

JSNA Health Inequalities July 2015

Section Introduction

This section of the joint strategic needs assessment (JSNA) shows the current extent of health inequalities in Cumbria. It looks in detail at the metrics we currently use to describe health inequalities and reviews some evidence about what we can do to reduce health inequalities.

Action taken to reduce health inequalities will benefit society in many ways. These include the economic benefits of reducing losses from illness associated with health inequalities. These currently account for productivity losses, reduced tax revenue, higher welfare payments and increased treatment costs.

As a fundamental issue in health, social care and society other chapters in the JSNA contain a large amount of information about health inequalities. Consequently this chapter will cover areas covered in other chapters however, not in as much detail.

What are health inequalities?

Health inequalities are disparities in health outcomes between individuals or groups that arise from differences in social and economic conditions that influence people's behaviours and life style choices, their risk of illness and their actions taken to deal with illness when it occurs. Inequalities in these social determinants of health are not inevitable, and are therefore considered avoidable and unjust.

Throughout the health system, inequalities exist from determinants to outcomes, and include inequalities in:

- Socio-economic and environmental factors, including: income, employment, housing, occupation and education
- Lifestyle and health behaviours, such as smoking, diet, alcohol intake and levels of physical activity
- Access to services, such as health care.

Key issues/findings

- In Cumbria life expectancy at birth for males is 78.8 years and females 82.4 years which are lower than the national average of 79.2 years and 83 years respectively.
- There is a significant difference in life expectancy across different areas (wards). The difference in life expectancy at birth between the most and least deprived wards is 16.4 years for males and 14.6 years for females.
- Deprivation is associated with inequalities. Cumbria has 29 communities that rank amongst the most deprived in the England.
- Life expectancy at birth in the most deprived quintile of Cumbria (2010-2012) is 74.2 years for males and 79.3 years for females compared to 81.6 years for males and 84.2 years in the least deprived quintile in Cumbria.
- Health inequalities are apparent right across the life course, even before birth. For example mothers from deprived areas of Cumbria are more likely to smoke in pregnancy, more likely to have low birth weight babies and are less likely to breastfeed.
- By 2037 the proportion of residents aged 65+ is projected to increase to 32.9% across Cumbria (Experian jobs projections, 2013).

- Poverty and income inequality are key drivers of poor health. Living in poverty is closely related to other factors that influence health such as education, living environment, employment and lifestyle.
- Educational attainment significantly affects future life chances. In 2014 56.8% of children in Cumbria obtained five or more Key Stage 4 exams (GCSE) with grades A*-C- including English and Mathematics. However, there are significant variations in communities across the county with just 21.1% of children living in the ward of Upperby in Carlisle compared to 91.7% of children living in the ward of Ulverston West in South Lakeland.
- Lifestyle related issues such as smoking, excessive alcohol use and obesity show strong associations with deprivation and thus contribute to inequalities.

Recommendations for consideration for commissioners

Tackling inequalities involves action by all organisations and sectors throughout Cumbria. Action is required if we are to give all people in Cumbria the opportunity for a long, healthy and happy life. In order to address health inequalities in Cumbria commissioners should:

- Have a universal approach to commissioning throughout Cumbria which is proportionately targeted (proportionate universalism) to deprivation and socioeconomic status.
- Ensure that reducing health inequalities are key objectives for all, by ensuring a collaborative approach to tackling the wider and social determinants of health such as employment, income, housing, occupation and deprivation.
- Adopt a life course approach; all partners should work together to establish a clear and co-ordinated programme to intervene early when problems first arise to support the health and wellbeing of children and young people.
- Work together to maximise opportunities for local communities to exercise an increasing degree of influence and control over decision making, service provision, with support for a community development approach.
- Focus on the causes of death which contribute most to reduce life expectancy and that can have the biggest impact on health inequalities.
- Monitor inequalities on an ongoing basis through district or locality action plans that can be governed through the Public Health Alliance and Health and Wellbeing Forums.
- Undertake further Health Inequalities JSNA work at a locality level to include qualitative data to gain local knowledge about the experiences of the local community.
- Explore how we fill local current data gaps for Lesbian, Gay, Bisexual and Transgendered, Black and Minority Ethnic Groups or other groups with protected characteristics.
- Conduct a Homelessness Health Need Audit to address health inequalities and establish the health needs of single homeless people in each local authority area.

Policy Context

In recent decades, there have been a number of government documents examining health inequalities across England. The Black Report (1980) showed that although improvements in health had been made overall, there were widespread inequalities in health outcomes, as well as access to services. The review highlighted differences in health related to social class.

A programme of addressing inequalities in health was further proposed in England by Acheson's Independent Inquiry into Inequalities in Health (1998). This report triggered a series of key policy documents that brought inequalities forward as a national priority, such as Saving Lives: Our Healthier Nation (1999), Tackling Health Inequalities: A Programme for Action (2003) and Choosing Health: Making Healthy Choices Easier (2004).

The Wanless Report: Securing Good Health for the Whole Population (2004), an independent report for government, focused on prevention and the wider determinants of health in England and the cost effectiveness of action that could be taken to improve the health of the whole population and to address inequalities.

The Department of Health's Tackling Health Inequalities: 10 years on (2009), examined developments in health inequalities since the publication of the Acheson report. The report, developed with the oversight of a reference group chaired by Professor Sir Michael Marmot, reviewed a range of data sets, including social, economic, health and environmental indicators. It sets out lessons learnt and challenges for the future.

Equity and Excellence: Liberating the NHS (2010), included major reforms to the health system such as moving health improvement responsibilities to local authority.

The Marmot Review: Fair Society, Healthy Lives (2010) proposed an evidence based strategy to address the social determinants of health which lead to health inequalities. It drew further attention to the evidence that most people in England aren't living as long as the better off in society and spend longer in states of ill health.

Equality Act 2010 brings together over 116 separate pieces of legislation into one single Act. Combined, they make up a new Act that provides a legal framework to protect the rights of individuals and advance equality of opportunity for all.

Healthy Lives, Healthy People: Our strategy for public health inequalities (2010) responds to the challenges laid out by the Marmot Review Team in Fair Society.

The Public Health Outcomes Framework has been explicitly designed to tackle health inequalities. It aims to protect and improve "the health of the poorest, fastest". It proposes several indicators that cover the wider determinants of health, requiring the efforts of all public services. The overarching indicators are:

- Healthy Life Expectancy at birth (Male and Female)
- Life Expectancy at birth (Male and Female)
- Life Expectancy at 65 (Male and Female)

There are other indicators for:

- Improving the wider determinants of health
- Health improvement
- Health protection
- Healthcare and premature mortality

Evidence of what works

Research tells us that social and economic conditions can affect population health a great deal more than health and care services. Studies have found that social and economic factors account for about half of good health, with health care accounting for about 15-25% (WHO). This does not mean that access to quality health and care services is not important. Fair Society, Healthy Lives (2010) discusses the health inequalities challenge facing England and proposes the most practical, evidence based strategies relevant to future policy and action. Fair Society, Healthy Lives (2010) emphasises the “cause of the causes” of health inequalities, and the need to address the wider and social determinants of health. A social determinants approach to health inequalities highlights how it is the intersection between different domains that is critical – health and work, health and housing and planning, health and early year’s education. Success in addressing the cause is more likely to come from a cumulative multi-faceted approach.

To tackle inequalities and reduce the social gradient, Fair Society, Healthy Lives (2010) recommends actions of sufficient scale and intensity that can be universal but also proportionately targeted according to the level of disadvantage. Central to Fair Society, Healthy Lives (2010) is the recognition that disadvantage starts before birth and accumulates throughout the life course: in other words, poor social and economic circumstances affect health throughout life. This is reflected in the review’s six policy objectives:

1. Giving every child the best start in life
2. Enabling all children, young people and adults to maximise their capabilities and have control over their lives
3. Creating fair employment and good work for all
4. Creating and developing sustainable places and communities
5. Strengthening the role and impact of ill-health prevention

It should be taken into consideration that people further down the social ladder usually run at least twice the risk of serious illness or premature death than those near the top. However, the effects are not confined to those in the most deprived areas. There are conceptual reasons as to why area-based measures may not simply function as indicators of individual socioeconomic position. Areas with a high level of socioeconomic disadvantage may also be disadvantaged with respect to transport, retail outlets, leisure facilities, environmental pollution, and social disorganisation, in ways that influence health independently of the socioeconomic characteristics of the people in these areas.

Figure 1. Model of wider determinants of health and wellbeing



Cumbria’s Population

The resident population of Cumbria was estimated to be 498,100 persons at mid-2013; an increase of +6,700 persons (+1.4%) since mid-2003 (England & Wales +7.7%). All but one of Cumbria’s districts followed the county-wide trend in experiencing an overall increase in population between mid-2003 and mid-2013. The exception was Barrow-in-Furness, where the population decreased by 4.3%, the second biggest decrease out of all local authority districts in England & Wales. The greatest proportional increase amongst Cumbria’s districts was seen in Carlisle (+5%). The 2011 Census data shows that of the 499,858 usual residents:

- 246,065 were male (49.2%); and
- 253,793 were female (50.8%)

When compared to England and Wales, Cumbria has the same proportion of males and females.

17,734 Cumbrian residents reported that they were from Black and Minority Ethnic (BME) groups in the 2011 Census (3.5%). This is much lower than the average for England & Wales (19.5%). Across Cumbria’s districts, the proportion of residents from BME groups ranged from 2.4% in Allerdale to 5% in Carlisle. The 2011 Census data shows that of Cumbria’s 499,858 usual residents:

- 482,124 identified themselves as White: British (96.6%)
- 10,133 identified themselves as White: Other (2%)
- 2,504 identified themselves as Mixed/Multiple Ethnic Group (0.5%)
- 4,066 identified themselves as Asian/Asian British (0.8%)

- 579 identified themselves as Black/African/Caribbean/Black British (0.1%) and
- 452 identified as Other Ethnic Group (0.1%)

When compared to England & Wales, Cumbria has an older age profile; with lower proportions of residents in the three youngest age groups and higher proportions of residents in the oldest four age groups. The age profile of Cumbria's districts varies considerably. Barrow-in-Furness, Carlisle and Copeland have the greatest proportions of residents in each of the three youngest age groups. Conversely, Allerdale, Eden and South Lakeland have the greatest proportions of residents in each of the three oldest age groups.

On Census day 2011 based on responses to the question: Are your day-to-day activities limited because of a health problem or disability which has lasted, or expected to last, at least 12 months? On the Census Day 2011, of Cumbria's 499,858 residents:

- 48,523 reported that their day-to-day activities were limited a lot (9.7%);
- 53,198 reported that their day-to-day activities that were limited a little (10.6%)
- 398,137 reported that their day to-day-activities were not limited (79.7%)

When compared to England and Wales, Cumbria has a slightly higher proportion of residents whose day to day activities are limited (Cumbria: 20.3%, England and Wales: 17.9%). Of the six districts, Barrow-in-Furness had the greatest proportion of residents whose day-to-day activities are limited (24.6%), while Eden had the smallest proportion of residents whose day-to-day activities are limited (18%).

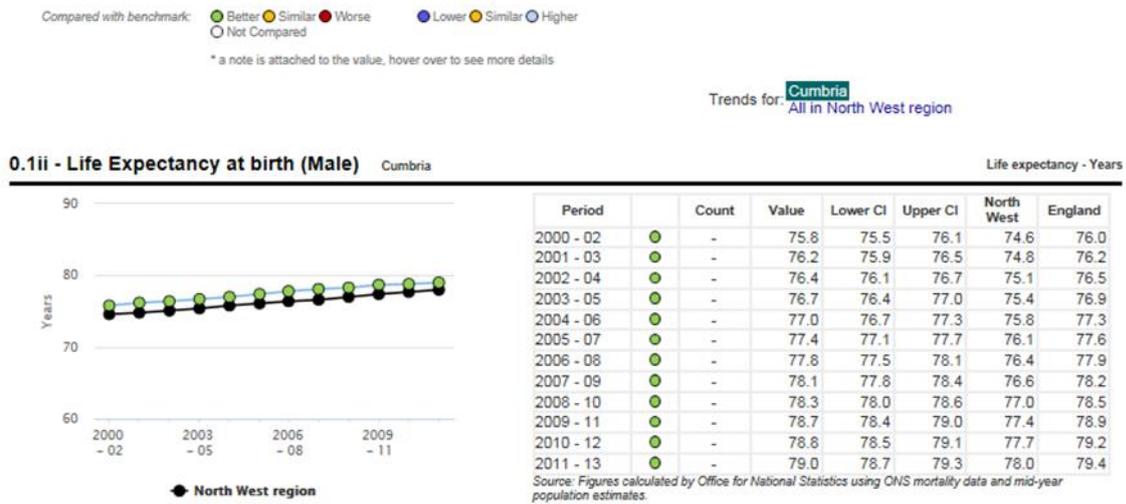
Who is at risk and why?

Health inequalities are an extremely complex issue. Extensive research has shown that people who are most affected by societal inequalities related to factors such as low income, gender, social position, ethnic origin, geography, age and disability are more likely to have poorer physical and mental health than the general population.

Life Expectancy and Health Outcomes

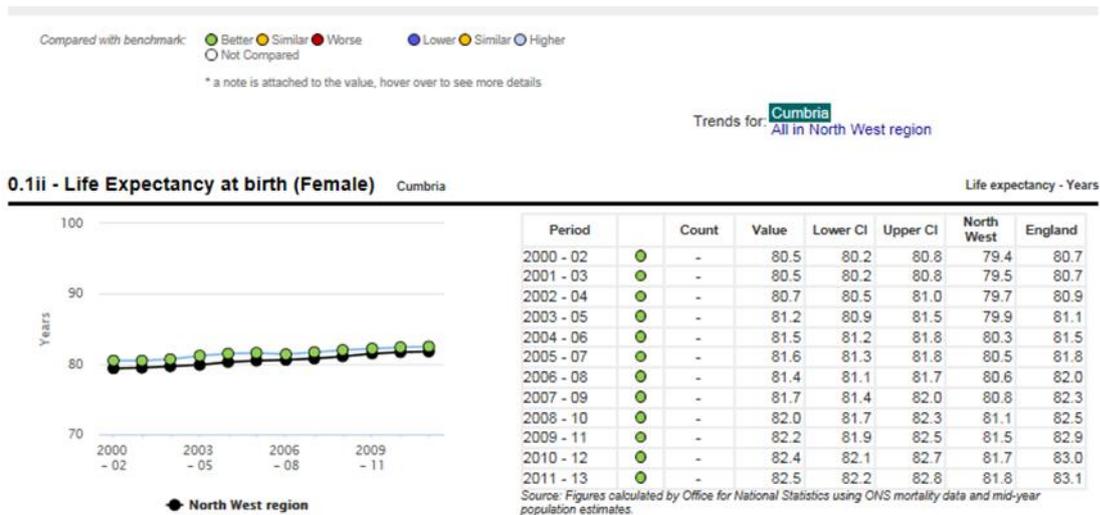
A key example when looking into health inequalities is life expectancy. Life expectancy can tell us about the health and wellbeing of a neighbourhood, city, county or country. When looking at life expectancy it is apparent that there are differences in Cumbria that are associated with deprivation. The average life expectancy at birth in Cumbria is 82.4 years for females and 78.8 years for males. The figures 2 and 3 below show the trend in life expectancy in Cumbria from 2000-02 to 2011-13. They show that life expectancy in Cumbria is higher than the North West average and has increased by 3.2 years for males and 2 years for females during this time period.

Figure 2. Life Expectancy at Birth (Males)



Source: Public Health England

Figure 3. Life Expectancy at Birth (Females)

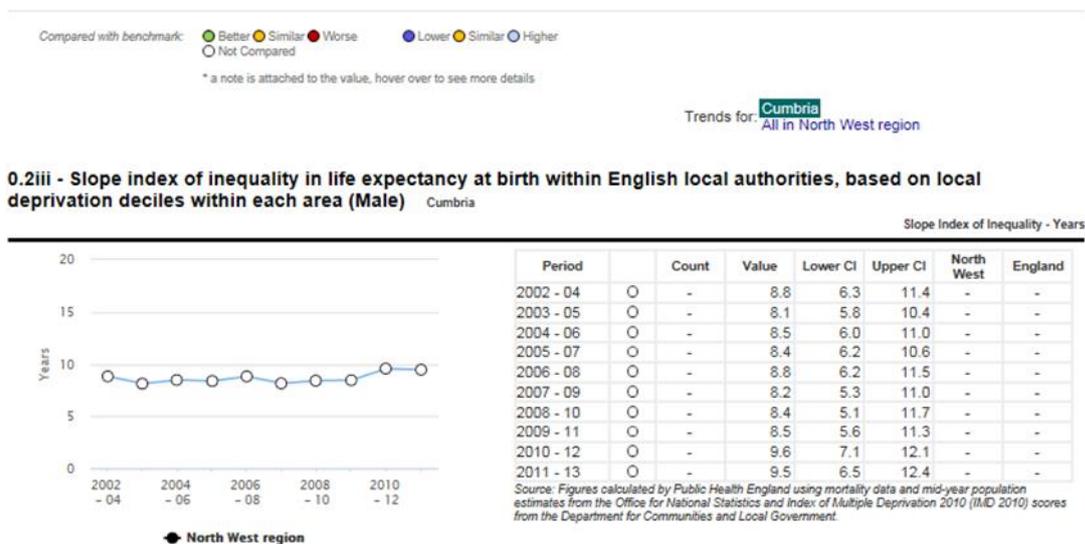


Source: Public Health England

Increasing life expectancy is good news; however, life expectancy is not increasing equally throughout the county. The slope index of inequality in life expectancy is a key high level measure of inequalities in health outcomes and shows inequalities within local authorities between the most and least deprived residents. The slope index of inequality is based on local deprivation deciles and the range in years of life expectancy across the social gradient from the most to least deprived. Figure 4 shows the slope of inequality in life expectancy at birth for males and females in Cumbria. They show that in Cumbria there is a 9.5 year difference in life expectancy between the most and least deprived areas for males and 7.3 year difference in females. Between 2002-04 and 2011-13 there has been an increase in the life expectancy gap in Cumbria for both males and females. This shows that, despite the overall increase in life expectancy in Cumbria, the gap is increasing between

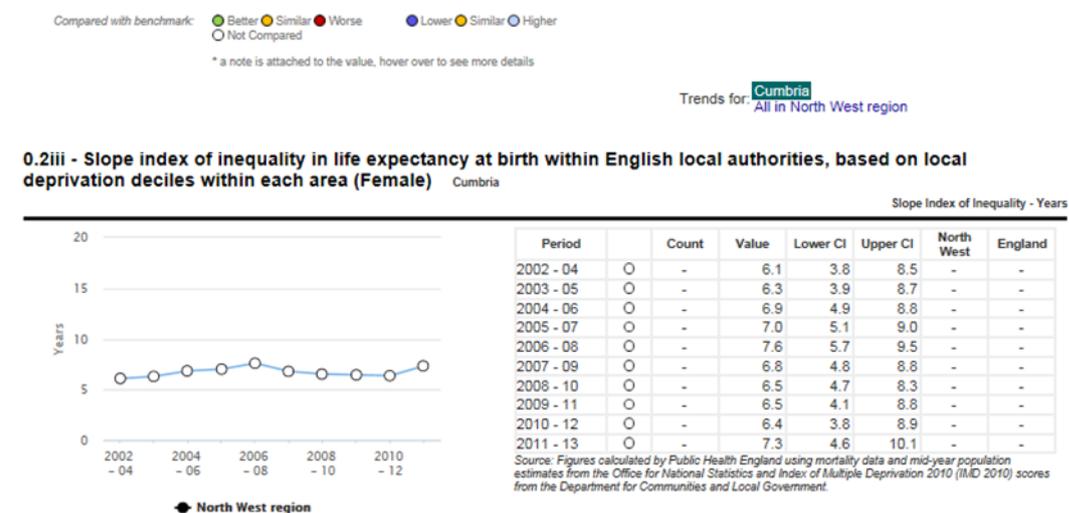
the most and least deprived residents. This mirrors the national trend towards an increase in the health inequality gap.

Figure 4. Slope index of inequality in life expectancy at birth within English local authorities, based on local deprivation deciles within each area (Cumbria, Male)



Source: Public Health England

Figure 5. Slope index of inequality in life expectancy at birth within English local authorities, based on local deprivation deciles within each area (Cumbria, Female)



Source: Public Health England

This gap in inequalities differs throughout the districts of the county as well as for males and females:

Table 1. Slope index of inequality and life expectancy in each Local Authority in Cumbria for Males

Males				
Local Authority Area	Slope index of Inequality		Life Expectancy	
	2002-04	2011-13	2002-04	2011-13
Allerdale	8.7	6.6	75.6	78.9
Barrow-in-Furness	9.6	13	74	76.9
Carlisle	8.4	10.1	75.5	78.9
Copeland	7.6	12.4	74.5	77.7
Eden	1.1*	-0.5*	79.8	81.3
South Lakeland	5.7	6	77.6	80.3
Cumbria	8.8	9.5	75.8	79

Source: Public Health England

*Data should not be compared to other districts as it is considered unreliable

The Table above shows that life expectancy for males has increased in all local authority districts in Cumbria. Male life expectancy varies throughout the county, with Eden having the highest male life expectancy at 81.3 years and Barrow-in-Furness having the lowest at 76.9 years. It shows that despite the increase in life expectancy throughout the county the slope of inequality has increased in all local authority districts apart from Allerdale and Eden. The highest increase in inequality gap can be seen in Copeland and Barrow-in-Furness with an increase of 4.8 and 3.4 years respectively. The slope index in Eden – indicating that the most deprived population decile has a higher life expectancy than the least deprived decile – is highly unusual. As the district of Eden does not have a large percentage of the population in the two most deprived quintiles of deprivation and low populations in other LSOAs it is not advised these figures are referred to.

Table 2. Slope index of inequality and life expectancy in each Local Authority in Cumbria for Females

Females				
Local Authority Area District	Slope index of inequality		Life Expectancy	
	2002-04	2011-13	2002-04	2011-13
Allerdale	6.2	8.1	80.6	81.7
Barrow-in-Furness	6.5	8.4	79.9	81.6
Carlisle	6.8	7.1	79.5	82.6
Copeland	4.7	6.4	79.8	81.3
Eden	-0.4*	-0.4*	81.5	84.6
South Lakeland	3	5.6	81.8	83.9
Cumbria	6.1	7.3	80.5	82.5

Source: Public Health England

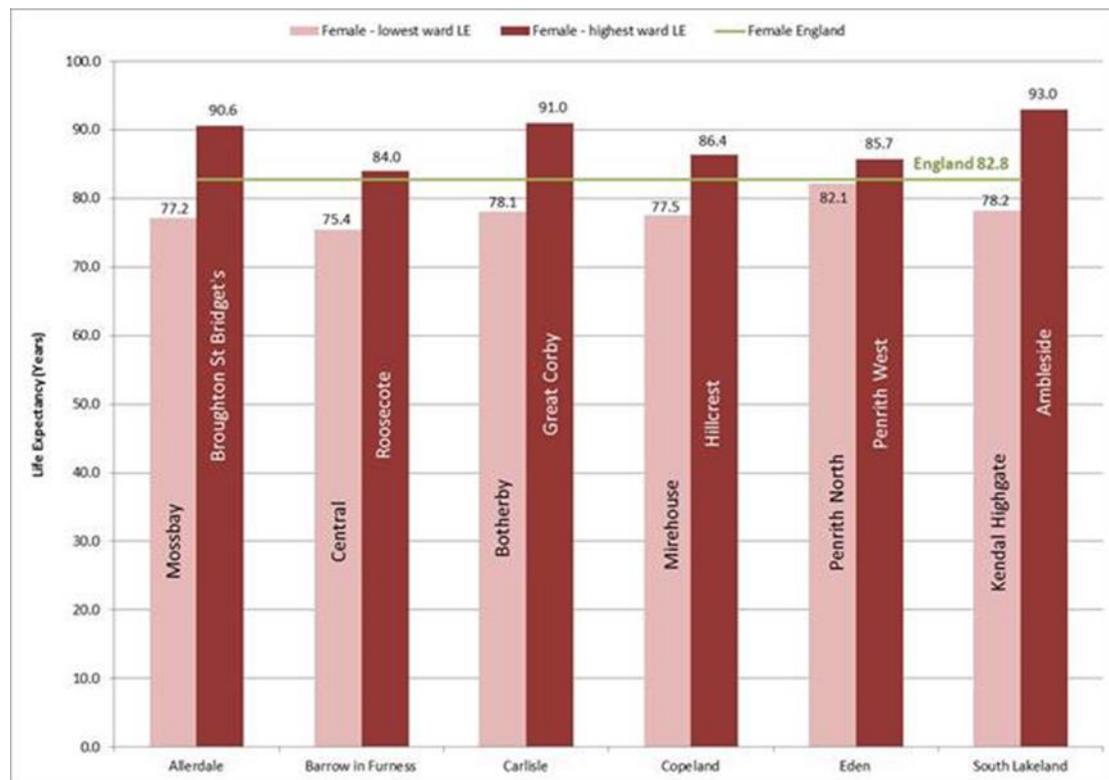
*Data should not be compared to other districts as it is considered unreliable

The table above shows that life expectancy for females has increased in all local authority areas in Cumbria. Female life expectancy varies throughout the county with Eden having the highest life expectancy for females at 84.6 years and lowest in Allerdale at 78.9 years. It shows that despite the increase in life expectancy throughout the county the slope of inequality has increased in all the local authority areas apart from Eden. The highest increase in the inequality gap can be seen in South Lakeland (2.6 years). Both figures show that life expectancy is higher for females than males

in all the local authority areas. The negative slope index in Eden – indicating that the most deprived population decile has a higher life expectancy than the least deprived decile – is highly unusual. As the district of Eden does not have a large percentage of the population in the two most deprived quintiles of deprivation and low populations in other LSOAs it is not advised these figures are referred to.

Figure 6 shows the wards with the lowest and highest life expectancies for females in all six districts in Cumbria.

Figure 6. Wards within each local authority area with the highest and lowest life expectancy (female)



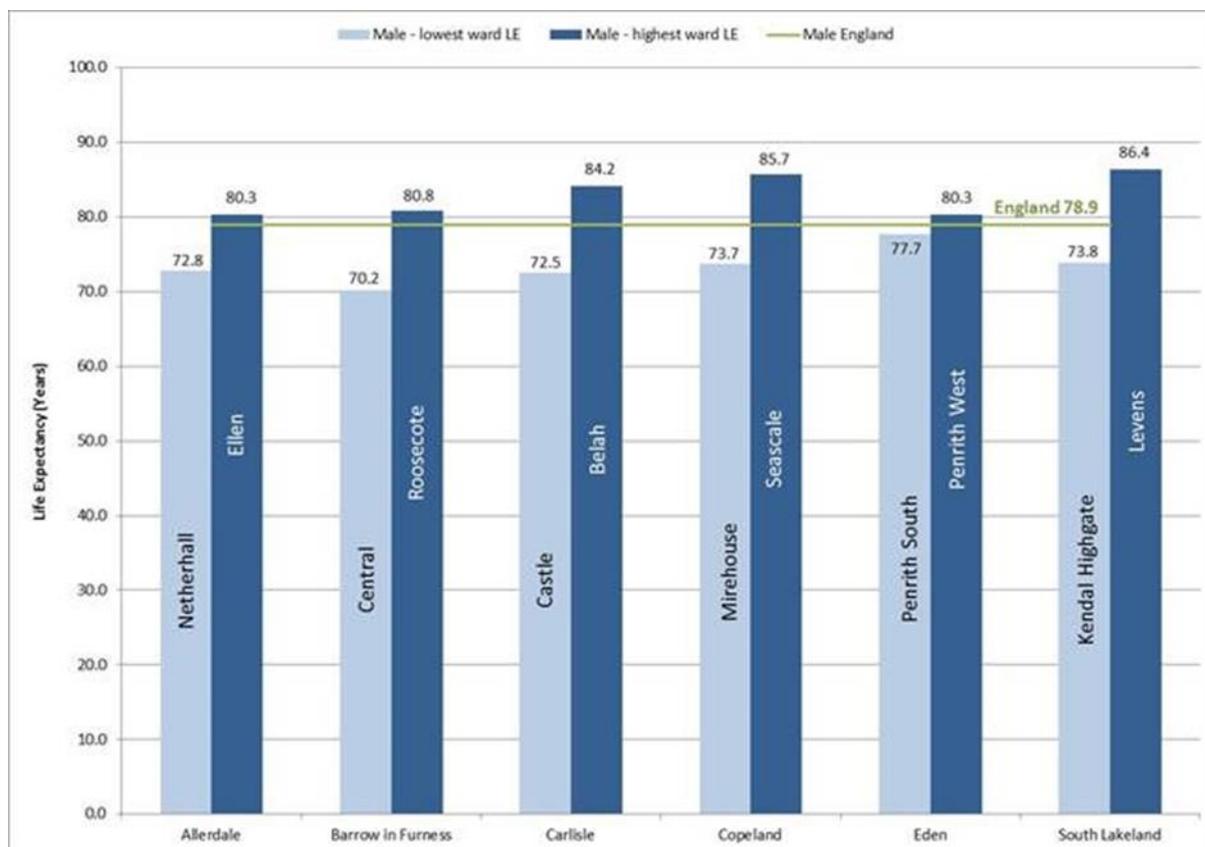
Source: Cumbria County Council Public Health Annual Report 2015

Figure 6 above shows that Central ward in Barrow-in-Furness has the lowest life expectancy at birth for females in Cumbria at 75.4 years and Ambleside in South Lakeland has the highest life expectancy at 93 years. Figure 6 highlights the difference in life expectancy for each area. An example is that a female child born in Carlisle living in Great Corby, could on average, expect to live almost 15 years longer than a female child born in Botcherby.

Figure 7 below shows the wards with the lowest and highest life expectancies at birth for males in all six districts in Cumbria. It shows that Central ward in Barrow-in-Furness has the lowest life expectancy in Cumbria at 70.2 years and Levens in South Lakeland has the highest life expectancy at 86.4 years. This means that a male child born in Levens can expect to live on average approximately 17 years longer than a male child born in Central ward in Barrow.

Please note not all wards have life expectancy data available to include for comparison but figures and graphs have been generated with data that is available.

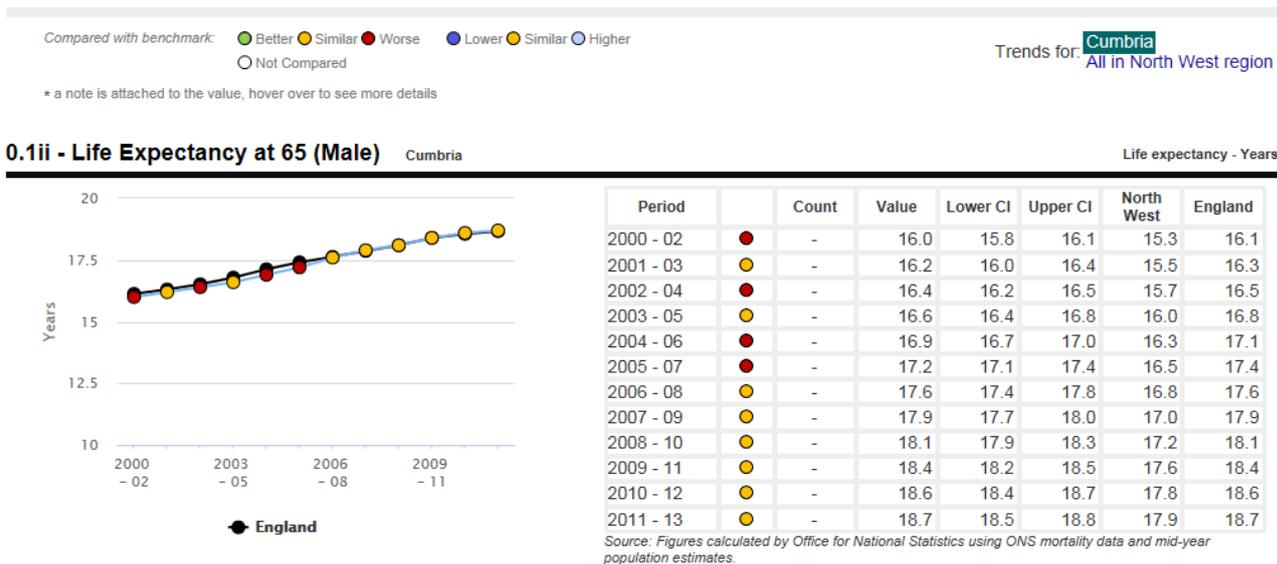
Figure 7. Wards within each local authority area with the highest and lowest life expectancy (male)



Source: Cumbria County Council Public Health Annual Report 2015

Another measure of life expectancy is life expectancy at 65. Life expectancy at 65 shows the average number of years a person would expect to live based on contemporary mortality rates. It is an estimate of the average number of years at age 65 a person would survive if he or she experienced the age-specific mortality rates for that area and time period throughout his or her life after that age. It reflects mortality among those living in an area in each time period, rather than what will be experienced throughout life among those born in the area. Figure 8 below shows life expectancy for males at age 65 in Cumbria compared to the national average. The figure below shows that Life Expectancy for males in Cumbria at 65 is 18.7 years this is equal to the national average and higher than the North West average 17.9. It also shows that since 2000-02 and 2011-13 this measure of life expectancy has increased by 2.7 years.

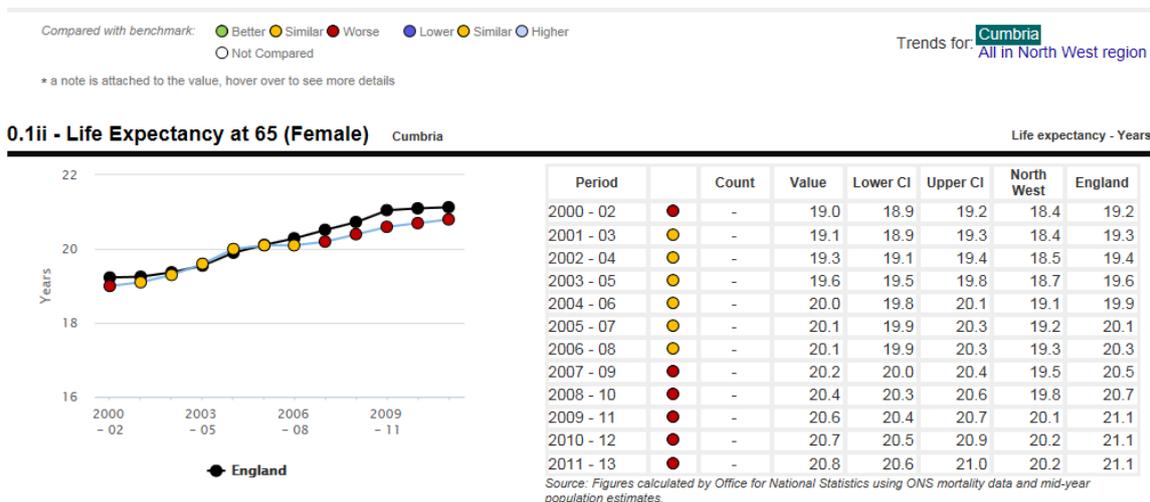
Figure 8. Life Expectancy in Cumbria at 65 (Male)



Source: Public Health England

Figure 9 below shows life expectancy for females at 65 in Cumbria compared to the national average. The figure below shows that Life Expectancy for females in Cumbria at 65 is 20.8 years this is lower than the national average 21.1 and higher than the North West average 20.2. It also shows that since 2000-02 and 2011-13 this measure of life expectancy has increased by 2.7 years.

Figure 9. Life Expectancy in Cumbria at 65 (Female)



Source: Public Health England

Life expectancy differs in each of the local authorities and there is lower life expectancy in areas that suffer higher deprivation. The tables show that females have a longer life expectancy than males 20.8 and 18.7 respectively. The tables show that life expectancy at 65 has increased in all 6 local authority areas between 2001-03 to 2011-13. The biggest increases can be seen in Eden and the smallest increases in Barrow.

Table 3. Life Expectancy in Cumbria at 65 in each Local Authority (Female)

Local Authority	2001-03 (years)	2011-13 (years)
Allerdale	18.7	20.3
Barrow	19	20.2
Carlisle	18.3	20.6
Copeland	18.7	19.8
Eden	19.7	22.5
South Lakeland	19.9	21.7
Cumbria	19	20.8

Source: Public Health England

Table 4. Life Expectancy in Cumbria at 65 in each Local Authority (Male)

Local Authority	2001-03 (years)	2011-13 (years)
Allerdale	15.3	18.4
Barrow	15.4	17.8
Carlisle	15.7	18.5
Copeland	15.6	17.7
Eden	16.8	19.6
South Lakeland	16.9	19.7
Cumbria	16	18.7

Source: Public Health England

Causes of Death

Different causes in death are driving inequalities in life expectancy in Cumbria. Targeting the causes of death which contribute most to life expectancy can have a big impact on health inequalities. 2010-2012 data shows that:

- In males external causes (e.g accidents, traffic accidents, injuries) and circulatory disease are the biggest contributors to the life expectancy gap. 406 deaths were caused by external causes this showed 91 excess deaths contributing to 56% of the life expectancy gap between Cumbria and England.
- In males there were 2,465 deaths caused by circulatory disease equating to 178 excess deaths contributing 30.9% of the life expectancy gap between Cumbria and England.
- In females circulatory disease and cancer are the biggest contributors to the life expectancy gap between Cumbria and England.
- In females there were 2,687 deaths caused by circulatory disease showing 373 excess deaths contributing to 55.7% of the life expectancy gap between Cumbria and England.
- In females there were 2,213 deaths from cancer showing 86 excess deaths contributing to 16.9% of the life expectancy gap between Cumbria and England.

Premature mortality is death before reaching the age of 75 which is a good measure of health inequality. The table below shows premature mortality has decreased between 2001-03 and 2011-2013 in all local authority areas in Cumbria. The biggest drop in premature mortality can be seen in Copeland where premature mortality has reduced from 296.7 (per 100,000) to 214.4 (per 100,000).

In 2011-2013 the highest premature mortality rate was in Barrow 242.1 (per 100,000). Premature mortality varies between males and females in Cumbria: in males in 2011-13 the rate was 240 (per 100,000) compared to 156 (per 100,000) in females.

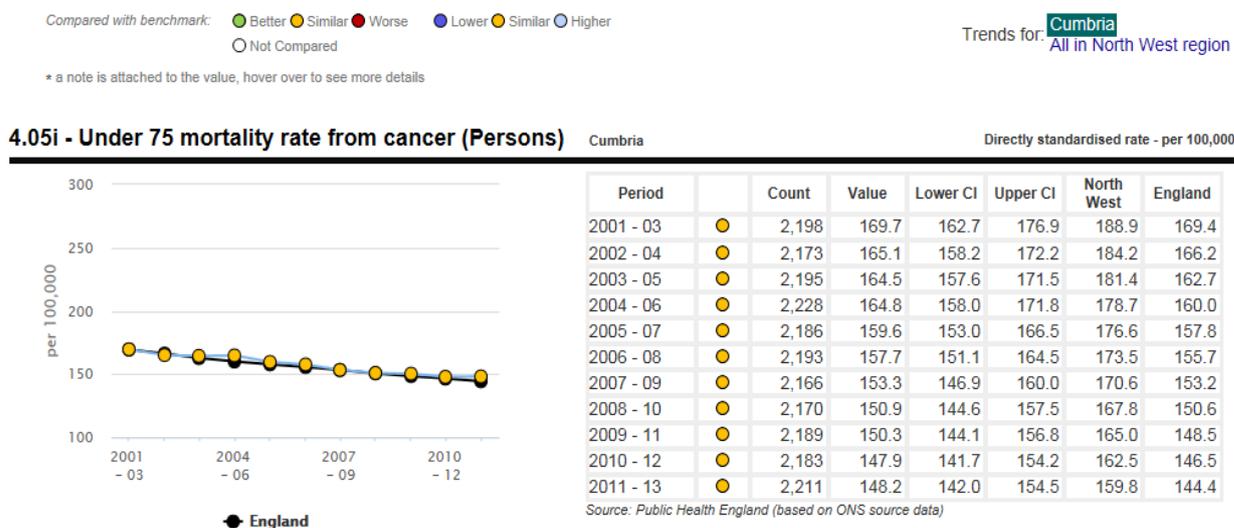
Table 5. Premature mortality by Local Authority in Cumbria

Local Authority	Rate per 100,000 2001-03	Per 100,000 2011-13
Allerdale	268.7	209.5
Barrow	308.5	242.1
Carlisle	273.1	208.3
Copeland	296.7	214.4
Eden	223.7	150.2
South Lakeland	204.7	155.8
Cumbria	259.7	198

Source: Public Health England

The figure below shows that in Cumbria premature mortality from cancer in 2011-13 is higher than the national average. In Cumbria premature mortality from cancer is 148.2 (per 100,000) compared with the national average of 144.4 (per 100,000). The figure shows that premature mortality has decreased from 169.7 (per 100,000) in 2001-03 to 148.2 (per 100,000) in 2011-13.

Figure 10. Under 75 mortality rate from cancer (persons) Cumbria



The table below shows that premature mortality from cancer has decreased per 100,000 between 2001-03 and 2011-13 in all local authority areas apart from Copeland where the rate has increased to 179.1. As well as the rate of mortality from cancer differing in each local authority areas the rate differs between males and females. The rate of mortality from cancer for males in 2011-13 is 160.7 (per 100,000) compared to 136.1 (per 100,000) females.

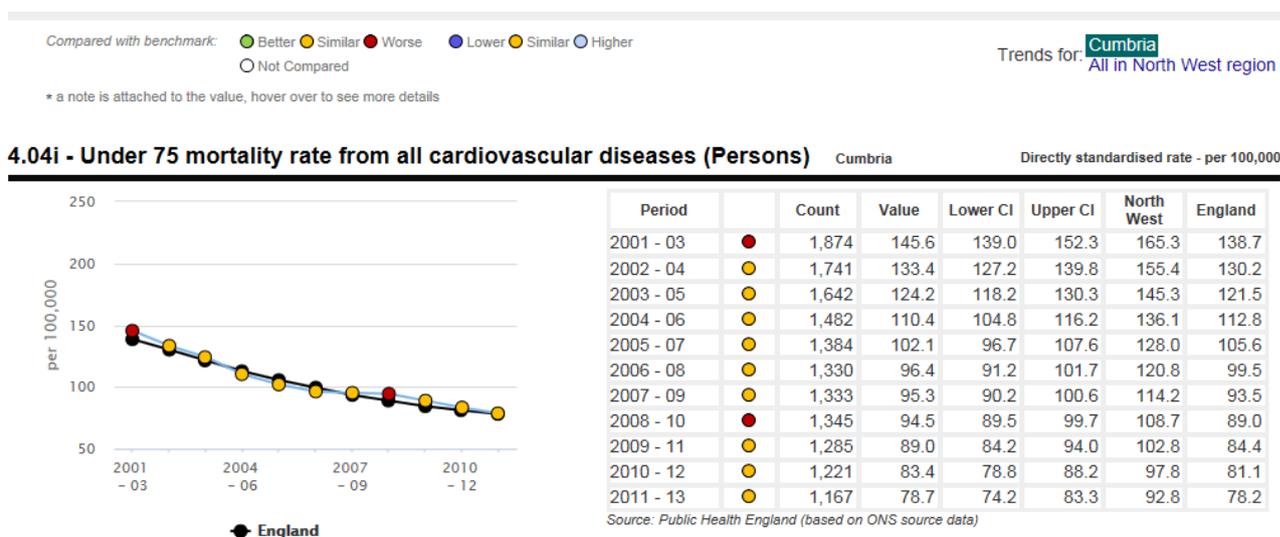
Table 6. Premature mortality from cancer by Local Authority in Cumbria

Local Authority Area	Rate per 100,000 2001-03	Rate per 100,000 2011-13
Allerdale	179.7	153.3
Barrow	185.1	164.6
Carlisle	173.4	154.3
Copeland	163.5	179.1
Eden	178.8	127.7
South Lakeland	148.1	122.2
Cumbria	169.7	148.2

Source: Public Health England

The figure below shows premature from cardiovascular disease in Cumbria in 2011-13 is slight higher than the national average 78.7 (per 100,000) compared to 78.2 (per 100,000) respectively. It shows that cardiovascular disease has decreased from 145.6 (per 100,000) 2001-03 to 78.7 (per 100,000) 2011-13.

Figure 11. Under 75 mortality rate from all cardiovascular disease



The table below shows the rate of premature mortality by local authority area in Cumbria. It shows that premature mortality from cardiovascular disease has decreased in all of the local authority areas. The greatest decrease can be seen in Copeland where the rate has decreased from 173.3 (per 100,000) in 2001-03 to 100.3 (per 100,000). Despite this Copeland still has the highest rate of cardiovascular disease in Cumbria.

Table 7. Premature mortality from cardiovascular disease by Local Authority in Cumbria

Local Authority	Rate per 100,000 2001-03	Per 100,000 2011-13
Allerdale	155.6	85.4
Barrow	169.6	98.9
Carlisle	160.6	77.5
Copeland	173.3	100.3
Eden	109.9	60.8
South Lakeland	110.2	58.4
Cumbria	145.6	78.7

Source: Public Health England

The Quality and Outcomes Framework (QOF) is a system for the performance management and payment of general practitioners (GPs). Of the 22 disease prevalences measured as part of QOF 2013-14, Cumbria was above the national prevalence rate in 17 (CCG, 2015). Cumbria was 10-20% above the national rate in 5 areas (Rheumatoid Arthritis, Chronic Kidney Disease, Cardiovascular Disease and Atrial Fibrillation), and more than 20% higher than the national rate in 7 (Heart Failure, Peripheral Arterial Disease, Stroke and Transient Ischemic Attack, Cancer, Hypothyroidism, Palliative Care and Dementia) (CCG, 2015). There is a large variation between practices (CCG, 2015). Further variation can be identified by comparing observed to expected prevalence for several disease groups (CCG, 2015). For example a comparison suggests that 66% of people with Atrial Fibrillation in Cumbria have been diagnosed (5,371 people with undiagnosed Atrial Fibrillation), however, this varies from less than 30% to over 90% at practice level (CCG, 2015).

Socio-economic and environmental factors, including: income, employment, housing, occupation and education

Deprivation

One measure of social determinants of health is the index of multiple deprivation (IMD). This is a nationally used model that measures multiple domains of deprivation including income, employment, health, education, housing, environment and crime. Those people who live in the most deprived areas tend to have the worst health with increased prevalence of heart disease, respiratory disease and other health problems, a poorer quality of life and decreased life expectancy. Deprivation is a relatively broad concept referring to not having something that others have and has been defined as:

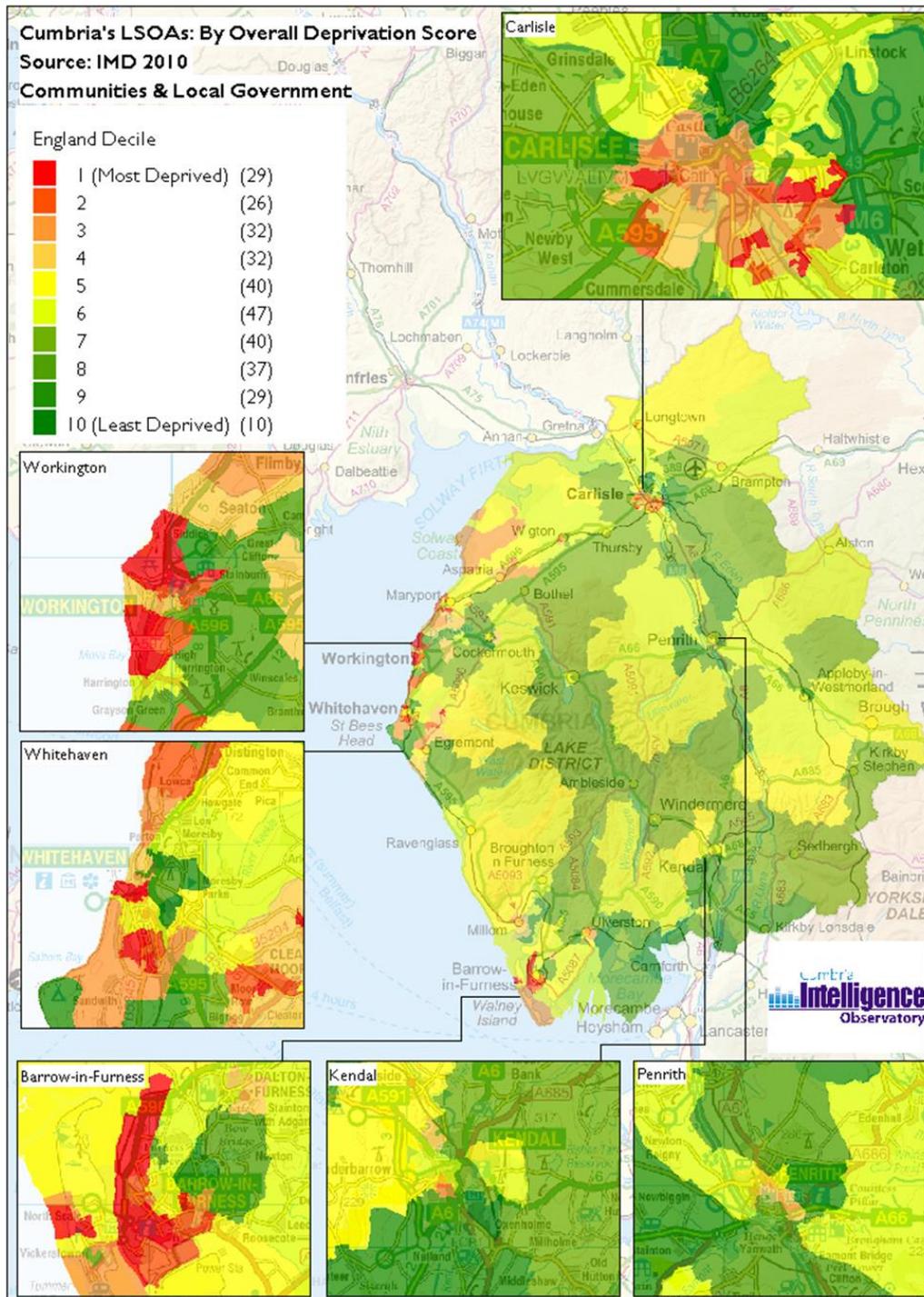
‘a state of observable and demonstrable disadvantage to the local community or the wider society or nation to which the individual or family belong.’

(Townsend, 1987)

Cumbria has twenty nine communities that rank within the 10% most deprived in England with 8.3% of the county’s population living in these areas. Furthermore, eight areas in Cumbria are classified as being in the 3% most deprived areas nationally, with 2.3% of residents living in these areas. These areas are located in parts of Moss Bay, Barrow Island, Central, Hindpool, Ormsgill and Sandwith.

Figure 12 plots each Lower Super Output Area in Cumbria shaded according to the national decile that their overall deprivation score falls in. A decile of one (areas shaded in red) represent communities that are in the 10% most deprived of areas in England, while a decile of 10 (areas shaded in dark green) represent communities that are in the 10% least deprived.

Figure 12. Overall Deprivation Score by Lower Super Output Area

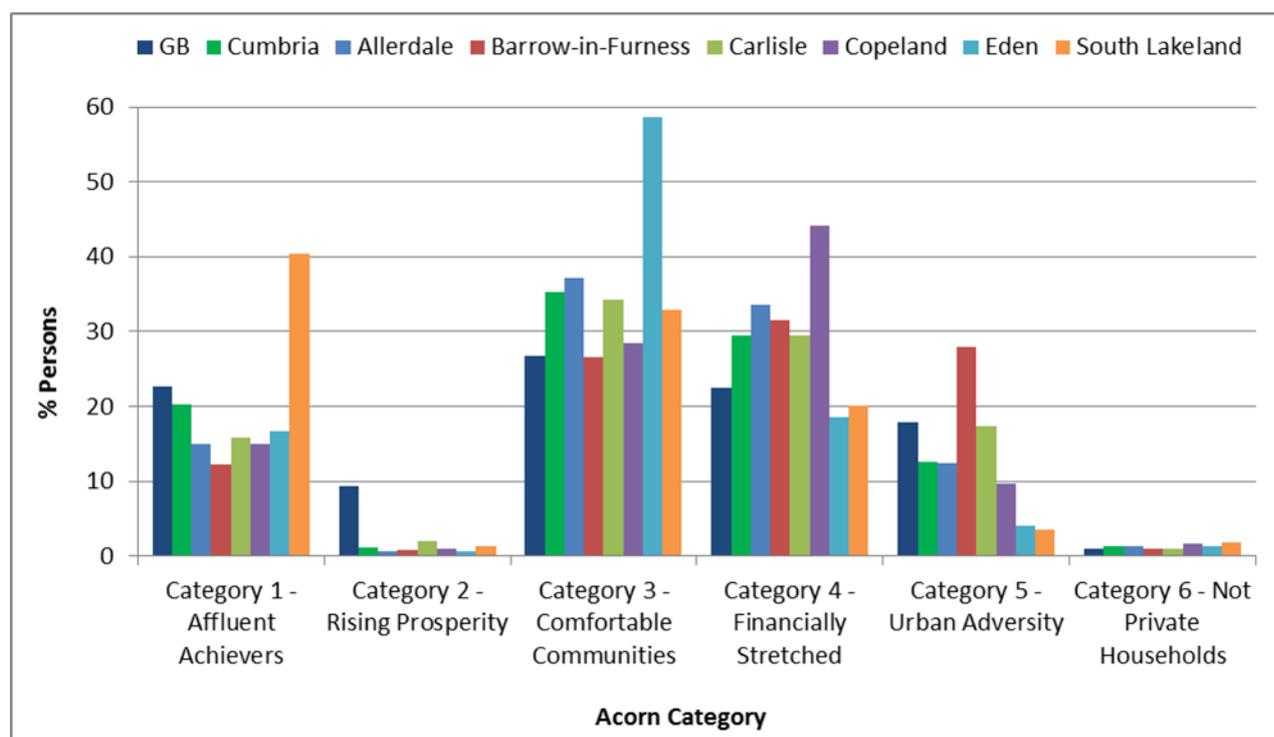


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Socioeconomic Status

Another social determinant of health is socioeconomic status. ACORN is a socio-economic profiling tool which has been developed by the company CACI and is subscribed to by Cumbria County Council Intelligence Observatory. ACORN uses information gathered from a number of administrative sources to classify each postcode in Great Britain as belonging to one of 6 socio-economic categories; 18 socio-economic groups; and 62 socio-economic types. Figure 13 compares the profile of Great Britain, Cumbria and districts across the six broad 'ACORN Categories'.

Figure 13. Socio-economic status in Cumbria (ACORN)



The graph shows that the greatest proportion of Cumbria's residents (35.3%) live in ACORN Category 3. These postcodes are referred to by CACI as 'Comfortable Communities' and the number of people within these postcodes in Cumbria are higher than the national average at 35.3% and 26.7% respectively. The second greatest proportion of Cumbria's residents (29.5%) lives in ACORN Category 4, postcodes which CACI refer to as Financially Stretched. The number of residents living in these postcodes is above the national average of 22.5%. There are a greater number of financially stretched people in Copeland, Allerdale and Barrow which mirrors the indices of multiple deprivation.

20.2% of Cumbria residents live in ACORN Category 1 postcodes these are referred to by CACI as Affluent Achievers. The number of people in this category is slightly lower than the national average of 22.7%. A further 12.5% of Cumbria's resident live in ACORN Category 5 postcodes referred to as Urban Adversity; this is also lower than the national average of 17.8%. Just 1.1% of Cumbria residents live in ACORN Category 2 postcodes (Rising Prosperity); again, this is much lower than the national average (9.3%).

The ACORN Category profiles of Cumbria districts vary considerably from each other. In Allerdale, Carlisle and Eden the greatest proportion of residents live in ACORN postcodes account for the greatest proportion of residents, while in Barrow-in-Furness and Copeland ACORN Category 4 postcodes account for the greatest proportion of residents. In contrast, the greatest proportion of South Lakeland’s residents live in Category 1 post codes.

Income

Low income and persistent poverty have been identified as among the greatest drivers of poor health and health inequalities. People on low incomes often lack the resources and opportunities to make choices that promote good health. Household incomes are low in Cumbria. The average (median) household income in Cumbria is £25,104, below the national (GB) average of £28,466, this is reflected in all districts across the county. Household income varies across the districts from the lowest at £22,461 in Barrow-in-Furness to the highest at £26,957 in South Lakeland.

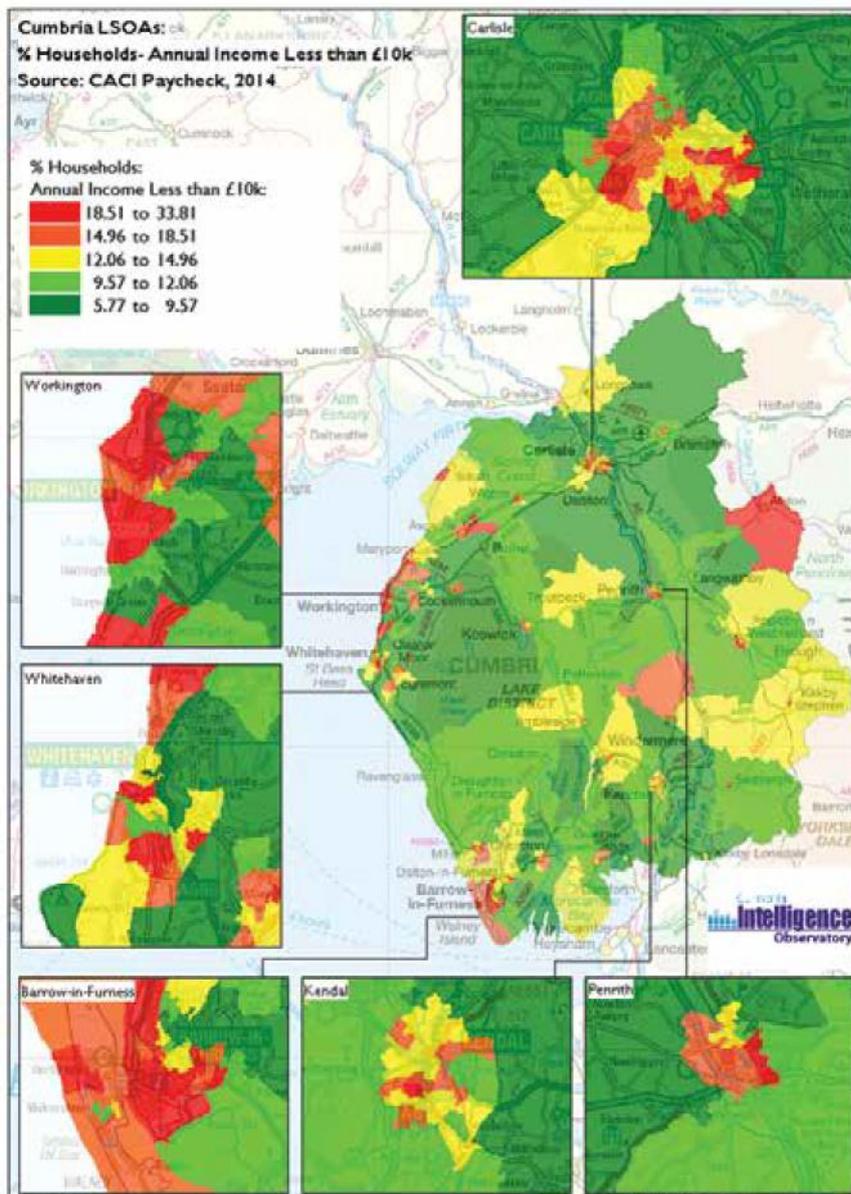
In Cumbria there are high proportions of low income households with over 31,000 households with household income of less than £10,000, 14.3% of all households compared to 12.4% nationally. Of Cumbria’s districts, Barrow-in-Furness has the greatest proportion of households with annual incomes of less than £10,000 at 16.9%, while South Lakeland has the lowest proportion at 12.6%.

Table 8. Paycheck - Annual Household Income: Great Britain, Cumbria and Local Authorities

Area	Median Income	Annual income less than £10k (Number of households)	Annual income less than £10k (% of households)
Great Britain	£28,466	3,279,267	12.4
Cumbria	£25,104	31,872	14.3
Allerdale	£24,328	6,378	15.0
Barrow-in-Furness	£22,461	5,247	16.9
Carlisle	£25,322	6,907	14.1
Copeland	£25,317	4,382	14.3
Eden	£26,333	3,025	13.1
South Lakeland	£26,957	5,931	12.6

Source: CACI Paycheck 2014

Figure 14. Annual Income Less than 10K in Cumbria



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Education

Education is another determinant of health and wellbeing. The relationship between socio-economic position and educational outcome has significant implications for subsequent employment, income, living standards, behaviours, and mental and physical health. In Cumbria (in 2014) 56.8% of children obtained Key Stage 4 (GCSE) 5+ A*-C – including English and mathematics, reflecting the national average. This differs greatly between the best and worst districts across the county. Carlisle district has the lowest proportion of children achieving Key Stage 4 (GCSE) at 47.0% compared to 64.1% in South Lakeland. There is further significant variation across communities with 21.1% of children achieving Key Stage 4 (GCSE) 5+ A*-C living in the ward of Upperby in Carlisle compared to 91.7% of children in the ward of Ulverston West in South Lakeland. In line with national data there is an attainment gap between girls and boys at key stage 1, 2 and 4. County wide

this is widest in English at (10.6%) with Barrow having the highest gender attainment gap in English at key stage 2 (14.8%). District variations in the gender attainment gap are significant.

In Cumbria 3.4% of all pupils are from BME background. In terms of educational attainment BME pupils and pupils who speak English as a second language (2.8% of all pupils) compare well with White British pupils. The only main gap is at key stage 2 for English for pupils who speak English as their second language. Gypsy Roma and Traveller pupils underperform compared to all other ethnic groups in terms of attainment gap at Key Stage 2.

Economy

There are currently 33,900 families in Cumbria who are in receipt of working tax credit, 7,300 of those are in receipt of Child Tax Credit. Numbers of Working or Child Tax Credit claimants have fallen recently following changes to eligibility thresholds introduced in April 2012. There are currently 14,520 children (aged 0-18 years) in Cumbria living in 'out-of-work benefit claimant' households, a total of 8,230 families. Numbers are greatest in Barrow and Carlisle, and in particular urban areas with high concentrations of young people and deprivation. Areas with high levels of child poverty are typically areas which have markedly lower levels household income, with a tendency towards a greater proportion of households having very low incomes indeed.

Giving every child the best start in life

Health inequalities are apparent across the life course, even before birth. Giving every child the best start in life is crucial to reducing health inequalities across the life course. The foundation for virtually all aspects of human development – physical, intellectual and emotional – are laid in early childhood. What happens during these early years, starting in the womb, has lifelong effects on many aspects of health and wellbeing– from obesity, heart disease and mental health to educational achievement. Unhealthy behaviours in Cumbria start in pregnancy.

In Cumbria:

- Smoking in pregnancy is higher than the national average. Nationally (2013-14) 12% of mothers were still smoking at the time of delivery compared to 13.8% in Cumbria. Babies from deprived backgrounds are more likely to be born to mothers who smoke and to have much greater exposure to second-hand smoke in childhood. Smoking remains one of the few modifiable risk factors in pregnancy. It can cause a range of serious health problems, including lower birth weight, pre-term birth, placental complications and perinatal mortality.
- After a rise in 2009 the rate of low birth weight babies has returned to a rate better than England in 2011 and 2012, with a proportion of 2.2% in Cumbria in 2012 with a low birth weight compared to 2.8% in England.
- Nationally 73.9% of maternities have breastfeeding initiated, compared to 66.4% in Cumbria.
- In 4-5 year olds 25.1% of children have excess weight, and in 10 to 11 years old this increases to 33.4%. This proportion of overweight and obese 4-5 year olds in 2013/14 is significantly higher than the national average of 22.5%.
- The most recent survey (2013) of 3 year olds indicates 4.5% of children in Cumbria have early childhood caries compared to 3.9% nationally. Hospital admissions of under 18 year

olds due to tooth extraction were lower in Cumbria at 0.4% than the rest of England at 0.48%. However, in the district of Barrow-in-Furness the percentage was 0.91%.

School readiness provides a measure of development of a child's physical abilities, language and communication skills, and personal, social and emotional development. It is one of the measures used to monitor children in Cumbria by looking at the number of children who are ready for school at the end of reception year. In Cumbria:

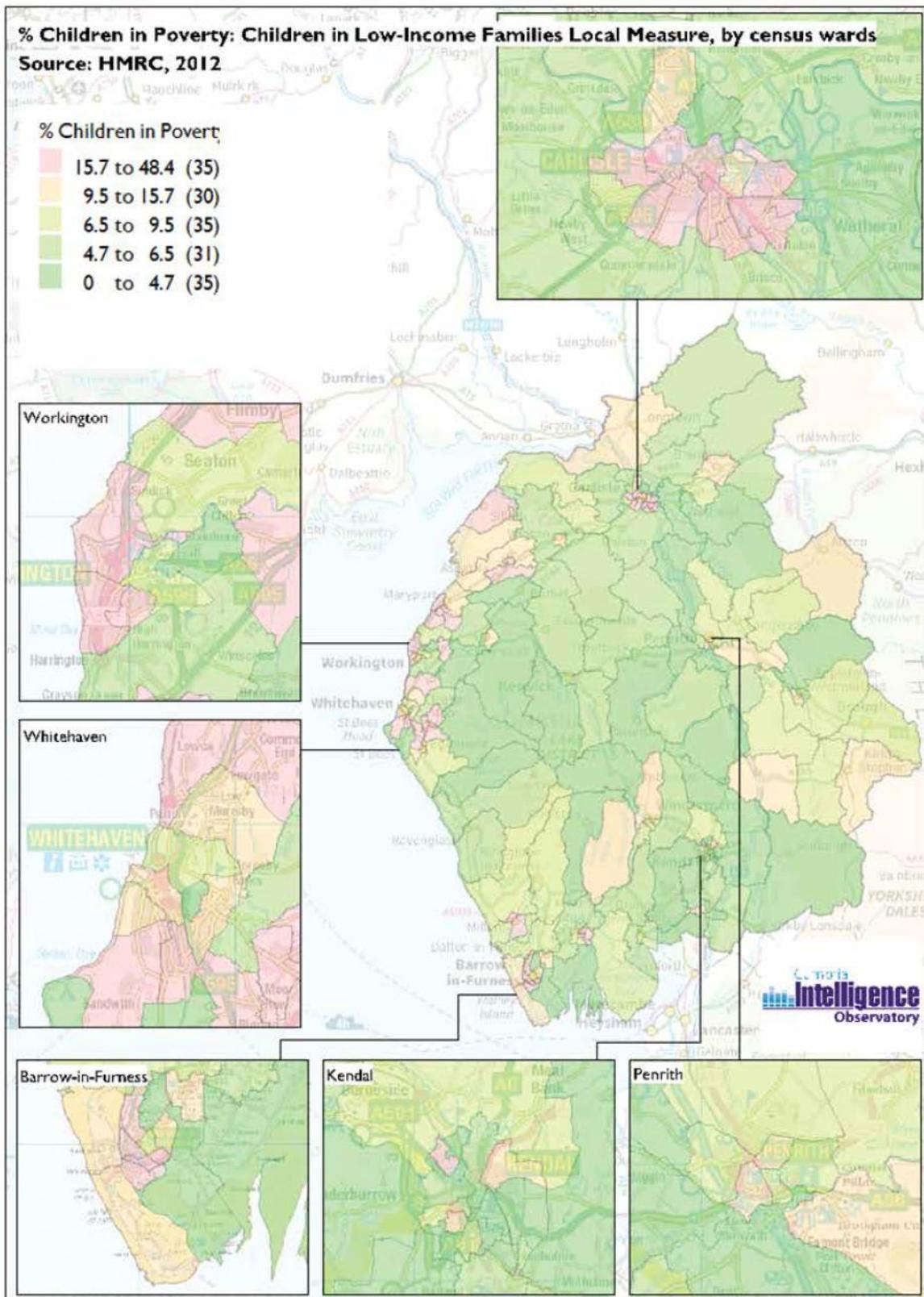
- Only 49.7% of children are achieving a good level of development for school readiness at reception age which is slightly lower than the national average of 51.7%

In Cumbria in 2014 there were 650 children in care, which is higher than the national average. The importance of the health of children and young people in care cannot be overstated. Many children in care are likely to have had their health needs neglected and unlike their peers have not been given the best start in life. Looked-after children are more likely to have experienced deprivation and poverty as a result of low family income or parental unemployment. About 60% of children and young people who are looked after in England are reported to have emotional and mental health problems and a high proportion experience poor health, educational and social outcomes after leaving care.

Across Cumbria, there are 13,585 children aged 0-19 years living in poverty, 14.1% of all children. Levels of child poverty in Cumbria are below national levels at 18.6%, this is the case in all districts, with the exception of Barrow where 20.4% of children are living in poverty. In Central ward in Barrow almost half of all children (48.4%) are living in poverty, the worst ward in the county and in the bottom 10% of all wards across England. Other wards falling in the bottom 10% nationally are Sandwith in Copeland (41.0%); Moss Bay in Allerdale (36.2%); Hindpool in Barrow (36.2%); Upperby in Carlisle (33.4%); Barrow Island in Barrow (31.4%); Mirehouse in Copeland (30.9%); Ewanrigg in Allerdale (30.6%); Moorclose in Allerdale (30.5%); and Risedale in Barrow (29.6%). A total of 29 wards in the county have levels of child poverty above national levels.

Areas with high levels of child poverty are predominantly in deprived urban areas accounting for 63.8% of child poverty, however, there are pockets of poverty and deprivation in some of the most rural communities with a total of 4,895 children living in poverty in rural areas.

Figure 15. Percentage of Children in Poverty in Cumbria



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Lifestyle and health behaviours, such as smoking, diet, alcohol intake and levels of physical activity

Evidence shows that those from more disadvantaged backgrounds are more likely to adopt unhealthy behaviours such as smoking, unhealthy eating, low levels of physical activity and problematic drug and or alcohol use. All of these are linked to poor health and chronic diseases such as heart disease and stroke.

Lifestyles

In Cumbria the data shows that in 2012, 23.9% of adults were classified as obese. The rate of alcohol specific hospital stays was 706 (per 100,000) and among those under 18 was 78.2 (per 100,000), this was worse than the national average for both. The smoking prevalence in Cumbria is 20.9%. This is higher than the national average at 19.5%. The rate of smoking deaths 2012 was 300 (per 100,000) this represents 968 deaths. The physical activity levels in adults Cumbria is slightly lower than the national average 55.3% compared to 56% nationally.

Being obese can lead to a number of serious health problems as well as shorten life expectancy. It is estimated that 7% of all deaths each year in England are due to obesity. Being obese puts people at risk of a number of health problems, including high blood pressure, which is a major risk factor for developing heart disease, type 2 diabetes and stroke. The National Child Measurement Programme shows that there is an association between obesity and deprivation. The figures below show the trend in obesity taken from the National Child Measurement programme which weighs and measures children at both Reception and year 6. Figure 16 and 17 show that overweight and obesity in Cumbria is higher than the North West average in reception year at 25.1% and slightly lower than the North West average at year 6 at 33.4%. The trend data shows that within both reception and year 6 the prevalence of overweight. The data shows that in 2006/7 23.8% of children were overweight, but, by the time that they were measured again in year 6 (2012/13) 36.6% were overweight this shows an increase of approximately 13%.

Figure 16. Trend of Prevalence in Childhood Obesity in Cumbria (Reception)

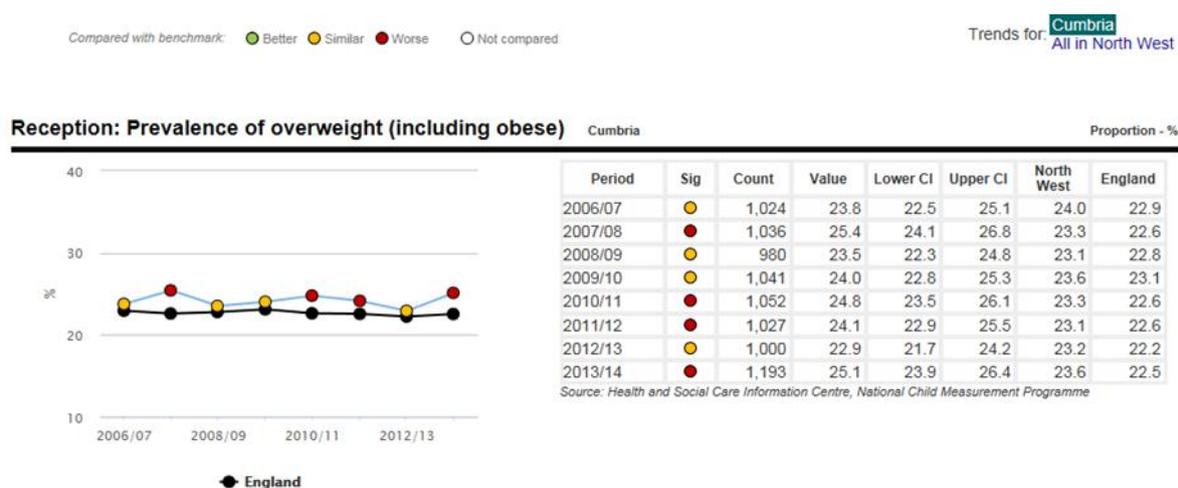
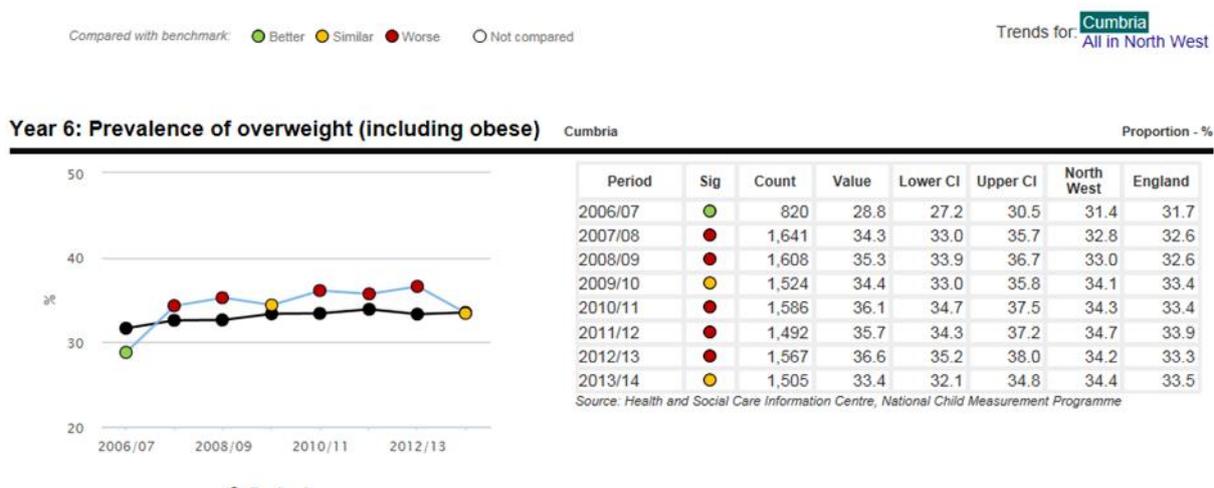


Figure 17. Trend of Prevalence in Childhood Obesity in Cumbria (Year 6)



Smoking

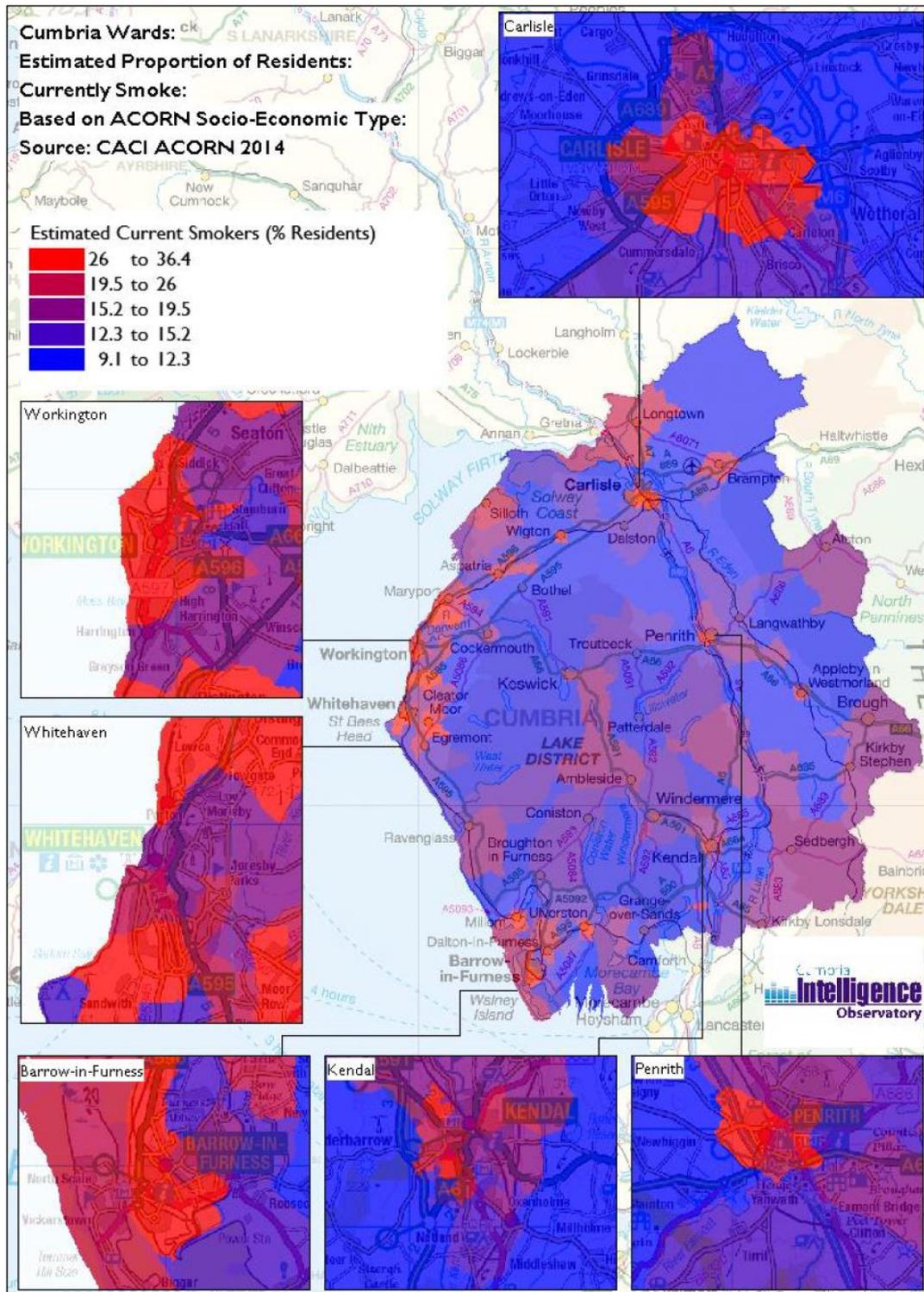
There is a strong link between cigarette smoking and socio-economic group. Smoking has been identified as the single biggest cause of inequality in death rates between rich and poor in the UK. Smoking accounts for over half of the difference in risk of premature death between social classes.

Death rates from tobacco are two to three times higher among disadvantaged social groups than among the better off.

Long-term smokers bear the heaviest burden of death and disease related to their smoking. Long term smokers are disproportionately drawn from lower socio-economic groups. People in poorer social groups who smoke, start smoking at an earlier age: of those in managerial and professional households about one third start smoking before age 16 compared with almost half of those in routine and manual households

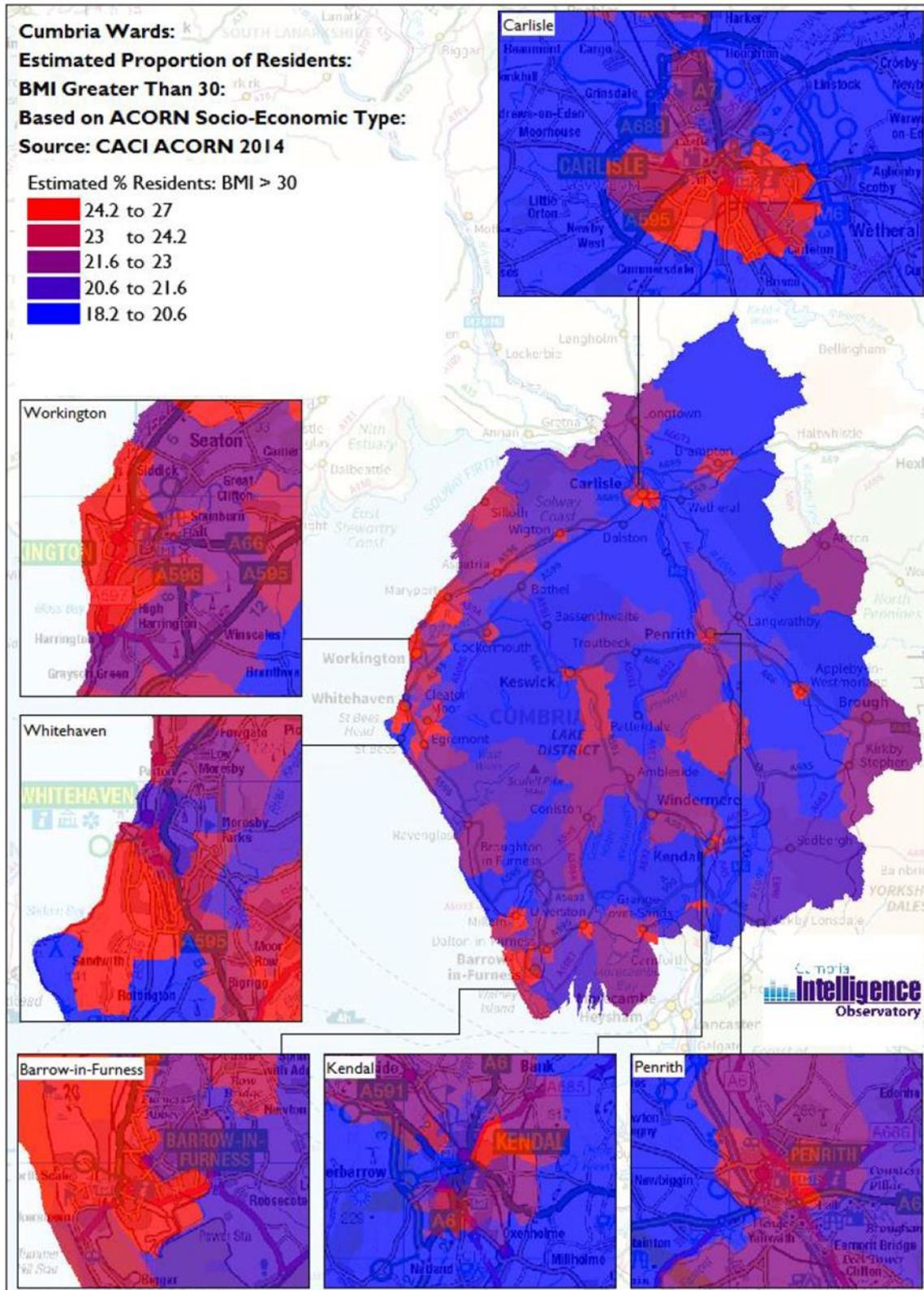
ACORN is a socio-economic profiling tool which has been developed by the company CACI. ACORN uses a range of information gathered from many administrative sources to classify each postcode in the UK. This can be used to generate information on lifestyle issues such as alcohol, smoking, obesity and mental health. The maps below give an insight into lifestyles socio economic status and lifestyles.

Figure 18. Estimated proportion of the population smoking in Cumbria



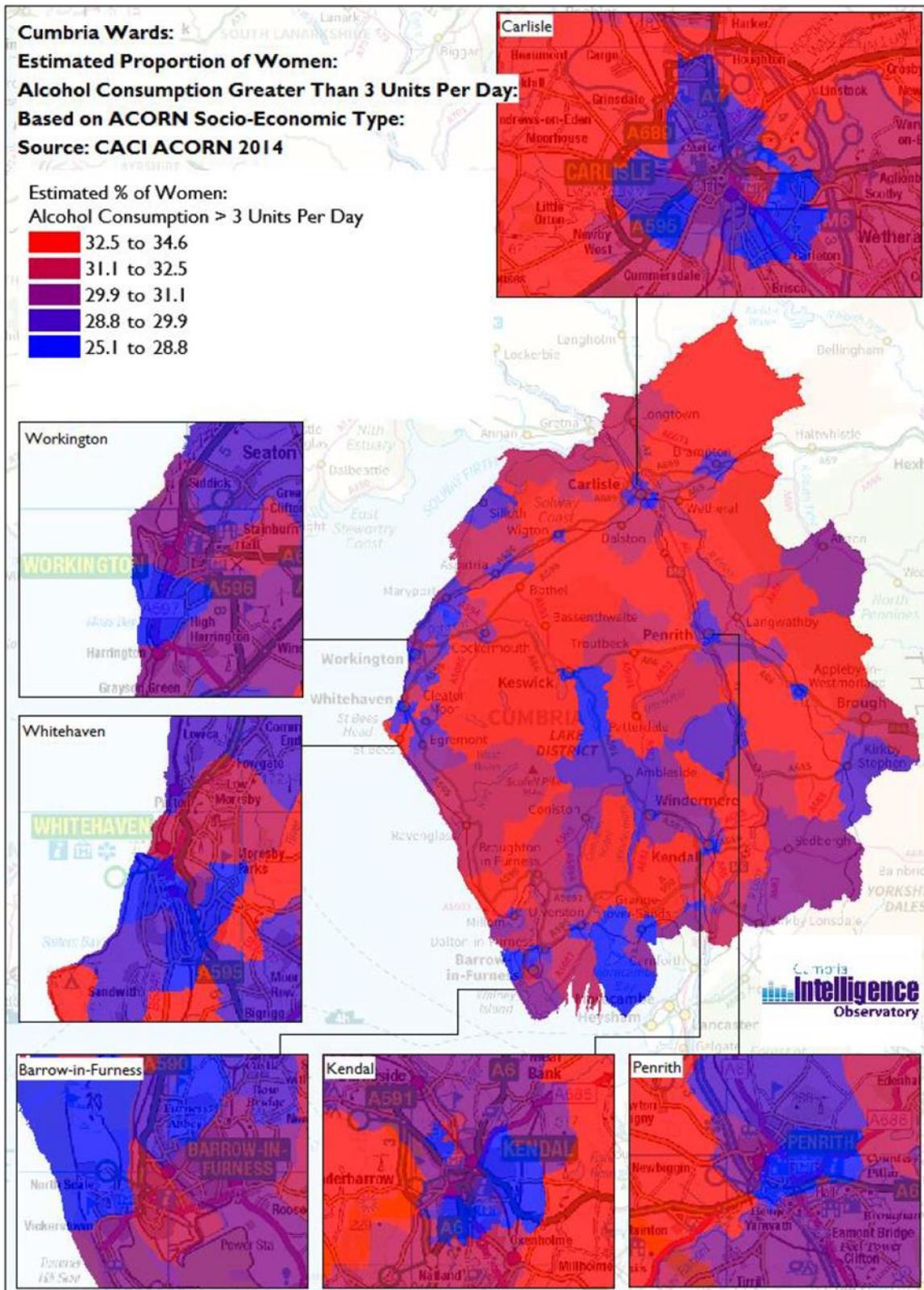
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Figure 19. Estimated proportion of the population with a Body Mass Index greater than 30



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Figure 20. Estimated proportion of the population with alcohol consumption greater than 3 units per day



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Population Groups

Learning Disabilities

People with learning disabilities have poorer health than the general population, much of which is avoidable. These health inequalities often start early in life and result, to an extent, from barriers they face in accessing timely, appropriate and effective health care. In Cumbria there are 7,045 people with a learning disability over the age of 18 of those there are approximately 1,976 who are receiving services from Adult Social Care (this includes people with autism). The impact of these health inequalities is serious. As well as having a poorer quality of life, people with learning disabilities die at a younger age than their non-disabled peers.

In 2013/14 Cumbria data tells us that the number of children with moderate and severe learning difficulties known to schools is above the national average. The number of children with Autism known to schools is less than the national average 9.1 (per 1,000) at 6.7 (per 1,000).

The Confidential Inquiry Into Premature Deaths of People with Learning Disabilities (CIPOLD), (2013) found that men with learning disabilities died on average 13 years younger than men in the general population and women 20 years younger. CIPOLD data also showed that people with learning disabilities are three times as likely as people in the general population to have a death classified as potentially avoidable through the provision of good quality healthcare.

Homeless People

Homeless people can face great inequalities in accessing health services, yet their health can often suffer from being homeless or living in poor quality temporary accommodation. Poor health – physical, mental or both – can also cause a person to become homeless in the first place. Homeless people may often leave health problems untreated until they reach a crisis point and then present inappropriately at Accident and Emergency. This combines to make health problems more expensive to treat, hospital waiting lists longer and leads to people being less able to support themselves in their homes. It is essential that local authorities and health services work together to provide accessible and appropriate services if we are to tackle health inequalities and homelessness.

Based on 2,590 responses from people using services in 19 areas across England, the unhealthy state of homelessness highlights the extent to which homeless people experience some of the worst health problems in society.

- 73% of homeless people reported physical health problems. 41% said this was a long term problem.
- 80% of respondents reported some form of mental health issue, 45% had been diagnosed with a mental health issue
- 39% said they take drugs or are recovering from a drug problem, while 27% have or are recovering from an alcohol problem
- 35% had been to A&E and 26% had been admitted to hospital over the past six months
- 41% of homeless people reported a long-term physical health problem (compared to just 28% of the general population)
- 45% had been diagnosed with a mental health problem (compared to just 25% of the general population)

- 36% had taken drugs in the past six months (compared to just 5% of the general population)
- 35% do not eat at least two meals a day
- Two-thirds consume more than the recommended amount of alcohol each time they drink
- 77% smoke

Black and Minority Ethnic Groups

17,734 Cumbrian residents reported that they were from Black and Minority Ethnic (BME) groups in the 2011 Census (3.5%). This is much lower than the average for England & Wales (19.5%). Across Cumbria's districts, the proportion of residents from BME groups ranged from 2.4% in Allerdale to 5% in Carlisle. There is a plethora of evidence highlighting that people from minority ethnic groups experience poorer health than the overall UK population. Some examples include the observation of higher rates of diabetes, cardiovascular disease and mental illness among certain minority ethnic groups. Furthermore, the data suggests that patterns of poor health vary within ethnic groups. Large-scale surveys, such as the Fourth National Survey of Minority Ethnic Groups (Nazroo, 1997) and the Health Survey for England (Sproston and Mindell, 2006), show that minority ethnic groups as a whole are more likely to report ill health, and that ill health among minority ethnic groups starts at a younger age than among the white British.

Geographical differences in health

As previously highlighted Cumbria's issues differ greatly throughout the county. Differences in geographical need has been highlighted throughout the document. This section will give a brief summary for each local authority area. Health Profiles for each local authority area can be found at:

<http://www.cumbriaobservatory.org.uk/health/JSNA/previous/Districts.asp>

Allerdale

The health of people in Allerdale is varied compared with the England average. In Allerdale life expectancy is lower than the England average for males and females; males' life expectancy is 78.2 years (79.2 years for England) and female life expectancy is 81.9 years (83.0 years for England). In Allerdale there is approximately a 17 year difference in life expectancy in females when comparing the most and least affluent area and 8 years in males.

In 2012, 24.2% were classified as obese. The rate of alcohol related harm hospital stays was 759 (per 100,000). The rate of smoking related deaths was 325 (per 100,000), worse than the national average for England.

Approximately 16.5% (2,700) children live in poverty. In year 6 23.4% of children are classified as obese, this is worse than the national average. The rate of alcohol-specific hospital stays for those under 18 was 90.9 (per 100,000), this is worse than the average for England. Levels of breastfeeding and smoking at the time of delivery are worse than the England average.

Determinants of health and inequalities in Allerdale

<http://www.cumbria.gov.uk/eLibrary/view.asp?ID=62085>

Barrow-in-Furness

The health of people in Barrow-in-Furness is generally worse than the rest of England. Life expectancy in Barrow is shorter by 2.1 years for males and 1.6 years for females compared to the England average. In Barrow-in-Furness there is a difference of approximately 9 years in life

expectancy in females in when comparing the most and least affluent ward and 10 years in males. In Barrow-in-Furness preventable premature mortality from cancer and cardiovascular disease is higher than the national average at 97 (per 100,000) and 66.9 (per 100,000) respectively. Deprivation in Barrow is higher than the national average and about 22.5% (2800) children live in poverty.

In 2012, 22.7% of adults were classified as obese. The rate in alcohol stays is 908 (per 100,000) which is worse than the national average. The rate of smoking related deaths was 346 (per 100,000), which is worse than the national average.

In year 6, 21.5% of children are classified as obese. The rate of alcohol specific hospital stays among those under 18 was 113 (per 100,000) worse than the national average. Levels of GCSE attainment, breastfeeding and smoking at the time of delivery are worse than the national average.

Determinants of health and inequalities in Barrow

<http://www.cumbria.gov.uk/eLibrary/view.asp?ID=62086>

Carlisle

The health of people in Carlisle is varied compared with the England average. Deprivation is lower than average, however approximately 16.8% of children live in poverty. In Carlisle there is a difference in approximately 13 years in life expectancy in females when comparing the most and least affluent area and 12 years in males. In Carlisle premature mortality from cancer is higher than the national average at 97 (per 100,000).

In 2012, 23% of adults were classified as obese. The rate of alcohol harm related hospital stays was 665 (per 100,000). The smoking related death rate was 340 (per 100,000) which is worse than the average for England. Estimated levels of adult excess weight and smoking are worse than the England average.

Determinants of health and inequalities in Carlisle

<http://www.cumbria.gov.uk/eLibrary/view.asp?ID=62087>

Copeland

The health of people in Copeland is varied compared with the England average. Deprivation is lower than average, however about 18.3% (2,100) children live in poverty. Life expectancy for both men and women is lower than the England average. In Copeland there is a difference of approximately 11 years in life expectancy in females when comparing the most and least affluent wards and 12 years in males. In Copeland preventable premature mortality from cancer and cardiovascular disease is higher than the national average at 100.7 (per 100,000) and 65.8 (per 100,000) respectively.

In Year 6, 22.2% of children are classified as obese, worse than the average for England. The rate of alcohol-specific hospital stays among those under 18 was 126.7 (per 100,000), worse than the average for England. This represents 17 stays per year. Levels of GCSE attainment, breastfeeding and smoking at time of delivery are worse than the England average.

In 2012, 28.3% of adults are classified as obese, worse than the average for England. The rate of alcohol related harm hospital stays was 752 (per 100,000), worse than the average for England. This represents 532 stays per year. The rate of self-harm hospital stays was 325.9 (per 100,000), worse

than the average for England. This represents 217 stays per year. The rate of smoking related deaths was 354 (per 100,000), worse than the average for England. This represents 146 deaths per year. Estimated levels of adult excess weight and smoking are worse than the England average.

Determinants of health and inequalities in Copeland

<http://www.cumbria.gov.uk/eLibrary/view.asp?ID=62088>

Eden

The health of people in Eden is generally better than the England average. Deprivation is lower than average, however about 8.6% (700) children live in poverty. Life expectancy for both men and women is higher than the England average. Life expectancy is not significantly different for people in the most deprived areas of Eden. The life expectancy gap is 3 years between the most and least affluent wards for females and approximately 3 years for males. In Eden preventable premature mortality from cancer and cardiovascular disease is better than the national average at 38 (per 100,000) and 65.8 (per 100,000) respectively.

In Year 6, 16.6% (68) of children are classified as obese. The rate of alcohol-specific hospital stays among those under 18 was 20.6 (per 100,000), better than the average for England. Levels of breastfeeding are worse in Eden than the England average.

In 2012, 24.0% of adults were classified as obese. The rate of alcohol related harm hospital stays was 502 (per 100,000), better than the average for England. The rate of smoking related deaths was 234 (per 100,000), better than the average for England.

Determinants of health and inequalities in Eden

<http://www.cumbria.gov.uk/eLibrary/view.asp?ID=62089>

South Lakeland

The health of people in South Lakeland is varied compared with the England average. Deprivation is lower than average, however about 8.3% (1,300) children live in poverty. Life expectancy for males and females are higher than the England average. In South Lakeland preventable premature mortality from cancer and cardiovascular disease is better than the national average at 70.8 (per 100,000) and 36.6 (per 100,000) respectively.

In Year 6, 17.0% (139) of children are classified as obese. The rate of alcohol-specific hospital stays among those under 18 was 70.8 (100,000), worse than the average for England. This represents 13 stays per year. Levels of breastfeeding and smoking at time of delivery are worse than the England average. Levels of teenage pregnancy are better than the England average.

In 2012, 22.1% of adults are classified as obese. The rate of alcohol related harm hospital stays was 634 (per 100,000). This represents 688 stays per year. The rate of self-harm hospital stays was 179.9 (per 100,000). This represents 165 stays per year. The rate of smoking related deaths was 224 (per 100,000), better than the average for England. This represents 178 deaths per year. Estimated levels of adult smoking are better than the England average. The rate of people killed and seriously injured on roads is worse than average. The rate of new cases of malignant melanoma is worse than average.

Determinants of health and inequalities in South Lakeland

<http://www.cumbria.gov.uk/eLibrary/view.asp?ID=62091>

Key Contacts

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References and Key Documents

<http://www.cumbriaobservatory.org.uk>

<http://www.phoutcomes.info>

<http://www.chimat.org.uk>

Marmot M Fair society, healthy lives. 2010. [Cited: 22 February 2015].

Available from: instituteofhealthequity.org/projects/fair-society-healthy-lives-the-marmot-review

The King's Fund. Broader determinants of health. [Cited 15 February 2015].

Available from: kingsfund.org.uk/time-to-think-differently/trends/broader-determinants-health

Inquiry Panel on Health Equity for the North of England. Due North: Report of the Inquiry on Health Equity for the North. [cited 13 February 2015].

Available from: cles.org.uk/wp-content/uploads/2014/09/Due-North-Report-of-the-Inquiry-on-Health-Equity-in-the-North-final1.pdf

Cumbria County Council Annual Report, 2015

<http://www.hscic.gov.uk/catalogue/PUB01170/hea-surv-ethn-min-eng-2004-rep-v3.pdf> [Cited 20 May 2015]

Equality Act 2010, <http://www.legislation.gov.uk/ukpga/2010/15/contents> [Cited 20 May 2015]

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1756721/pdf/v052p00399.pdf> [Cited 29 May 2015]

<http://www.bristol.ac.uk/cipold/> [Cited 19 June 2015]