

2 The best start in life – pregnancy and infancy

2.1 Introduction

This section describes perinatal and infant health (for definitions, see Box 1) in Hackney and the City of London. Perinatal and infant health are heavily dependent on the health of the mother during and immediately after pregnancy. For this reason, indicators of maternal health are also covered in this section. Key perinatal health outcomes include stillbirths, infant mortality, prematurity and birthweight.

Box 1: Definitions

Perinatal – from 22 weeks gestation until seven days after birth

Infant – from birth until one year of age

Stillbirth – baby born dead after 24 completed weeks of pregnancy (prior to 24 weeks, this is classified as a miscarriage or late foetal loss). [1]

Infant mortality rate (IMR) – the number of deaths under the age of one year per 1,000 live births. Consists of the neonatal mortality rate (deaths occurring during the first 28 days of life) and the post-neonatal mortality rate (deaths occurring between 28 days and one year of life). [2]

Preterm birth – baby born alive before 37 weeks of pregnancy have been completed. Categories are based on gestation: [3]

- extremely preterm – under 28 weeks
- very preterm – 28 to 32 weeks
- moderate to late preterm – 32 to 37 weeks.

Low birthweight – birthweight under 2,500g (5.5lb) – shown to be associated with a 20-fold increase in mortality compared to normal or heavier weight babies, as well as a range of later negative health outcomes. [4]

The effects of maternal and perinatal health are not just apparent in infancy, but continue into later life, as highlighted in the report of the 2010 Marmot Review report, 'Fair Society, Healthy Lives': [5]

'Inequalities present before birth set the scene for poorer health and other outcomes accumulating throughout the life course.'

It can be difficult to quantify the impact of maternal and perinatal health on later health outcomes specifically, as a number of confounding factors are likely to be at play. For instance, children of obese mothers are more likely to be obese themselves. [6] However, it is difficult to disentangle the differential influences of (a) the effects of maternal obesity on the developing foetus during pregnancy, and (b) shared environmental risk factors (such as access to an affordable healthy diet) and/or socio-demographic risk factors for obesity (such as ethnicity or deprivation).

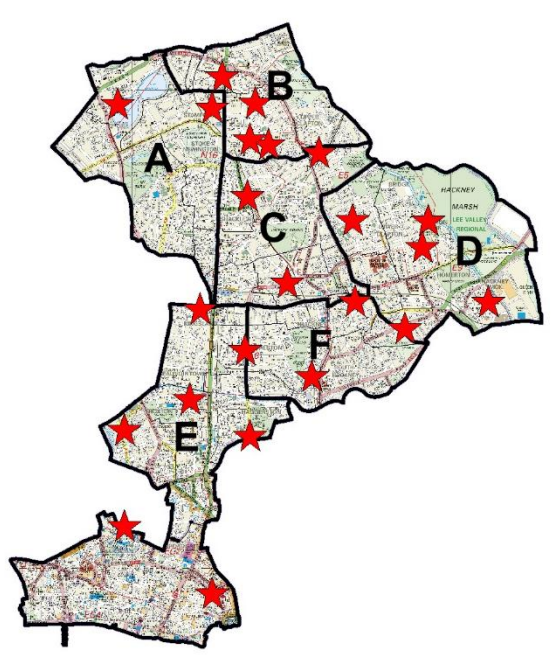
Nevertheless, there is an abundance of evidence on the significance of a child's early years for their future health and wider life. [7] [8]

A note on the data: within-area comparisons

Throughout this chapter, data are presented by Hackney and City Children's Centre areas (depicted in Figure 1), as services for pregnant women and children during the early years are predominantly configured around local Children's Centres.

A key point to note when interpreting these data is that 22% of Hackney's children and young people (under 19 years of age) belong to the Stamford Hill Orthodox Jewish community (see Section 1.4), and that the majority of this community (74%) are concentrated in Children's Centre area B in the north east of the borough.

Figure 1: Hackney and City Children's Centre areas, with stars marking centre locations

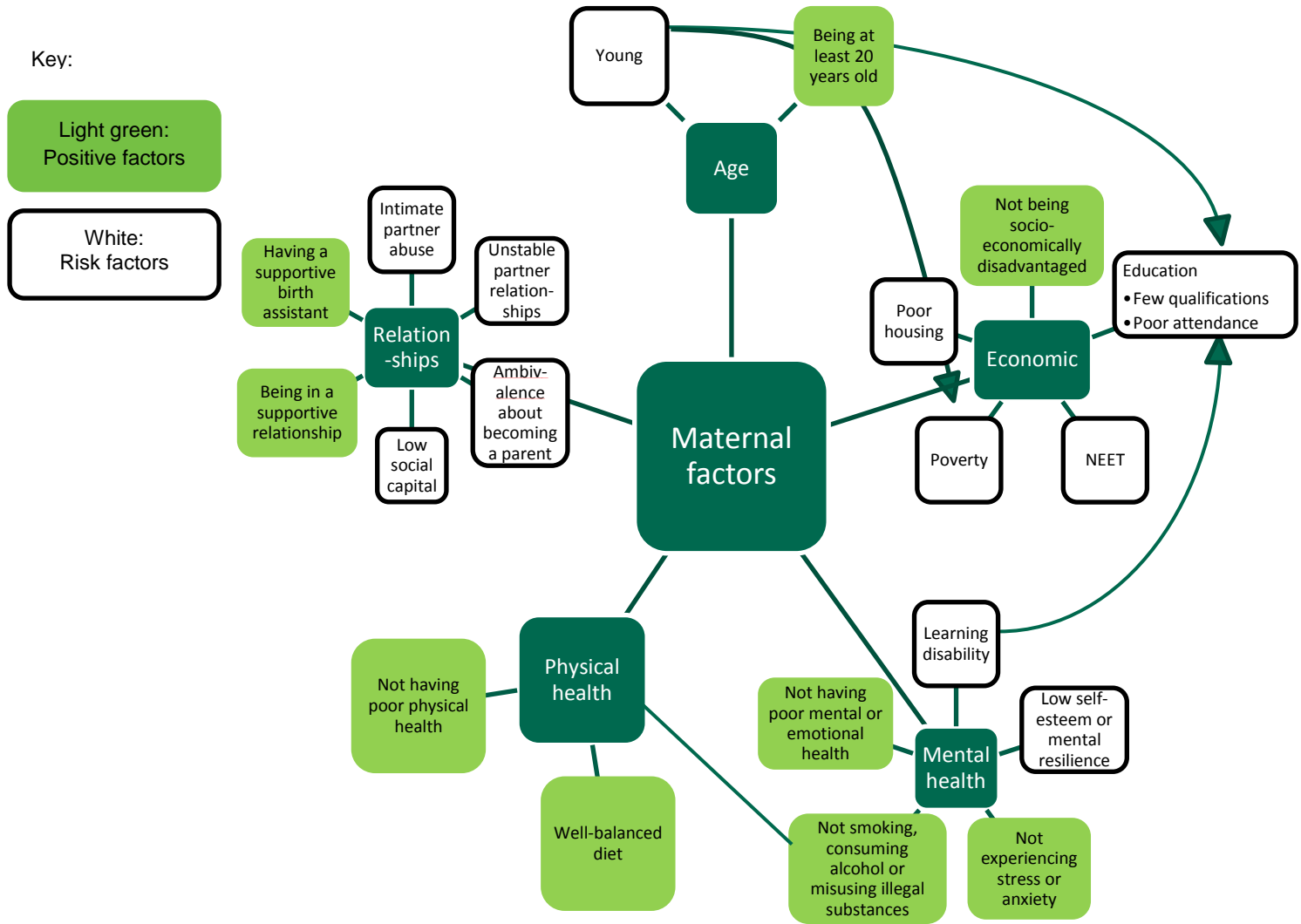


Source: London Borough of Hackney

2.2 Causes and risk factors

There are a wide variety of factors that influence maternal, perinatal and infant health. [9] Figure 2 summarises the most important maternal contributory factors. The Marmot Review commented that '*maternal health, including stress, diet, drug, alcohol and tobacco use during pregnancy, has significant influence on foetal and early brain development*'. [5]

Figure 2: Maternal factors that influence maternal, perinatal and infant health



NEET means a young person (age 16-24) not in education, employment or training.

Sources: Risk factors for poor health (white boxes) taken from the Healthy Child Programme report, 'Pregnancy and the First 5 Years of Life', 2009; protective factors for good health (light green boxes) taken from the WAVE Trust report 'Conception to age 2 – the age of opportunity', 2013. [33] [5]

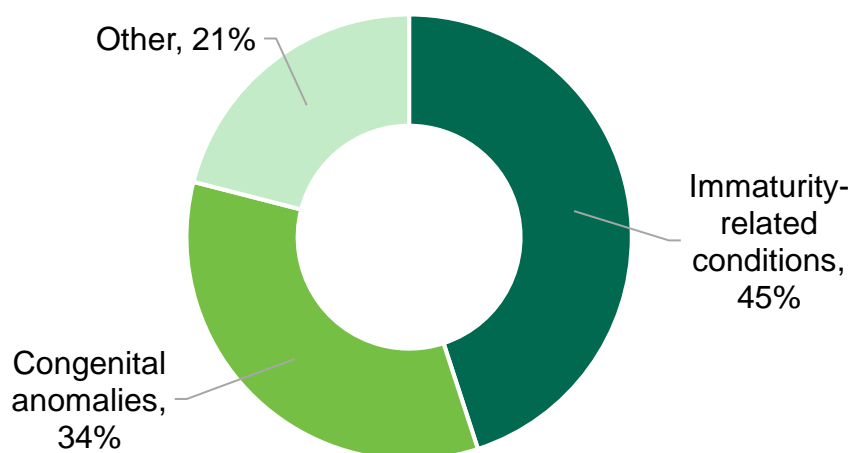
From Figure 2 above, it is clear that many of the maternal factors governing perinatal health are interrelated and linked to common underlying 'causes'. For instance, young parenthood may be a risk factor in its own right, or it may be a marker for educational circumstances. The Marmot Review listed deprivation, births outside of marriage, non-White ethnicity and maternal age under 20 as all being independently associated with an increased risk of infant mortality, in addition to them contributing to the risks outlined above (for instance, deprivation as a factor in maternal diet). [10]

The Office for National Statistics (ONS) classifies the causes of death for neonates according to the time and type of abnormality as follows: [11]

- before the onset of labour
 - congenital anomalies – such as cardiovascular anomalies or neural tube defects
 - antepartum infections
 - immaturity related conditions – such as extremely low birthweight or bronchopulmonary dysplasia
- in or shortly after labour
 - asphyxia, anoxia or trauma
- post-natal
 - external conditions – such as hypothermia of the newborn
 - infections.

Figure 3 shows the broad categories of causes of infant deaths in London. The underlying causes and risk factors that contribute to these deaths are listed by Public Health England (PHE) as child poverty, teenage pregnancy, access to antenatal care, smoking in pregnancy, maternal and infant nutrition, sudden unexpected deaths in infancy (SUDI)¹ and vaccinations.

Figure 3: Causes of infant deaths



Source: Public Health England [2]

¹ SUDI, in turn, has risk factors that include deprivation, low birthweight, mothers aged under 20, bed sharing and smoking.

The wider determinants of maternal, perinatal and infant health are covered in the ‘Society and environment’ JSNA chapter, which describes the main social, economic and environmental influences on health throughout the life course. In addition, Section 5 discusses some of the other causes and risk factors for poor early years health.

The remainder of this section focuses on a number of specific risk factors that impact directly on perinatal health – i.e. maternal age, maternal smoking, maternal weight, maternal mental health and maternal and infant nutrition. However, once again, it is worth noting that many of these factors are interlinked (for instance, teenage mothers are more likely to smoke during pregnancy or have maternal mental health problems).

Teenage pregnancy

Teenage pregnancies² are linked to risk factors for poor maternal and child health and an increased incidence of poorer birth outcomes. For instance, teenage mothers are six times as likely to smoke during pregnancy and 33% less likely to initiate breastfeeding than those aged over 30. [12] [13] Poor health outcomes are described in Table 1.

Table 1: Poor health outcomes of teenage mothers and their babies

Poor outcome	Teenage pregnancy associated with...
Maternal postnatal depression	200% increase [14]
Infant mortality	44% increase [12]
Low birthweight at term	25% increase [12]
Living in child poverty (compared to mothers in their 20s)	63% higher [15]
Low educational attainment of child	Increased [12]

Sources: In table

Maternal smoking

Smoking is the single most important modifiable risk factor in pregnancy, accounting for one in 14 preterm deaths and one in three cases of SUDI. Not only does smoking increase the risk of infant mortality, it also accounts for one in five cases of low birthweight in babies carried to full term, and one in 12 premature births (again leading to an increased risk of low birthweight). [2] Overall, it has been estimated that smoking during pregnancy increases the risk of infant mortality by 40%. [16] Infants of parents who smoke are more likely to suffer from serious respiratory infections, symptoms of asthma and problems of the ear, nose and throat. Looking beyond infancy, smoking during pregnancy is associated with an increased risk of: [17]

- wheezy illnesses in later childhood
- psychological problems such as inattention, hyperactivity, disruptive and negative behaviour
- lower educational performance.

² Definitions of ‘teenage’ pregnancy vary (see Section 2.3). Typically, this may cover those aged 15-17 or all those aged 19 and under.

Parental (particularly maternal) smoking is also a strong and significant determinant of the risk of smoking uptake by children and young people, and hence propagates intergenerational poor health outcomes. [18]

Smoking during pregnancy is strongly associated with a number of underlying factors, including age and socio-economic position. Teenage mothers are six times more likely than mothers aged 30-34 to smoke. Pregnant women from unskilled occupations are five times more likely to smoke than professionals. [2]

Maternal weight

Maternal weight is classified according to body mass index (BMI)³, with a BMI of 25 to 29.9 being classified as overweight and 30 or greater being defined as obese.

Overweight and obesity in pregnancy is associated with significantly increased risk of infant mortality (odds ratio 1.25 and 1.37, respectively),⁴ even after adjusting for a range of potentially confounding factors including maternal age, parity,⁵ smoking and education. This increased risk of infant mortality is due both to an increased risk of infant mortality in term births and an increased prevalence of preterm births in overweight or obese mothers. [19] Overall, one quarter (23%) of cases of late foetal loss, almost one third (30%) of stillbirths and a similar proportion (31%) of neonatal deaths were in obese women in the UK in 2005. [6]

Some of the other possible health impacts of maternal obesity are listed in Table 2.

Table 2: Child health impacts of maternal obesity

Effects on neonatal health	Effects on childhood health	Late effects on offspring's health
Congenital anomalies ⁶ Preterm or post-date deliveries Neonatal intensive care admissions Macrosomia (weight >4.5 kg) Foetal growth restriction	Childhood asthma Type 1 diabetes Childhood obesity	Adult obesity Cardiovascular disease Type 2 diabetes Cancer

Source: Public Health England [6]

Maternal obesity also impacts on maternal mortality – one in five cases of maternal death is in obese women. Thromboembolism⁷ is the most common direct cause of

³ BMI is calculated as early as possible during the pregnancy by dividing the pregnant person's weight (kilograms) by the square of their height (metres).

⁴ An odds ratio represents the odds that an outcome (infant mortality) will occur given a particular exposure (maternal obesity), compared to the odds of the outcome (infant mortality) occurring in the absence of exposure (mother not overweight or obese).

⁵ Parity refers to the number of pregnancies someone has carried to a viable gestational age (which is often equal to the number of times they have given birth).

⁶ Congenital anomalies include neural tube defects, cardiovascular anomalies, septal anomalies, cleft lip and palate, anorectal atresia, hydrocephaly, limb reduction anomalies, eye anomalies and ventricular septal defects.

⁷ Thromboembolism refers to the obstruction of a blood vessel by a clot (thrombus) that either originated in that location or has been dislodged from another site in the body (embolism).

maternal death, with half of thromboembolic maternal deaths being in women who were overweight or obese. [20] Maternal obesity may also contribute to poor maternal health resulting from heart disease, pre-eclampsia⁸ and gestational diabetes.⁹ [2]

Maternal mental health

Pregnant people with mental health problems have an increased risk of obstetric complications, preterm labour and lower infant birthweight. [21] The children of those who are stressed or anxious during pregnancy are more likely to be anxious themselves, or have symptoms of attention deficit or hyperactivity. [22] [23] Maternal depression during the early years of a child's life can also adversely affect their physical, cognitive, social, behavioural and emotional development. [21]

Maternal and infant nutrition

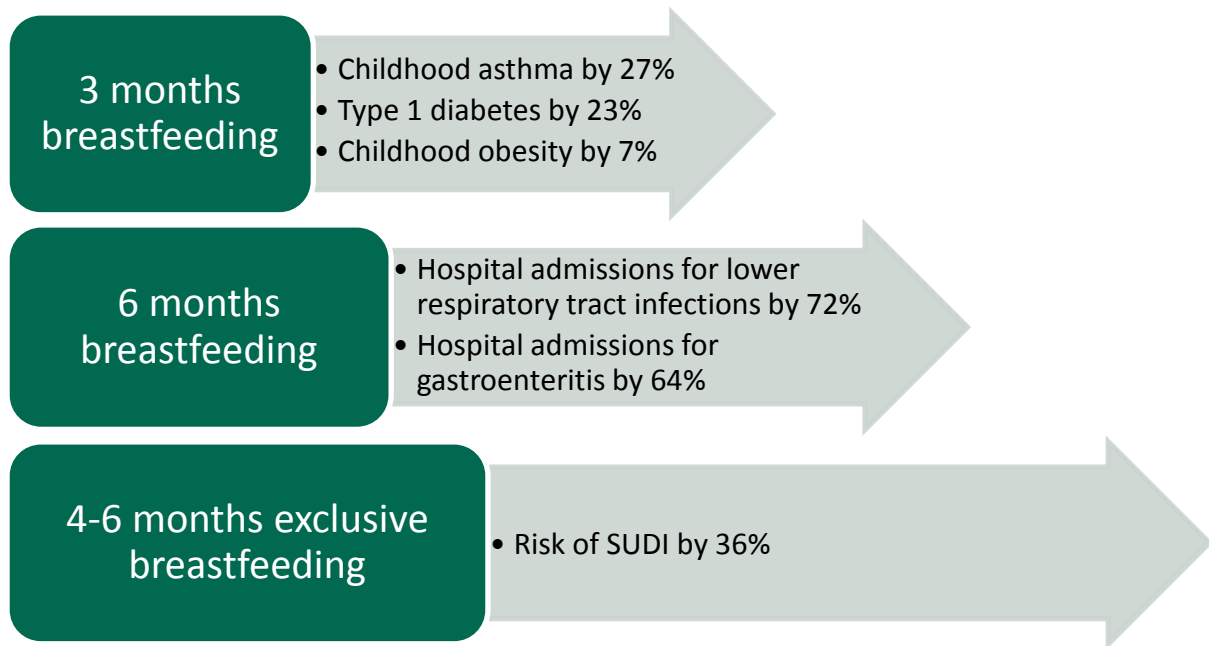
It is recommended that pregnant people take folic acid and vitamin D supplements throughout pregnancy (and post-natally if breastfeeding), as it is difficult to consume the required levels through diet alone (see Section 2.6). Folic acid is important to help prevent neural tube defects such as spina bifida in the baby, while vitamin D deficiency can lead to rickets in the developing child as well as bone pain and tenderness in adults. Vitamin D deficiency is a risk in all pregnant and breastfeeding people, with the highest risk in younger mothers and those of non-White ethnicities. [24] Vitamin D and folic acid are both contained in Healthy Start vitamins, alongside vitamins A and C. Other vitamins are also recommended for specific groups (for instance, iron and B12 supplements for vegetarians or vegans).

There is strong evidence of the benefits of breastfeeding for infant health as summarised in Figure 4.

⁸ Pre-eclampsia is a condition characterised by high blood pressure and protein in the mother's urine and presents a risk that the mother may develop eclampsia, which involves fitting.

⁹ Gestational diabetes is a type of diabetes (where the level of sugar in the blood is too high) that is first diagnosed during pregnancy, usually in the third trimester.

Figure 4: Reductions in negative childhood health outcomes associated with breastfeeding



Source: Adapted from 'Reducing infant mortality in London', 2015 [25]

Breastfeeding also presents health benefits for the mother, with a reduction in the risk of future breast or ovarian cancer, osteoporosis, cardiovascular disease and obesity. [26]

2.3 Local data and unmet need

Throughout this section, much of the information has been gathered from Homerton University Hospital NHS Foundation Trust (HUHFT), as it is the hospital in which three quarters of Hackney and City babies are delivered (Table 3). However, given that fewer than five City of London babies were born at Homerton Hospital in 2010/11, these findings are not necessarily representative for the City.

Table 3: Place of delivery for residents of Hackney and the City (2010/11)

Place of delivery	Hackney		City of London		Hackney and City
	Number of live births	% of Hackney's live births	Number of live births	% of City's live births	
Homerton Hospital	3382	77%	<5	-	75%
University College Hospital	479	11%	46	56%	12%
The Whittington Hospital	202	5%	<5	-	4%
The Royal London	71	2%	17	21%	2%
Other hospital	182	4%	13	16%	4%
Home	102	2%	<5	-	2%
Total	4418		82		

Source: ONS Case Level Birth Data for Local Authorities

Pregnancy and birth outcomes

In 2014, there were 4,377 live births to Hackney residents (a rate of 60 per 1,000 women aged 15 to 44) and 61 to City of London residents (a rate of 38 per 1,000 women aged 15 to 44). [27] In 2014, 112 full-term babies in City and Hackney (2.7%) were of a low birthweight; data are not available separately for the two local authority areas. [28]

In 2011-13, the infant mortality rate in Hackney was 5.5 per 1,000 live births (three-year average). There have not been any infant deaths in the City of London over the past five years for which data are available (2010-2015). Infant mortality will be discussed in more detail alongside child mortality (Section 5).

During pregnancy, all women receive universal provision, such as routine midwife support. However, those women who are identified by midwives as having need for additional support may be referred for specialist services during their pregnancy. Midwives at HUHFT made roughly 500 such referrals for a total of 311 Hackney residents during pregnancy over the two-year period 2013-15. (For a more detailed breakdown by demographics, see Section 2.4.). The number of referrals to each service is shown in Table 4. The 54 antenatal referrals to the health visiting service represent the most complex cases, as the majority of these women were referred to three or more services.

Table 4: Number of referrals and services referred to by midwives (pooled 2013/14-14/15)

	Number of referrals
Public Health midwife	274
Social worker	126
Health Visitor	54
Teenage pregnancy	12
Domestic Violence and Hate Crime Team	<10
Family Nurse Partnership (Box 3)	<10
Substance and Alcohol Misuse midwife	<10
Sure Start	<10
Women's Aid/nia project	<10
Women's Refuge	<10

Source: Homerton University Hospital NHS Foundation Trust

Teenage pregnancy

The rate of births in women aged 15-17 years in City and Hackney is 5.7 per 1,000. The absolute number of births at HUHFT, however, is measured for women under 19 years old and it is this figure that is relevant to the caseload of the Family Nurse Partnership (FNP) programme. There were 58 births to mothers under 19 years of age at HUHFT in 2013/14, and it has since fallen to 42 births in 2014/15.

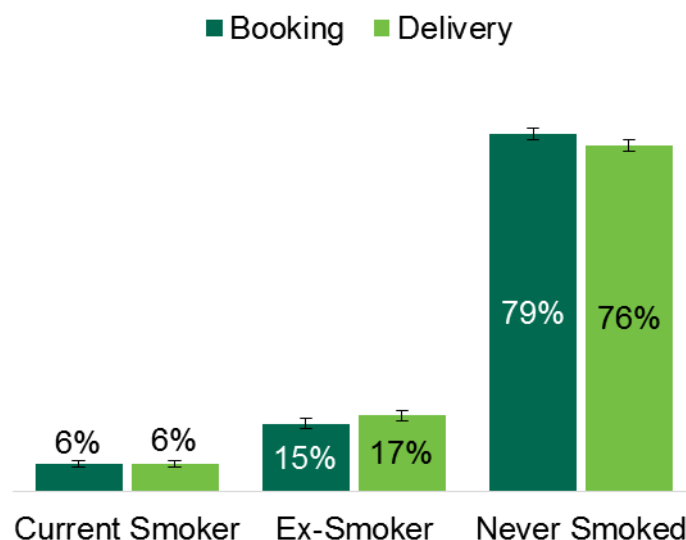
Maternal smoking

Over a 10-month period (April 2014 to February 2015), 6% of the 4,324 people who gave birth at HUHFT (all boroughs of residence, not just Hackney and the City) identified themselves as current smokers at their booking visit,¹⁰ with 79% identifying as never-smokers and 15% as ex-smokers (Figure 5).

Of the 264 women who reported to be a current smoker at their booking visit, 39 said they had stopped smoking by the time of delivery. However, 18 ex-smokers and 16 never-smokers (at booking) reported that they were smoking at time of delivery and, therefore, only five fewer women were reportedly smoking at delivery than at booking (Figure 5). It should be noted that these data are self-reported, and not confirmed by carbon monoxide monitoring (which is recommended as good practice) and, therefore, may not reflect the true smoking status of pregnant women locally.

¹⁰ The booking visit is usually the second appointment during pregnancy, the first being to inform the doctor or midwife of a pregnancy. The booking visit should happen at 8-12 weeks with a midwife (and sometimes a doctor) and will last for up to two hours, during which time the midwife will give information about the baby's development, advise about nutrition, exercises, screening, benefits and the pathway of care, and enquire about health and risk factors for complications.

Figure 5: Self-reported smoking status of pregnant people at booking and delivery (2014/15)



Source: Homerton University Hospital NHS Foundation Trust

Analysis of HUHFT's birth data for the two years 2013/14 and 2014/15 shows that Hackney and City of London residents recorded as current smokers were twice as likely to have a low birthweight baby compared to never or ex-smokers. This suggests that in that time period, 34 babies born locally had low birthweight that could be attributable to smoking. The risk of delivering a low birthweight baby did not vary significantly between ex-smokers and never-smokers, emphasising the importance of quitting smoking during pregnancy for birth outcomes.

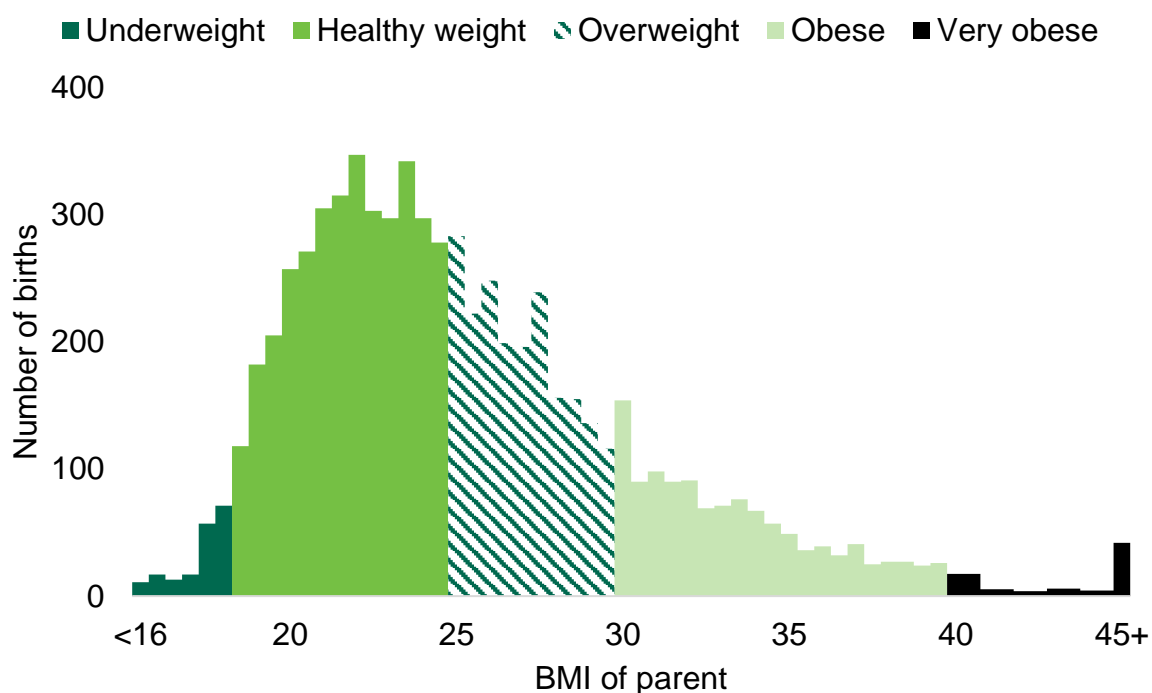
Maternal weight

Over a two year period (2013/14 to 2014/15) half of Hackney and the City residents giving birth at HUHFT were of a 'healthy weight' at their booking visit, while 28% were overweight and 19% were obese (Figure 6). The median body mass index (BMI)¹¹ was 24 (i.e. at the upper end of the healthy range) and the mean BMI¹² was 25 (i.e. at the lower end of the overweight range).

¹¹ The median BMI refers to the value for which half of women have a lower BMI and half of women have a higher BMI.

¹² The mean BMI is what is commonly referred to as the 'average', being the sum of all BMIs divided by the number of mothers.

Figure 6: BMI of Hackney and the City residents at booking for HUHFT births (pooled 2013/14-2014/15)



Source: Homerton University Hospital NHS Foundation Trust

Notes: Presented at BMI increments of 0.5 kg/m², with the exception of BMIs of 40+, which have been smoothed to increments of 1 kg/m² due to small numbers.

For this indicator, data are available on City of London women giving birth at University College London Hospitals NHS Foundation Trust (UCLH). Table 5 shows that more of the women from the City of London who delivered at UCLH were of a healthy weight than Hackney women who delivered at HUHFT.

Table 5: Maternal BMI for deliveries at HUHFT and UCLH (pooled 2013/14-2014/15)

Deliveries	BMI	HUHFT births (Hackney)	UCLH births (City)
Underweight	<18.5	3%	<10%
Healthy weight	18.5-24.9	51%	75%
Overweight	25-29.9	28%	16%
Obese or very obese ¹³	30+	19%	<10%

Source: HUHFT, UCLH

Note: Numbers <5 per year for City of London births at UCLH were suppressed.

Maternal mental health

Virtually all Hackney mothers (99.9%) who delivered at HUHFT during 2013-2015 had their mental health status recorded at delivery – 5% (369 people) were recorded to have ‘poor’ mental health and two thirds of these were receiving perinatal mental health services. The perinatal mental health service covers moderate to severe mental health difficulties during pregnancy that may be pre-existing or arise during the perinatal period.

¹³ Very obese is defined as a BMI of 40 or greater.

Of those Hackney residents with poor mental health recorded, 6.2% also had substance misuse recorded at delivery (compared with 0.5% of those without poor mental health). This echoes the link between poor mental health and substance misuse in the wider population (see 'Mental health and substance misuse' JSNA chapter).

Just over one third (38%) of women were recorded as having been screened for post-natal depression, with a small minority of these assessments (3%) leading to a referral to perinatal mental health services (78 referrals in total). However, the low rate of screening for post-natal depression means that little can be concluded about the prevalence of post-natal depression locally based on the numbers with a referral recorded.

Maternal and infant nutrition

In 2013/14, feeding status at birth was recorded for virtually all births at HUHFT (99.3%) to Hackney and City of London mothers; the vast majority (92%) of these babies were breastfed at birth. At 6-8 weeks, breastfeeding status was recorded for 98% of local births; half (52%) were reported as breastfeeding exclusively, one third (32%) partially and 16% were not breastfeeding at all. In total, 84% of women were breastfeeding to some extent in Hackney and the City of London at 6-8 weeks. Ninety seven children in Hackney and the City of London are recorded as having presented to HUHFT Accident and Emergency department with feeding problems during the two-year period 2013/14 to 2014/15. This is equivalent to 1.4% of births at HUHFT to Hackney and City women over that period.

2.4 Health inequalities

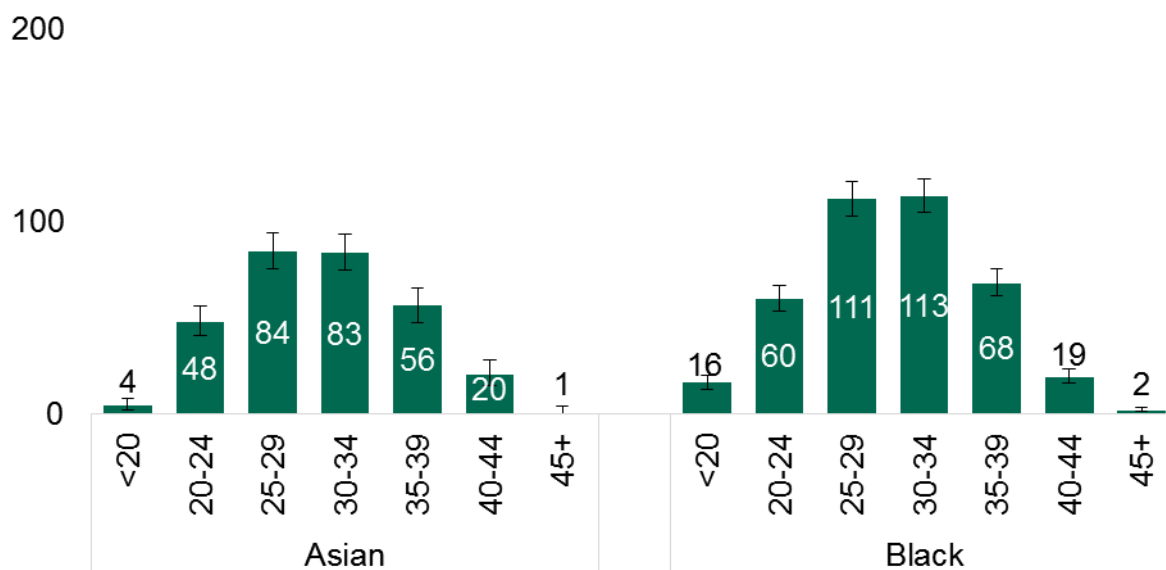
A full and detailed examination of inequalities observed in Hackney and the City can be found in the 0-5 needs assessment published in 2016. [29] This section highlights a small amount of additional contextual information around birth rates and then summarises the key results of the needs assessment. Please note that preterm birth data and infant mortality data are not available locally by the equalities groups considered here.

Unless otherwise stated, all data here applies to Hackney and City residents who gave birth at Homerton Hospital in the two years from April 2013 to March 2015.

Birth rates across equalities groups

Figure 7 shows that Asian and Black residents have similar overall birth rates (52 per 1,000 women aged 15-49 for Asian residents and 53 per 1,000 for Black residents), and both groups' birth rates peak in the 25-29 and 30-34 age brackets. In Asian residents, the peak is 84 per 1,000 women aged 25-34, while in Black residents the peak is higher at 112 per 1,000. This means that overall there is less difference in birth rates by age for Asian residents than there is for Black residents.

Figure 7: Number of births to Hackney residents at HUHFT per 1,000 female Hackney residents per year by age and ethnicity – Asian and Black residents only (pooled 2013/14-2014/15)

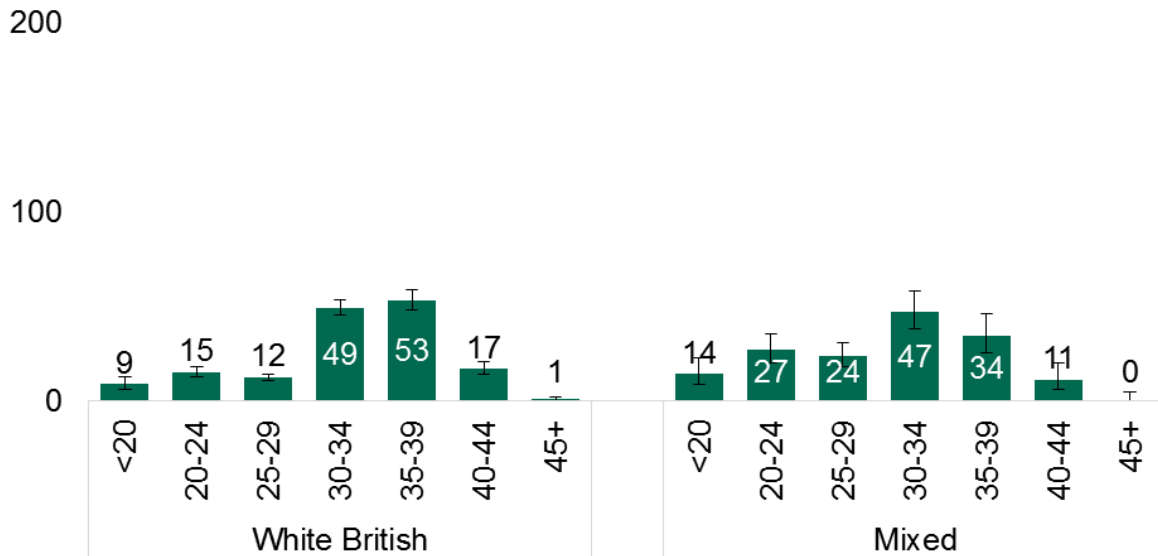


Source: HUHFT

Figure 8 shows that White British residents have a very different birth rate and age distribution. Their overall birth rate of 24 per 1,000 women aged 15-49 is much lower than for Black and Asian residents, and the peak comes later – with 51 births per 1,000 women aged 30-39. Mixed ethnicity residents appear to have a similar birth rate to White residents (25 per 1,000) and a peak at age 30-39 of 41 per 1,000 – caution must be taken in interpreting this result, however, as it is possible that Mixed ethnicities may be under-recorded in HUHFT data (giving an artificially low birth rate) and that under-recording may vary by age.¹⁴

¹⁴ Such errors may artificially inflate the Asian, Black and White birth rates, but cannot do so to the same extent, as Mixed residents form a much smaller proportion of the population – the number of Mixed residents with Asian heritage is 12% of the number of Asian residents; the number of Mixed residents with Black heritage is 13% of the number of Black residents; the number of Mixed residents with White heritage is 7% of the number of White residents.

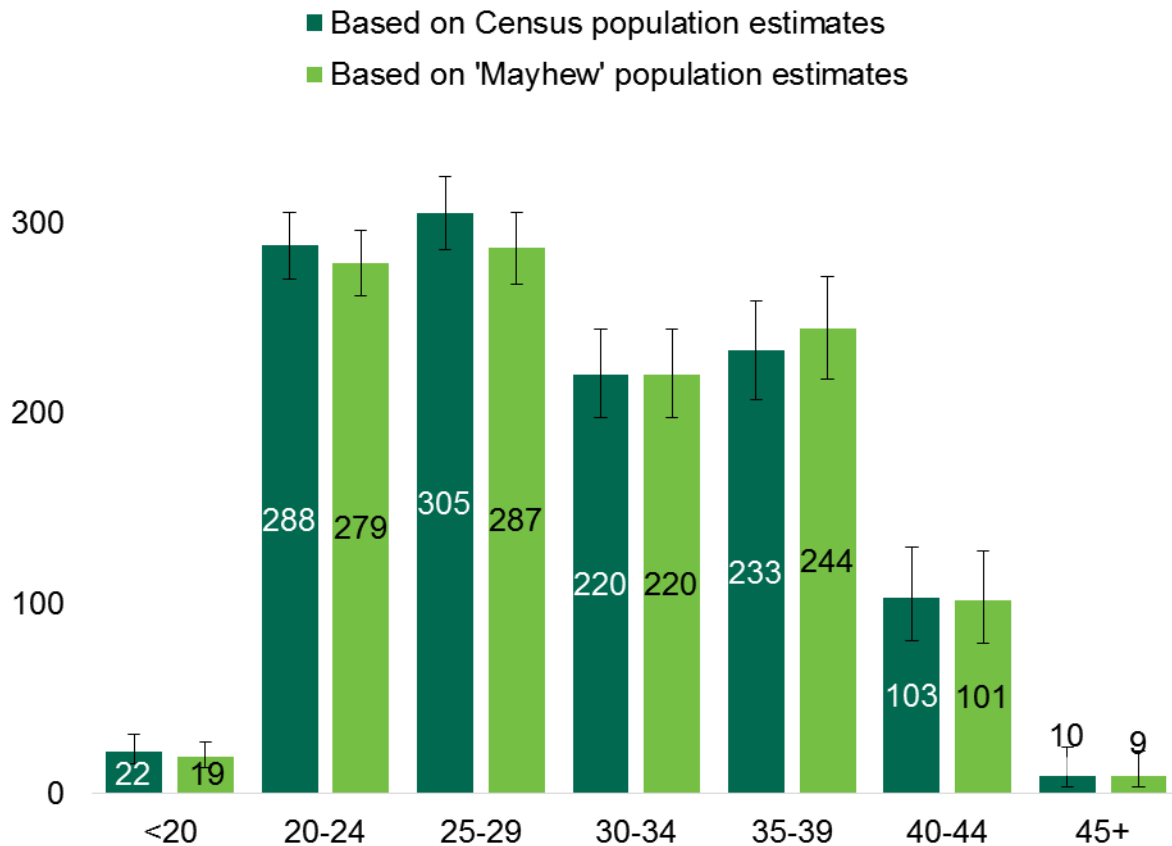
Figure 8: Number of births to Hackney residents at HUHFT per 1,000 female Hackney residents per year by age and ethnicity – White British and Mixed residents only (pooled 2013/14-2014/15)



Source: HUHFT

Figure 9 shows that Orthodox Jewish residents have a very high birth rate, with a peak at age 20-29. Population estimates for the Stamford Hill Orthodox Jewish community vary, but the overall annual birth rate is between 180 and 190 births per 1,000 women age 15-49, peaking at 280-300 per 1,000 women aged 20-29.

Figure 9: Number of births to Hackney residents at HUHFT per 1,000 female Hackney residents per year by age – Stamford Hill Orthodox Jewish residents only (pooled 2013/14-2014/15)

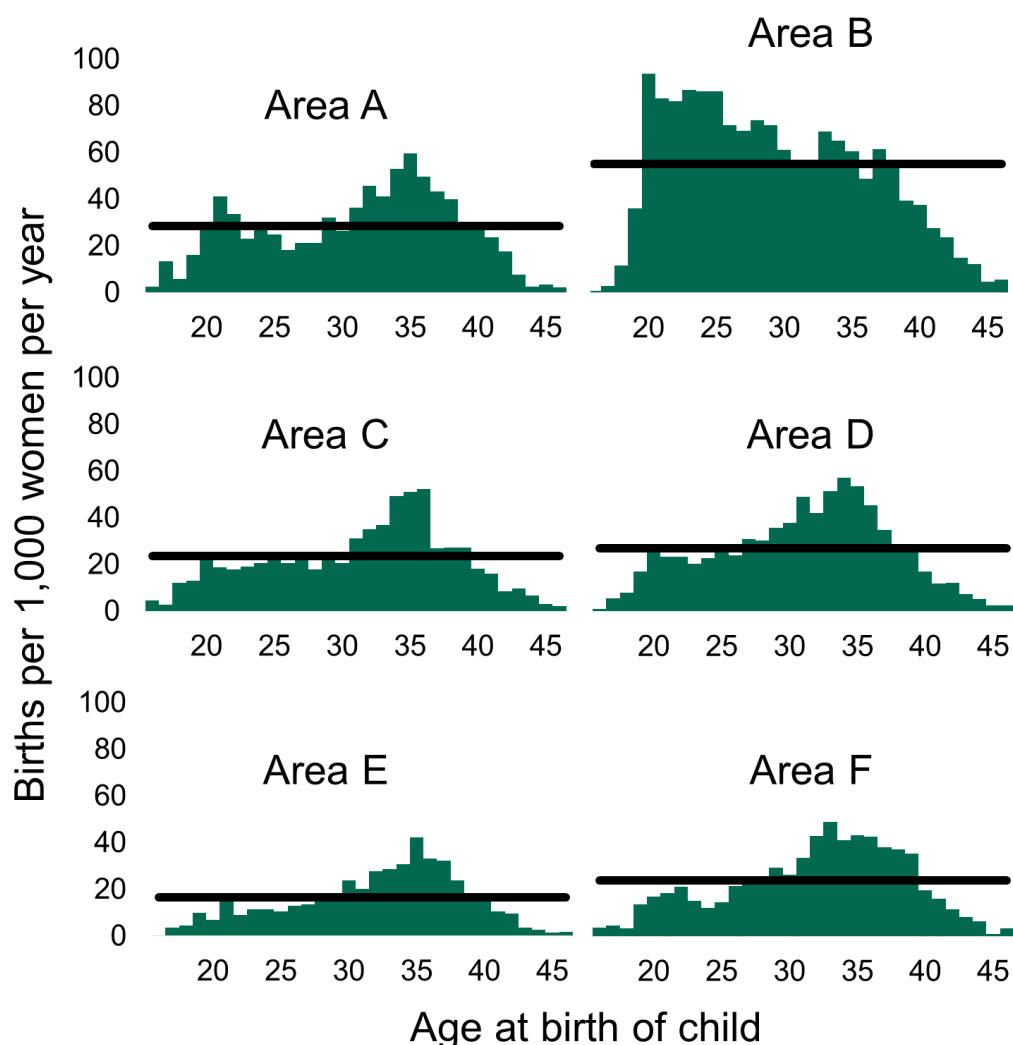


Source: HUHFT

Note: 'Mayhew' population estimates from 2011 report estimating Stamford Hill Orthodox Jewish population from administrative data. [30] Census population estimates from 2011 Census. [31]

These patterns are reflected in geographical comparisons. Figure 10 shows that Children's Centre area B (where the majority of the Stamford Hill Orthodox Jewish community live) has much higher birth rates at almost all ages and the highest birth rates at younger ages. Some geographical areas, particularly Children's Centre area A, show two separate peaks, one at ages in the early twenties and one in the mid-thirties. This is suggestive of two or more distinct demographic groups (some more likely to have children at a younger age, some more likely to have children at an older age) living in the same area.

Figure 10: Births per 1,000 women per year by Children’s Centre area and single year of age (pooled 2014 - 2015)



Source: Births: ONS local authority release 2014, 2015. Population: Census 2011. [31]

Maternal age

Broadly, health inequalities appear to be most pronounced in those giving birth under the age of 20 and over the age of 40.

Those under 20 are more likely to smoke, more likely to have low birthweight babies and less likely to breastfeed. They are also slightly more likely to be recorded as having poor mental health at the time of birth, but much less likely to be recorded as having been screened for post-natal depression.

Those over 40 are more likely than younger women to be recorded as obese at their booking visit and more likely to have low birthweight babies. They are more likely to be recorded as having poor mental health at the time of birth.

Maternal ethnicity

While there are some clear health inequalities between different ethnicities, there is no overall consistent pattern of need.

Asian residents are less likely than average to give birth under the age of 20, to smoke during pregnancy and to be assessed as having poor mental health at delivery. However, they are more likely to have low birthweight babies. The low smoking rate reflects a more general low smoking rate in Asian women – however, this measure does not cover smokeless tobacco, which is more common in South Asian communities.

Black residents are more likely than average to be obese at booking and more likely to have low birthweight babies. They are more likely to breastfeed at 6-8 weeks, but less likely to breastfeed exclusively. The high obesity rate reflects a more general trend in Black women.

White residents are more likely to smoke during pregnancy and to be assessed as having poor mental health at birth, but less likely to have low birthweight babies. Within White groups, Turkish residents are particularly likely to smoke during pregnancy, reflecting a more general trend in the Turkish community.

Location within Hackney and the City

The analysis of within-area inequalities presented below is based on data from each of the six Children's Centre areas (Figure 1). There were no differences in rates of low birthweight observed over the different geographic areas.

Residents of Children's Centre area A have broadly better outcomes than the rest of the borough – the area sees less smoking recorded at delivery, lower rates of maternal obesity, higher rates of breastfeeding and lower rates of teenage pregnancy.

Residents of Children's Centre area B are less likely to have poor mental health recorded or be referred to specialist services. This may point to better mental health and lower needs, or lower detection of poor mental health and higher unmet needs. Either way, this appears to be driven by the Stamford Hill Orthodox Jewish community – the low rates for this area are particularly pronounced for those with ethnicity recorded as Jewish or Orthodox Jewish. Residents also have lower smoking rates and higher teenage pregnancy, with both these trends also particularly strong in those recorded as Jewish.

The other Children's Centre areas are all broadly similar to the overall borough picture, with some differences on particular outcomes but no strong patterns of difference. Area C has no differences from the rest of the borough; area D has higher rates of maternal obesity and teen pregnancy; area E has higher rates of maternal obesity and lower teen pregnancy; and area F has lower rates of maternal obesity.

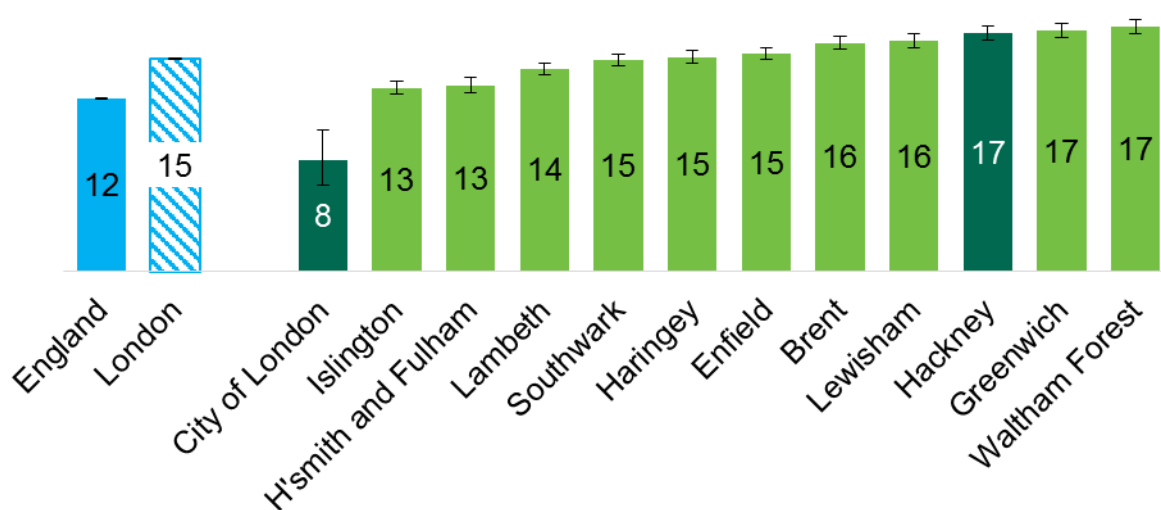
2.5 Comparisons with other areas and over time

This section compares Hackney and the City with other areas, and examines time trends, for relevant indicators where data are available. For information on smoking during pregnancy, see 'Lifestyle and behaviour' JSNA chapter.

Birth rate

Figure 11 shows that Hackney's crude fertility rate (CFR)¹⁵ is higher than the London and England rates and among the highest of its statistical peers, while City's rate is lower than London's and England's.¹⁶

Figure 11: Live births per 1,000 residents (CFR) (2015)



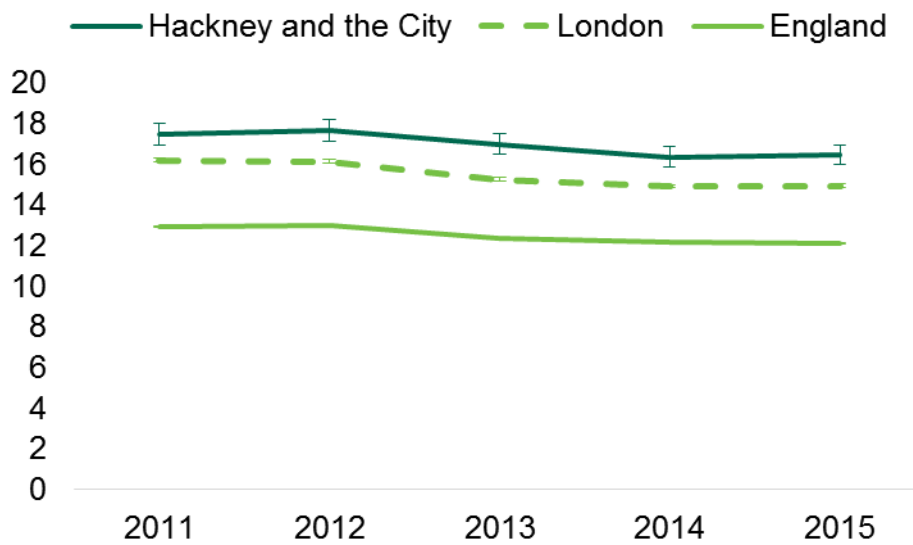
Source: Office for National Statistics, 2015. [27]

Figure 12 shows that Hackney and the City's combined CFR was consistently higher than London and England over the period 2011 – 2015. Hackney and the City's CFR has fallen slightly over this time period, in line with similar trends seen regionally and nationally.

¹⁵ CFR is the number of live births per 1,000 residents of all ages and genders. This is in contrast to the General Fertility Rate (GFR), which is the number of live births per 1,000 women aged 15-44. Hackney's GFR is 61, which is similar to the London rate of 62 and lower than the England rate of 64, reflecting Hackney's younger population (in particular, its higher proportion of women aged 15-44). City's GFR is lower than London's and England's at 38.

¹⁶ Hackney's statistical peers are local authorities with a similar demographic make up to Hackney, used for the purpose of comparisons. For data on children and young people, Hackney's statistical peers are Brent, Enfield, Greenwich, Hammersmith and Fulham, Haringey, Islington, Lambeth, Lewisham, Southwark, and Waltham Forest. Please note that these differ from the statistical peers used to compare adult or total populations.

Figure 12: Live births per 1,000 residents (CFR) over time (2011 – 2015)



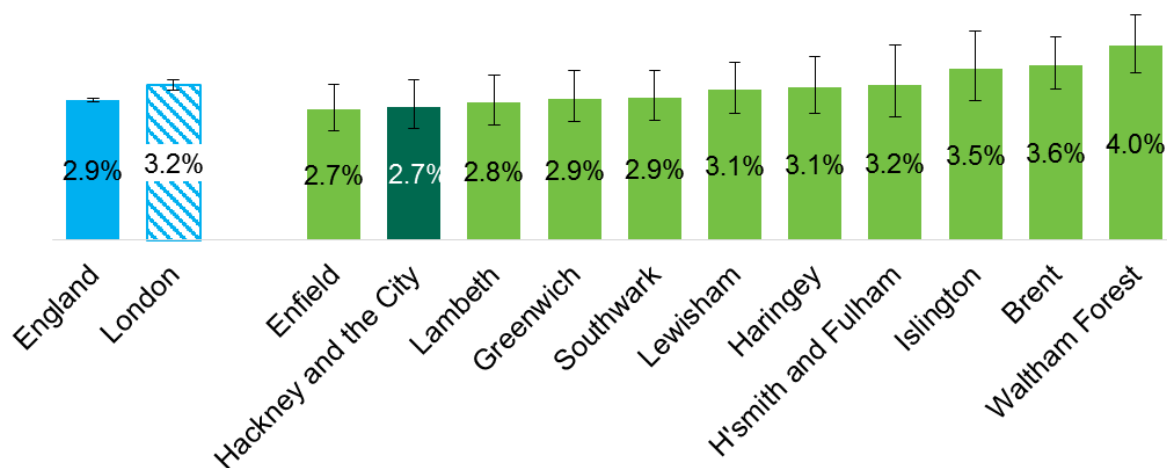
Source: Office for National Statistics, 2015. [27]

Note: Data not available separately for Hackney and the City before 2014.

Low birthweight

Figure 13 shows that Hackney and the City’s rate of low birthweight babies is similar to London’s, England’s and the majority of its statistical peers. Separate data for the City are not available.

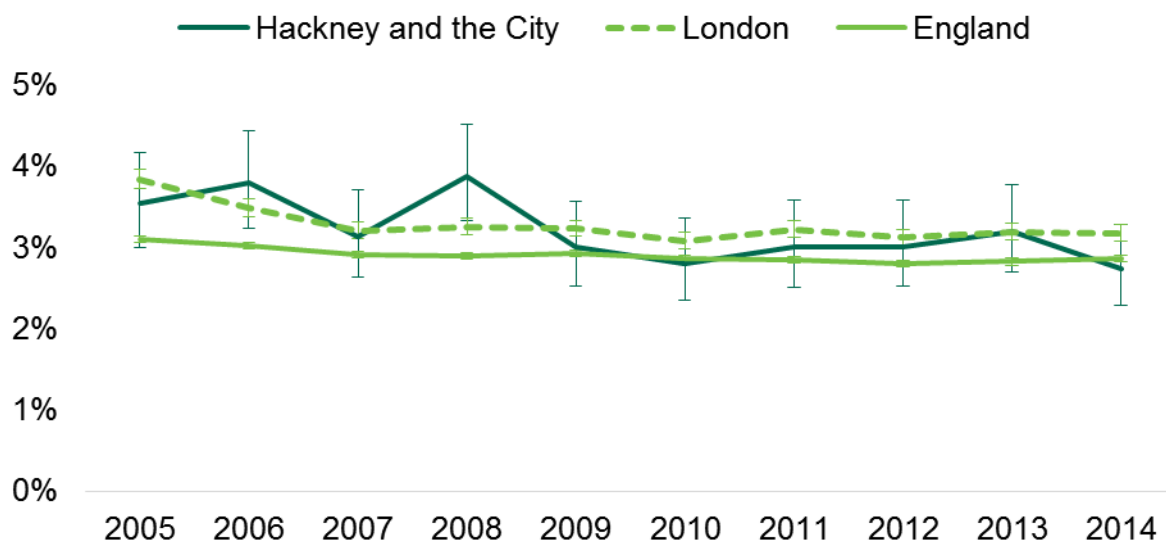
Figure 13: Proportion of all live births at term with low birthweight (2014)



Source: Public Health Outcomes Framework. [28]

Overall, the proportion of live births that are low birthweight has fluctuated over time in Hackney and the City (Figure 14). The rate has been similar to London and England since 2009. Separate data for the City are not available.

Figure 14: Proportion of all live births at term with low birthweight over time (2005 – 2014)

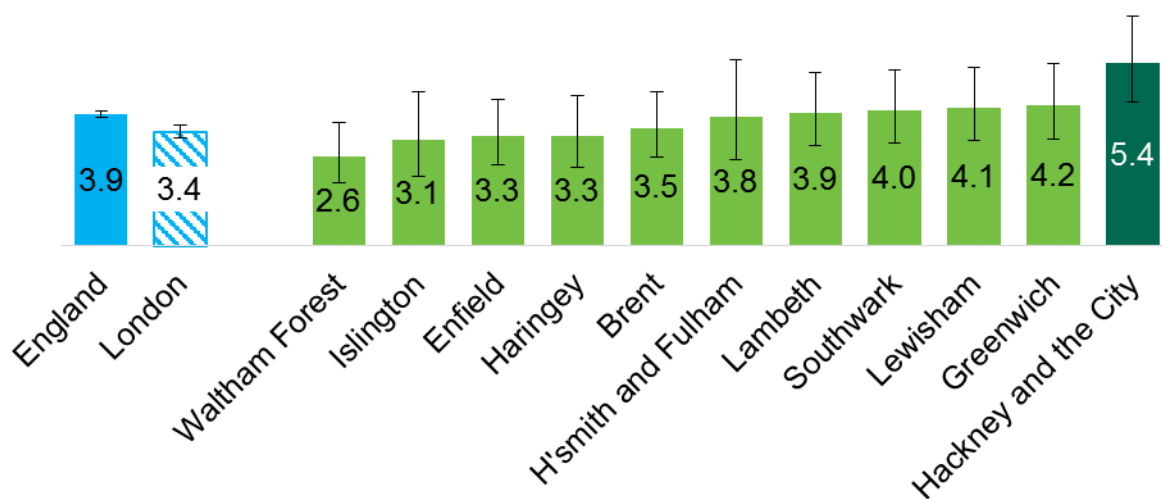


Source: Public Health Outcomes Framework. [28]

Infant mortality

At 5.5 per 1,000 live births, the infant mortality rate in Hackney is higher than the national and London rates, and higher than some of its statistical peers (Figure 15).

Figure 15: Infant mortality rate per 1,000 live births (three-year average, 2013-15)



Source: Public Health Outcomes Framework. [28]

Figure 16 shows that the rate has been fairly stable in Hackney since 2004-06, but rates have fallen across England and London over this period.

Figure 16: Infant mortality rate per 1,000 live births (three-year average) over time (2004-06 to 2013-15)

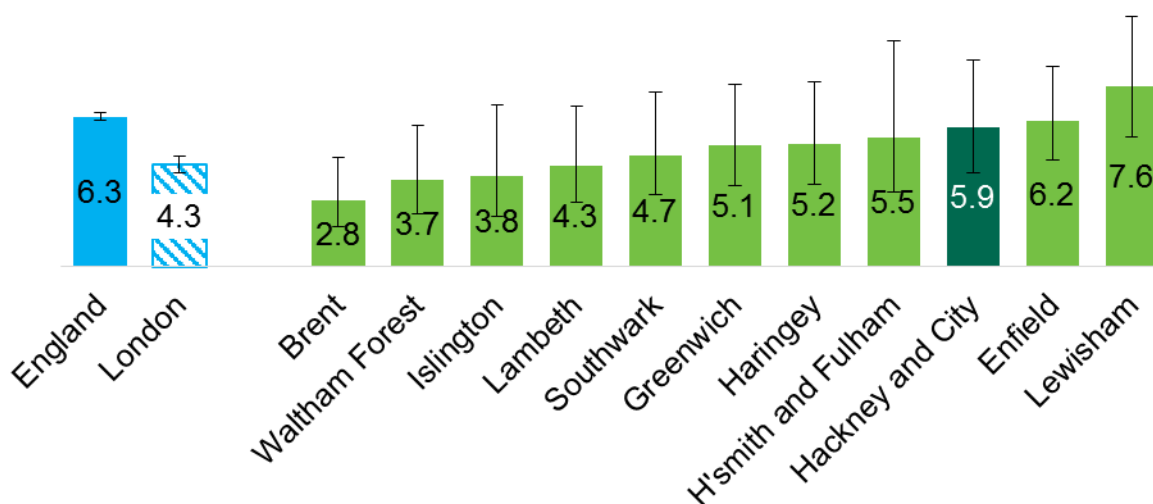


Source: Public Health Outcomes Framework. [28]

Teenage mothers

In 2013, the rate of births to those aged 15-17 years in Hackney and the City was not statistically significantly different from London, England or any of Hackney’s statistical peers (Figure 17).

Figure 17: Births to those under the age of 18 per 1,000 women aged 15-17 (2014)



Source: Children and Young People’s Health Benchmarking Tool [32]

There is some indication that the rate of births to those under 18 has decreased in Hackney and the City over the time period 2010 – 2015, however due to the small numbers involved there is some statistical uncertainty around this data (Figure 18).

Figure 18: Births to those under the age of 18 per 1,000 women aged 15-17 over time (2010 to 2014)

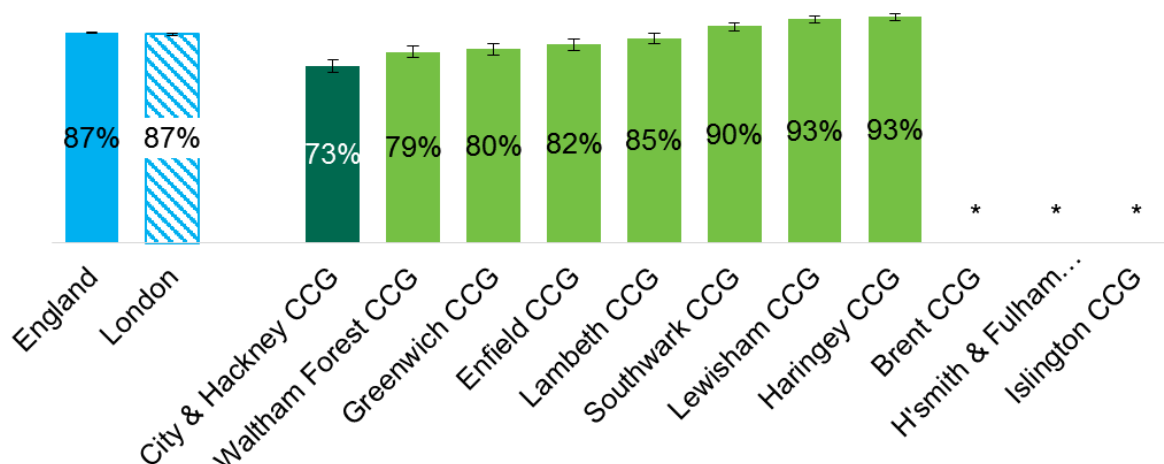


Source: Children and Young People’s Health Benchmarking Tool [32]

Antenatal assessments

Being assessed by a midwife or maternity healthcare professional within the first 13 weeks of pregnancy is linked to better health outcomes (see Section 2.6). City and Hackney Clinical Commissioning Group (CCG) has a lower rate of people being assessed within this time frame than England, London or any of Hackney’s statistical peers for which data is available (Figure 19).

Figure 19: Proportion of CCG patients who have seen a midwife or maternity health professional by 12 weeks and six days (Q3 2014/15)

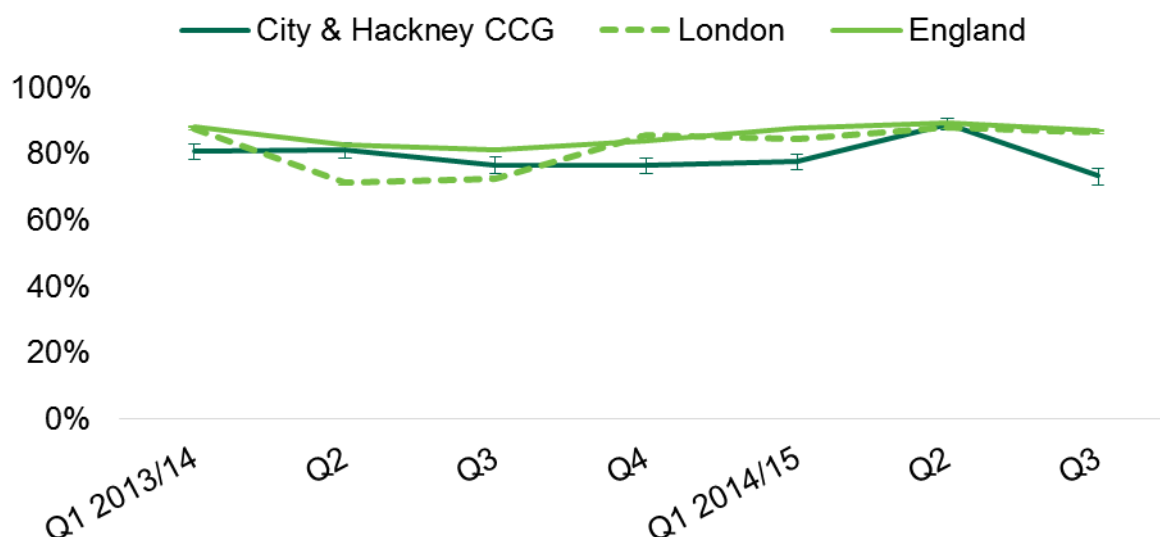


Source: NHS Digital, CCG Outcome Indicator 1.13 [33]

Note: London and England values calculated from all relevant CCGs meeting data validation criteria. Brent, Hammersmith and Fulham, and Islington CCGs did not meet data validation criteria.

Figure 20 shows that City and Hackney CCG’s rates of people being assessed within the first 13 weeks of pregnancy have fluctuated over the period Q1 2013/14 to Q3 2014/15, but have remained at or below the England value.

Figure 20: Proportion of CCG patients who have seen a midwife or maternity health professional by 12 weeks and six days over time (Q1 2013/14 – Q3 2014/15)

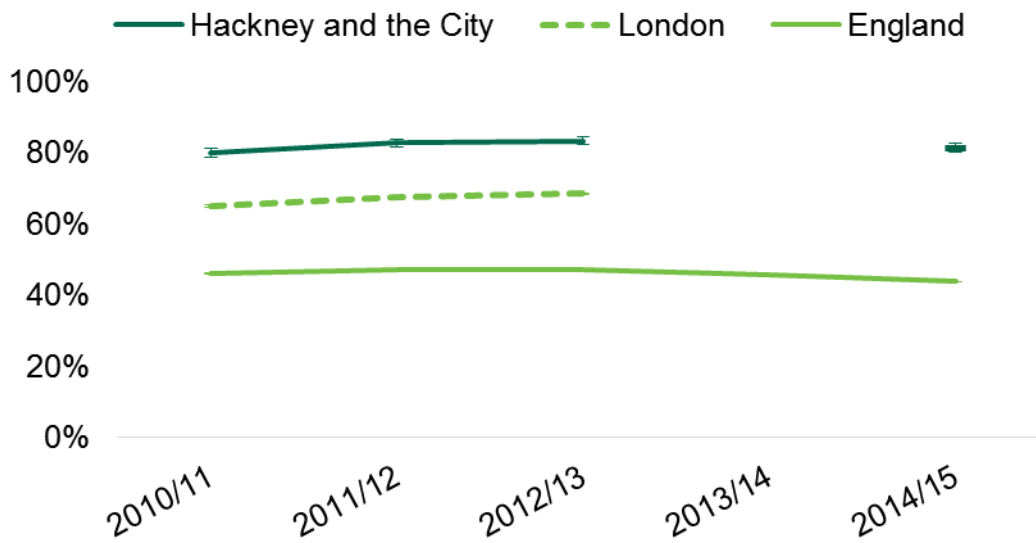


Source: NHS Digital, CCG Outcome Indicator 1.13 [33]
 London and England values calculated from all relevant CCGs meeting data validation criteria.

Maternal and infant nutrition

As described in section 1.3, in 2013/14 virtually all (99.3%) babies born in Hackney and the City of London had their breastfeeding status recorded at birth, which is higher than the London (97%) and national (98%) averages; 92% of these babies were being breastfed, which is again higher than the London (88%) and national (76%) averages. In 2014/15, the majority (81%) were also breastfed either exclusively or partially at 6-8 weeks, which is nearly double the national average of 44% (see Figure 21).

Figure 21: Breastfeeding prevalence at 6-8 weeks after birth



Source: NHS England Maternity and Breastfeeding Statistical Release [34]
 No value available for Hackney and the City 2013/14 or for London 2013/14 and 2014/15 due to data quality issues.

2.6 Evidence for what works

For a full review of available guidance on perinatal health, please see the 0-5s needs assessment published in 2016. [35] Table 6 below highlights a selection of key recommendations in each of the major areas of perinatal health, with an emphasis on those recommendations with the most direct relevance to service planning.

Table 6: Summary of National Institute for Health and Care Excellence (NICE) guidance

	Recommendations for parent (if applicable) and other information	Prevention/Promotion	Identification/Early intervention	Treatment/Ongoing support
<p>General principles of antenatal care</p> <p>(NICE pathway on antenatal care¹⁷)</p>	<p>Midwives and GPs should provide continuous care for uncomplicated pregnancies, with specialists involved only when extra care is needed.</p> <p>Antenatal appointments should be provided in accessible locations, giving the information and time for discussion necessary for informed decisions. Care providers should be alert to risk factors, both psychosocial (e.g. mental ill health, intimate partner violence, substance misuse, debt, unstable housing) and physiological (e.g. hypertension, diabetes in pregnancy).</p>			
<p>Teenage pregnancy</p> <p>(NICE guidance on contraceptive services for young people – PH51¹⁸)</p> <p>(NICE guidance on pregnancy and complex social factors – CG110¹⁹)</p>	N/A	<p>Accessible services in a range of settings providing a full range of contraceptives (including emergency contraceptives and long-acting reversible contraception).</p>	<p>Healthcare professionals must have training on safeguarding responsibilities for both parent and infant. They should be aware that the parent may be dealing with other social problems.</p>	<p>Pregnant people under 20 may feel uncomfortable using services where the majority of service users are older. All services should offer age-appropriate, flexible, person-centred care. Where possible health and social care services should offer peer support and a ‘one-stop shop’ where a range of services, education and support can be accessed in the</p>

¹⁷ <http://pathways.nice.org.uk/pathways/antenatal-care>

¹⁸ <http://guidance.nice.org.uk/PH51>

¹⁹ <https://www.nice.org.uk/guidance/cg110>

	Recommendations for parent (if applicable) and other information	Prevention/Promotion	Identification/Early intervention	Treatment/Ongoing support
				same, convenient setting.
<p>Smoking before, during and after pregnancy</p> <p>(NICE guidance on stopping smoking in pregnancy and after childbirth – PH26²⁰)</p> <p>(NICE guidance on smoking cessation in acute and maternity services – PH48²¹)</p>	Smoking is extremely harmful to the health of both parent and infant – all those who are pregnant, planning to become pregnant, or have children and who smoke should be helped to quit (or, failing that, cut down).	Specific recommendations not provided.	Midwives should use carbon monoxide monitoring to identify those who smoke at first booking and subsequent appointments, as there is strong social pressure not to admit to smoking while pregnant and so simply asking may not get an accurate answer.	<p>All pregnant people who smoke should be referred to specialist NHS Stop Smoking Services, where a range of support types, both psychosocial and pharmacological, should be offered as appropriate.</p> <p>Midwives who deliver intensive stop smoking interventions should be trained to the same standard as specialist NHS stop smoking advisors.</p>
<p>Weight and nutrition before and during pregnancy</p>	A BMI between 18.5 and 25 kg/m ² is recommended at the start of pregnancy.	Health professionals should use any appropriate opportunity to advise those who may become pregnant	Health professionals should discuss diet and eating habits early in pregnancy, including finding out and	Provision of information on benefits of a healthy diet and practical advice on how to eat healthily throughout pregnancy, tailored to

²⁰ <https://www.nice.org.uk/guidance/ph26>

²¹ <https://www.nice.org.uk/guidance/ph48>

	Recommendations for parent (if applicable) and other information	Prevention/Promotion	Identification/Early intervention	Treatment/Ongoing support
(NICE guidance on maternal and infant nutrition – PH11 ²²)	<p>Folic acid supplements are recommended in the three months prior to conception and for the first trimester.</p> <p>Vitamin D supplements are recommended before and during pregnancy and while breastfeeding.</p> <p>Eating five portions of fruit and vegetables a day and one portion of oily fish (e.g. mackerel, sardines, pilchards, herring, trout or salmon) a week is recommended during pregnancy.</p>	<p>about the benefits of folic acid supplements.</p> <p>Provision of Healthy Start vitamin supplements.</p> <p>Before pregnancy: Any weight loss advice for those with a BMI of 30kg/m² and over should be tailored to individual needs, combine advice on healthy eating and physical exercise, and identify and address individual barriers to change.</p>	addressing any concerns.	<p>individual needs and circumstances.</p> <p>During pregnancy – weight loss should not be recommended. Refer those with a BMI of 30kg/m² and above to a dietitian.</p>
<p>Mental health during and after pregnancy</p> <p>(NICE guidance on antenatal and postnatal</p>	N/A	All people of childbearing potential with a new, existing or past mental health problem should be given clear information	Screening questions for depression and anxiety should be asked at booking and during the early post-natal period. Personal and family	Evidence on risks and benefits of pharmacological interventions is rapidly updating, so all those providing information,

²² <https://www.nice.org.uk/guidance/ph11>

	Recommendations for parent (if applicable) and other information	Prevention/Promotion	Identification/Early intervention	Treatment/Ongoing support
mental health – CG192 ²³)		in order to make informed, personalised decisions. This includes the risks and benefits of pregnancy and child-raising to mental health, and the risks and benefits of mental health treatments to the health of parent and child.	history of mental ill health should be taken at first contact with services.	advice and care should ensure that they are fully informed on latest developments. Health professionals should recognise the possibility of mental ill health leading to difficulties in the parent-infant relationship, and be prepared to offer advice and additional support.
General principles of postnatal care	A coordinating healthcare professional should be identified for each person who has given birth. This professional may change with the needs of parent and infant.			
(NICE guidelines on postnatal care – CG37 ²⁴)	At each postnatal contact, the healthcare professional should ask about health of parent and infant; offer clear, consistent information; encourage parent and family to report any concerns about physical, social, mental or emotional health.			
Infant nutrition	Breastfeeding exclusively for the first six months of an infant's life is recommended, followed by continued	Provision of Healthy Start vitamin supplements. Provision of relevant information on benefits	Health visitors and Children's Centres can identify issues with breastfeeding and provide advice and troubleshooting.	Proactive breastfeeding support should be provided at home.
(NICE guidelines on maternal and infant nutrition – PH11 ²⁵)				

²³ <https://www.nice.org.uk/guidance/cg192>

²⁴ <https://www.nice.org.uk/guidance/cg37>

²⁵ <https://www.nice.org.uk/guidance/ph11>

	Recommendations for parent (if applicable) and other information	Prevention/Promotion	Identification/Early intervention	Treatment/Ongoing support
	<p>breastfeeding for as long as desired while gradually introducing a more varied diet.</p> <p>Vitamin D supplements are recommended for most under-fours, vitamin A and C supplements from six months until five years.</p>	<p>of breastfeeding and vitamin supplements.</p> <p>Structured programmes within NHS organisations to encourage breastfeeding, including training.</p>		Peer support for those least likely to start and continue breastfeeding.
<p>Infant emotional development</p> <p>(NICE guidance on social and emotional wellbeing in early years – PH40²⁶)</p>	Health visitors should promote positive parenting techniques to all new parents.		<p>Potential issues can and should be identified in all settings, including Children’s Centres, nurseries, the NHS, voluntary and community sector organisations and local authority services. All those who work with new parents and infants should be trained accordingly.</p>	<p>Where issues are identified, additional support should be provided around engagement and participation in services, parenting skills, parent-child relationships, and wider psychosocial and health issues.</p>

²⁶ <https://www.nice.org.uk/guidance/ph40>

2.7 Services and support available locally

2.7.1 Prevention

Teenage pregnancy

Universal access to free contraception and sexual health services for local young people is available through a number of channels – primary care (GPs, pharmacies), sexual health clinics and, more specifically, through the new City and Hackney Children and Young People’s Health and Wellbeing Service (which involves both an educational/outreach and clinical component). A free condom scheme is also available for local young people up to age 25. See Section 3.7 for a full description of relevant contraception and sexual services for young people in Hackney and the City.

Maternal smoking

The prevention of maternal smoking is realised through wider prevention initiatives targeted at stopping people from starting smoking, community tobacco control initiatives²⁷ and access to high quality stop smoking services to support successful quit attempts in smokers before they become pregnant.

The new Children and Young People’s Health and Wellbeing Service (see Section 3.7.1) addresses both smoking prevention and cessation, with the primary aim of reducing smoking prevalence in 15 year olds (a key Public Health Outcomes Framework indicator). [28]

Maternal weight

For information on local obesity prevention initiatives targeting diet and physical inactivity, see the ‘Lifestyle and behaviour’ JSNA chapter.

Prior to pregnancy, support to lose weight is available through adult weight management services commissioned by Hackney Council and the City of London Corporation. In both local authority areas, eligible adults can be referred into an integrated service that includes dietary advice, physical activity programmes and behaviour change approaches to support participants to achieve and sustain clinically beneficial weight loss. Joint work is currently being undertaken by City and Hackney CCG, Hackney Council and the Corporation of the City of London to review the maternal obesity pathway.

Maternal mental health

For information on local mental health prevention initiatives, see the ‘Mental health and substance misuse’ JSNA chapter.

²⁷ For instance, enforcement of smoke free spaces, restricting under-age sales or limiting the availability of cheap tobacco.

Joint work is currently being undertaken by City and Hackney CCG, Hackney Council and the Corporation of the City of London to review the service offer around maternal and perinatal mental health.

Maternal and infant nutrition

In order to prevent congenital abnormalities (such as neural tube defects) and conditions in infancy caused by vitamin insufficiencies (such as rickets), free Healthy Start vitamins are offered universally to pregnant people and children in Hackney and the City. Specifically, vitamins are available to Hackney and City residents who are pregnant or who have given birth within the last year, as well as children from four weeks up to their fourth birthday.²⁸

In order to maximise acceptability and take-up, the vitamins have been approved by the Vegetarian Society, are kosher- and halal-certified, and contain no milk, egg, gluten, soya or peanut residues. These vitamins can be collected from local pharmacies, and a pilot to distribute vitamins through some Children's Centres in Hackney began in October 2016. For uptake of these vitamins locally, please see Section 2.3.

Healthy Start food vouchers are a national initiative to encourage consumption of milk, fruit and vegetables to facilitate healthy eating and prevent the consequences of a diet low in fruit and vegetables. However, unlike the vitamin scheme, these are not available universally, but only if the family receive certain benefits or if the pregnant person is under 18 years of age.

2.7.2 Identification and early intervention

During the booking visit, midwives assess how much support a pregnant person may need during their pregnancy, taking into account social circumstances, health status and age. Those who are identified as having a greater need than can be met by universal antenatal care alone are referred on to appropriate specialist services. For information on the number of referrals to specialist services, please see Section 2.3.

Since October 2015, local authorities have had responsibility for commissioning public health services for children under the age of five. This includes the Healthy Child Programme ('Pregnancy and the First 5 Years of Life' – see Box 2) and the Family Nurse Partnership (FNP) (see Section 2.7.3 below).

²⁸ Although all infants are eligible from four weeks of age, infants who have more than 500ml of formula milk a day do not require these vitamin supplements

Box 2: The Healthy Child Programme

The Healthy Child Programme is a public health programme that begins in early pregnancy and ends in adulthood. It is led by Health Visitors in conjunction with an integrated services that joins together Children's Centre staff, GPs, midwives and community nurses. Its core requirements are:

- early identification of need and risk
- screening and immunisation
- promotion of social and emotional development
- support for parenting
- keeping the family in mind
- effective promotion of health and behavioural change
- prevention of obesity
- promotion of breastfeeding
- access to additional preventative programmes for children and families as appropriate to individual and local need.

Source: Department of Health, 'Healthy Child Programme: Pregnancy and the First 5 Years of Life' [36]

City and Hackney health visiting services have recently been re-designed and re-commissioned, delivering through a new model since July 2016. The new service is provided by HUHFT, and delivers the five mandated health checks which form part of the Health Child Programme (new antenatal visit, new birth visit, six-eight week check, 3-4 month review and integrated health review at 27 months). In addition, the new service is delivering two extra health checks for our most vulnerable families (including first time parents and those with post-natal depression). There is a strengthened relationship with GPs (with a lead health visitor for each cluster of GPs and a named health visitor linked to each GP practice), as well as a lead health visitor for each early years setting. The new model also includes lead strategic health visitors for the five 'high impact' areas - obesity, domestic violence, mental health, substance misuse and disability.

Hackney and the City have been delivering a local FNP programme since 2014 for first time families where the mother is aged under 20 at conception (currently delivered by Whittington Health). Families are identified through a range of sources, including at booking, and are referred to the programme before 28 weeks of pregnancy where they are worked with intensively up until the child is two years old. The programme delivers the 'Healthy Child Programme' and also has a strong focus on increasing aspiration and outcomes for mothers and babies not only in terms of health, but also education and employment. See Box 3 in Section 2.7.3 for more detail on the FNP programme.

Health visitors and family nurses also play a key role in identifying and supporting vulnerable children and families using the Common Assessment Framework (CAF). The CAF provides access to tailored, multi-agency support for eligible children and families – available to all children and young people up to 18 years, or up to 25 for young people with learning or other disabilities. Multi-agency teams based in Children's Centres review CAFs for families with children under five years on a regular basis to identify where extra support is required, and aims to put these services in place in a timely manner before needs escalate. Where appropriate, this process provides a pathway to children's social care.

2.7.3 Treatment, care and support

Early years support

Children's Centres provide a variety of services, including child and family health services, childcare, integrated early education, parenting and wider family support. This incorporates advice on employment and training for parents, through links with Jobcentre Plus. A breakdown of the use of these services by Children's Centre area, measured by the number of children aged 0-4 attending each centre is provided in Table 7 (Figure 1 contains a map of these boundaries).

Table 7: Number of children aged 0-4 years attending Children's Centres by area

	A	B	C	D	E	F
2011/12	2,329	3,200	2,173	2,471	1,608	2,517
2012/13	2,275	3,590	2,380	2,486	1,605	2,460
2013/14	2,434	3,601	2,354	2,343	2,043	2,348

Source: Hackney Learning Trust

Teenage pregnancy

Support for teenage mothers is delivered through the FNP programme (see Box 3 below). Home visits are delivered by trained nurses on a weekly, fortnightly or monthly basis, with each visit lasting between one and one-and-a-half hours. Within a trusting and supportive relationship between the family nurse and the family, themes such as attachment, relationships and psychological preparation for parenthood are explored. Behaviour change methods are used to assist families to adopt healthier lifestyles for both themselves and their babies, provide good care for their children, and plan their future. Once the child has reached two years old, the family is transferred to health visiting services to complete the remainder of the Healthy Child Programme.

This type of support has been shown to improve outcomes for mothers and their children in the short, medium and long term.

Box 3: Outline of the FNP programme

Family nurse partnership (FNP) – this programme offers targeted ongoing intensive support to first time teenage mothers and their babies (and fathers or other family members if mothers would like them to take part). It was developed by the University of Colorado over 30 years ago and was established in England in 2007 as part of the then government's 'Reaching out: think family' plan on social exclusion.

Eligibility criteria are as follows:

- first time mother aged 19 or under at conception
- living in London Borough of Hackney
- enrolled before 28th week of pregnancy.

In 2014/15, the FNP programme in Hackney received 75 referrals and, of these, 41 clients were enrolled (42 in total when including transfers). While provision is available for the City, there have been no referrals so far.

For those who decline the offer of joining the FNP programme, or who are beyond 28 weeks of pregnancy when identified, Public Health midwives will support them throughout pregnancy until they are transferred to the health visiting service.

Maternal smoking

A joint NHS-local authority initiative is underway in Hackney to implement NICE guidance on smoking in pregnancy, in particular establishing carbon monoxide (CO) testing to validate smoking status in all pregnant people. [37] This includes provision of CO monitors to the local FNP programme to ensure universal testing of pregnant teenagers. Validating smoking status in this way provides an opportunity for clinicians to give advice to pregnant smokers and make referrals to a stop smoking service.

All Hackney health visitors are required to be trained up to Level 1 in smoking cessation education (also known as 'very brief advice') and can be trained up to Level 2 (delivering intensive one-to-one stop smoking advice to clients who would like to stop smoking for 15-30 minutes per week for up to six weeks).

Pregnant people who want support to quit smoking can access a specialised pregnancy stop smoking clinic at HUHFT, as part of Hackney stop smoking services. There is no specialist pregnancy stop smoking support in the City of London.

Maternal weight

HUHFT offers advice, information and support for pregnant people with a high BMI, including the 'Wednesday Club Clinic' for those with a BMI of 40 or greater (very obese) to meet with a multidisciplinary team to discuss labour and delivery choices. [38]

Maternal mental health

Relevant services in Hackney and the City of London are provided by the perinatal mental health team. The team provides care to those who have moderate to severe mental health difficulties in pregnancy or within one year of delivery. These problems can be pre-existing or arise during the perinatal period. Inpatient treatment is provided in a specialist unit at HUHFT.

In 2014/15, there were 120 perinatal mental health clients resident in Hackney and the City, which is 3.5% of the number of births to residents during this period (3,464 births in total). These data exclude mothers with mild mental health problems who are either managed in primary care or not receiving any formal support (no data are available to estimate the numbers involved).

Maternal and infant nutrition

The 'Breastfeeding Welcome' scheme launched in Hackney in 2015 and aims to encourage and support breastfeeding in the borough's public, private and voluntary sector spaces. The scheme aims to raise awareness of the benefits of long term breastfeeding and empower people to feel comfortable breastfeeding outside of the home.

There are nine breastfeeding groups in Hackney that provide specialist advice and support on breastfeeding, which are advertised to parents by midwives and health visitors. These groups are run by the Public Health midwives and Breastfeeding Network Support,²⁹ and most are held in Children's Centres. A survey about breastfeeding support in Hackney, completed by mothers attending breastfeeding groups in quarter two (Q2) of 2014/15, found that midwives were the most common source of support (23% of respondents), closely followed by partners/husbands (34%), with only 11% of respondents reporting that they received support from their health visitor.

One potential cause of feeding problems is 'tongue tie', where the frenulum of the tongue³⁰ extends along the underside of the tongue. Tongue tie may cause difficulties in breastfeeding and occasionally may cause difficulties in bottle feeding. A tongue tie service is available in Hackney and the City through which babies can be referred to the infant feeding specialist midwife at HUHFT, who can confirm whether tongue tie is present and decide whether to perform a simple outpatient procedure to divide the tongue tie.

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²⁹ <https://www.breastfeedingnetwork.org.uk/hackney/>

³⁰ A frenulum is a small fold of tissue that restricts the motion of a mobile organ in the body; a frenulum is found extending from the floor of the mouth to the midline of the underside of the tongue.

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