Bradford Safeguarding Children Board
Child Death Overview Panel

Annual Report

April 2015 – March 2016

CONTENTS

1. Introduction and Key findings

In April 2008, the Bradford Safeguarding Children Board (BSCB) established the Child Death Overview Panel (CDOP) in response to the statutory requirement set out in Working Together to Safeguard Children[1,2,3,4]. The aim of the CDOP is to systematically review all child deaths from birth to 17 years 364 days of age in order to improve the understanding of how and why children in Bradford die, identify whether there were modifiable[5] factors which may have contributed to each individual death, and use the findings to take action to prevent future such deaths.

During the year April 2015 – March 2016 (2015/16), 61 child deaths were reported to the Bradford child death review team. Bradford CDOP reviewed 79 child deaths during 2015/16; these reviews included 45 deaths that occurred in 2014/15 and 3 deaths that occurred in previous years. This brings the total number of deaths reviewed by Bradford CDOP to 607 since April 2008, out of 647 deaths reported (94%).

The CDOP has a role in the judgement regarding whether there were modifiable factors in relation to the deaths reviewed and makes recommendations and learning points which are communicated to both national and local agencies as appropriate, ensuring an effective inter-agency response to child deaths. The CDOP also has a role in categorising a child's death into one of the 10 cause of death categories highlighted in Appendix 2.

A total of 8 deaths were considered to have modifiable factors in 2015/16, which was 10% of the total deaths reviewed. These modifiable deaths were in Category 2 (suicide or deliberate self-

1 Department of Children, Schools and Families (2006). Working Together to Safeguard Children. Available from: http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/WT2006%20Working_together.pdf

2 Department of Children, Schools and Families (2010). Working Together to Safeguard Children. Available from: http://webarchive.nationalarchives.gov.uk/20130401151715/https://www.education.gov.uk/publications/eorderingdownload/00305-2010dom-en-v3.pdf

3 Department for Education (2013). Working Together to Safeguard Children. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/417669/Archived-Working_together_to_safeguard_children.pdf

4 Department for Education (2015). Working Together to Safeguard Children. Available from: https://www.gov.uk/government/publications/working-together-to-safeguard-children--2

5 A child death is defined as modifiable if *"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"*. Note: Modifiable death definition changed from April 2010 onwards, whereby the classification was changed from preventable/potentially preventable to modifiable factors.

inflicted harm), Category 5 (acute medical or surgical condition), and Category 10 (sudden unexpected and unexplained death).

Four main recommendations arose from the 8 deaths reviewed in 2015/16 which were identified as having modifiable factors:

- Formalise and circulate guidance on gastroenteritis;
- Discuss actions with specialist drug and alcohol team to reduce the risk of death in vulnerable people in relation to substance misuse;
- Continue awareness of safe sleeping through multi-professional work and media work and feed into the maternity network – this included an updated e-learning package on safe sleeping and a repeat audit of all deaths due to Sudden Infant Death (SIDS)/Co-sleeping;
- Work across local organisations to understand the management of asthma in young people with additional complex health needs.

Key themes for the whole period 2008-2016 for potentially modifiable causes of are:

- Co-sleeping and SIDS
- Road traffic collisions[6]
- Specific clinical incidents over a range of causes
- There have been 4 Serious Case Reviews over this period and a Learning Lessons Review identifying specific areas of neglect

Less common themes occurring include:

- Drownings in bath and death in fires[7]
- Asthma
- Suicide in teenagers
- Swine Flu[8]

Further to the recommendations set out above, the panel records an 'issues log'. The log includes issues which did not cause the death of the child but were identified as a contributing factor. Identifying potential issues surrounding the child's death allows follow up action

6 No such cases reviewed in 2015/16 (One child death abroad due to road traffic accident – insufficient information to review)

7 Encouragingly it should be noted that there were no such cases reviewed in 2015/16.

8 The last case of Swine Flu was reviewed in November 2015

to be taken with organisations or lead clinicians, which in turn can potentially impact on the reduction of future child deaths. In 2015/16, the following issues were highlighted:

- Smoking in pregnancy
- Obesity in pregnancy
- Diabetes in pregnancy
- Mental health issues
- Domestic abuse
- Consanguinity
- The importance of offering genetic counselling, where appropriate, to parents and siblings of those affected by genetic conditions and ensuring appropriate referrals to specialist services
- The importance of rapid, high quality clinical assessment, transfer (if necessary) and management for acutely ill children and young people in a relevant setting including: primary care, secondary care, urgent care centres and ambulance services
- The importance of post mortems in ascertaining cause of death, which may influence management of future pregnancies
- Access to timely and appropriate bereavement support
- Access to chaplaincy services when required for parents/family
- The importance of flagging the need for early foetal anomaly scans for future pregnancies, where risk is present of congenital abnormality
- The continued access to high quality, end of life care offered by Martin House Hospice, if children are on Intensive Care Units
- Children who died abroad – in instances where a child died abroad there has been insufficient information to carry out a review
- Foetal Magnetic resonance imaging (MRI) for diaphragmatic hernia is good practice
- Early testing for Guthrie (MCADD)[9] where possible
- The importance of ensuring other diagnoses are kept in mind in categorisation of death, where the child has died due to a head injury

9 The neonatal heel prick or Guthrie test is a screening test done on newborns. The blood samples can be used for a variety of metabolic test to detect genetic conditions, including Medium-chain acyl-coenzyme A dehydrogenase deficiency (MCADD)

Specific common risk factors noted in the issue log were obesity in pregnancy, smoking in pregnancy and consanguinity; whilst it is not possible to state specifically that these risk factors caused an individual child's death, national evidence clearly demonstrates the factors all increase the risk of infant death at a population level.

Bradford CDOP will continue to monitor overall causes of death for children, with a focus on potentially modifiable causes, identifying specific recurrent issues and themes as well as conducting an annual CDOP 'Away Day', which allows panel members to assemble as a group and examine the key factors of child deaths in more detail.

Analysis of the reviewed deaths for 0-17 year olds for the full period 2008-2016 reveals that 73% of all the deaths reviewed, were in Category 7 (chromosomal, genetic and congenital anomalies) and Category 8 (perinatal/neonatal). Infants (aged under 1 year old) accounted for 69% of all child deaths. South Asian children are over–represented in the deaths (63%) compared to the demographic profile of the Bradford District. There is a higher proportion of Category 7 deaths in the district, compared to national CDOP data[10,11,12,13,14,15] and this analysis is used to inform the focus of key work to reduce death rates in children in the future.

Overall child mortality rates in the Bradford district are higher than national and regional averages, and the Bradford district infant mortality rate remains higher than nationally and regionally. However, there are some encouraging signs of improvement; the three year infant mortality aggregate rate has reduced year on year for the last six years[16] especially in deprived populations and the child mortality rates are reducing too (see Figures 3 and 7, Appendix 5 for details).

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10 Department for Education Statistical Release (2016). SFR23/2016 Tables. Available from:https://www.gov.uk/government/statistics/child-death-reviews-year-ending-31-march-2016

11 Department for Education Statistical Release (2015). SFR23/2015 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-31-march-2015

12 Department for Education Statistical Release(2014). SFR21/2014 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-march-2014

13 Department for Education Statistical Release (2013). SFR26/2013 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-31-march-2013

14 Department for Education Statistical Release (2012). OSR14/2012 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-completed-in-england-year-ending-31-march-2012

15 Public Health, City of Bradford Metropolitan District Council (December 2014). Why children die in Bradford District 2008-2014: differences between local and national CDOP profiles. Presentation at the first National Network of Child Death Overview Panels' Conference on Investigating Child Deaths, Warrington.

16 Source: Office for National Statistics (ONS)

Work is ongoing in many groups and networks to reduce the risk factors which contribute to the high childhood mortality rate in the Bradford district; the Every Baby Matters (EBM) steering group for example leads the partnership working to reduce infant mortality rates[17].

There are also a number of specific strategies and actions plans such as the Road Safety Plan, and a range of interventions to reduce accident rates in children for the district.

In addition, CDOP has promoted awareness around specific issues, encouraging parents to adopt safe sleeping practices and avoiding co-sleeping with their babies when additional risk factors are present. In previous years, CDOP promoted awareness around not leaving young children unattended in baths. CDOP has also led work to update the e-learning package to promote safe sleeping in infants and will be re-launching this in the Autumn. Sessions around the work of CDOP will feature in the Safeguarding week in October 2016.

CDOP continues to work with partners to raise the profile of the Panel and the understanding as to why children die in Bradford district thus ensuring all partners work towards reducing the risk of death in children in the district for the future.

David Niven
Chair of Bradford Safeguarding Children Board

17 Every Baby Matters details Available from: https://www.bradford.gov.uk/health/improve-your-childs-health/every-baby-matters/

2. Background

This report details the work of the Child Death Overview Panel (CDOP) during 2015/16. Having been established for eight years Bradford CDOP is able to identify emerging trends and themes in the data, and this enables the panel to make more meaningful recommendations. We now have 4 complete years of reviewed deaths (100%) from 2008/09 to 2011/12, and near complete reviewed deaths (95%) between 2012/13 and 2014/15 (see Figure 2: Child deaths reported to and reviewed by CDOP, Section 5).

CDOP looks for factors contributing to a child's death that could have been modifiable, and where shared learning could reduce the chances of a recurrence of the circumstances around that death. This in turn would lead to a reduction in child mortality rates in the future. In addition, CDOP identifies and collates key issues in relation to individual child deaths, including risk factors. Whilst it is not possible to state specifically that these risk factors caused an individual child's death, they are relevant to the child population as a whole.

3. CDOP Process

The remit of CDOP is fully documented in the Terms of Reference in Appendix 1 (CDOP).

3.1 Membership of Bradford CDOP

CDOP is composed of a standing core membership as follows:

- Specialist Children's Services
- Health – Primary care
- Education
- Police
- Coroner's Office
- Hospital Chaplain
- Public Health
- Sudden Infant Death in Childhood (SUDIC) paediatricians
- Health – Acute Trusts
- Health – Bradford Teaching Hospitals NHS Foundation Trust and Airedale Hospital NHS Foundation Trust
- Other members as co-opted to specific meetings

Also in attendance is the manager of the Bradford Safeguarding Children Board, as an advisor, and the CDOP Manager.

Figure 1: Membership of the Bradford CDOP

Name	Role	Organisation
Dr Shirley Brierley - Chair	Consultant in Public Health	City of Bradford Metropolitan District Council (CBMDC)
Louise Clarkson	SUDIC/CDOP Manager	Bradford Teaching Hospitals NHS Foundation Trust (BTHFT)
Paul Hill	Bradford Safeguarding Children Board Manager	Bradford Safeguarding Children Board
Dr Eduardo Moya	Consultant SUDIC Paediatrician	BTHFT
Dr Catriona McKeating	Consultant SUDIC Paediatrician	BTHFT
Dr Louise Clarke	Clinical Specialty Lead for Children and Young People Named Doctor for Safeguarding Children	NHS Bradford City Clinical Commissioning Group (CCG), NHS Bradford Districts CCG and NHS Airedale, Wharfedale and Craven CCG
Jude MacDonald	Deputy Designated Nurse for Safeguarding	NHS Bradford City CCG, NHS Bradford Districts CCG and NHS Airedale, Wharfedale and Craven CCG
Joanna Fraser	Serious Case Review Officer	West Yorkshire Police
Malcolm Dyson/ Sam Cariss	Coroner's Officer	Coroner's Office
Cath Dew	Service Manager	Specialist Children's Services, CBMDC
Linda Chavasse	Principal Educational Psychologist	Bradford Children's Services, CBMDC
Shaheen Kauser	Muslim Chaplain	BTHFT
Dr Chakra Vasudevan	Consultant Neonatologist	BTHFT
Dr Kate Ward	Consultant Paediatrician	Airedale NHS Foundation Trust
Karen Bentley	Named Nurse Safeguarding	BTHFT

The Bradford CDOP meets on a monthly basis. Additional members have been co-opted to the panel when relevant, for the cases scheduled to be reviewed. Since the establishment of CDOP in 2008, the panel has consistently strived to increase the number of cases reviewed each month, and additional meetings are held if required to ensure a backlog does not build up. This also allows for modifiable factors and issues to be identified sooner, and changes to practice can be implemented. This year a new database has been set up to allow accurate transfer of information between the CDOP Manager and Public Health to assist with analysis.

3.2 Notification of Death

Any professional who becomes aware of a child death is required to notify the Child Death Manager at the Child Death Review office either by completing a notification form or by telephoning the office. The Coroner's Office and the Registrar of Births Deaths and Marriages have a statutory responsibility to engage in the child death review process by notifying the Manager of all deaths reported to them. There can be confidence, therefore, that information on all deaths is captured by the Child Death Review Manager.

Each agency involved with children and families has a nominated individual who takes responsibility for coordinating the information required for the review of each death. The data collection forms (Agency Report Forms – Form B) are distributed via the administrator and copies of the various forms can be found at the Department for Education on the Gov.uk website[18].

3.3 Serious Case Reviews

Local Safeguarding Children Boards (LSCB) commission serious case reviews (SCR) when a child has died or been seriously harmed through abuse or neglect. The purpose of the SCR is to

18 Child death reviews: forms for reporting child deaths. Available at: https://www.gov.uk/government/publications/child-death-reviews-forms-for-reporting-child-deaths

ensure that lessons are learned which help to better protect children in the future.

The CDOP may refer a case to its LSCB Chair, if it considers the criteria for an SCR may be met, and an SCR has not yet been initiated. Any case that is considered under the remit of SCR will not be reviewed by CDOP until the SCR has taken place.

3.4 Sudden Unexpected Death in Childhood (SUDIC)

BSCB funds a full-time Child Death Manager post. The three local CCGs[19], also provide funding for a part-time SUDIC (Sudden Unexpected Death in Childhood) Paediatrician post, which became operational in November 2008. Bradford Teaching Hospitals NHS Foundation Trust hosts both the SUDIC and Child Death Manager posts. The SUDIC protocol for Bradford and Airedale has been updated. The rapid response process has been improved, with a multi-disciplinary team discussion surrounding sudden unexpected deaths in children being brought to Accident and Emergency units.

Samples are taken at the earliest opportunity to try to identify a cause of death. With the Coroner's approval, tests are undertaken to identify metabolic or microbiological cause of death. This is especially important as inherited metabolic diseases are a relatively common cause of death in the Bradford district and these conditions can be identified in early sampling.

4. Population Demographics

Bradford has a significantly higher proportion of children and young people than the UK average. According to the 2011 census, the population of the area served by Bradford Council was 522,452[20]. A large proportion of the Bradford population are from ethnic minority communities, which comprise nearly one quarter of the population total; around 23% of the population described themselves as Pakistani (20%) or Indian (3%)[21]. Just under two-thirds (64%) of the population describe themselves as White British.

19 Bradford City CCG, Bradford District CCG and Airedale, Wharfedale and Craven CCG

20 Data taken from the Office for National Statistics

21 Data taken from the Office for National Statistics

The birth rate in Bradford District is continuing to grow and the proportion of the population that is children and young people is forecast to rise at a greater rate in Bradford than nationally. Bradford has a young population with one of the highest percentages of young people in England[22]. The 136,579[23] children in Bradford aged 17 and under represent 26% of the Bradford population, which compares with 21% in England as a whole[24] In the 2011 census[25], 37% of Bradford's children (under 18 years of age) were South Asian of Pakistani, Indian or Bangladeshi heritage, and 10% were described in other Black and Minority Ethnic group categories and 50%. Across England, these figures were 8% and 14% respectively, and 75% were White British.

5. Process report, 2008/09-2015/16

The following data includes the deaths of children under 18 years of age[26], resident in Bradford District who died between April 2008 and March 2016.

Figure 2: Child deaths reported to and reviewed by CDOP, 2008/09-2015/16

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Reviewed deaths from that year	85	108	108	70	67	63	75	31
Reported deaths from that year	85	108	108	70	68	67	80	61
% of deaths reviewed	100%	100%	100%	100%	99%	94%	94%	51%

Source: Bradford CDOP notifications data and Public Health Analysis Team, City of Bradford Metropolitan District Council

22 Data taken from the Office for National Statistics

23 Data taken from the Office for National Statistics

24 Data taken from the Office for National Statistics

25 Data taken from the Office for National Statistics

26 Up to the 18th birthday and described as 0-17 years

A total of 607 deaths of the 647 notified deaths (94%) have been reviewed over the eight years between April 2008 and March 2016. This is an improvement on 2011/12 when only 81% of all reported deaths since April 2008 had been reviewed. This is also higher than the last publication of national estimated figures, which indicated 82% of notified deaths had been reviewed between 2009 and 2014[27]. Of the 79 deaths which were reviewed in 2015/16, 31 of the reviewed deaths occurred in 2015/16, 45 deaths occurred in 2014/15, and 3 deaths occurred in previous years. Delays due to inquests, and other investigations outside the control of CDOP, can effect the year in which a death is reviewed. There are 10 categories for cause of death (see Appendix 2).

6. Analysis of child deaths reviewed by CDOP, 2015/16

6.1 Demographics, 2015/16

Of the 79 cases reviewed between April 2015 and March 2016:

- 50 were of children less than a year old (63%)
- 29 of children over the age of one (37%)

- 43 were male (54%)
- 36 were female (46%)

- 50 were children of South Asian ethnicity (63%)
- 23 were children of White British ethnicity (29%)
- 6 were children of other ethnicities, including Eastern European and Mixed (8%)

6.2 Category of death classification, 2015/16

Of the 79 cases reviewed between April 2015 and March 2016 70% were in Category 7 or Category 8 as below:

- 40 deaths were categorised as chromosomal, genetic and congenital anomalies (Category 7) (51%)
- 15 deaths were categorised as perinatal/neonatal events (Category 8) (19%)

27 Department for Education Statistical Release (2014). SFR21/2014 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-march-2014

- 24 deaths fell into other categories (30%)

6.3 Modifiability classification, 2015/16 reviews

See Appendix 2 (CDOP) for the definition of modifiable factors and categories of death.

Of the 79 cases reviewed between April 2015 and March 2016:

- 8 deaths were considered to have modifiable factors (10%)
- The deaths were categorised as suicide or deliberate self-inflicted harm (Category 2), acute medical or surgical condition (Category 5), and sudden unexpected or unexplained death (Category 10).

6.4 Issues highlighted, 2015/16

For individual children there may be issues identified which are not classed as modifiable factors in the child's death, but are of note and require follow up with organisations or lead clinicians. Any specific issues identified for individuals results in recommendations being produced, whereby CDOP ensures the appropriate action has been taken by the relevant agency e.g. if referral to genetic counselling was confirmed this would be followed up with the relevant clinician. The following issues are identified as risk factors:

- Smoking in pregnancy
- Obesity in pregnancy
- Diabetes in pregnancy
- Mental health issues
- Domestic abuse
- Consanguinity
- The importance of offering genetic counselling, where appropriate to parents and siblings of those affected by genetic conditions and ensuring appropriate referrals to specialist services.
- The importance of rapid, high quality clinical assessment, transfer (if necessary) and management

for acutely ill children and young people in relevant setting including: primary care, secondary care, urgent care centres and ambulance services.

- The importance of post mortems in ascertaining cause of death, which may influence management of future pregnancies.
- Access to timely and appropriate bereavement support
- Access to chaplaincy services when required for parents/family
- The importance of flagging the need for early foetal anomaly scans for future pregnancies, where risk is present of congenital abnormality.
- The continued access to high quality end of life care offered by Martin House Hospice, if children are on Intensive Care Units
- Children who died abroad – in instances where a child died abroad there has been insufficient information to carry out a review
- Foetal Magnetic resonance imaging (MRI) for diaphragmatic hernia is good practice
- Early testing for Guthrie (MCADD) where possible
- The importance of ensuring other diagnoses are kept in mind in categorisation of death, where the child has died due to a head injury.

6.5 Recommendations, 2015/16

Recommendations identified in the 8 deaths with modifiable factors from 2015/ 2016 covered the following areas:

- Formalise and circulate guidance on gastroenteritis;
- Discuss actions with specialist drug and alcohol team to reduce the risk of death in vulnerable people in relation to substance misuse;
- Continue awareness of safe sleeping through multi-professional work and media work and feed into the maternity network – this included an updated e-learning package on safe sleeping and a repeat audit of all deaths due to Sudden Infant Death (SIDS)/Co-sleeping;

- Work across local organisations to understand the management of asthma in young people with additional complex health needs.

The summary Action Plan for Modifiable deaths is updated and audited regularly to ensure the actions recommended are completed in a timely manner by relevant organisations.

General recommendations arising from issues identified from the CDOP meetings in 2015/16 included:

1. To make the 'Away Day' held in May 2016 an annual event. At the 2015/16 event, the panel considered analysis, and trends for deaths reviewed in 2015/16 and the total period 2008–2016. The event also included sessions on genetic inheritance led by the Regional Genetic Service and a presentation on the recent Born in Bradford infant death research. This event will be repeated in 2017.
2. To continue to monitor key themes for modifiable child deaths to include drowning in baths, co-sleeping and Sudden Infant Death Syndrome (SIDS) road traffic accidents and clinical incidents over the next year and seek assurance organisations have addressed the key areas of concern and monitor any new similar cases arising.
3. To monitor other, recurrent, issues, which may not be identified as modifiable factors for an individual child but are relevant at a population level. Examples include smoking and obesity in pregnancy which are linked to increase risk of infant death, and consanguinity which is linked to an increased risk of congenital abnormalities and in some cases infant death. CDOP will continue to seek assurance that organisations and partners are also addressing these key areas of concern.

7. Analysis of child deaths reviewed by CDOP, 2008/09 – 2015/16

This section provides an overview of all reviewed child deaths in the Bradford District from April 2008 until March 2016. The data has been collated from the deaths of children aged under 18 years of age who

have been formally reported to and reviewed by the panel over the course of the eight years from April 2008 to March 2016. It must be noted that the analysis only includes deaths reviewed by the CDOP between April 2008 to March 2016; totalling 94% of all child deaths which occurred in this period.

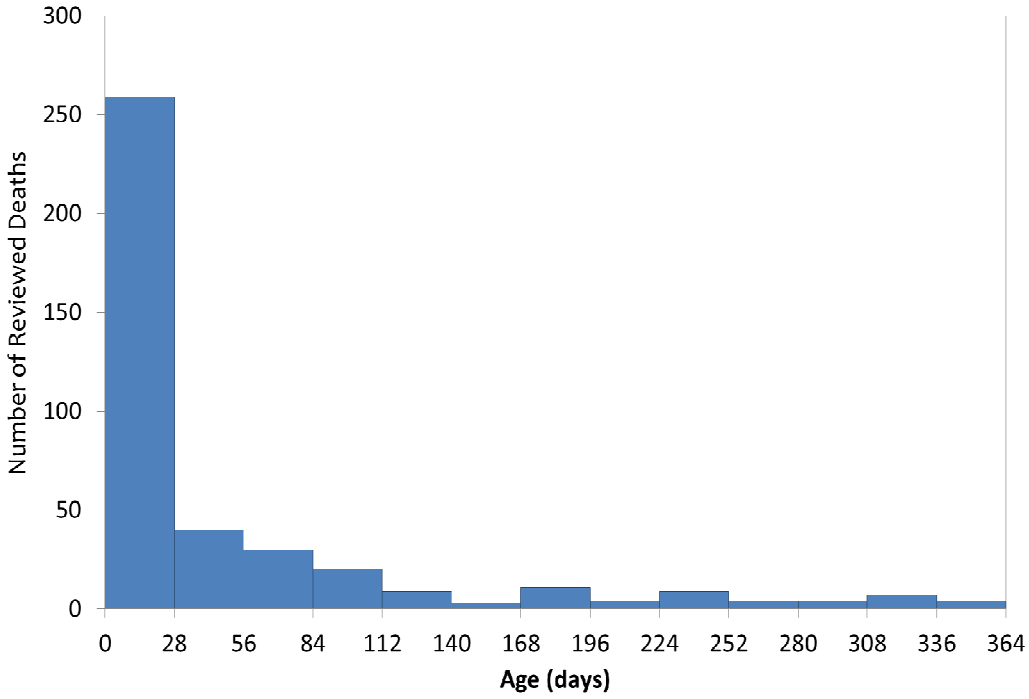
Tables containing a full breakdown by different characteristics can be found in Appendix 4.

7.1 Demographics, 2008/09 – 2015/16

Age

Of the 607 cases reviewed between April 2008 and March 2016, 69% were infants (aged under 1 year old) and 31% were children (aged 1-17 years).

Figure 3: Age distribution for reviewed infant deaths (<1 year old), 2008/09-2015/16

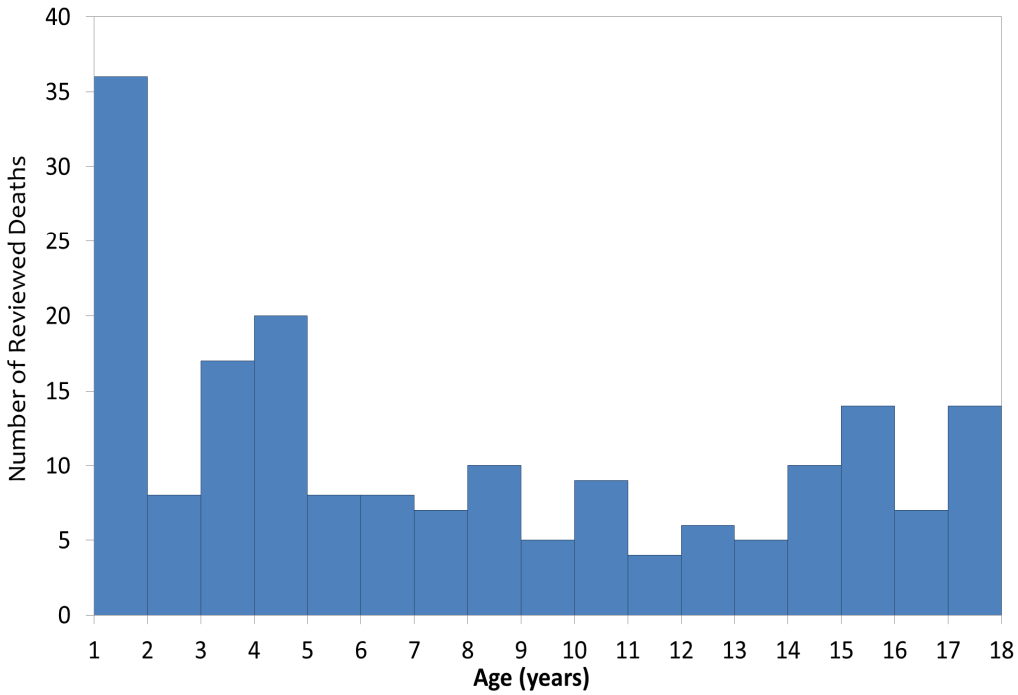


Source: Bradford CDOP review data

There were 419 cases aged under 1 year old reviewed between April 2008 and March 2016. Figure 3 shows that the majority of reviewed infant deaths (62%) were aged under 28 days old. A further 20% of the infant deaths were aged 28 days to 3 months old.

There were 188 cases aged 1-17 years reviewed between April 2008 and March 2016. Figure 4 shows there was more variation in the ages of the reviewed child deaths than there was in the infant deaths. 55% of the reviewed child deaths were aged 1-4 years old, 19% of the reviewed child deaths were aged 14-17 years old.

Figure 4: Age distribution for reviewed child deaths (1-17 years old), 2008/09-2015/16



Source: Bradford CDOP review data

Sex

Of the 607 cases reviewed between April 2008 and March 2016, 54% were male and 46% were female.

Ethnicity

Of the 607 cases reviewed between April 2008 and March 2016:

- 380 deaths were South Asian (63%)
- 184 deaths were White British or White Other (30%)
- 17 deaths were Eastern European (3%)
- 16 deaths were mixed ethnicities (3%)
- 10 deaths were other ethnicities (2%) including African, East Asian and Other

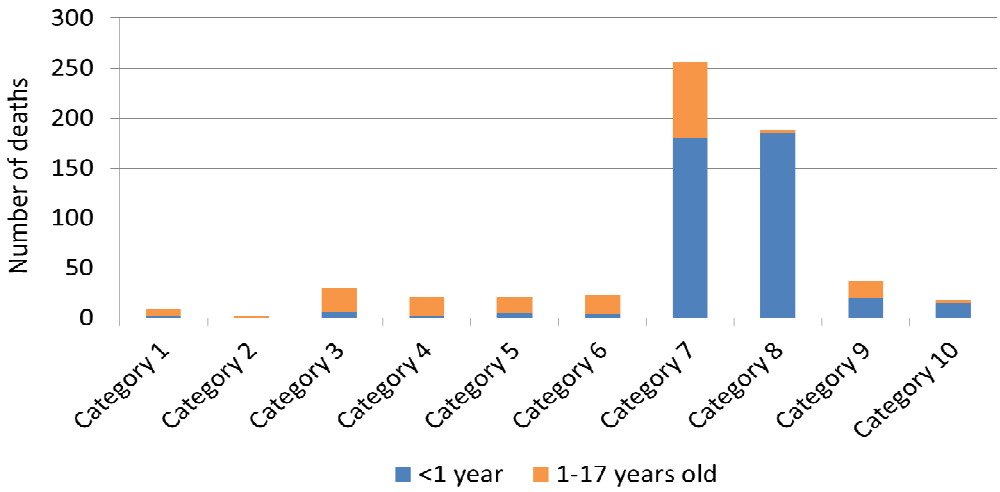
NB: Percentages may contain rounding errors

South Asian children are over–represented in the reviewed deaths compared to the comparable population in Bradford for all children under 18 years of age.

7.2 Category of death classification, 2008/09 – 2015/16

There have been 607 cases reviewed between April 2008 and March 2016 where it was possible to classify the cause of death into one of the ten categories used nationally (Appendix 2). The most common causes of death out of all the reviewed cases (children aged under 18 years old) were chromosomal, genetic and congenital anomalies (Category 7) and perinatal/neonatal events (Category 8); these two categories of cause of death accounted for 73% of all reviewed deaths 2008-2016.

Figure 5: Category of death classification for reviewed deaths by age group, 2008/09-2015/16



Source: Bradford CDOP review data

Figure 5 shows that the most common causes of death for infants (under 1 year old) were Category 7 (chromosomal, genetic and congenital anomalies) and Category 8 (perinatal/neonatal event) which accounted for 42% and 31% of the reviewed infant deaths respectively. Out of all the child deaths attributed to Category 8 (perinatal/neonatal event), 98% of the reviewed deaths were infants (under 1 year old).

For children (aged 1-17 years old), the most common cause of death (41% of reviewed deaths) was Category 7 (chromosomal, genetic and congenital anomalies). After this, the causes of death for children were split over more categories than for infants and included Category 3 (trauma and other factors), Category 4 (malignancy), Category 5 (acute medical or surgical

condition), Category 6 (chronic medical condition) and Category 9 (infection).

When comparing reviewed deaths for 0-17 year olds in the district to National CDOP data[28,29,30,31,32,33], pooling data between 2010 to 2016 reveals that nationally 24%, of all the deaths reviewed, were in Category 7 (chromosomal, genetic and congenital anomalies). The proportion of deaths attributable to Category 7 deaths in the District is significantly higher (43%) than the national figure (Figure 7, Appendix 4).

7.3 Expected/unexpected deaths, 2008/09 – 2015/16

Of the 607 cases reviewed between April 2008 and March 2016:

- 448 deaths were expected (74%)
- 154 deaths were unexpected (25%)
- 5 deaths were unknown (1%)

Figure 10 shows the most common cause of unexpected deaths for infant (under 1 year old) were Category 7 (chromosomal, genetic and congenital anomalies), Category 8 (perinatal/neonatal event), and Category 10 (sudden unexpected deaths), which accounted for 27%, 24%, and 20% of the reviewed infant deaths, respectively.

For children (aged 1-17 years old), the most common cause of unexpected deaths were Category 3 (trauma and other factors), Category 9 (infection), and Category 7 (chromosomal, genetic and congenital anomalies), which accounted for 23%, 19% and 17% of reviewed child deaths, respectively.

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28 Department for Education Statistical Release (2016). SFR23/2016 Tables. Available from:https://www.gov.uk/government/statistics/child-death-reviews-year-ending-31-march-2016

29 Department for Education Statistical Release (2015). SFR23/2015 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-31-march-2015

30 Department for Education Statistical Release(2014). SFR21/2014 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-march-2014

31 Department for Education Statistical Release (2013). SFR26/2013 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-31-march-2013

32 Department for Education Statistical Release (2012). OSR14/2012 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-completed-in-england-year-ending-31-march-2012

33 Public Health, City of Bradford Metropolitan District Council (December 2014,). Why children die in Bradford District 2008-2014: differences between local and national CDOP profiles. Presentation at the first National Network of Child Death Overview Panels' Conference on Investigating Child Deaths, Warrington.

7.4 Preventability/modifiability classification, 2008/09 – 2015/16

Of the 607 cases reviewed between April 2008 and March 2016:

- 62 cases were deemed to have been preventable, or to have had modifiable factors (10%)
- 541 cases were deemed to have been not preventable or to have had modifiable factors (89%)
- 4 cases were deemed to have insufficient information to make classification (1%); this is where the child has died abroad

The classification was changed from preventable/potentially preventable to modifiable factors in April 2010 (see Appendix 2).

For the 62 cases deemed to have been preventable or to have had modifiable factors, the causes of death related to:

- deliberately inflicted injury, abuse or neglect (Category 1)
- suicide or deliberate self-inflicted harm (Category 2)
- trauma and other external factors (Category 3)
- malignancy (Category 4)
- acute medical or surgical condition (Category 5)
- chromosomal, genetic and congenital anomalies (Category 7)
- perinatal/neonatal event (Category 8)
- infection (Category 9)
- sudden unexpected or unexplained death (Category 10)

Analysis of themes and trends over time for 2008-2016 for modifiable deaths showed the following recurrent causes:

- Co-sleeping and SIDS
- Road traffic collisions[34]
- Specific clinical incidents over a range of causes
- 4 Serious Case Reviews over this period

34 No such cases reviewed in 2015/16 (One child death abroad in 2015/16, due to road traffic accident – insufficient information to review)

Less common themes include:

- Drownings in bath and death in Fires[35]
- Asthma
- Suicide in teenagers
- Swine Flu[36]

All the above have specific recommendations made and these have been monitored and audited by CDOP to seek assurance all actions have been completed.

7.5 Recommendations summary, 2008/09-2015/16

Examples of key recommended actions from the panel over the 7 year period for modifiable deaths have included the following:

- Implementation of specific Recommendations from Serious Case Reviews and Serious Clinical Incidents
- Increased clinical awareness of management of specific medical conditions
- CDOP Alerts to raise public awareness of the risks of leaving children bathing alone/supervised by another young child
- Road Safety Actions to reduce further deaths from road traffic collisions
- Swine flu vaccination programme in Special schools
- CDOP Alerts re Safe sleeping practice and update on current E learning package for Safe sleeping for babies

7.6 Risk factors

Data is collected by the CDOP on a range of risk factors that potentially influence child deaths. These include, for example, smoking, alcohol intake, obesity and domestic violence. Some of these risk factors have a clear link with poor outcomes; for example, smoking in pregnancy is known to be associated with increased low birth weight rates[37].

35 Encouragingly it should be noted that there were no such cases reviewed in 2015/16.

36 The last case of Swine Flu was reviewed in November 2015

37 National institute for Health and Care Excellence (NICE) (2010). Quitting smoking in pregnancy and following childbirth. Available from: http://www.nice.org.uk/guidance/ph26

Further classifications have been agreed by the CDOP to describe precisely the more common causes of death in Bradford. To help investigate perinatal/neonatal events (Category 8), extreme prematurity is recorded.

For chromosomal, genetic or congenital anomalies (Category 7), since September 2011, there has been sub classification of the genetic conditions to indicate whether the deaths were due to an autosomal recessive condition, autosomal dominant condition, a sporadic genetic cause or if this information was not known. Sporadic causes are not predictable and can occur across all communities. In communities where consanguinity (marriage between cousins) is more common – such as in the Pakistani community in Bradford district - it is more likely that genes that are rare within the general population are carried by both parents. Therefore, a child born from a consanguineous relationship is at greater risk of inheriting genes which could cause congenital anomalies or chronic diseases; in some cases the conditions are fatal in childhood.

A paper published in the Lancet 2013, based on the Born in Bradford cohort, confirmed an increased risk of congenital anomalies within the South Asian population in consanguineous marriages from 3% to 6% and also increased risk of congenital anomalies for older White women[38].

In summary, specific common risk factors noted in the issue log were obesity in pregnancy, smoking in pregnancy and consanguinity; whilst it is not possible to state specifically that these risk factors caused an individual child's death in many cases, national evidence clearly demonstrates they all increase the risk of infant death at a population level.

The CDOP panel will continue to monitor the data and information for both deaths of infants and children up to the age of 18 years and as more data becomes available over time these will inform future recommendations. The information collated at each CDOP meeting also informs the CDOP issues

38 Sheridan, E. et al (2013). Risk factors for congenital anomalies in a multiethnic cohort: an analysis of the Born in Bradford study. The Lancet. Available from: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)61132-0/abstract

log. These issues lead to more general recommendations by CDOP and emerging themes worthy of being highlighted are identified and monitored. Findings from CDOP are also shared with key groups and leads such as the Every Baby Matters steering group, Road Safety Team and Maternity Network and are also shared as part of Safeguarding Week.

8. Comparison of Infant and Child Mortality Rates

There was a higher proportion of deaths due to chromosomal, genetic or congenital anomalies (Category 7) deaths in Bradford compared to national CDOP data – this difference in the profile of category of death could in part explain some of the differences between local and national infant and child mortality rates. The proportion of perinatal/neonatal events (category 8) for 2010/11-2012/13 was similar to the national CDOP data[39,40,41,42,43,44] but, overall, neonatal mortality rates are higher than regional and national averages (Figure 1, Appendix 5). This analysis indicates CDOP's focus to reduce child deaths should cover all cause of death for children but a significant focus should be on preventing deaths in Category 7 and 8.

8.1 Infant Mortality Rates (under 1 year)

Infant mortality is defined as the number of deaths in the first year of life per 1,000 live births. The latest infant mortality rate for Bradford District (5.8 per 1,000 live births) remains above the England average (4.0 per 1,000 live births) for the period 2012-2014. The rate has decreased each year for the last six years. Although the Bradford infant mortality rate remains high

39 Department for Education Statistical Release (2016). SFR23/2016 Tables. Available from:https://www.gov.uk/government/statistics/child-death-reviews-year-ending-31-march-2016

40 Department for Education Statistical Release (2015). SFR23/2015 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-31-march-2015

41 Department for Education Statistical Release(2014). SFR21/2014 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-march-2014

42 Department for Education Statistical Release (2013). SFR26/2013 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-year-ending-31-march-2013

43 Department for Education Statistical Release (2012). OSR14/2012 Tables. Available from: https://www.gov.uk/government/statistics/child-death-reviews-completed-in-england-year-ending-31-march-2012

44 Public Health, City of Bradford Metropolitan District Council (December 2014,). Why children die in Bradford District 2008-2014: differences between local and national CDOP profiles. Presentation at the first National Network of Child Death Overview Panels' Conference on Investigating Child Deaths, Warrington.

compared to regional and national rates, the gap is reducing. See Figures 1 and 2, Appendix 5 for more information.

The infant mortality rate in the most deprived quintile in Bradford has reduced much faster over time than the Bradford, Yorkshire and The Humber and England rates (Figure 3, Appendix 5).

8.2 Characteristics of infant deaths reviewed by CDOP, 2008/09-2015/16

The number of infant deaths being reported each year to the CDOP has decreased from a peak of 77 deaths in 2009/10 to 39 deaths in 2015/16 (Figure 4, Appendix 5).

Using previous years' CDOP data - for which almost all infant deaths have been reviewed (99%) - a comparison can be made between 2009/10-2011/12 and 2012/13-2014/15 to look at differences over time.

There were 54 fewer infant deaths in the three year period 2012/13-2014/15 compared to 2009/10-2011/12. There were fewer reviewed deaths between the two time periods attributed to all of the ten categories of death, more noticeably reducing in Category 7 (chromosomal, genetic or congenital anomalies), Category 8 (perinatal/neonatal events) and category 9 (infection) (Figure 5, Appendix 5).

The proportion of deaths within each of these categories has changed between the two time periods, there was a greater proportion of deaths due to chromosomal, genetic or congenital anomalies (Category 7) and a smaller proportion of deaths due to both perinatal/neonatal events (Category 8) and infection (Category 9) (Figure 6, Appendix 5).

8.3 Child Mortality Rates (1-17 years)

Child mortality is defined as the number of deaths for children aged 1-17 years old per 100,000 population. The child mortality rate for Bradford has been consistently higher than the national rate; in 2012-14, the child mortality rate for Bradford District was

17.3 per 100,000 compared to 12.0 per 100,000 for England. The gap between the local and national rates is narrowing over time (Figures 1 and 7, Appendix 5).

8.4 Characteristics of child deaths reviewed by CDOP, 2008/09-2015/16

The number of child deaths (aged 1-17 years old) notified to the CDOP has fluctuated over time and there has been year on year variation with no discernible trend. There have been much smaller numbers compared to the number of infant deaths which makes it difficult to draw comparisons to the child mortality rate.

Using previous years' CDOP data - for which almost all child deaths have been reviewed (95%) - a comparison can be made between 2009/10-2011/12 and 2012/13-2014/15 to look at differences over time.

There were 27 fewer child deaths in 2012/13-2014/15 compared to 2009/10-2011/12.

The number of deaths in each of the ten categories varied between the two time points, and there was variation as to whether there was a greater or lesser number of deaths in each category (Figure 8, Appendix 5).

The proportion of deaths within each of the categories has also changed between the two time periods, and shows variation as to whether there was a greater or lesser proportion of deaths in each category. Notably however, there was a greater proportion of deaths due to chromosomal, genetic or congenital anomalies (Category 7) and a smaller proportion of deaths due to chronic medical condition (Category 6) between the two time periods (Figure 9, Appendix 5).

9. Actions to reduce infant and child mortality

There are a range of strategies across the district to reduce infant and child deaths.

The very high rate of infant mortality in 2000-2002 initiated an independent Infant Mortality Commission in Bradford District in 2004-2006. The Commission investigated why some babies born in the District die during their first year of life and a key report was produced which demonstrated that infant mortality is linked with poverty and deprivation as well as other risk factors such as smoking, alcohol and substance misuse, young motherhood and consanguinity[40]. Young motherhood, smoking, alcohol and substance misuse are significantly higher risk factors within the White population of the District and consanguinity, which is linked to an increased risk of congenital anomalies, is common in the South Asian community – around 60% of marriages within the Pakistani population in Bradford District are consanguineous[45,46,47].

The work of the Commission and further in depth analysis of data on infant deaths continues as part of the Every Baby Matters Steering Group agenda; the current Strategy and Action Plan focuses on the 10 recommendations within the original report to continue to reduce infant mortality rates[41,48]:

- Recommendation 1a – To reduce poverty in families in Bradford
- Recommendation 1b – To reduce unemployment in families in Bradford
- Recommendation 2 – To improve the availability of good quality and affordable housing for families
- Recommendation 3a – To improve the health and nutrition of women, before and during pregnancy, and their babies
- Recommendation 3b – To increase breastfeeding rates
- Recommendation 4 – To ensure equal access to all aspects of pre-conception, maternal and infant health care
- Recommendation 5 – To improve social and emotional support for vulnerable parents

45 Sheridan, E. et al (2013). Risk factors for congenital anomalies in a multiethnic cohort: an analysis of the Born in Bradford study. The Lancet. Available from: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)61132-0/abstract

46 Bradford District Infant Mortality Commission (2006). Summary report. Available from: https://www.bradford.gov.uk/media/1881/infant_mortality_report.pdf

47 Born in Bradford (BiB) (2012). The Born in Bradford (BiB) cohort study: Summary statistics by ethnic group. Available from: http://www.borninbradford.nhs.uk/uploads/downloads/research_and_scientific/cohort_information/Baseline%20Summary%20Factsheet%20BiB.pdf

48 Every Baby Matters Strategy and Action Plan Bradford District. Available from: https://www.bradford.gov.uk/health/improve-your-childs-health/every-baby-matters/

- Recommendation 6a – To reduce smoking rates in the district with a focus on women during pregnancy
- Recommendation 6b – To reduce high levels of alcohol and/or non-prescribed drugs in pregnancy
- Recommendation 7 – To increase community understanding of genetically inherited congenital anomalies
- Recommendation 8 – To ensure these recommendations are shared widely
- Recommendation 9 – To develop further data collection and monitoring procedures
- Recommendation 10 – To conduct future research to understand causes of death

To reduce the risks of child death, some of the strategies and action plans in place across the District include the following:

- Accident Prevention work across the district
- Road Safety Plan
- Bradford Children Safeguarding Board – Serious Case Reviews and Learning Lessons Reviews
- Implementation of Recommendations from Serious Clinical Incidents
- Alerts re risks of drowning in baths
- Increased awareness amongst clinicians regarding management of specific clinical conditions

10. Conclusion

10.1 Specific Recommendations

The focus of this report is on the recommendations for 2015/16. These were identified in the 8 deaths with modifiable factors reviewed in 2015/ 2016 which covered the following areas:

- Specific actions with Out of Hours provider regarding use of gastro-enteritis pathway and also highlighted with all clinicians across the district
- Risk of suicide with drugs highlighted with Substance Misuse and Alcohol team working with young people and fed into district wide work on Suicide Prevention

- Alerts with regard to safe sleeping for babies based on latest evidence sent by CDOP to key organisations and staff in the district , update on E learning package on safe sleeping is underway and a repeat audit of all deaths due to SIDS/Co-sleeping is due for completion in Sept 2016
- Recommendations made with regard to management of asthma in young people with additional complex health needs and shared with key organisations

The summary Action Plan for Modifiable deaths is updated and regularly audited to ensure the actions recommended are completed in a timely manner by relevant organisations. In addition, CDOP provides a valuable opportunity to review all causes of death in detail and hence every year the updated analysis for 2008-2016 is also reviewed. This information is fed into key networks, groups and safeguarding week to inform plans to reduce the risk of child deaths in the future.

General Recommendations for 2016/17

- CDOP's 'Away Day' in May 2017 will consider all key analysis, trends for deaths for 2016/17 and the total period 2008-2017
- CDOP will review its criteria for modifiability of deaths in discussion with partners in the national CDOP network as the percentage of modifiable deaths in Bradford and District is well below the national average.
- CDOP will continue to monitor key themes for modifiable child deaths to include co-sleeping and Sudden Infant Death Syndrome (SIDS), road traffic accidents and clinical incidents over the next year, and will seek assurance organisations have addressed the key areas of concern and monitor any new similar cases arising.
- CDOP will continue to identify and monitor recurrent issues, which may not be considered 'modifiable' factors for an individual child, but are relevant at a population level. Examples include smoking and obesity in pregnancy which are linked to an increased risk of infant death, and

consanguinity, which is linked to an increased risk of congenital abnormalities and in some cases death in childhood. CDOP will continue to seek assurance from organisations and partners that they are addressing these key areas of concern.

Report Authors:

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September 2016

Appendix 1 (CDOP): Terms of Reference

1 Purpose

The purpose of the Child Death Overview Panel is to:

a) Collect and analyse information about each child's death with a view to identifying:

i) any case giving rise to the need for a serious case review

ii) any matters of concern affecting the safety and welfare of children in the area of the authority; and

iii) any wider public health or safety concerns arising from a particular death or from a pattern of deaths in that area

b) Put in place procedures for ensuring that there is a coordinated response by professionals to an unexpected death.

The Panel will review deaths of all children aged 0-17 (excluding stillbirths) normally resident in the Local Authority area of the BSCB. Where the Panel is made aware of the death of a child in their area who would normally be resident in another Local Authority area, or vice versa the Child Death Review Administrator will liaise with his/her opposite number in the other Local Authority area to ensure both Panels are notified of the death and to determine which Panel is best placed to carry out a review of that child's death. Where possible it is advised that the panel in the child's area of residence takes responsibility for the review although it is recognised that circumstances will dictate the most appropriate outcome.

2 Functions

The Child Death Overview Panel:

- Meet regularly to complete a multi-agency evaluation of all child
  deaths in their area;
- Where appropriate undertake a detailed and in-depth evaluation into specific cases, including all unexpected deaths, assessing all relevant social, environmental, health and cultural aspects, or systemic or structural factors of the death, along with the appropriateness of the professionals' responses to the death and involvement before the death, in order to complete a thorough consideration of whether and how such deaths might be prevented in future;

- Collect and collate information using the agreed templates and where relevant seek further information from professionals and family members;
- Identify local lessons and issues of concern, requiring effective inter-agency working;
- Identify and report any local Public Health issues and consider, with the Director of Public Health and other provider services how best to address these and their implications for both the provision of services and for training;
- Identify and advocate for needed changes in legislation, policy and practices, or public awareness, to promote child health and safety and to prevent child deaths;
- Ensure concerns of a criminal or child protection nature are shared with the police, children's social care and the coroner;
- Ensure any case identified as meeting criteria for a Serious Case Review are referred to the chair of the BSCB;
- Provide information to professionals involved with families so that this can be passed on in a sensitive and timely manner;
- Implement, review and monitor the local procedures for rapid response arrangements in line with Working Together;
- Monitor the quality of information, support and assessment services to families of children who have died;
- Co-operate with any regional and national initiatives in order to identify lessons on the prevention of child deaths.

3 Accountability

- The Child Death Overview Panel will be responsible, through its chair, to the chair of the BSCB. The Panel will provide to the BSCB and all constituent agencies, an annual report (in which all information should be aggregated and anonymised) which shall be a public document. In addition, the Panel will report to the BSCB any matters of concern arising from the course of its work as set out above.

- The BSCB will take responsibility for disseminating the lessons to be learned to all relevant organisations; ensuring that relevant findings inform the Children and Young People's Plan; and acting on any recommendations to improve policy, professional practice and inter-agency working to safeguard and promote the welfare of children.

- The BSCB will supply data regularly on every child death, as required by the Department for Education, to bodies commissioned by the Department to undertake and publish nationally comparable, anonymised analyses of these deaths.

Appendix 2 (CDOP): Definition of Preventable and Modifiable Deaths and 10 Categories for Cause of Death

Definitions Used as cited in Statistical Release for Child Death Reviews: year ending March 2011 Dept for Education July 2011:

1. Preventable/Potentially preventable death: Definition used from April 2008 to March 2010

Preventable - A preventable child death is defined as events, actions or omissions contributing to the death of a child or a sub-standard care of a child who died, and which, by means of national or locally achievable interventions, can be modified.

Potentially preventable - A potentially preventable death with same definition as above.

2. Modifiable death: Definition changed from April 2010 onwards

A modifiable death is defined as "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".

10 Categories for Cause of Death

Category 1 – Deliberately inflicted injury, abuse or neglect: this includes suffocation, shaking injury, knifing, shooting, poisoning and other means of probable or definite homicide; also deaths from war, terrorism or other mass violence; includes sever neglect leading to death

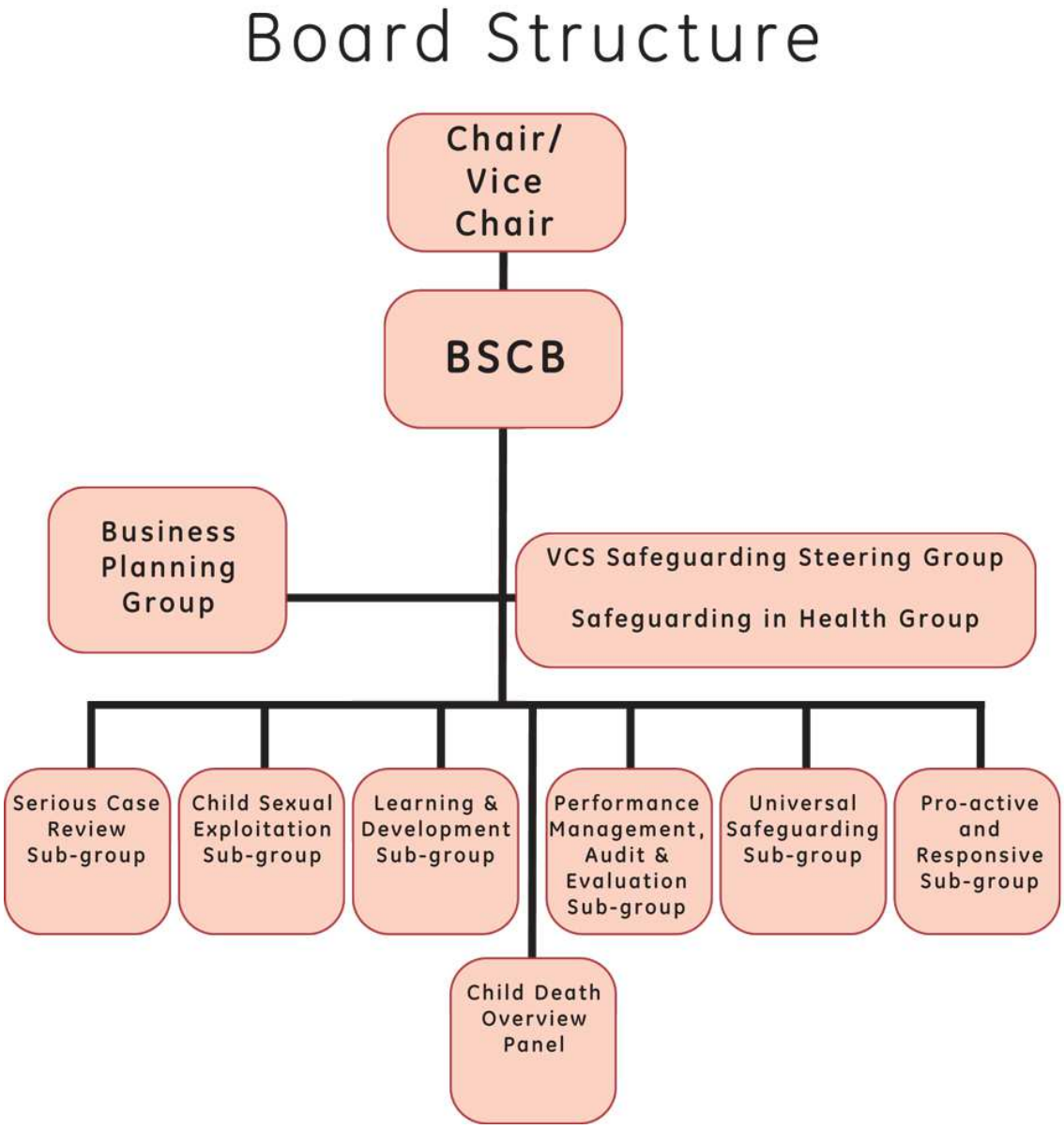
Category 2 – Suicide or deliberate self-inflicted harm: this includes hanging, shooting, self-poisoning with paracetamol, death by self-asphyxia, from solvent inhalation, alcohol or drug abuse, or other form of self-harm. It will usually apply to adolescents rather than younger people.

Category 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 and other extrinsic factors. Excludes deliberately inflicted injury, abuse or neglect (Category 1).

Category 4 – Malignancy; solid tumours, leukaemias and lymphomas and malignant proliferative conditions such as histiocytosis, even if the final event leading to death was infection, haemorrhage etc.

Category 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.
Category 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.
Category 7 – Chromosomal, genetic and congenital anomalies; Trisomies, other chromosomal disorders, single gene defects, neurodegenerative disease, cystic fibrosis and other congenital anomalies including cardiac.
Category 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 pals without evidence of cause, and includes congenital or early-onset bacterial infection (onset in the first postnatal week).
Category 9 – Infection; Any primary infection (i.e. 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.
Category 10 – Sudden unexpected death; where the pathological diagnosis is either 'SIDS' or 'unascertained', at any age. Excludes Sudden unexpected death with epilepsy (Category 5).

Appendix 3 (CDOP)



Appendix 4 (CDOP): Characteristics of deaths reviewed by CDOP

Characteristics of the child deaths reviewed between April 2008 and March 2016.

NB: Percentages may contain rounding errors

Age

Figure 1: Age distribution of all reviewed deaths, 2008/09-2015/16

	Number	Percentage
Under 1 year	419	69%
1-17 years old	188	31%
TOTAL	**607**	**100%**

Source: Bradford CDOP review data

Figure 2: Age distribution of all reviewed infant deaths, 2008/09-2015/16

	Number	Percentage
Under 28 days	260	62%
28 days to 2 months	82	20%
3 months to 1 year	77	18%
TOTAL	**419**	**100%**

Source: Bradford CDOP review data

Figure 3: Age distribution of all reviewed child deaths, 2008/09-2015/16

	Number	Percentage
1-4 years old	104	55%
5-13 years old	49	26%
14-17 years old	35	19%
TOTAL	**188**	**100%**

Source: Bradford CDOP review data

Sex

Figure 4: Sex distribution of all reviewed deaths, 2008/09-2015/16

	Number	Percentage
Male	326	54%
Female	281	46%
TOTAL	**607**	**100%**

Source: Bradford CDOP review data

Ethnicity

Figure 5: Ethnicity distribution of all reviewed deaths, 2008/09-2015/16

	Number	Percentage
South Asian	380	63%
White British or White Other	184	30%
Eastern European	17	3%
Mixed ethnicities	16	3%
Other ethnicities including African, East Asian and Other	10	1%
TOTAL	**607**	**100%**

Source: Bradford CDOP review data

Category of death

Figure 6: Category of death distribution of all reviewed deaths, 2008/09-2015/16

	Number	Percentage
Category 1	9	1%
Category 2	2	0%
Category 3	30	5%
Category 4	21	3%
Category 5	21	3%
Category 6	23	4%
Category 7	256	42%
Category 8	188	31%
Category 9	37	6%
Category 10	18	3%
No category	2	0%
TOTAL	**607**	**100%**

Source: Bradford CDOP review data

Figure 7: Comparison to national CDOP data: proportion of reviewed deaths by category of death, 2010/11 – 2015/16

Proportion of reviewed deaths by category of death, 2010/11-2015/16		**Bradford**	**National**	**Difference**
Cat 1:	Deliberately inflicted injury, abuse or neglect	2%	1%	0%
Cat 2:	Suicide or deliberately inflicted self-harm	0%	2%	-2%
Cat 3:	Trauma and other external factors	5%	6%	0%
Cat 4:	Malignancy	3%	7%	-4%
Cat 5:	Acute medical or surgical condition	3%	6%	-2%
Cat 6:	Chronic medical condition	3%	5%	-2%
Cat 7:	**Chromosomal, genetic and congenital anomalies**	**43%**	**24%**	**18%**
Cat 8:	Perinatal/neonatal event	31%	35%	-4%
Cat 9:	Infection	6%	6%	0%
Cat 10:	SUDI	3%	8%	-5%

Source: National CDOP review data, and Bradford CDOP review data

Modifiability

Figure 8: Modifiability classification of all reviewed deaths, 2008/09-2015/16

	Number	Percentage
Preventability/potentially preventable/modifiable	62	10%
Not modifiable	541	89%
Inadequate information	4	1%
TOTAL	**607**	**100%**

Source: Bradford CDOP review data

Expected/unexpected deaths

Figure 9: Expected/unexpected classification of all reviewed deaths, 2008/09-2015/16

	Number	Percentage
Expected	448	74%
Unexpected	154	25%
Unknown	5	1%
TOTAL	**607**	**100%**

Source: Bradford CDOP review data

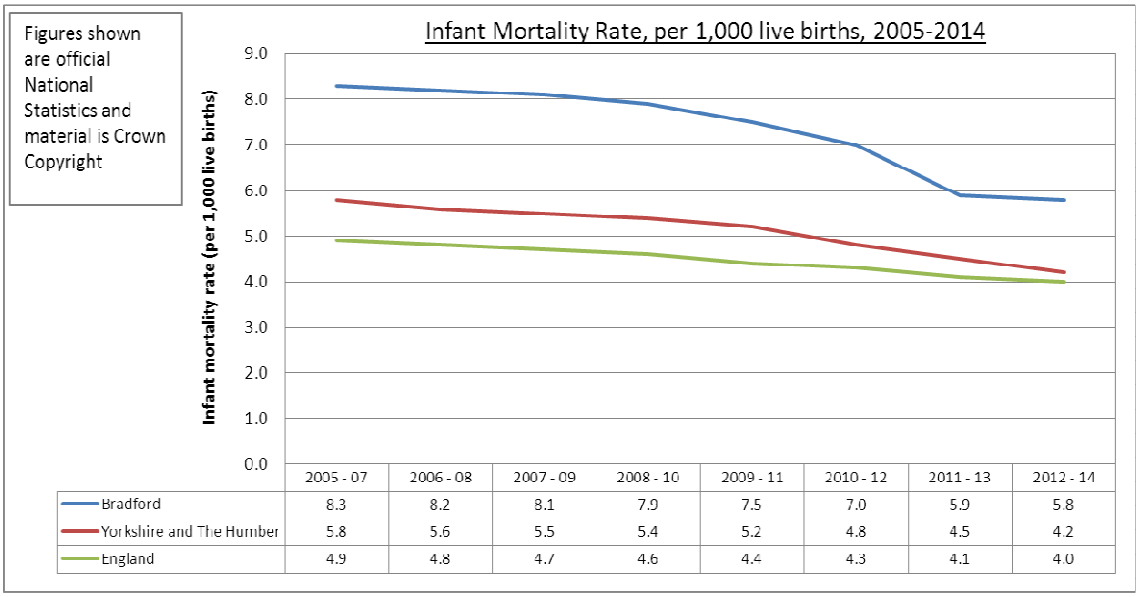
Appendix 5 (CDOP): Infant and child mortality rates

Figure 1: Mortality rates, 2012 – 2014

	Neonatal (<28 days) mortality rate, per 1,000 live births	Infant (<1 year) mortality rate, per 1,000 live births	Child (1-17 years) mortality rate, per 10,000 population
Bradford	3.8	5.8	17.3
Yorkshire and The Humber	2.8	4.2	13.3
England	2.8	4.0	12.0

Sources: Health & Social Care Information Centre Indicator Portal, and Child Health Profile 2016, ChiMat

Figure 2: Infant Mortality Rates for Bradford District vs England and Yorkshire and The Humber, 2005-07 to 2012-14



	2005 - 07	2006 - 08	2007 - 09	2008 - 10	2009 - 11	2010 - 12	2011 - 13	2012 - 14
Bradford	8.3	8.2	8.1	7.9	7.5	7.0	5.9	5.8
Yorkshire and The Humber	5.8	5.6	5.5	5.4	5.2	4.8	4.5	4.2
England	4.9	4.8	4.7	4.6	4.4	4.3	4.1	4.0

Source: Office for National Statistics (ONS) data

Figure 3: Infant mortality rates in the most deprived quintiles Bradford District, Region and England during 2007-09 to 2012-2014

Year	Bradford's most deprived quintile	Bradford	Yorkshire and the Humber	England
2007-2009	10.6	7.9	5.3	4.6
2008-2010	10.2	7.9	5.2	4.4
2009-2011	9.0	7.5	5.0	4.3
2010-2012	7.8	7.0	4.6	4.1
2011-2013	6.9	5.9	4.5	4.1
2012-2014	6.6	5.8	4.2	4.0
% Change between 2007-2009 and 2012-2014	**-39.2%**	**-26.6%**	**-20.4%**	**-13.0%**

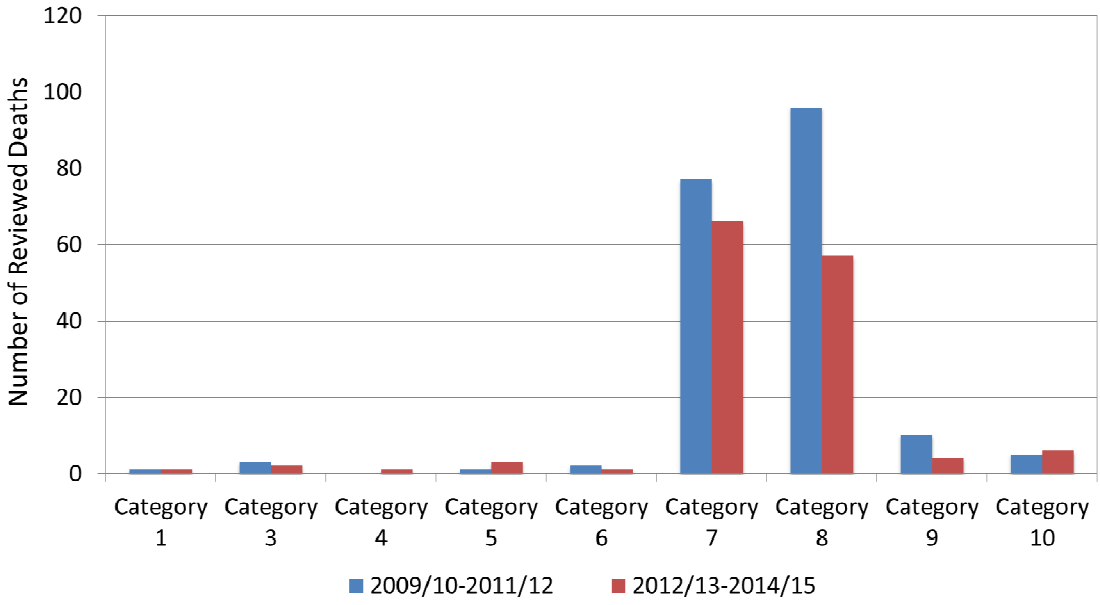
Source: Public Health Analysis Team City of Bradford Metropolitan District Council, based on ONS data

Figure 4: Numbers of deaths notified to the CDOP by age category and year of death, 2008/09 to 2015/16

	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Under 1 year	63	77	74	44	45	48	50	39
1-17 year old	22	31	34	26	23	19	30	22
No date of death in notification	85	108	108	70	68	67	80	61
TOTAL	**170**	**216**	**216**	**140**	**136**	**134**	**160**	**122**

Source: Bradford CDOP notifications data

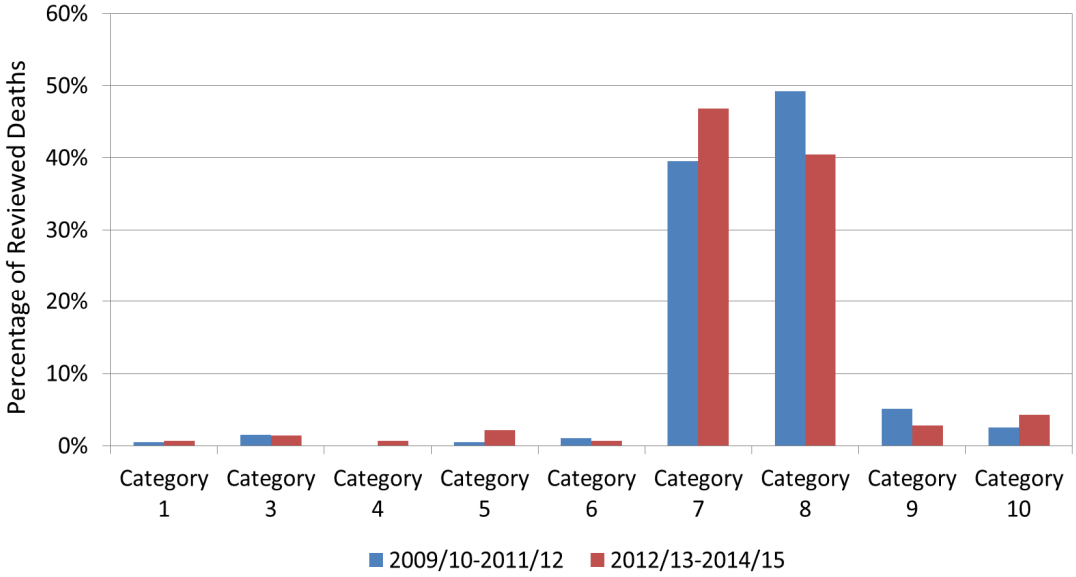
Figure 5: Numbers of reviewed infant deaths in each category of death, 2009/10-2011/12 compared to 2012/13-2014/15



Source: Bradford CDOP review data

NB: The deaths with inadequate information to make a category of death classification were removed from the analysis

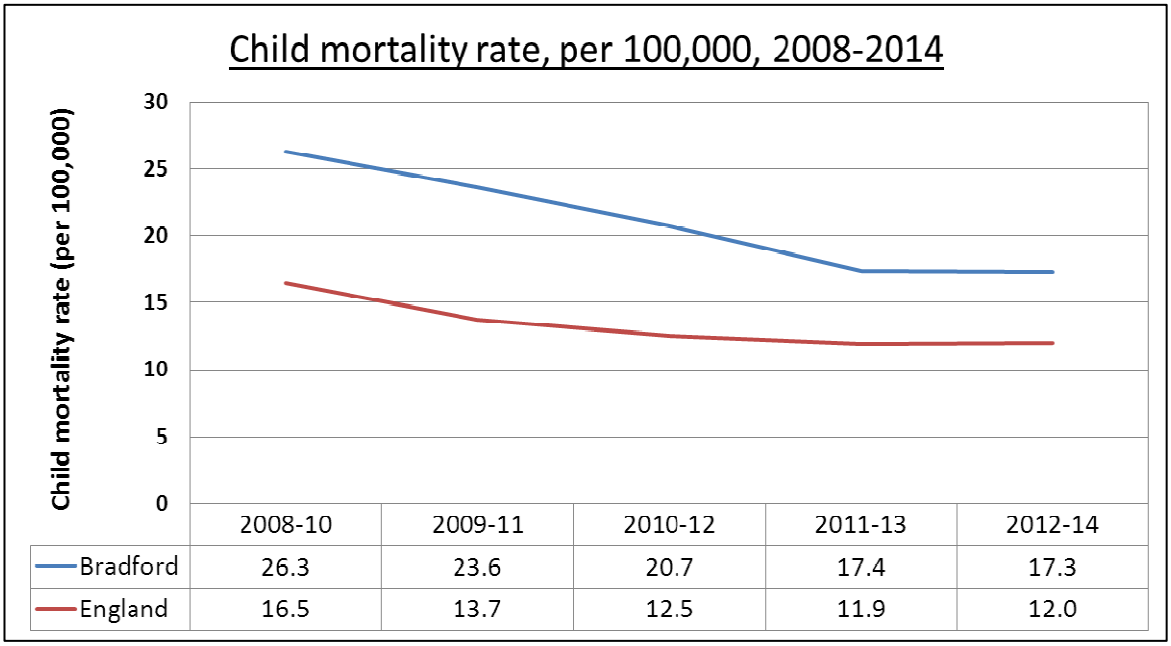
Figure 6: Proportion of reviewed infant deaths in each category of death, 2009/10-2011/12 compared to 2012/13-2014/15



Source: Bradford CDOP review data

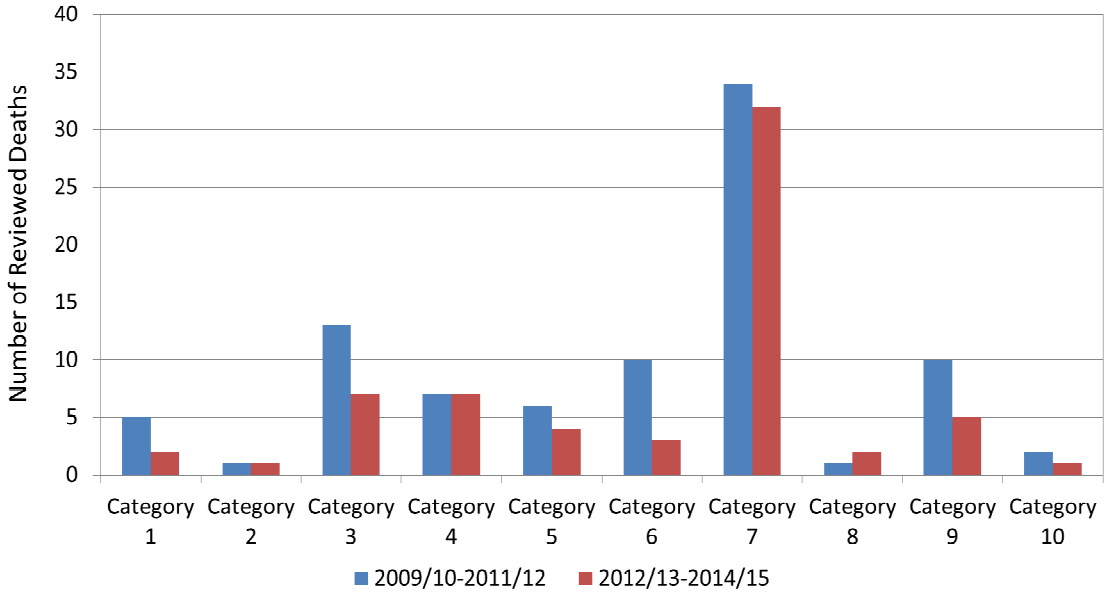
NB: The deaths with inadequate information to make a category of death classification were removed from the analysis

Figure 7: Child mortality rates over time, 2008-10 to 2012-14



Source: Child Health Profiles, ChiMat

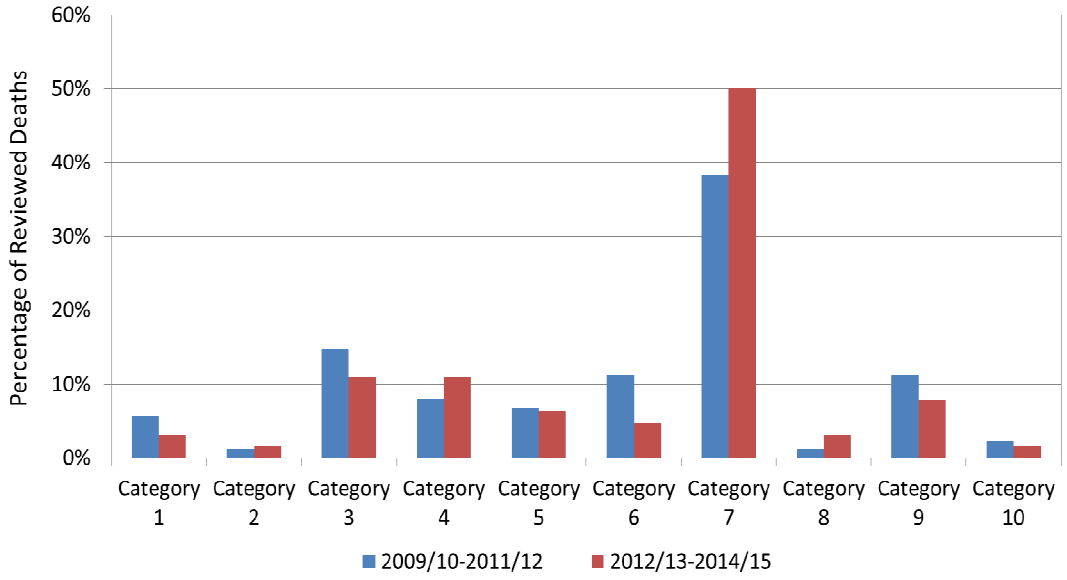
Figure 8: Numbers of reviewed child deaths (1-17 years old) in each category of death, 2009/10-2011/12 compared to 2012/13-2014/15



Source: Bradford CDOP review data

NB: The deaths with inadequate information to make a category of death classification were removed from the analysis

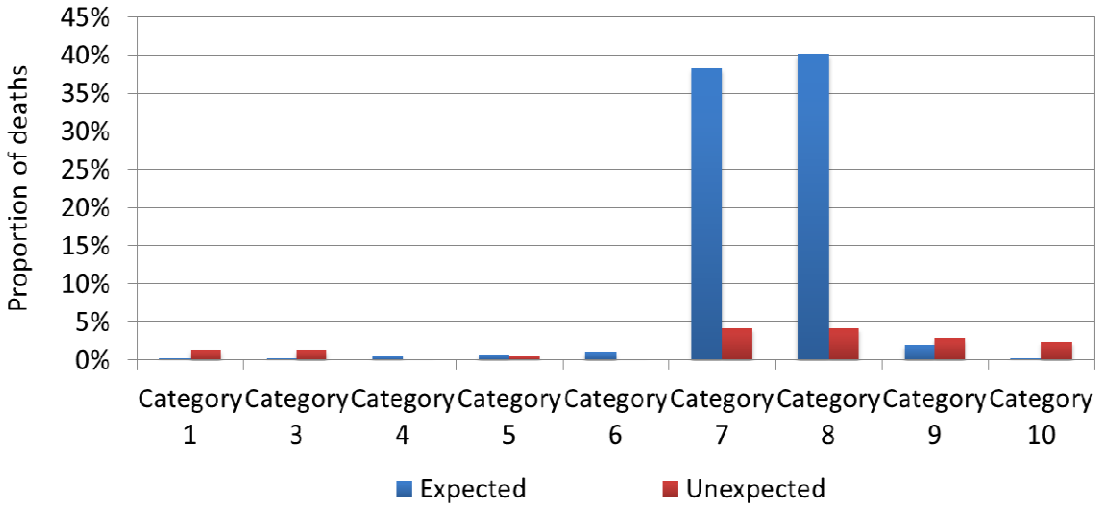
Figure 9: Proportion of reviewed child deaths (aged 1-17 years old) in each category of death, 2008/09-2010/11 compared to 2011/12-2013/14



Source: Bradford CDOP review data

NB: The deaths with inadequate information to make a category of death classification were removed from the analysis

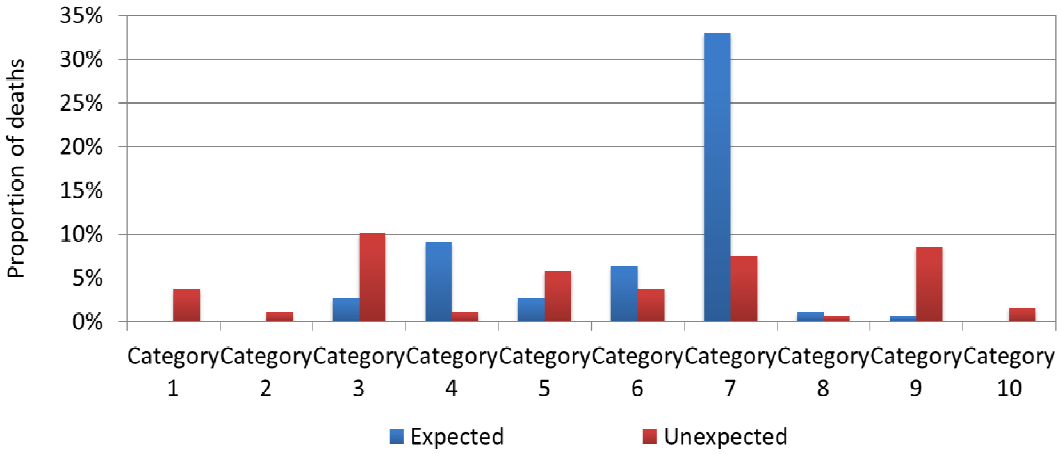
Figure 10: Proportion of expected/unexpected infant deaths in each category of death, 2008-2016



Source: Bradford CDOP review data

NB: The deaths with inadequate information to make a category of death classification were removed from the analysis

Figure 11: Proportion of expected/unexpected child deaths in each category of death, 2008-2016



Source: Bradford CDOP review data