance for modifiable factors to be identified.

Table 13 and Chart 5 show the number of cases in each category for each area. Even including Oldham's higher rate, the proportion of cases with modifiable factors identified in BOR combined (22%) is slightly less than the average for GM (31%). In BOR, this is a lower number than in 2014/15 (20, 25%) and 2013/14 (17, 30%). As with previous elements, it is difficult to determine any real trend because of the small numbers involved.

Table 13: Bury, Oldham and Rochdale Modifiable and Non-Modifiable Factors Contributing Towards Death							
LA	Modifiable factors identified		Modifiable factors not identified		Insufficient information		Total N°
	N°	%	N°	%	N°	%	
Bury	3	18%	14	82%	0	0%	17
Oldham	11	38%	18	62%	0	0%	29
Rochdale	2	7%	25	89%	1	4%	28
BOR	16	22%	57	77%	1	1%	74
Greater Manchester	74	31%	160	68%	2	1%	236

Source: GM CDOPs 2015/16

Chart 5: Bury, Oldham and Rochdale Modifiable and Non-Modifiable Factors Contributing Towards Death



Source: GM CDOPs 2015/16

Modifiable factors identified by the BOR CDOP included:-

- Consanguinity
- Road traffic collision
- Parent/carer smoking
- Maternal smoking in pregnancy
- Health & safety procedures at work
- Co-sleeping
- Medical care / Access to medical care
- Alcohol abuse by caregiver
- Late / un-booked pregnancy
- Maternal BMI
- Overheating
- Maternal health

5.8 Age at death

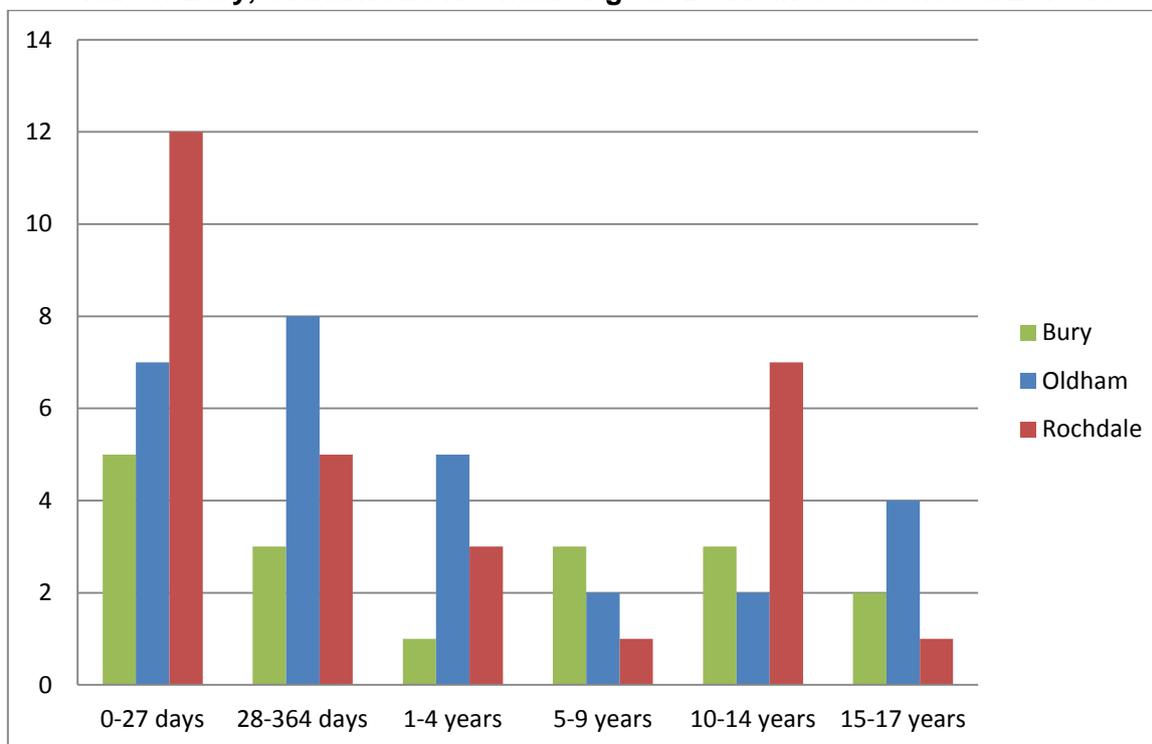
The age at death is an important factor to consider and Table 14 shows the findings across BOR and also GM. This is also represented by

Chart 6.

Table 14: Distribution of Closed Cases by Age Band Throughout Bury, Oldham and Rochdale and Greater Manchester (2015/16)													
LA	0-27 days		28-364 days		1-4 years		5-9 years		10-14 years		15-17 years		Total
	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	
Bury	5	29%	3	18%	1	6%	3	18%	3	18%	2	12%	17
Oldham	7	25%	8	29%	5	18%	2	7%	2	7%	4	14%	28
Rochdale	12	41%	5	17%	3	10%	1	3%	7	24%	1	3%	29
BOR	24	32%	16	22%	9	12%	6	8%	12	16%	7	10%	74
Greater Manchester	90	38%	62	26%	25	11%	15	6%	23	10%	21	9%	236

Source: GM CDOPs 2015/16

Chart 6: Bury, Oldham and Rochdale Age at Death in Cases Closed 2015-16



Source: GM CDOPs 2015/16

As can be seen in Table 14, over half of the 74 deaths in BOR combined (40, 54%) were in children under the age of 12 months. This is similar to – although slightly lower than – the findings for GM as a whole (152 of 236, 64%). For Bury and Rochdale, the highest percentage of deaths occurred in the neonatal period (0-27 days) and for Oldham the highest percentage was infants aged 28-364 days, although there was only 1 less death in the neonatal age bracket.

5.9 Low birth weight

Low birth weight (LBW) is considered a risk factor for child mortality¹. There are a number of risk factors for LBW including multiple births, smoking and maternal age. Birth weight and gestation are inextricably linked as premature babies weigh less than those born at term. Babies born at term can also be of a low birth weight for a variety of other reasons. Babies under 2500g are generally considered to be of LBW and those under 1500g are very low birth weight (VLBW).

¹ McCormick, M. C. The contribution of low birth weight to infant mortality and childhood morbidity. *N. Engl. J. Med.* **312**, 82–90 (1985).

There was generally reliable data collection on birth weight for the cases of infant death in BOR as show in Table 15, the birth weight was not present in only 1 case (2%). Just over half of all the infant deaths in BOR had a birth weight above 2500g and so their birth weight was unlikely to be a contributing factor to their death. Of the other 45%, one third (33%) were less than 1500g / VLBW. This is considerably lower than the GM figure of 47% VLBW and over half (63%) of all infants weighing less than 2500g at birth.

Table 15: Distribution of Birth Weight Categories for Closed Cases in Infants in Bury, Oldham and Rochdale and Greater Manchester (2015/16)										
LA	<1500g		1500-2499g		2500-3999g		4000g+		Not Stated	
	N°	%	N°	%	N°	%	N°	%	N°	%
Bury	1	13%	1	13%	4	50%	2	25%	0	0%
Oldham	6	33%	4	17%	9	50%	0	0%	0	0%
Rochdale	7	44%	1	6%	7	44%	0	0%	1	6%
BOR total	14	33%	6	12%	20	48%	2	5%	1	2%
Greater Manchester	72	47%	24	16%	51	34%	4	3%	1	1%

Source: GM CDOPs 2015/16

5.10 Socio-Demographic Characteristics

The socio-demographics of the cases are collected to try and identify any health inequalities between different groups and consider targeted interventions.

5.10.1 Gender

Table 16: Number of cases closed by gender by Local Authority (2015/16)				
LA	Males	%	Females	%
Bury	11	65%	6	35%
Oldham	15	52%	14	48%
Rochdale	15	54%	13	46%
BOR	41	55%	33	45%
Greater Manchester	138	58%	98	42%

Source: GM CDOPs 2015/16

As for GM, in BOR males appear over-represented when compared to females; although the difference in Oldham is probably negligible as it is only 1 case swinging the balance (see Table 16). The difference in the number of male deaths compared to females is particularly striking in Bury, where almost double the number of cases were male (11 vs 6). Because

the numbers are small, there is no breakdown of age and gender or cause of death and gender at a local level so it is difficult to attribute potential causes for this gender imbalance. The Greater Manchester Report goes into more detail in this area.

5.10.2 Ethnicity

Large inequalities in infant mortality rates exist between White and ethnic minority groups in England and Wales².

- Caribbean and Pakistani babies are more than twice as likely to die before the age of one as White British or Bangladeshi babies, in part due to a higher prevalence of preterm birth and congenital anomalies, respectively, in these particular groups.
- There is considerable heterogeneity between different ethnic groups in both the causes and the risk factors for infant mortality.
- Explanations for variations in infant mortality between ethnic groups are complex, involving the interplay of deprivation, physiological, behavioural and cultural factors.
- More research is needed in order to identify the pathways that lead to higher risks of infant death among Black and other ethnic minority groups.
- Nationally, reviews of deaths of children from a White background account for around 3 out of 5 reviews, which was reflected in the BOR CDOP data with 58% of in-year closed cases (21 of 36) being White.

Ethnicity estimates have been calculated by applying total 0-18 ONS mid-year population estimates to the ethnicity rate at the 2011 census for each area (see Table 4, p.11). For this reason, the best measure of ethnicity is looking at closed cases where notification was in the same year. This data is displayed in **Error! Reference source not found.** below, along with the rates per 10,000 to account for varying population sizes.

All three areas have a higher rate of cases coming from the BME population compared to White (see **Error! Reference source not found.**). These are among the highest rates in the Greater Manchester area and above the GM average. Rates are particularly high in Oldham, at 5.17 per 10,000 population of BME compared with 0.54 per 10,000 population in White. As can be seen in Table 18Table 10, half of all the 2015/16 closed cases in BOR were White and half were BME. This additional data also supports the finding that the BME population are over-represented for cases of child death, even though these numbers cannot be directly applied to the mid-year estimates because some cases were been notified before 2015/16.

² Gray, R., Headley, J., Oakley, L., Kurinczuk, J. J., Brocklehurst, P. & Hollowell, J. (2009) **Inequalities in infant mortality project briefing paper 3.** Towards an understanding of variations in infant mortality rates between different ethnic groups. Oxford: *National Perinatal Epidemiology Unit.*

Source: GM CDOPs 2015/16

Table 17: Cases Closed by Ethnicity for Each Area (Where Date of Notification Occurred in Year 2015/16)				
LA	White		BME	
	N°	rate/10,000	N°	rate/10,000
Bury	6	1.71	3	4.00
Oldham	2	0.54	11	5.17
Rochdale	7	1.94	7	4.75
BOR	15	1.39	21	4.82
Greater Manchester	73	1.57	49	3.28

Source: GM CDOPs 2015/16

When looking at the distribution of cases by age and ethnicity (Table 18), BME groups are over-represented throughout, but in the age groups 0-27 days and 1-4 years the BME cases actually outnumber the White. In the 5-9 years age group the distribution is equal between the ethnic groups. As with the other data, the numbers are quite small so it is difficult to draw firm conclusions. As already mentioned, we know that some BME groups have a higher rate of premature births and babies born with congenital abnormalities, which are more likely to cause death in these younger age groups and so could explain the BME majority.

Table 18: Age and Ethnicity of Cases Closed in Bury, Oldham and Rochdale 2015/16		
Age Band	White	BME
0-27 days	11	13
28-264 days	9	7
1-4 years	2	7
5-9 years	3	3
10-14 years	7	5
15-17 years	5	2
Total	37	37

Source: GM CDOPs 2015/16

As can be seen in Table 18 half of the deaths in BOR were White and half were BME, which indicates that the BME population are over-represented for cases of child death. When broken down further, despite being the minority ethnic group, the data shows that cases identifying as BME are in the majority for 3 categories: "Chromosomal / genetic / congenital" (67%), "Chronic medical condition" (80%) and "Infection" (75%) and are generally over-represented in all categories except "Suicide or self-harm", "Trauma and other external

sources” and “Sudden unexpected”. These are all relatively small numbers and so it is difficult to draw firm conclusions from the data but the overall trend does suggest that there are inequalities between the ethnic groups. Similar findings can be seen across GM data.

Table 19 gives insight into the causes of death by ethnicity. BME cases represent the largest proportion of “Chromosomal / genetic / congenital” causes, which is a recognised trend nationally. BME cases also represent the majority in the categories “Chronic medical condition” and “Infection“, which are less easily explained. Each case would need to be looked at on an individual basis to determine whether there were also any modifiable factors identified and any recurring issues within this group that could be improved with intervention(s).

Table 19: Category Assigned to Closed Cases in Bury, Oldham and Rochdale by Ethnicity (2015/16)					
BOR	White		BME		Total
	N°	%	N°	%	
Deliberate	0	0%	0	0%	0
Suicide or self-harm	1	100%	0	0%	1
Trauma and other external sources	4	80%	1	20%	5
Malignancy	3	60%	2	40%	5
Acute medical / surgical condition	4	57%	3	43%	7
Chronic medical condition	1	20%	4	80%	5
Chromosomal / genetic / congenital	7	33%	14	67%	21
Perinatal / neonatal	9	56%	7	44%	16
Infection	2	25%	6	75%	8
Sudden unexpected	6	100%	0	0%	6
Total	37	-	37	-	74

Source: GM CDOPs 2015/16

5.10.3 Deprivation

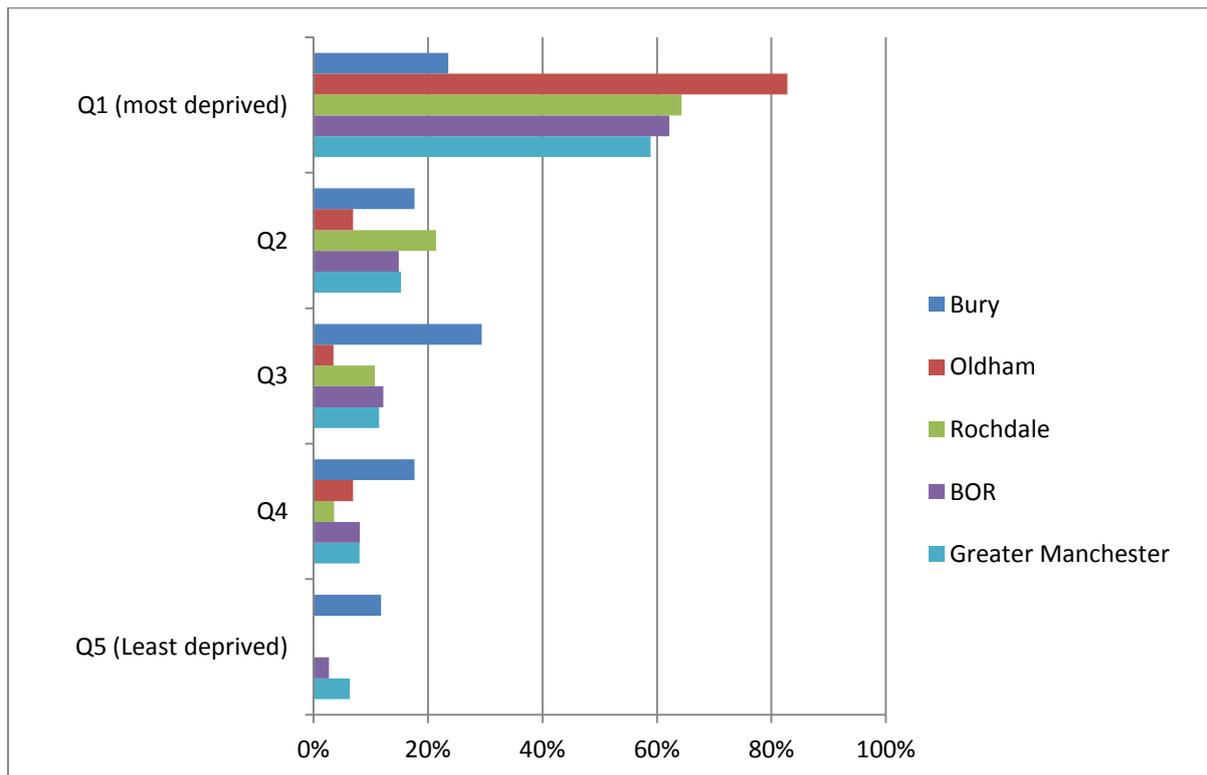
As demonstrated in Table 5 (p.12), 10% of Bury residents, 23% of Oldham residents and 28% of Rochdale residents live in the most deprived areas (1st Quintile / Q1). As has been seen in previous years, the highest proportion of cases across BOR come from 1st Quintile areas and the second highest from 2nd Quintile areas (see Table 20 and Chart 7). This disparity is most evident in Oldham, where 83% of cases (24) lived in Q1.

Table 20: Distribution of Closed Cases in Bury, Oldham and Rochdale and Greater Manchester by Deprivation Quintile (2015/16)

LA	Q5 (Least deprived)		Q4		Q3		Q2		Q1 (most deprived)	
	N°	%	N°	%	N°	%	N°	%	N°	%
Bury	2	12%	3	18%	5	29%	3	18%	4	24%
Oldham	0	0%	2	7%	1	3%	2	7%	24	83%
Rochdale	0	0%	1	4%	3	11%	6	21%	18	64%
BOR	2	3%	6	8%	9	12%	11	15%	46	62%
Greater Manchester	15	6%	19	8%	27	11%	36	15%	139	59%

Source: GM CDOPs 2015/16 & IMD 2015

Chart 7: Distribution of Cases by Deprivation Quintile in Bury, Oldham and Rochdale and Greater Manchester 2015/16



Source: GM CDOPs 2015/16 & IMD 2015

Table 21 further breaks down the data on areas of deprivation by age as well. All age brackets have the highest proportion of cases in Q1. Those cases aged 5-9 years, whilst following this trend, has less of a bias towards more deprived areas with (50%) living in Q1 and the other half in Q3 & Q4, although still outside the proportions for normal distribution. Similarly, the age group 15-17 years also has a more even spread with 43% in Q1, 29% in

Q2 and 14% (1 case) in each of Q3 and Q4. Conversely, age groups 0-27days, 1-4years and 10-14 years all had over 80% of cases from Q1 / Q2.

Table 21: Closed Case in Bury, Oldham and Rochdale by Age-Band and Deprivation Quintile (2015/16)

Age Band	Q5		Q4		Q3		Q2		Q1		Total
	N ^o	%	N ^o	%	N ^o	%	N ^o	%	N ^o	%	
0-27 days	1	4%	1	4%	3	13%	4	17%	15	63%	24
28-364 days	0	0%	2	13%	3	19%	1	6%	10	63%	16
1-4 years	0	0%	1	11%	0	0%	2	22%	6	67%	9
5-9 years	0	0%	1	17%	2	33%	0	0%	3	50%	6
10-14 years	1	8%	0	0%	0	0%	2	17%	9	75%	12
15-17 years	0	0%	1	14%	1	14%	2	29%	3	43%	7

Source: GM CDOPs 2015/16

5.10.4 Smoking status of the mother

Maternal smoking status should be recorded for all CDOP cases in children under 1 year of age and other relevant cases e.g. SUDI, respiratory disease. Throughout BOR, smoking status was available in all relevant cases except one (in Bury), as shown in Table 22. Smoking status was deemed not relevant in the majority of cases in each area, although this was a slightly lower proportion in Oldham, where smoking was deemed relevant in 4 (24%) cases. When compared to the Greater Manchester average, BOR all had a larger proportion of cases where smoking was felt to be irrelevant.

Maternal smoking in pregnancy was considered a modifiable factor in 7 cases (10% of all cases, 18% of infant cases). It was noted that this does not correlate with the finding of 6 cases with smoking being a relevant factor in the death. This is because one of the cases recorded smoking as 'not-relevant' but then documented it to be a modifiable factor. It is thought that the classification of 'not-relevant' is likely to be an error in this case.

Smoking can be a particular health risk during and after pregnancy for both mother and child. Risks include complications during labour and increased risk of miscarriage, premature birth, still birth and sudden unexpected death in infancy.³

³ Kramer, M. S. (2003). The Epidemiology of Adverse Pregnancy Outcomes: An Overview. *Journal of Nutrition.*, 133(5), 1592–1596.

Table 22: Smoking relevance in closed cases for infants under 1 year by local authority 2015/16

Local Authority	Smoking relevant (key = 2/3)		Not relevant (key = 1)		Not known (key = 0)		Total
	N ^o	%	N ^o	%	N ^o	%	
Bury	0	0%	7	88%	1	13%	8
Oldham	4	24%	13	76%	0	0%	17
Rochdale	2	13%	13	87%	0	0%	15
BOR	6	15%	33	83%	1	2%	40
Greater Manchester	40	26%	109	72%	3	2%	152

Source: GM CDOPs 2015/16

0 = No information available/not known

1 = No factors (smoking contribution) identified-so unlikely to have contributed to the death.

2/3 = Factors (smoking) identified that may have or did contribute to the death

5.10.5 Maternal BMI

It has recently been agreed that all GM CDOPs will collect maternal BMI data in all cases of death under 12 months of age, as it may be a modifiable factor. In BOR, maternal BMI was considered a modifiable factor in 1 case (2%).

5.11 Other factors

5.11.1 Domestic Violence

Although not always considered to be a direct risk factor in a child's death, the panels note the level of domestic abuse within families. In BOR, no cases were noted to have domestic violence as a modifiable factor.

5.11.2 Consanguinity

Consanguinity was identified as a modifiable factor in 1 case (2%). Consanguinity can be a contentious issue and it has previously difficult to determine whether or not to classify it as a modifiable factor if it is known to be relevant to a case. It has now been decided that if consanguineous parents have had a previous child who has died from or is affected by the genetic abnormality, this should be considered a modifiable factor. This is because genetic counselling / testing could have been offered and could have potentially altered the outcome.

5.11.3 Mental health of parents / carers

The mental health of parents / carers was not felt to be a modifiable factor in cases closed in 2015-16.

5.11.4 Suicide or self-harm

Suicide/self-harm was identified as a factor in 1 case (2%). It can often be difficult for the coroner to classify a case as suicide because of a lack of hard evidence demonstrating the child intended to take their own life / harm them self, such as a suicide note.

5.11.5 Road traffic collisions

1 case (2%) in BOR was caused by a road traffic collision that was considered a modifiable factor. Modifications can include interventions to improve the safety of the area of the road in question, such as safe crossing points or signage.

5.11.6 Co-sleeping

Co-sleeping was identified as a modifiable factor in 4% of closed cases (3) across GM in 2015/16. Co-sleeping is known to have an association with sudden infant death syndrome (SIDS)⁴, especially if the co-sleeping occurs on a sofa; if the adult smokes or is under the influence of drugs or alcohol; or if the child is pre-term.⁵ Advice against co-sleeping in these circumstances should be provided to all parents.

5.11.7 Housing & Living Conditions

Housing and living conditions were not found to be a modifiable factor in any BOR closed cases in 2015-16.

5.11.8 Late Booking

If a mother is recorded as a late booking for antenatal care (the mother is already at more than 12 weeks gestation when the initial referral to maternity services is made), this is recorded as a relevant risk factor in the event of a child death. Late booking or a lack of booking at all was recorded as a modifiable factor in 2 cases (3%).

5.11.9 Parental Alcohol/Drug Use

As previously explained, parental drug/alcohol abuse is associated with increased risks of death when co-sleeping. Drug/alcohol abuse may affect parent / carers ability to look after the child in some cases. Parent/carer alcohol/drug use was deemed to be a modifiable factor in 1 case (2%) in BOR.

5.11.10 Access to medical care

This is determined by a child or parent lacking access to appropriate healthcare or not seeking appropriate healthcare, ultimately contributing to the circumstances surrounding death. Access to medical care was recorded as a modifiable factor in 1 case (2%).

⁴ Alexander, R. T., & Radisch, D. (2005). Sudden Infant Death Syndrome Risk Factors with Regards to Sleep Position, Sleep Surface, and Co-Sleeping . *Journal of Forensic Sicense*, 50(1), 1–5.

⁵ Blair PS, Sidebotham P, Pease A, Fleming PJ. (2014) Bed-Sharing in the Absence of Hazardous Circumstances: Is There a Risk of Sudden Infant Death Syndrome? An Analysis from Two Case-Control Studies Conducted in the UK. *PLoS ONE*; 9(9)

5.11.11 Additional Factors

There were a number of factors that are not routinely collected that were thought to be modifiable in BOR cases.

- Overheating was thought to be a modifiable factor in 3 cases (4%) but these cases were also noted to have 'co-sleeping' as a modifiable factor, which may have been felt to be the cause of the overheating.
- The medical care received was considered a modifiable factor in 4 cases (5%). All of these cases involved additional investigations within the specific healthcare organisation or from a national perspective, with learning points and future interventions.
- 1 case (2%) had modifiable factors recorded regarding the health and safety procedures of the workplace.
- Maternal physical health was considered to be a modifiable factor in 1 case (2%).

6.0 Acknowledgements

The report writer would like to thank the BOR CDOP and GM CDOP collaborative; as well as Joanne Symonds, Jacqui Dorman, Jon Hobday and James Mallion for their individual assistance / contribution.