Pre-Birth to Antenatal

Chapter 2

1. Introduction

The pre-birth to antenatal period is paramount to providing each child a 'best start in life'. Investments targeted to the pre-birth and antenatal period influence a child's readiness for school, educational attainment, economic participation and long term health. The right support at this stage is therefore key to children's long-term health and well-being.

This chapter covers the pre-birth to antenatal period of the life course. Issues on which this chapter focuses are preconception, pregnancy, the perinatal period (around childbirth), the neonatal period (until the infant is 28 days old), infant mortality (up to a year) and breastfeeding.

2. Who's at risk and why?

The main factors which can adversely affect health outcomes at this stage are:[1, 2, 3]

- Deprivation: Poor social and economic circumstances adversely affect lifetime health and wellbeing.
- Ethnicity: An interplay of factors affects health and wellbeing for people from some minority ethnic backgrounds in the UK.
- Low birth weight (LBW): Birth weight less than 2,500gm increases the risks of childhood mortality and developmental problems which can lead to poorer health in later life.
- Maternal age: Mothers aged younger than 20 and older than 35 years, experience higher infant death rates and poorer pregnancy outcomes.
- Maternal obesity: Increases health risks for both mother and child during and after pregnancy.
- Maternal mental health: Childbirth increases the risk to women's mental health, which can have longstanding effects on a child's emotional, social and cognitive development.
- Lifestyle: Lifestyle and behaviour choices such as smoking, alcohol, poor diet and substance misuse contribute to low birth weight and infant mortality.
- Poor parenting: Poor parenting can have a detrimental effect on a child's early cognitive development, emotional wellbeing, social competence, physical and mental health.

[1] Marmot (2010). Fair society, healthy lives. Retrieved from http://www.instituteofhealthequity.org/projects/fair-society-healthy-lives-the-marmot-review. 2 December 2015

[2] Public Health England. Maternal Obesity Information page. Retrieved from http://www.noo.org.uk/NOO_about_obesity/maternal_obesity_2015. 2 December 2015

[3] Centers for Disease Control. Tobacco use and pregnancy information page. Retrieved from http://www.cdc.gov/reproductivehealth/maternalinfanthealth/tobaccousepregnancy/index.htm. 2 December 2015

- Consanguinity:[4] Genetic diseases and conditions can cause an increase in morbidity and mortality.
- Access to quality services: Timely access to appropriate care can affect the survival of babies born with life threatening conditions. For example, low birth weight babies have better outcomes when delivered at specialist centres. Early access to antenatal care can ensure effective management of pregnancy and improve outcomes.

3. Demographic Summary

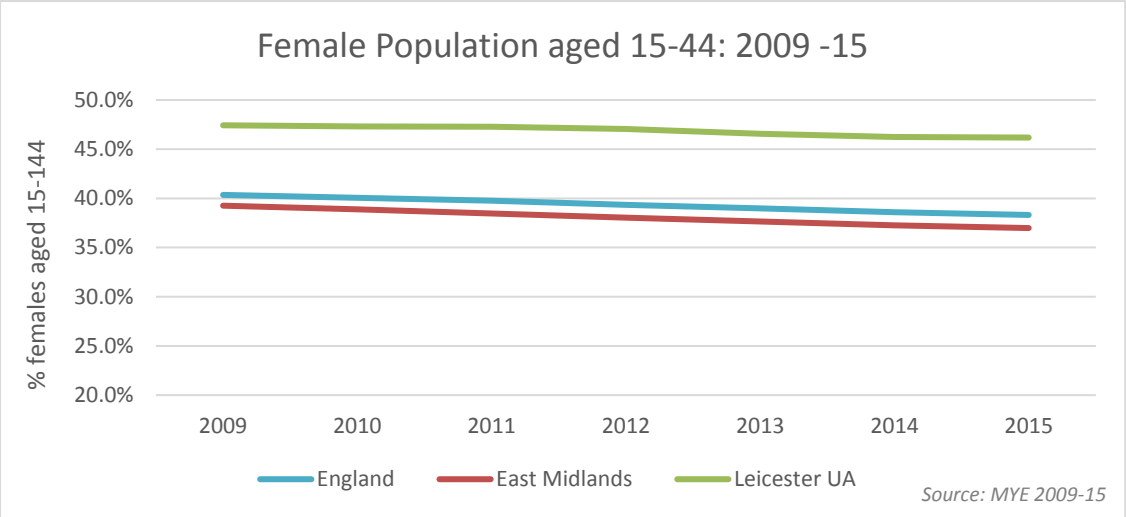
3.1 Population profile

The population of females in Leicester who are of child bearing age (15 to 44 years) is detailed in this section.

Figure 1 shows that:

- In 2015, about 46% (n=79,566) of all females in Leicester were of child bearing age, that is aged 15 to 44 years. This was a significantly higher proportion than the England average, which was 38%.
- Between 2009 and 2015 there was a decrease of 1% in the proportion of women of child bearing age in Leicester. This was similar to the regional and national trends (2%).

Figure 1: Female population aged 15 to 44 years old (2009-15)



3.2 Life expectancy

Life expectancy (the average lifespan a person is expected to live at birth) has increased over the last 20 years. However, life expectancy for both males and females is significantly lower in Leicester compared to England. Life expectancy is impacted by a wide variety of factors including deprivation,

[4] Relating to or denoting people descended from the same ancestor

access to health services, education, mental wellbeing, communicable and non-communicable diseases and attainment.

From 2000 to 2015 the gap in average life expectancy for Leicester compared to England widened (worsened) in males from 1.8 to 2.4 years (Figure 2). For females the life expectancy gap remained roughly the same going from 1.4 to 1.5 years during the same time period (Figure 3).

In 2015, life expectancy at birth in Leicester was 81.6 years for females compared to the England average of 83.1 years, and for males 77.1 years compared to the England average of 79.5 years. Life expectancy is lower in Leicester than most peer comparators.

Figure 2: Life expectancy at birth (females) 2000-15

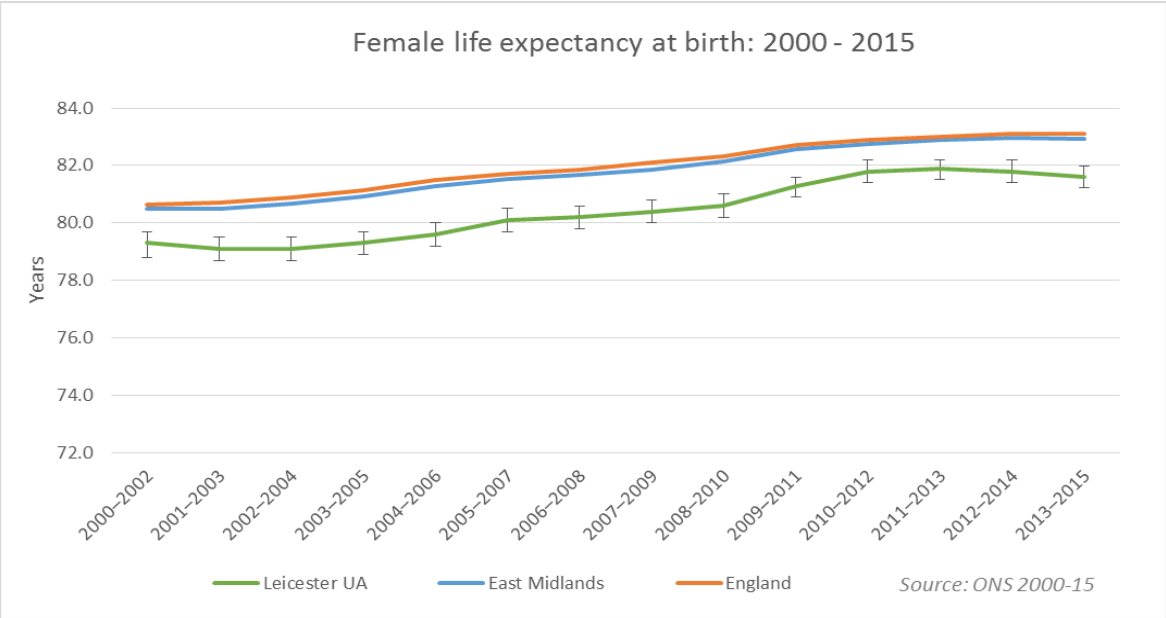
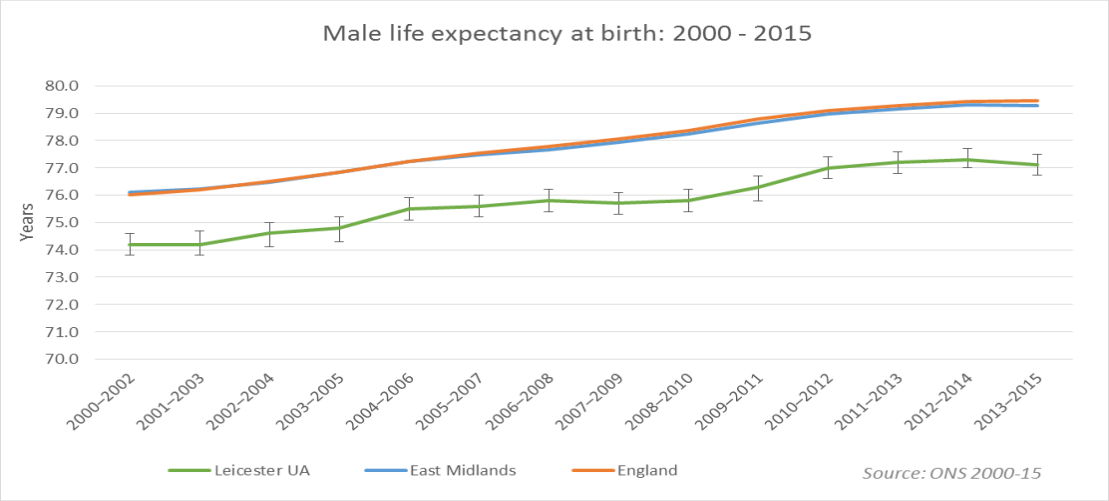


Figure 3: Life expectancy at birth (males) 2000-15



There is variation in life expectancy between different areas in Leicester. The areas of Leicester where life expectancy for females is worse than England are in the East, West and South of Leicester

(Figure 4). For males, life expectancy in Leicester is significantly worse than England for 20 of the 37 MSOAs for Leicester (Figure 5). These areas are distributed across the city.

Figure 4: Life expectancy at birth for females in Leicester by MSOA (2009-2013)

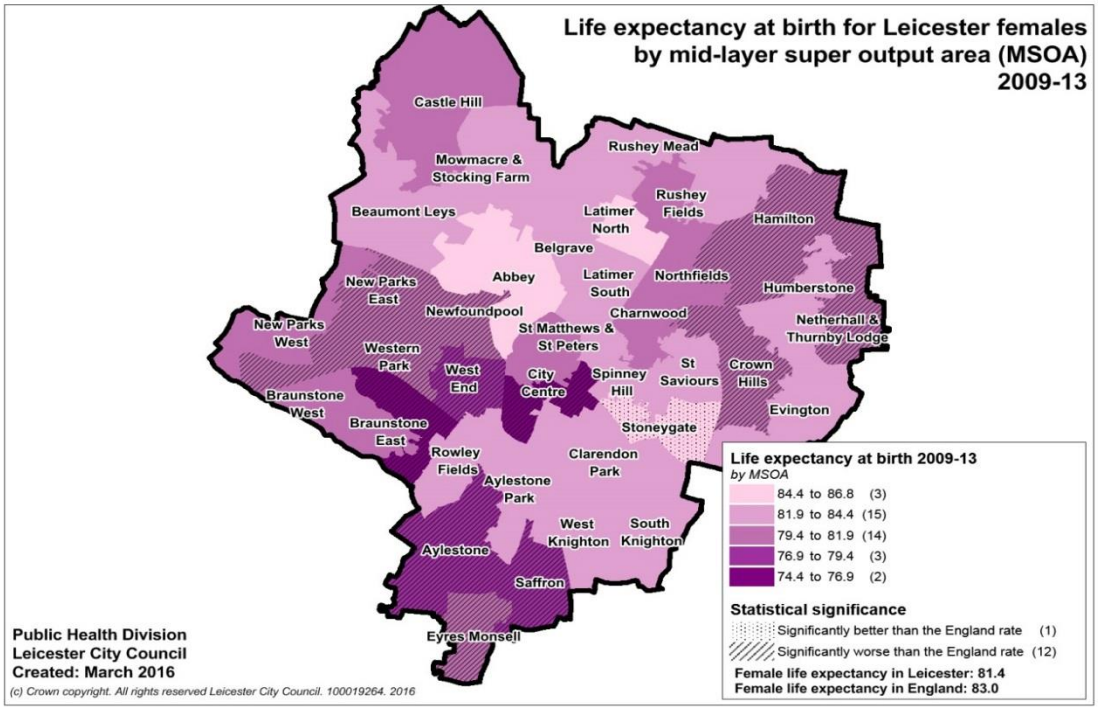
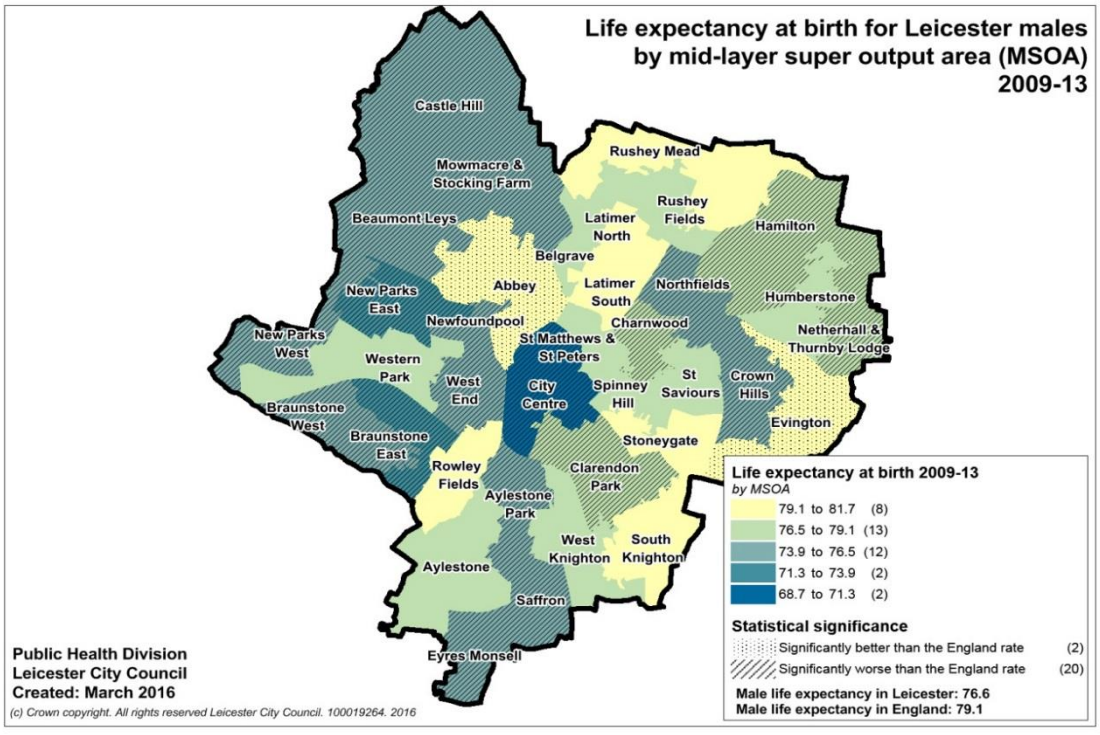


Figure 5: Life expectancy at birth for males in Leicester by MSOA (2009-2013)



3.3 Births

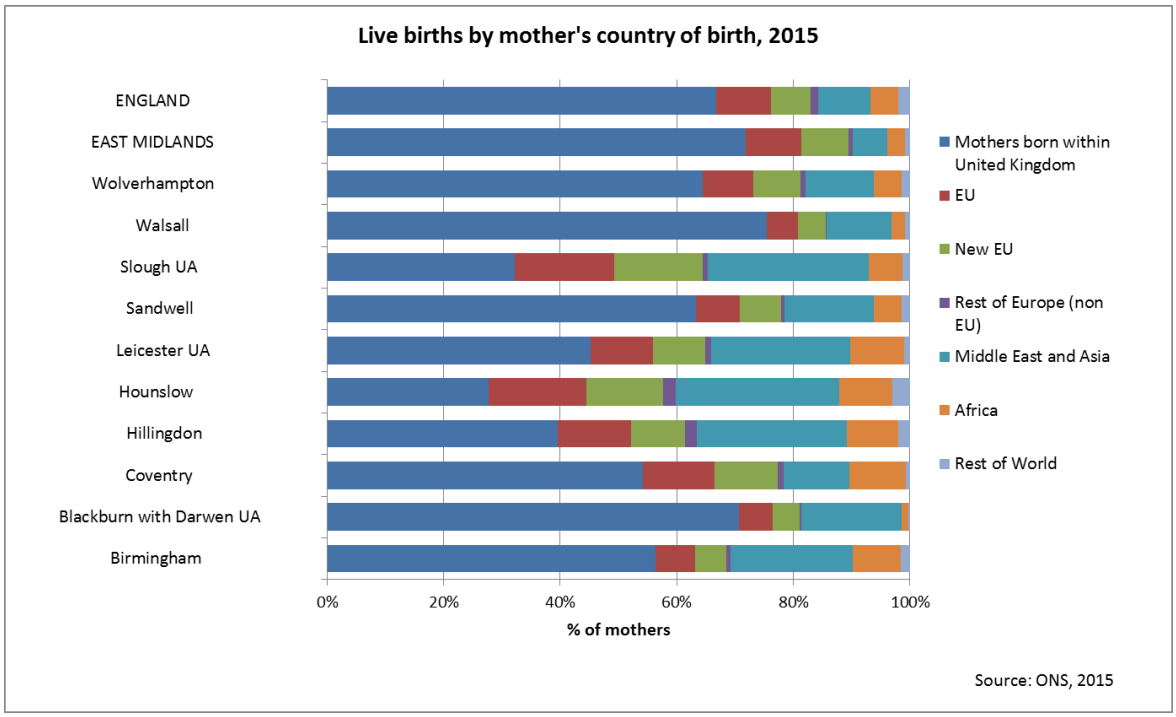
3.3.1 General Fertility Rate (GFR)

The GFR is the total number of live births per 1,000 females of child bearing age. There were 5,156 babies born to women in Leicester in 2015, giving a GFR of 64.8 per 1,000 women aged 15 to 44 years. Although there was a decrease from 68.3 per 1,000 in 2006, the GFR in 2015 was significantly higher than the averages for the East Midlands (61.3 per 1,000) and for England (62.5 per 1,000).

3.3.2 Mother's country of birth

Approximately 50% of births in Leicester in 2015 were to women born outside the UK. This is significantly higher than the England and the East Midlands averages (Figure 6). Countries in the Middle East and Asia are where 26% of Leicester's mothers were born.

Figure 6: Births in Leicester by mother's country of birth (2015)



4. The level of need in the population

4.1 Outcomes

4.1.1 Maternal mortality

Maternal deaths are those which occur during pregnancy or within 42 days of termination of pregnancy. They can be from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

Cases of maternal death are relatively rare.[5] The Confidential Enquiry into Maternal and Child Health[6] showed that women living in situations where both partners were unemployed were up to 20 times more likely to die from a pregnancy related complication than those from more advantaged groups. Single mothers were found to be 3 times more likely to die than those in stable relationships. Women living in the most deprived areas of England had a 45% higher death rate compared to those living in more affluent areas.

Two thirds of maternal deaths in the UK are from medical and mental health problems in pregnancy. The remainder are from direct complications of pregnancy such as bleeding and other causes such as influenza. Heart disease is the leading cause of maternal death during or up to six weeks after the end of pregnancy.

The overall maternal mortality rate for England for 2012-14 was 0.39 per 100,000 women aged 15 to 44 years. There were no maternal deaths in Leicester in the same period.

4.1.2 Infant Mortality

Deaths that occur during the first year of life are a key indicator of the health of a population and are a measure of inequality. Infant mortality is linked to deprivation.

Various causal factors can contribute to deaths in the first year, so infant mortality rates are a crude indicator. The Marmot Review (2010) noted that factors such as births outside marriage, maternal age under 20 years old and deprivation were independently associated with an increased risk of infant mortality. Other factors associated with infant mortality include access to health services, consanguinity and substance misuse. The Marmot Review went further to say that 'low birthweight in particular is associated with poorer long-term health outcomes and the evidence…suggests that maternal health is related to socio-economic status.' Pregnancy is a key time for intervention to reduce infant deaths.

There are several measures of infant mortality used: stillbirth rate, perinatal death rate, neonatal death rate and post neonatal death rate.

- Stillbirths include foetal deaths occurring after 24 weeks' gestation
- Perinatal deaths include stillbirths plus deaths up to 7 completed days of life
- Neonatal deaths include deaths between birth and the 28th day of life
- Infant deaths include deaths up to age 1 year.

Perinatal and infant mortality rates in Leicester have not changed over the last 10 years, and these remain higher compared to England, the East Midlands and peer comparator authorities.

[5] They are documented triannually by Mothers and Babies - Reducing Risk through Audits and Confidential Enquiries across the UK (MBRRACE-UK), which replaced Centre for Maternal and Child Enquiries (CMACE)

[6] A. M. Weindling (2003). The confidential enquiry into maternal and child health (CEMACH) Archives of diseases in childhood. Arch Dis Child.;88:1034-1037

4.1.2.1 Stillbirths and perinatal deaths

Perinatal mortality includes stillbirths and deaths of all children from birth up to 7 days old. Stillbirths are defined as a baby delivered with no signs of life after 24 completed weeks of pregnancy.

Over the last 60 years perinatal death rates have fallen across the UK, but variation still exists between regions and localities. Much of the reduction in perinatal mortality has been associated with an overall improvement in the health and nutrition of the population and the major technological advances in the care of pregnant women and newborns.

Risk factors for stillbirths and perinatal deaths include maternal obesity, maternal age, smoking, ethnicity, diabetes, influenza, socioeconomic status and diabetes.

The perinatal mortality rate is the number of deaths per 1,000 births. Figure 7 shows that the perinatal mortality rate for Leicester has not significantly changed over the past 11 years. The current rate (9.3 per 1000 births) is significantly higher than the England (6.8 per 1000 births) and East Midlands (6.9 per 1000 births) rates.

Figure 7: Trend in perinatal mortality rates for Leicester and peer comparators (2003-2014)

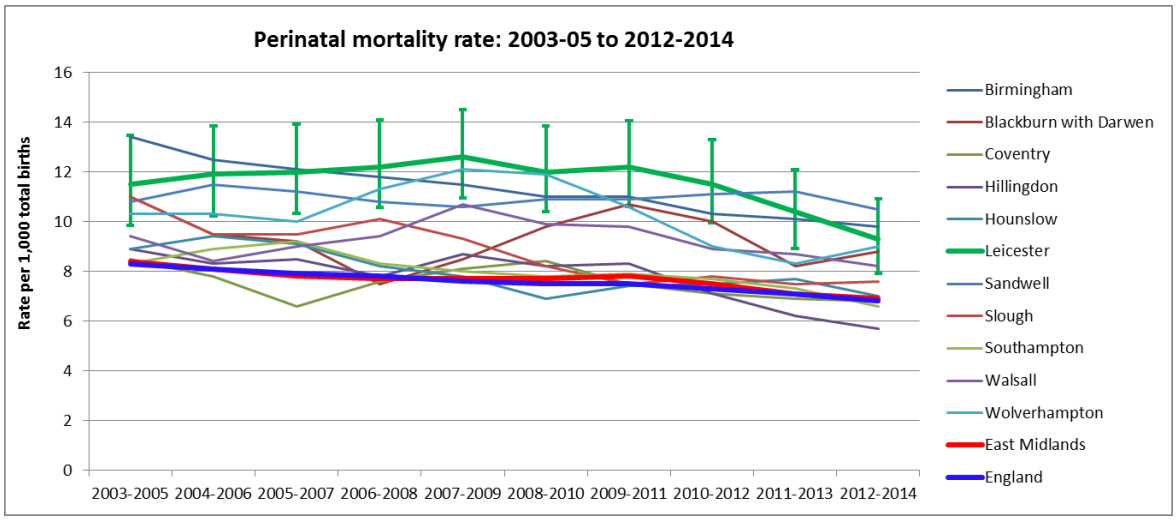
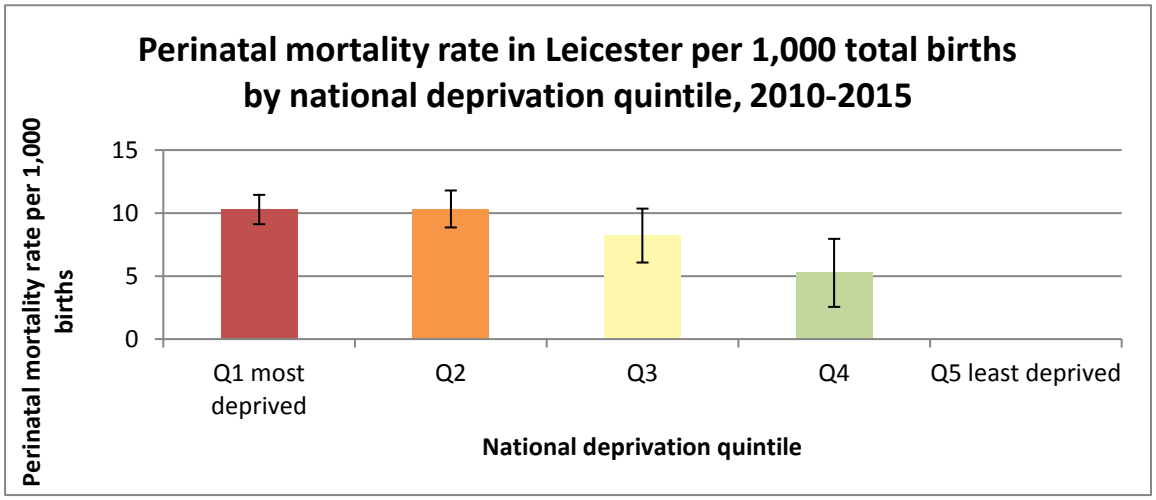


Figure 8 shows that there is a significantly higher rate of perinatal mortality in the most deprived quintiles of the Leicester population.

Figure 8: Perinatal mortality by deprivation quintile in Leicester (2010-15)



* Note Data suppressed for Q5 as number of deaths is less than 5

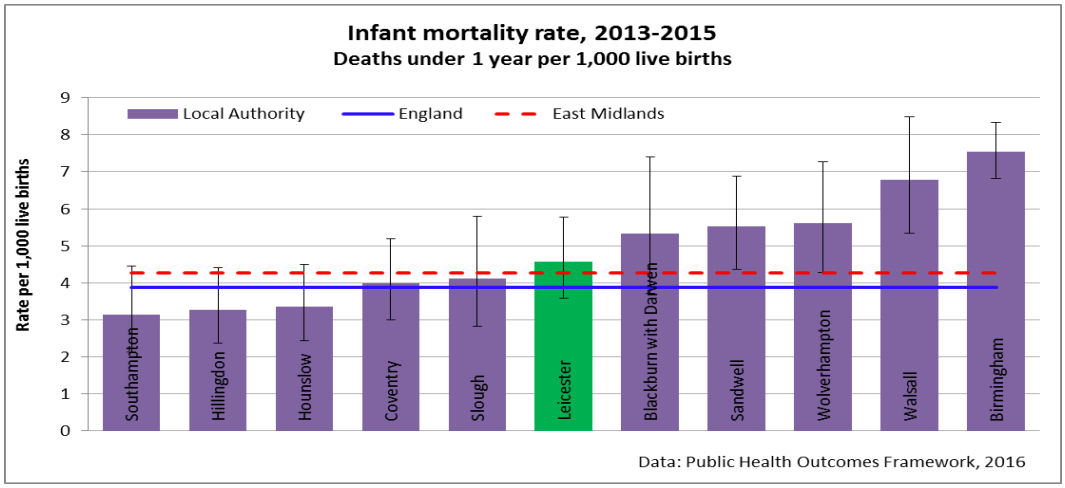
4.1.2.2 Infant deaths

Infant mortality refers to the number of deaths in children under 1 year old. The Infant Mortality Rate (IMR) is the number of infant deaths (under 1 year old) per 1,000 live births; it is measured on a 3 year rolling average.

The IMR includes deaths for Sudden Infant Death Syndrome (SIDs). These deaths are sudden and unexplained deaths of apparently healthy infants. While the rates of SIDs have decreased nationally SIDs remains a significant cause of death in this age group. Some factors that are thought to increase the risk of SIDs are putting the child to sleep on their front, exposing the child to passive smoke and smoking during pregnancy.

For 2013-15, the infant mortality rate for Leicester was statistically similar to the England and East Midlands averages (Figure 9). Leicester is statistically similar to all but one of its peer comparators. The IMR for Leicester has not changed significantly over the past 10 years.

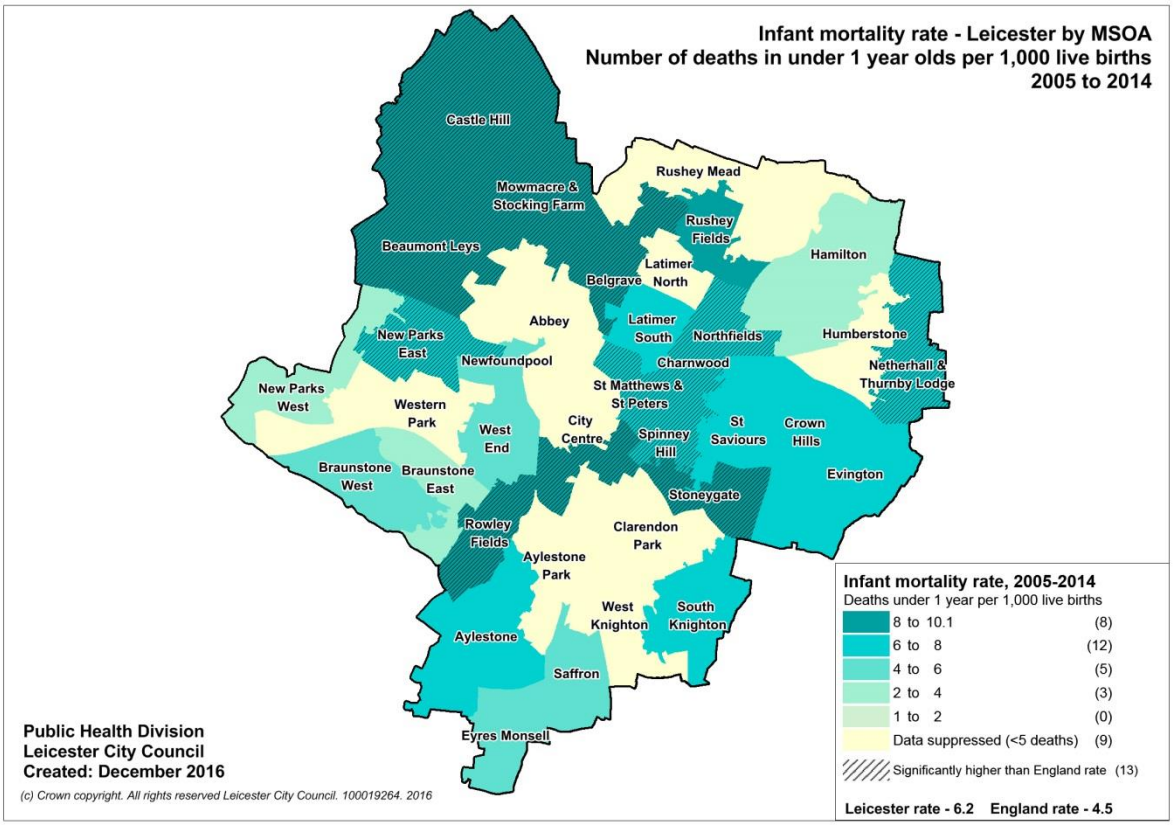
Figure 9: IMR for Leicester and peer comparators (2013-15)



As highlighted in the Marmot Review, deprivation is one of many factors contributing to IMR. Nationally the IMR has been reducing overall. While both lower and higher socioeconomic groups have seen reductions in IMRs, a gap remains between the two groups.

The IMR for specific areas of Leicester vary. There are 13 middle super output areas (MSOA) in Leicester that have significantly higher IMRs compared to England. These are primarily in the north west, centre and east of the city (Figure 10).

Figure 10: Infant mortality rate by Leicester Ward, 2005-14



4.1.3 Low Birth Weight (LBW)

The World Health Organisation defines LBW as a birth weight of a live born infant of less than 2,500g regardless of gestational age.[7] It can have serious consequences for health in later life, and it is a factor in childhood morbidity and infant mortality, as mentioned above.

Mothers resident in areas of high deprivation are at greater risk of delivering a baby with LBW.[8] Other factors that are associated with LBW are access to early antenatal, mother's age, general health, smoking status, nutrition and substance use during pregnancy. Ethnicity also plays a part

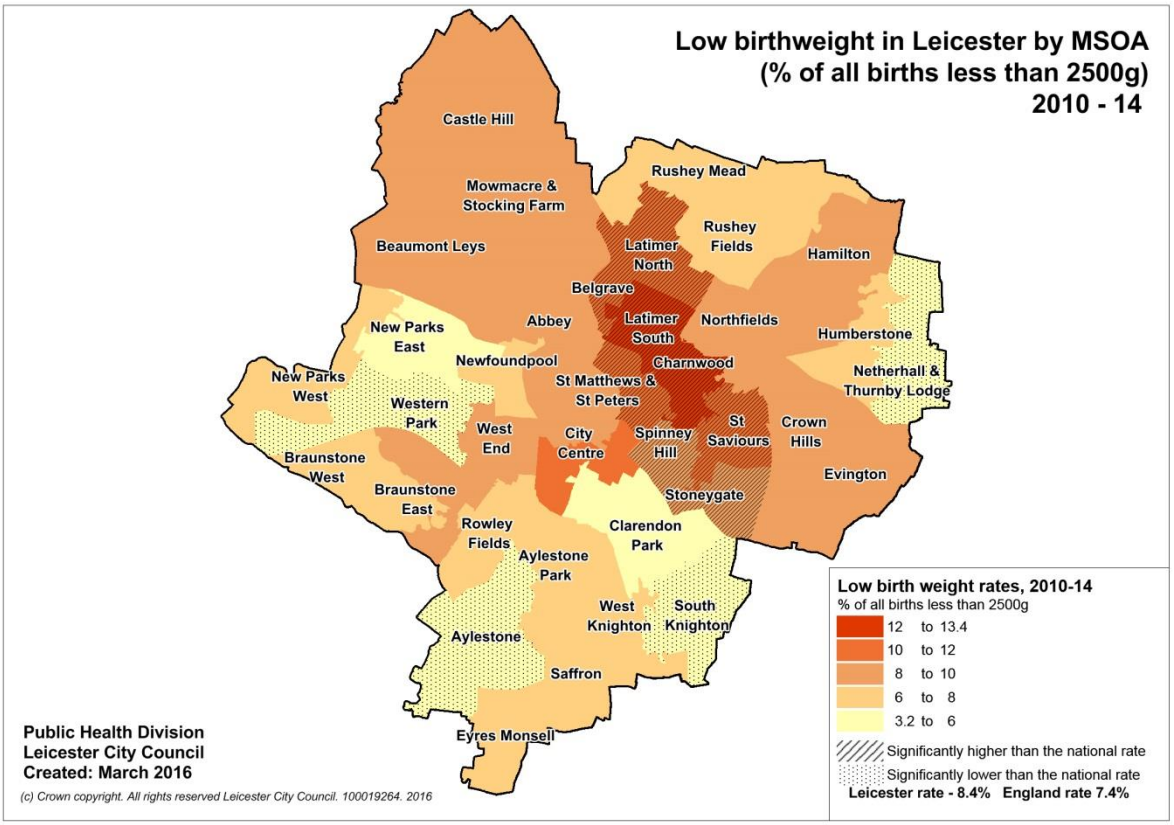
[7] Global Nutrition targets 2025. Low Birth Weight policy brief. Retrieved from: http://www.who.int/nutrition/publications/globaltargets2025_policybrief_lbw/en/ on 3 December 2015

[8] R,; Raybould S,; Jarvis S. (1993) **Deprivation**, **low birth weight**, and **children's** height: a comparison between rural and urban areas. BMJ 307:1458–1462

with Pakistani, Indian, Bangladeshi, Black African and Black Caribbean women experiencing greater rates of LBW.

The areas of the city with a significantly higher proportions of births that are less than 2500g are the Eastern and Central areas of Leicester (Figure 11).

Figure 11: Map of low birth weight rates in Leicester wards: 2010-14



4.1.4 Teenage pregnancy

Conceptions by teenage females are generally unplanned, and both mother and child are more likely to have poor outcomes compared to other mothers and babies. Some of the poor outcomes for mother and baby include poor health (physical and emotional) and long-term poverty. Physical health complications for children of teenage mothers can be linked to biological immaturity or poor preconception health. Teenage mothers are at greater risk of having a baby with LBW, which can lead to increased health concerns for the child.

Teenage pregnancy refers to women who are aged less than 20 years when the pregnancy ends. The National Teenage Pregnancy Strategy[9] set a national target to halve the under-18 conception rate by 2010, as compared to the 1998 rate. Historically, Leicester has a higher than average rate of teenage

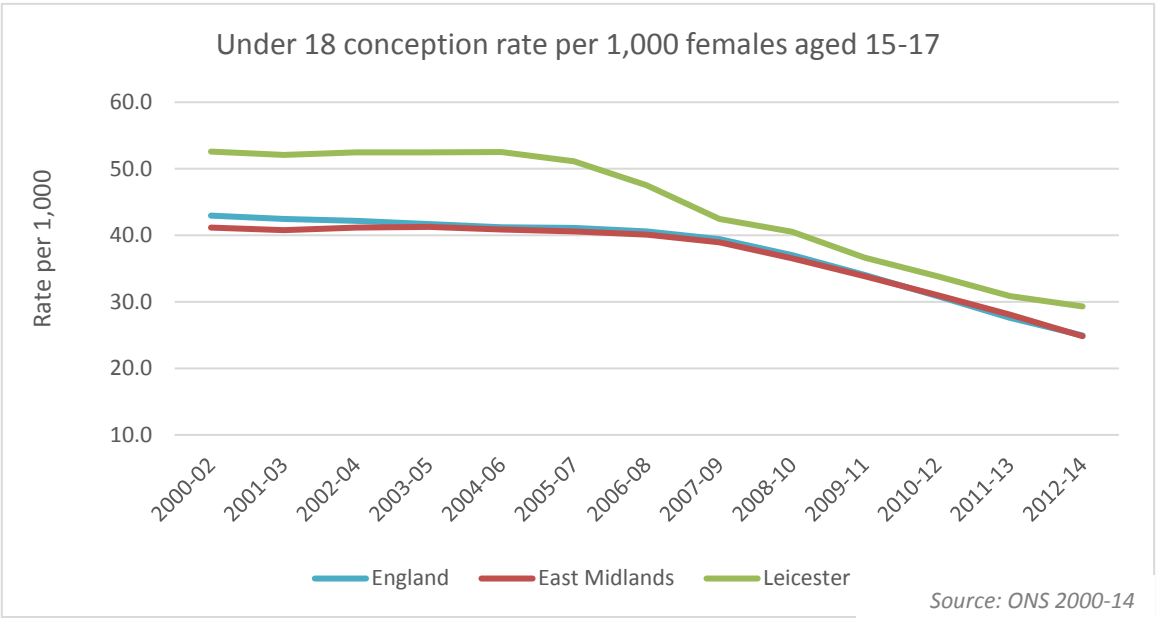
[9] The National Teenage Pregnancy Strategy (2010 retrieved from http://webarchive.nationalarchives.gov.uk/20130401151715/https://www.education.gov.uk/publications/standard/publicationdetail/page1/DCSF-00224-2010 on 12 January 2015

pregnancy. By 2010 the Leicester rate had reduced by 40%. Although this did not meet the national target, the downward trend in Leicester has continued.

The under-18 conception rate for Leicester in 2012/2014 was 29.3 per 1000 females aged 15 to 17 years old. The rate for England was 24.9 per 1000, and the rate for the East Midlands was 24.8 per 1000 15 to 17 year old females.

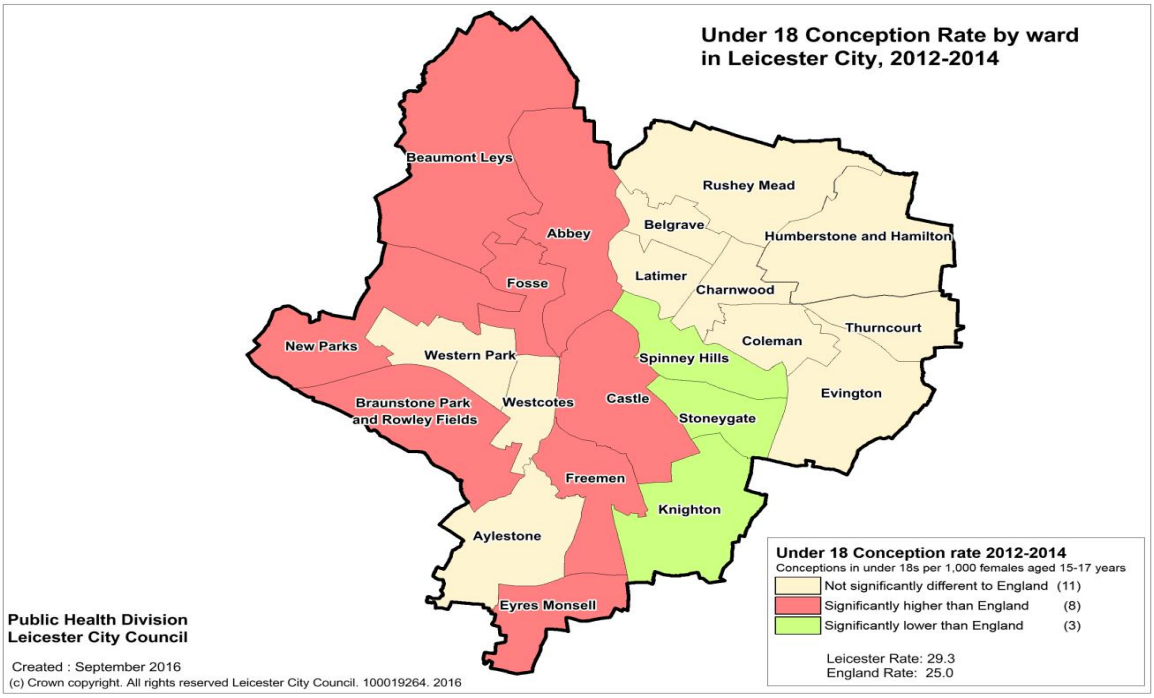
There were 8 wards in 2012/2014 that had teenage conception rates significantly higher than the England average. These wards were primarily located in the west and south of the city (Figure 13). This data is produced nationally and pre-dates changes to local ward boundaries.

Figure 12: Under-18 conception rate per 1,000 females aged 15-17 years



Source: ONS 2000-14

Figure 13: Under-18 conception rates (per 1,000) in Leicester by wards (2012-2014)



4.2 Determinants of Health

4.2.1 Substance misuse in pregnancy

4.2.1.1 Smoking during pregnancy

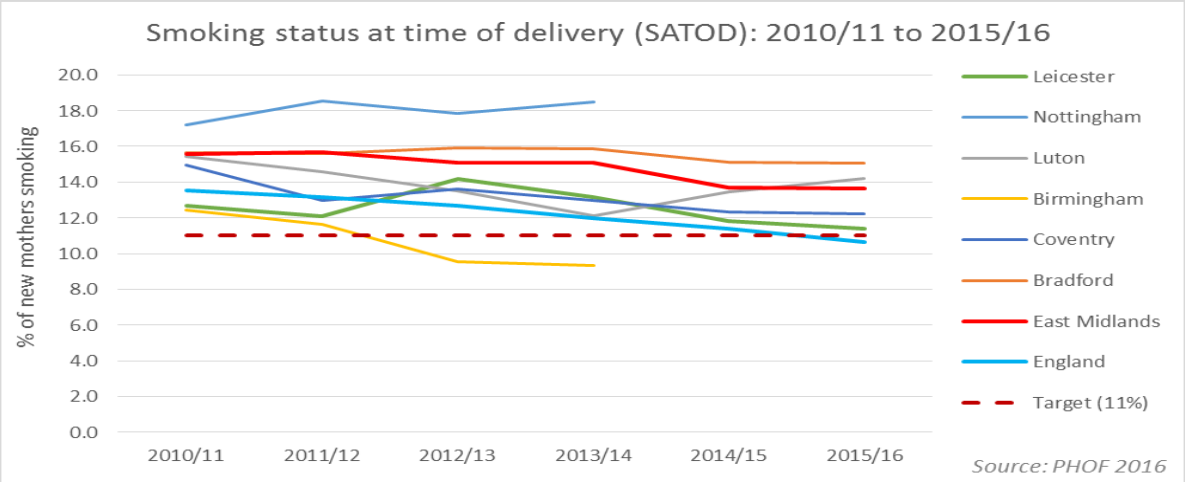
Smoking during pregnancy can have detrimental health impacts for mother and child. Research has shown some of the poor outcomes include:

- Lower oxygen available to the mother and baby
- Increase the baby's heart rate
- Increase the risk of miscarriage and stillbirth
- Increase the risk of premature birth and low birth rate
- Increase the baby's risk of developing respiratory problems
- Increase the risks of birth defects
- Increase the risk of Sudden Infant Death Syndrome

The more cigarettes a pregnant woman smokes per day, the greater the baby's chances of developing these and other health problems. There is no safe level of smoking while pregnant. Stopping smoking in pregnancy can reverse and reduce some of the risks to both the mother and baby. Smoking in pregnancy varies by age and area of residence; younger women in the most deprived areas are more likely to smoke.

In 2011 the Department of Health (DH) set the national goal to reduce rates of smoking in pregnancy to 11% or less by the end of 2015.[10] The relevant data is called Smoking at Time Of Delivery (SATOD). Figure 14 below shows that between 2010/11 and 2015/16 SATOD did not significantly decrease in Leicester, but the 2015/16 SATOD (11.8%) was close to the National Ambition.

Figure 14: Smoking Status at the time of delivery (2010/11 to 2015/16)



After birth exposure to smoke is a significant health risks for both mother and baby. Smoking causes harm to children through second hand or passive smoking. Some of the poor outcomes for children associated with second-hand smoking are an increased risk of asthma, of ear infections and deafness, and of SIDs.

4.2.1.2 Alcohol Consumption during Pregnancy

Alcohol consumption during pregnancy can cause premature birth, LBW and some congenital anomalies. It can also lead to preventable medical conditions described as Foetal Alcohol Spectrum Disorder (FASD).[11] These conditions include abnormal head and facial development, growth failure, and neuro-developmental delay. The highest risk period for foetal damage is the first three weeks of pregnancy.

It is a difficult period to influence women's drinking behaviour during the first three weeks of pregnancy because many women may be unaware that they are pregnant. The Department of Health advises pregnant women to abstain from drinking alcohol.

At present it is not known which groups are most at risk of having a child with FASD. This is partly because some symptoms associated with FASD may be caused by other factors: this means there are no local data available on the incidence or prevalence of FASD.

[10] HM Government (2011). Healthy lives, healthy people A tobacco control plan for England. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/21. On 2.December 2015.

[11] What is Foetal alcohol spectrum disorder? (2013) accessed from http://www.fasdnetwork.org/what-is-fasd.html on 2 December 2015.

Locally there are also no data on the number of women who drink in pregnancy or the quantity they consume.

4.2.2 Perinatal Mental Health

Women's health and wellbeing before, during and after childbirth are risk factors for whether or not a child has a healthy start in life. Perinatal mental health problems are mental health conditions which complicate pregnancy and the year that follows childbirth. Evidence shows the incidence of new onset mental illness is not elevated in pregnancy but the risk is higher following delivery.

In contrast, recurrences of severe depressive conditions do occur in pregnancy. Non-psychotic conditions such as depressive illness and anxiety are common during pregnancy and after delivery. Psychotic illness in pregnancy is associated with poorer pregnancy outcomes, such as premature birth, stillbirth, perinatal death and neurodevelopmental disorder.[12] These conditions cause distress, affect adjustment to motherhood and the care of the new baby and any existing children.

Acute serious perinatal mental illness can present as an emergency and may result in inpatient care. Separation at this crucial time can have a detrimental impact on mother and child attachment, a cause of further distress which prevents important processes such as breastfeeding.[13]

Non-psychotic depression and anxiety, especially that which is associated with social adversity, can affect the child's emotional health and social and cognitive development.[14,15] Prevention, early identification, diagnosis and effective treatment of perinatal mental illness can reduce the number of children with short and long term mental health problems.[16] Serious perinatal psychotic disorder is associated with an increased risk of suicide.[17]

Data on perinatal maternal mental illness are not routinely collected, so it is not possible to report the actual local prevalence of various types of perinatal poor mental health in Leicester.

4.2.3 Long Term Conditions and Illnesses

4.2.3.1 Overweight or Obesity in Pregnancy

In England, approximately half of all women of childbearing age are overweight or obese. Obesity and overweight can impact the health of women and their babies in a variety of ways. Women who

[12] Howard, L., et al, 2003, Medical outcome of pregnancy in women with psychotic disorders and their infants in the first year after birth. Br J Psychiary 182: 63-7

[13] Henderson, J. J., Evans, S., Straton, J., Priest, S. R., & Hagan, R. (2003). Impact of Postnatal Depression on Breastfeeding Duration. Birth, *30*(September), 175-180.

[14] Murray, L., et al, (1996). The cognitive development of 5 year old children of postnatally depressed mothers. Journal of child Psychology and Psychiatry 37: 927-35

[15] Pearson R.M., Evans J. & Kounali, D. et al. (2013). Maternal depression during pregnancy and the postnatal period: risks and possible mechanisms for off spring depression at age 18 years. *JAMA Psychiatr,*; 70: 1312–19.

[16] Pearson R.M., Evans J. & Kounali D. et al. (2013). Maternal depression during pregnancy and the postnatal period: risks and possible mechanisms for off spring depression at age 18 years. *JAMA Psychiatry.*70: 1312–19.

[17] Oates, M.& Cantwell, R. (2011). Deaths from psychiatric causes in Saving Mother's Lives. Reviewing maternal deaths to make motherhood safer 2006-2008. British Journal of Obstetrics and Gynaecology: 118 (Sup 1)

are obese when they become pregnant have an increased risk of complications during pregnancy and childbirth.[18] These complications include impaired glucose tolerance, gestational diabetes, miscarriage, pre-eclampsia, thromboembolism and maternal death. Obese women giving birth are likely to stay in hospital 4 to 6.5 days longer than women of normal weight. In addition, babies born to obese women have a higher risk of foetal death, stillbirth, congenital abnormality and obesity later in life.[19]

The risks associated with obesity for particular ethnic groups are heightened during pregnancy. Women from Asian/Asian British ethnic backgrounds are at a greater risk of increased insulin resistance in late pregnancy. Pre-pregnancy Body Mass Index (BMI) has a much greater effect on insulin resistance during pregnancy in Asian/Asian British women compared to White/White British women. Asian/Asian British women are 11 times more likely to develop gestational diabetes than White British women.[20]

The most recently available UHL maternity data shows that 25% of pregnant women in Leicester who booked with University Hospitals of Leicester were recorded as being overweight with 19%[21] being obese. This is significantly higher than the England average.

4.2.3.2 Diabetes in Pregnancy (Pre-existing and Gestational)

Diabetes is the most common pre-existing condition complicating pregnancy in the UK. Approximately one in 250 pregnant women has pre-existing diabetes.[22] Both pre-existing and gestational diabetes are associated with increased risk of stillbirth, congenital malformations and perinatal mortality. Babies affected by maternal gestational diabetes may also be at risk of diabetes in later life.

The risk of type-2 diabetes is increased 4 to 6 fold in people from Asian/Asian British ethnic backgrounds compared to those from a White British background.[23] Women from ethnic backgrounds other than white may also have elevated diabetes risks associated with obesity during pregnancy. For example pre-pregnancy Body Mass Index (BMI) has a greater effect on insulin resistance during pregnancy in Asian/Asian British women, such that they are 11 times more likely to develop gestational diabetes compared to women from White British ethnic backgrounds.[24]

Gestational diabetes usually occurs during the second or third trimester, usually because the body may not be able to produce enough insulin to meet the extra demands of later pregnancy. Women

[18] NHS Choices. Pregnancy and baby. Retrieved from http://www.nhs.uk/conditions/pregnancy-and-baby/pages/overweight-pregnant.aspx#close on 2 December 2015
[19]Isaacs, J.D., Magann, E.F., Martin, R.W., Chauhan, S.P. & Morrison, J.C. (1994). Obstetric challenges of massive obesity complicating pregnancy. J Perinatol,14:10–14
[20] Dornhorst A, Paterson CM, Nicholls JSD et al. (1992). High prevalence of gestational diabetes in women from ethnic minority groups. *Diabetic Medicine*
[21] Sourced from UHL maternity data
[22]Department of Health. Diabetes in pregnancy retrieved from: http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/publicationsandstatistics/publications/publicationspolicyandguidance/browsable/DH_4915754 on2 December 2015.
[23] Barnet, A., Raymond, N.T., Kumar, S. (2006). Type 2 diabetes and cardiovascular risk in the UK South Asian community. Diabetologia 49: 2234–46
[24] Dornhorst, A., Paterson, C.M.& Nicholls, J,S,D, et al. (1992). High prevalence of gestational diabetes in women from ethnic minority groups. Diabetic Medicine

diagnosed with gestational diabetes are 30% more at risk of developing type 2 diabetes later in life.[25] UHL data indicates that 4.8% of pregnant women in Leicester developed gestational diabetes in 2014/15.

4.2.4 Domestic Violence (DV) in pregnancy

DV is "any incident of threatening behaviour, violence or abuse between adults who are, or who have been, in a relationship, or between family members. It can affect anyone regardless of his or her gender or sexuality. The violence can be psychological, physical, sexual, or emotional."[26] DV includes issues of concern that may affect specific BME communities, such as 'honour based violence', FGM and forced marriage.

About a third of DV cases start or escalate during pregnancy. This is associated with increased rates of miscarriage, LBW, premature birth, foetal injury and foetal death.[27] Woman who experience DV may have difficulties using antenatal care services; for example, the perpetrator may prevent her from attending appointments. These situations are complicated by fears that disclosure will worsen rather than alleviate the situation, and anxieties about the response of healthcare professionals.

The NICE guidance on pregnancy and complex social needs includes domestic abuse[28]. This guidance details what commissioners and practitioners should do to enable these women to be fully supported and receive adequate antenatal care.

In Leicester, the SAFE Project (See Services Section for more information) supported 1609 victims between April 2013 and November 2015. 67% of the victim-survivors had children, and approximately 7% were pregnant at the time of entry to the service. Around 20% of victim-survivors with children were noted as being known to the LCC Children's and Young People's services. Women under 19 years of age constituted approximately 4% of victim-survivors supported by the project.

There are a large number of local organisations who hold information about domestic violence and who are taking action to support victims of DV. Improving the consistency of how this data is collected and coordinated will be key to making sure that there an accurate picture of need across the whole city.

[25] NHS choices. Diabetes. Retrieved from: http://www.nhs.uk/conditions/diabetes-type2/Pages/Introduction.aspx on 2 December 2015

[26] New definition of domestic violence to include 16-17 year olds. HM Government press release. Retreived from: https://www.gov.uk/government/news/new-definition-of-domestic-violence-and-abuse-to-include-16-and-17-year-olds

[27] National service framework for children, young people and maternity services. Maternity services (2004). Department of health. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/199957/National_Service_Framework_for_Children_Young_People_and_Maternity_Services_-_Maternity_Services.pdf

[28] https://www.nice.org.uk/guidance/cg110/chapter/1-Guidance#pregnant-women-who-experience-domestic-abuse

4.2.5 Antenatal screening and immunisations

4.2.5.1 Antenatal screening

All pregnant women in Leicester are routinely offered antenatal screening for HIV, Hepatitis B and Syphilis, and susceptibility to Rubella. The screening programme aims to ensure that women with positive screens are offered appropriate assessment and management of their condition and to reduce the risk of mother-to-child transmission.

4.2.5.2 Immunisations in pregnancy

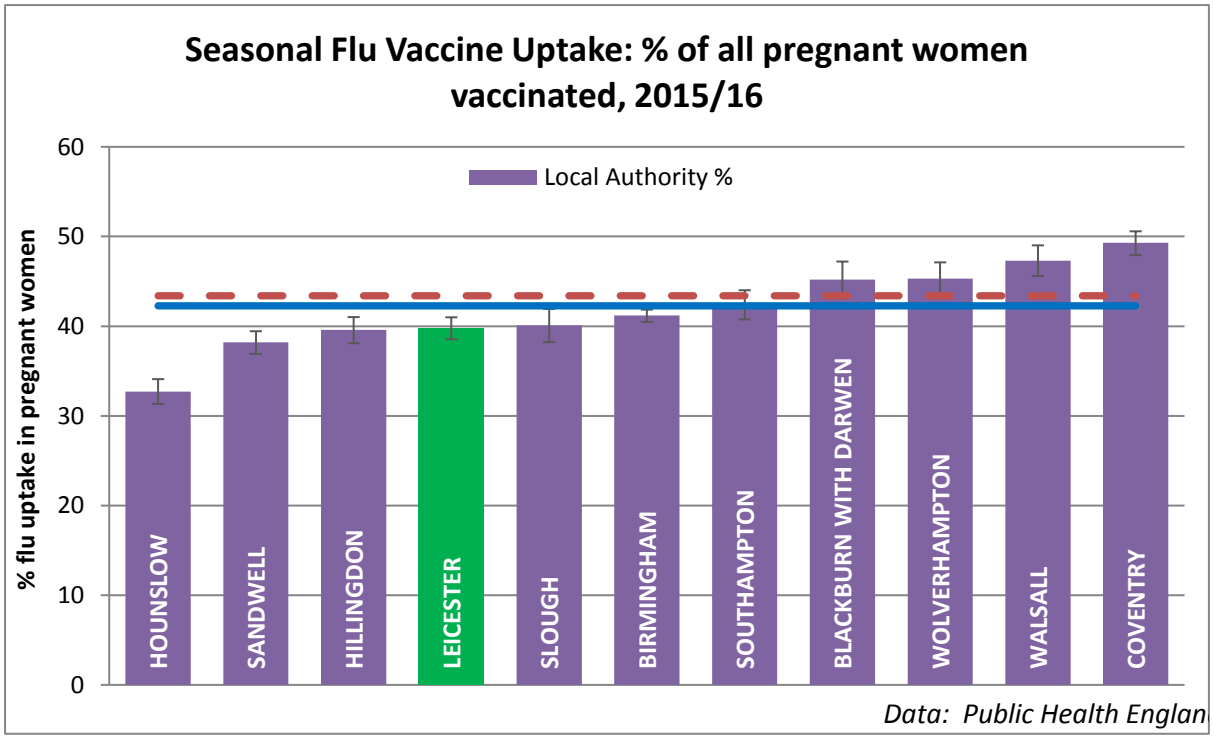
Influenza

The H1N1 (Swine Flu) pandemic in 2009/10 resulted in an increase in complications from influenza in pregnant women. As a consequence of the pandemic, pregnant women were added to the list of those considered to be at high risk from seasonal flu.

Strong evidence shows that contracting influenza in pregnancy affects the unborn baby. Babies born to women who have had flu while pregnant are more likely to be born prematurely and to have LBW. This may be due to an inflammatory response from influenza which can trigger premature labour. Influenza in pregnancy can lead to stillbirth or death in the first week of life.

The uptake of the seasonal influenza vaccine by Leicester's pregnant women was significantly lower than the England and East Midlands averages (Figure 15) and should be kept under review by the local Health Protection Board.

Figure 15: Uptake of seasonal flu vaccine by pregnant women (2015/16)



Whooping Cough

Whooping cough (pertussis) is a serious bacterial respiratory infection which can be severe in young babies. Following an increase in the number of whooping cough cases, a national vaccination programme against pertussis was introduced for all pregnant women in 2012.[29] By vaccinating pregnant women, unborn babies are protected from developing whooping cough in the first few weeks of life. Current data on uptake of this vaccine is not available.

Mortality Review Bodies

4.3 Maternal mortality reviews

All maternal deaths are 'Serious Incidents' and are investigated and reported as such by the UHL Quality and Safety teams.

4.3.1 Perinatal and infant mortality reviews

Since April 2008 Local Safeguarding Children Boards (LSCB) are required to review the death of every child normally resident in a locality. The Leicester, Leicestershire and Rutland Child Death Overview Panel (CDOP) is a subgroup of the three LSCBs. The main purpose of the CDOP is to identify factors that might have prevented a child's death.

The University Hospitals Leicester (UHL) Perinatal Mortality Review (PMR) group is a multi-disciplinary group which reviews all perinatal deaths, including those born at less than 23 weeks gestation and stillbirths. Cases are reviewed at the PMR before consideration by CDOP. The main purpose of the PMR is to identify factors which could have contributed to the death of a child. The Child Death Review Manager attends both the PMR and CDOP meetings. Cases are presented to the CDOP by a consultant neonatologist, who is also a member of the PMR group.

4.3.2 Infant mortality strategy

Given the higher than average rate of infant mortality in Leicester, the Infant Mortality Strategy Group (IMSG) is developing a strategy setting out actions to address infant mortality risk.

5. Current Services

There are a number of services that are particularly relevant to this age group.

5.1 Midwifery services

There are two medical and midwife led units in Leicester; at Leicester Royal Infirmary and Leicester General Hospital. This service has specialist midwives who focus on teenage parents, substance misuse, homeless, asylum seekers, mental ill health and safeguarding concerns.

[29] NHS choices. Whooping cough in pregnancy retrieved from: http://www.nhs.uk/conditions/pregnancy-and-baby/pages/whooping-cough-vaccination-pregnant.aspx on 2 December 2015.

5.1.1 Early access to maternity services

Access to midwifery services by the twelfth week of pregnancy is associated with better outcomes, lower rates of complications in pregnancy and labour and fewer maternal and perinatal deaths.

In 2010/11 the proportion of Leicester's pregnant women (<80%) who had early access to maternity services was significantly lower than England, the East Midlands and some peer comparators. Currently no data are available to compare Leicester to its peers but local data show that 87% of bookings in Leicester were made within 12 weeks or less in 2015/16. Continuing to improve this needs to be an important priority for local health services.

5.1.2 Home births

The type of delivery, method, venue and the lead professional can influence outcomes for mother and child. With appropriate care and support most healthy women, assessed as low risk of complications, can give birth with minimal medical intervention. All pregnant women should be offered evidence-based information to enable informed decisions about childbirth options, such as home births, midwife-led births or consultant-led births.

5.2 Services and initiatives to support and promote breastfeeding

5.2.1 UNICEF Baby Friendly Initiative

UNICEF has developed standards to promote and support breastfeeding. The implementation of the standards will help to improve care and support for women and families; enabling women to build strong and healthy relationships with their babies. Organisations which meet the UNICEF standards can receive the Baby Friendly accreditation. This suggests that the organisation has demonstrated a welcoming breastfeeding culture and that all staff members are confident, competent and consistent in supporting breastfeeding. UHL has achieved Stage 2 of the 'Baby Friendly' assessment and is currently working towards Stage 3, the final stage. Leicestershire Partnership Trust (LPT) has achieved Stage 3.

5.2.2 Breastfeeding peer support

NICE recommends a co-ordinated breastfeeding peer support programme to help women initiate and continue breastfeeding. In Leicester the National Childbirth Trust (NCT) supports breastfeeding groups in Children, Young People and Families Centres, offering hospital ward-based support and home visits to eligible women.

5.3 Substance misuse in pregnancy services

5.3.1 Alcohol and drugs

UHL provides specialist midwifery for women who misuse substances, through to 28 days after birth. The midwife assesses need, initiates appropriate support and refers to other services. The specialist midwife for substance misuse works in partnership with the criminal justice system, New Futures, Inclusion Health Care and Turning Point to deliver care packages with the aim of supporting both

mother and baby and keeping them together. The specialist midwife carries out brief interventions, provides weekly clinics at UHL and conducts home visits.

5.3.2 Smoking

The Leicester Stop Smoking service has two dedicated practitioners who specialise in smoking cessation in pregnancy. Smoking cessation is a core component of midwifery work, and 3 midwives have a special interest in this topic area. Leicester's Stop Smoking Service has a significantly higher rate of pregnant women quitting smoking compared to the national average and peer comparator areas.

The Leicester City Stop Smoking Service also works with agencies, including Community Midwives and Midwifery Support Workers, to deliver the 'Step Right Out' programme. This aims to raise awareness about the dangers of second hand smoke and to encourage people to sign a 'Step Right Out' pledge to keep their home smoke free for the benefit of their families' health. Research has shown that making a commitment to keep the home smoke free can be important in addressing smoking behaviour and moving towards quitting. Since 2012, the number of pregnant women signing up to the pledge from Community Midwives and Midwifery Support Workers has been increasing.

5.4 Mental health services

In Leicester, women see obstetricians and midwives regularly throughout their pregnancy and at 28 weeks, they have their first contact with a health visitor. All midwives and health visitors receive training for the detection of mental illness in pregnancy and following childbirth.

Maternal mental health is assessed at various stages in the perinatal period. Women with mental health problems are seen by health visitors, services in Children, Young People and Families Centres or referred to specialist mental health services, such as Open Mind Improving Access to Psychological Therapies (IAPT) or the Specialist Perinatal Outreach Mental Health Service.

The LLR Specialist Perinatal Outreach Mental Health Service is provided by LPT. Specialist inpatient care is delivered regionally at inpatient units which are compliant with NICE and Royal College of Psychiatry guidance.

The outreach service is staffed by a Consultant Liaison Psychiatrist and community psychiatric nurses. The service holds outpatient clinics at the Leicester Royal Infirmary and LPT. Patient surveys show reduced levels of stigma associated with mental illness and higher levels of acceptance when clinics are held in the maternity units. The service liaises with obstetrics, offers second opinions, advises on medication, contributes to safeguarding and trains other clinicians.

Community based perinatal psychiatry includes home support for women with serious mental illness, working closely with the mental health crisis care team. The service assesses and manages significant mental illnesses that complicate pregnancy and the postpartum period which cannot be managed effectively and safely by primary care services. The majority of referrals come from primary care.

5.5 Maternal Obesity and Diabetes Service

In line with NICE guidance, midwives will offer the following to pregnant women who are obese or overweight:

- Offer practical and tailored information on weight management.
- Dispel any myths about what and how much to eat while pregnant.
- Advise that moderate-intensity physical activity will not harm her or her unborn child. At least 30 minutes of moderate-intensity activity per day is recommended.
- Give specific and practical advice about being physically active.
- Offer women with a BMI of 30 or more at the booking appointment a referral to a dietitian or appropriately trained health professional for assessment and personalised advice on healthy eating and how to be physically active.
- Encourage mothers to lose weight after pregnancy.

Women with pre-existing diabetes should be referred to the multi-disciplinary (MDT) clinic as early as possible when pregnant. Referrals can be made by GP, Diabetes Specialist Nurse (DSN), Community Midwife or the woman herself. A weekly clinic runs at both LRI and LGH. The pathway is likely to include regular blood glucose monitoring and insulin dose adjustment if necessary. Scan appointments are booked for 12, 20, 28, 32, and 36 weeks of pregnancy. Retinal screening is performed in the first and third trimester. Women are followed up in the MDT clinic as often as is clinically indicated to maintain good glucose control but at least monthly. An individual plan for delivery is discussed at 36 weeks.

There is a monthly pre-conception clinic, run by a Consultant Obstetrician and Consultant Diabetologist, at LGH. UHL closely follows the NICE guidance for Diabetes in Pregnancy (NG3) published February 2015.

5.6 Teenage Pregnancy Services

Reducing the number of teenage pregnancies will contribute to improved outcomes for children. A co-ordinated approach to the issue, including close working with young people, has seen a significant reduction in number of teenage pregnancies in Leicester. Young people are provided with free condoms from a variety of community-based sites such as pharmacies and youth services. There is also an emphasis on young people receiving advice and information about relationships and sexual health and in encouraging them to discuss these issues with their family.

There are two specific services aimed at teenage mothers; this includes dedicated support through the Family Nurse Partnership service and the specialist teenage midwife, who assesses cases and provides more intensive care and support as required. Support from midwifery can be extended up to 28 days after.

5.7 Services for New Arrivals

ASSIST provides care and support for all pregnant women who are asylum seekers and refugees. There is also a partnership group which discusses a co-ordinated response for new arrivals in Leicester.

5.8 Family Nurse Partnership (FNP) Service

The FNP is a licenced, evidenced-based, targeted, preventative programme for vulnerable first time mothers (under 19 years) with voluntary participation. The scheme runs from the antenatal period (preferably before 16 weeks of pregnancy) until the child is 2 years old. The family nurse practitioner visits the families on a weekly or fortnightly basis according to the prescription of the programme. The focus of FNP is the future health and well-being of the child and mother. There are 7 WTE FNPs in Leicester; all are health visitors. The service can take up to 150 clients at maximum capacity. The programme accepts self-referrals and referrals from all professionals. Approximately 10% of clients have been or are currently looked after children (LAC). FNP was launched in Leicester at the end of 2011 and as of July 2015, 185 mothers have been recruited, 75 have graduated, 35 have dropped out and 75 continue to participate. This programme has recently been recommissioned as part of the city's 0-19 Healthy Child Programme.

5.9 Children, Young People and Family Centres

Children, Young People and Family Centres (CYPFs) are core to the Early Help offer with a renewed focus on the most disadvantaged families. CYPFs have a role in promoting parenting and nurturing skills. As community based services they are accessible to all families with young children and have an important role in identifying and supporting families with greatest need.

The CYPFs offer a range of universal and targeted programmes with the aim to ensure good health and wellbeing in all children under 5 years of age and to support parents in ensuring their children develop well and are ready for school. There is a strong focus on promoting help when needs are first identified and particularly for children from hard to reach families.

5.10 Antenatal Parenting Education Service

There are different antenatal parenting education classes available in Leicester. Since April 2015 an antenatal programme has been developed with Midwifery Support Workers, Health visitors and Children, Young People and Families Centre staff called Bumps to Babies. Beyond this basic provision paid sessions are also available.

The Bump to Babies programme is delivered by Children, Young People and Families Centre staff, health visiting and midwifery teams through CYPF centres across the city. First time mothers and those with additional needs are particularly encouraged to attend. The programme provides a forum to raise concerns, share experiences and develop relationships with other group members. Early contact with the CYPF centres should encourage parents to access other services and enable timely

identification of parents who need additional services. The programme is based on the DH resource pack Preparation for Birth and Beyond[30].

5.11 Early Help Service

EH services in Leicester are for children, young people and families whose needs are not being met by routine services but who do not need specialist services. The services are for children of all ages and not just the very young. LCC leads on the EH offer, but there is now greater emphasis on staff in all agencies working with children to provide direct support, signposting and a co-ordination of agencies working with the family. EH services can be provided at any point of need and can be very effective in supporting a child, young person and/or their family to step down from statutory services as well as preventing the escalation of issues.

More information may be found at www.leicester.gov.uk/earlyhelp

Midwives are involved in Early Help. They work with partners such as Border House and refer into Children, Young People and Family Centres, Early Help and a number of local charities including SAFE, NSPCC and Open Hand.

5.12 DV Services in Pregnancy

Specialist midwives and other key professionals from voluntary and statutory agencies are involved in Multi Agency Risk Assessment Conference (MARAC) for women with children who are experiencing the highest risk of domestic violence and abuse. During these victim-focused meetings, all professionals work together to share information and ensure the right support and care is put in place for the woman and her children.

There are four specialist services commissioned by Leicester City Council for DV. The services include the DV Family Service, Safe Home Service, the SAFE Project and the DV Perpetrator Intervention Service.

The DV Family Service provides individual and group support (and awareness work) to children and young people on domestic violence. This includes individual and group work with parents and carers of those children and young people. The contract includes respite and practical activities such as crèche provision and play groups as well as emotional support to deal with the impact of domestic violence. The service also includes specific interventions for young people who have started to use abusive behaviour following their exposure to domestic violence between their parents/ caregivers.

The Safe Home Service includes women only (with or without children) refuge accommodation. They also provide other accommodation related support such as security measures for homes, general housing related advice and emergency temporary accommodation for men fleeing domestic violence.

[30] Department of Health (2011).Preparation for birth and beyond: a resource pack for leaders of community groups and activities (2011). Retrieved from https://www.gov.uk/government/publications/preparation-for-birth-and-beyond-a-resource-pack-for-leaders-of-community-groups-and-activities on 3 December 2015

The Victim-Survivor Service (The SAFE project) is the main pathway for accessing support and information for people affected by domestic violence. It is a service for concerned friends and family members, local practitioners and those who have been victim of domestic violence or those concerned about their own behaviour. There is a helpline service, website, individual and group support. This includes crisis and court support and longer term emotional support. It also includes an element of counselling service.

DV Perpetrator Intervention Service (the Jenkins Centre) provides voluntary services for men and women concerned about their own abusive behaviour and motivated to change. The service is Respect accredited and involves individual and group work. The service includes contact and support of partners and ex-partners of those perpetrators.

6 Projected service use

6.1 Fertile Population Projection

The fertile population (15 to 44 year female population) in Leicester is predicted to decrease by 2.15% by 2021 and therefore there will be a slightly reduced burden on maternity services.

6.2 Maternal Mental Health

The table below shows that the number of births in Leicester is projected to decrease slightly over the next 10 to 15 years from an estimated 5,400 to 5,200 in 2030. As the birth rate is projected to decrease over the next decade, the maximum number of cases per year of perinatal mental illness is expected to drop from 2,776 in 2015 to 2,674 by 2030. However, the table below shows that the number of cases of serious perinatal maternal mental illness is not expected to decrease. The largest decrease is expected in the number of cases of depression, anxiety and adjustment disorders.

Table 3: Estimated rates of Perinatal Mental Illness for Leicester (2015-2030)

Births and disorders	Rate of Perinatal Psychiatric Disorder per 1,000 maternities	2015	2020	2025	2030
Projected Births		5,400	5,300	5,200	5,200
Postpartum psychosis	2/1,000	10.8	10.6	10.4	10.4
Chronic serious mental illness	2/1,000	10.8	10.6	10.4	10.4
Severe depressive illness	30/1,000	162	159	156	156
Mild to moderate depressive illness and anxiety	100-150/1,000	540-810	530-795	520-780	520-780
Post-traumatic stress disorder	30/1,000	162	159	156	156
Adjustment disorders and distress	150-300/1,000	810-1,620	795-1,590	780-1,560	780-1,560