

Strategy to Support Healthy Pregnancy, Birth and Babies in Leicester, Leicestershire and Rutland

2019 – 2024

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Introduction

This strategy has been developed by a range of partner organisations who have come together to form the Healthy Babies Strategy Group (HBSG), in recognition of the importance of the issue of infant mortality and stillbirth for Leicester, Leicestershire and Rutland (LLR).

The strategy recognises the work already undertaken and issues addressed by existing strategies and groups, as well as identifying the collective action to be taken across LLR with the aim to ensure families have healthy pregnancies, babies have a healthy first year and to reduce the incidence of infant mortality. Infant mortality is currently at a higher rate than the national average in Leicester and similar to the regional and national averages in Leicestershire and Rutland.

Scope of the strategy

The HBSG recognises that many of the factors that affect the health of babies will also affect unborn babies. For this reason, it has been agreed that this strategy will encompass health in relation to pre-conception, pregnancy and for the first year of a babies' life.



Figure 1 The scope of the strategy

The measure of stillbirth is currently nationally recognised as the number of babies that die after 24 weeks of gestation. Babies who die at 22 and 23 weeks of gestation are described as late foetal losses and are reported to MBRRACE-UK but only stillbirths are included in national statistics. This avoids the influence of the disparity in the classification of babies born before 24+0 weeks gestational age as a neonatal death or a foetal loss, as well as the known variation in the rate of termination of pregnancy for congenital anomaly across the UK.

Therefore, the agreed scope of the data to be presented and monitored by this strategy is stillbirth (where the baby is delivered from 24+0 weeks of gestation) per 1,000 total births and infant mortality, the number of deaths before the age of 1 per 1,000 live births. Throughout this document the phrase 'infant mortality' will be used to encompass both categories of infant death.

When a baby dies suddenly and unexpectedly this is referred to as Sudden Unexpected Death in Infancy (SUDI). Around half of the 600 sudden infant deaths in the UK each year can be explained by a post-mortem examination. Deaths that remain unexplained after that are usually registered as Sudden Infant Death Syndrome (SIDS), for which there is no known cause. The acronym SUDI is problematic for unexplained deaths as it is commonly used for 'unexpected' deaths some of which will be explained.

The terms used in this strategy are therefore defined per The Lullaby Trust's definition guidelines:
SUDI - Sudden Unexpected Death in Infancy - the sudden and unexpected death of a baby that is initially unexplained
SIDS - Sudden Infant Death Syndrome - the sudden and unexpected death of a baby where no cause is found following post mortem examination. SIDS has previously been known or is recognised by the public as cot death.

Aims and principles

The overall aim of this strategy is to ensure pregnancies and babies are as healthy as possible to keep women and babies safe.

The principles which will guide this work are:

- to make it everybody's business to support health in pregnancy and health for babies
- to provide strategic leadership and accountability for the delivery against the agreed actions
- to ensure a multi-agency partnership approach across the region is used to deliver the action plan
- to promote the safety and welfare for all children and young people – implementing sound safeguarding practices and procedures and always adhering to the Local Safeguarding Children's Board Child Protection Procedures

Governance

The governance and oversight of this strategy recognises that ensuring pregnancies and babies are as healthy as possible to keep women and babies safe is not the responsibility of a single agency, but is owned by a range of partners that work with children and families living in LLR.

Governance is provided by the Healthy Baby Strategy Group (HBSG) which is led by Public Health, Leicester City Council on behalf of the local authorities across LLR. Scrutiny and challenge is provided by the Maternity Services Liaison Committee and the Health and Wellbeing Board.

An action log has been produced detailing the work that is ongoing and planned to support this strategy. Formal performance management is to be undertaken by the individual agencies named as responsible for leading on the specific actions detailed in the action log. However, the HBSG will meet periodically to receive update reports from lead agencies and review progress against the agreed and emerging actions logged. Priorities and actions will be updated and amended as required and based on upon emerging local themes and new data.

National/local policy

The Public Health Outcomes Framework (PHOF) '*Healthy lives, healthy people: Improving outcomes and supporting transparency*' presents a vision for public health, desired outcomes and the indicators that will help to understand how well public health is being improved and protected.¹ Infant mortality is the first indicator under domain 4: *Healthcare public health and preventing premature mortality*. Indicators 2.01 to 2.04 in relation to domain 2: *Health improvement* are also relevant.

The NHS Outcomes Framework (NHS OF) is a set of indicators developed by the Department of Health and Social Care to monitor the health outcomes of adults and children in England². Infant mortality is the first indicator under domain 1: *Preventing people from dying prematurely*.

Preconception:

The Local Government Association published a collection of case studies in '*Fit for and during pregnancy: A key role for local government*'³ which has four focus areas:

1. Increasing the number of women having a smoke-free pregnancy
2. Increasing the number of babies breastfed at six months

¹ [Improving outcomes and supporting transparency Part 2: Summary technical specifications of public health indicators, 2016 to 2019.](#)

² [NHS Outcomes Framework Indicators – November 2018 Release.](#)

³ Local Government Association '[Tackling health inequalities in infant and maternal health outcomes](#)'.

3. Reducing the burden of perinatal mental illness
4. Increasing the number of women entering pregnancy at a healthy weight.

During pregnancy:

Better Births is the five-year plan to improve outcomes of maternity services in England⁴. There are seven key priorities on maternal care that include personalised care, continuity of carer, safer care, perinatal and postnatal mental health and other working practices to improve incomes. The aim of the work is to halve the number of stillbirths, neonatal and maternal deaths and brain injuries by 2025.

Leicester, Leicestershire and Rutland Local Maternity System has a Transformation Plan for implementing national initiatives and improving local services in the context of Better Births from 2017-2021. This addresses the above key priorities included in the Better Births review and was developed with input from doctors, midwives, nurses, commissioners and patient representatives.

As part of the 'safer care' priority of Better Births, NHS England published 'Saving Babies' Lives'¹² in March 2016 recommending a 'care bundle' of interventions that have been proven to reduce the incidence of stillbirth, and early neo-natal death. The care bundle approach is a recognised way to bring about improvement when implemented as a package, as greater benefits are achieved at a faster pace. The four elements identified:

1. Reducing smoking in pregnancy
2. Risk assessment and surveillance for foetal growth restriction
3. Raising awareness of reduced foetal movement
4. Effective foetal monitoring during labour

An evaluation of the care bundle in 19 implementer sites found that there was a 20% reduction of stillbirth which it is highly plausible to attribute to the care bundle implementation.⁵

The NHS Long Term Plan committed to accelerate the action on stillbirths, neonatal and maternal deaths and brain injuries by committing to 50% reductions by 2025. The Saving Babies Lives Care Bundle will be rolled out to every maternity unit in England in 2019 including an expansion on preventing pre-term birth, as well as committing to perinatal mental health services from pre-conception to 24 months after birth in line with 1001 critical days strategies.⁶

First year of life:

National programmes Best Start in Life and 1001 Critical Days which are cross-disciplinary programmes that emphasise the importance of the first years of a child's life both and encourage organisations to recognise this and help support families and babies during these years. The Healthy Child Programme sets out the universal contacts for health visitors to support all babies and families.

Locally, there is the Infant Feeding Strategy 2016-2020 which sets out the strategic aims and actions to support good nutrition during the first year of a baby's life.

The Leicestershire Joint Health and Wellbeing Strategy 2017-2022 includes ensuring the best start in life for children and their families and the Leicester City Joint Health and Wellbeing Strategy 2019-2024 includes a Healthy Start chapter which outlines reducing infant mortality and as a key action, as well as supporting pregnant women to reduce or quit smoking and providing environments that

⁴ [Better Births: Improving outcomes of maternity services in England – A Five Year Forward View for maternity care.](#)

⁵ Widdows K, Roberts SA, Camacho EM, Heazell AEP. Evaluation of the implementation of the Saving Babies' Lives Care Bundle in early adopter NHS Trusts in England. Maternal and Fetal Health Research Centre, University of Manchester, Manchester, UK. 2018.

⁶ [The NHS Long Term Plan, 3.4-3.21](#)

encourage breastfeeding. The Rutland Joint Health and Wellbeing Strategy 2016-2020 has aims to provide early help for children and reduce the levels of children living in poverty.

Pre-conception

- Fit for and during pregnancy, LGA
- Consistent messaging to promote a healthier weight, Public Health England

During pregnancy and birth

- Fit for and during pregnancy, LGA
- Prevention is better than cure, Department of Health and Social Care
- Best Start in Life, Public Health England
- Better Births, NHS England
- Saving Babies' Lives, NHS England
- Each Baby Counts, Royal College of Obstetricians & Gynaecologists
- LLR LMS Transformation Plan

First year of life

- Best Start in Life, Public Health England
- 1001 Critical Days
- Healthy Child Programme
- Infant Feeding Strategy 2016-2020, Leicester, Leicestershire and Rutland
- Leicestershire Joint Health and Wellbeing Strategy 2017-2022
- Leicester City Joint Health and Wellbeing Strategy 2019-2024
- Rutland Joint Health and Wellbeing Strategy 2016-2020

Evidence base

Reducing health inequalities and infant mortality requires a combination of health interventions and actions on the wider social determinants of health by the NHS, local authorities and voluntary organisations, charities and social enterprises. These interventions must start before birth. Giving every child the best start in life through interventions to reduce health inequalities in infancy is central to reducing health inequalities across the life course.

The key national reports making recommendations on how to improve the health outcomes for the mother and baby are:

- NICE antenatal clinical guideline 62⁷
- NICE pregnancy and complex social factors clinical guideline 110⁸
- NICE postnatal guidelines 37 (currently being updated, with predicted publishing date of Sept 2020)⁹
- Department of Health Implementation Plan for Reducing Health Inequalities in Infant Mortality 2007¹⁰
- Tackling health inequalities in infant and maternal health outcomes: report of the infant mortality national support team in December 2010¹¹

The Department of Health published an Implementation Plan for Reducing Health Inequalities in

⁷ [NICE Guidance 62](#)

⁸ [NICE Guidance 110](#)

⁹ [NICE Guidance 37](#)

¹⁰ [Department of Health \(2007\) Implementation Plan for Reducing Health Inequalities in Infant Mortality](#)

¹¹ [Department of Health \(2010\) Tackling health inequalities in infant and maternal health outcomes: report of the infant mortality national support team](#)

Infant Mortality at the end of 2007. This offered further guidance for local areas in terms of what works and what would make a difference. The implementation plan highlighted interventions that will have a demonstrable impact on the gap, those that are likely to have an impact and those that are likely to reduce Infant Mortality overall. Although this guidance is now dated, the concept of the comparison of interventions on the gap is useful to acknowledge. These interventions are categorised into three groups:

1. Interventions that have a demonstrable impact on the infant mortality gap – reducing **maternity obesity, breastfeeding, smoking, teenage pregnancy, household overcrowding**, and meeting the **child poverty** target.
2. Interventions that are likely to impact on the infant mortality gap, such as ensuring that all pregnant women have a health and social care needs assessment by 13 weeks gestation; and
3. Interventions that are likely to reduce infant mortality overall, including neonatal screening, prevention of maternal and infant infections and ensuring appropriate health service configuration through networks of care for maternity and neonatal services.

The diagram below from the Department of Health shows the key causes of infant mortality, what actions can be taken, and what impact each can be expected to have on infant mortality overall. The diagram references the ‘gap’ in infant mortality rates between National Statistics Socio-economic classification (NS-SEC) categories, referencing the higher rate in the Routine and Manual classification.

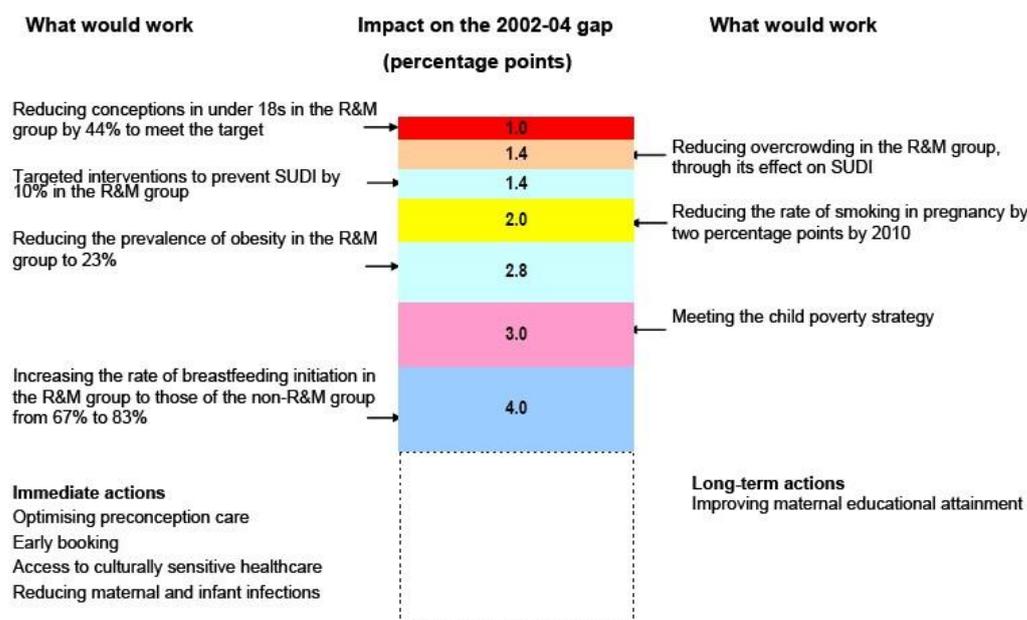


Figure 2 Key causes of infant mortality and the impact of action on each factor

Risk factors

Stillbirth

ONS data ranks the medical causes of stillbirths in 2016 as follows¹²:

- remaining antepartum death (unexplained) (52%)
- asphyxia, anoxia or trauma (19%)
- congenital abnormalities (17%)

¹² [Office of National Statistics, Child mortality in England and Wales 2016](#)

- other specific conditions (7%)

Risk factors have been cited by the Department of Health.¹³ as follows:

- smoking in pregnancy – the risk of stillbirth is 47% higher in women who smoked during pregnancy and is dose dependent¹⁴
- maternal obesity – women with a pregnancy BMI >35 increase the risk of stillbirth. Obesity increases the risk of gestational diabetes and pre-eclampsia which also increase the risk of stillbirth
- ethnicity – mothers of Black ethnic origin and mothers of Asian ethnic origin are more likely to have a stillbirth
- older and younger mothers – mothers under 20 and mothers over 40 are more likely to have a stillbirth
- pre-term babies - almost two-thirds of both stillbirths and neonatal deaths are born before 37 weeks gestational age.¹⁵
- having twins or a multiple pregnancy
- having experienced a previous stillbirth
- low socioeconomic status

Infant mortality

There are several risk factors which can contribute towards infants' death and they are divided into four categories below. However, it should be noted that more than one risk factor often applies to one family – e.g. pregnant women who are overweight are more likely to have gestational diabetes which increases the risk of congenital anomalies – which multiplies risk.

Factors related to preconception care, pregnancy and delivery

- Early booking for antenatal care
- Screening for infections and congenital anomalies
- Maternal immunisation, such as MMR, whooping cough and flu vaccination
- Medical conditions during pregnancy, such as diabetes and hypertension
- Nutritional status, such as folic acid supplements
- Difficult and complex labour, such as use of instruments

Factors related to the mother.

Some of these factors are modifiable, such as smoking, and some are non-modifiable, like maternal ethnicity.

- Maternal age: high rates of infant mortality are among women aged 40 and over and women under the age of 20¹⁶.
- Smoking: it is well documented that smoking in pregnancy has serious consequences including stillbirth and low birth weight. It is important to note that passive smoking also contributes to infant deaths.¹⁷
- Maternal obesity: is associated with increased risk of congenital anomalies and increased rate of infant deaths.¹⁸ As BMI increases, the percentage of emergency caesareans increases.
- Maternal education: there is association between mother's education and infant mortality. Improving maternal educational attainment reduces the risk of infant mortality.

¹³ [Houses of Parliament: Parliamentary office of Science and Technology \(2016\) Infant Mortality and Stillbirth in the UK, number 527](#)

¹⁴ NICE (2016) Eyes on Evidence: Smoking during pregnancy and risk of stillbirth

¹⁵ [MBRRACE-UK, UK Perinatal Deaths for Births from January to December 2016 Summary Report](#)

¹⁶ [Office of National Statistics, Child mortality in England and Wales 2016](#)

¹⁷ Royal College of Physicians (2010) Passive smoking and children

¹⁸ Heslehurst, N., Lang, R., Wilkinson, J.R., Summerbell, C.D., (2007). Obesity in pregnancy: a study of the impact of maternal obesity on NHS maternity services. British Journal of Obstetrics and Gynaecology 114: 334–342.

- e. Domestic violence: it is estimated that 30% of domestic violence cases start or escalate during pregnancy¹⁹ and domestic violence is associated with increases in rates of miscarriage, low birth weight, premature birth, foetal injury and foetal death.²⁰
- f. Maternal ethnicity: mothers from Caribbean or Pakistani ethnic groups are reported to have significantly higher proportions of low birth weight births and infant deaths than those from White ethnicities.²¹ These inequalities are predicted to be the result of interplay between social, economic, cultural and physiological factors.
- g. Perinatal mental illness: maternal mental health can affect a mother before, during and after pregnancy and can have a detrimental effect on her capacity to care for her child if she is not supported.
- h. Maternal alcohol and drug misuse: there is an association between alcohol and drug use with co-sleeping in deaths from SIDS.²² Alcohol use is also associated with infant mortality in deaths not from SIDS.²³

Factors related to the baby

- a. Low birth weight: the main risk factors associated with low birth weight include: maternal age, multiple birth, smoking (including passive) in pregnancy, language barriers and delay in accessing the antenatal care pathway, maternal infection, and poor maternal nutrition.
- b. Breastfeeding is linked to a lower risk of infant mortality as it reduces the likelihood of infection and SIDS.²⁴
- c. Infections: childhood immunisations reduce the risk of infections in infancy.
- d. Congenital anomalies: serious birth defects are not always preventable. However, there are some measures that can increase the chances of having a healthy baby, such as folic acid intake and avoiding smoking during pregnancy. Diabetes increases the risk of congenital abnormalities.²⁵

Wider determinants related to infant mortality

- a. Poverty and deprivation: the infant mortality rates were higher in the most deprived areas compared with the least deprived areas in both England and Wales in 2016.²⁶
- b. Housing and overcrowding: overcrowding appears to have an impact on infant mortality through SUDI, however, the mechanisms are not known.
- c. Safer sleep including putting babies to sleep on their back and is a targeted intervention to reduce SIDS

¹⁹ Duxbury, F. (2014) 'Domestic violence and abuse' in ABC of Domestic and Sexual Violence. S. Bewley and J. Welch. Chichester, John Wiley & Sons Ltd: p9-16

²⁰ Donovan, B.M. et al (2016) Intimate partner violence during pregnancy and the risk for adverse infant outcomes: a systematic review and meta-analysis. British Journal of Obstetrics and Gynaecology 123:8 1289-1299

²¹ National Perinatal Epidemiology Unit, (2009). [Towards an understanding of variations in infant mortality rates between different ethnic groups in England and Wales.](#)

²² [UNICEF UK, \(2018\) Co-sleeping and SIDS](#)

²³ O'Leary, C. M. et al (2013) 'Maternal Alcohol Use and Sudden Infant Death Syndrome and Infant Mortality Excluding SIDS.' Pediatrics, 131 (3) e770-e778.

²⁴ [Houses of Parliament: Parliamentary office of Science and Technology \(2016\) Infant Mortality and Stillbirth in the UK, number 527](#)

²⁵ Correa, A. et al, (2008). Diabetes mellitus and birth defects. Am. J. Obstet. Gynecol. 199, 237.e1-9.

²⁶ [Office of National Statistics, Child mortality in England and Wales: 2016](#)

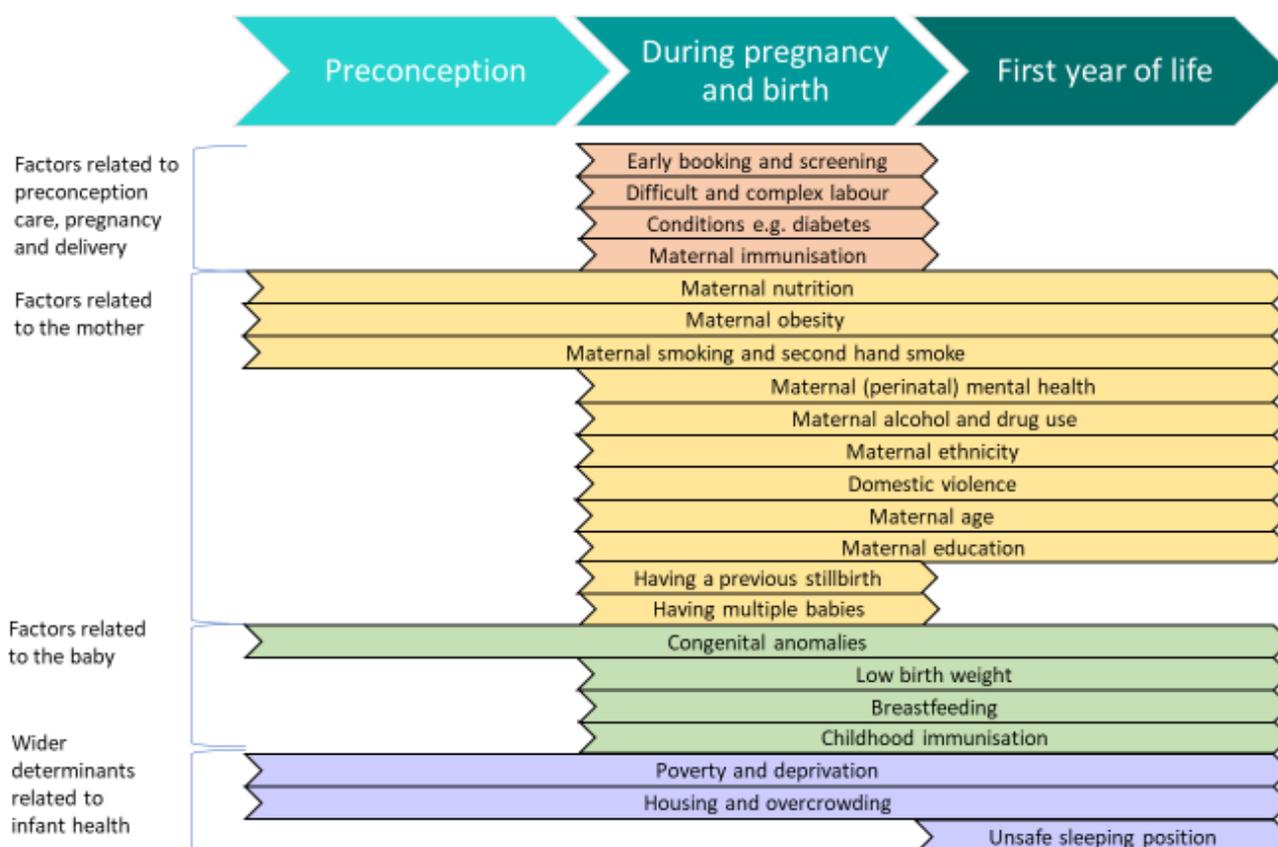


Figure 3 Summary of risk factors for stillbirth and infant mortality

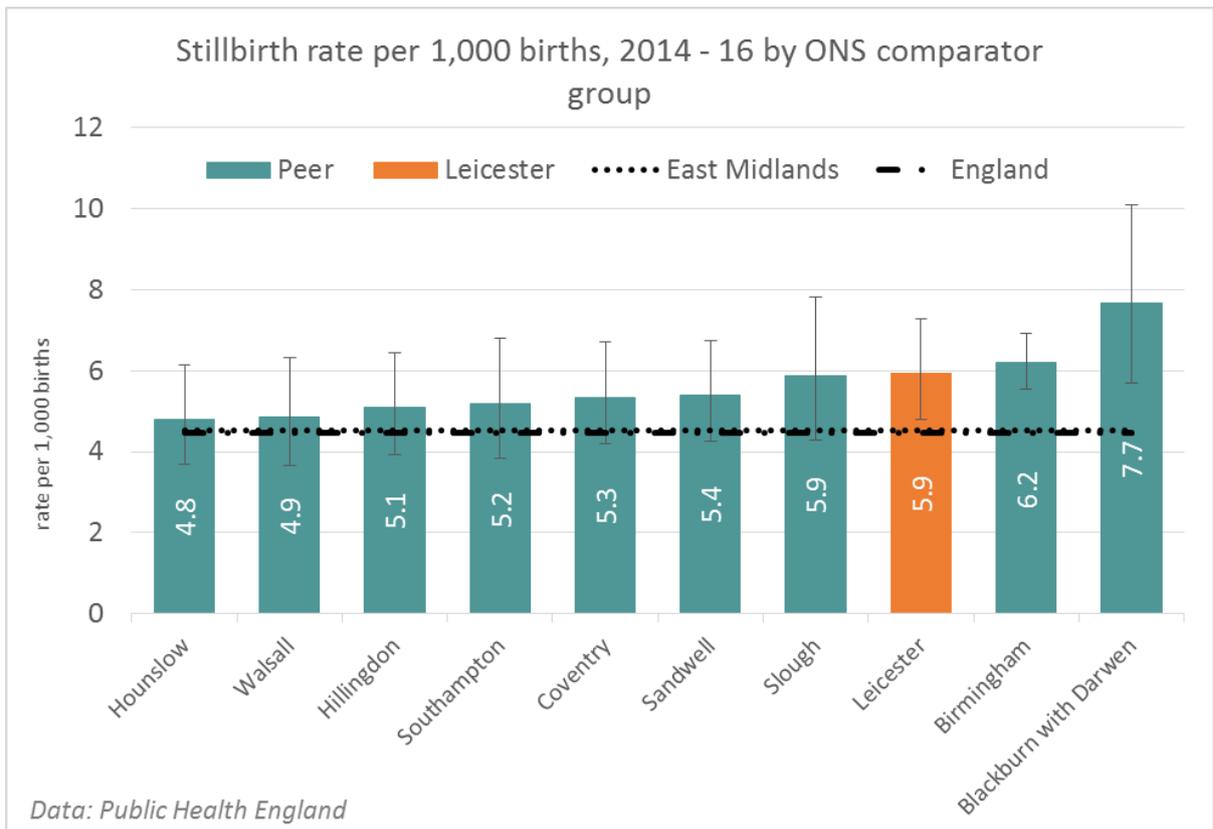
Local context

The following pages give context to the number of babies who have died in Leicester, Leicestershire and Rutland. Though, thankfully, these numbers are small, it is important to understand the current rate of stillbirth, neonatal death and infant death.

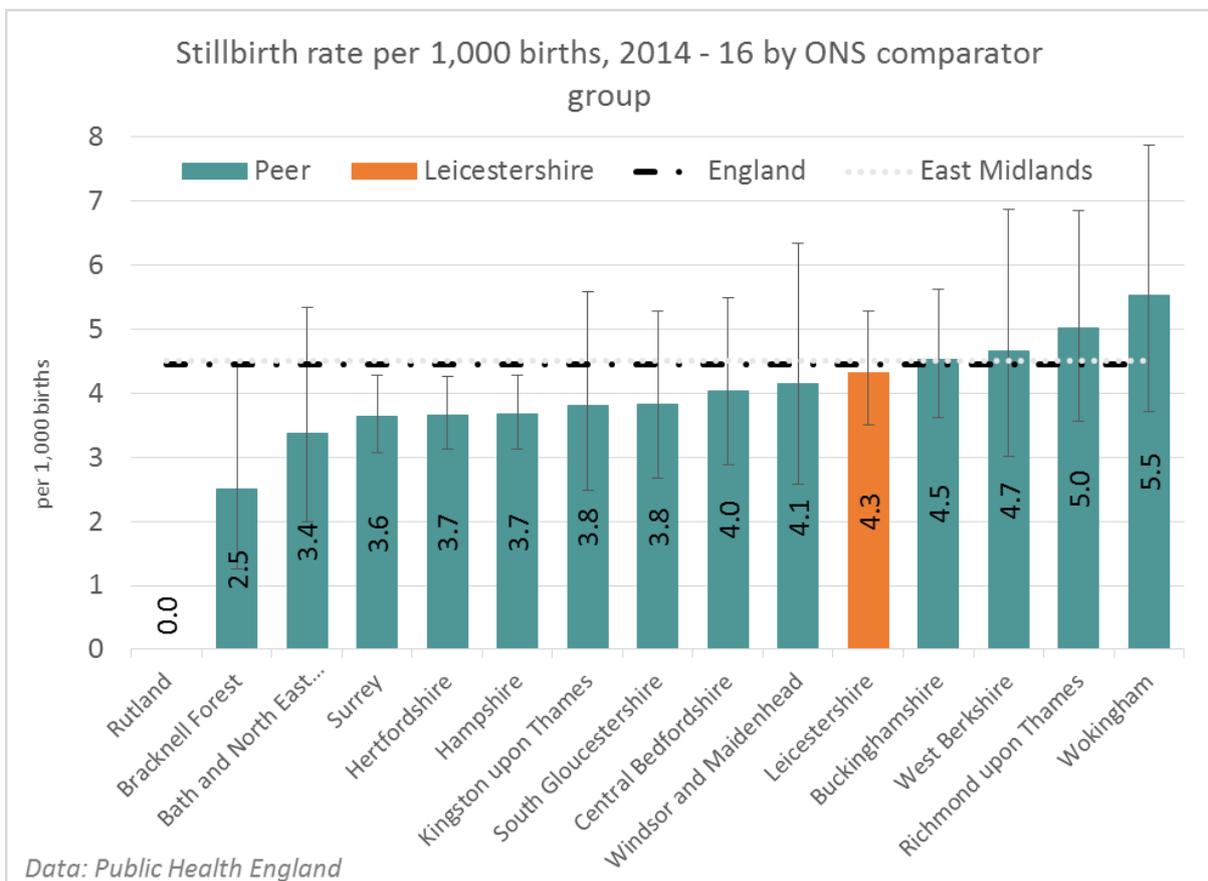
Deaths can be counted according to the year in which the death occurred or the year in which the death was registered. The latter is a complete coverage as every death is registered, however there can be a delay of over 12 months in the registration of some infant deaths that have been subject to complex inquiries. Recently nationally published infant mortality rates for the NHS and Public Health Outcomes Framework have changed from using year of registration to year of death.

Stillbirth

The rate of stillbirth in Leicester was 5.9 deaths per 1,000 total births in 2014-16, which is significantly higher than the national average rate of 4.5 per 1,000 and the regional average of 4.5 per 1,000. The chart below shows that Leicester has the third highest rate of stillbirths when compared with its peer comparators.

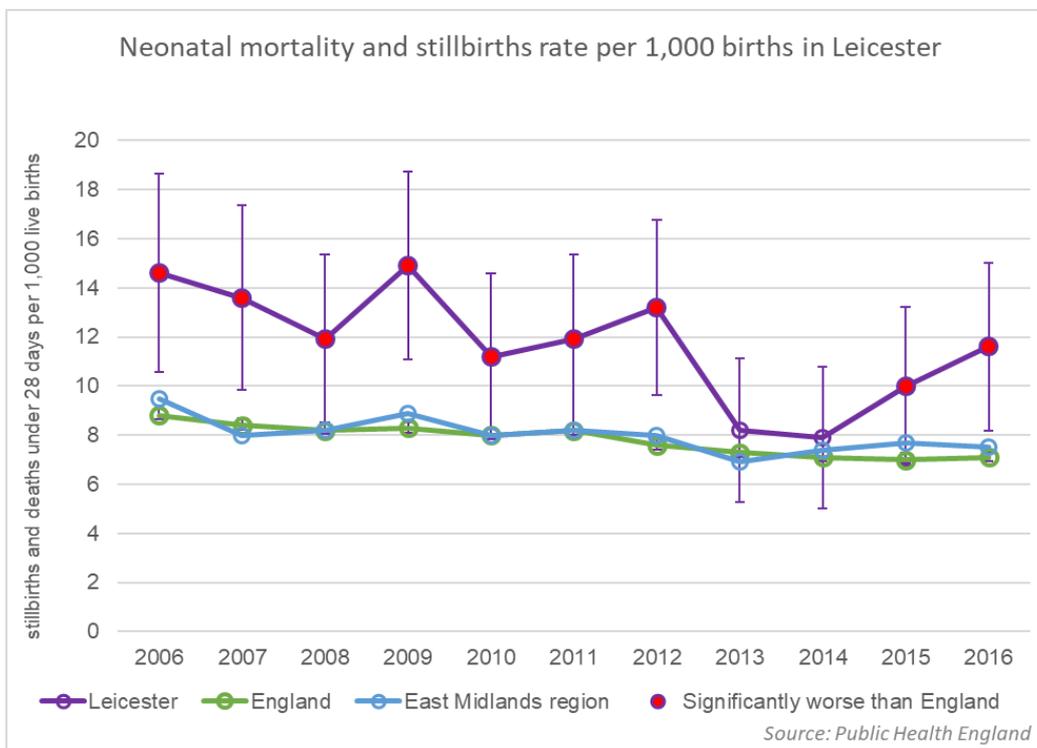


The following graph depicts the same information for Leicestershire and Rutland. The rate of stillbirth in Leicestershire was 4.3 per 1,000 births across 2014-16, which is similar to the national average rate of 4.5 per 1,000. Numbers are too small in Rutland for stillbirth rates to be published.

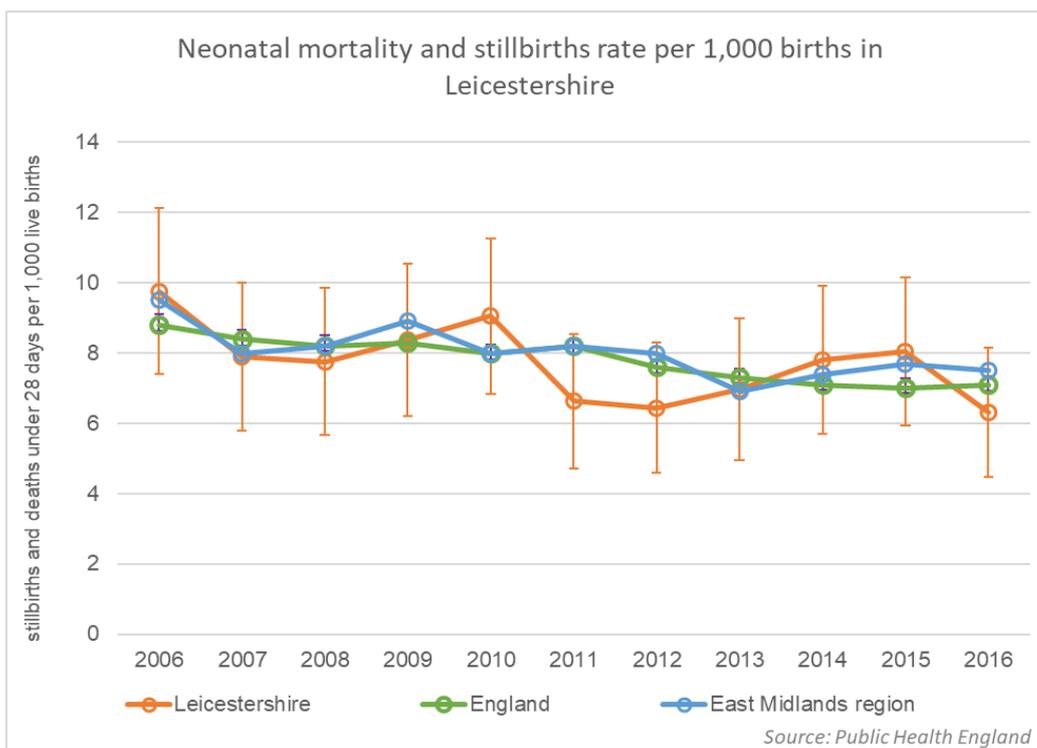


Stillbirth and Neonatal Mortality

The NHS Outcomes Framework also has indicator 1.6(ii): **combined rate of stillbirths and neonatal (deaths under 1 month of age) mortality rate**. The graph below shows that there was a sizeable reduction in this rate in 2013 and 2014, however Leicester City's rate is now higher than England and the East Midlands.

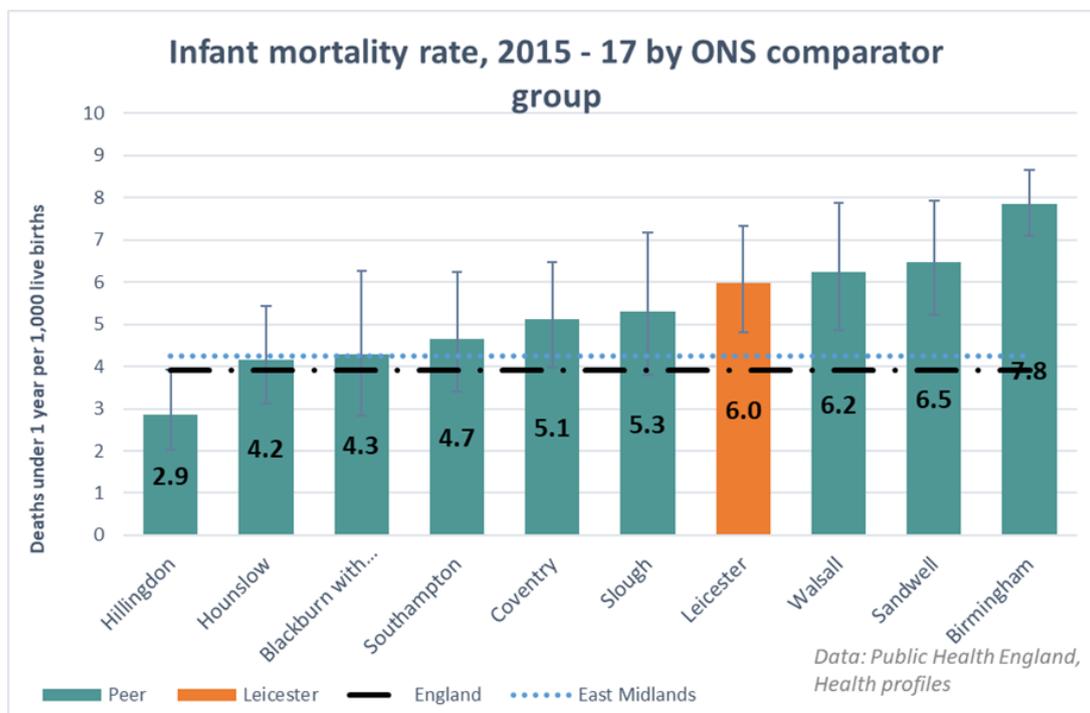


The following graph depicts the same information for Leicestershire. Data for Rutland cannot be shown separately due to small numbers. The **stillbirth and neonatal (deaths under 1 month of age) mortality rate** for Leicestershire is not significantly different to rates in England and the East Midlands.

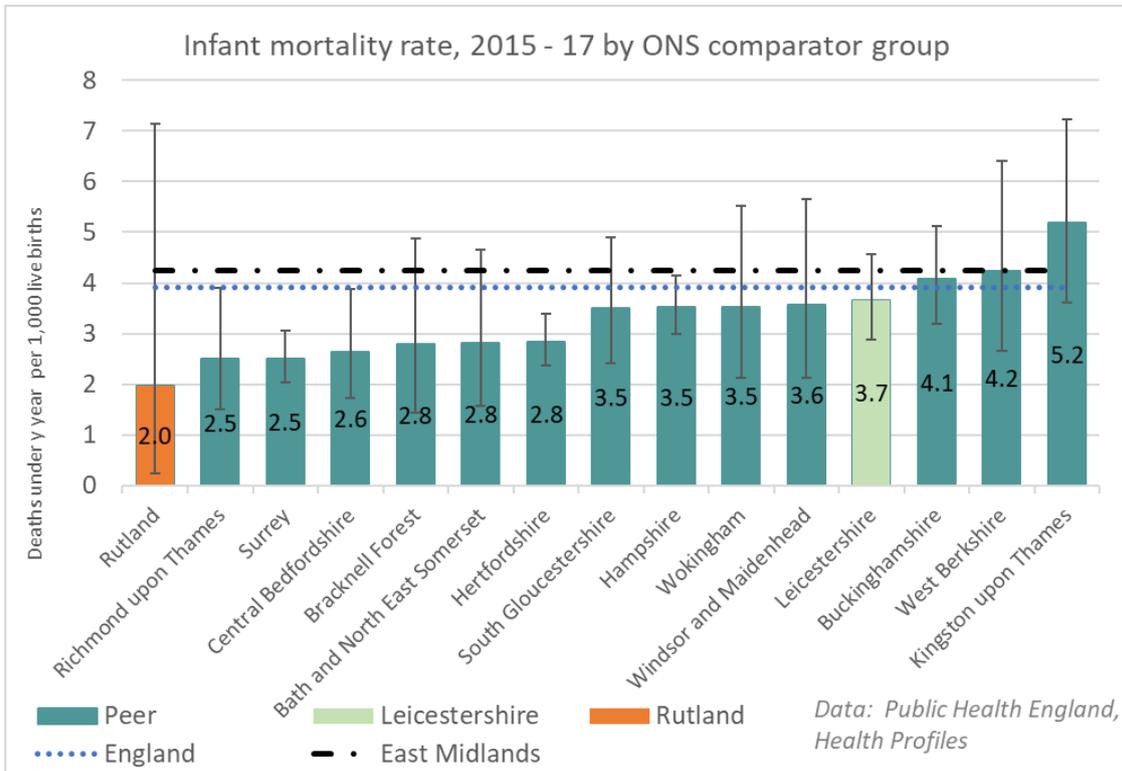


Infant mortality

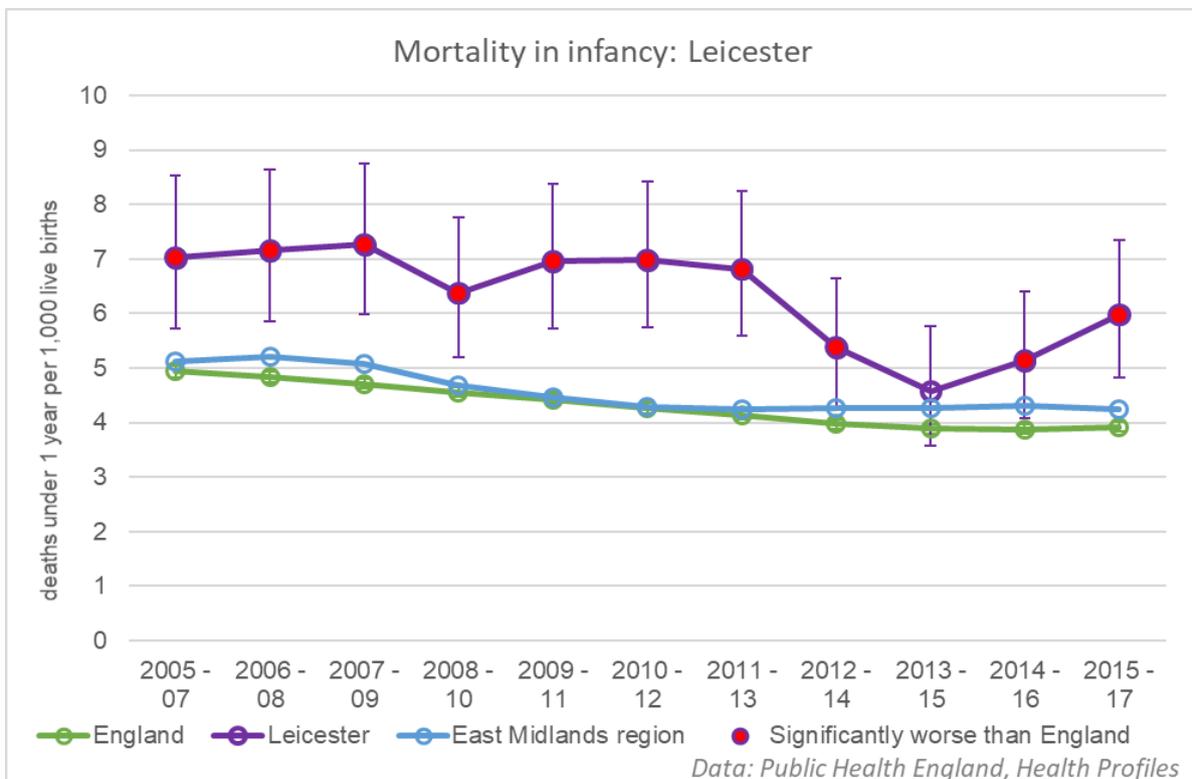
The graph below shows that Leicester City has a significantly higher infant mortality rate than nationally. The **infant mortality rate** for Leicester (2015-17) was 6.0 per 1,000 live births, which is significantly higher than the national average at 3.9 per 1,000 live births and similar to the East Midlands average at 4.3 per 1,000 live births. In comparison with peer comparators, most of the local authorities are similar to Leicester with the exception of Hillingdon and Hounslow (significantly lower).



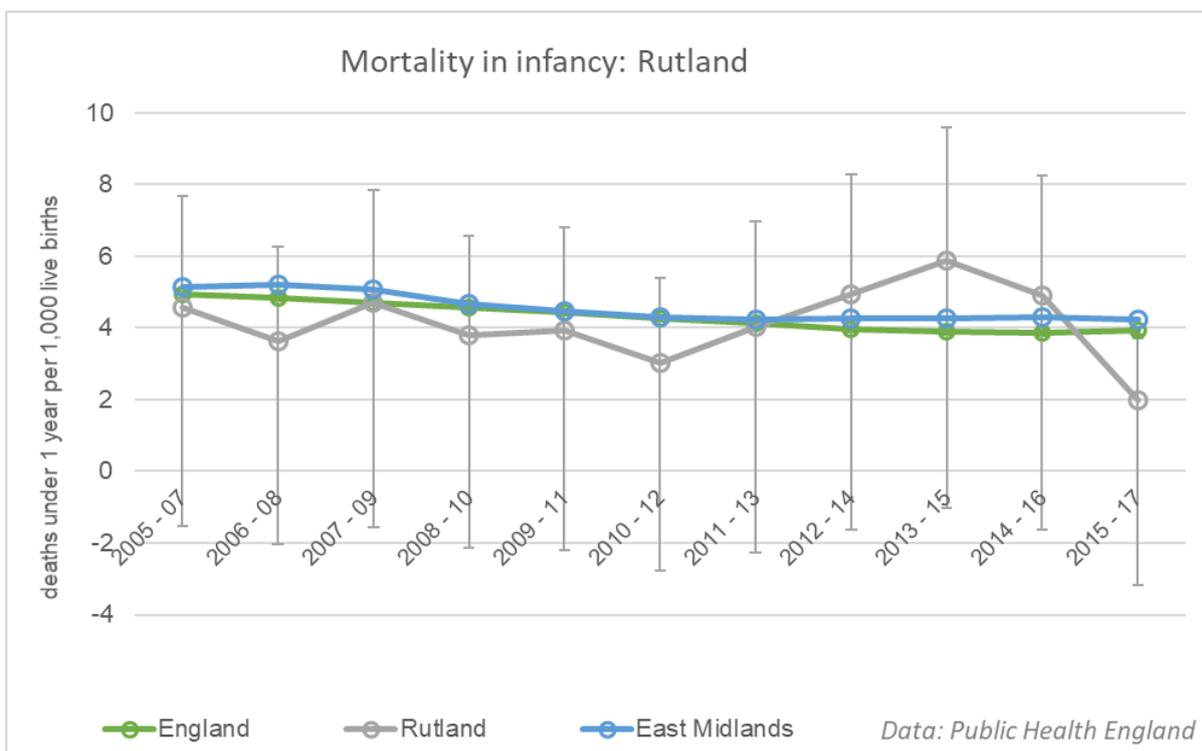
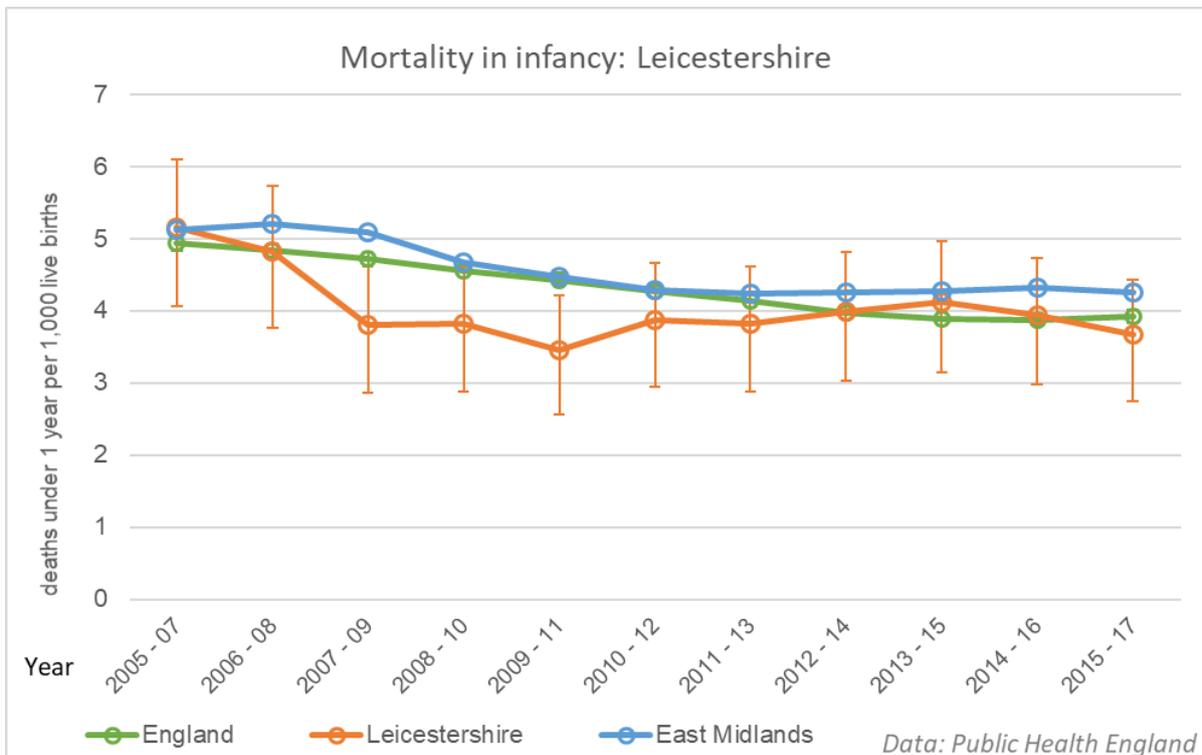
The graph below shows that both Leicestershire and Rutland are not significantly different to either national or regional rates. The **infant mortality rate** for Leicestershire (2015-2017) was 3.7 per 1,000 live births and the rate for Rutland was 2.0. In comparison with peer comparators, rates in Leicestershire and Rutland are not significantly different to peer areas.



The graph below depicts the **trend in infant mortality rate** in Leicester City over a ten-year period. It shows that over the period there has been no significant change in Leicester’s infant mortality rate, although the rates in England and the East Midlands have decreased significantly over the same time.



The following two graphs depict the same information for Leicestershire and Rutland. They also show no significant change in the infant mortality rates over the period although the fluctuation appears greater, possibly due to the smaller number of infant deaths in these areas. The number of infant deaths in Rutland is very small and the data should therefore be treated with caution.



Although the risk of infant mortality is higher in Leicester City, because of the higher number of births (and larger population) the number of deaths occurring in Leicestershire and Rutland are broadly equivalent to the City (77 infant deaths in 2015-17 compared to 91 in the City).

What is known about causes of infant death in LLR

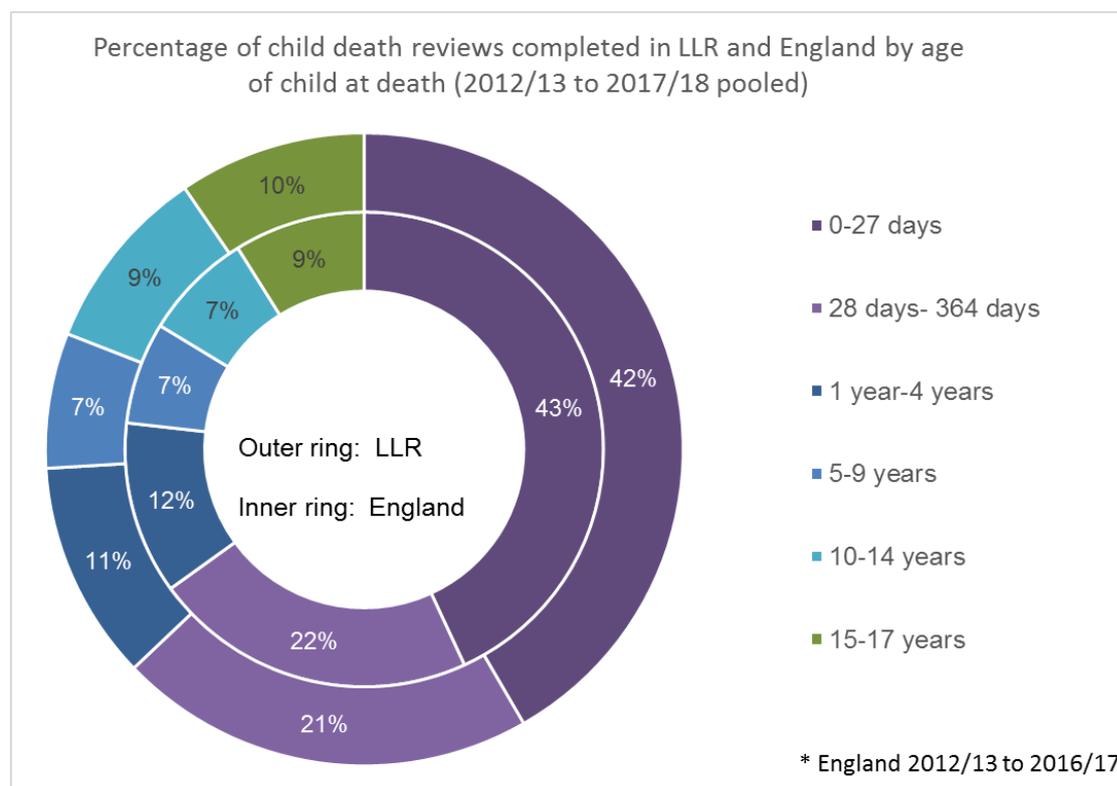
It has been a statutory requirement since April 2008 for each Local Safeguarding Children’s Board to review the death of every child normally resident in their area. The Leicester, Leicestershire and Rutland (LLR) Child Death Overview Panel (CDOP) is a subgroup of the three LSCBs. The function of CDOP is to review all cases where the baby was born at 23 weeks (and above) gestation. The main purpose of the Panel is to identify factors that might have prevented a child death. ‘Modifiable factors’ are defined as those which ‘The panel has identified one or more factors..., 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’ (Working Together to Safeguard Children 2015).

A report has recently been published by the LLR CDOP²⁷ which analyses all the deaths reviewed over a 5-year period. Across LLR there was no significant difference between the proportion of child deaths reviewed with modifiable factors when compared against East Midlands and England across the 5-year period analysed.

Due to the fortunately small number of deaths reviewed, detailed analysis and conclusions are limited. Data has been pooled across LLR and over a five-year period in order to reduce random statistical error.

Proportion of infant deaths

From 2012/13 to 2017/18 the LLR CDOP completed 420 reviews. The figure below shows that 42% of child deaths in LLR were infants under 28 days and a further 21% for infants aged 1-12 months. This is similar to England.

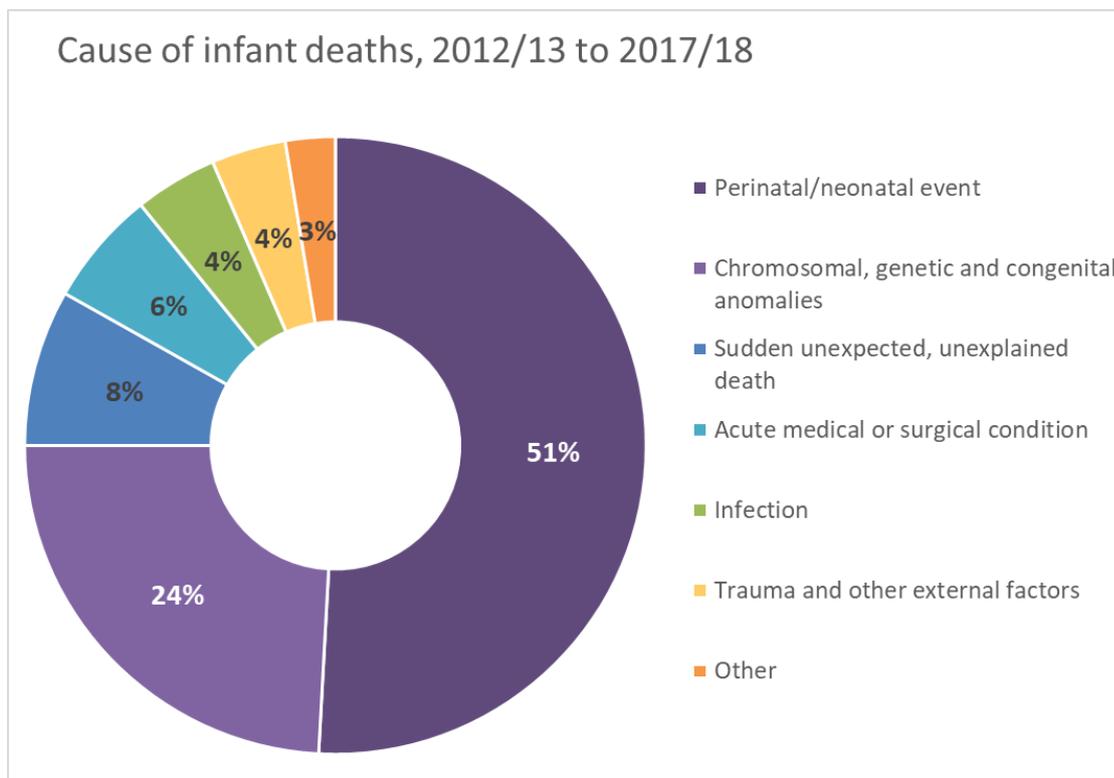


Causes of infant deaths

Between 2012/13 and 2017/18 there were 232 reviews completed for infant deaths across LLR.

²⁷ [Leicester, Leicestershire and Rutland Child Death Overview Panel, Leicester, Leicestershire and Rutland Child Death Reviews \(2012/13-2017/18\)](#)

Half of these deaths were perinatal or neonatal events and a quarter were due to chromosomal, genetic and congenital anomalies. Of 175 of neonatal deaths, 122 (70%) of those deaths were babies born prematurely.

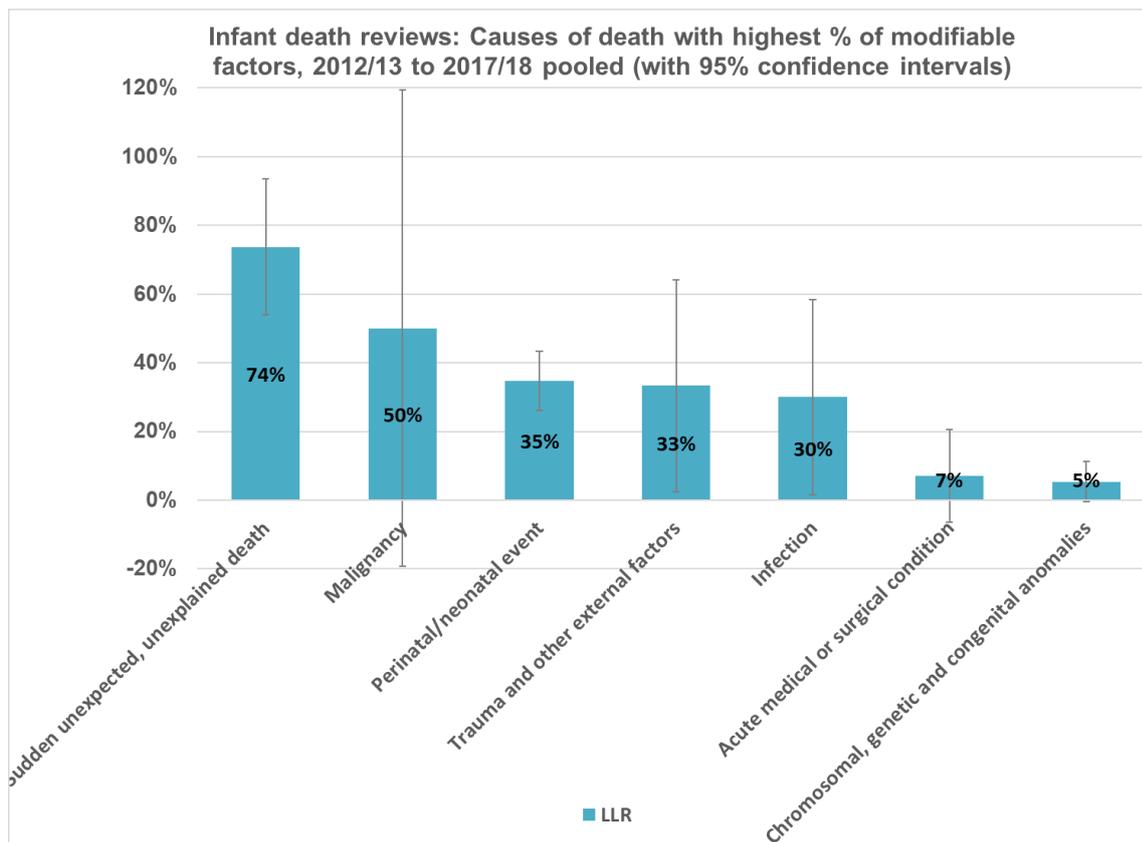


Perinatal/neonatal events are deaths related to events during the weeks immediately before and after birth. This strategy helps support reductions of perinatal/neonatal events by taking a Public Health, population based, approach to reducing premature births by identifying and promoting actions mothers and families can take to have healthy pregnancies and births. The LMS Transformation Plan aims to increase the safety of maternity services to reduce perinatal/neonatal deaths. Reviews of deaths are fed back to maternity services by the CDOP panel, which allows maternity services to adapt clinical guidance or training after a death.

Modifiable factors

28% of all the reviews undertaken over the 5-year period identified modifiable factors. For infant deaths under 28 days (neonatal deaths), the proportion of modifiable factors is significantly different to England (LLR 26%, England 16%).

The categories with the highest proportion of infant deaths assessed as being due to modifiable factors in LLR are sudden unexpected, unexplained deaths and perinatal/neonatal events. Malignancy is not considered in this group as the confidence intervals are too large due to the small numbers. Numbers of deaths classed as modifiable are very small.



From 2012-2018, CDOP reviewed the deaths of 23 children whose deaths were categorised as Sudden Infant Death Syndrome (SIDS) and 18 were considered to have modifiable factors. In 8 cases, co-sleeping or an unsafe sleeping position was an identified modifiable factor and in 11 cases, one or both parents smoked.

Additional local indicators of health

The HBSG has identified a number of current strategies, action plans and policies across LLR that already support the activities that aim to improve maternal and infant health. These include those relating specifically to Health and Wellbeing, Early Help, Infant Feeding, Healthy Weight, Smoking, Child Poverty and Early Years.

Leicester City's Director of Public Health Annual Report 2013/14 references a number of evidence-based approaches to reducing infant mortality, such as early access to maternity services, reducing smoking in pregnancy, reducing maternal obesity and increasing breastfeeding.²⁸ Below are some of the headline indicators:

- Higher levels of breastfeeding in Leicester: significantly above national averages at 6-8 weeks.
- Reductions in smoking in pregnancy: rate is similar to the national rate; however, large variations exist across the city.
- Significant reduction in teenage conception rate: since 1998 conception rate has reduced by 63% from 64.6 per 1,000 to in 24.0 in 2016.

Leicestershire County Council's Director of Public Health Annual Report 2017²⁹ references reducing teenage pregnancy in relation to reducing infant mortality. Headline indicators for similar risk factors in Leicestershire and Rutland are as follows:

- High levels of breastfeeding rates in both Leicestershire and Rutland: rates are significantly

²⁸ [Leicester City Council, Director of Public Health Annual Report 2013/14](#)

²⁹ [Leicestershire County Council, Annual Report of the Leicestershire Director of Public Health 2017](#)

higher than national levels at 6-8 weeks. Breastfeeding initiation in Leicestershire is similar to national levels, whilst Rutland is higher.

- Lower levels of smoking in pregnancy rate in Leicestershire: rate is better than the national rate. Rates cannot be calculated separately for Rutland.
- Significant reductions in teenage conception rate in Leicestershire: rate has reduced from 38 per 1,000 in 1998 to 13.7 in 2016. Rutland has reduced from 16.9 in 1998 to 4.7 in 2016 although annual numbers of teenage conceptions in Rutland are small. Rates are consistently significantly lower than national level.

KEY:

	Better than England benchmark
	Similar to England benchmark
	<i>Worse than England benchmark</i>

*National target to reduce this to 6% by 2022.³⁰

**Benchmarked against goal: <90% 90% to 95% >95%

Factors	Indicators	Time period	Leicester	Leicestershire	Rutland	England
Maternal age	Under 18 conceptions (per 1000)	2016	24.0	13.7	4.7	18.8
	Teenage mothers (%age)	2016/17	1.4	0.6		0.8
Smoking	Smoking at time of delivery (%age)	2017/18	11.6	9.5		10.8*
Maternal obesity	Maternal obesity	August 2018	First booking at UHL: Overweight 26%, Obese 22%			Overweight 28% Obese 22%
Low birth weight	Low birth weight of term babies (%age)	2016	5.2	2.4	2.7	2.79
	Low birth weight of all babies (%age)	2016	9.8	6.4		7.3
Breastfeeding	Breastfeeding Initiation (%age)	2016/17	73.2	70.9 (2015/16)	81.1	74.5
	Breastfeeding 6-8 weeks current method (%age)	2017/18	58.4	45.0		-
Infections	Completed Diphtheria, Tetanus, Polio, Pertussis, Hib (by age 1 year) (%age) **	2017/18	94.5	96.9		93.1
Poverty and deprivation	Children in poverty (under 16s) (%age)	2015	22.7	10.4		16.8

Source: Public Health England and NHS Digital monthly statistics for maternity services

KEY:

	Higher than England benchmark
	Similar to England benchmark
	<i>Lower than England benchmark</i>

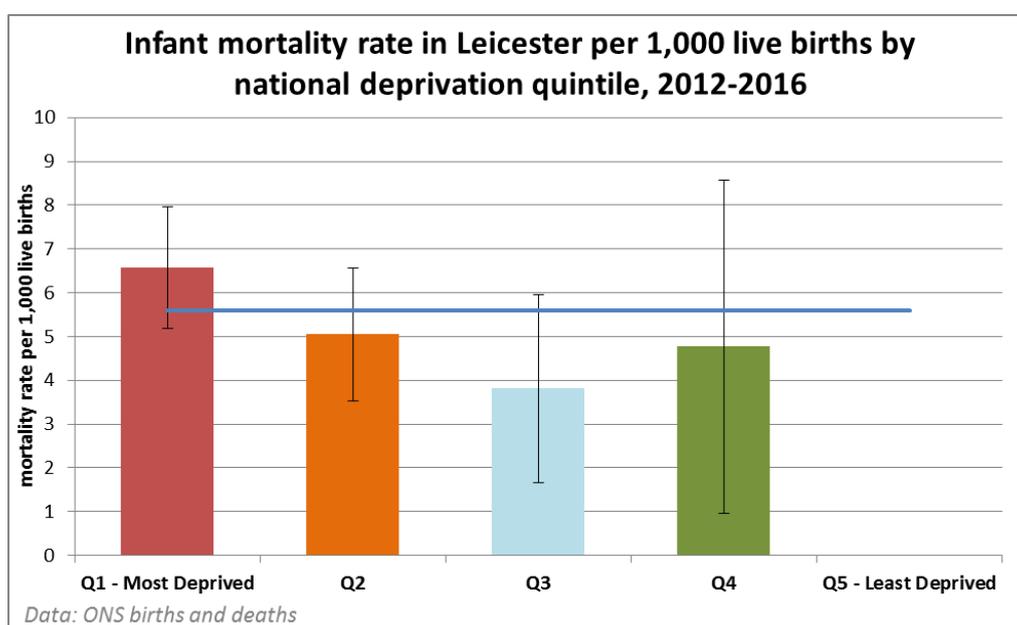
³⁰ Department of Health (2017) [Towards and Smokefree Generation](#)

Factors	Indicators	Time period	Leicester	Leicestershire	Rutland	England
Maternal ethnicity	Percentage of deliveries to mothers from BME groups	2016/17	53.2	12.0	6.7	23.3

Source: Public Health England

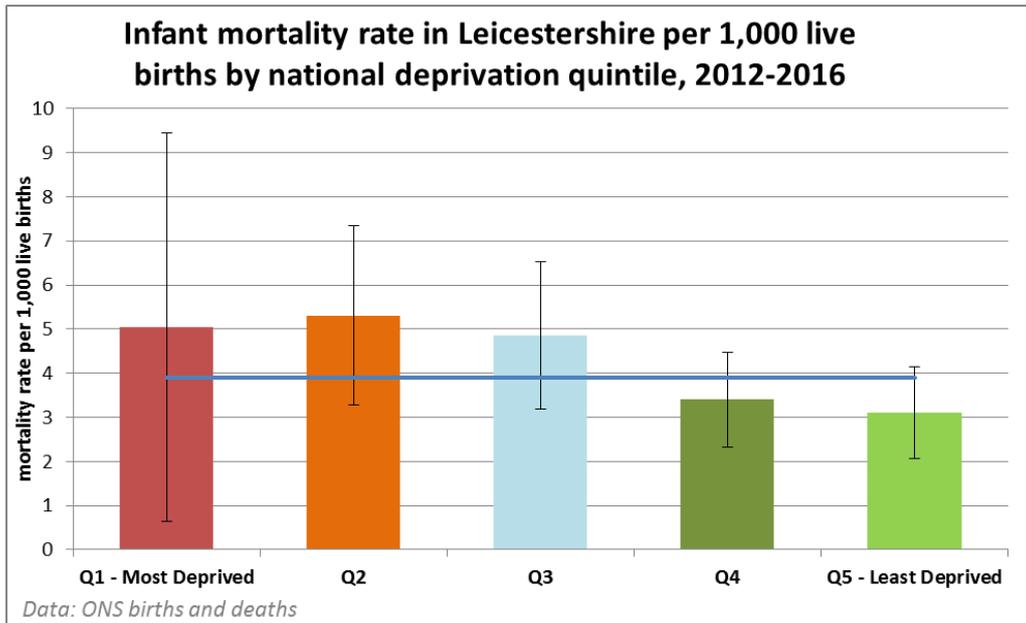
Deprivation

Infant mortality is more likely to occur in households living in poverty and national research has shown that there are higher rates in families from some ethnic minority groups such as Pakistani, Bangladeshi and Black Caribbean groups. Leicester City has 23% of children under 16 living in poverty³¹. However, the graph below shows that there is no significant difference in the rates of infant mortality in Leicester by deprivation quintiles. It must be noted that confidence intervals are large due to the small numbers.



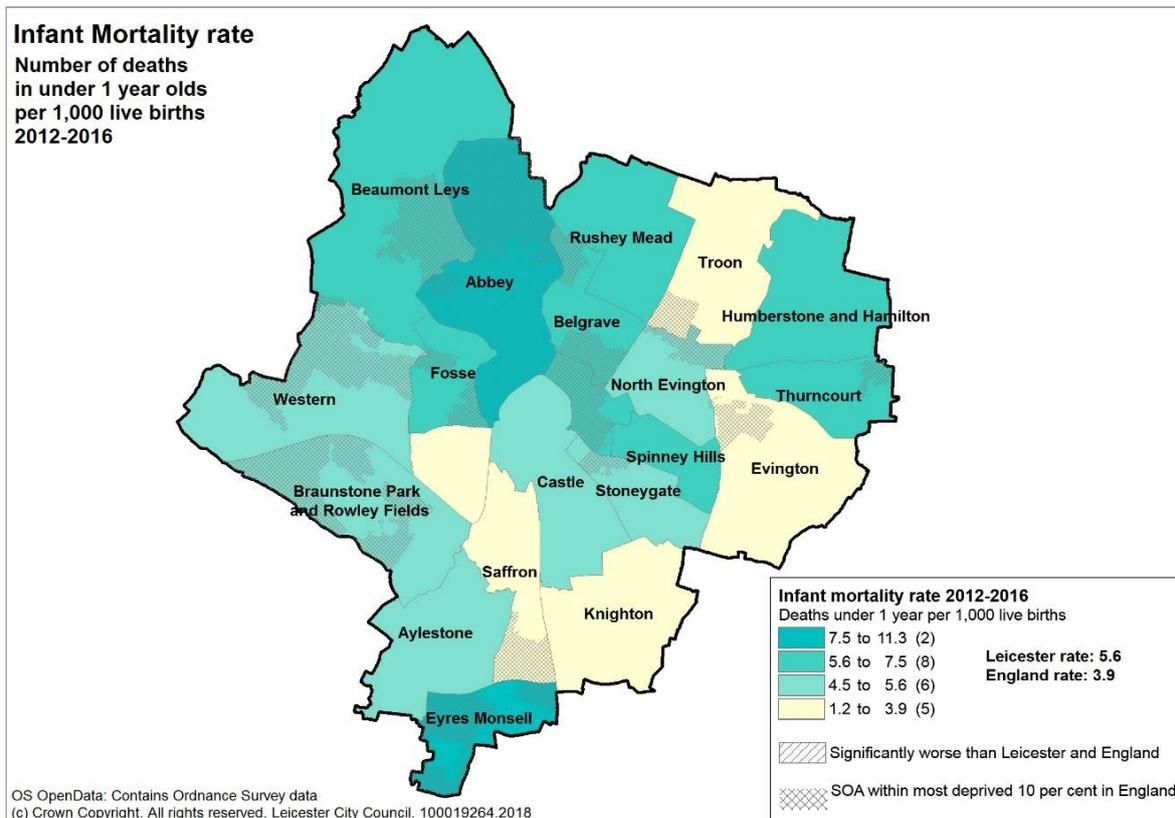
Leicestershire has relatively low levels of children living in poverty, significantly less than both national and regional comparisons. 10% of children under 16 in Leicestershire live in poverty compared with 16.8% in England and 16.1% in the East Midlands. Nonetheless, in 2015 this represented nearly 12,000 children (compared to 17,000 in Leicester and 430 in Rutland). The graph below shows that there is no significant difference in the rates of infant mortality in Leicestershire by deprivation quintiles. It must be noted that confidence intervals are large due to the small numbers.

³¹ Public Health Outcomes Framework Indicator 1.01ii: % of children in low income families (children living in families in receipt of out of work benefits or tax credits where their reported income is < 60% median income) for u-16s only, 2015



Levels of child poverty in Rutland are lower still with 7% of children under 16 living in poverty. Infant mortality rates are not shown separately for Rutland due to small numbers.

There are **differences between areas** in the rate of infant mortality across the city with 1 ward (Abbey) showing a significantly higher rate than the national average. The map below shows the infant mortality rate in Leicester City 2012 to 2016 by ward and the 10% most deprived areas nationally.



Between 2012 and 2016, infant mortality rates were low for all wards in Rutland and the majority of wards in Leicestershire and therefore data is not presented in this strategy. No wards in Leicestershire and Rutland had infant mortality rates that were significantly higher than the England average.

Infant mortality is higher in the city than the county, and higher still in some specific parts of the city.

As a result, while the work of the strategy will focus on actions that reduce the risk of infant mortality across LLR the HBSG will ensure this work is particularly heavily promoted in areas or to groups where the risk, and therefore need of intervention, is greatest.

Actions undertaken to date

A range of services/initiatives are in place offering support to reduce risk, promote protective behaviours and to tackle issues such as poverty and poor housing. The list of services is long and wide ranging but specific examples are included below. As noted previously, risk factors to the health of pregnant women and babies often overlap so services with a holistic approach such as health visitors or Early Start can offer women support for multiple needs from one source.

Category	Factor	Actions
Factors related to preconception care, pregnancy and delivery (mainly addressed by LMS work)	<i>Risk assessment of foetal growth restriction, raising awareness of reduced foetal movement and effective foetal monitoring during labour</i>	<p>University Hospitals of Leicester (UHL) is currently undertaking an internal audit of their Better Births work to create baselines to inform future reporting.</p> <p>There is a national audit of the ‘Saving Babies’ Lives’ care bundle. UHL have implemented every element to some extent as of December 2018 and are carrying out audits on their opt out referrals and CO testing.</p>
	<i>Perinatal mortality group</i>	UHL lead a perinatal mortality group. An action plan has been developed tackling issues such as ensuring that all perinatal deaths are fully reviewed in a timely manner and informing clinical service developments.
Factors related to the mother	<i>Smoking during pregnancy and smokefree homes</i>	<p>Care is offered to the woman/family for up to 3 months postnatally in the City to reduce the risk of relapse to smoking during the high risk transition period between pregnancy and new baby.</p> <p>Smoking in Pregnancy leads have been identified within maternity services and the smoking cessation teams. Carbon monoxide (CO) tests are a standard part of midwives’ first booking appointments and referrals to the smoking cessation service are opt out.</p> <p>All midwives attend mandatory training sessions about Smoking in Pregnancy and support the “Step Right Out” (Smokefree homes) campaign (encouraging people to keep their homes and cars completely smoke-free). All midwives new to the trust have a 1 off session which covers an overview of the risks to mum/baby of smoking, what support is offered, what the referral pathway is in UHL and how to use the CO monitors.</p> <p>Brief intervention training is also included on the course programme at DMU for student midwives, student nurses/health visitors and children’s nurses.</p> <p>Public Health Nurses have also been trained to deliver brief interventions around these key messages, and in the last year (2017-18) this has included the opt-out referral pathway which health visitors are now required to follow.</p> <p>Training in brief interventions to raise the key smoking in</p>

	<p>pregnancy and smokefree homes messages has been extended to other areas, including neonatal nurses and breastfeeding peer supporters.</p> <p>All Leicester City Children, Young People and Family Centres support and deliver brief interventions as part of the “Step Right Out” campaign. QuitReady has also provided training for Leicestershire children centres as well as Supporting Leicestershire Families on brief opportunistic advice and smokefree homes and cars.</p>
<p><i>Maternal obesity</i></p>	<p>UHL currently runs a maternal obesity clinic, to which patients are referred from their initial booking appointment if their BMI at booking is 40 or over. The service provides weight management support and advice as well as additional support around increased clinical risks to pregnancy.</p> <p>Leicestershire County Council created a maternal obesity needs assessment which identifies key actions around addressing maternal obesity. An action plan is being developed to support this document.</p> <p>Leicestershire Partnership Trust (LPT) now includes addressing maternal obesity in its online staff training.</p>
<p><i>Teenage pregnancy</i></p>	<p>A multi-agency partnership approach has been taken across health, education, youth services and young people across LLR to reduce teenage pregnancy. This approach has been successful in reducing teenage pregnancy by:</p> <ul style="list-style-type: none"> • Improving access and information about contraception and sexual health • Targeted educational programmes for vulnerable young people most at risk • Using a range of innovative schemes to raise young people’s awareness of sexual health matters and to make sure they know where to get help and advice • Early Start which works with first-time teenage mothers to prevent further pregnancies and to get young mums back into education and work • Improving the educational attainment of young people in some of the city’s most disadvantaged areas
<p><i>Perinatal mental health</i></p>	<p>LPT has a growing perinatal mental health team that offers assessment, treatment and support to women across Leicestershire and Rutland who develop severe mental illnesses during pregnancy or following delivery of their babies. This support is available until their babies are a year old. The service receives around 500 referrals each year from health professionals. UHL has a dedicated consultant obstetrician, a specialist perinatal mental health midwife covering antenatal clinic on both UHL sites. They work closely with the perinatal mental health team developing multiagency pathways.</p> <p>Early Start teams promote good maternal mental health and support mothers who may have experienced previous trauma or loss in childhood to provide a safe and caring home for their baby.</p>

		As part of the NHS Long Term Plan, perinatal mental health support will be available from preconception to 24 months after birth (currently 12 months). ³²
	<i>Maternal and infant nutrition</i>	<p>Uptake of Healthy Start vouchers is above the regional and national average in the city.</p> <p>In February 2018, a pilot scheme was launched for stalls in Leicester and Beaumont Leys Market to accept vouchers. An audit of shops accepting vouchers is currently being carried out.</p>
Factors affecting the baby	<i>Breastfeeding</i>	<p>UHL achieved the UNICEF Baby Friendly Initiative stage 2 accreditation in November 2013 and is currently working for Stage 3 accreditation on Leicester General Hospital (LGH) site with a plan to roll this out at Leicester Royal Infirmary site once accomplished full accreditation at LGH (planned for 2019). This has required a commitment to a range of actions including investment in considerable staff training in breastfeeding.</p> <p>Leicestershire Partnership Trust (LPT) achieved UNICEF Baby Friendly Initiative Stage 3 re-accreditation in 2018. This has required a commitment to a range of actions including investment in considerable staff training in breastfeeding.</p> <p>A breastfeeding peer support programme targeted at areas of the city with the lowest breastfeeding rates and an equivalent programme across Leicestershire and Rutland.</p>
Wider determinants related to babies' health	<i>Poverty and deprivation</i>	Baby Basics is a charity which provides mothers and families who are struggling to meet the financial and practical burden of looking after a new baby. They receive referrals through health professionals or charities and have received 263 referrals between November 2017 and December 2018.
	<i>Targeted interventions to prevent SIDS</i>	<p>Safer Sleep training has been delivered to foster carers of infants by the Lullaby Trust.</p> <p>Information on safe sleep is included in mandatory training for all midwives.</p> <p>Universal contacts by health visitors discuss safer sleep advice, especially at the first contacts and these conversations are recorded on SystemOne.</p> <p>Leicestershire Partnership Trust has recently developed a Policy on Safe Sleeping for infants.</p>

What's next

The accompanying action plan outlines the work to be undertaken to support healthy pregnancy, birth and babies, and reduce infant mortality in Leicester, Leicestershire and Rutland. The Healthy Babies Strategy Group will review and update the action plan during the duration of the strategy

³² [The NHS Long Term Plan, 3.16](#)

To address the issues identified in the strategy, the actions are categorised under these headings:

1. Learning from Good Practice
2. Promotional Campaigns and Communications
3. Support for Strategic/Partnership Work
4. Research/Consultation with Maternity Voices Partnership
5. Bespoke Work with Foster/Kinship Carers (Looked After Children)
6. Cumulative Impact of Risk Factors
7. Modifiable Risk Factors Relating to Mothers
8. Modifiable Risk Factors Relating to the Baby
9. Modifiable Risk Factors Relating to the Living Environment

Appendix A – Case Studies

Reducing smoking in pregnancy support

Background: Reducing smoking in pregnancy is one of the four elements of the Saving Babies' Lives care bundle. Reducing smoking in pregnancy is important during pregnancy but also helps to reduce the second-hand smoke that a baby will be exposed to. In Leicester this service is provided by the Leicester City Stop Smoking team, in Leicestershire it is provided by Quit Ready Stop Smoking Service.

Identification of need: All pregnant women complete a CO test during their initial booking appointment. All smokers and those who have quit smoking within the last three months are referred to a stop smoking service in order to offer them support to reduce and eventually stop smoking. The Leicester City Stop Smoking Team contact all the women who are referred by midwives, and let the midwife know if there are any who have not accepted the offer of support or not been able to be contacted. Health visitors also include an opt out referral for any women still smoking when they are seen at their antenatal health visitor appointment.

What support is offered: The stop smoking advisors arrange home visits which enables them to discuss smoke-free homes message with the woman and her family. The stop smoking service offer nicotine replacement therapy, e-cigarettes and support from an advisor.

Results: Smoking in pregnancy increases the risk of stillbirth and infant death, and still has the continuing effect of being unhealthy for the mother, independently of her baby. During this time, second-hand smoke during pregnancy and after the baby is born also increases the risk of Sudden Infant Death Syndrome, so it is key that messages about smoking in pregnancy and second-hand smoke are available for families. By reducing the number of women smoking in pregnancy, the service reduces the risk of stillbirth or infant mortality for these families and improves the health and wellbeing of the women.

Baby boxes in Leicestershire

Background: Teenage mothers in Leicestershire can receive a baby pack to help them prepare for the arrival of their new baby

Identification of need: Mothers are referred by their midwife and are met by a support worker who can offer support and advice.

What support is offered: Support workers can help expecting mothers find local group to meet other new or expecting mothers or learn about being a parent. Each baby pack contains various items including a Moses basket sized mattress, blanket, changing mat, bath thermometer, hat, wipes, nappies, as well as other items like baby books.

Results: Feedback from the mothers is very positive. In feedback they praised the items of the box for including small things they might have forgotten, as well as the bigger items such as the mattress. Many women use the items daily with their babies. One woman highlighted she appreciated the thought and time that had gone into the boxes and how it made her feel valued as a young mum. Some of the mums took the opportunity when giving feedback to confirm that they would be interested in knowing more about services and activities in their areas.

Early Start – Military families in Rutland

Background: Early Start is an integrated, consent-based part of the Leicestershire Partnership NHS Trust 0-19 Healthy Together Programme. It offers additional support to first time parents identified as experiencing a range of vulnerabilities.

Risk factors in military families include family disruption owing to the cycle of deployment; poor mental health of the caregiving parent during the absence of the serving parent; PTSD and depression on the part of the serving parent post-deployment; as well as changing dynamics between the child's parents as they renegotiate roles across the deployment cycle and manage conflict as the family reorganises itself¹.

Identification of need: Before the first families were recruited and enrolled on the programme the public health nurse liaised with local services including midwives, GPs, practice managers, social care, children's centres and universal health visitors and school nurses. This ensured military families were identified and given the option to access additional support.

What support is offered: The early start programme of health visiting starts early in pregnancy with weekly contacts for the first 4 weeks and then monthly until the baby is born. During this period the public health nurse visited the military base and engaged with both pregnant ladies and their husbands. Together the nurse and family were able to identify factors that made coping difficult and issues that presented barrier to accessing services and support both on base and within the wider community.

During the contacts the public health nurse discussed foetal growth and maternal health during pregnancy including, diet, exercise and smoking. The service were able to focus on maternal mental health and making referrals and liaising with other services as required. They looked at how a baby grows and development from life in the womb, looking at video clips and foetal dolls which parents reported helped them visualise their baby and made them want to communicate with their baby by rubbing mums tummy talking to baby, playing music and making plans for their future .

The public health nurse discussed ways of building babies brain through touch, regular sleep, and responding to babies' kicks. They also discussed myths around babies being spoilt if they get too much attention and reinforced the importance of responsive parenting and human interaction compared to TV and computer screens. Parents reported that this gave them the confidence to trust their own judgement and follow their instinct to sooth their baby when needed.

Using the promotional guide, the service was able to identify that families felt isolated. They missed their husbands when they were away on exercise and missed their extended family when separated from them. The service organised visits to be flexible to the client's needs – providing more support when their husbands were away and rearranging appointments when family were visiting .The public health nurse supported families to spend time with extended family ensuring they registered with local services when out of area and liaising with clients and professionals via telephone to ensure support was maintained and information shared.

Results: Parents have been able to identify stresses and have discussed being able to talk more openly, being more aware of each other's needs and more aware of things that are important to their partner. Families have reported that they were previously unaware of services and have benefited from meeting new friends and time in the wider community. Families have reported feeling less anxious and more confident in their own skills. Babies are growing and developing normally, and families have accessed services as required.

Maternal obesity clinic

Background: University Hospitals of Leicester runs a maternal obesity clinic which sees pregnant patients with a BMI of 40 or over. This operates in addition to mainstream maternity services and is staffed by a consultant midwife.

Identification of need: All women who live in Leicester City who have a BMI of 40 or over at the time of their initial booking are referred to the service.

What support is offered: The service sees patients two to three times (at booking, 28 weeks and 34 weeks) and offers weight management support and advice including diet and physical activity, and additional support around increased clinical risks to pregnancy that are a result of obesity.

Results: In interviews to inform the maternal obesity needs assessment, patients were positive about the clinic experience and complimented the information they received as well as the support from the staff. They found staff non-judgemental and were happy that they were receiving the services.

Patients were happy to discuss maternal obesity and none thought it should be avoided: it was noted how many more women knew about the risks of smoking and drinking alcohol. which

Appendix B – NICE Guidance

NICE Guidance (2010)³³ highlights complex social factors that may adversely impact on pregnancy outcomes and increase the risk of infant/maternal death:

- Women who misuse substances (alcohol and/or drugs).
- Women who are recent migrants, asylum seekers or refugees, or who have difficulty reading or speaking English.
- Young women under the age of 20.
- Women who experience domestic abuse.

Key messages from relevant NICE are presented below in terms of pre-conceptual care, antenatal care, intra-partum care and post-natal care.

Antenatal Care

Antenatal health care has a unique and vital contribution to make to improving maternal and infant health outcomes and reducing health inequalities, ensuring that every child has the best start in life and is ready to succeed.

The Health Scotland report into antenatal health inequalities (2011)³⁴, argues that health inequalities can be addressed by taking action in three key areas:

1. Improving access to antenatal healthcare services
2. Improving the assessment of health and social need
3. Ensuring equity in the quality of care for women and their babies.

NICE guidance 62³⁵ (this guideline is currently being updated which will be published in 2020) also provides recommendations relating to the following areas:

Antenatal care

This should be provided in the community, as close as possible to the family home. Pregnant women with health, emotional or social needs should be referred to specialist care.

Medical conditions

Pregnant women with specific medical conditions such as diabetes, hypertension, epilepsy, renal/cardiac and mental health needs to be identified and offered specific support tailored to their needs.

Weight management

The guidance recommends physical or recreational activities for at least 30 minutes per day and encourages community-based services to offer women with babies the opportunity to participate in a range of physical activities. The evidence does not recommend weight-loss during pregnancy as this may harm the health of the unborn child.

Maternal and child nutrition

Guidance provided for vitamin D and folic acid supplements.

Mental disorders

Guidance to help Clinicians balance the risks of treating disorders, including anxiety disorders, depression, bipolar disorder, schizophrenia and postnatal psychotic disorders, with not treating it.

Smoking in pregnancy

The Guidance recommends smokers are identified as early as possible by midwives and referred to specialist stop smoking services.

Intra-partum care

³³ NICE CG 110 (2010) Pregnancy and complex social factors: A model for service provision for pregnant women with complex social factors

³⁴ NHS Health Scotland (2011) Antenatal health inequalities: a rapid review of the evidence

³⁵ NICE Guidance 62 (2008, updated 2018) Antenatal care for uncomplicated pregnancies

The Birthplace in England Research Programme³⁶ provides recent evidence which supports the policy of offering low risk women a choice of birth setting.

- Planned births in midwifery units have the same outcomes for babies compared with obstetric units, with fewer interventions and around half the rate of caesarean sections for low-risk women.
- For women having a first baby, a planned home birth increases the risk for the baby and there is a fairly high probability of transfer to hospital during or immediately after labour - a third to almost a half of first-time mothers transfer from home and midwifery units to obstetric units.
- For women having a subsequent baby, a planned home birth does not increase risk for the baby, and reduces the risk of interventions for the mother.
- A third to almost a half of first-time mothers transfer from home and midwifery units to obstetric units.
- For women having a second or subsequent baby, the transfer rate reduces to around 10%
- The shortage of midwifery staff is a key challenge – given higher staff ratios in settings outside obstetric units, any expansion of home and midwifery units (although potentially cost-saving) is likely to require more midwives.

Postnatal care

NICE Guidance sets out the routine postnatal care that every women and baby should receive in the first 6-8 weeks of birth (this guideline is currently being updated which will be published in 2020).³⁷ It focuses on good communication between hospital, GP, community midwife, health visitors and other support workers to provide care based on the best available evidence. There is significant potential to improve the health and well-being of both mother and baby during the postnatal period, particularly around future pregnancy, stopping smoking, sexual health, emotional health, healthy diet, physical activity, weight management and attachment.

Maternal and child nutrition

- Promote, advise, support and manage breastfeeding on an individual and group basis and in healthcare settings
- Ensure both types of Healthy Start vitamin supplement (for women and for children aged from 6 months to 4 years) are available for distribution by health professionals.
- Promoting and supporting initiating and continuing breastfeeding
- There is insufficient evidence to suggest that infant formula based on partially or extensively hydrolysed cow's milk protein can help prevent allergies.

Weight management (only for mothers).

- The guidance presents the most effective weight-loss programmes and how to support obese women after they become pregnant. Obese women should be offered structured weight loss programmes using evidence-based behaviour change techniques to motivate women.
- Encourage breast feeding and healthy diet. Regular exercise can be started immediately after giving birth for uncomplicated pregnancy while it is recommended to consult medical care in case of complications before resuming pre-pregnancy activity levels.

³⁶ Birthplace in England Research Programme, cited in NHS Confederation SDO Network research digest June 2012 Issue 3

³⁷ NICE Guidance 37 (2006, updated 2015) Postnatal care up to 8 weeks after birth