

6. CHILDREN, YOUNG PEOPLE AND THEIR FAMILIES

6.6 Low birth weight and prematurity

Birth weights below 2.5kg are defined as low birth weight, and below 1.5kg as very low birth weight. Low birth weight may happen as a result of pre-term birth (defined as birth before 37 weeks' gestation) or restricted foetal (intrauterine) growth in a term birth (≥ 37 weeks' gestation) which can be associated with many different factors affecting the mother and foetus.

6.6.1 The importance of low birth weight and prematurity

While the majority of low birth weight babies have normal outcomes, babies born with low birth weight can face immediate and lifelong risks to their health and development. They are at increased risk of ill-health and mortality in the newborn period and later in infancy and childhood, and of developmental problems and poorer health later in life. Although some low birth weight babies are premature, there are risks associated with low birth weight separate from those due to prematurity.

Risk factors for low birth weight and prematurity are similar, and it is often not possible to identify a single cause. The risk is greater among teenage mothers¹ and women over the age of 35², and in multiple pregnancies. Potentially preventable or treatable causes include problems during pregnancy such as intrauterine infection, pre-eclampsia or gestational diabetes, smoking, substance misuse or alcohol consumption during pregnancy, and maternal obesity^{3,4,5}. Low birth weight is also more common in certain ethnic groups⁶ (in the UK, among Asian and Asian British, and Black and Black British groups), and in more socioeconomically deprived groups.

6.6.2 Information about low birth weight and prematurity in Buckinghamshire

The proportion of all babies born (either term i.e. ≥ 37 weeks of pregnancy or pre-term i.e. < 37 weeks of pregnancy) with a low birth weight in Buckinghamshire in 2014 was 7.3% (435 babies), which is not significantly different to the national rate of 7.4% or the South East average (6.6%) (). The proportion of babies born at term (≥ 37 weeks pregnancy) with a low birth weight was 2.5%, which is lower (though not statistically significant) than the national rate of 2.9%, and is comparable to the South East rate of 2.4%. All information presented here is based on data availability, either babies born at term or all babies including pre-term. In-depth analysis was carried out if the data on gestational age and other details were available.

In 2014, 7.4% of live births were preterm (under 37 weeks' gestation) in England and Wales and this has not changed significantly since 2009 (7.3% in 2009, 7.1% in 2010, 7.2% in 2011 and 7.3% in 2012 & 2013)^{Error! Bookmark not defined.}. In Buckinghamshire, the data is not available for all residents due to a gap in the data from Wexham Park hospital (which accounts for just over one in 10 births in Buckinghamshire). The remaining data show that there were 265 preterm live births (6.3%) in Buckinghamshire during the same period.

Table 1 Number and proportion of low birth weight (2014) and premature (2013) babies in Buckinghamshire compared with South East and England

Category	Buckingham-shire (number)	Buckingham-shire (% of total births)*	South East (% of total births) *	England (% of total births)*
Low birth weight, all births (<2.5kg) (2014)	435	7.3%	6.6%	7.4%
Low birth weight at term (<2.5kg, 37+wks gestation) (2014)	134	2.5%	2.4%	2.9%
Very low birth weight, all live births (<1.5kg) (2014)	38	0.6%	0.4%	0.5%
Premature (all live births <37 completed weeks, 2013)**	265 [^]	6.3% [^]	--	7.4%

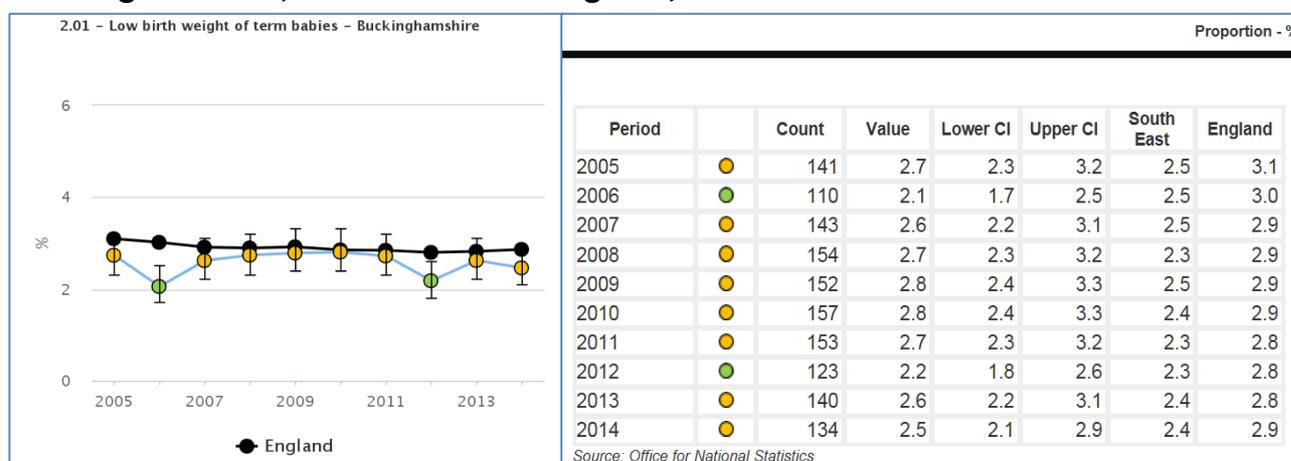
* % of total births in each category

**2013 birth cohort (latest data available)

[^] This figure excludes Bucks mothers delivering in Wexham Park Hospital due to data issue in SUS database

Source: ONS Annual District Birth and Death Extracts PHOF, Nov 2015.

Figure 1 Number and proportion of low birth weight term babies (<2500gms), Buckinghamshire, South East and England, 2005-2014



Source: PHOF, Nov 2015

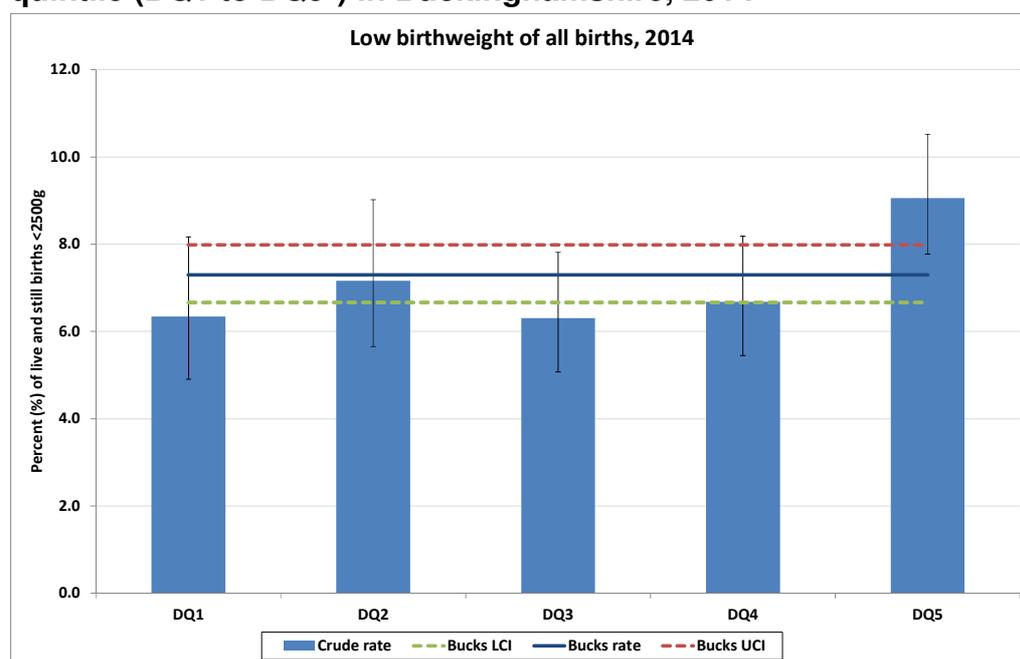
In Buckinghamshire, the proportion of all babies born at term with low birth weight has declined slightly (although not significantly) over the last nine years, in line with and not significantly different from the England rate, except a small drop in 2006 and again in 2012. Figure 1 shows the numbers and the proportion between 2005 and 2014 compared to the regional and England averages.

6.6.3 Low birth weight and prematurity in different population groups

6.6.3.1. Socioeconomic differences

Low birth weight is more common in more socioeconomically deprived areas. Figure 2 shows the proportion of low birth weight among all births in 2014 in Buckinghamshire by deprivation quintile (DQ1 to DQ5) and compared to the Buckinghamshire average. The rate of low birth weight in the most deprived quintile (DQ5) was about three percentage points higher than in the other areas, but the difference was not statistically significant. A similar association is seen between prematurity and deprivation quintile.

Figure 2 Percentage of low birth weight (<2500g), all births, by deprivation quintile (DQ1 to DQ5*) in Buckinghamshire, 2014



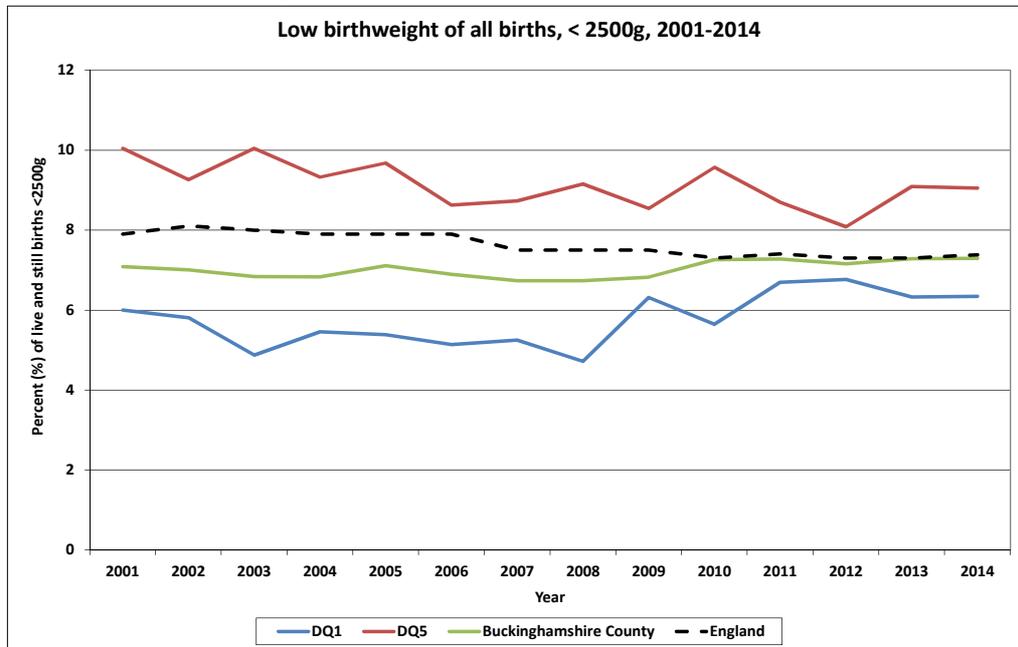
*DQ1: least deprived; DQ5: most deprived

Source: ONS Annual District Birth and Death Extracts

Figure 3 shows the trend in low birth weight in Buckinghamshire and in the most deprived (DQ5) and least deprived (DQ1) areas in the county between 2001 and 2014. Overall the proportion of babies with low birth weight has increased slightly since 2008, in contrast with the declining national trend. While low birth weight has

been consistently more common in DQ5 than in DQ1, the rate of low birth weight in DQ5 has declined gradually over this period, while in DQ1 it has increased in the last few years. There is a need to further explore the reasons for this.

Figure 3 Trends in low birth weight among all babies born to mothers in DQ1 and DQ5 in Bucks, 2001-14



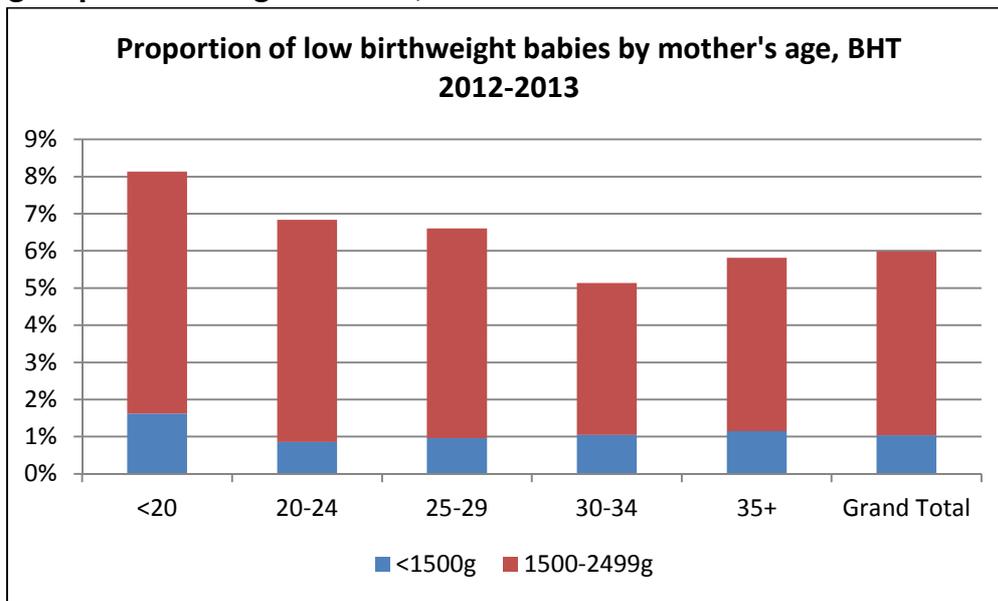
*DQ1: least deprived; DQ5: most deprived

Source: ONS Annual District Birth and Death Extracts

6.6.3.2 Maternal age

Maternity data from the main local NHS provider (Buckinghamshire Healthcare Trust, (BHT)), where around seven of 10 Buckinghamshire mothers deliver, were used for in-depth analysis related to age⁷. Figure 4 shows the proportion of low birthweight by age group of mothers delivering at BHT. In 2012/13, 5.9% of all babies were low birthweight (<2500g), including 1% of all babies who were very low birthweight (<1500g). The rate of all low birthweight was higher in mothers aged under 30, and the rate of very low birthweight was highest in mothers aged under 20 but similar across all the other age groups. Almost half of low birthweight babies were born to women under 30 (who account for around 40% of all deliveries). A similar association was seen between prematurity and mother’s age, particularly for delivery before 32 weeks, which was at least twice as common among mothers aged under 20 than in other groups.

Figure 4 Percentage of low birth weight (<2500g), all births, by maternal age group in Buckinghamshire, 2012/13

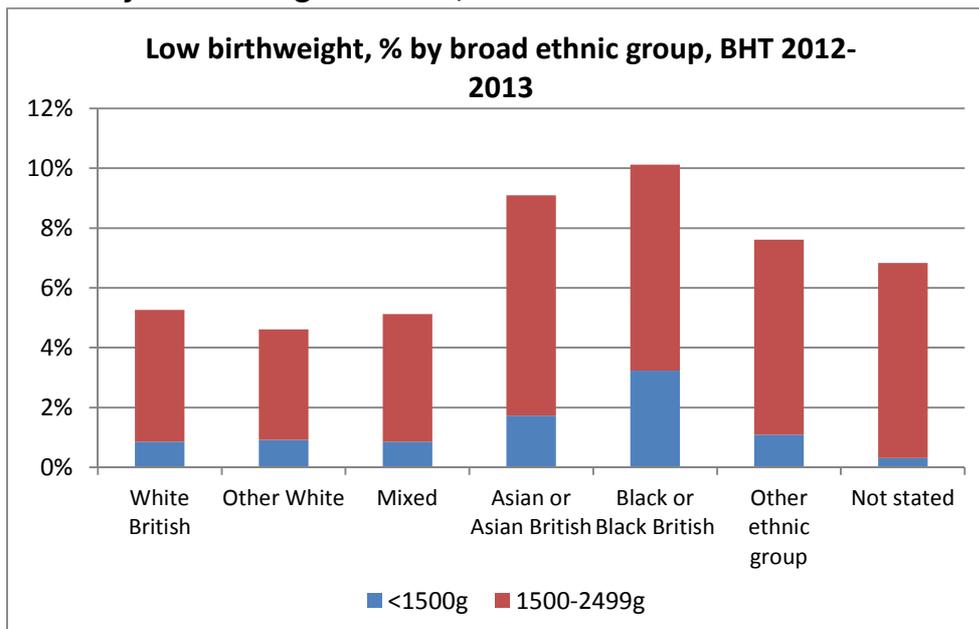


Source: BHT data (Buckinghamshire Maternity Needs Assessment, 2014)

6.6.3.3 Ethnicity

Figure 5 shows the proportion of low birthweight by mother's ethnic group among women who delivered at BHT. In 2012/13, Black / Black British ethnic groups had the highest proportion of low birth weight (10%), followed by Asian/ Asian British (9%). A similar association was seen between prematurity and mother's ethnic group.

Figure 5 Percentage of low birth weight (<2500g), all births, by maternal ethnicity in Buckinghamshire, 2012/13

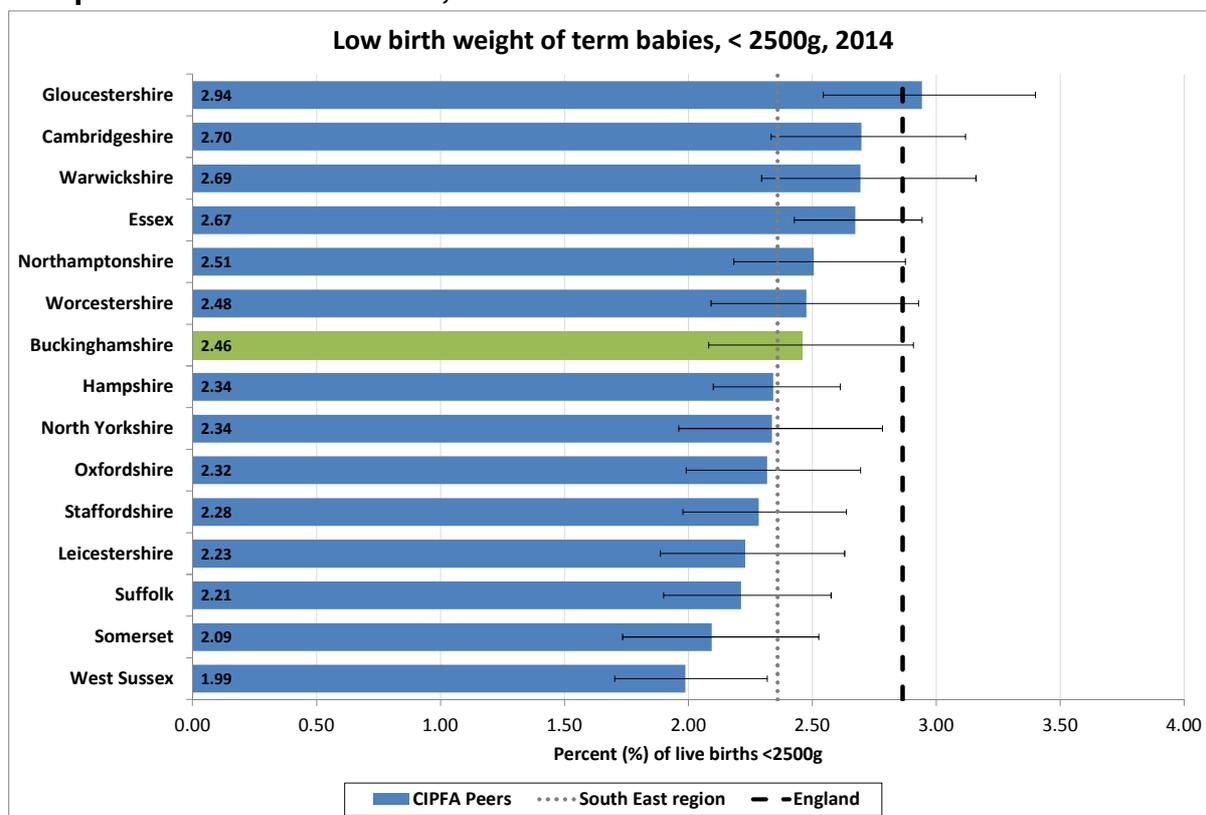


Source: BHT data (Buckinghamshire Maternity Needs Assessment, 2014)

6.6.4 Low birth weight in different geographical areas

Figure 6 shows how the rate of low birth weight in term babies in Buckinghamshire compares with similar local authorities. Buckinghamshire ranked 9th out of 15 similar areas but was not statistically significantly different from any. When the proportion of all babies (term and pre-term) born with low birth weight was compared across the same group, Buckinghamshire ranked 13th (that is, third worst performing) (data not shown). This is in line with the data commented on above showing that a relatively high proportion of low birth weight babies in Buckinghamshire are born prematurely.

Figure 6 Percentage of low birth weight at term, Buckinghamshire and CIPFA comparator local authorities, 2014



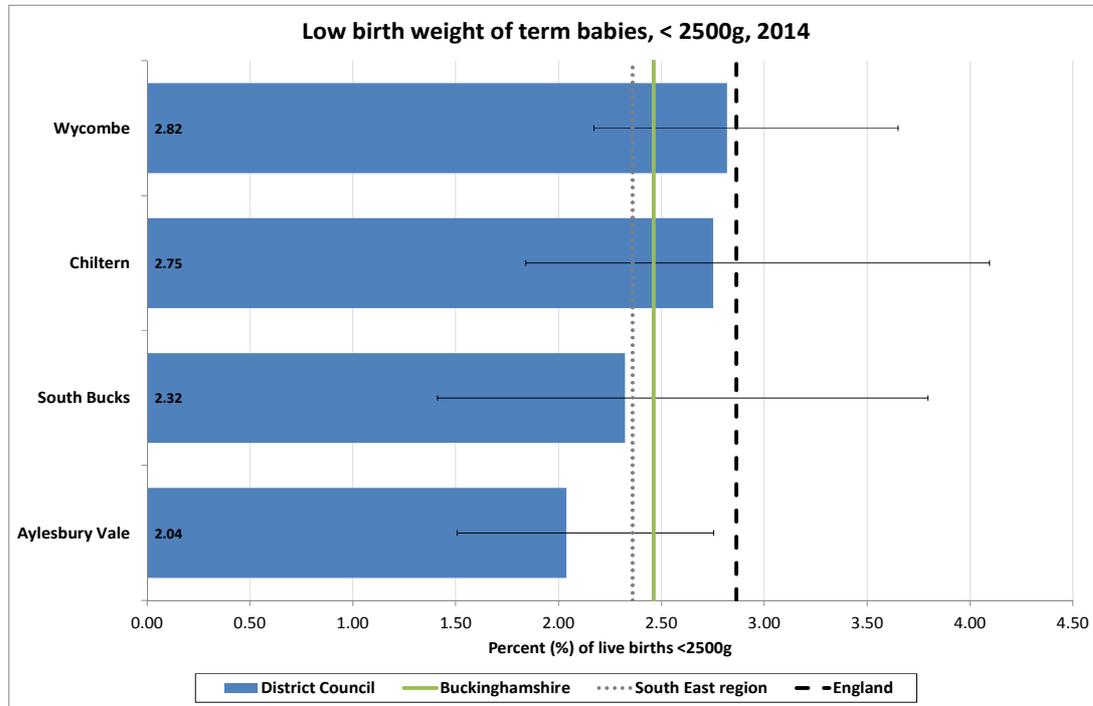
Source: PHOF, Nov 2015

Figure 7 shows how low birth weight varied within Buckinghamshire in 2014. The proportion of low birth weight at term was greatest in Wycombe District and lowest in Aylesbury Vale District, but none of the differences were statistically significant. However, the proportion in the Aylesbury Vale area was significantly below the national average.

Figure 8 compares the proportion of all babies born with low birth weight in the seven CCG localities in Buckinghamshire. There are wide variations but none of the

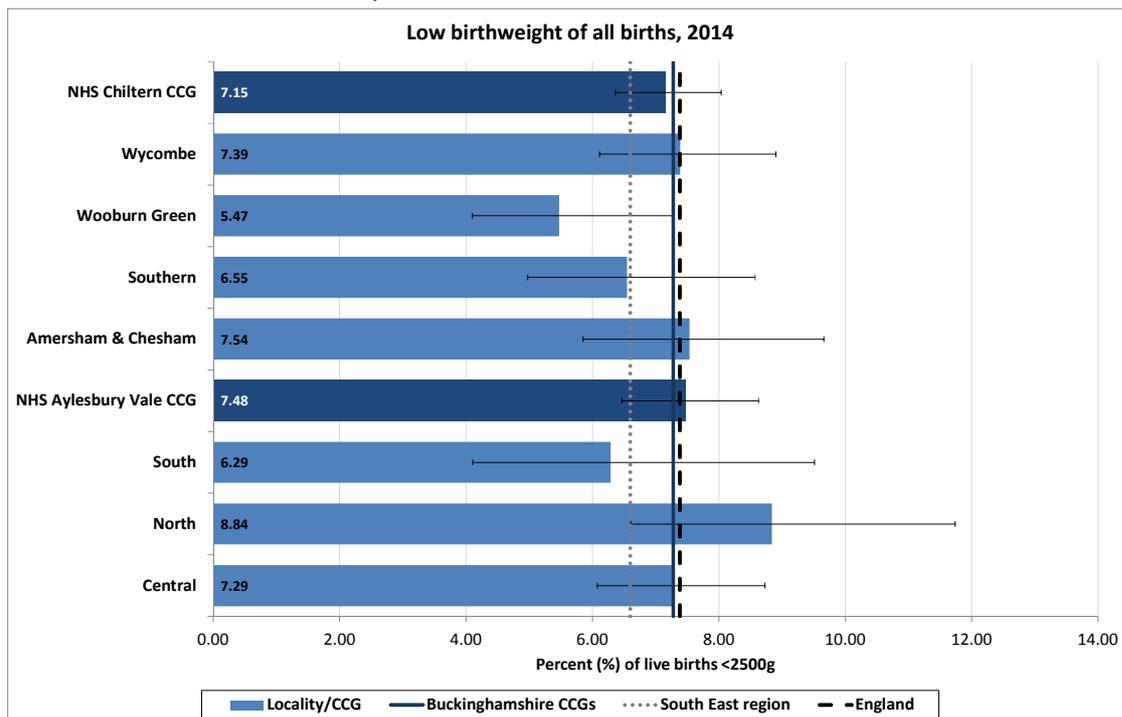
differences are statistically significant from Buckinghamshire, but Wooburn Green locality has a statistically lower rate than England.

Figure 7 Percentage of low birth weight at term in Buckinghamshire by District, 2014



Source: PHOF, Nov 2015

Figure 8 Percentage of low birth weight of all births in Buckinghamshire by CCG and CCG localities, 2014



6.6.5 Demand

Babies born with low birth weight, whether born prematurely or at term, are at risk of immediate and lifelong risks to their health and wellbeing. Therefore any increase in the proportion of babies born with low birth weight has the potential to have a dramatic impact on the local health and social care system.

6.6.6 Horizon scanning

From the 1st October 2015, the responsibility for commissioning children's public health services, (i.e. health visitors, family nurse partnership), transferred from NHS England to local authorities. As shown above, many risk factors for low birth weight and prematurity are amenable to prevention before conception or during pregnancy, or to intervention during pregnancy, requiring a co-ordinated approach between public health, maternity, primary care and children and families' services.

6.6.7 Conclusions

Low birth weight and prematurity can cause immediate and longterm risks to babies' health and development. In Buckinghamshire, 7.3% of babies (435 babies) were born with low birth weight (<2.5kg) in 2014, similar to the national rate. Around two-thirds of these babies were born prematurely (before 37 weeks gestation). The rate of low birth weight in Buckinghamshire has increased slightly since 2008, particularly among mothers in the least deprived quintile, while the rate in the most deprived quintile has fallen, mirroring the national decline. There has been no significant change in the rate of preterm birth in Buckinghamshire over the last 9 years.

The risk of low birth weight and prematurity is higher among the youngest and oldest mothers, among more socioeconomically deprived groups and certain ethnic groups, and when there are health problems during pregnancy or maternal risk factors such as smoking, substance misuse or alcohol consumption or obesity. Local data confirm that low birth weight and preterm birth are more common among Buckinghamshire mothers who are from more socioeconomically deprived areas, aged under 20, and from Asian/ Asian British or Black/ Black British ethnic groups. However, there are no significant differences in rates of low birth weight between different areas within Buckinghamshire.

Buckinghamshire is the second least deprived County Council area in England, so it might be expected that rates of low birth weight and prematurity would be lower compared with the national rates. However, the proportion of babies born with low birth weight in Buckinghamshire is similar to the England average and higher than

the South East average, and has increased in the last few years. Low birth weight and prematurity are associated with a number of known socioeconomic, health and behavioural risk factors many of which are amenable to intervention. These need to be addressed through tackling the wider determinants of health, reducing risk factors such as maternal smoking and obesity, and ensuring services before and during pregnancy support women to have as healthy a pregnancy as possible.

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References

- 1 Xi-Kuan Chen, Shi Wu Wen, Nathalie Fleming et al. Teenage pregnancy and adverse birth outcomes: a large population based retrospective cohort study. *Int. J. Epidemiol.* (2007) 36 (2):368-373.
- 2 Khoshnood B, Wall S, Lee KS. Risk of low birth weight associated with advanced maternal age among four ethnic groups in the United States. *Matern Child Health J.* 2005 Mar;9(1):3-9.
- 3 McDonald Sarah D, Han Zhen, Mulla Sohail, BeyeneJoseph. Overweight and obesity in mothers and risk of preterm birth and low birth weight infants: systematic review and meta-analyses *BMJ* 2010;341 :c342 8<http://www.bmj.com/content/341/bmj.c3428>
- 4 V De Bernabé J, Soriano T, Albaladejo R et al. Risk factors for low birth weight: a review. *Eur J Obstet Gynecol Reprod Biol.* 2004 Sep 10;116(1):3-15.
- 5 <http://www.mayoclinic.org/diseases-conditions/premature-birth/basics/risk-factors/con-20020050> (accessed on 27/01/2010)
- 6 Y. Kelly, L. Panico, M. Bartley, M. Marmot, J. Nazroo, and A. Sacker. Why does birthweight vary among ethnic groups in the UK? Findings from the Millennium Cohort Study *J Public Health* (2009) 31 (1): 131-137
- 7 PHAST (2014) Buckinghamshire Maternity Needs Assessment