



# Health and Wellbeing Board

## 4 March 2015

<b>Report title</b>	Draft Infant Mortality Action Plan	
<b>Cabinet member with lead responsibility</b>	Councillor Sandra Samuels Health and Wellbeing	
<b>Wards affected</b>	All	
<b>Accountable director</b>	Linda Sanders	People
<b>Originating service</b>	Public Health	
<b>Accountable employee(s)</b>	Ros Jervis Glenda Augustine Tel Email	Director Public Health Consultant in Public Health 01902 554211 ros.jervis@wolverhampton.gov.uk
<b>Report to be/has been considered by</b>	Public Health Senior Management Team	

### Recommendation(s) for action or decision:

The Health and Wellbeing Board is recommended to:

- 1.1 Approve the draft Infant Mortality Action Plan for 2015 - 2018.

## **1.0 Purpose**

- 1.1** The purpose of this report is to provide an overview of the Infant Mortality action plan developed by the multi-agency infant mortality working group to address the high rate of infant mortality in Wolverhampton.

## **2.0 Background**

- 2.1** The National Child Health Profiles published in March 2014 indicated that Wolverhampton has the highest rate of infant mortality (death of a live born infant within the first year of life) in England. The average rate of infant mortality between 2010 and 2012 is 7.7 deaths per 1,000 live births compared to the England average of 4.3 deaths per 1,000 live births
- 2.2** The high rate of infant mortality raised concerns across health and social care organisations and resulted in the convening of a multi-agency infant mortality working group in May 2014.
- 2.3** The multi-agency infant mortality working group has held four focused meetings to identify the causes of infant mortality that are modifiable and how these issues can be addressed to halt preventable death of infants in Wolverhampton. The final meeting in November 2014 resulted in the production of the draft infant mortality action plan.

## **3.0 Draft Infant Mortality Action Plan**

- 3.1** The infant mortality action plan consists of 15 individual recommendations within six specific areas (full details in Appendix One):
- Strengthening Local Understanding and Awareness of Infant Mortality
  - Addressing smoking cessation in pregnancy and after pregnancy for the whole family
  - Low Birth Weight Infants
  - Maternal and Infant Nutrition
  - Reducing Sudden Unexpected Death in Infancy
  - Addressing vulnerability pre-pregnancy and beyond
- 3.3** The draft action plan provides an integrated partnership approach to addressing the consistently high rate of infant mortality in Wolverhampton.
- 3.4** There is one potential, but significant risk associated with the monitoring of infant mortality in the future. The new information governance rules implemented in April 2013 will make the detailed identification of the local causes of infant mortality impossible in the future unless local solutions are found to ensure the re-institution of this data sharing. It is important for key partners within the city to recognise the value of sharing data in a secure and timely manner to enable a composite review of issues that can reduce local inequalities and improve health and social care outcomes for local residents.

#### **4.0 Financial implications**

- 4.1 Funding for Public Health is provided to the Council by the Department of Health in the form of a ring-fenced grant. The total funding settlement for Public Health for 2014/15 is £19.3 million of which £15.2 million is allocated to Public Health Commissioning.
- 4.2 Should any financial implications arise as a result of this report then they will be contained within the Public Health Commissioning Budget.

[NM/04022015/T]

#### **5.0 Legal implications**

- 5.1 There are no anticipated legal implications to this report.

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#### **6.0 Equalities implications**

- 6.1 This report does address inequalities as the action plan has been drafted taking into account the needs of the population at risk. This action plan will directly impact on service delivery and an equalities analysis will be an integral part of any commissioned services.

#### **7.0 Environmental implications**

- 7.1 There are no anticipated environmental implications related to this report.

#### **8.0 Human resources implications**

- 8.1 There are no anticipated human resource implications related to this report.

#### **9.0 Corporate landlord implications**

- 9.1 This report does not have any implications for the Council's property portfolio.

#### **10.0 Schedule of background papers**

- 10.1 The infant mortality briefing paper produced for the health scrutiny review is included for information in Appendix Two.

## APPENDIX ONE: Draft Wolverhampton Infant Mortality Action Plan 2015 - 2018

Strengthening Local Understanding and Awareness of Infant Mortality					
Recommendation		Action	Key Stakeholders	Resources	Time Scale
1	Establish a process for identifying and reviewing the causes of infant mortality in Wolverhampton	<ul style="list-style-type: none"><li>• Data sharing agreement required to link Public Health Mortality data and Maternity dataset</li><li>• Annual Public Health intelligence briefing on infant mortality</li><li>• Annual review of Sudden Unexpected Deaths in Infancy Syndrome (SUDIs) for children under one year derived from the Child Death Overview Panel</li><li>• Produce action plans to address the preventable and modifiable risk factors identified from the annual reports</li><li>• Bi annual Infant Mortality Multi- agency working group to review Progress on action plans</li><li>• Task and finish group to create an infant mortality dashboard to monitor proxy measures</li></ul>	<ul style="list-style-type: none"><li>• Public Health</li><li>• Royal Wolverhampton NHS Trust</li><li>• Child Death Overview Panel</li><li>• Wolverhampton Clinical Commissioning Group</li></ul>	From existing resources	<ul style="list-style-type: none"><li>• Data sharing agreement to be completed by March 2015</li><li>• Annual Public Health intelligence briefing completed by May 2015</li><li>• Annual review of SUDI report completed by May 2015</li><li>• Infant Mortality Working Group to meet in May and November each year, commencing May 2015</li><li>• Infant mortality dashboard completed with baseline data for review in May 2015</li></ul>
2	Review of the variation in Infant mortality rates	<ul style="list-style-type: none"><li>• Comparison of health and social care factors at ward level</li></ul>	<ul style="list-style-type: none"><li>• Public Health</li><li>• Royal Wolverhampton NHS Trust</li></ul>	Investment may be required	<ul style="list-style-type: none"><li>• Tier 3 data sharing agreement completed by March 2015</li></ul>

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	across Wolverhampton	<ul style="list-style-type: none"> <li>Task and finish group established and qualitative research conducted to identify contributory and protective factors for infant mortality within and between wards.</li> </ul>	<ul style="list-style-type: none"> <li>Child Death Overview Panel</li> <li>Wolverhampton Clinical Commissioning Group</li> <li>Adult and Children's Social Care</li> </ul>		<ul style="list-style-type: none"> <li>Summary report of variation in infant mortality by ward completed by November 2015</li> </ul>
3	Raise awareness of the details of the Infant Mortality Action Plan amongst all Key Stakeholders	Develop a communications plan to promote the key actions that are most likely to contribute to improving outcomes for mothers and babies	<ul style="list-style-type: none"> <li>Royal Wolverhampton NHS Trust</li> <li>Wolverhampton Local Authority</li> <li>Wolverhampton Clinical Commissioning Group</li> </ul>	From existing resources	<ul style="list-style-type: none"> <li>Communications plan to be agreed and 'signed off' by Wolverhampton Health and Wellbeing Board by March 2015</li> </ul>
<b><i>Address smoking cessation in pregnancy and after pregnancy for the whole family</i></b>					
1	Reduce the proportion of women smoking during and after pregnancy	<ul style="list-style-type: none"> <li>Offer Carbon Monoxide (CO) monitoring of all pregnant women at each antenatal contact with printed advice related to the outcome given to the mother and recorded in the maternity records.</li> <li>Opt-out referral of all pregnant women who smoke to the smoking cessation service with follow-up of non-attenders.</li> <li>All smoking quitters 'followed-up' by the smoking cessation service at 3 months, 6</li> </ul>	<ul style="list-style-type: none"> <li>Stop Smoking Service</li> <li>Royal Wolverhampton NHS Trust: Midwifery Services. Health visiting services</li> <li>Wolverhampton Clinical Commissioning Group</li> </ul>	Public Health will fund additional CO monitors	<ul style="list-style-type: none"> <li>CO monitoring at all antenatal visits implemented by March 2015</li> <li>Review of CO monitoring available at each Infant Mortality Working Group Meeting</li> <li>Follow-up of smoking quitters implemented by April 2015</li> <li>Referral pathways for pregnant women who smoke reviewed at May 2015 meeting of the Infant Mortality Working Group</li> <li>Number of women smoking at booking and</li> </ul>

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		<p>months, 9 months and 12 months after quit date to provide support to maintain and sustain a successful quit.</p> <ul style="list-style-type: none"> <li>• 6 monthly review of CO monitoring to inform Infant Mortality Working Group Meetings</li> <li>• Develop referral pathways for pregnant women to Smoking Cessation Service through other sources e.g. Pharmacists, Dentists</li> <li>• Establish a system of midwifery notification of a successful quit to the health visiting service for ongoing support to prevent relapse</li> </ul>			<p>delivery recorded in Infant Mortality dashboard by May 2015 alongside initial 4 week quit and follow up data.</p>
2	<p>Ensure a smoke free hospital stay through the implementation of a smoke free hospital site</p>	<ul style="list-style-type: none"> <li>• Develop and implement a local NHS Trust smoke-free policy during hospital stay as recommended by NICE Public Health Guidance on quitting smoking in pregnancy (NICE PH 26) and smoking in maternity services (NICE PH 48)</li> <li>• Scope the feasibility of ultrasonographers</li> </ul>	<ul style="list-style-type: none"> <li>• Stop Smoking Service</li> <li>• Royal Wolverhampton NHS Trust, to include Trust side representative</li> <li>• Wolverhampton Clinical Commissioning Group</li> </ul>	<p>Existing Resources</p>	<ul style="list-style-type: none"> <li>• Outcome of service audit of against Nice Guidance presented at November 2015 meeting of the Infant Mortality Working Group</li> </ul>

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		<p>offering brief interventions at booking and subsequent scans</p> <ul style="list-style-type: none"> <li>• Map pathways of frontline staff groups to promote Making Every Contact Count.</li> </ul>			
3	Promote a smoke free home environment	<ul style="list-style-type: none"> <li>• Assessment of the family environment of all pregnant women and the offer of smoking cessation services to all smokers within the household</li> <li>• Scope the potential pilot of a neonatal unit programme on risks to the neonate on discharge from hospital</li> <li>• Assess smoking status of parents with children on the Neonatal Unit and refer to smoking cessation services</li> <li>• Record smoking status at home following discharge at key contacts by midwife and health visitor</li> </ul>	<ul style="list-style-type: none"> <li>• Royal Wolverhampton NHS Trust: Maternity, Neonatal, Paediatric and Health Visiting services</li> <li>• Stop Smoking Service</li> <li>• Wolverhampton Clinical Commissioning Group</li> <li>• Children's Centres</li> <li>• Public Health</li> </ul>	Investment required for neonatal pilot	<ul style="list-style-type: none"> <li>• Collated data on family environment, smoking status of parents with children on the neonatal unit and smoking status at key intervals post discharge reported at the May 2015 Infant Mortality Working Group. This data reporting will be a standing agenda item for the Group as part of the Infant Mortality Dashboard</li> <li>• Discuss the piloting of the neonatal unit 'risk' programme at May 2015 Infant Mortality Working Group.</li> </ul>
4	Ensure a whole school approach to smoking prevention and smoking cessation	<ul style="list-style-type: none"> <li>• Deliver evidence based age appropriate smoking prevention interventions in schools to effectively prevent smoking</li> </ul>	<ul style="list-style-type: none"> <li>• Public Health, School Health Nursing</li> <li>• Stop Smoking Service</li> </ul>	Existing resources	<ul style="list-style-type: none"> <li>• Implementation of evidence based smoking prevention interventions by November 2015</li> <li>• Audit of School Health</li> </ul>

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	to decrease smoking initiation and maximise referral to smoking cessation services for school children	<ul style="list-style-type: none"> <li>initiation</li> <li>Brief interventions and referrals to smoking cessation to be delivered by School Health Nurses</li> <li>Audit of school based contacts and referral to smoking cessation services</li> </ul>			Nurse contacts and referrals to Smoking cessation services to be presented at May 2016 Infant Mortality Working Group
5	Promote a smoke free population	<ul style="list-style-type: none"> <li>Local marketing campaign to promote smoking prevention and cessation</li> </ul>	Public Health	Public Health investment made	<ul style="list-style-type: none"> <li>Local marketing campaign to promote smoking prevention and cessation to commence by March 2015</li> <li>Evaluation of marketing campaign to be reported to the May 2016 Infant Mortality Working Group.</li> </ul>
<b>Low Birth Weight Infants</b>					
1	Improve antenatal detection of foetal growth restriction	<ul style="list-style-type: none"> <li>Scope the feasibility of implementing the use of customised growth charts</li> </ul>	<ul style="list-style-type: none"> <li>Royal Wolverhampton NHS Trust: Maternity, Neonatal and Paediatric</li> </ul>	Existing Resources	<ul style="list-style-type: none"> <li>Scoping report on customised growth charts presented at the May 2015 Infant Mortality Working Group meeting</li> </ul>
<b>Maternal and Infant Nutrition</b>					
1	Improve maternal nutrition during and after pregnancy	<ul style="list-style-type: none"> <li>Healthy choices on a budget information provided to all pregnant women</li> <li>Universal offer of Healthy start vitamins to pregnant women</li> <li>Targeted weight</li> </ul>	<ul style="list-style-type: none"> <li>Royal Wolverhampton NHS Trust: Healthy Lifestyles Team; Maternity , Neonatal, Paediatric, and Health Visiting</li> <li>Public Health</li> <li>Children's Centres</li> </ul>	Investment will be required for maternal weight management programme	<ul style="list-style-type: none"> <li>Scoping report on the offer of free swimming for all pregnant women presented at May 2015 Infant Mortality Working Group meeting</li> <li>Review outcome data from weight management</li> </ul>



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		<p>management programmes for women with a BMI over 30 during and after pregnancy</p> <ul style="list-style-type: none"> <li>• Promoting physical activity during pregnancy</li> <li>• Scope the feasibility of offering free swimming sessions to all pregnant women</li> </ul>			<p>programmes at May 2016 Infant Mortality Working Group, and a standing agenda item at subsequent meetings. as part of the Infant Mortality Dashboard</p>
	Promote exclusive breastfeeding in the first 6 months of life	<ul style="list-style-type: none"> <li>• Local social marketing campaign to promote exclusive breastfeeding as part of the Obesity Call to Action</li> <li>• Develop an infant feeding pathway to ensure on-going support for breastfeeding mothers</li> <li>• Scope the feasibility of increasing community support for breastfeeding</li> <li>• Collect data on breastfeeding status at 6 months</li> </ul>	<ul style="list-style-type: none"> <li>• Public Health</li> <li>• Royal Wolverhampton NHS Trust: Maternity, Neonatal, Paediatric and Health Visiting services</li> <li>• Children's Centres</li> <li>• Wolverhampton Clinical Commissioning Group</li> </ul>	Investment may be required	<ul style="list-style-type: none"> <li>• Local marketing campaign to promote breastfeeding to commence by March 2015</li> <li>• Review of rates of breastfeeding initiation and at 6-8 weeks as part of the Infant Mortality dashboard baseline data in May 2015</li> <li>• Evaluation of marketing campaign to be reported to the May 2016 Infant Mortality Working Group.</li> <li>• Breastfeeding status at six months should be reported in the Infant Mortality dashboard from November 2016</li> </ul>
<b>Reducing Sudden Unexpected Death in Infancy (SUDI)</b>					
1	Promote the risk factors for SUDI to prevent	<ul style="list-style-type: none"> <li>• 'Back to Sleep' campaign promoted by all relevant front-line</li> </ul>	<ul style="list-style-type: none"> <li>• Royal Wolverhampton NHS Trust: Maternity, Neonatal, Paediatric and Health Visiting</li> </ul>	Existing Resources	<ul style="list-style-type: none"> <li>• Annual review of modifiable risk factors for SUDI in Infancy included in</li> </ul>

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	postpartum deaths up to one year	<ul style="list-style-type: none"> <li>professionals</li> <li>• Revision of the reducing SUDI page in the Personal Child Health Record (PCHR)</li> <li>• Audit health visiting use of the revised SUDI page</li> </ul>	<ul style="list-style-type: none"> <li>services</li> <li>• Wolverhampton Clinical Commissioning Group</li> <li>• Children's Centres</li> <li>• Public Health</li> </ul>		<ul style="list-style-type: none"> <li>report to the Infant Mortality Working Group in May 2015</li> <li>• Revised SUDI page in the PCHR to be implemented by August 2015</li> <li>• Audit of the health visiting use of the revised SUDI page to be reported at the May 2016 meeting of the Infant Mortality Working Group</li> </ul>
<b><i>Addressing vulnerability pre-pregnancy and beyond</i></b>					
1	Assess the effectiveness of gender specific pregnancy prevention programmes	<ul style="list-style-type: none"> <li>• Scope the feasibility of a gender specific sexual health education programmes for teenage girls to build personal resilience and reduce the rate of unintended pregnancies</li> </ul>	<ul style="list-style-type: none"> <li>• Public Health</li> <li>• Royal Wolverhampton NHS Trust: School Nursing</li> <li>• Children's Centres</li> </ul>	Investment may be required	<ul style="list-style-type: none"> <li>• Evidence-based review of gender specific teenage pregnancy programmes Infant Mortality Working Group in May 2015</li> </ul>
2	Ensure all mothers under 19 years are supported to make 'healthy' choices during pregnancy and beyond	<ul style="list-style-type: none"> <li>• Referral of eligible 'mothers' to the Family Nurse Partnership Programme (FNP)</li> <li>• Provision of targeted support to 'vulnerable' young mothers not eligible for the FNP programme</li> </ul>	<ul style="list-style-type: none"> <li>• Royal Wolverhampton NHS Trust: Maternity, Neonatal, Paediatric and Health Visiting services</li> <li>• Wolverhampton Clinical Commissioning Group</li> <li>• Children's Centres</li> <li>• Public Health</li> </ul>	Existing Resources	<ul style="list-style-type: none"> <li>• Update of FNP referrals reported to the Infant Mortality Working Group as a standing agenda item</li> <li>• Outcomes of under 19 years contacts with 'vulnerable women's' midwife reported at each Infant Mortality Working Group</li> </ul>
3	Ensure all 'vulnerable' mothers are	<ul style="list-style-type: none"> <li>• Scope the feasibility of a targeted programme for vulnerable women,</li> </ul>	<ul style="list-style-type: none"> <li>• Royal Wolverhampton NHS Trust: Maternity, Neonatal, Paediatric and Health Visiting</li> </ul>	Existing Resources	<ul style="list-style-type: none"> <li>• Scoping report on the targeted provision of a programme for vulnerable</li> </ul>

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	supported during pregnancy and beyond	<p>commencing antenatally</p> <ul style="list-style-type: none"> <li>• Audit of the referrals to the 'vulnerable women's' midwife</li> <li>• Establish a pathway of care for vulnerable women following discharge from maternity services</li> </ul>	<p>services</p> <ul style="list-style-type: none"> <li>• Wolverhampton Clinical Commissioning Group</li> <li>• Children's Centres</li> <li>• Public Health</li> </ul>		<p>women discussed at the May 2015 working group meeting</p> <ul style="list-style-type: none"> <li>• Audit report of referrals to the 'vulnerable women's' midwife presented at the May 2015 working group meeting</li> <li>• Report on the development of the pathway at the May 2015 working group meeting</li> </ul>
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## APPENDIX TWO: Infant Mortality Briefing



# Public Health Intelligence Briefing for the Health Scrutiny Review Panel: Infant Mortality in Wolverhampton

## Introduction

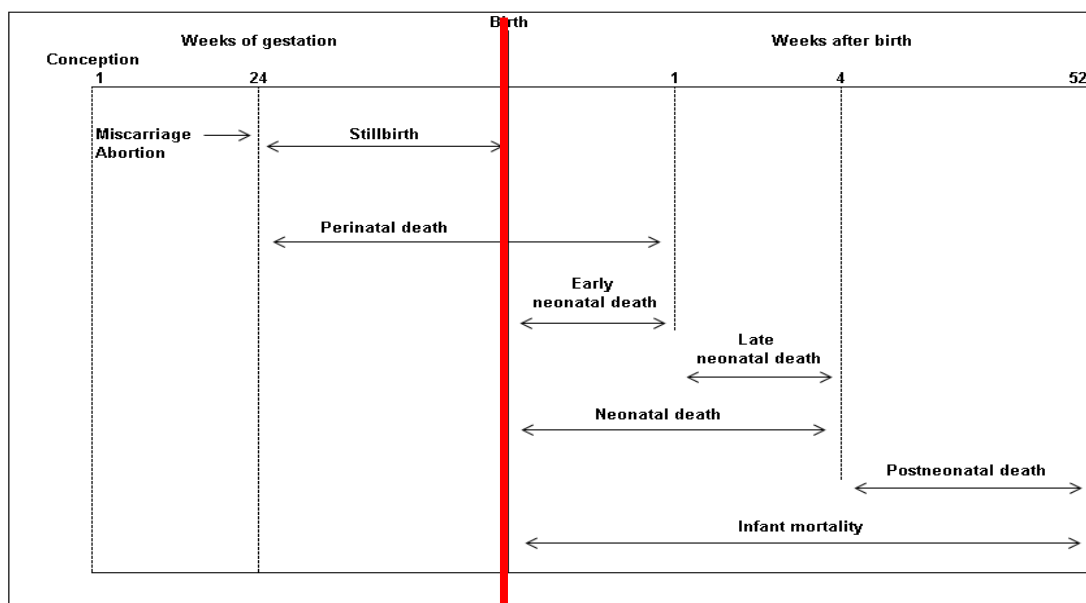
The National Child Health Profiles published in March 2014 indicate that Wolverhampton has the highest rate of infant mortality in England. The average rate of infant mortality between 2010 and 2012 is 7.7 deaths per 1,000 live births compared to the England average of 4.3 deaths per 1,000 live births. This briefing will aim to define infant mortality and the importance of addressing this major local issue by highlighting factors that can be addressed, modifiable factors, to reduce the rate of infant deaths in Wolverhampton.

## What is Infant Mortality?

Infant mortality is defined as the death of a live born baby within the first year of life. This period of time is further subdivided based on the length of time from birth to death and illustrated in Figure 1:

- Early neonatal: death occurring up to 7 days after a live birth
- Late neonatal: death occurring from 7 days and up to 28 days after a live birth
- Post neonatal: death occurring after 28 days following a live birth
- Infant: death occurring in the first year of life following a live birth (includes all three time periods above)

Figure 1: Illustration of time periods for deaths occurring during pregnancy and within 1<sup>st</sup> year of life



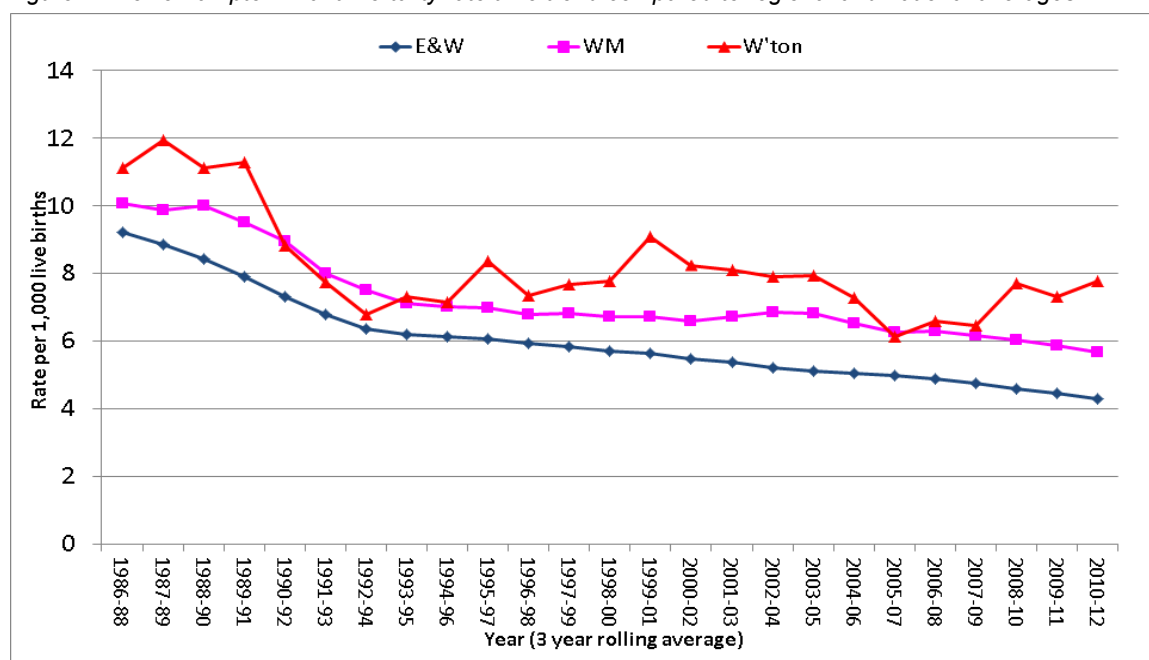
## Why is Infant Mortality Important?

Infant mortality is an important indicator of the health of the present population reflecting current factors that impact on population health, such as general living conditions, social wellbeing and the quality of the environment. Historically, the rate of infant mortality in Wolverhampton has been almost double the current rate, with an average of 14 deaths per 1,000 live births between 1987 and 1989.

Whilst the infant mortality rate in Wolverhampton has steadily decreased over time, as shown in Figure 2, there has been a greater decline in the national infant mortality rate. Over the past 30 years there has been a 33% decrease in the national infant mortality rate. However, in Wolverhampton the infant mortality rate has fluctuated, with a fairly static average rate of 7.5 deaths per 1,000 live births throughout this period.

Infant mortality is a major contributor to the difference in life expectancy between Wolverhampton and the national average, accounting for the greatest number of years of life lost<sup>1</sup>. Therefore, it is important to address infant mortality to improve the outcomes for babies born in Wolverhampton and reduce the inequalities that exist between local and national measures. Reducing infant mortality will also have an impact on overall life expectancy for residents of Wolverhampton.

Figure 2: Wolverhampton infant mortality rate time trend compared to regional and national averages



<sup>1</sup> Years of life lost (YLL) provides a summary measure of premature mortality, defined as the years of potential life lost due to premature deaths (that is, before age 75 years). YLL takes into account the age at which deaths occur, giving greater weight to deaths at a younger age and lower weight to deaths at an older age

## What are the risk factors for Infant Mortality in Wolverhampton?

A review of primary care mortality data linked to data from the maternity information system at Royal Wolverhampton NHS Trust (RWT) from 2004 – 2012 was conducted in February 2014. This review relates to Wolverhampton residents and highlighted the following key issues:

- *Smoking during pregnancy*: there is a 54% increased risk of infant death for women who smoke during pregnancy, as recorded at the time of delivery, compared to women documented as non-smokers. This indicates a strong association between smoking in pregnancy and infant death.
- *Prematurity*: prematurity is defined as birth after less than 37 completed weeks of pregnancy, which usually lasts 40 weeks. Whilst most premature births occur between 34 weeks and 37 weeks of pregnancy, a small proportion of babies are born under 34 weeks. Almost 65% of infant deaths occurred in babies born under 34 weeks of completed pregnancy, whereas premature infants were only 3% of all births. This indicates that prematurity is a high risk factor for infant death.
- *Very Low birth weight*: a birth weight under 1,500g is classified as a very low birth weight. 60% of infant deaths in Wolverhampton occurred in very low birth weight infants, whereas very low birth weight infants accounted for only 1.5% of all births. This indicates that a very low birth weight is a high risk factor for infant death.
- *Maternal age*: although the highest number of infant deaths occurred in mothers aged between 20 and 34 years, the proportion of deaths was similar to the proportion of births within these age groups. However, 7.9% of infant deaths occurred in babies born to mothers aged 40 to 44 years, whereas births to mother aged 40-44 years were only, 2.5% of all births. This indicates that later maternal age is a high risk factor for infant death.
- *Ethnicity*: the proportion of infant deaths compared to total births is broadly similar across ethnic groups with the exception of babies born to black mothers. 16.4% of infant deaths occurred in babies born to black mothers, whereas births to black mothers were 9.8% of all births. Preliminary findings from the review suggest a link between ethnicity and prematurity, with a higher proportion black mothers delivering premature babies, under 34 weeks. Overall, this indicates that black ethnicity is a higher risk factor for infant death than other ethnic groups.
- *Deprivation*: most of the infant deaths occurred amongst the 20% most deprived mothers within the city, a slightly higher proportion of 69.4% compared to total births to mothers in this group, 65.1%. This indicates that deprivation is a high risk factor for infant death.
- Other known risk factors for infant mortality, maternal obesity<sup>2</sup> and late booking in pregnancy<sup>3</sup>, did not appear to be associated with the local infant deaths reviewed. However, consideration is still required to address these particular risk factors locally.

There are other potentially modifiable environmental risk factors that contribute to infant mortality recorded as 'sudden unexplained death in infancy' within the first year of life in

<sup>2</sup> Tennant PGW, Rankin J, Bell R (2011) Maternal body mass index and the risk of fetal and infant death: a cohort study from the North of England *Human Reproduction*, 26:6, 1501–1511

<sup>3</sup> attending for first antenatal appointment after 13 weeks and 6 days of pregnancy

Wolverhampton. A review of modifiable risk factors for sudden unexplained death in infancy in Wolverhampton was conducted between 2009 and 2012<sup>4</sup>. The top four major modifiable risk factors are:

- exposure to environmental tobacco smoke which was recorded in 55% of cases
- co-sleeping environment (bed sharing/sofa sharing) which was recorded in 44% of cases
- alcohol use within the last 24 hours which was recorded in 35% of cases
- and over-heating<sup>5</sup> which was recorded in 32% of cases

### How can we reduce the rate of infant mortality in Wolverhampton?

Substantial research evidence is available regarding the risk factors associated with infant mortality, many of which are potentially modifiable and, if addressed, will assist in the reduction of the infant mortality rate<sup>2,6</sup>.

#### *Smoking during and after pregnancy*

Smoking is the single cause of preventable disease and death. The smoking status of pregnant women is recorded at the first antenatal booking appointment and repeated at the time of delivery. Unfortunately, the difference between the proportion of women smoking at booking and at the time of delivery is marginal. This indicates that the majority of women who are smoking at the beginning of the pregnancy continue to smoke, and few women quit smoking during pregnancy. The most recent data on the proportion of women smoking during pregnancy, as recorded at delivery, indicates that 18.6% of women who deliver in Wolverhampton are smokers. Although smoking status at delivery in Wolverhampton has decreased over the years, it still remains higher than the regional (14.2%) and national (12.7%) average.

It is logical to assume that women who smoke during pregnancy will continue to smoke following delivery, increasing baby's exposure to environmental tobacco smoke which is a major risk factor for infant mortality. It should also be noted that babies born to women who have never smoked or have stopped smoking during pregnancy may also be exposed to environmental tobacco smoke within the home if others in the household smoke.

The National Institute of Health and Care Excellence has produced two public health guidelines<sup>7, 8</sup> with a total of 19 maternity specific recommendations to promote smoking cessation in pregnancy and the adoption of smoke-free homes. Implementation of these recommendations and rigorous promotion of the smoking related harm will assist in reducing the rate of infant mortality in Wolverhampton.

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<sup>4</sup> Moore A (2014) Modifiable risk factors in infant deaths in Wolverhampton 2009 -2012: Presentation at Wolverhampton Infant Mortality Working Group 8<sup>th</sup> May 2014

<sup>5</sup> This includes room temperature, baby clothing, bedding and mattress

<sup>6</sup> Allen F, Gray R, Oakley L *et al* Inequalities in Infant Mortality Project Evidence Map Report 3: The effectiveness of interventions targeting major potentially modifiable risk factors for infant mortality: a user's guide to the systematic Review evidence. National Perinatal Epidemiology Unit, University of Oxford 2009

<sup>7</sup> National Institute of Health and Care Excellence (2010) Quitting smoking in pregnancy and following childbirth. NICE public health guidance 26. NICE June 2010

<sup>8</sup> National Institute of Health and Care Excellence (2013) Smoking cessation in secondary care: acute, maternity and mental health services. NICE public health guidance 48. NICE November 2013



*Prematurity and very low birth weight infants*

Whilst not all premature infants have a very low birth weight, there is a strong relationship between prematurity, very low birth weight and infant death. There are many causes of both premature birth and very low birth weight infants related to either mother, baby, environmental exposures or a combination of all these factors.

There are guidelines for the delivery of routine antenatal care during pregnancy<sup>9</sup> and obstetric and neonatal policies/protocols are in place for managing complications during pregnancy and caring for the baby following delivery. Adherence to the guidelines, policies and protocols will optimise the care received and assist with improving outcomes for premature and very low birth weight babies. Promotion of smoking cessation and smoke free homes by neonatal staff will also enhance outcomes for these babies.

It should be noted that death of some very premature (less than 32 completed weeks of pregnancy) and extremely premature (born between 23 and 24 weeks of pregnancy) is expected as a result of the severity of their clinical condition. Unfortunately these deaths cannot be prevented and will always contribute to the infant mortality rate.

*Maternal age*

There is national evidence that suggests older mothers are potentially more likely to have a baby that dies in infancy<sup>10</sup>. The Royal College of Obstetricians and Gynaecologists made a statement on later maternal age<sup>11</sup>, indicating that 'later maternal age is an emerging public health issue.' It highlights that pregnancy in women over 40 years is at high risk of pregnancy related complications and there may be also issues for the baby. Whilst it advocates that women should be 'supported rather than constrained in their life style choices', the statement calls for better public information for women on the issues surrounding later pregnancy. The care received by these women during pregnancy and following delivery will be in keeping with current antenatal care guidelines<sup>8</sup> and adherence to local policies/protocols as complications arise will assist in the reduction of infant mortality.

*Ethnicity*

The inequalities that exist between the rate of infant mortality by ethnic group is well documented and described as multi-factorial and complex<sup>12</sup>. There appears to be an intricate inter-relationship between socio-economic, physiological and behavioural factors, alongside access to and uptake of services. The review suggests that black mothers had a higher proportion of premature deliveries, 34 weeks and under, compared to other ethnic groups. Further work is required to investigate this finding in more detail. Greater local understanding of the reasons why babies within specific ethnic groups are at greater risk of infant mortality will assist in the development of a targeted approach to addressing the issues identified.

<sup>9</sup> National Institute of Health and Clinical Excellence (2008) Antenatal care. NICE clinical guideline 62. NICE March 2008

<sup>10</sup> Office of National Statistics (2013) Gestation-specific Infant Mortality in England and Wales 2011. *Office of National Statistics Statistical Bulletin* 10 October 2013

<sup>11</sup> RCOG (2009) RCOG Statement on later maternal age <http://www.rcog.org.uk/what-we-do/campaigning-and-opinions/statement/rcog-statement-later-maternal-age>

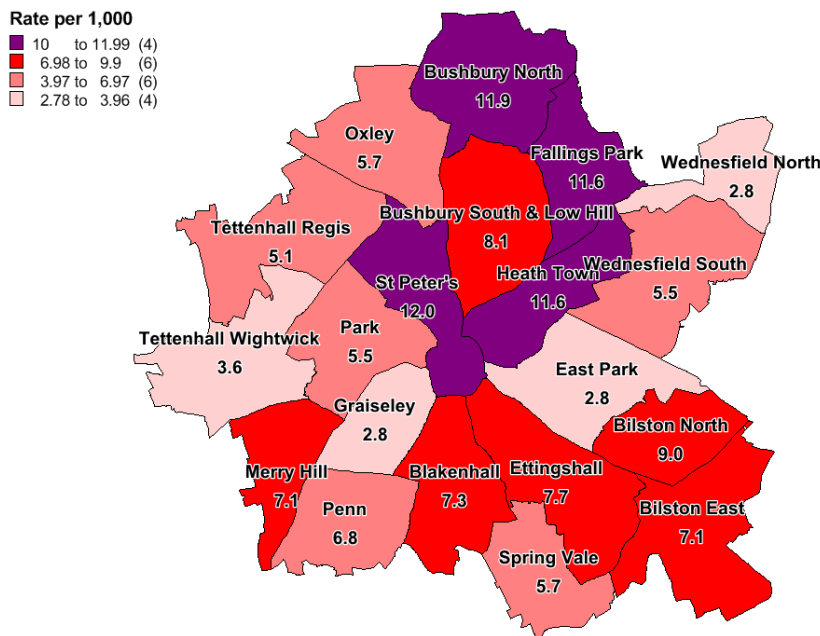
<sup>12</sup> Ray, R. Headley, J. Oakley, L *et al* (2009) Towards an understanding of variation in infant mortality rates between different ethnic groups in England and Wales. Inequalities in Infant Mortality Project Briefing Paper 3. National Perinatal Epidemiology Unit, University of Oxford

### Deprivation

The map depicted in figure 3 shows the distribution of infant mortality across the city by ward. There are some higher concentrations of infant mortality in certain areas of the city, for example, in the Centre and North of the city running from St Peter's to Fallings Park and Bushbury North. These ward rates of infant mortality are higher than the average rate for Wolverhampton. Targeted care for women and infants in these areas will assist in the reduction of infant mortality.

It should be noted that although there is a higher proportion of infant deaths in areas that are most deprived, infant deaths also occur in areas of Wolverhampton where there is the least deprivation. Therefore, a universal approach to the delivery of maternity care and support during the first year of life is required across the city.

Figure 3: Map of Infant mortality by electoral ward in Wolverhampton 2003-2012



### Organisational Responsibilities

There are a number of organisations that are responsible for the commissioning and provision of services that will contribute to reducing the rate of infant mortality in Wolverhampton as shown in Figure 4. A strategic overview of organisational function with a detailed understanding of service delivery will support the achievement of improved outcomes for local women, children and families.

Figure 4: Local organisations that may contribute to reducing the rate of infant mortality



## Conclusion

The current rate of infant deaths is a significant issue in Wolverhampton which can be addressed through tackling the modifiable factors that are associated with an increased risk of infant death. Primarily the promotion of smoking cessation and smoke free homes will have a substantial impact on the unborn infant with benefits realised not just in the first 12 months following birth, but throughout life for the child and their family.

It is acknowledged that the issue of prematurity with subsequent very low birth weight babies, maternal age, ethnicity and deprivation present a complex clinical, psychosocial and socioeconomic picture in the context of infant mortality. Therefore, there will be no single intervention that will be the panacea. There will need to be a targeted approach to meet the needs of specific groups such as older mothers, black mothers and mothers from the most deprived areas of the city. However, a universal approach is also required to deliver routine care and identify potential changes that may indicate an increased risk of infant mortality.

Action to reduce the rate of infant mortality in Wolverhampton will require concerted multi-organisational commitment across acute and community service provision with the ultimate aim of improving outcomes for children and their families.

## Caveat

This report highlights the comprehensive review that can be produced through linking datasets across the city. It provides enhanced understanding of the factors behind major public health issues to enable a reduction in inequalities and improve maternal, foetal and infant outcomes. It should be noted, however, that the new information governance rules implemented in April 2013 will make this work impossible in the future unless local solutions are found to ensure the continuation of this data sharing. It is important that key partners within the city recognise the value of sharing data in a secure and timely manner to enable a composite review of issues that can reduce local inequalities and improve health and social care outcomes for local residents.