Maternity and Early Years

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Summary

Maternity and Early Years – Pregnancy is a vital period when a mother's physical and mental health can have a lifelong impact on the child. Evidence has highlighted that maternal stress, diet and alcohol or drug misuse can place a child's development at risk. Early identification of need and risk will ensure that appropriate monitoring, screening and support is put in place and higher risk parents who may need additional support are identified. Early access to antenatal care is essential and has a positive effect on low birth weights and infant mortality rates.

Full JSNA report

What do we know?

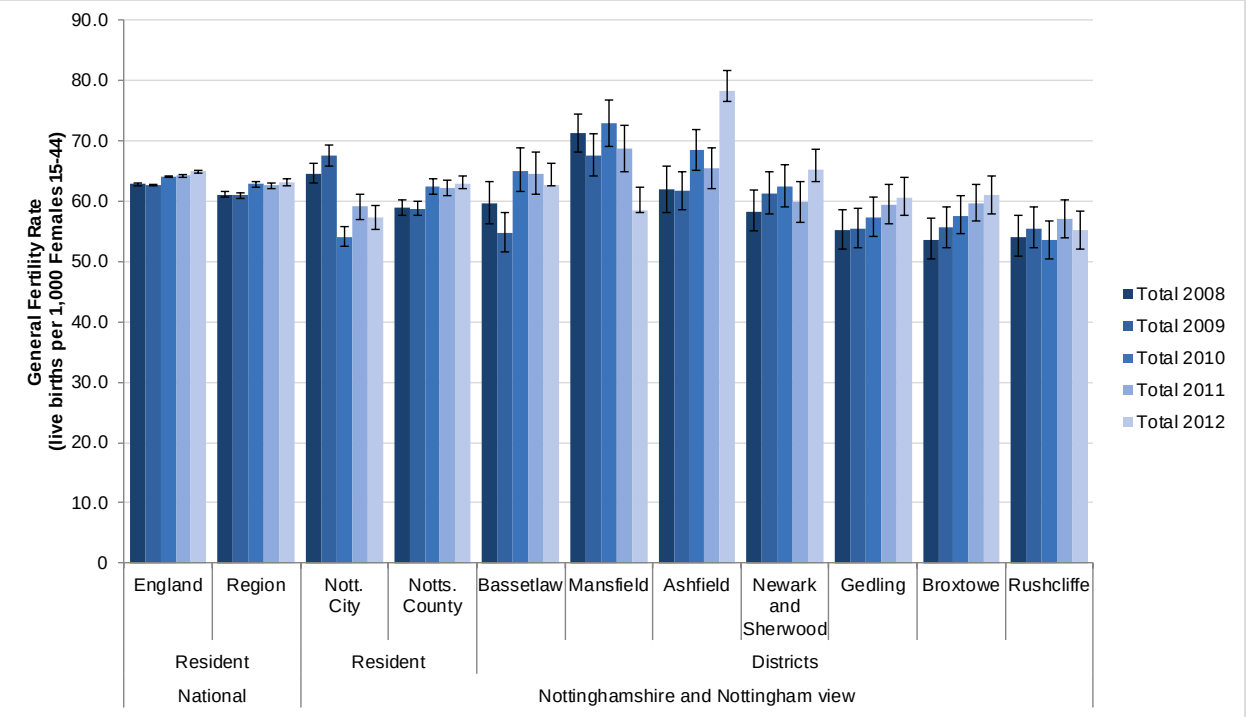
1. Who is at risk of and why?

The Marmot Report (2010) on health inequalities reports evidence that development begins before birth and that the health of the baby is significantly affected by the health and well being of the mother.

Births

National and regional birth rates have increased between 2008 and 2012. In Nottinghamshire the birth rate, as measured by the General Fertility Rate (GFR), has increased from 59.0 births per 1,000 in 2008 to 62.9 per 1,000 in 2012 but is below the national average. The national average birth rate in 2012 was 64.9 per 1,000 population and in Nottinghamshire it was 62.9 per 1,000 population. Concurrently the proportion of high risk and complex pregnancies continues to grow due to maternal age 40 years old and over or below 20 years, raised Body Mass Index and a number of long term conditions.

Figure 1 Live Births per 1,000 Females 15-44 years

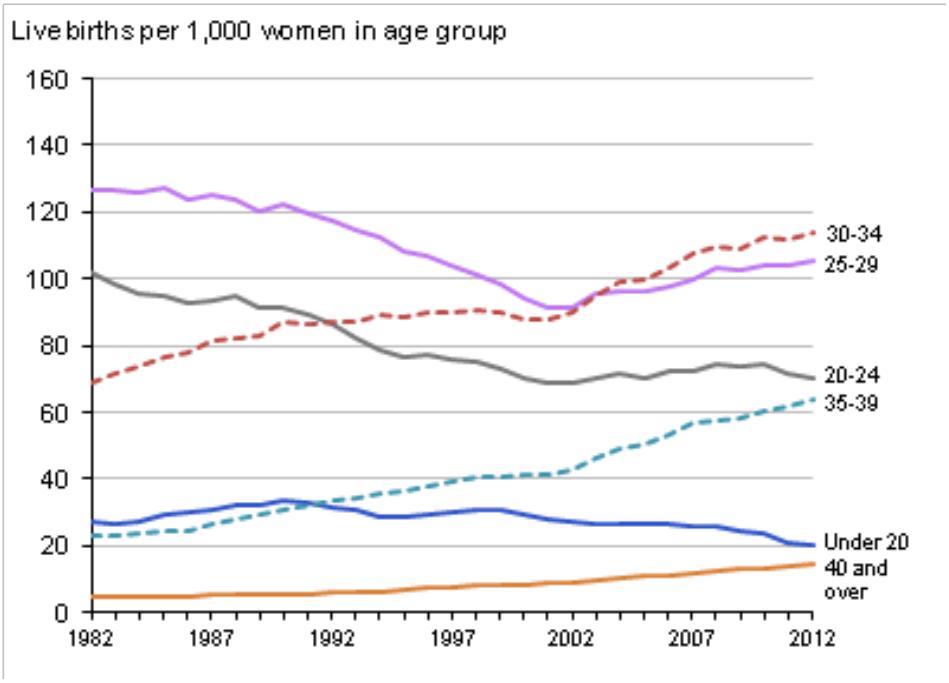


Source: Secondary analysis of data from "ONS Characteristics of Birth 1", ONS Mid-year population estimates, Local datawarehouse extract of ONS Births and Deaths, local datawarehouse extract of Exeter registered populations

Figure 1 highlights that Ashfield have had the highest birth rate in the county in 2012 of 78.2 per 1,000 population which is significantly higher than the overall county rate of 62.9. Rushcliffe has the lowest birth rate in 2012 55.1 per 1,000 population which is substantially lower than Nottinghamshire as a whole. If birth rates continue to rise it is essential that maternity services are commissioned to provide sufficient capacity within the service.

Early access to antenatal care preferably by 10 weeks of pregnancy is vital as it has a direct positive effect on infant mortality and low birth weight. This allows the midwife to provide essential information about the pregnancy and give advice about folic acid, vitamin D and free Healthy Start Vitamins and lifestyle factors such as smoking, diet, drugs and alcohol in pregnancy early on. This also allows the midwife to assess risk and needs and give mothers available choices. In Nottinghamshire 87% -97% of women accessed antenatal care by 12 weeks and 6 days in 2012/13 and the National Institute for Clinical Excellence (NICE) antenatal standard now recommends early access around 10 weeks gestation.

Figure 2 Live births per 1,000 women in age group in England and Wales



Source: The Office for National Statistics

Figure 2 highlights that the 30-34 age group has the highest number of deliveries (196,593, 29.7% of deliveries) which is consistent with 2011-12 (28.8%, 190,910). Since 1982 there has been a significant increase in the number of deliveries for the 35-39 age group.

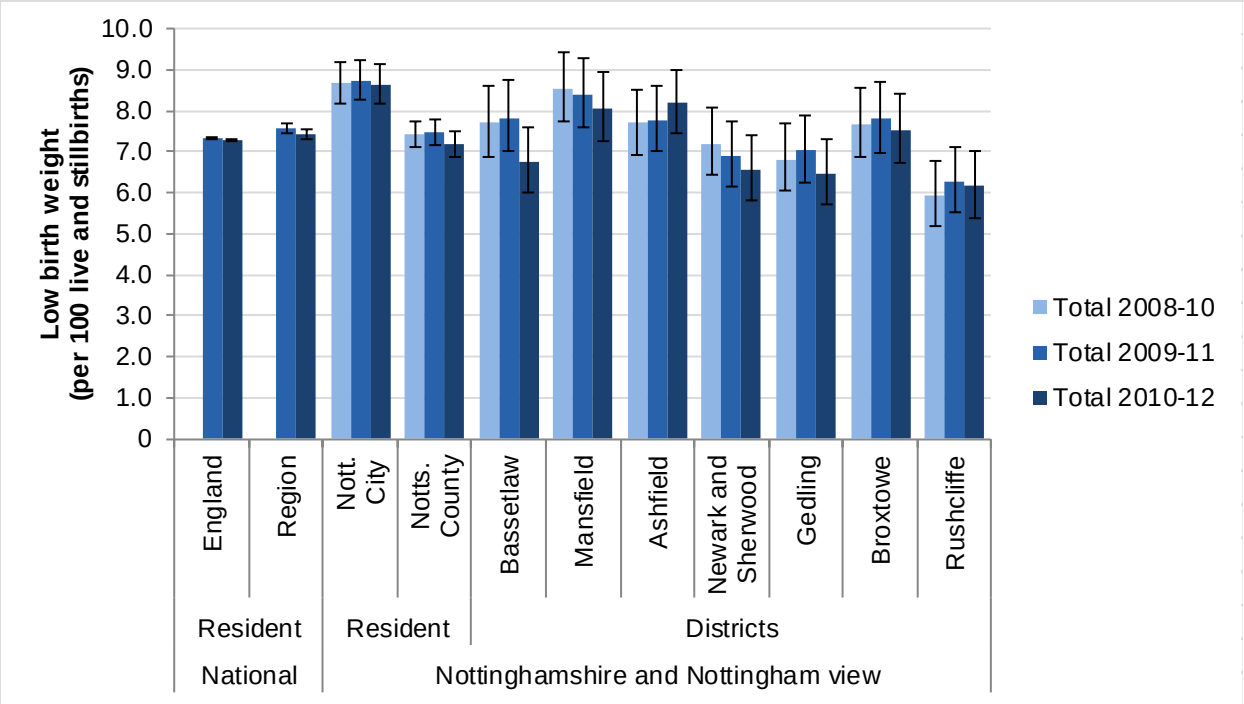
Low Birth Weight

Low birth weight is associated with poorer long term health and educational outcomes. Low birth weight is the % of live births born below 2500g. In Nottinghamshire the residential population low birth weights are 7.2 per 100 births and lower than the national average and regional numbers of 7.4 per 100 births. However certain areas in Nottinghamshire exhibit higher rates than the national average of 7.3 per 100 births, see below and Figure 3 and 4.

- Ashfield district 8.1 per 100 births
- Mansfield district 7.8 per 100 births
- Broxtowe district 7.6 per 100 births

Figure 3 below also highlights that rates have increased from 7.7 per 100 births in 2008-10 to 8.1 per 100 births 2010-12 in the Ashfield area. All other areas have seen a slight reduction.

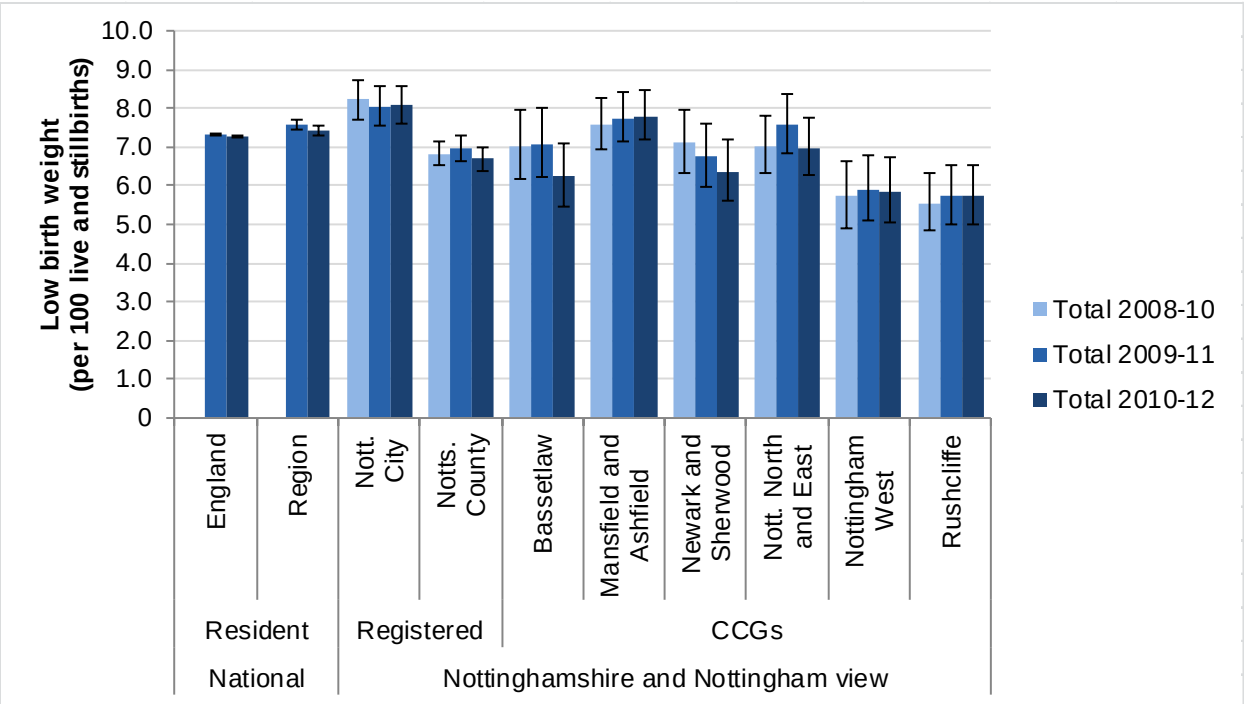
Figure 3 Low Birth Weight per district



Source: Secondary analysis of data from "ONS Characteristics of Birth 1", and Local datawarehouse extract of ONS Births and Deaths, ONS Mid-year population estimates

Figure 4 reports Low birth weights by CCG which highlights Mansfield and Ashfield have the highest rates of low birth weights of 7.8 per 100 births followed by Nottingham North East of 7.0 per 100 births.

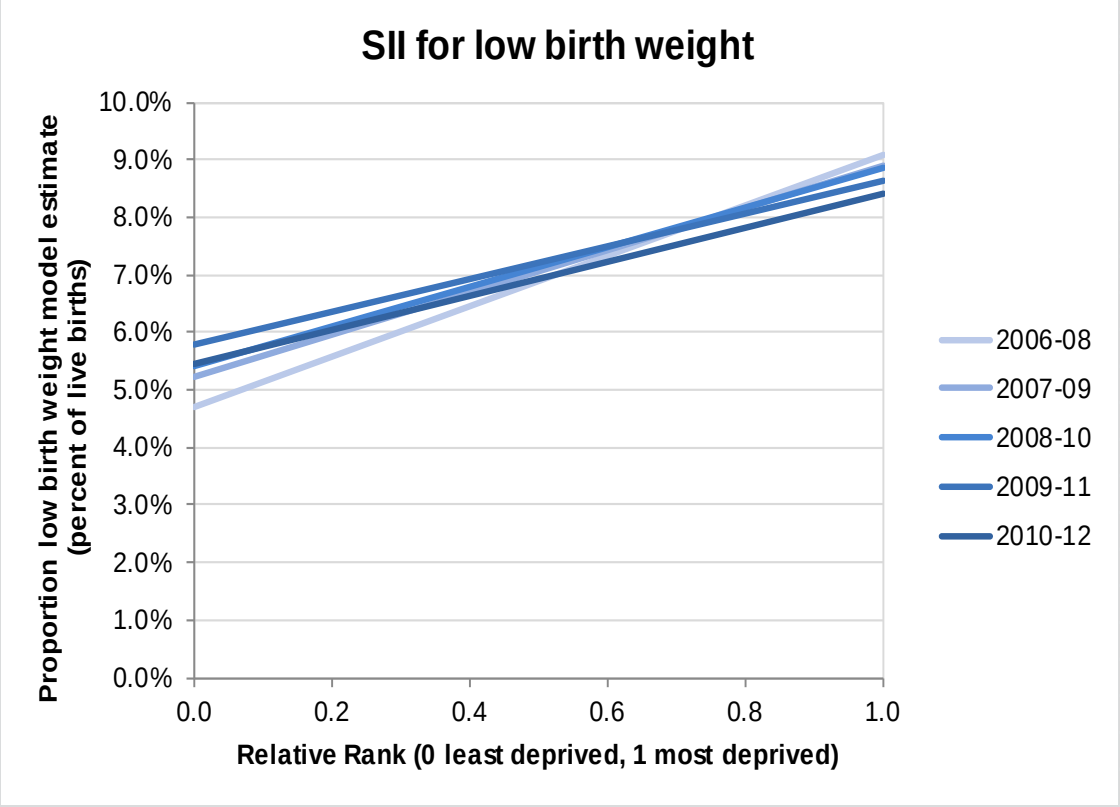
Figure 4 Low Birth Weight per CCG



Source: Secondary analysis of data from "ONS Characteristics of Birth 1", and Local datawarehouse extract of ONS Births and Deaths, ONS Mid-year population estimates

Evidence suggests that maternal health is related to socioeconomic status and that disadvantaged mothers are more likely to have babies of low birth weight (Wave Trust 2013).

Figure 5 highlights the Slope Index of Inequality (SII) Low Birth Weight in Nottinghamshire



Source: secondary analysis The Office for National Statistics births DCLG deprivation data

Figure 5 suggests that low birth weight in the most deprived areas is reducing. It also suggests that low birth weight in the least deprived areas has increased since 2002 -08.The proportion of low birth weight between 2010 -12 in the least deprived was estimated 5.5% and 8.5% in the most deprived areas in Nottinghamshire.

Factors associated with low birth weights:

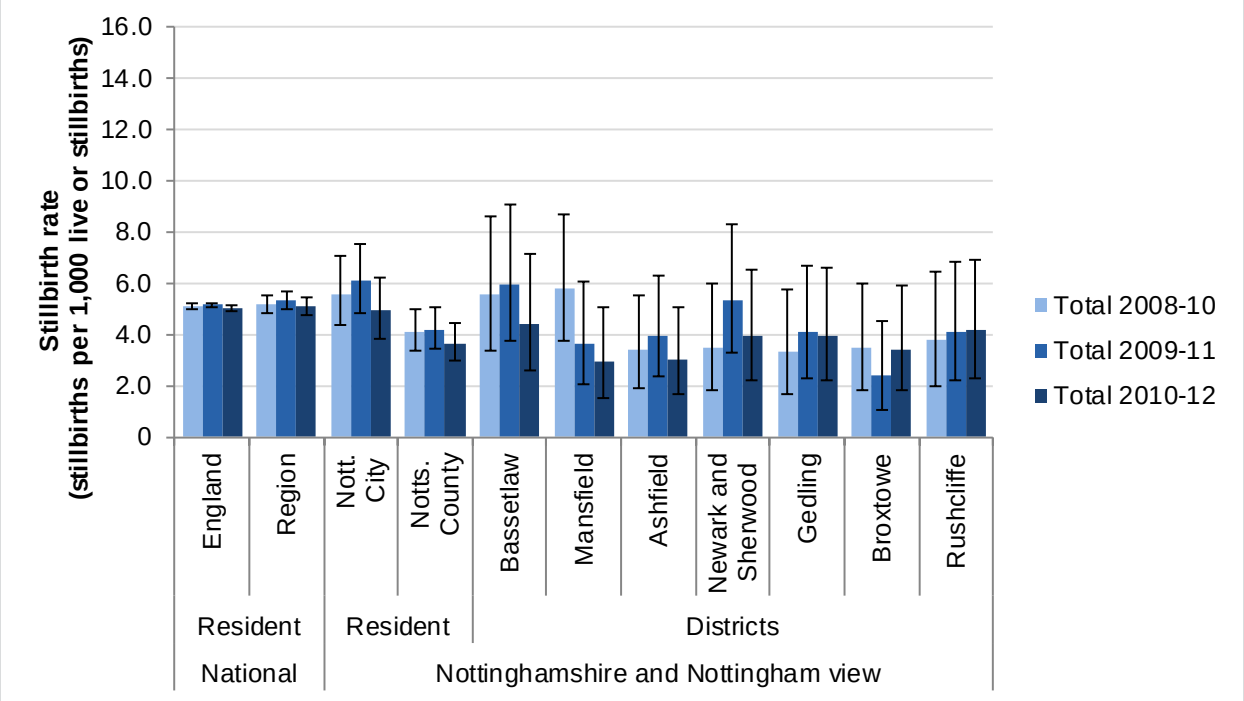
- Smoking
- Lack of antenatal care
- Poor maternal nutrition
- Maternal Stress

There is a correlation between the impact of smoking prevalence on low birth weights. In Mansfield and Ashfield where smoking prevalence is high low birth weights are significantly higher. Please see Smoking in Pregnancy Chapter 3.2. Interventions which address smoking in pregnancy and early access to antenatal care will have a positive impact to reduce prevalence of low birth weight.

Stillbirth

A stillbirth is a baby delivered with no signs of life after 24 completed weeks of pregnancy. A stillbirth rate is the number of stillbirths per 1,000 live births and stillbirths. The number of stillbirths in England and Wales fell to 3,558 in 2012 from 3,811 in 2011 (a fall of 6.6%). In 2012 the stillbirth rate fell to 4.9 per thousand total births from 5.2 in 2011, see Figure 6. However stillbirth rates still remain the highest in Europe.

Figure 6 Stillbirth rate per 1,000 live or stillbirths



Source: Secondary analysis of data from "ONS Characteristics of Birth 1", and Local datawarehouse extract of ONS Births and Deaths, ONS Mid-year population estimates

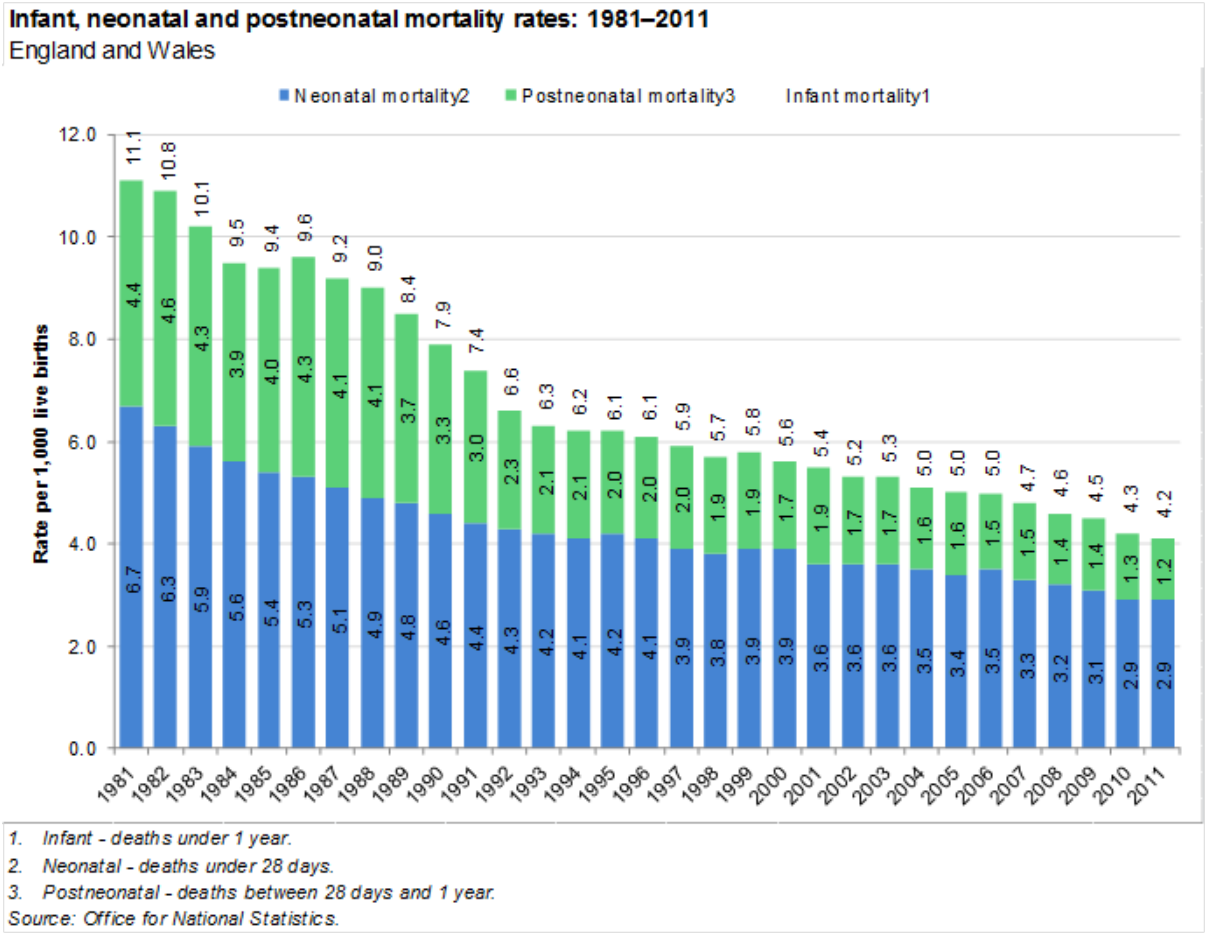
In Nottinghamshire the stillbirth rate is 3.7 per 1,000 births compared to the national average of 5.0 per 1,000 births. Bassetlaw has the highest stillbirth rate of 4.4 per 1,000 births which is still substantially lower than the national average. Nationally Twenty eight percent of stillbirths in 2009 were unexplained. The biggest causes/associated factors for stillbirths were major congenital anomaly these are problems during fetus development before birth for example heart defects, neural tube defects and down syndrome (9%), antepartum or intrapartum haemorrhage (11%) and specific placental conditions (12%)(ONS 2011).

Fetal growth restriction is the largest contributory factor associated with antepartum stillbirths and smoking in pregnancy is the second strongest risk factor. Stillbirth and Neonatal Death Charity (SANDS 2012) identified key risk factors for stillbirths are overweight mothers, smoking during pregnancy and multiple pregnancies (SANDS 2012).

Infant Mortality Rate (IMR)

Infant Mortality rate (IMR) is defined as the number of deaths of children under the age of one per year, per 1000 live births. The infant mortality rate in England and Wales continues to fall. In 2011, there were just 4.3 infant deaths per 1,000 live births – the lowest rate on record. This compares with 11.1 deaths per 1,000 live births in 1981, a 62% decrease see Figure 7.

Figure 7 Infant, neonatal and postneonatal mortality rates: 1981-2011



1. *Infant - deaths under 1 year.*
2. *Neonatal - deaths under 28 days.*
3. *Postneonatal - deaths between 28 days and 1 year.*

Source: Office for National Statistics.

The highest rates of infant mortality in England and Wales in 2011 were among women aged 40 and over, with 5.5 deaths per 1,000 live births. Women under the age of 20 had the second highest infant mortality rate with 5.4 deaths per 1,000 live births. Older women are at higher risk of multiple births which in turn increases the likelihood of low birth weight which increases the risk of death in the first year of life. Young mothers are six times more likely to smoke in pregnancy compared to mothers aged 35 and over and smoking in pregnancy is one of the main risk factors for low birth weight, please see JSNA Smoking in Pregnancy section and Teenage Pregnancy section for more information.

In Nottinghamshire Infant Mortality rates are below the national average of 4.2 at 3.8 per 1,000 births and 3.3 per 1,000 births between 2010-2012, see Figure 7. The districts that have the highest rates of Infant Mortality are listed below:

- Rushcliffe 5.6 per 1,000 live births
- Bassetlaw 3.7 per 1,000 live births

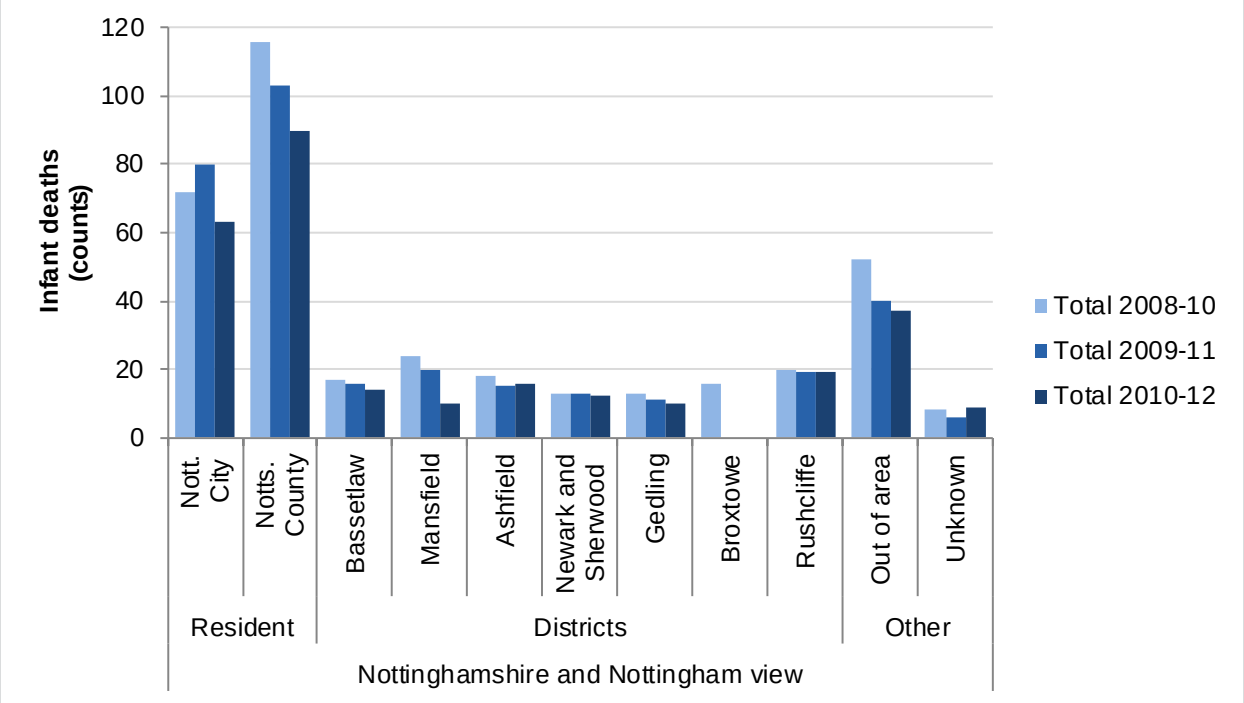
- Ashfield 3.5 per 1,000 live births

It should be taken into consideration that these numbers are very small and include babies born very prematurely or babies with congenital conditions which could affect the overall rate. It is also important to note that data should not be used completely in isolation without supporting evidence.

Other risk factors for infant mortality include:

- Low birth weight
- Multiple births – 5 times higher risk than singleton birth
- Smoking in pregnancy
- BMI>35
- Deprivation
- Black ethnic origin and Asian ethnic origin

Figure 8 Infant deaths counts



Source: Secondary analysis of data from "ONS Characteristics of Birth 1", and Local datawarehouse extract of ONS Births and Deaths, ONS Mid-year population estimates

Figure 8 highlights that Broxtowe rates have also substantially dropped as the rates were so low between 2009 -2012 the numerator was too small for meaningful rate calculation. In Nottinghamshire rates between 2008-10 have dropped from 4.4 per 1,000 to 3.3 per 1,000 births. The table above also highlights that there is a notable drop in Mansfield rates from 2008 to 2012 from 5.9 per 1,000 births to 2.4 per 1,000 births.

2. Targets and Performance

Clinical Commissioning Groups (CCG) Outcome Indicators for 2014/15 for reducing deaths in babies and young children

• Antenatal assessment < 13 weeks

• Reduction Maternal smoking at delivery
• Breastfeeding prevalence at 6-8 weeks

CCG Outcomes Indicator set measures are developed from NHS Outcomes Framework indicators that are measured at CCG level together with additional indicators developed by NICE and the Health and Social Care Information Centre.

The Maternity and Children's Data Set is a new data set specifically developed for all NHS commissioned maternity, child health and child and adolescent mental health services as a key driver to achieving better outcomes of care for mothers, babies and children, this data set is to be implemented in 2014.

In Nottinghamshire 87-97% of women accessed antenatal care by 12 weeks and 6 days in 2012/13 and the National Institute for Clinical Excellence (NICE) antenatal standard now recommends early access around 10 weeks gestation.

The Public Health Outcomes Framework sets out a number of outcome indicators to improve health outcomes for mothers and babies:

- Reduce the % Low birth weight of term babies
- Increase Breastfeeding initiation rates and at 6-8 weeks
- Reduce the number of mothers smoking at time of delivery
- Reduce Under 18 conceptions
- Reduce Infant Mortality rates

In addition, the Outcomes Framework for the NHS sets the high-level nationally required outcome measures that commissioners should use to judge the quality and effectiveness of their maternity services these include:

- Perinatal mortality
- Ensuring women have a positive experience
- % of term babies admitted to Neonatal Intensive care

3. National and Local Strategies

Maternity services are a priority for the government. There have been numerous official reviews and policy initiatives focusing on flexible, appropriate and accessible maternity services that are of high quality and offer women choice. Early access to maternity care is essential and in the south of the county further work will be developed to improve direct access to maternity services.

National Strategies:

Healthy Lives Healthy People (2010) sets out a vision for the preventative aspects of maternity care.

Teenage Parents, who Cares? (2008) has highlighted young women and their babies have poorer access to maternity services and experience poorer outcomes than older women. This guide produced by the DH sets out the actions commissioners can use to drive improvements in their local services to support better care for this vulnerable group.

Maternity Matters (DOH 2007) highlights the Government commitment to developing a high quality, safe and accessible maternity service through the introduction of a new national choice guarantee for women. The National Audit Office (NAO) has recently reviewed Maternity Services in England (2013) and noted that there has been improvement in maternity services, with more midwifery-led units, greater consultant presence on labour wards, and progress against the government's commitment to increase midwife numbers. Variations between Trusts performance in respect of quality and safety cost and efficiency has been identified.

The Department of Health (2013) main aims for maternity services are:
- Improve performance against quality and safety indicators;
- Mothers to report a good experience;
- Encourage normality in births by reducing unnecessary interventions;
- Promote public health with a focus on reducing inequalities
- Improve diagnosis and services for women with pregnancy-related mental health problems.

Local Strategies:

Nottinghamshire Child Poverty Strategy aims to reduce health inequalities between families across Nottinghamshire by reducing the gap in life expectancy, infant mortality, low birth weight and teenage conception rates between the most deprived and least deprived localities.

Nottinghamshire Children, Young People and Families Plan (2014 -2016) provides the foundation of our shared planning to continue improving how services work together.

4. Current Activity and Service Provision

Maternity Services, Health Visiting services, Family Nurse Partnership Programme and Children Centres work together to support and care for families and 0-5 years. These services have some specialist services to support mothers with complex social needs and work together with smoking cessation services, perinatal health team, substance misuse services and peer support programmes etc to provide early access to services and joint care plans. The Family Nurse Partnership (FNP) is a licensed, evidence based, intensive nurse-led prevention and early intervention programme for first time young parents and their children, delivered by specially trained Family Nurses. It is the first part of the preventive pathway for the 2-5% of most disadvantaged children. One of the outcomes for FNP are improved pregnancy outcomes.

Currently any pregnant smoker may be self-referred or referred from maternity or other related services to local stop smoking support. In November 2011 New Leaf, the specialist stop smoking service in the county, reconfigured their services to offer a specialist pregnancy service for women. Various models are being explored to make the service flexible and responsive to the individual needs of pregnant women, including smoking cessation advisors attending ante natal clinics and offering home visits, see JSNA Smoking in Pregnancy chapter section 3.2.

Nottinghamshire County has a Breast Feeding Action Plan which ensures a coordinated approach to all breastfeeding related activity across Nottinghamshire, see breastfeeding chapter. A Breastfeeding Support service is being developed across the County. Please see Breastfeeding and Healthy Start Programme JSNA Chapter for further details.

Nottinghamshire Perinatal Psychiatric Service provides assessment and treatment to those women who experience serious perinatal mental illness or have a previous serious mental illness that may recur in the perinatal period or are at risk of such illnesses. The service works closely with Midwives, Health Visitors and GP's.

5. Evidence of what works

- Effective Pre-Conceptual Care
- Improving the quality and accessibility of antenatal care and support during the first year of life, particularly in disadvantaged areas
- Reducing smoking in pregnancy
- Improving nutrition in pregnancy and infancy
- Increasing the number of mothers who breastfeed
- Preventing teenage pregnancy and supporting teenage parents

6. Local Views

In the South of the county women are referred by their GP to midwifery services which can cause delay in women being seen. In 2014 there are plans to develop direct access to midwifery services in the South of the county to really promote and improve early access to maternity services. In the North of the county women can access maternity services directly but further work to develop early access with the hard to reach is required.

New Leaf, the specialist stop smoking service in Nottinghamshire carries out an annual satisfaction survey with a sample of service users. In 2011/12, 108 service users took part in the survey and of these 89.8% of service users were very satisfied with the service they received and 92.2% found the service 'easy to contact'. Similarly, Bassetlaw Stop Smoking Service conducted a survey with 59 service users and found that 68% (40) thought the overall experience of the service was very good and 55% (32) thought the time they waited for an appointment was very good. However there are no specific surveys for pregnant women which would be important to consider in the future. Please see Smoking in Pregnancy JSNA section.

All infant feeding leads across the county collect data on the quality of the service provided from breastfeeding mothers in line with UNICEF Baby Friendly Initiative (BFI). Stage 3 of Baby Friendly Accreditation focuses very much on speaking to breast feeding mothers ensuring that the baby friendly standards are implemented for all pregnant women and new mothers. All providers across the county will be assessed for UNICEF Stage 3 BFI in 2014 which will assess feedback from mothers, see Breastfeeding section for further information.

What does this tell us?

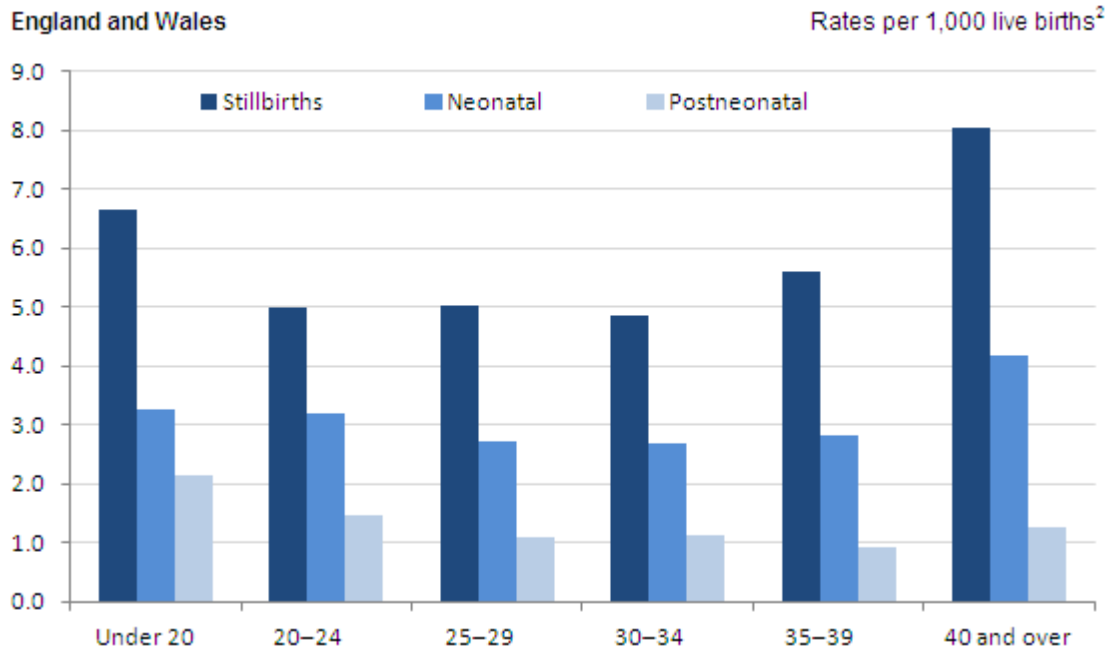
7. What are the key inequalities

The Marmot Report on health inequalities provides evidence that development begins before birth and that the health of a baby is extremely affected by the health and well-being of the mother.

Nationally Infant mortality rates were highest among babies of mothers aged under 20 years and 40 years and over at 5.4 deaths per 1,000 live births. Infant mortality rates were highest for babies registered solely by their mother and those registered jointly by parents living at different addresses, at 5.7 and 5.4. Seventy four per cent of all infant deaths and 85.9 per cent of all neonatal deaths were related to events occurring before the onset of labour for example congenital anomalies, antepartum infections and immaturity related conditions (ONS 2011).

The majority of stillbirths 75.2 per cent were classified as antepartum (before birth) deaths. In 2009, 10% of mothers who had a stillbirth or whose babies died in the neonatal period had a BMI of 35 or more. This is twice the UK prevalence rate (5%) of all deliveries to women with a BMI of 35 or more at any point in pregnancy, published in the CMACE/RCOG Obesity in Pregnancy report (2010). Mothers who had stillbirths and neonatal deaths were more likely to be younger less than 25 years old and over 40 years old.

Figure 9 Stillbirths and infant deaths by mother's age 2011 in England and Wales



Source: The Office for National Statistics.

Figure 9 highlights the number of still births, the neonatal deaths at under 28 days and the postneonatal – deaths between 28 days and one year by age group. Mothers less than 20 years old were 1.4 times more likely to have a stillbirth and 1.2 times more likely to have a neonatal death than mothers of 25-29. Older mothers 40+ years old mothers were 1.7 and

1.3 times more likely to have a stillbirth or neonatal death respectively compared to mothers of 25-29 (ONS 2011), see Figure 9.

Infant mortality rates show large socio-economic and ethnic differences at national level. Mothers from ethnic minority groups are more likely to have stillbirths and neonatal deaths. Mothers of black ethnic origin were 2.1 times more likely to have a stillbirth and 2.4 times more likely to have a neonatal death than mothers of White ethnic origin. Similarly, mothers of Asian ethnic origin were 1.6 times more likely to have a stillbirth or a neonatal death than mothers of White ethnic origin (ONS 2011). Infant deaths are still 35% more common among those from manual backgrounds than among those from non-manual backgrounds (ONS 2011).

Babies from manual backgrounds are now slightly more likely to have a low birthweight than those from non-manual backgrounds: 7% compared to 6½%. Babies of lone parents are more likely to be of low birth weight than babies of couples: 10% compared to 7%.

In 2011, babies born in England and Wales were more likely to be Small for Gestational Age (SGA) if their mother was under 20 years of age; 11.3% of babies born to mothers under 20 were SGA, compared with 8.2% of babies born to mothers aged 40 years or over, and 7.5% of babies born to mothers in their thirties. Barker (1998) also identifies that low birth weight babies have poorer long term health such as high blood pressure in later life, coronary heart disease and educational outcomes.

Socio-demographic factors such as smoking, alcohol consumption in pregnancy could play a major role in the risk of giving birth to a low birth weight baby and a number of studies have found young mothers are more likely to smoke and consume alcohol in pregnancy (Bakker et al, 2011). Please see Teenage Pregnancy JSNA section for further details.

The Wave Trust report (2013) highlights that the following are associated with poor outcomes:

- Smoking in pregnancy – Low Birth Weight and Perinatal Mortality
- Drug Misuse in Pregnancy – Low Birth Weight, Premature Delivery, Sudden Infant Death Syndrome and Perinatal Mortality. Structural damage is most likely between 4-12 weeks
- Alcohol Misuse in Pregnancy – Increase in Miscarriage, Risk of Fetal Alcohol Syndrome, Fetal Alcohol Spectrum Disorder and increase risk of Learning Disabilities
- Emotional Well Being has been reported to be associated with the child's later development of antisocial behaviour. Antenatal anxiety at 32 weeks' gestation has been linked to behavioural and emotional problems in children from age 4 compared to other children.

Perinatal mental health can affect 10-15% of women (NICE 2007), NICE Guidance on antenatal and postnatal mental health (NICE 2007) states that as many as 1-in-7 women will experience a mental health disorder in the perinatal period. The risks relating to mental health issues and maternal death through suicide have been clearly recorded within the Confidential Enquiries into Maternal and Child Health Centre for Maternal (2004 & 2007) and the Centre for Maternal Child Enquiries (2011). It is therefore crucial that systems are in place for identification, communication and management of all women identified. Maternal

mental health can have a significant impact on that fetal/infant and maternal relationship and can be associated with emotional and behavioural problems in later life (Wave Trust 2013).

8. Where are the gaps in service?

Preconception counselling for couples planning pregnancy to identify any risk factors and provide support to improve pregnancy outcomes.

Early identification, early access and effective joined up care for all mothers with complex social needs throughout their pregnancy.

The pathway for overweight and obese expectant mothers in Nottinghamshire requires further development to provide services and support.

Fully embedded stop smoking provision for pregnant smokers and specialist midwives with a specific remit around stopping smoking.

9. What are the risks of not delivering?

If we do not improve access to antenatal care and other public health interventions such as Stop Smoking Services and Weight Management Services for maternal obesity the numbers of low birth weight babies and infant mortality could increase.

10. What is on the Horizon?

The government has made the commitment to expand the health visiting service by 4,200 health visitors by 2015. A well-resourced health visiting service in Nottinghamshire will support families to have the best start working in partnership with maternity services, children centres and GP's.

Implement a breast feeding support service across Nottinghamshire that is integrated with maternity services and early years. This will provide an enhanced service for all breastfeeding mothers.

What should we be doing next?

- Preconception counselling including maternal obesity
- Promote direct access to midwifery services and early access to maternity care. Early identification of need and risk will ensure appropriate monitoring and support is put in place for those mothers who are higher risk of low birth weight, infant mortality and poor pregnancy outcomes
- Early years and Maternity services are commissioned to work in a targeted, collaborative way to offer more support, advice and identify risk factors early to the most deprived populations.
- Undertake further analysis of need and service delivery in relation to perinatal mental health to better understand current provision

- Ensure the early years and maternity services are commissioned to actively support all mothers and reduce inequalities in the antenatal period, while in hospital and in the postnatal period
- Ensure that early years and maternity services are commissioned to sufficient capacity to meet local need
- Continued monitoring of smoking in pregnancy rates to ensure effectiveness of the stop smoking interventions in place to reduce the number of women smoking in pregnancy. This public health intervention will be key to reducing low birth weight babies.
- Continue to monitor data and analyse to inform commissioning decision
- Ensure the early years and maternity services are commissioned to actively support mothers in the antenatal period, while in hospital and in the postnatal period to initiate and sustain breastfeeding

- Improve maternal nutrition through antenatal care and advise on nutrition and promotion of the Healthy Start scheme by health professionals, children's centre staff and others working with pregnant women to improve the low uptake of vouchers and healthy start vitamins
- The pathway for overweight and obese expectant mothers in Nottinghamshire requires further development to provide services and support

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