

5. Health Inequalities

This section of the JSNA shows the current extent of health inequalities in Wirral, looks in detail at the metrics we currently use to describe health inequalities and reviews some of the evidence around what can be done to reduce health inequalities.

As it is a fundamental issue in health and social care, other chapters in the JSNA contain a large amount of information about health inequalities. Consequently, this chapter may signpost the reader to other relevant chapters, rather than duplicate information.

Chapter Summary

- In 2008-10, life expectancy in Wirral was 77.0 for men and 80.8 for women. Whilst it has been increasing in recent years, the increase has not been as fast as that in England. This means the gap between England and Wirral is now wider than in was in 1995-97 for both men and women
- Wirral had the widest inequalities in DFLE (Disability Free Life Expectancy) of any local authority in England in 2012. Men living in the most deprived areas of Wirral can expect to spend 20 more years of their lives living with ill-health or disability than men living in the most affluent areas. For women, the difference is 17.1 years.
- The gap in mortality rates between the most deprived 20% of areas in Wirral and the rest of Wirral has been widening since 2002
- Health inequalities are apparent right across the life course, even before birth. For example, mothers in deprived areas of Wirral are more likely to smoke in pregnancy, more likely to have low birth-weight babies and are less likely to breast-feed
- The main cause of health inequalities is poverty and income inequality. Living in poverty is closely related to other factors that influence health such as education, living environment, employment and lifestyle.
- Lifestyle related issues such as smoking, drinking too much alcohol and obesity all show strong associations with deprivation in Wirral (and nationally) and contribute to health inequalities. For various and complex reasons, these behaviours are all more prevalent in the most deprived areas of Wirral.
- Educational attainment significantly affects future life chances. Children in care in Wirral achieving 5+ GCSEs at grades A*-C stood at 8% in 2010, compared to 58.9% in Wirral overall. There are also large variations between wards (66% in Liscard/Seacombe compared to 90% in Oxton/Prenton).
- The percentage of young people NEET (not in Employment, Education or Training) is ten times higher in Rock Ferry than it is in Heswall (1.8% compared to 18.8)
- [Local analysis quantifying the health effects of unemployment in Wirral](#) in 2012 indicates that around 23 deaths, 1,664 cases of Long Term Limiting Illness and 2,392 cases of people suffering mental health problems are directly attributable to unemployment (per annum).
- Air pollution of the kind which impacts on health in Wirral is worse in the more deprived areas of the borough. It has been estimated to account for around 0.5% of the difference in mortality between the most and least deprived areas of the borough
- Those living in the most deprived areas of Wirral have higher emergency hospital admission rates than those living in the most affluent areas

Interactive Atlases

We have produced web-based Interactive Atlases showing JSNA and Health Inequalities indicators for Wirral. These can be accessed here: <http://info.wirral.nhs.uk/instantatlas/>

5.1 Background

5.1.1: National priorities

'[Fair Society, Healthy Lives](#)', a Strategic Review of Health Inequalities in England post-2010 (known as the **Marmot Review**), was published in February 2010. The review was tasked with identifying the health inequalities challenge facing England, finding the evidence most relevant to future policy and action and advising on future objectives and measures.

The review built on world-wide evidence accumulated by the World Health Organisation's Commission on the Social Determinants of Health which published its report '[Closing the Gap in a Generation](#)' in 2008.

Figures released in 2012 to mark the second anniversary of the release of Marmot Review, show that whilst life expectancy *overall* improved for most of the 150 local authority areas in England, inequalities *within* many local authority areas increased.

The [UCL Institute of Health Equity](#) (previously known as the Marmot Review Team) commissioned the London Health Observatory to provide data showing key indicators for monitoring health inequalities and the social determinants of health for the 150 local authorities in England. The [2012 data for Wirral can be viewed here](#).

The new [Public Health Outcomes Framework for England 2013-16](#) sets out what achievements should be aimed for in a new and reformed public health system. The two high-level outcomes for achievement across the wider public health system are:

1. Increased healthy life expectancy.
2. Reduced differences in life expectancy and healthy life expectancy between communities.

These outcome measures reflect a new focus on not only on how long people live (life expectancy) but on the quality of people's lives, or how *well* people live (healthy life expectancy or HLE), at all stages of the life course. The second outcome focuses attention on reducing health inequalities.

The exact definition for monitoring of these outcomes has not yet been confirmed (as of August 2012), so there is currently no available data.

5.1.2: Local Priorities

At a local level, the NHS Wirral Strategic Commissioning Plan has an overarching target to reduce internal health inequalities. This target is:

- To reduce the mortality gap between the 20% most deprived areas and the whole of Wirral by 7% by 2013.

This uses the most deprived 20% of areas (or most deprived quintile) nationally based on the Index of Multiple Deprivation (IMD). The baseline year for this target is 2004-06.

5.2 Life Expectancy

5.2.1: Life expectancy at birth

The trend in the life expectancy and the gap between England and Wirral is shown in Table 5.2.1a and visually in Figure 5.2.1a.

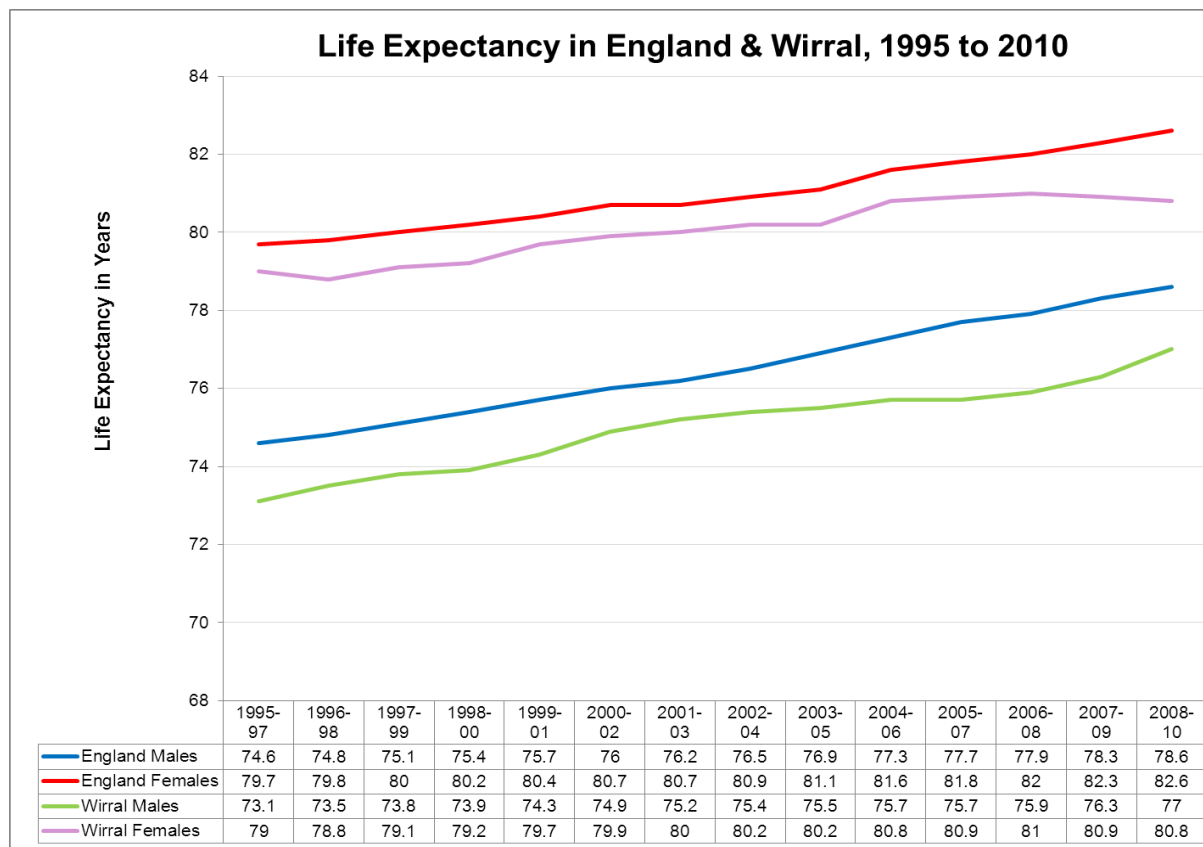
Table 5.2.1a: Life expectancy at birth in Wirral and England for 1995-97 to 2008-10

Time period	England		Wirral		Gap (years)	
	Males	Females	Males	Females	Males	Females
1995-97	74.6	79.7	73.1	79.0	1.5	0.7
1996-98	74.8	79.8	73.5	78.8	1.3	1.0
1997-99	75.1	80.0	73.8	79.1	1.3	1.0
1998-00	75.4	80.2	73.9	79.2	1.5	1.0
1999-01	75.7	80.4	74.3	79.7	1.4	0.7
2000-02	76.0	80.7	74.9	79.9	1.1	0.8
2001-03	76.2	80.7	75.2	80.0	1.0	0.7
2002-04	76.5	80.9	75.4	80.2	1.1	0.7
2003-05	76.9	81.1	75.5	80.2	1.4	0.9
2004-06	77.3	81.6	75.7	80.8	1.6	0.8
2005-07	77.7	81.8	75.7	80.9	2.0	0.9
2006-08	77.9	82.0	75.9	81.0	2.0	1.0
2007-09	78.3	82.3	76.3	80.9	2.0	1.4
2008-10	78.6	82.6	77.0	80.8	1.6	1.8

Source: [ONS](#), 2012

- Current life expectancy (2008-10) in Wirral is 77.0 for men and 80.8 for women (this is lower than England for both men and women)
- Whilst life expectancy is increasing in males, it has decreased slightly for females in Wirral over the two most recent time periods
- The latest data (2008-10) shows a gap in life expectancy between Wirral and England of 1.8 years for females and 1.6 years for males.
- The gap in years has increased in both males and females since 1995-97 when it was 1.5 years for males and 0.7 years for females.
- This means that the percentage gap (between 1995-97 and 2008-10) has increased and now stands at 14% for males and 157% for females
- It is important to note that the initial gap was small, so even minor increases and decreases have impacted greatly on the gap.
- This information is shown visually in Figure 5.2.1a below.

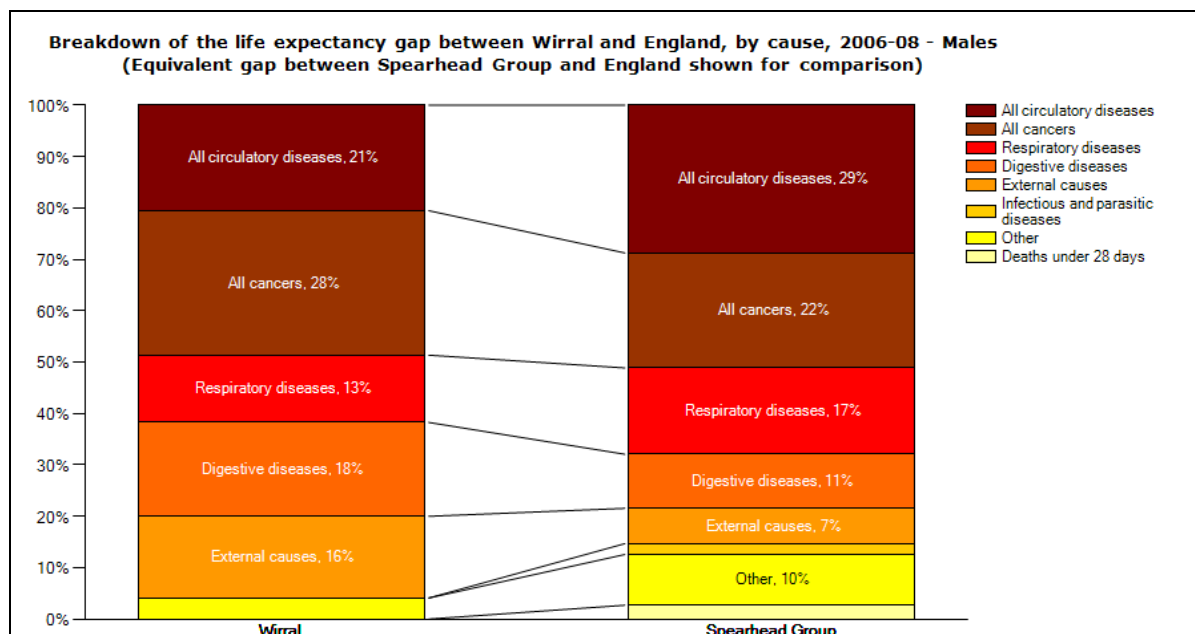
Figure 5.2.1a: Life expectancy (years) in England & Wirral, 1995 to 2010



5.2.2: Causes of the life expectancy gap between Wirral & England

We can see in Figure 5.2.2a that the causes of the gap in males in Wirral are different to those in Spearhead areas* as a whole, with digestive diseases, cancers and external causes (which includes road traffic accidents and suicide) making a bigger contribution to the gap.

Figure 5.2.2a Causes of the life expectancy gap between Wirral and England against Spearhead* average, males (3 years pooled time periods)

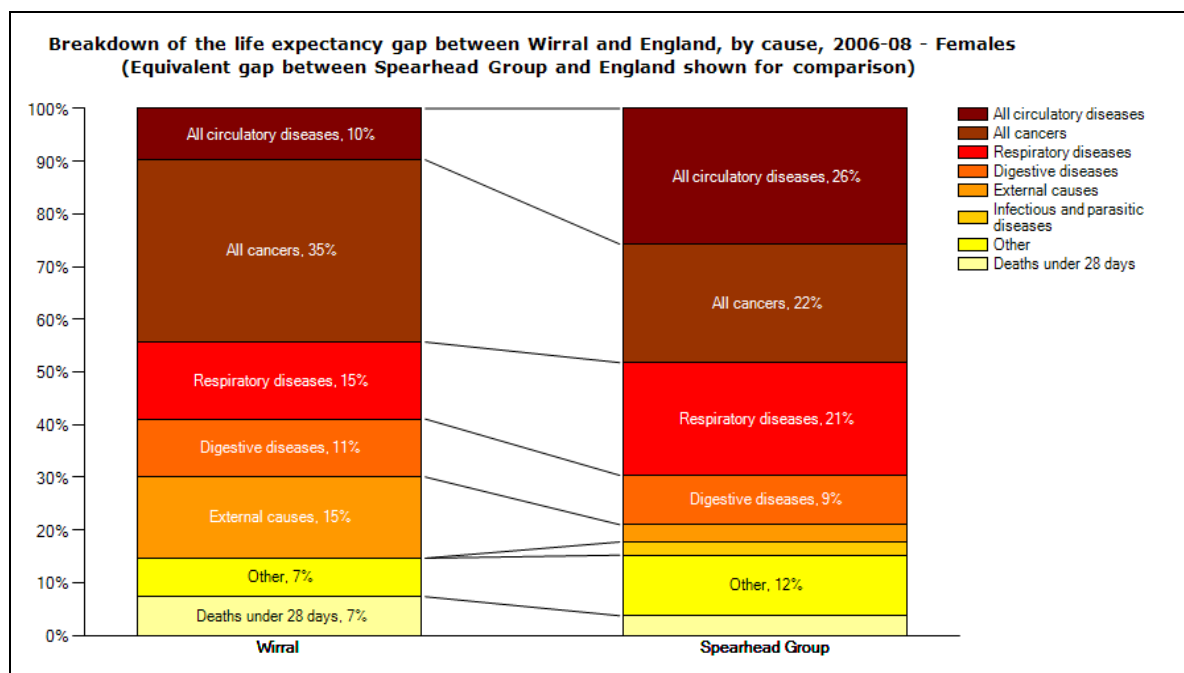


Source: London Health Observatory 2008

*Spearhead areas were defined as the 20% of areas with the worst health and deprivation indicators in England. Additional targets were set for these areas to reduce the inequality between them and the rest of England.

Figure 5.2.2a shows the causes of the gap in females in Wirral to be different to those in spearheads as a whole, with cancers and external causes making a much bigger contribution to the gap. Circulatory diseases make a much smaller contribution to the gap for women in Wirral.

Figure 5.2.2b Causes of the life expectancy gap between Wirral and England against Spearhead average, females. (3 years pooled time periods)



Source: [London Health Observatory](#) 2008

5.2.4: Disability-Free Life Expectancy (DFLE)

Disability-free life expectancy (DFLE) is the average number of years a person could expect to live without an illness or health problem that limits their daily activities. The inequality in DFLE is one of the Marmot Indicators for Local Authorities in England which are updated annually and in 2011 and 2012. Wirral had the largest inequity in DFLE of all the Local Authorities in England in 2012.

Figure 5.2.4: Inequality in Disability-Free Life Expectancy (in years) in England, NW and Wirral (England best and worst also shown) 2012

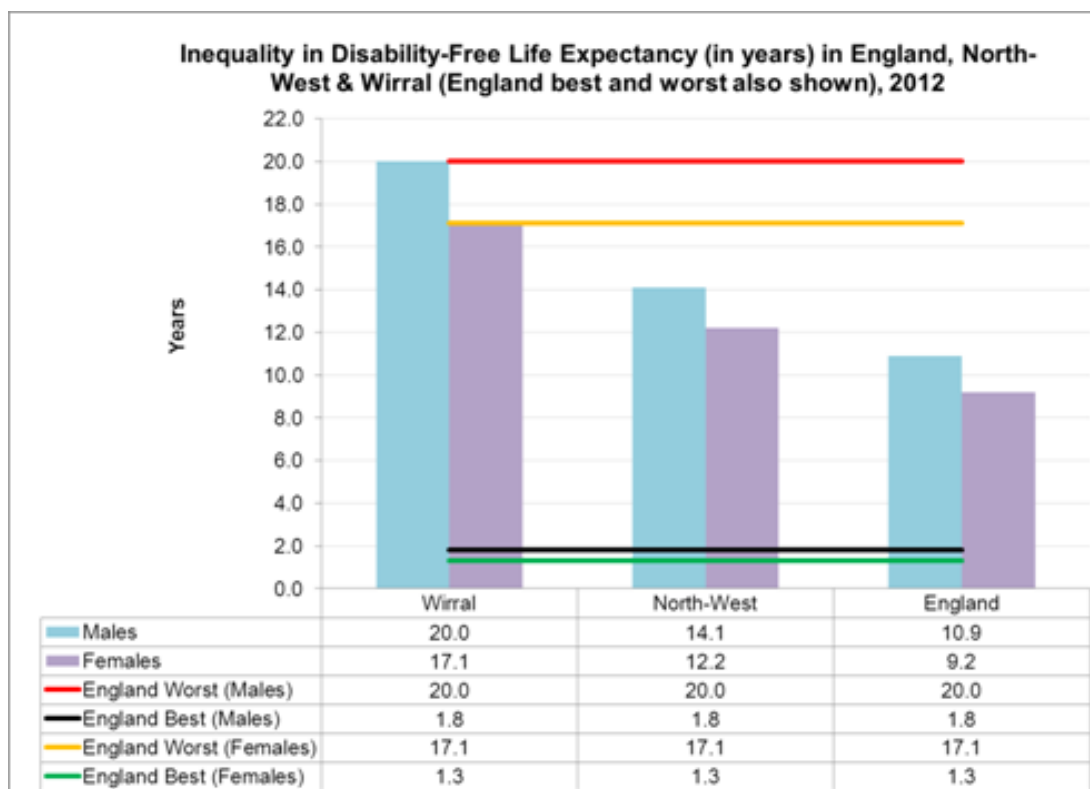


Figure 5.2.4 shows that men living in the most deprived areas of Wirral can expect to spend 20 more years of their lives living with ill-health or disability than men living in the most affluent areas. For women, the difference is 17.1 years.

Source: [Marmot Indicators for Local Authorities](#), 2012

5.3 Health Expectancy and Quality Adjusted Life Expectancy

Health expectancy gap

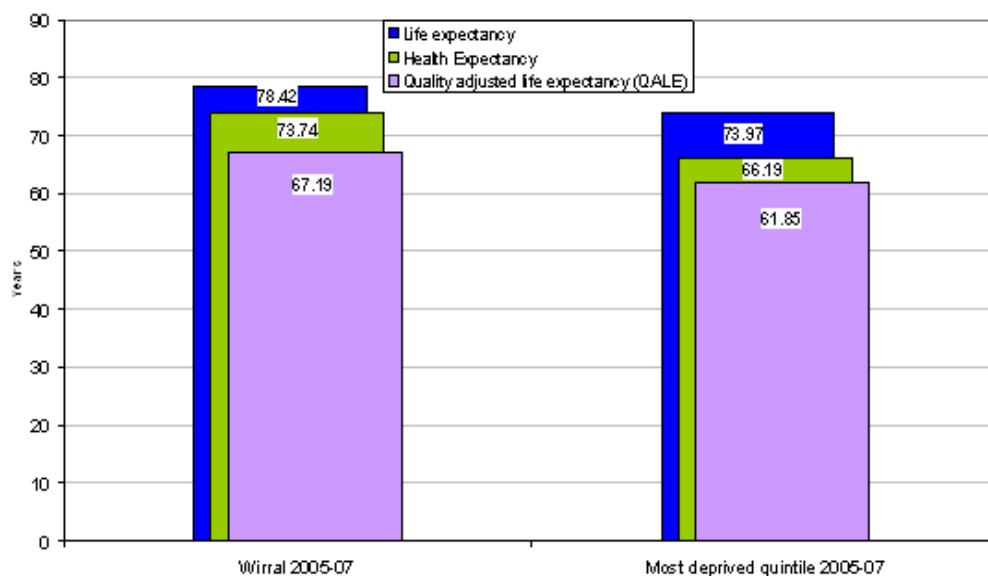
We used survey data from the Northwest Mental Wellbeing Survey 2009 (Deacon et al., 2009) to estimate health expectancy i.e. years of life lived in good health. We found that for Wirral the years lived in good health were 73.7 on average. This is much better than at the time of the Census in 2001 when it was 68.6 years, an improvement of around six years. It may be that there are methodological issues with the survey data we have used such as it under-representing people living in nursing homes or institutions who are more likely to be in poor health.

The quality adjusted life expectancy (QALE) gap

Data showing the quality adjusted life expectancy (QALE) gap between Wirral and its most deprived areas was calculated using the number of QALYs (Quality Adjusted Life Years) an individual can expect to experience.

Figure 5.3.1a shows life expectancy, health expectancy, and quality adjusted life expectancy for Wirral and its most deprived areas.

Figure 5.3.1a: Life expectancy, Health expectancy and Quality Adjusted Life Expectancy for Wirral and Wirral most deprived quintile, persons, 2005-07



On average people in the most deprived areas live for 4.5 years less than the whole of Wirral. Quality adjusted life expectancy for the most deprived areas is 5.3 years less than the whole of Wirral (for all persons, if males and females are analysed separately, males have a lower life expectancy)

Source: Life expectancy calculated using ONS public health mortality files, health expectancy and QALE calculated using NW wellbeing survey results.

The quality of life gap was measured by combining life expectancy data with survey data showing quality of life scores based on the EQ-5D questionnaire. EQ-5D is a standardised questionnaire used to assess health status. Questions cover mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Different health states on the EQ-5D have been given different levels of desirability from 0 (death) to 1 (best possible health state).

As EQ-5D scores can be used to calculate QALYs, in this instance, weighted EQ-5D scores from the North West Wellbeing Survey were used to approximate population QALY scores. These QALY scores were then combined with life expectancy to give Quality Adjusted Life Expectancy (QALE). QALE is more sensitive to differences in health than health expectancy, as the EQ-5D has 243 different health states, whereas health expectancy is essentially just based on whether someone defined their health as 'good' or 'not good'.

There were some limitations with this method; although the sample size of the survey was large (1,500) and weighted for age, gender and deprivation, two wards in Wirral, Heswall and Royden (both relatively affluent wards) that were under-represented in the survey data.

Also, the survey was only carried out on individuals aged 16+, so we have assumed a maximum utility score of 1 for ages under 16. This was the average score was for 16-17 year olds in the survey, but it is likely that very young children suffer more illnesses than 16-17 year olds and would have average scores below 1.

As the maximum score of 1 was used for the whole of Wirral and the most deprived quintile, it still exposes the differences, and in all likelihood slightly underestimates the differences in quality adjusted life expectancy between the two groups.

A study by Burström and colleagues (2003) put a monetary value of \$100,000 per QALY (based on QALY gains that occurred over a period of time in Sweden). With the same methodology, we can attach a value to the quality adjusted life expectancy gap.

The [NICE](#) threshold for paying for new technologies is an incremental cost effectiveness ratio of £30,000 per QALY gained. Using this, the number of QALYs needed to raise the quality adjusted life expectancy in the most deprived areas to that of the whole of Wirral was calculated to be 2053.9 QALYs per year.

We can therefore say at this maximum threshold, that the quality adjusted life expectancy gap in Wirral is worth £61million per year, or roughly £610 per person in the most deprived quintile.

This is despite the extra investment that has already gone into our most disadvantaged areas. This lost potential for quality and quantity of life can be considered as a premium that society pays for allowing people to live in poverty. That is not to say that an additional investment of £61m per year would fix the gap in quality adjusted life expectancy. Finding interventions that work is difficult given how multifactorial and entrenched quality of life is.

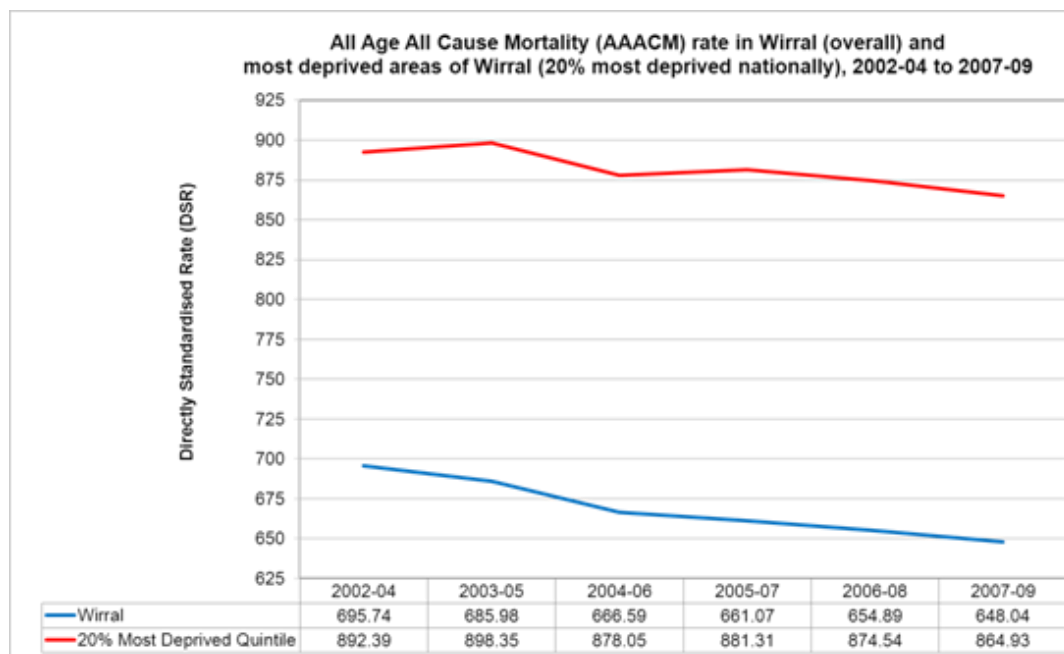
We will see how the health expectancy gap has changed when we get the results of the next Census (carried out in 2011, results expected November 2012). To update QALE, another survey measuring EQ-5D scores would need to be commissioned.

5.4 Mortality

5.4.1: All Age, All-Cause Mortality Rate (AAACM)

Figure 5.4.1a shows the trend in all age all-cause mortality (AAACM) rates for persons in Wirral and those areas of Wirral in the 20% most deprived quintile (national 20%, which equates to 32% of the Wirral population).

Figure 5.4.1a: AAACM in Wirral and most deprived areas, 2002-04 to 2007-09



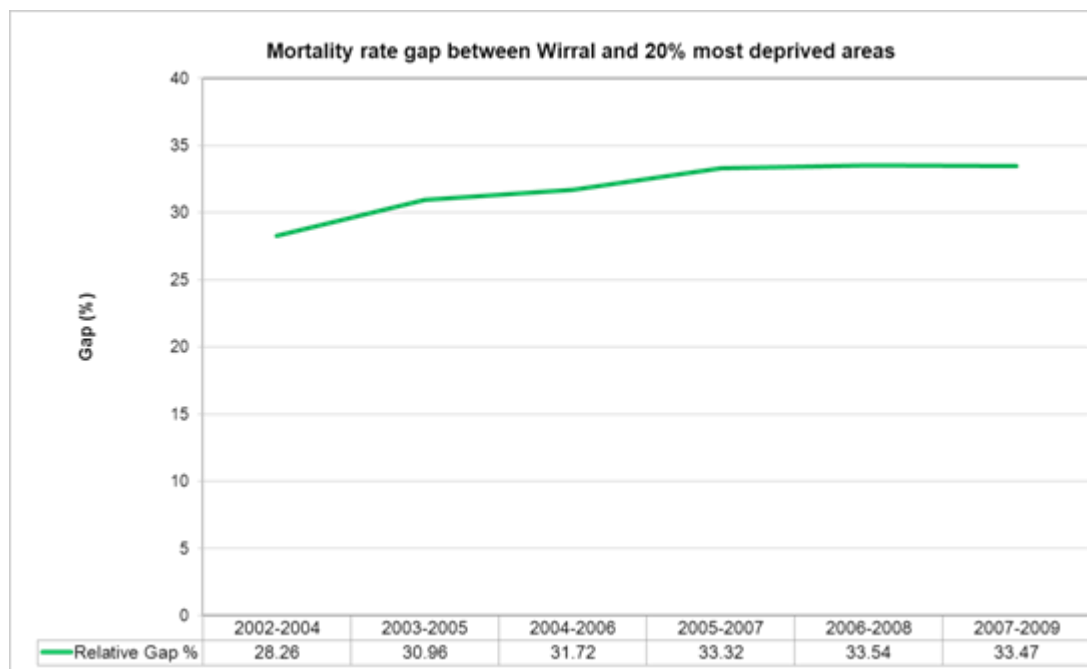
AAACM both in Wirral and the 20% most deprived areas shows a slight downward trend over the time, but the gap between them is not narrowing, in fact, it has widened slightly, as Wirral overall has improved more than the most deprived areas.

Source: [ONS Public Health Mortality Files and IMD \(2010\)](#)

5.4.2: Mortality gap

Figure 5.4.2a shows that the relative mortality gap between Wirral and its most deprived areas has widened since 2002. This Strategic Commissioning Plan target is therefore more ambitious than it seems, because it involves reversing the current trend, which has been increasing year on year. It has been calculated that reducing the gap by 7% would mean preventing 60 deaths between 2009-13 in the most deprived areas.

Figure 5.4.2a Trend in the relative gap in AAACM) rates in Wirral and most deprived areas, 2002-04 to 2007-09 (3 years pooled)



As Figure 5.4.2a shows, the relative gap in mortality between Wirral overall and the most deprived areas of Wirral (20%), is not narrowing. It has remained stable at around 33% since 2005.

Source: ONS Public Health Mortality Files and IMD (2010)

5.4.3: Infant Mortality

Infant mortality rates reflect the overall health of the population as they are influenced by a number of wide determinants of health such as the pre-conception and antenatal health of mothers, social, economic and environmental factors. High infant mortality rates are associated with deprivation.

Infant mortality (or infant death rate) is the number of deaths in infants aged under one year per 1,000 live births and consists of two components:

1. The neonatal mortality rate: The number of neonatal deaths (occurring in the first 28 days of life) per 1,000 live births
2. The post-neonatal mortality rate: The number of infants who die between 28 days and less than one year, per 1,000 live births.

To monitor health inequalities in infant mortality, Wirral uses the 20% most deprived Lower Super Output Areas (according to the Index of Multiple Deprivation). Table 5.3.3a shows the infant mortality rate in Wirral and the 20% most deprived areas of Wirral and compares them to England over the period 1999 to 2010. Figure 5.4.3a shows the same information visually.

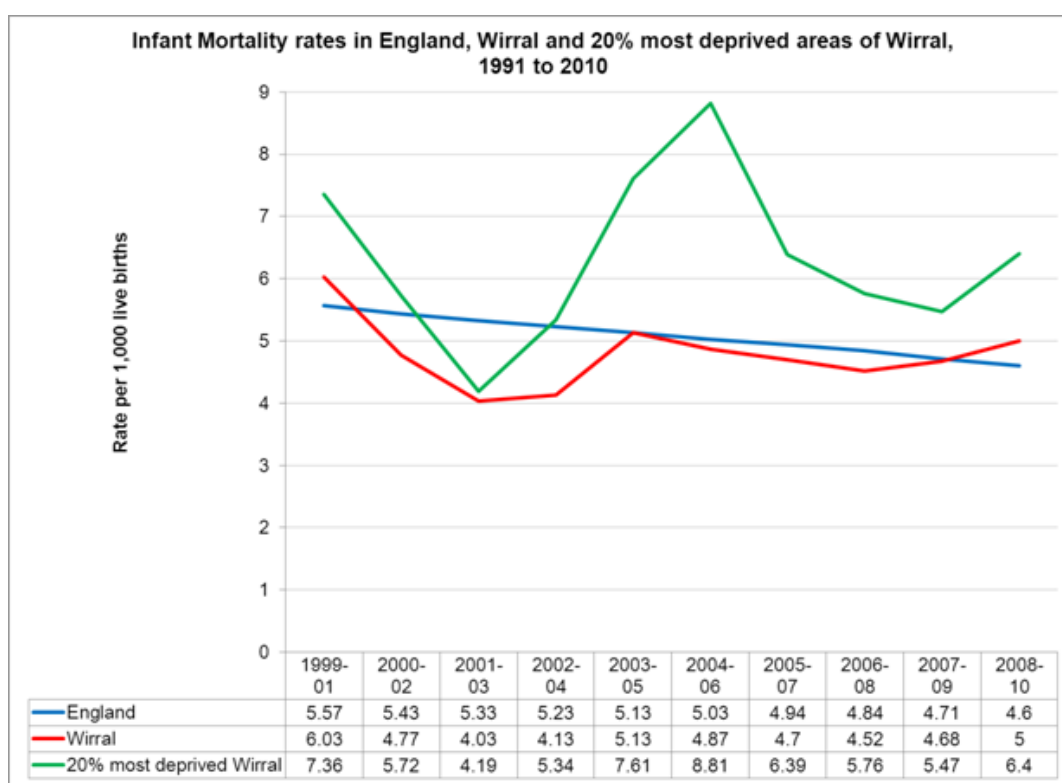
Table 5.4.3a: Infant Mortality Rates per 1,000 in Wirral, 20% most deprived areas in Wirral, and England, 1999-2010 (3-year rolling rates)

	1999-01	2000-02	2001-03	2002-04	2003-05
England	5.6	5.4	5.3	5.2	5.1
Wirral	6.0	4.8	4.0	4.1	5.1
20% most deprived Wirral	7.4	7.6	4.7	5.1	7.0

	2004-06	2005-07	2006-08	2007-09	2008-10
England	5.0	4.9	4.8	4.7	4.6
Wirral	4.9	4.7	4.5	4.7	5.0
20% most deprived Wirral	8.0	6.5	5.8	5.5	6.4

Source: NCHOD (England rates). Wirral rates calculated from ONS Annual Birth & Death Extracts.

Figure 5.4.3a Infant Mortality Rates per 1,000 in Wirral, 20% most deprived areas in Wirral, and England, 1999-2010 (3-year rolling rates)



As Figure 5.4.3a shows, after several years of reducing rates, in Wirral and the 20% most deprived areas of Wirral, the rate has risen in the most recent time period. The rate continued to fall in England over the same period.

There is published [evidence-based guidance on effective interventions for reducing Infant mortality](#) published by the Department of Health. These include reducing obesity in deprived groups, improving pre-conception care, targeting smoking in pregnancy, teenage conceptions, encouraging early booking-in of pregnancy and education and action to prevent sudden unexpected death in infancy. Other effective interventions that address the wider determinants of health include addressing overcrowding and child poverty.

5.5 Determinants of Health Inequalities

There are many determinants that are linked to health inequalities which are also linked to each other, so for instance education is related to income, which is related to life expectancy.

5.5.1 Prenatal and Early Years

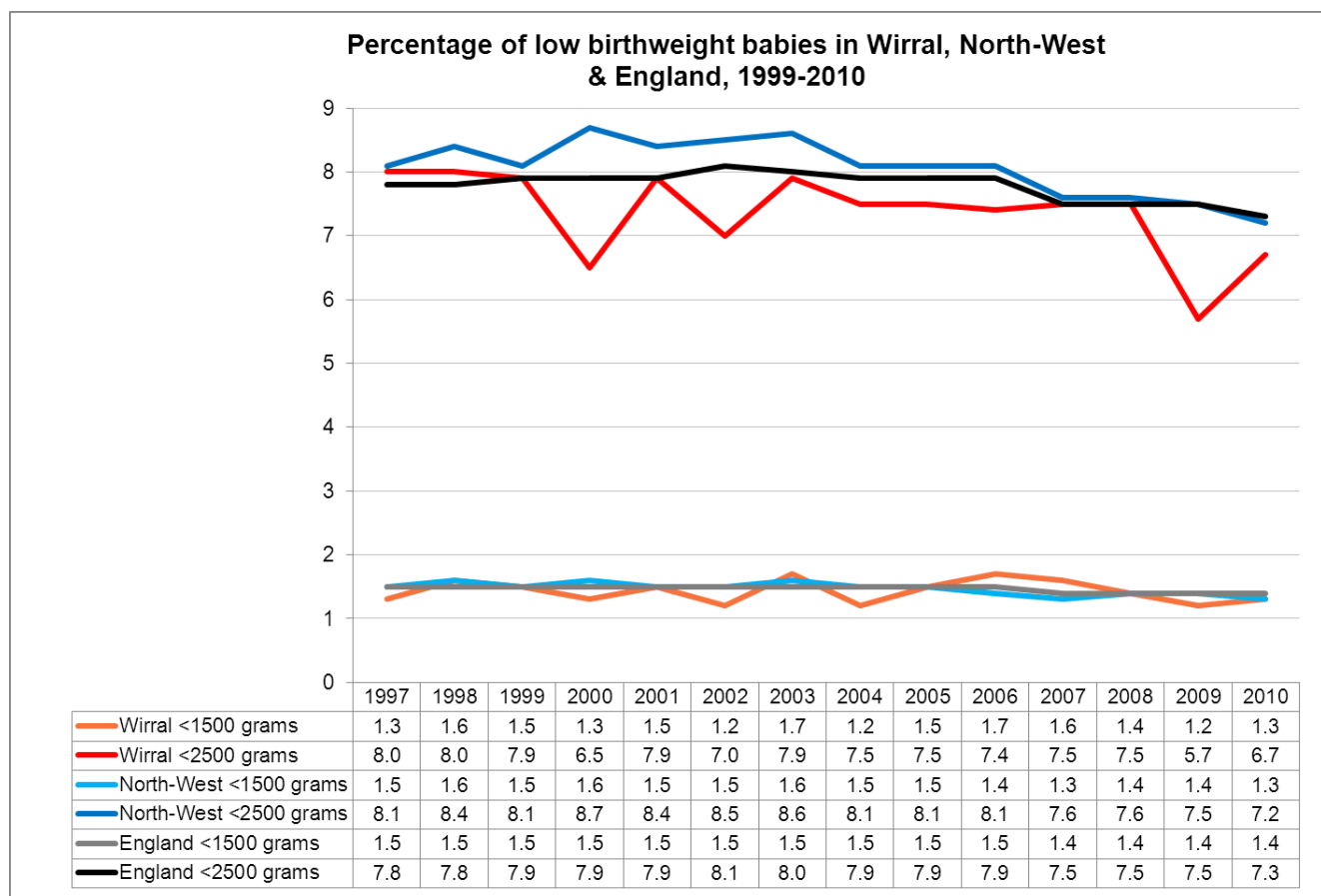
See also, [Chapter 4: Children & Young People](#)

Factors such as birth weight, smoking in pregnancy and breastfeeding all contribute to individuals' life chances.

The most deprived areas of Wirral, such as Birkenhead, Bidston and Tranmere, have high rates of births to lone mothers, with 42% of all births within these wards being to lone mothers. They also have high rates of teen pregnancies. Additionally, the most deprived areas have high rates of low birthweight babies and higher rates of smoking in pregnancy. There is evidence that a mother's health during pregnancy can cause changes that have lifetime effects on her child (Barker, 1998). The most deprived areas of Wirral have lower rates of breastfeeding initiation and duration of breastfeeding. All of these factors contribute negatively to individuals' life chances.

Low birth-weight

Figure 5.5.1a: Percentage of low birth-weight (less than 2.5kg and less than 1.5kg) in England, North-West & Wirral, 1997–2010



Source: [NHS IC](#), 2012

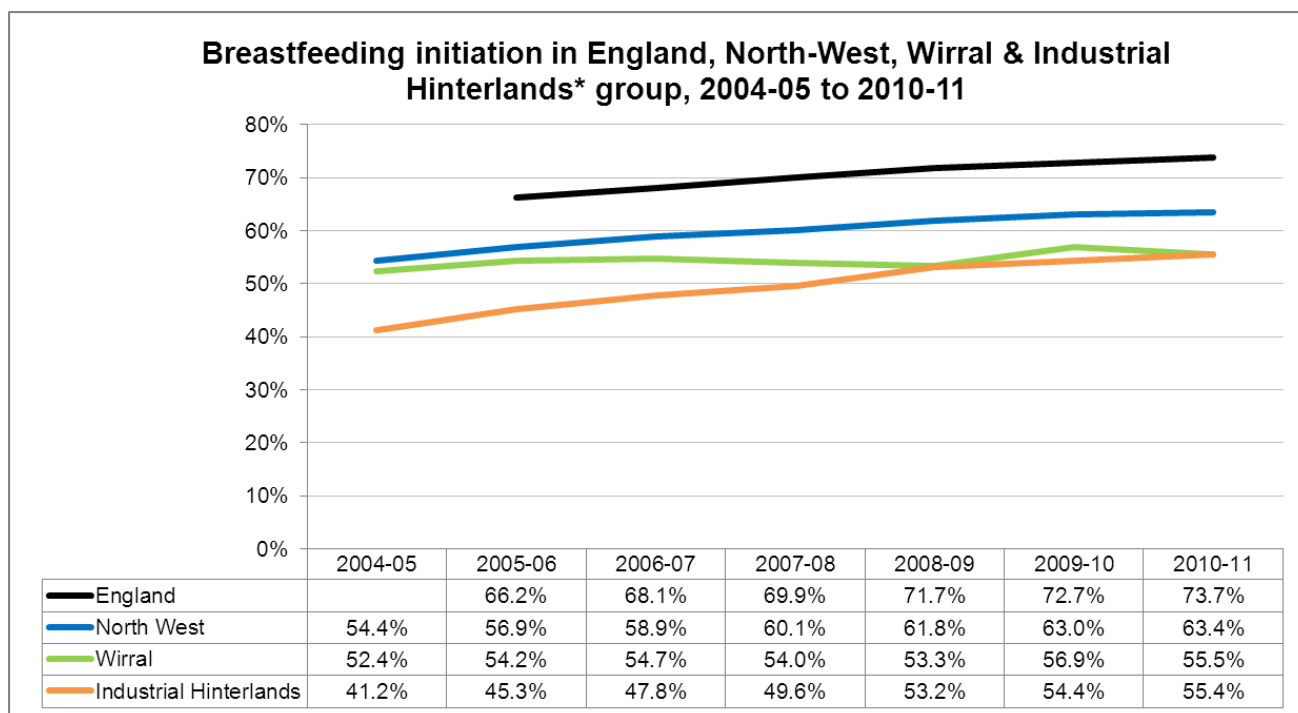
Figure 5.5.1a shows that the rate of low birth-weight births has decreased slightly in Wirral since 1997, with the proportion of babies weighing less than 2.5kg decreasing from 8.0% in 1997 to 6.7% in 2010. Wirral generally compares well to England and the North-West, with a lower proportion of babies weighing less than 2,500grams (5lb 8oz) than both for many of the time periods shown (including the most recent year of 2010). The proportion of babies born weighing less than 1,500grams (3lb 4oz), has not changed significantly over time, possibly due to being such a small proportion of all births. It was 1.3% in Wirral in 1997 and remained 1.3% in 2010.

Breastfeeding (initiation)

As Figure 5.5.1b shows, breastfeeding initiation has increased in Wirral from 52.5% in 2004-05 to 55.5% in 2010-11, an improvement of 3%.

Wirral compared poorly to England (73.7%) and the North-West (63.4%) in 2010-11 but was very similar to our Industrial Hinterlands peer group* figure of 55.4%. In 2004-05, Wirral had breastfeeding rates that were over 10% higher than the Industrial Hinterlands group, but by 2010-11, the difference was down to just 0.1%. This is due to more rapid improvement in the Industrial Hinterlands group overall, compared to a slower rate of improvement in Wirral.

Figure 5.5.1b: Breastfeeding initiation in England, North-West, Wirral & Industrial Hinterlands* group, 2004-05 to 2010-11



Source: [DH Vital Signs Monitoring Data, 2012](#)

Note: Only UK overall data available in 2004-05, England not available.

*The Industrial Hinterlands Group is one of seven groups devised by the Office of National Statistics to classify areas using indicators from the Census such as employment and housing. These peer groupings enable relevant comparisons to be made between demographically similar areas.

Smoking in pregnancy

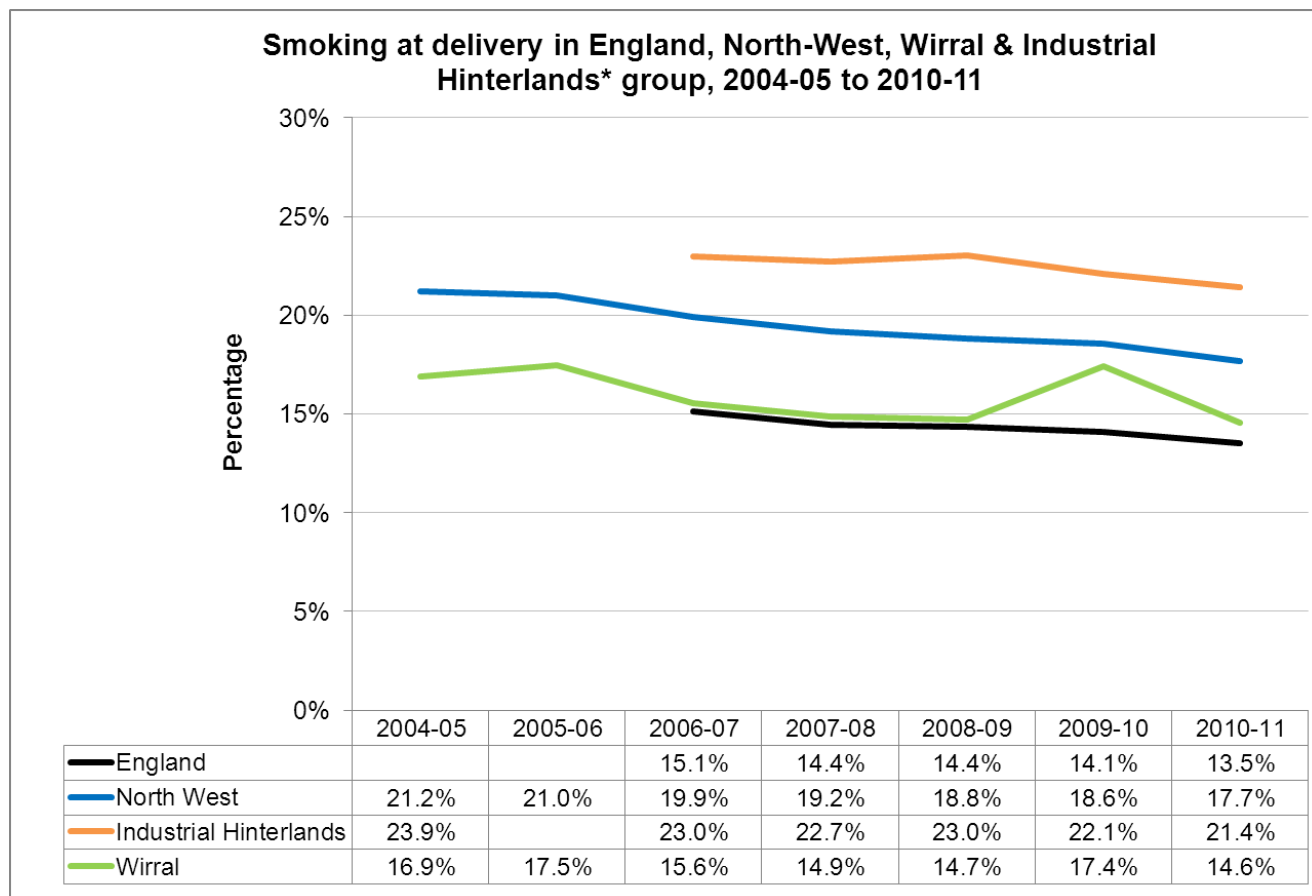
Smoking at delivery is a proxy for women who have smoked during their pregnancy. Data is only available from 2004-05 onwards.

The proportion of women smoking at delivery reduced slightly in Wirral over the time period shown, from 16.9% in 2004-05, to 14.6% in 2010-11. This is the equivalent of around one in seven of all pregnant women are still smoking at delivery in Wirral in 2010-11.

Wirral compared well to our Industrial Hinterlands* group, where over one in five women (21.4%) of all pregnant women were still smoking at delivery and the North-West overall, where one in six (17.7%) were still smoking at delivery. Nationally, 13.5% of women were still smoking at delivery in 2010-11.

Figure 5.5.1c shows Department of Health figures for smoking at delivery in England, the North-West, the Industrial Hinterlands* group and Wirral over time.

Figure 5.5.1c: Smoking at delivery in England, the North-West, the Industrial Hinterlands* group and Wirral, 2004-05-2010-11



Source: DH, 2012

Note: Only UK overall data available in 2004-05 & 2005-06, England not available. Industrial Hinterlands data is not available for 2005-06.

*The Industrial Hinterlands Group is one of seven groups devised by the Office of National Statistics to classify areas using indicators from the Census such as employment and housing. These peer groupings enable relevant comparisons to be made between demographically similar areas.

Vaccinations and Immunisations

The relationship between childhood vaccinations and deprivation is not as marked as it is with the other factors outlined above, but there does still appear to be some relationship between deprivation and vaccination.

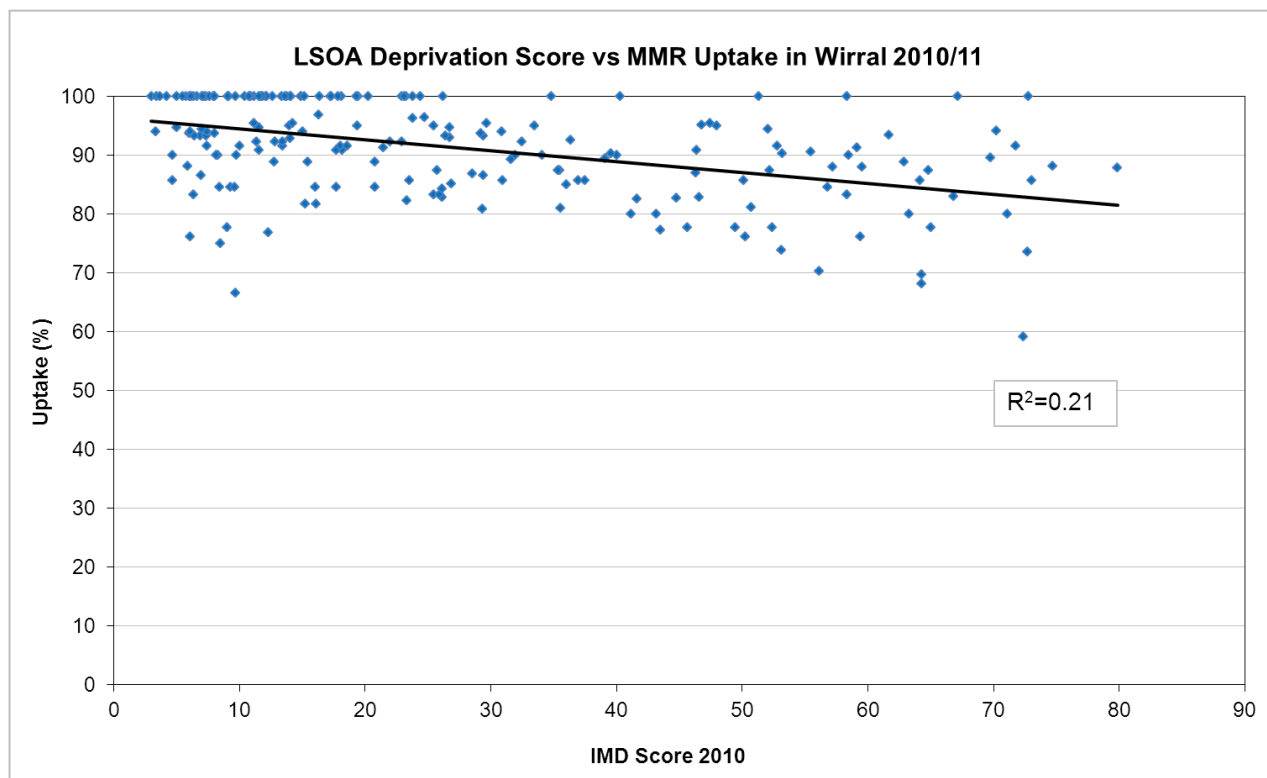
Each dot on Figure 5.5.1d below represents an LSOA (Lower Super Output Area) in Wirral with the two axis showing percentage uptake of Measles, Mumps, Rubella (MMR) and LSOA deprivation score (according to IMD 2010).

The line shows that increasing deprivation is associated with decreasing MMR uptake, in other words there is a moderate negative association between the 2 factors.

The R^2 value indicates how well one indicator (e.g. MMR uptake) is predicted by the other (e.g. deprivation) and ranges between 0 (the two variables are completely unrelated) and 1 (they are completely related, one variable completely explains the other).

Figure 5.5.1d shows that although deprivation is a factor in MMR uptake, it is likely to be one factor amongst many.

Figure 5.5.1d: Percentage uptake of MMR versus deprivation at LSOA level, 2010-11



Source: SUS (Wirral Secondary User Service), 2012

5.5.2: Education

Educational attainment is linked to health inequalities. Education is an important factor that can contribute towards social mobility (i.e. the extent to which an individual moves across social class boundaries and hence out of poverty) and therefore action to reduce the gap in attainment amongst specific population groups should remain a priority.

In 2010, 79.9% Wirral pupils achieved 5 or more A* to C grades in GCSE (all subjects) compared to national average of 76.3%, but this hides wide inequalities in attainment.

For instance, the proportion of young people achieving 5 or more grades A* to C at GCSE varies from 66.7% in Liscard/Seacombe, to 90.1% in Prenton/Oxton. In addition, children in care (CiC) tend to have poorer outcomes compared to other children and this includes educational attainment.

Just 8% of CiC in Wirral attained 5 or more GCSEs at grade A* - C in 2010 (including English and Maths), compared to 58.9% of all Wirral pupils.

The proportion of young people not in education, employment or training (NEET) varies hugely across the borough also. In Rock Ferry ward, 18.8% of 16-18 year olds are NEET, compared to only 1.4% in Heswall (July 2011).

For more information on this topic, please refer to the Education section of the JSNA which is in [Chapter 4: Children & Young People](#)

5.5.3 Poverty

Poverty is a relative concept, which in the UK today rarely means malnutrition or the levels of squalor seen before the advent of the welfare state.

'Poor' people are those who are considerably worse off than the majority of the population, those who experience a level of deprivation heavily out of line with the general living standards enjoyed by the majority of the population.

Professor Peter Townsend, a leading authority on UK poverty, defines relative poverty as when someone's "resources are so seriously below those commanded by the average individual or family that they are, in effect, excluded from ordinary living patterns, customs and activities" ([Reporting Poverty in the UK, p15](#))

Poverty can be defined and measured in various ways. The most commonly used approach is relative income poverty. Each household's income, adjusted for family size, is compared to the median income (median is the "middle" income: half of people have more than the median and half have less) and those with less than 60% of median income are classified as poor.

This 60% 'poverty line' is the agreed measure used throughout the European Union. It is arbitrary in the sense that there is no exact calculation that this is the threshold of minimum income acceptable to society, but it is the generally accepted measure nonetheless.

Child and family poverty in Wirral

It is well recognised that poverty is damaging to children, families and entire communities and should be addressed through strategy and targeted intervention. Tackling child and family poverty is critical to wider efforts to deliver long-term prosperity and quality of life.

In order to address child and family poverty we, the extent and nature of need in Wirral must first be established, along with what resources are available to tackle the issues. This requires in depth analysis of the quantitative and qualitative intelligence available.

[Wirral Metropolitan Borough Council's Child and Family Poverty Needs Assessment](#) draws together information from other local needs assessments as well as new data and research to provide a picture of poverty in Wirral. The needs assessment is used to determine clear priorities for our local Child and Family Poverty Strategy and provide the foundations for strategic investment.

In 2012, NHS Wirral produced a [series of reports](#) quantifying the effects of poverty on various health issues in Wirral and (e.g. the effect of damp housing, unemployment, how child poverty affects hospital admissions etc...) and they are all available via the above link on our main JSNA site.

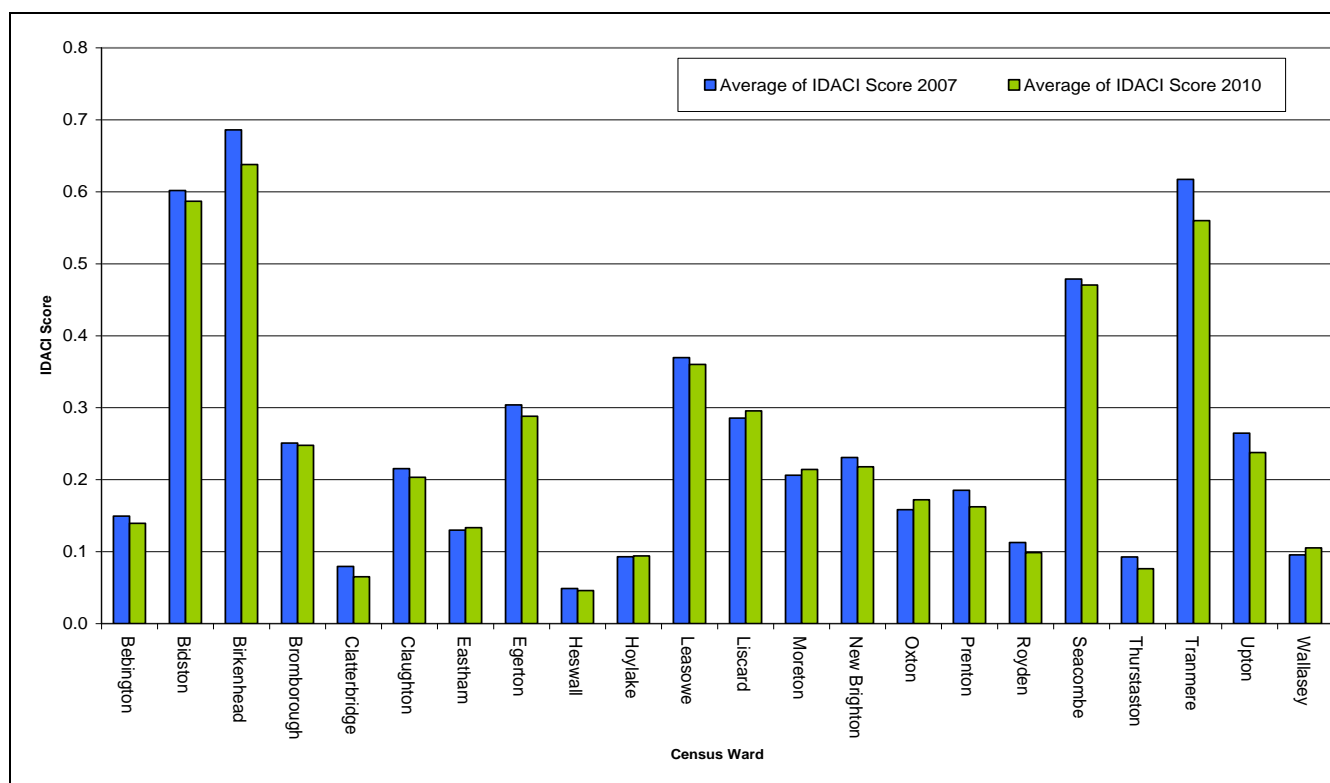
The Index of Multiple Deprivation (2010)

The [English Indices of Multiple Deprivation](#) is a measure of multiple deprivation at the small area level which is re-calculated every few years. It was last calculated in 2010 (and before that in 2007). There are supplementary Indexes examining poverty amongst older people (Deprivation Affecting Older People Index or IDAOPI) and children (Income of Deprivation Affecting Children Index or IDACI).

Figure 5.5.3a shows average the IDACI scores for Wirral census wards for 2007 and 2010. Nationally, scores ranged from zero (least deprived) to one (most deprived).

Higher scores indicate more poverty affecting children. Bidston, Birkenhead, Tranmere and Seacombe stand out as the wards with the highest levels of child poverty in Wirral in both 2007 and 2010. All of these wards also showed small improvements between 2007 and 2010 (lower IDACI scores in 2010, compared to 2007)

Figure 5.5.3a: Average IDACI Scores for Wirral wards, 2007 and 2010



Source: DCLG (Department for Communities & Local Government) (Scores are unweighted averages of LSOA scores)

Wirral have set an aspirational target for reducing child poverty which will hopefully be reflected by a fall in IDACI scores over the next 15 years (assuming the IMD continues to be updated every three or so years).

5.5.4: Work

See also, Chapter 2: [Population](#)

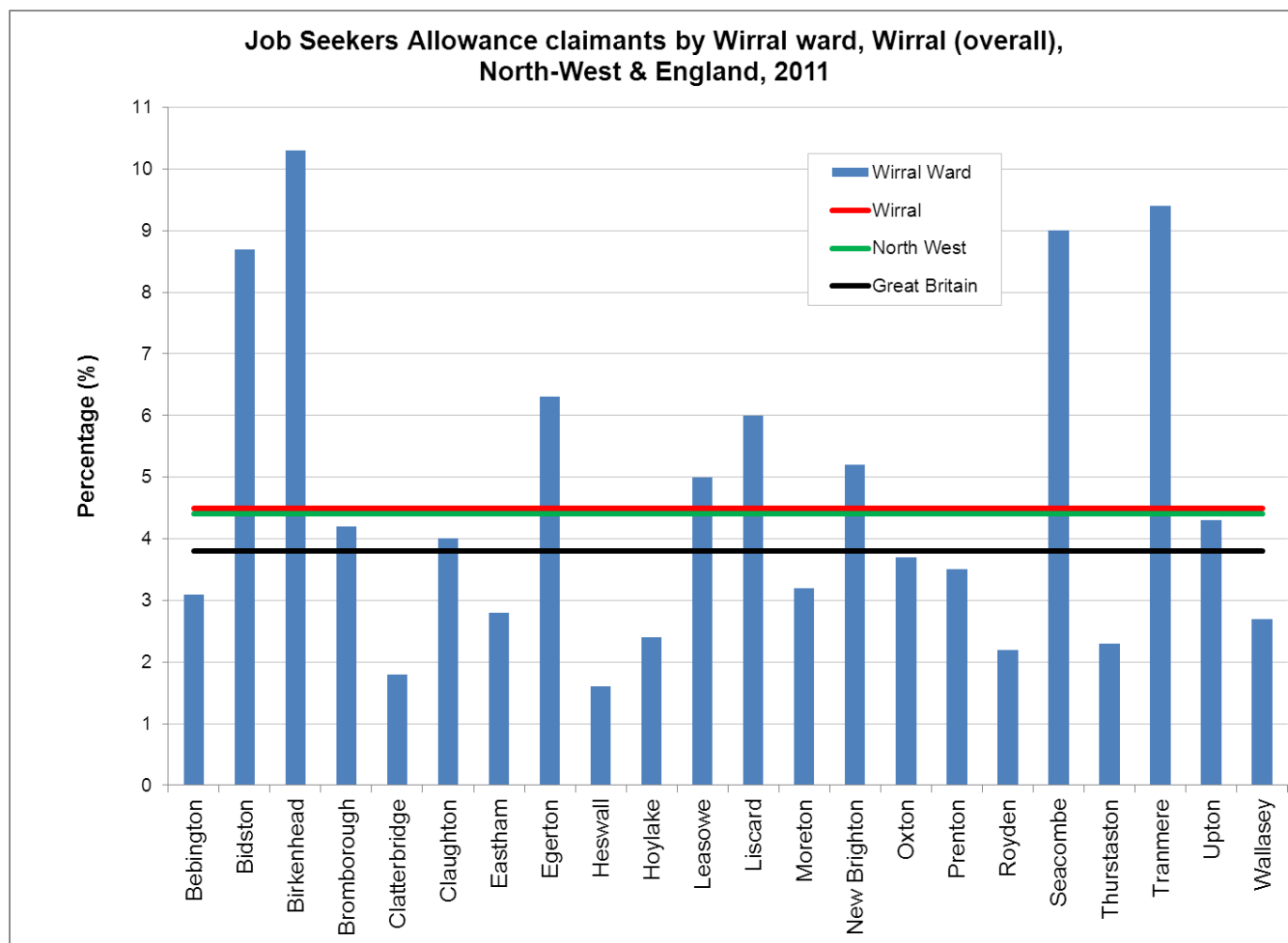
There is a clear relationship between work, income and health. People who have a greater income will on average have a greater life expectancy. Despite the government’s commitment to reducing inequalities and numbers of people living in poverty, income inequalities have widened. It is likely that causality between health and income runs in both directions. In other words, not only will low income negatively impact on health, but individuals in poor health will be less likely to achieve their full potential in the labour market and be more likely to be living on low incomes (Suhrcke 2005).

Wirral has one of the lowest gross value added (GVA) in the country. GVA is an indicator of economic output and income and is thought to be low in Wirral because around 1 in 8 of its workers commute to work outside of the borough.

Two recent reports (2012) completed by NHS Wirral Performance & Public Health Intelligence Team quantify the effects of employment and unemployment on health in Wirral. The analysis estimates that for each 1% increase in unemployment in Wirral, there are an extra 3 deaths, 267 extra cases of LLTI (Limiting Long Term Conditions) and an extra 370 people suffering from mental health problems. The full report and calculations used are available [here](#).

Unemployment has risen in recent years in Wirral, with the proportion of people of working age claiming Job Seekers Allowance (JSA) increasing from 3% in 2004, to 4.5% in 2011.

Figure 5.5.4a: Job Seekers Allowance claimants by Wirral ward, compared to Wirral (overall), North West & Great Britain (2011)



Source: [NOMIS](#), 2012

As Figure 5.5.4a shows, the wards with the highest percentage of people of working age claiming Job Seekers Allowance are Birkenhead, Tranmere, Seacombe and Bidston (the same wards which scored highest on the [IDACI](#) for Wirral).

For many people, particularly older people, becoming unemployed means they will never again have a secure job. Research in previous recessions has shown that while some find positive opportunities from unemployment, most people who do find other jobs, find they are offer lower income, less security and fewer benefits.

Work can be therapeutic and can reverse the adverse health effects of unemployment. This is true for healthy people of working age, for many disabled people for people with common health problems and for social security beneficiaries. The provisos that must be taken into

account are the nature and quality of the work and its social context. Jobs should be safe and accommodating (Wadell & Burton, 2006).

A lack of power or control over one's life is related to health outcomes. The Whitehall study (Bosma, 2005) and other studies have set out how low job control increases risk of cardiovascular disease, apparently independent of other risk factors like smoking. This lack of job control combined with increasing demands causes 'isostrain', characterised by higher cholesterol, lower wellbeing, and higher rates of morbidity (Ferrie, 1997). Power and autonomy are linked to deprivation.

Helping employers to grow their businesses, increasing the skill base, and bringing investment and good jobs into Wirral are all crucial in reducing health inequalities.

5.5.5: Environment

Housing

See: Chapter 14. [Housing & Homelessness](#)

There is a strong correlation between health and well-being and housing conditions. In Wirral, the poorest housing (that which is classed as non-decent or has Category 1 Hazards) tends to be concentrated amongst older properties (built pre 1919), the private rented sector and converted and low rise, purpose built flats.

Housing containing Category 1 Hazards are most likely occupied by those aged under 25, households on lower incomes or those in receipt of benefits. In addition, older housing stock is often home to some of the most vulnerable people in society. Around 39% of private housing stock in Wirral is estimated to be non-decent, with the main hazards being excess cold, dangerous stairs and electrical hazards (Private Sector House Condition and Home Energy Survey, 2008). The HMRI (housing market renewal initiative) has replaced and refurbished old housing stock in some of the most deprived parts of Wirral. For more detailed information on housing in Wirral, see Chapter 14. [Housing & Homelessness](#)

Accidents and injuries (including Road Traffic Accidents)

A 2012 publication on [Child Poverty and Health in Wirral](#) produced by NHS Wirral Performance & Public Health Intelligence Team, found that children from the most deprived areas of Wirral had higher (though statistically non-significant) mortality rates from accidents and injuries. It found that if the most deprived had the same mortality rate as the rest of the population, there would be one less child death from accidents and injuries in Wirral per year.

RTAs are a major cause of injury and premature death each year and deaths from road collisions are associated with deprivation (Chichester et al., 1998). Nationally, targets were set to reduce the number and rate of RTAs by 2010, by 40% compared (using the baseline average of 1994-98). Wirral met this target, for more details on this; see the RTAs section of [Chapter 3: Health & Wellbeing](#) of Wirral's JSNA.

Green space

Evidence (Mitchell & Popham, 2008) shows that good quality green space has a beneficial effect on mortality (reducing the risk of dying from cardiovascular disease by 30%). They also found that areas with more green space had a lower death rate than would be expected given their level of deprivation (factors such as urbanity, population density, age and sex were controlled for).

Green space also helps promote social networks, mental wellbeing (Wheater et al. 2007) and mitigates the effects of climate change by storing carbon. Wirral has an abundance of beaches and green space and the Parks and Countryside Service achieved the prestigious [Green Flag award for 14 parks in 2012](#).

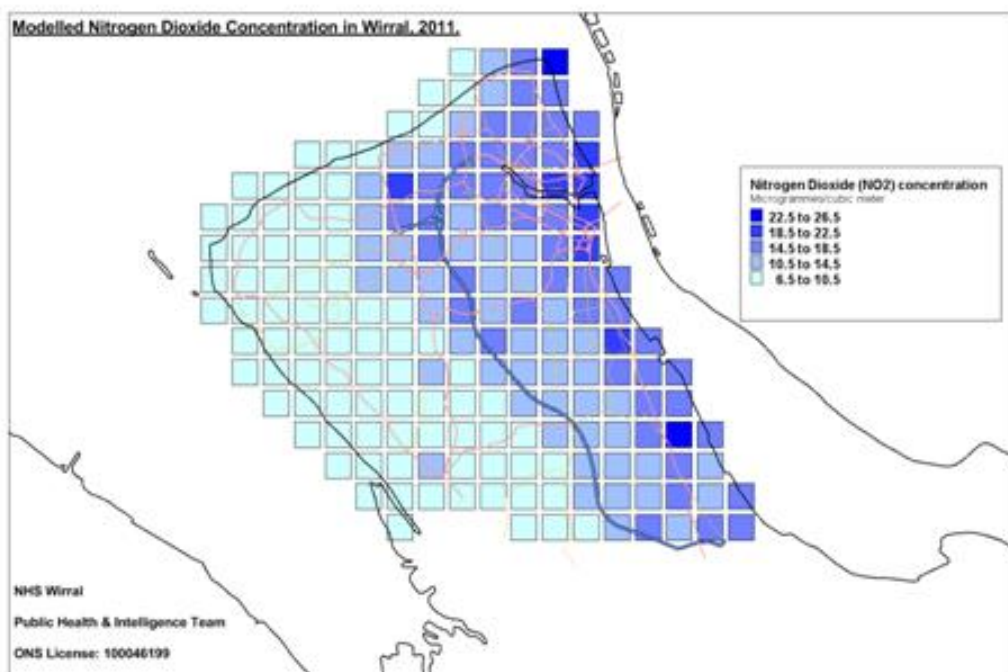
Air Quality and pollution

According to a recent [DEFRA report](#), air pollution reduces average life expectancy in the UK by around seven to eight months. Pollution and poor air quality are also associated with areas of deprivation. According to Friends of the Earth (2001), sixty-six per cent of carcinogenic chemicals emitted into the air are released in the 10 per cent most deprived wards. Local authority areas that think they may struggle to meet air pollution targets have to declare Air Quality Management Areas (Wirral was not an AQMA in 2011; the nearest ones are in Liverpool and Ellesmere Port). For more information on air quality in Wirral, including the air quality measurement points in Wirral and readings from them, check the Metropolitan Borough of Wirral website [here](#).

Two important air pollutants are Nitrogen dioxide (NO²) and particulate matter (PM₁₀), information on both in Wirral are provided below.

Nitrogen dioxide (NO₂) is a respiratory irritant which may worsen asthma and increase susceptibility to infection. In sunlight, NO₂ reacts with hydrocarbons to produce pollutants such as ozone (the haze that can be seen in the air sometimes on sunny days) and it also contributes to acid rain. EU targets state that the maximum annual mean concentration of NO₂ should not exceed 40 µg/m³. This target is exceeded in parts of London and around busy motorways, but not in Wirral *overall*. There are specific locations (around busy junctions), where the limit is sometimes exceeded in Wirral however, and the Council take remedial action at these locations (diffusion tubes placed on the nearest properties).

Map 5.5.5b Modelled Nitrogen Dioxide Concentration in Wirral (2011)



Map 5.5.5b shows the modelled nitrogen dioxide concentration in Wirral in 2011. It is significantly higher in the more industrial, deprived east of Wirral compared to the west. The highest concentrations are around Birkenhead, New Brighton and Eastham.

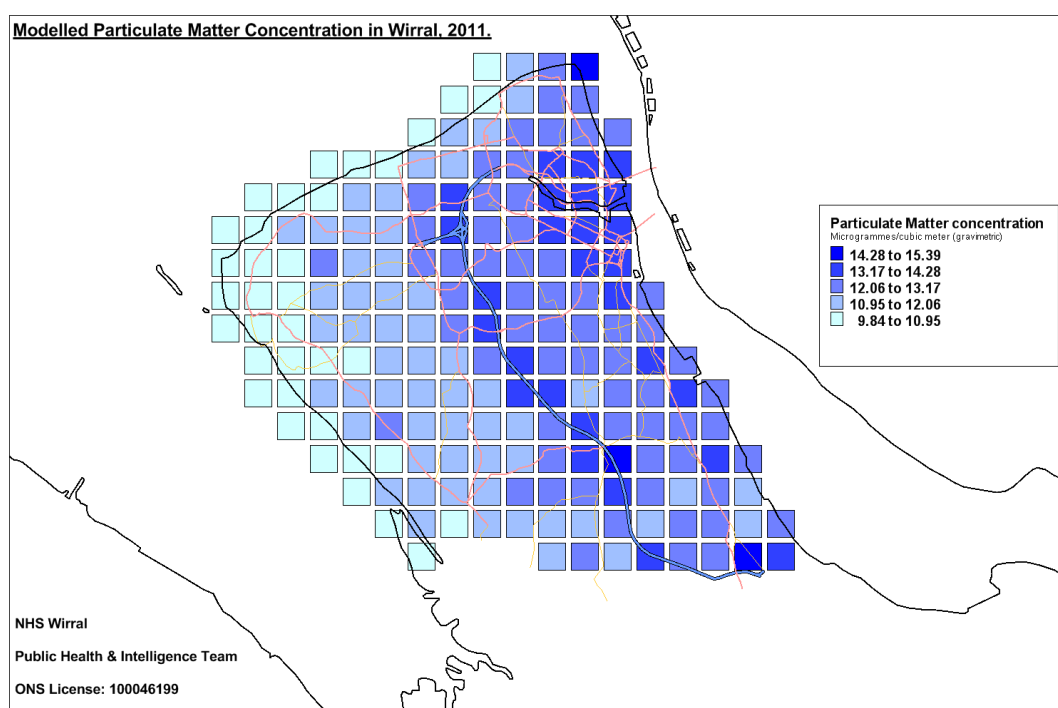
Source: [Air Quality UK website](#).

Particulate matter (PM₁₀) is tiny, air-borne liquid and solid particles that are less than 10 micrometers in diameter (human hair ranges from 17-180 micrometers in diameter). These

particles are harmful because they are small enough to be inhaled into the deepest parts of the lung. The sources of PM₁₀ are wide and include transport, industry, construction and a small amount from natural sources (e.g. dust blown from Africa, sea salt).

There is a balance to be struck between the beneficial effects of jobs and industry on health and the potential detrimental effect of pollution, but concern about the health impacts of PM₁₀ have increased in recent years. The EU has targets that the maximum annual mean concentration of PM₁₀ should not exceed 40 µg/m³. These targets were missed by some parts of the UK (not Wirral). It is estimated that a 10 µg/m³ increase in daily levels of PM₁₀ are associated with a 1.1% increase in deaths. The difference between the areas with the highest PM₁₀ levels (e.g. Birkenhead) and the areas with the lowest levels (west coast of Wirral) is around 5 µg/m³. This could mean a potential 0.5% difference in the death rates between these areas could be attributable to PM₁₀ pollution.

Map 5.5.5c Modelled Particulate Matter Concentration in Wirral (2011)



As with nitrogen dioxide, PM levels are higher in the east compared to the west of Wirral and are also noticeably high around the M53 motorway.

Source: [Air Quality UK website](#).

5.5.6: Ethnicity

See Chapter 13 [BME Groups](#)

People from ethnic minorities often have different health needs to those of the overall population. Differences in health status are caused by several factors such as socio-economic status (i.e. income, deprivation), differences in culture and lifestyles (such as smoking or chewing tobacco, eating traditional foods), the effects of racism and discrimination, uptake of health care and biological susceptibility.

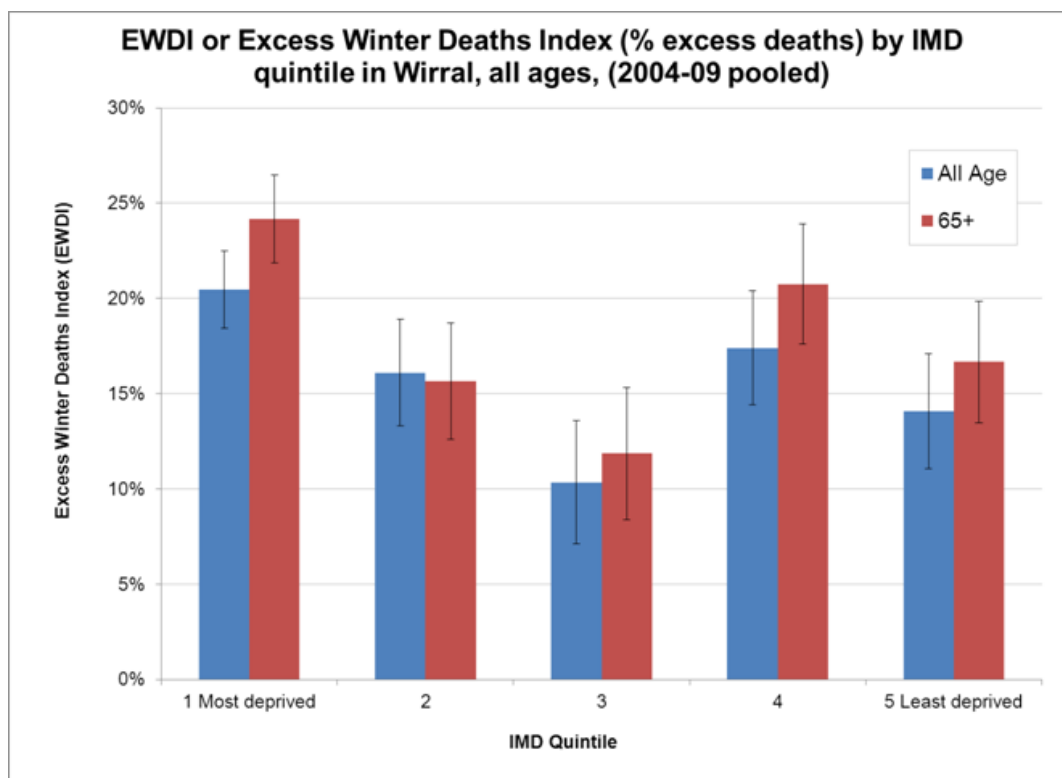
A [Black and Minority Ethnic Health Needs Assessment 2010](#) was undertaken for Wirral to provide further local information. Also see Chapter 13 [BME Groups](#) for more information.

5.5.7: Climate

See also report, [Excess Winter Deaths in Wirral](#).

According to the Wirral's excess winter deaths report (2010), Wirral has on average a 16.6% death rate in the four winter months (December to March) than in the rest of the year. Fuel poverty (spending more than 10% of household income on fuel) is much more prevalent in deprived areas, but the relationship between deprivation and excess winter deaths is not as clear cut. One factor which may confound excess winter deaths is the proportion of people living in nursing homes, where environmental temperature will not be related to socioeconomic status. Also, the residual death rate in the most deprived areas is higher, so the number of excess deaths is higher even though the excess winter deaths index is similar to the other deprivation groups.

Figure 5.5.7a Excess winter deaths index (% excess deaths) by IMD quintile in Wirral, all ages (2004-2009 pooled)



As Figure 5.5.7a shows, excess winter deaths do not show a clear cut relationship with deprivation in Wirral. Although the most deprived group appear to have the highest EWDI, the quintile with the next highest EWDI score are those people in the 4th Quintile (above average affluence).

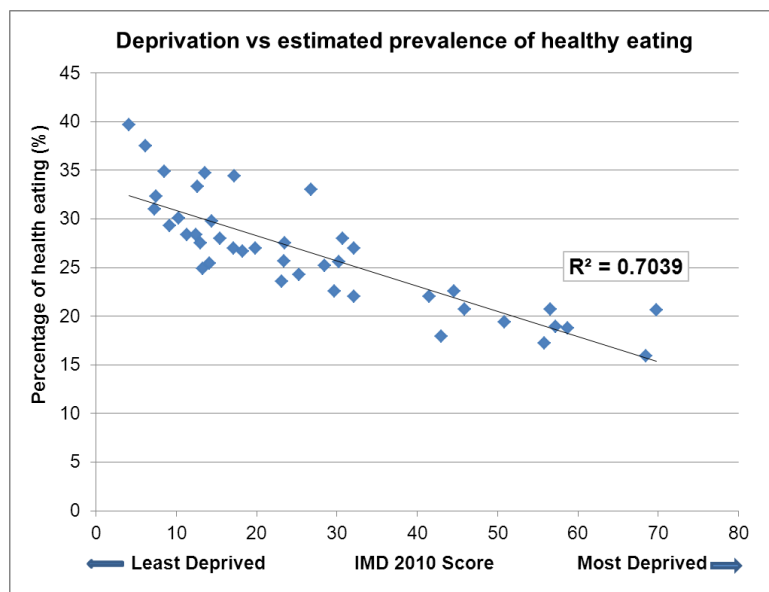
Source: ONS Annual Deaths Table, 2010

5.5.8: Lifestyle

It is widely known that some lifestyle factors are associated with ill health, with some factors showing more of an association with inequalities than others.

Figures 5.5.8a through 5.5.8d show the relationship between four lifestyle behaviours (based on synthetic estimates) and deprivation in Wirral. Each point on these charts represents a middle layer super output area (MSOA) with the prevalence of the behaviour on the vertical axis and the spread of deprivation on the horizontal axis. The R² value indicates how well one indicator (e.g. obesity) is predicted by the other (e.g. deprivation) and ranges between 0 (the two variables are completely unrelated) and 1 (they are completely related, one variable completely explains the other).

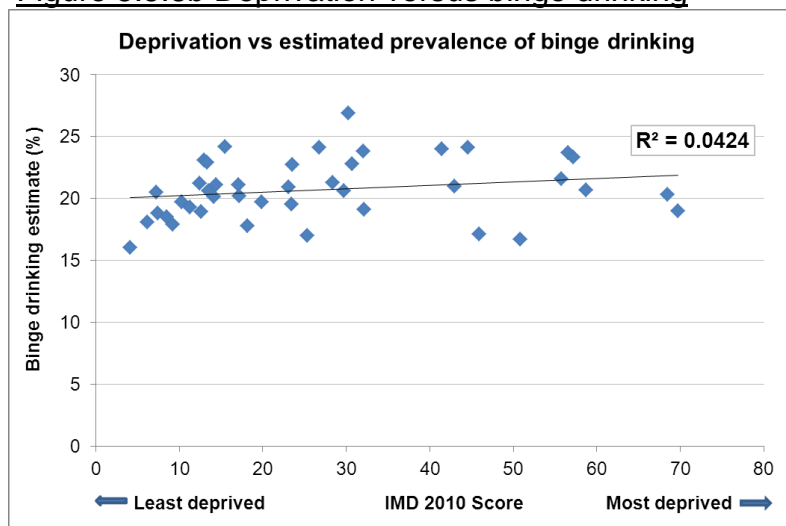
Figure 5.5.8a Deprivation versus healthy eating



As Figure 5.5.8a shows, there is a fairly strong negative correlation between deprivation at MSOA level and healthy eating. This means that as deprivation increases, prevalence of healthy eating decreases. The R^2 value of 0.70 This indicates that deprivation is a good predictor of healthy eating. Prevalence of healthy eating ranged from 17% to 40% across Wirral MSOAs.

Note: Healthy eating was defined as those who consume 5 or more portions of fruit and vegetables per day. A portion of fruit or vegetables was defined as an 80g serving.

Figure 5.5.8b Deprivation versus binge drinking



As Figure 5.5.8b shows, there is a weak, positive correlation between deprivation at MSOA level and binge drinking. This means that as deprivation increases, prevalence of binge drinking also increases. The R^2 value of 0.04 indicates that although deprivation may play a role in the prevalence of binge drinking, other factors are more important and deprivation is not a good predictor of binge drinking. Binge drinking ranged from 16% to 27% in Wirral MSOAs.

Note: Binge drinking is defined in men as 8+ units of alcohol on the heaviest drinking day in the previous seven days; for women the cut-off was 6+ units of alcohol.

Figure 5.5.8c Deprivation versus obesity

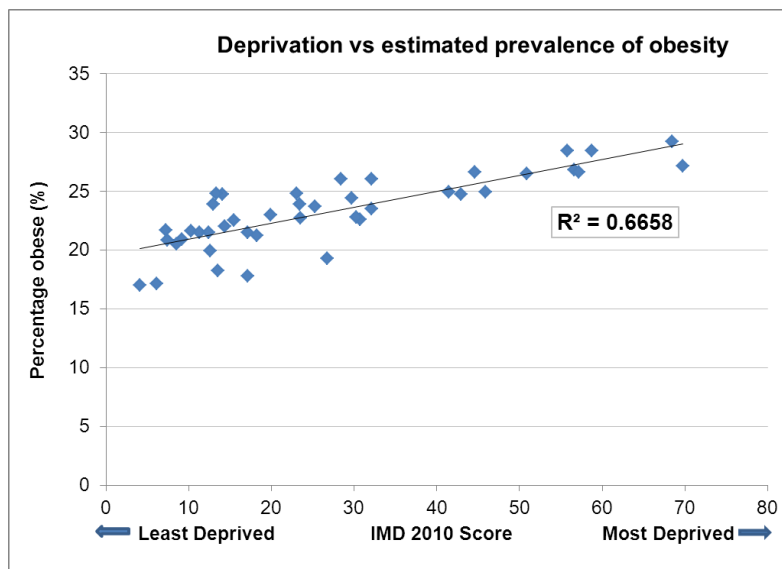


Figure 5.5.8c shows there is a moderate, positive correlation between deprivation at MSOA level and obesity. This means that as deprivation increases, prevalence of obesity also increases. The R^2 value of 0.66 indicates that deprivation plays an important role in the prevalence of obesity and deprivation is a good predictor of obesity. Rates of obesity ranged from 17% to 29% in MSOAs in Wirral.

Figure 5.5.8d: Deprivation versus smoking

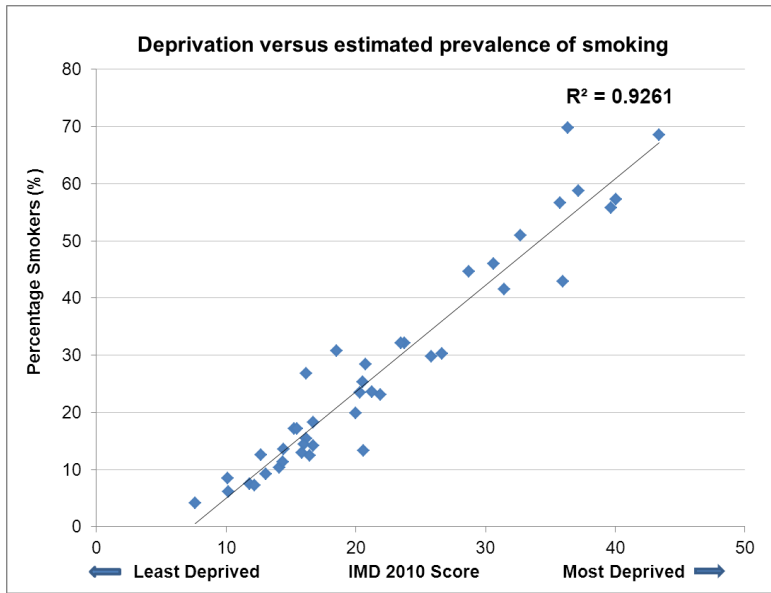


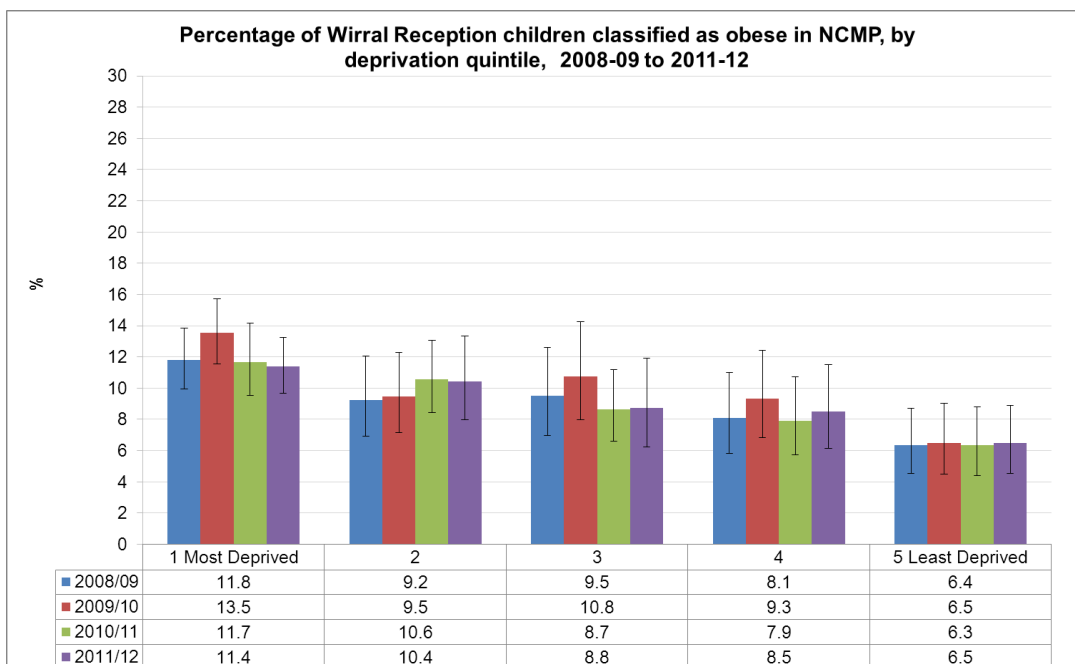
Figure 5.5.8d shows there is a very strong, positive correlation between deprivation at MSOA level and smoking. This means that as deprivation increases, prevalence of smoking also increases. The R^2 value of 0.92 indicates that deprivation plays an important role in the prevalence of smoking and deprivation is a very good predictor of smoking. Smoking rates ranged from 7% to 43% in MSOAs across Wirral.

Action to reduce any of the harmful lifestyle behaviours examine above, should take into account the social gradient apparent in the behaviours, the amount of harm they cause and effectiveness of interventions designed to tackle them.

5.5.9: Childhood Obesity

The height and weight of children at Reception and Year 6 has been measured annually since 2006-07. Nationally, there is evidence of a social gradient in child obesity. This appears to be the case amongst Reception children in Wirral, but is less apparent in Year 6 pupils.

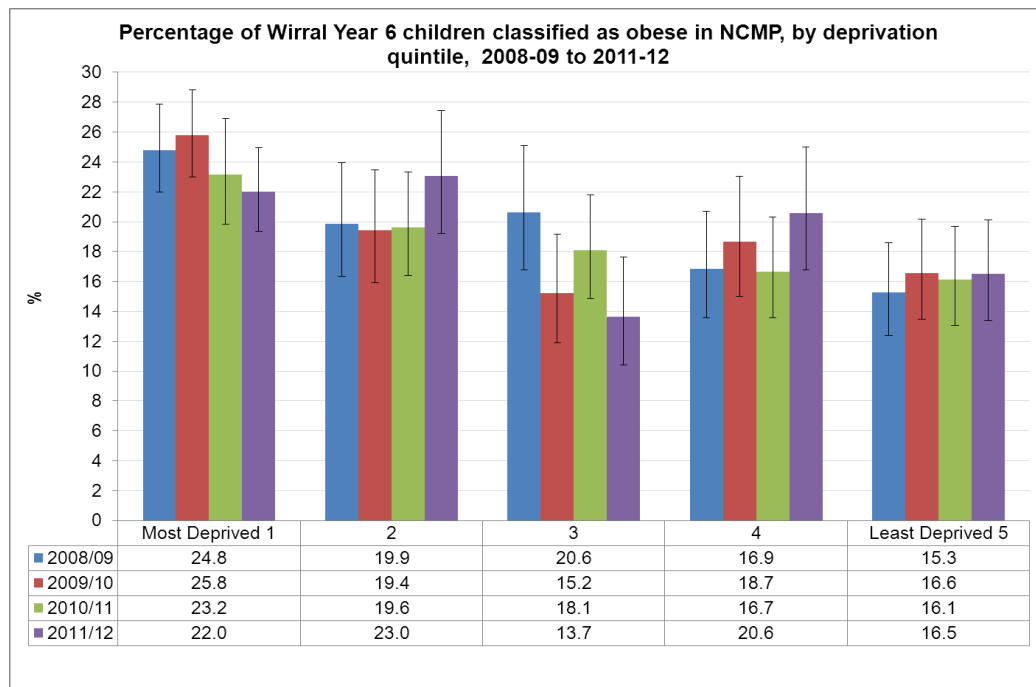
Figure 5.5.9a: Percentage of Wirral Reception children who are obese, by deprivation quintile, 2008-09 to 2011-12



As Figure 5.5.9a shows, there appears to be a slight association between obesity and deprivation amongst Wirral Reception children, with higher rates observed amongst more deprived pupils.

Source: NCMP, 2012

Figure 5.5.9b: Percentage of Wirral Year 6 children who are obese, by deprivation quintile, 2008-09 to 2011-12



As Figure 5.5.9b shows, a relationship between obesity and deprivation is not as clear amongst Year 6 pupils in Wirral. For the most recent time period (11-12), pupils in Quintile 3 (average) had the lowest levels of obesity, and Quintile 2 (above average deprivation) had the highest.

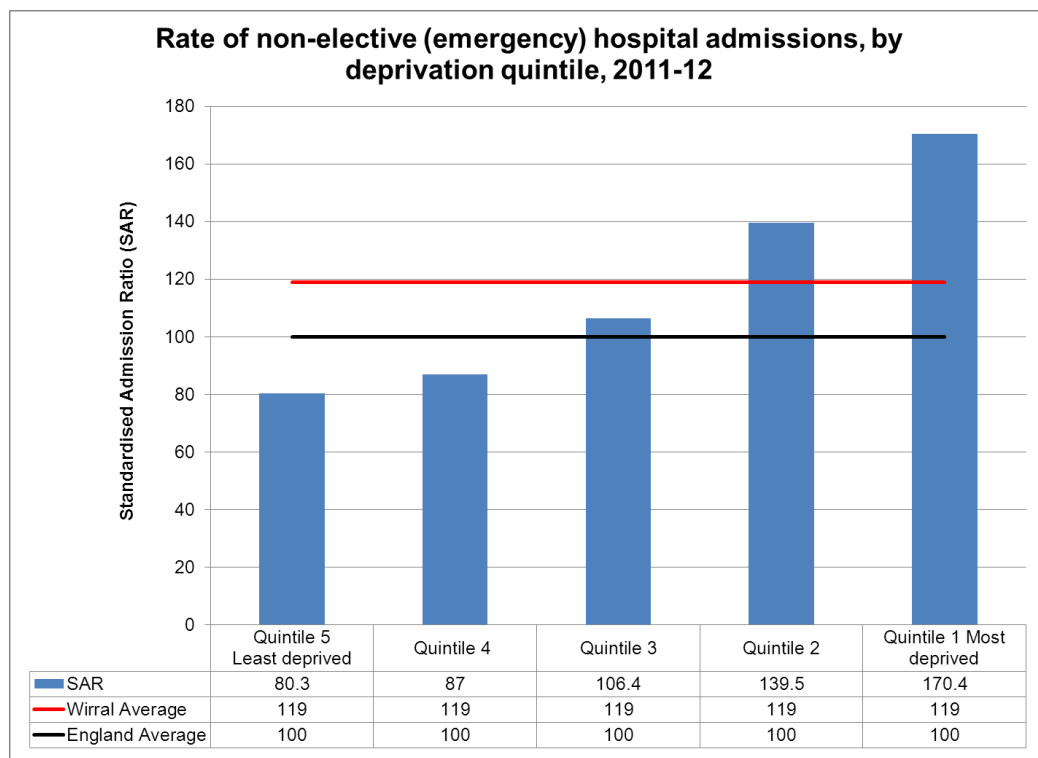
Source: NCMP, 2012

5.6: Hospital Admissions

People from the most deprived quintile are over-represented in terms of emergency admissions. In 2011-12, people from Quintile 1 made up 22% of the elective population, but 30% of non-elective (emergency) admissions.

Figure 5.6a shows the rate of admissions (SARs) in each of the five deprivation quintiles in Wirral against the national average of 100 and the overall Wirral average of 119.

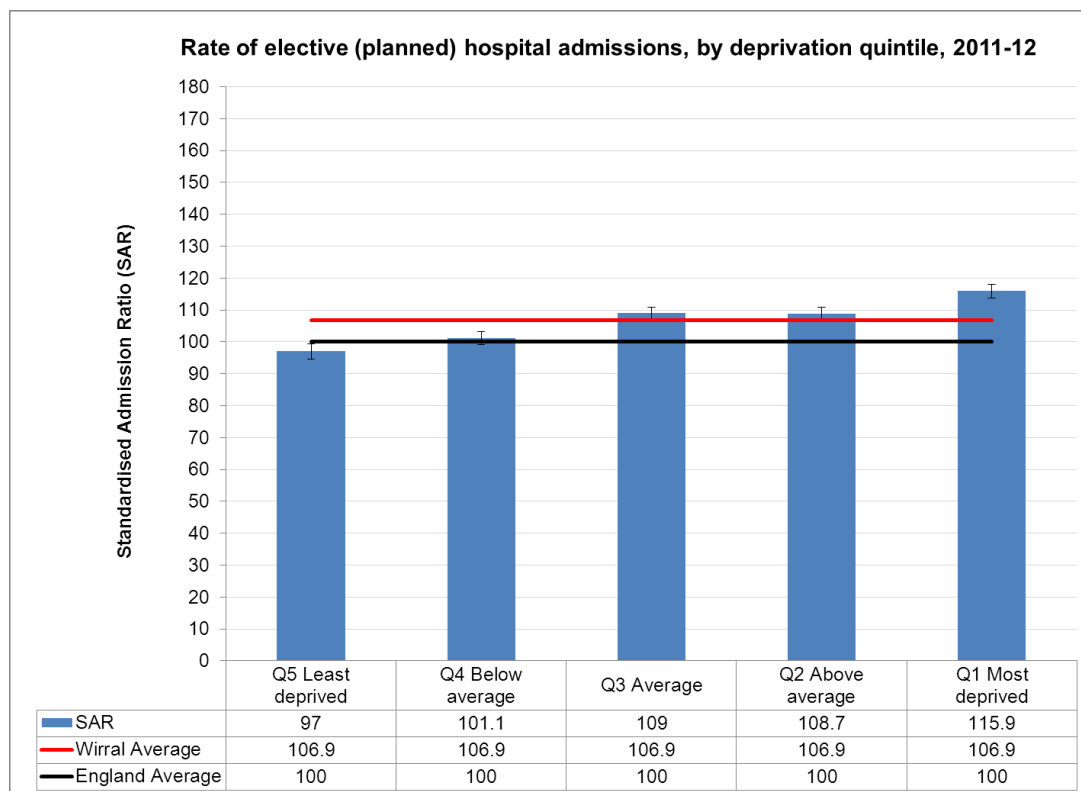
Figure 5.6a: Rate of emergency hospital admission by deprivation quintile, Wirral, 2011-12



As Figure 5.6a shows, all but the two least deprived quintiles (4 and 5) are significantly higher than the England average for non-elective (emergency) admissions. Overall, Wirral has a non-elective admission rate which is around 20% higher than the England average.

Source: Dr Foster Data Analysis Tools, 2012

Figure 5.6b: Rate of elective (planned) hospital admissions by deprivation quintile, Wirral, 2011-12



As Figure 5.6b shows, planned hospital admissions do show a relationship with deprivation (as is the case for emergency admissions), but it is not as strong and only Quintiles 5 is significantly above both the England and Wirral averages.

Source: Dr Foster Data Analysis tools, 2011

5.7: Surgical Procedures & Treatment

Revascularisations

Wirral has a target in its health inequalities action plan to be in the top 10% nationally for revascularisations. The 2010 [CHD Equity Audit](#) for Wirral states that Wirral would need to increase the number of revascularisation procedures by 30% to be in line with the England average. The report also mentions Wirral already has high rates of revascularisations procedures in those areas with the greatest need, however, this needs to be increased further.

The data also appeared to show that whilst Percutaneous Transluminal Coronary Angioplasty (PTCA) procedures were carried out in a broadly equitable way (highest number of procedures was carried out in areas which highest death rates from CHD), Coronary Artery Bypass Graft (CABG) procedures were not. Reasons for this are unclear.

5.8. Other work around health inequalities

Health Equity Audits (HEA)

We have produced a series of health equity audits to help understand where specific conditions and services are not achieving equitable outcomes in Wirral. There are currently HEAs on Breast Screening, Lung Cancer, Coronary Heart Disease, Cervical Screening, Chronic Obstructive Pulmonary Disease and Diabetic Retinopathy and [all are available online](#).

Factsheets and Short Reports

We have produced short reports that include information about health inequalities in Wirral, for instance we have infant mortality, IMD and life expectancy short reports. These are also [all available online](#).

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