

## 4.2 What people are living with

### 4.2.1 Non-communicable diseases

Non-communicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. They are of long duration and generally slow progression. The four main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes.

NCDs are often associated with older age groups, but evidence shows that more than 9 million of all deaths [worldwide] attributed to non-communicable diseases (NCDs) occur before the age of 60.

Children, adults and the elderly are all vulnerable to the risk factors that contribute to non-communicable diseases, whether from unhealthy diets, physical inactivity, exposure to tobacco smoke or the effects of the harmful use of alcohol.

Source: World Health Organisation fact sheet at <http://www.who.int/mediacentre/factsheets/fs355/en/>

#### 4.2.1.1 Diseases of the circulatory system

Cardiovascular diseases (CVDs) are a group of disorders of the heart and blood vessels and they include:

- coronary heart disease – disease of the blood vessels supplying the heart muscle;
- cerebrovascular disease – disease of the blood vessels supplying the brain;
- peripheral arterial disease – disease of blood vessels supplying the arms and legs;
- rheumatic heart disease – damage to the heart muscle and heart valves from rheumatic fever, caused by streptococcal bacteria;
- congenital heart disease – malformations of heart structure existing at birth;
- deep vein thrombosis and pulmonary embolism – blood clots in the leg veins, which can dislodge and move to the heart and lungs.

Heart attacks and strokes are usually acute events and are mainly caused by a blockage that prevents blood from flowing to the heart or brain. The most common reason for this is a build-up of fatty deposits on the inner walls of the blood vessels that supply the heart or brain. Strokes can also be caused by bleeding from a blood vessel in the brain or from blood clots.

Source: World Health Organisation Factsheet at <http://www.who.int/mediacentre/factsheets/fs317/en/index.html>

Table 4.2-1 shows the number of people on the disease register in 2013/14 for disease of the circulatory system, including: Coronary Heart Disease (CHD), Hypertension and Stroke and Transient Ischaemic Attack (TIA). It also presents information on modelled prevalence estimates. Further explanations are provided in the paragraphs that follow.

Table 4.2-1: Estimated Prevalence of Coronary Heart Disease, Hypertension, Stroke and Transient Ischaemic Attack

CCG	No. on disease register (all ages) (QOF 2013-14)	Expected No. (ages 16+) (Prevalence model 2011)	Difference	No. on Register as a % of those predicted to have disease
<b>CHD</b>				
Newcastle North & East	4,493	6,142	1,649	73.2%
Newcastle West	5,104	7,183	2,079	71.1%
Newcastle Total	9,597	13,325	3,728	72.0%
<b>Hypertension</b>				
Newcastle North & East	17,860	33,899	16,039	52.7%
Newcastle West	18,341	30,490	12,149	60.2%
Newcastle Total	36,201	64,389	28,188	56.2%
<b>Stroke &amp; TIA</b>				
Newcastle North & East	2,570	2,944	374	87.3%
Newcastle West	2,858	2,904	46	98.4%
Newcastle Total	5,428	5,848	420	92.8%

Sources: East of England Public Health Observatory, Modelled estimate of prevalence of CHD, Hypertension and COPD in England, December 2011, version 1.0; Public Health England, Diabetes Prevalence Model for Local Authorities and CCGs – November 2012; Information Centre for Health and Social Care, Quality and Outcomes Framework (QOF) monitoring data 2013/14.

#### **4.2.1.1.1 Coronary Heart Disease (CHD)**

In 2013/14, there were 9,597 people diagnosed with Coronary Heart Disease (CHD) in Newcastle and recorded on GP practice registers. Comparing this with the number predicted or expected to have the disease within each CCG area suggests that there are approximately 3,728 adults with CHD (28% of all those with CHD) who are not on CHD registers and therefore unlikely to be receiving appropriate treatment for their condition. However, it must be noted that the estimated prevalence is based on 2011 figures. The number predicted or expected to have the disease within Newcastle Local Authority is 13,325.

#### **4.2.1.1.2 Hypertension**

In 2013/14 there were 36,201 people diagnosed with Hypertension in Newcastle and recorded on GP practice registers. However, this is thought to represent only about 56.2% of those with the condition. The number predicted or expected to have the disease within Newcastle Local Authority is 64,389 meaning there are an estimated 28,188 adults with Hypertension who are not diagnosed. However, it must be noted that this estimated prevalence is based on 2011 figures.

#### **4.2.1.1.3 Stroke and Transient Ischaemic Attack**

In 2013/14 there were 5,428 people in Newcastle diagnosed with Stroke or Transient Ischaemic Attack (a 'mini stroke' caused by a temporary disruption in the blood supply to part of the brain) and recorded on GP practice registers. This figure would suggest that an estimated 420 people who have suffered from stroke (7.2% of all stroke sufferers) were not registered with a GP practice, as per the Stroke Prevalence estimations, which only include Stroke projections and not Transient Ischaemic Attack. The number predicted or expected to have been diagnosed with a Stroke within Newcastle Local Authority is 5,848. However, it must be noted that this estimated prevalence is based on 2011 figures.

#### 4.2.1.2 Diseases of the Respiratory System

One of the main diseases of the respiratory system is Chronic Obstructive Pulmonary Disease (COPD). COPD is an umbrella term for a number of largely preventable lung conditions including chronic bronchitis and emphysema. It is the UK's fifth biggest killer<sup>1</sup> and 90% of cases are caused by smoking.<sup>2</sup> It is characterised by a persistent blockage of air flow from the lungs. At present, most people are diagnosed with COPD when the disease has reached a late stage. With early diagnosis and appropriate management and care, the progression of the disease can be slowed down allowing people to live healthy and active lives for longer.

Newcastle is amongst the top quintile (fifth) of areas with the highest estimated prevalence of COPD in England. The number of people who were estimated to have the disease in 2011 across the 2 CCG's was approximately 10,265. In 2013/14, 6,139 patients were registered in Newcastle GPs as having COPD. Compared to the 2011 estimate, this is a difference of 4,126 people which suggests that approximately 60% of those with COPD in Newcastle have registered their condition with a GP.

The Newcastle Local Authority estimate is 10,377, a difference of 4,238 (41%). Recent research suggests that high rates of undiagnosed COPD are associated with high hospital admission rates,<sup>3</sup> therefore understanding more about who is being admitted and finding the undiagnosed and treating them should reduce hospital admissions in the future.

### 4.2.1.3 Cancer

‘Cancer’ is a generic term for a large group of diseases that can affect any part of the body. Other terms used are malignant tumours and neoplasms. One defining feature of cancer is the rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body and spread to other organs. This process is referred to as metastasis. Metastases are the main causes of death from cancer.

Source: World Health Organisation Factsheet at <http://www.who.int/mediacentre/factsheets/fs297/en/index.html>

Figure 4.2-1 shows the cancer incident rates in Newcastle for 2008-10. The highest type of cancer incidence rate in Newcastle in 2008-10 for the overall population was **Lung Cancer** at 79.0 per 100,000 of the population, which is well above the England average. There is a higher rate in males than females, however both are still above the England average. This coincides with the high Lung Cancer Mortality rate in Newcastle.

The second highest cancer incidence rate in Newcastle in 2008-10 was **Bowel Cancer** at 51.8 per 100,000, which is above the England average. There are higher incidence rates in males than females. Newcastle’s incidence rate for Males is higher than the England average. The incidence rate for Bowel Cancer in Newcastle is also higher than the mortality rate of 16.4 per 100,000.

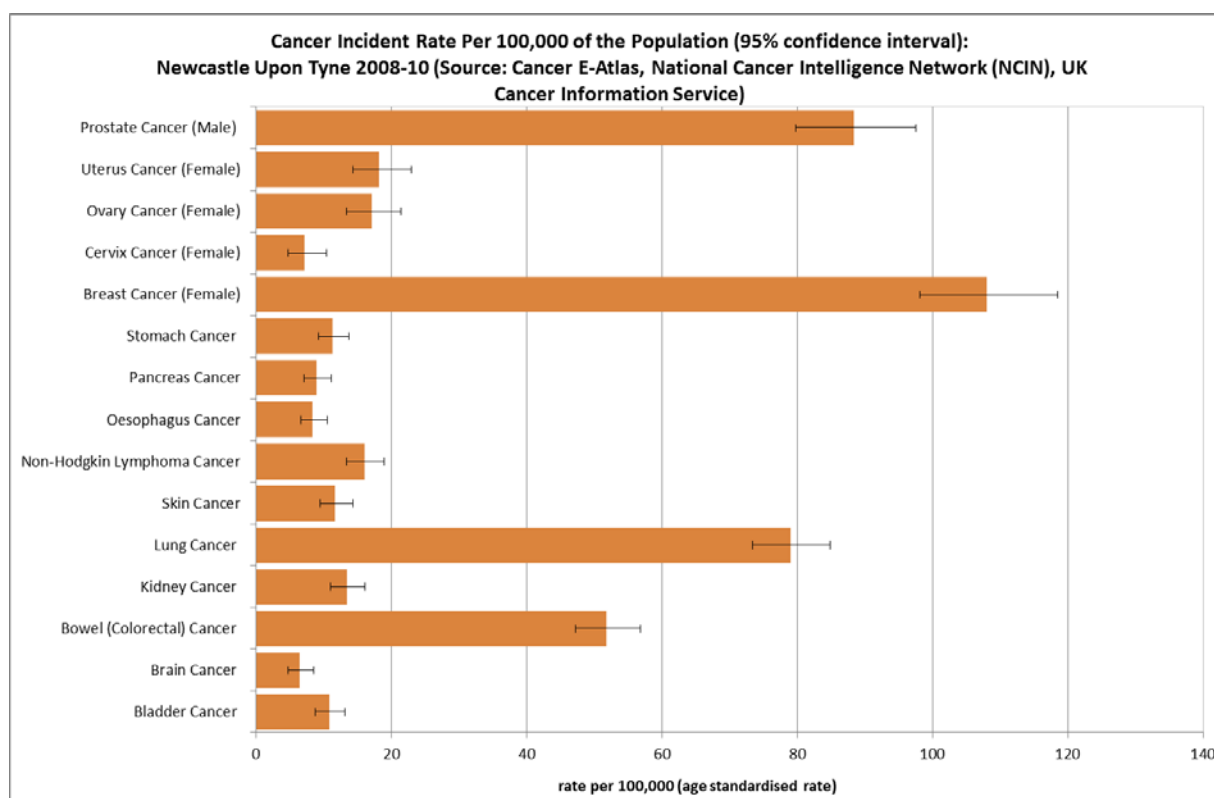


Figure 4.2-1: Cancer incidence rate per 100,000 of the population in Newcastle. Source: Cancer E-Atlas, National Cancer Intelligence Network (NCIN), UK Cancer Information Service

There are difference cancer types affecting males and females, but some cancers are more gender specific. For example Breast Cancer, in Newcastle the Breast Cancer incident rate for women was 108 per 100,000, with a mortality rate of 20.3. Both are below the England rate, but still affect a large amount of Newcastle Female population. The incident rate for Prostate Cancer in males residing in Newcastle was 88.4 per 100,000, which is below the England average, however the Mortality rate for Newcastle is 25.1 which is above the England average.

#### **4.2.1.3.1 Cancer Screening Programmes**

##### **4.2.1.3.1.1 Bowel Cancer Screening**

Bowel cancer screening is used as a way of detecting bowel cancer at an early stage or to prevent cancer from developing in the first place. If bowel cancer is found at the earliest stage there is a much higher chance of survival. The current screening programme in England has been running since 2010 and is offered to men and women aged 60 to 69. Between January 2012 and June 2014, approximately 56% of the eligible population in Newcastle attended a bowel cancer screening.

##### **4.2.1.3.1.2 Breast Cancer Screening**

The breast screening programme is available to women aged 53-70. They are invited to breast screening every three years under a national programme. The screening programme aims to detect breast cancer at an early stage when there is a better chance of successful treatment. Figure 4.2-2 presents the percentage of the eligible population that were screened in the 3 years up to 31<sup>st</sup> March 2015.

In 2014, **74.9%** of the eligible women in Newcastle were screened compared to **75.9%** nationally. This represents a slight decline from the previous year for both Newcastle and England. Compared to other core cities, Newcastle had the third highest percentage of coverage in 2014 (right after Sheffield and Birmingham). Although there has been a slight decline, screening rates in Newcastle are still above the NHS Cancer Screening Programmes minimum standard of 70%.

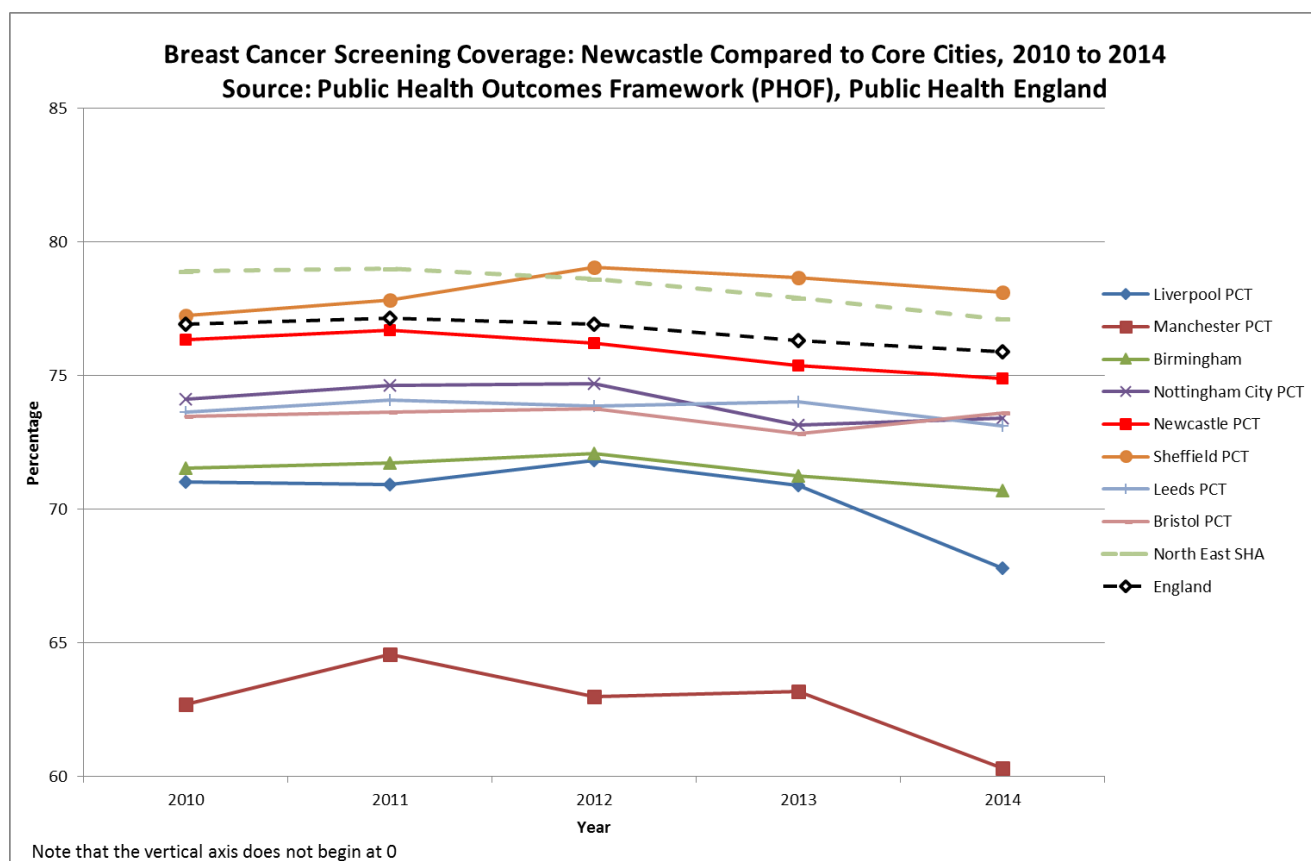


Figure 4.2-2: Breast cancer screening coverage: Newcastle compared to core cities, 2010-2014. Source Public Health Outcome Framework.

### 4.2.1.3.1.3 Cervical Cancer Screening

The cervical screening programme invites women between the ages of 25 and 64 for regular cervical screening. The screening programme aims to detect abnormalities within the cervix that could, if undetected or untreated, develop into cervical cancer. Women aged 25-49 are invited for routine screening every 3 years and women aged 50-64 are invited for routine screening every 5 years.

Figure 4.2-3 presents the percentage of eligible women that were screened adequately within the previous 3.5 or 5.5 years (according to age) from 2010 to 2014. Newcastle has seen a decline in the percentage of the eligible population screened in 2014. At 71.8%, screening rates in Newcastle are lower than the English average (74.2%), and the North East average (76.1%). Compared to other core cities, Newcastle ranks fourth (after Leeds, Sheffield, and Nottingham).

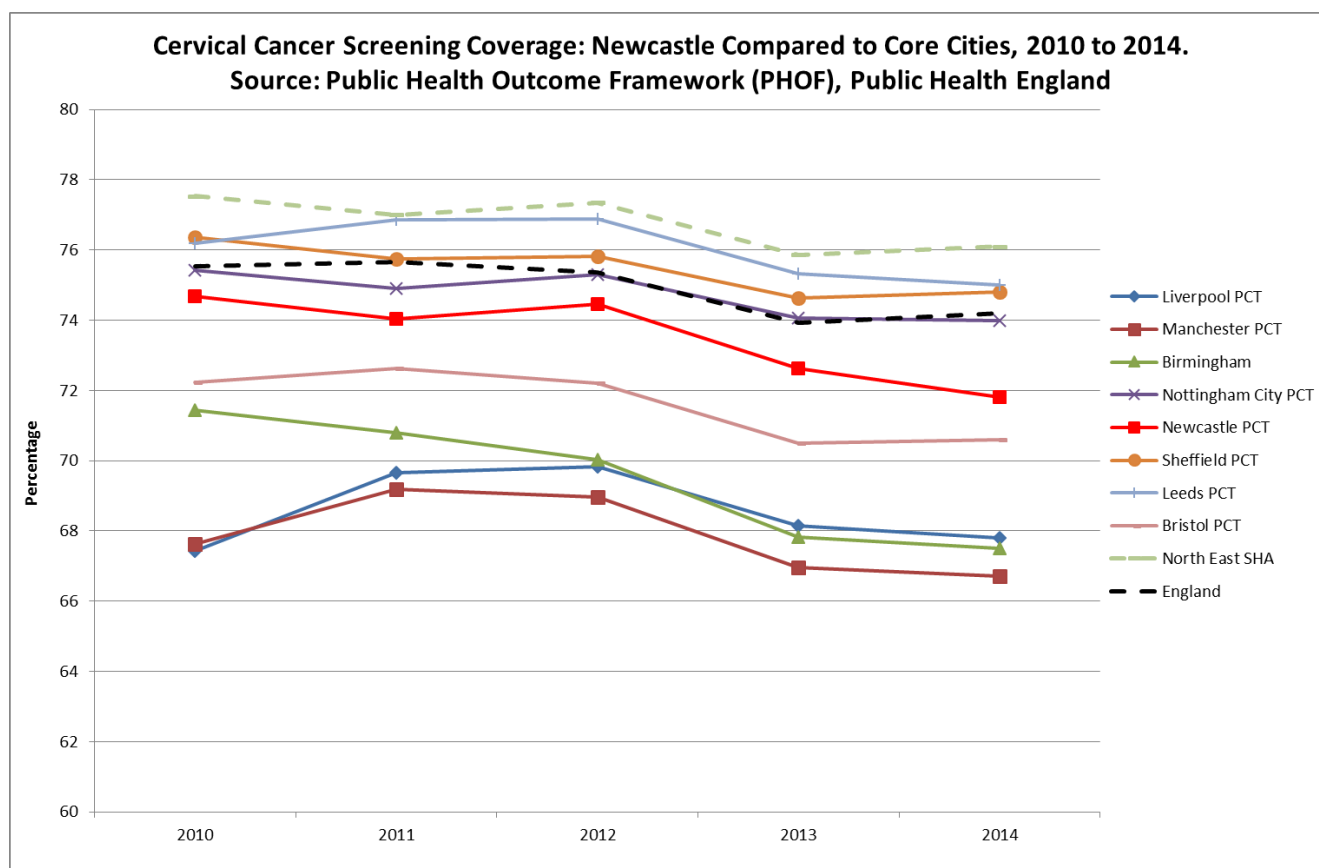


Figure 4.2-3: Cervical cancer screening coverage: Newcastle compared to core cities, 2010-2014. Source: Public Health Outcomes Framework.

Figure 4.2-4 shows the percentage of the eligible female population, by age group, who were adequately screened for cervical cancer between 2008 and 2014. It shows the percentage of women aged 25-49 whose last screening was less than 3.5 years ago, and the percentage of women aged 50-64 years whose last screening was less than 5 years ago. In 2013/14, coverage was lower for women aged 25-49 years in Newcastle (at 68.8%), compared to women aged 50-64 whose coverage was 76.8%. The coverage level for women aged 25-49 in Newcastle has remained consistently below the England and North East average.



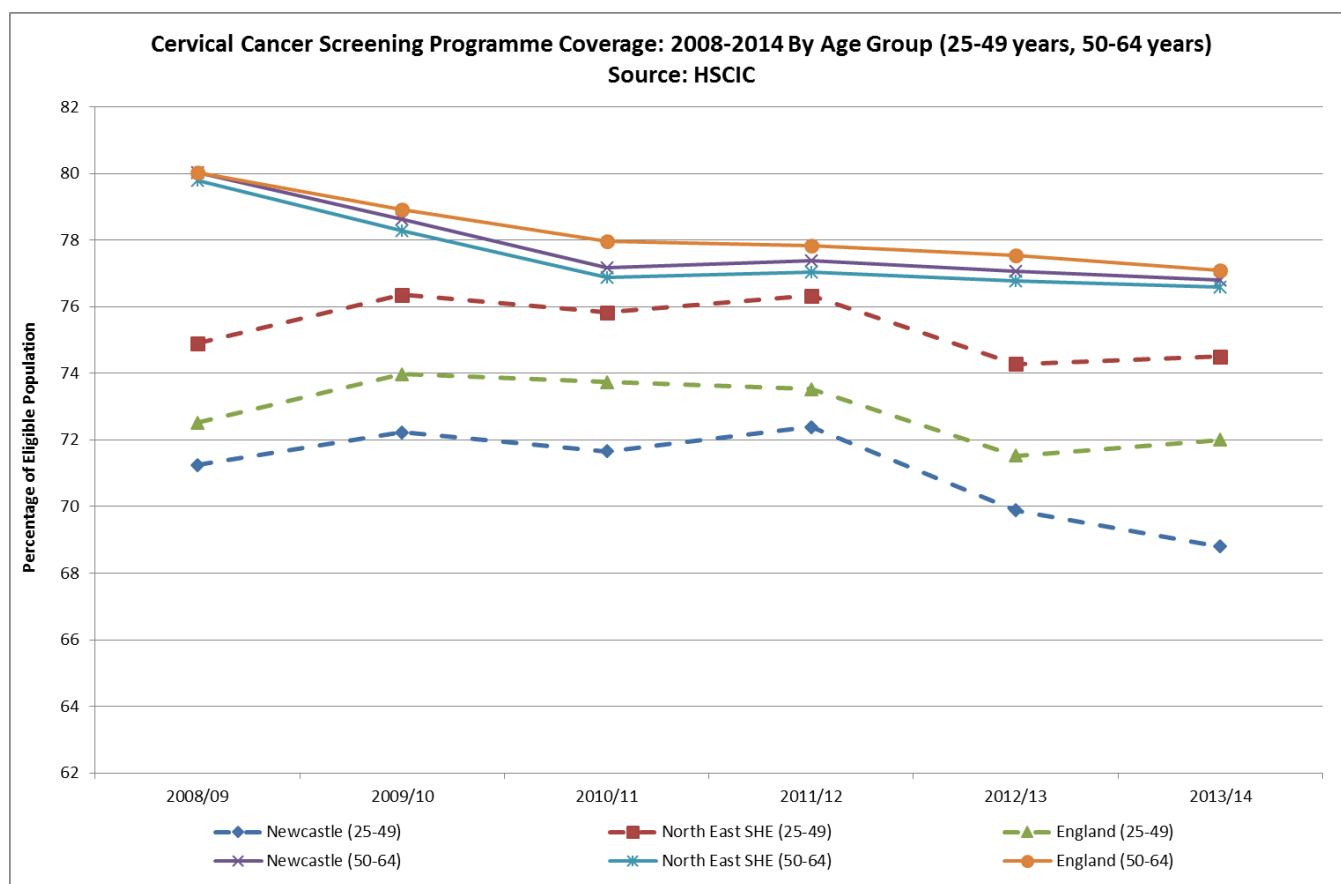


Figure 4.2-4: Cervical Cancer Screening Programme Coverage from 2008/09 to 2013/14 by age group. Source: HSCIC.

#### 4.2.1.3.1.4 Human Papilloma Virus (HPV)

The Human Papilloma Virus (HPV) is the name given to a family of viruses. Infection with some high-risk types of HPV can cause abnormal tissue growth as well as other cell changes that can lead to cervical cancer. In the UK, all girls aged 12 and 13 years are offered the HPV vaccine through the national HPV immunisation programme. It protects against 2 HPV types that cause over 70% of cervical cancers.

Figure 4.2-5 shows the percentage of girls aged 12 and 13 that received all 3 doses of the HPV vaccination in Newcastle, other core cities and England between 2010/11 and 2013/14. In 2013/14, 88.3% of girls in Newcastle were vaccinated against HPV, which is higher than the England average of 86.7% but lower than the North East average of 91.3%. Vaccination rates in Newcastle have decrease slightly since 2012/13 (when they were 90.6%). Compared to other core cities, the rate of HPV vaccination in Newcastle in 2013/14 ranks fourth, behind Leeds, Nottingham, Sheffield, and Liverpool.

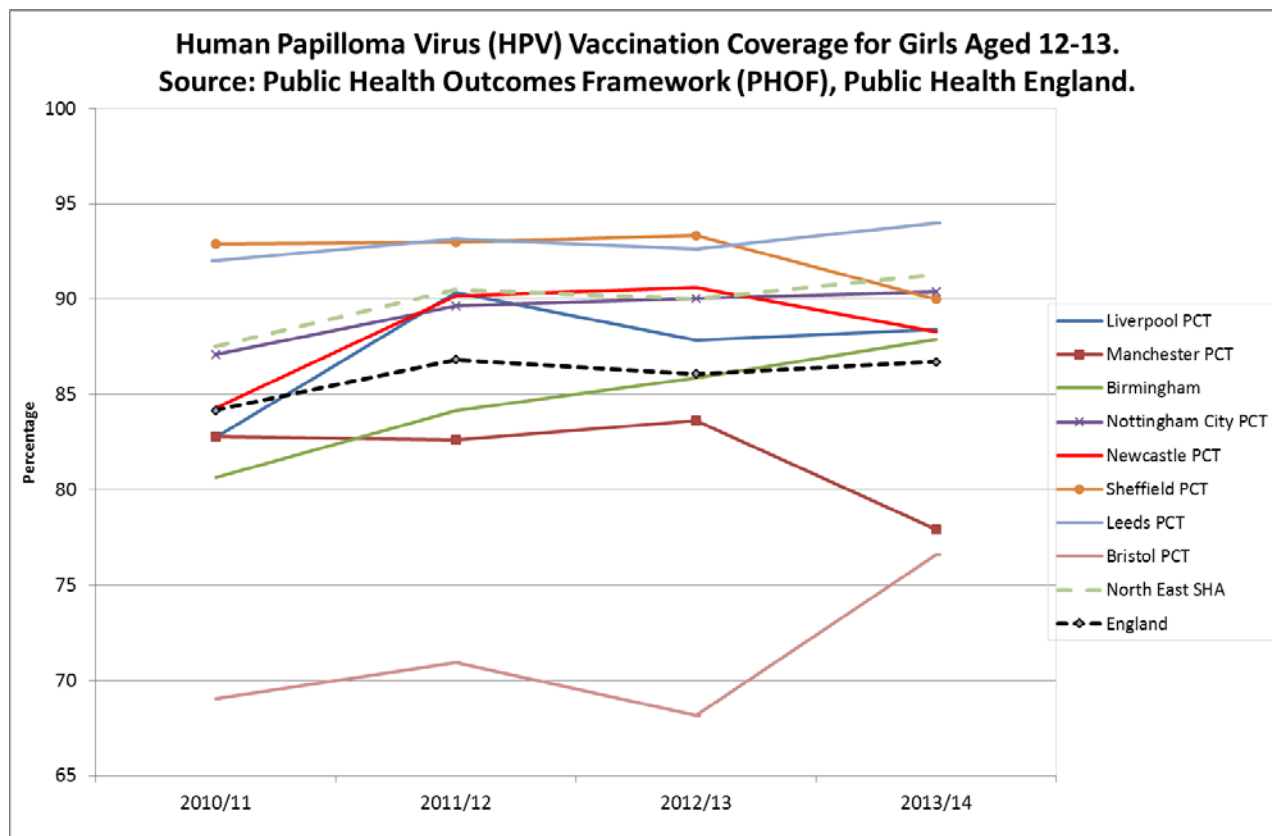


Figure 4.2-5: Human Papilloma Virus (HPV) vaccination coverage for girls aged 12 to 13 years, between 2010/11 and 2013/14. Source: Public Health Outcome Framework.

#### 4.2.1.4 Diabetes

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar. Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels.

Source: World Health Organisation Factsheet at <http://www.who.int/mediacentre/factsheets/fs312/en/index.html>

Figure 4.2-6 shows the proportion of people (aged 17 years or over, per 100,000 of the total population) on the diabetes register with a GP. It highlights a steady, increasing trend between 2004/05 and 2013/14. In 2013/14, 13,698 people were registered as having diabetes which equates to approximately 5.8% of the total population aged over 17 years.<sup>4</sup>

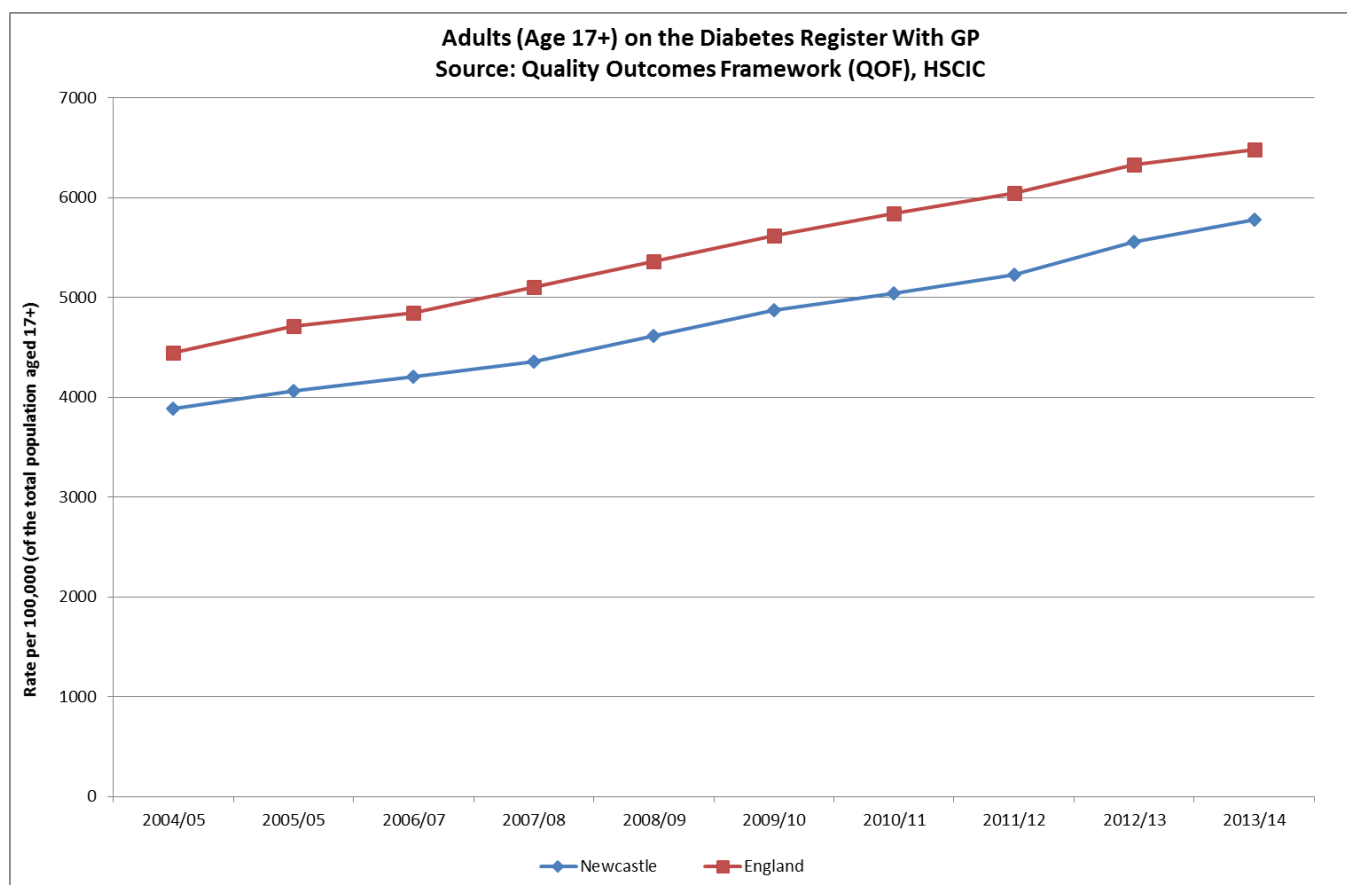


Figure 4.2-6: Adults (aged 17 years or more) who were on the diabetes register, 2004/05 to 2013/14. Source: Quality Outcomes Framework, HSCIC.

Figure 4.2-7 shows the trend in estimated prevalence of diabetes. If current trends in population change and obesity persist, the total prevalence of diabetes in Newcastle among those aged 16 and over is expected to rise from 6.5% (of the overall population) in 2012 to 7.1% by 2020 and 7.8% by 2030. This would equate to 20,253 people who are living with diagnosed or undiagnosed diabetes in 2030; an increase of 32% compared to 2012. Across England, approximately a third of the projected rise in diabetes prevalence can be attributed to the

increasing prevalence of obesity. If obesity levels in Newcastle can be maintained at the rates they were in 2010, there would be 500 fewer people with diabetes in 2020. By 2030 a static prevalence of obesity would result in an estimated 1400 fewer people with diabetes.

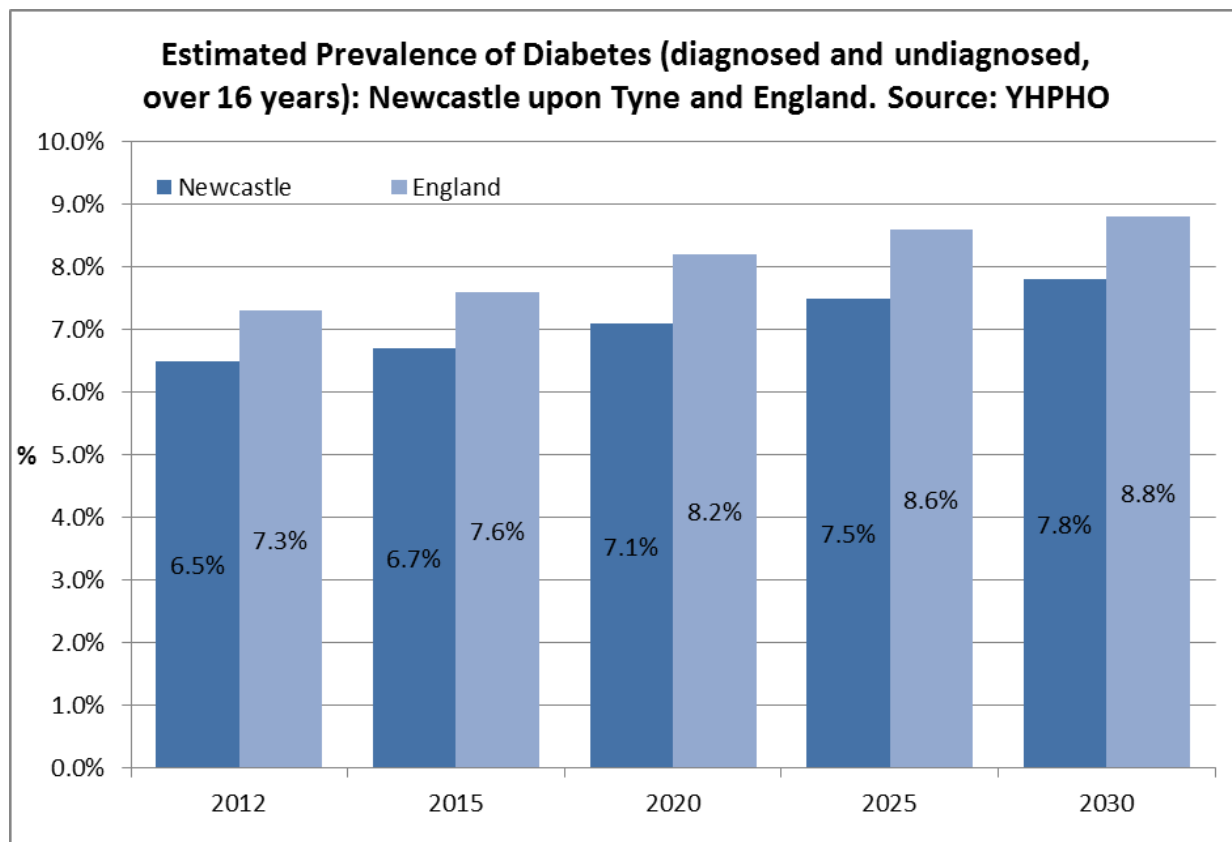


Figure 4.2-7: Estimated prevalence of diabetes (diagnosed and undiagnosed, over 16 years). Source YHPHO.

### 4.2.1.5 Mental Health

One in four people in the UK will suffer from a mental health problem in the course of a year. The costs of mental health problems to the economy in England are estimated at £105 billion, and treatment costs are expected to double within the next 20 years. Mental health is influenced by a number of biological and social risk factors, including genetic characteristics, age and gender, socio-economic characteristics (employment, marital status), individual circumstances (life events, social support), geography, and societal factors (deprivation, crime). There are also a number of vulnerable groups who are at a particularly high risk of developing mental health problems, including asylum seekers, offenders, homeless, substance misusers, looked after children, people with a physical illness, and the unemployed.

#### 4.2.1.5.1 Common mental health problems

Common mental health problems such as depression, anxiety, phobias and Obsessive Compulsive Disorder (OCD) are estimated to affect around 12.5% of males and 19.7% of females in England. In 2008, the modelled rate of common mental problems in Newcastle was estimated at 208.3 per 1,000, which is higher than the England average and would equate to approximately 20% of the adult population.

Figure 4.2-8 shows the prevalence of common mental health problems such as depression and anxiety as measured by GP visits – and the prevalence of mental health problems more generally – in Newcastle and Gateshead CCG (source: Community Mental Health Profiles – separate data for Newcastle is not available) compared to the England average. Within Newcastle & Gateshead CCG, there is a higher estimated rate than the England average for depression among people aged 18 years or over, depression and anxiety, long-term mental health problems, and mental health problems more generally.

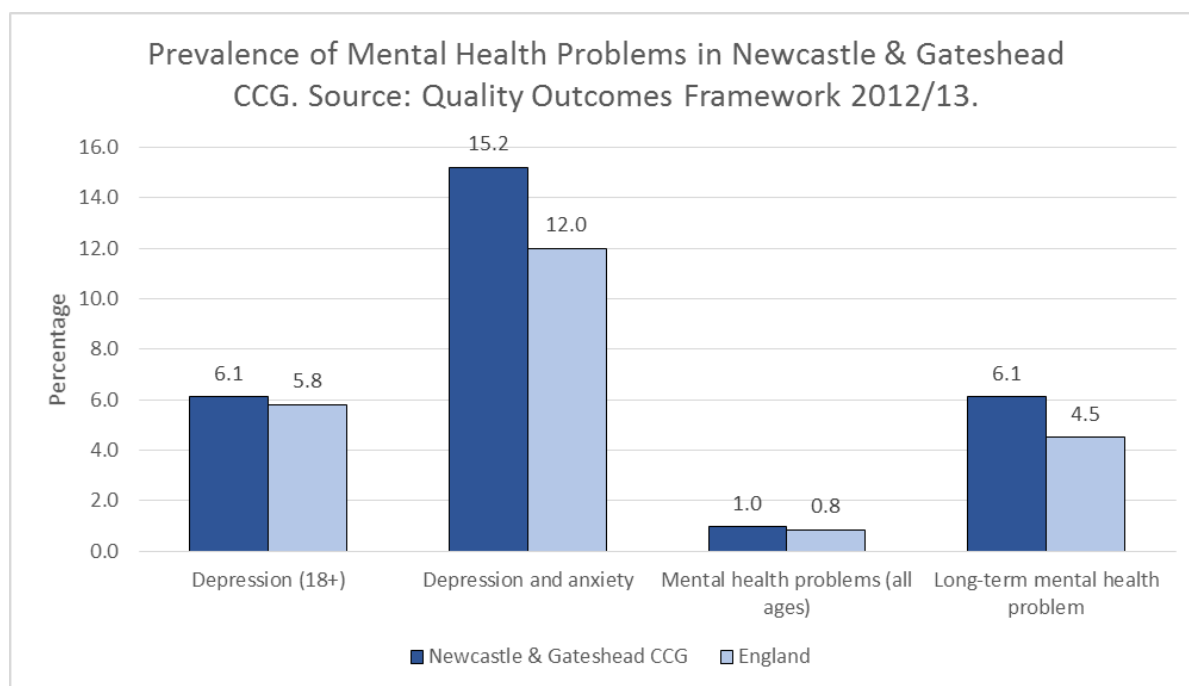


Figure 4.2-8: The prevalence of mental health problems in Newcastle & Gateshead CCG in 2012/13, measured by GP visits. Source: Quality Outcomes Framework (QOF).

GP practices maintain a register of patients who are diagnosed with depression, schizophrenia, bipolar disorder and other psychoses as part of QOF. In 2013/14, there were 14,046 patients aged 18 or over recorded on the depression register, which gives a prevalence rate of 5.8%. Though this figure is below the England average (6.5%), it should be noted that these figures are based on cases of depression recorded by GPs and do not necessarily reflect the actual prevalence of depression in Newcastle.

In 2015, a predicted 30,874 people in Newcastle are estimated to suffer from a common mental disorder, 861 from borderline personality disorder, 682 from an antisocial personality disorder, and 767 from a psychotic disorder. It is predicted that figures for common mental health disorders, psychiatric and psychotic disorders will increase by around 3% by 2020 (source: PANSI).

Levels of self-reported wellbeing, taken from the 2013/14 Integrated Household Survey, shows that the rates of people in Newcastle reporting high levels of anxiety (21.0%), unhappiness (10.4%) and low self-worth (6.5%) are similar to both the North East and England averages.<sup>5</sup>

#### **4.2.1.5.2 Dementia**

In Newcastle during 2013/14, there were 1,673 cases of recorded dementia (source: QOF). In 2015, it is estimated that, among people aged 65 or over in the city, 3,127 have dementia which corresponds to a diagnosis rate of approximately 54%.

In 2012, the diagnosis rate for dementia in Newcastle was approximately 50% (Figure 4.2-9), which was above the England average of 45%, but below the North East average of 51%. All North East local authorities reported increases in the recorded prevalence of dementia over a 6 year period (2006-2012), with Newcastle increasing diagnoses by 13.7%.

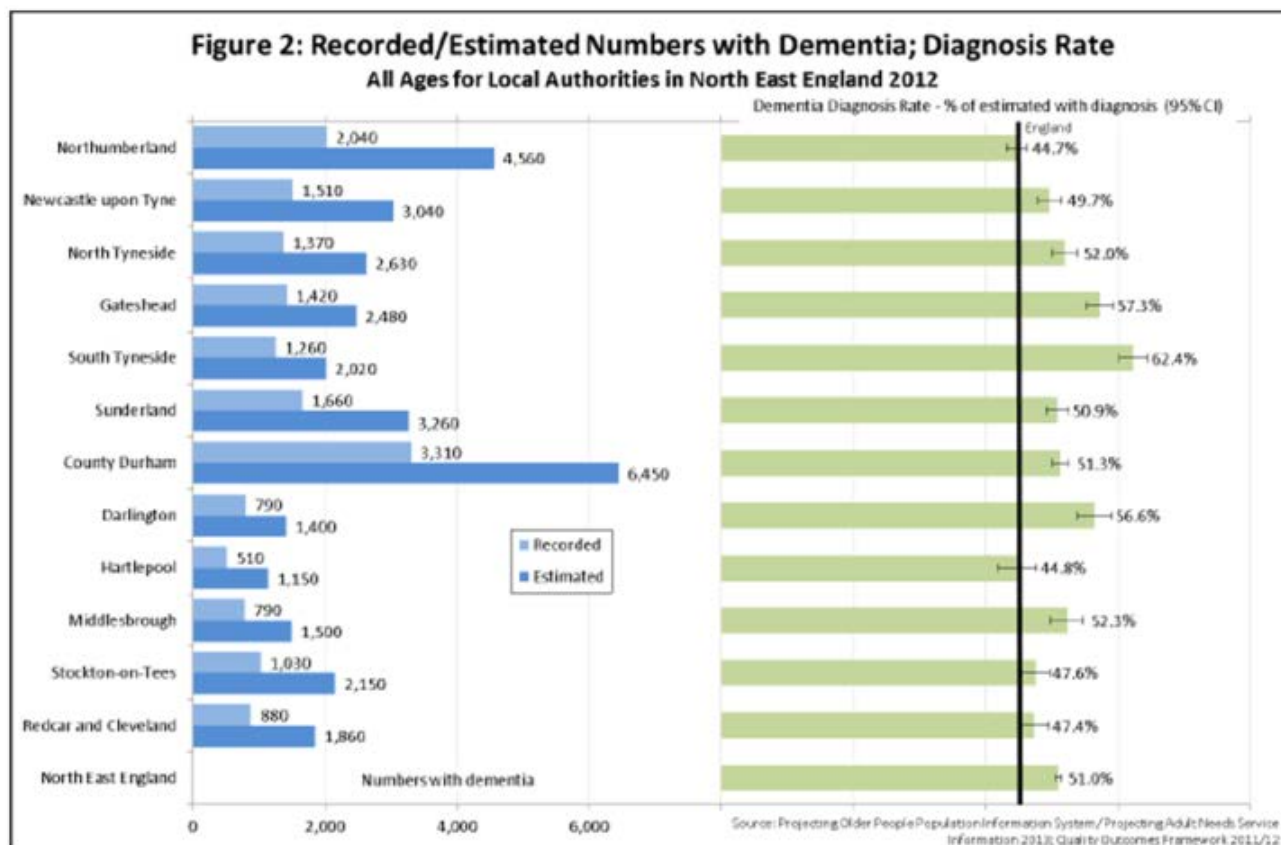


Figure 4.2-9: Recorded/Estimates numbers with dementia. Source: POPPI/PANSI 2013.

In Newcastle, the estimated numbers of dementia are projected to increase by 13% by 2020, rising from 3,127 to 3,530. Between 2012 and 2020, this would be the smallest increase in the North East, with projected increases ranging from 16% to 29% between 2012 and 2020 (Figure 4.2-10).<sup>6</sup>

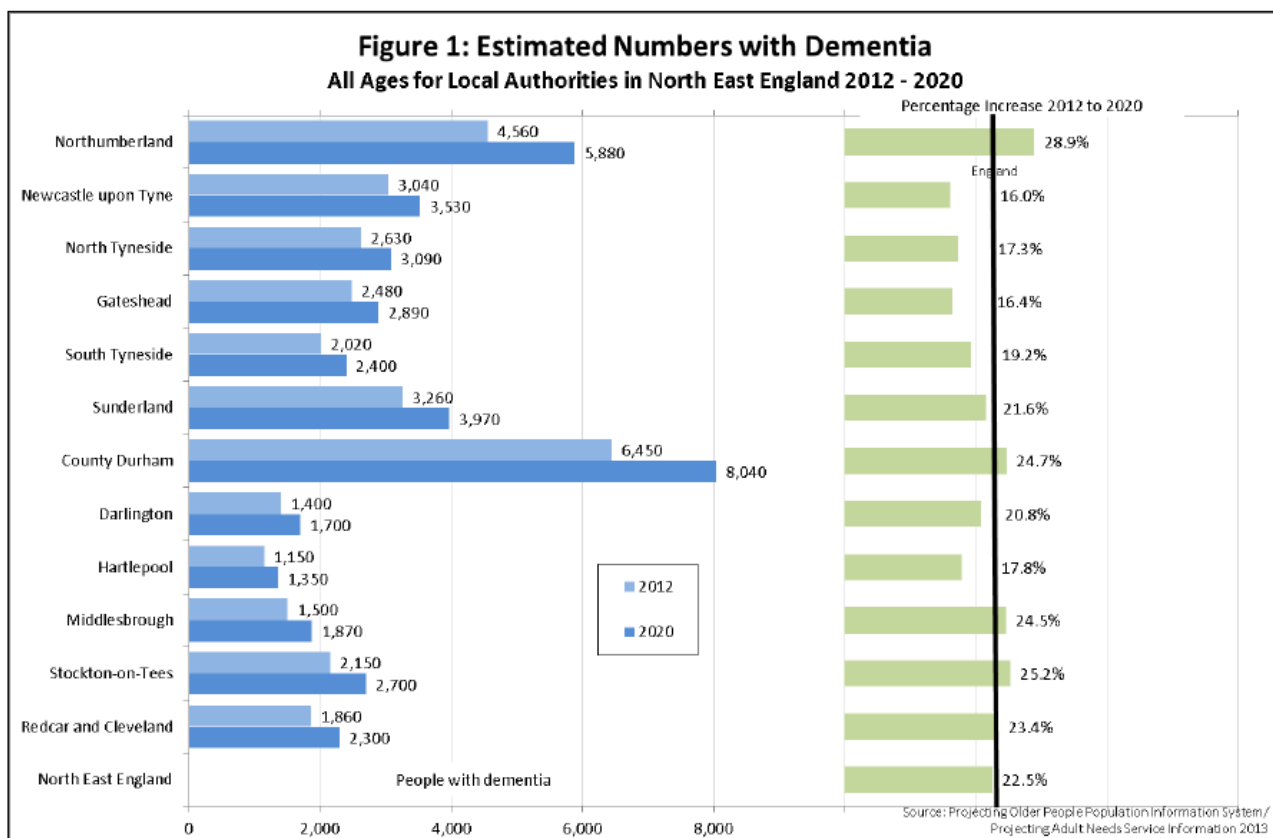


Figure 4.2-10: Estimated numbers with dementia 2012-2020. Source: POPPI/PANSI 2013.

### 4.2.1.5.3 Hospital admissions

Treatment and early intervention can help to minimise the impact of mental illness and therefore reduce the rate of hospital admissions. Hospital admissions relating to mental health are shown in Table 4.2-2:

Table 4.2-2 Hospital admissions for mental health related conditions. Source: Public Health Outcomes Framework, Public Health England.

Indicator:	Newcastle	England	Position
Child (age 0-17) admissions for mental health 2013/14 (rate per 100,000)	<b>75.9</b>	87.2	Better
Emergency admissions for self-harm 2013/14 (age/sex-standardised rate per 100,000)	<b>229.7</b>	203.2	Worse
Emergency admissions for self-harm 2010/11 – 2012/13 (ages 10-24, rate per 100,000)	<b>334.9</b>	352.3	Better
DSR Hospital admissions for Alzheimer’s / Dementia 2009/10 – 2011/12	<b>14</b>	80	Better



### 4.2.1.6 Musculoskeletal conditions

Musculoskeletal conditions are a major burden on individuals and health and social care systems, with predominant indirect costs. They are the most common cause of severe long term pain and disability and affect millions of people around the world. Four major musculoskeletal conditions are osteoarthritis, rheumatoid arthritis, osteoporosis and lower back pain.

The size of the impact from Musculoskeletal (MSK) conditions on daily living can be seen when we look at Disability Adjusted Life-Years (DALYS) to demonstrate the burden of disease (Figure 4.2-11 seeks to explain DALYS). MSK is one the leading cause of DALYS in the UK and in the North East in 2013. MSK disorders accounted for just over 12% of all DALYs in the North East in 2013. The top ten percentage of DALYS in the North East in 2013 are shown in Figure 4.2-12.

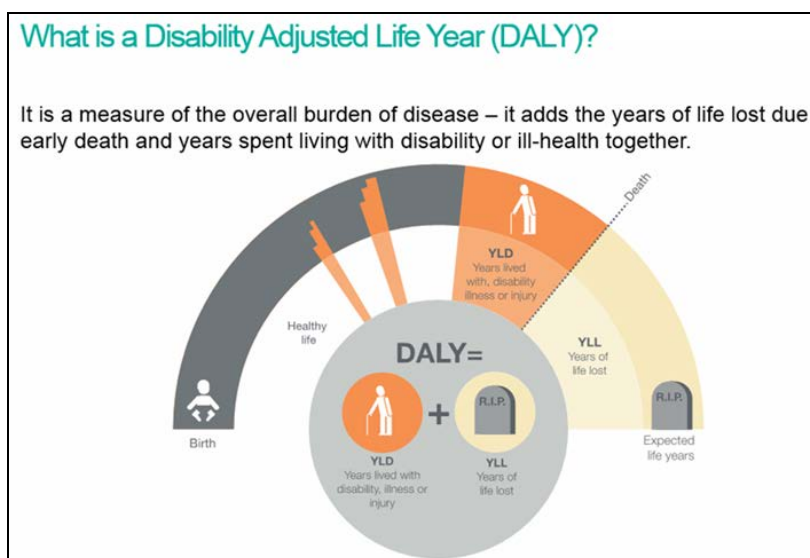


Figure 4.2-11: What is a disability adjusted life year?  
 Source: The Global Burden of Disease England, Infographics, PHE

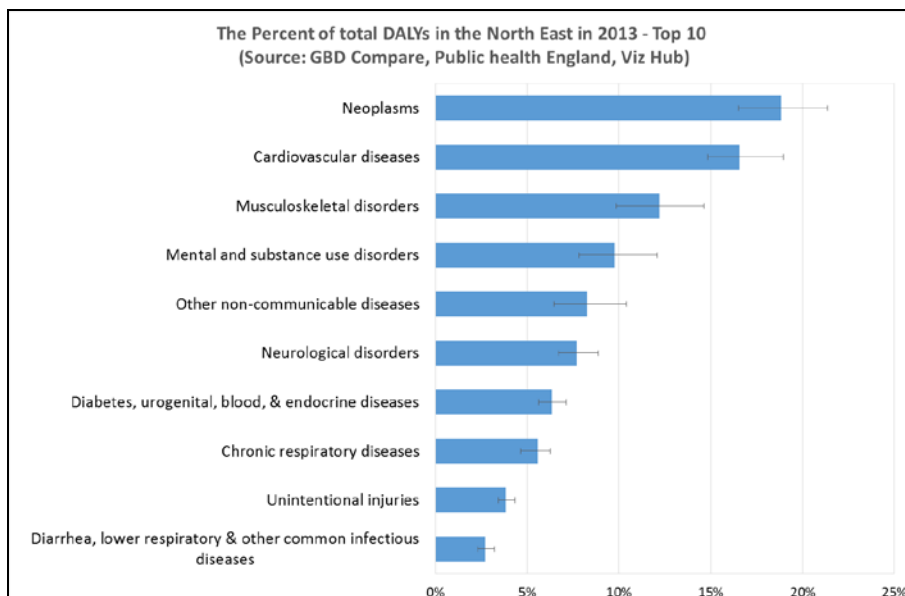


Figure 4.2-12: The percent of total disability adjusted life years in the North East (2013)  
Source: GBD Compare, Public Health England, Viz Hub

MSK conditions also have a significant impact on the economy as they are the leading cause of work limitations and working days lost. In 2016 musculoskeletal problems accounted for 30.8 million working days lost in the UK. People with MSK conditions are less likely to be employed than people in good health and are more likely to retire early, 59.4% of the working age population (16-64) with a MSK condition are in work compared to 73.5% of the overall working age population in the UK.<sup>7</sup> Also nationally 34.6% of people receiving personal independent payment (PIP) had MSK disease as their primary disease condition.<sup>8</sup>

Arthritis Research UK in partnership with Imperial College London have developed the Musculoskeletal (MSK) calculator, a prevalence modelling tool for MSK conditions. It provides prevalence estimates at a Local Authority level on Knee and Hip osteoarthritis, back pain and rheumatoid arthritis. It suggests there are a potential **76,063** cases of MSK conditions across Newcastle (one individual could have multiple MSK conditions).

Table 4.2-3 shows the full range of estimated MSK conditions for Newcastle. (This figure could include duplications i.e. one person could have multiple MSK issues, this estimation also does not include neck conditions).

Table 4.2-3: Arthritis Research UK MSK estimations for Newcastle

Arthritis Reseach UK Estimates	Newcastle		England
	Est no.	Est %	Est. %
Hip Osteoarthritis (Total) 45 plus	10,900	10.6%	10.9%
Knee osteoarthritis (Total) 45 plus	18,015	17.5%	18.2%
Back Pain (All age)	45,497	16.1%	16.9%
Existing cases of rheumatoid arthritis (45 plus) estimation	1,651		
Total Pain Conditions	<b>76,063</b>		
<b>Severe Pain</b>	Est no.	Est %	Est. %
Back (severe)	28,959	10.3%	
Hip Osteoarthritis (severe) 45 plus	3,038	3%	
Knee osteoarthritis (severe) 45 plus	6,097	6%	

Source: MSK Calculator Osteoarthritis Estimates, MSK Prevalence of Back Pain in Newcastle LA Bulletin, Rheumatoid Arthritis population estimates, Arthritis Reseach UK

#### 4.2.1.6.1 Knee and hip osteoarthritis

There are an estimated 29,000 cases of Knee and Hip osteoarthritis in Newcastle, with the highest numbers occurring in those aged 45-64. Table 4.2-4 shows the age breakdown.

Table 4.2-4: Hip and knee osteoarthritis age breakdown.

Condition	45-64	65-74	75+	Total
Hip osteoarthritis (Total)	6,648	2,282	1,970	10,900
Hip osteoarthritis (Severe)	1,328	844	866	3,038
Knee osteoarthritis (Total)	11,265	3,779	2,971	18,015
Knee osteoarthritis (Severe)	3,108	1,578	1,410	6,097

Source: MSK Calculator Osteoarthritis Estimates, Arthritis Reseach UK

('Severe' osteoarthritis is defined as the individual suffering severe (as opposed to 'mild' or 'moderate') pain most of the time, being unable to walk ¼ of a mile unaided, or having undergone hip or knee replacement due to arthritis)

Information from the Quality Outcome Framework (QOF) looks at the percentage of patients with **osteoporosis** who are aged 50 plus, as recorded on practice disease register for the Newcastle and Gateshead CCG. In 2015/16 it shows a rate of **303.3 per 100,000 (no. 502)**, which is an increase on the 2014/15 rates of 208.8 per 100,000 (no. 342). In 2015/16 Newcastle does have a lower rate than the overall CCG at 278.4 per 100,000 (no. 244). These numbers are a lot lower than those estimated in the Arthritis UK MSK calculator.

Table 4.2-5 and Table 4.2-6 shows the estimated prevalence of hip and knee osteoarthritis in Newcastle in relation to various risk indicators (sex, weight, age, smoking status, level of physical activity and socio economic status). Prevalence is notably higher among females and people who are overweight or obese, who smoked (or used to smoke), and who have a low level of physical activity. Prevalence is also higher in the 65-74 year old age group, as a greater percentage of those aged 65-74 years have hip or knee osteoarthritis, compared to those aged 45-64.

Table 4.2-5: Prevalence of hip and knee osteoarthritis in Newcastle in relation to various risk indicators (sex, weight, age, smoking status, and level of physical activity).

<b>Type of osteoarthritis</b>				
	<b>Females</b>	<b>Males</b>		
<b>Hip</b>	13.18%	7.76%		
<b>Knee</b>	19.00%	15.88%		
	<b>Healthy weight</b>	<b>Overweight</b>	<b>Obese</b>	
<b>Hip</b>	8.23%	11.00%	14.21%	
<b>Knee</b>	12.21%	17.63%	27.05%	
	<b>Age 45-64</b>	<b>Age 65-74</b>	<b>Age 75+</b>	
<b>Hip</b>	10.58%	11.13%	10.08%	
<b>Knee</b>	17.92%	18.44%	15.20%	
	<b>Never-smoker</b>	<b>Smoker</b>	<b>Ex-Smoker</b>	
<b>Hip</b>	9.31%	11.63%	11.63%	
<b>Knee</b>	16.71%	16.71%	19.42%	
	<b>Sedentary activity</b>	<b>Low Physical Activity</b>	<b>Moderate activity</b>	<b>High physical activity</b>
<b>Hip</b>	14.87%	14.87%	9.48%	8.16%
<b>Knee</b>	24.63%	24.63%	15.59%	13.46%

Source: MSK Calculator, Arthritis Research UK.

Table 4.2-6: Estimated prevalence of hip and knee osteoarthritis in Newcastle in relation to socioeconomic indicators.

<b>Socioeconomic Indicators</b>	<b>Hip (Total)</b>	<b>Knee (Total)</b>	<b>Knee (Severe)</b>
Intermediate occupations	8.74%	15.59%	5.26%
Semi-routine occupation	10.71%	19.35%	7.22%
Routine occupation	10.71%	19.30%	6.63%
Higher managerial	10.71%	15.59%	5.26%
Small employers	12.75%	15.59%	5.26%
Lower supervisory	10.71%	20.20%	7.25%
Lower managerial	10.71%	17.72%	5.26%
Never worked, long term unemployed	10.71%	15.59%	5.26%

Source: MSK Calculator, Arthritis Research UK

### 4.2.1.6.2 Back Pain

Back pain is one of the largest MSK condition groups, there are an estimated **45,497** cases of back pain in Newcastle, 16.1% of the population, with around 28,959 with severe back pain. It is estimated that women have a higher rate of back pain, as do those aged 35 to 64 years of age, shown in Figure 4.2-13.

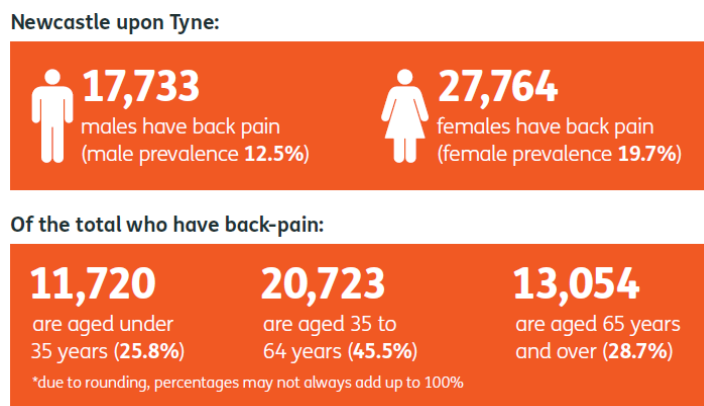


Figure 4.2-13: **Estimated Newcastle Back Pain Gender and Age Profile**  
 Source: Musculoskeletal Calculator, Newcastle Local Authority Bulletin, Arthritis Research UK & PHE

Information from the GP Patient Survey carried out by NHS England suggests that of the 18 years plus population residing in the Newcastle and Gateshead CCG that 9.7% report a long term back problem. If applied to the CCG 18 plus population this would equate to **38,546** people with long terms back problems, which is lower than the Arthritis Research UK estimate.

### 4.2.1.6.3 Neck Pain

Neck pain is a significant MSK condition group, it is seen as a common problem that around 2 out of 3 people will experience it at some point. In conditions like osteoarthritis the neck is one of the most commonly affected joints along with the knee, hips and back. The impact of neck pain can be seen in the global burden of disease, low back and neck pain was the leading cause of Disability adjusted life-years(DALYS) in the UK in 2013. There are currently no estimations on how many people in Newcastle are potentially affected, as it is often combined with back pain estimations.

#### 4.2.1.6.4 Rheumatoid Arthritis

The Quality Outcomes Framework provides information for **rheumatoid arthritis**, as recorded on practice disease register (those aged 16 years and over). The number is much higher than osteoporosis. In 2015/16 there were **3621** residents in the Newcastle and Gateshead CCG on the disease register for rheumatoid arthritis (rate of 887.4 per 100,000), which is an increase from 2014/15 with 3567 registered. There are lower numbers registered at Newcastle GP's, with 1518 on the rheumatoid arthritis disease register in 2015/16 (rate 608.9 per 100,000).

Information from the GP Patient Survey carried out by NHS England suggests that of the 18 years plus population residing in the Newcastle and Gateshead CCG that 14.8% report arthritis or long terms joint problems. If applied to the CCG 18 plus population this would equate to **58,813** people with arthritis or long term joint problems. These numbers are significantly higher than the populations on the osteoporosis and rheumatoid arthritis disease registers for the CCG.

### 4.2.1.7 Falls

In 2015/16 in Newcastle, among people aged 65 years or more there were 2,728 injuries per 100,000 population as a result of falls, which equates to 1,175 actual falls (data source: Public Health Outcomes Framework, Public Health England). This is higher than the North East average (2,257 per 100,000) and the England average (2,169 per 100,000). Newcastle is classified as significantly worse than the England average. There are higher rate for females (3,013 per 100,000) than males (2,320 per 100,000). Figure 4.2-14 shows the trend over time.

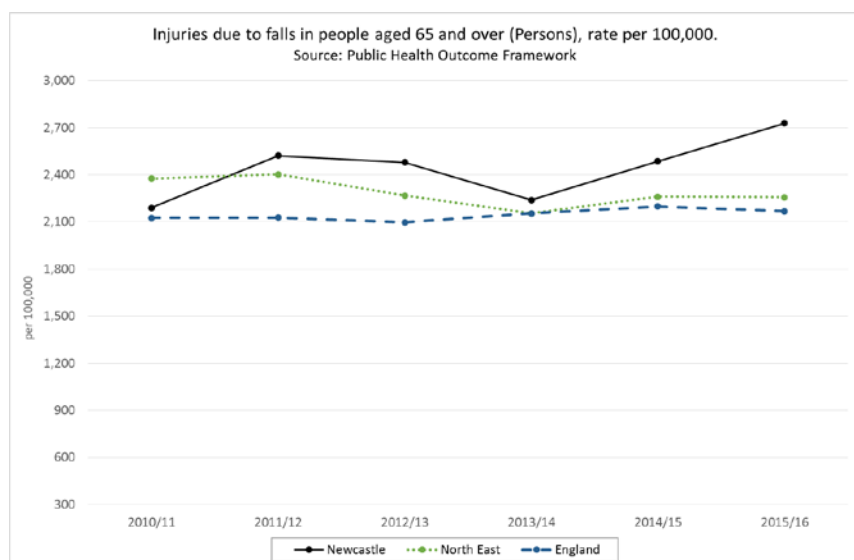


Figure 4.2-14: Injuries due to falls in people aged 65 and over, rate per 100,000

In 2015/16 in Newcastle, there were 734 per 100,000 population hip fractures among people aged 65 and over which is a higher rate than the North East average (679 per 100,000) and the England average (589 per 100,000), making Newcastle significantly worse than the England average. Newcastle has seen an increase in the rate of Hip fractures from 2011/12 to 2015/16 (Figure 4.2-15). There are higher Hip fractures rates amongst women (820 per 100,000) compared to men (606 per 100,000) and higher rates in those aged 80+ years (1,886 per 100,000) which has increased since 2011/12.

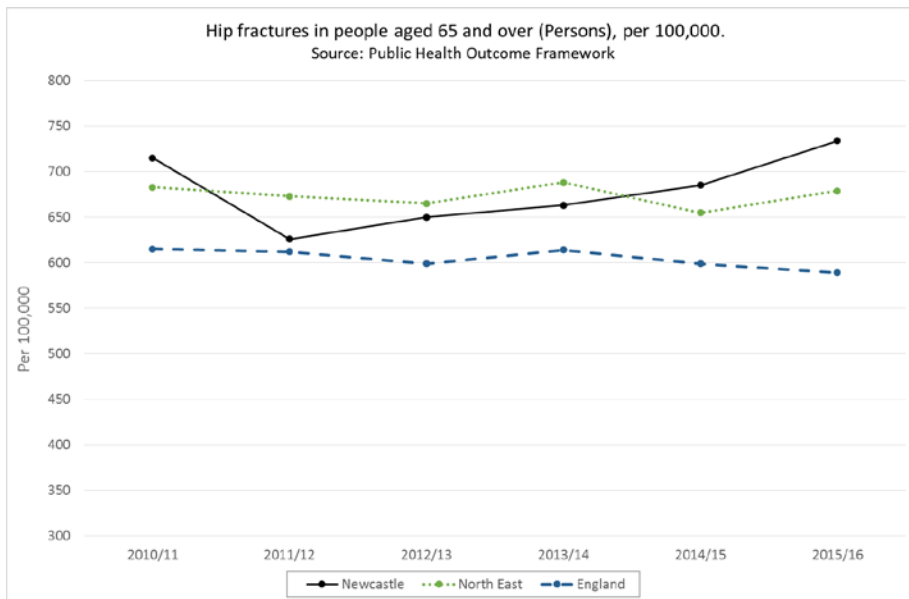


Figure 4.2-15: Hip fractures in people aged 65 and over, rate per 100,000



#### **4.2.1.8 Sensory impairments**

In Newcastle in 2013/14, the rate of preventable sight loss (measured by the crude rate of sight loss certifications) was 44.6 per 100,000 population, which was more than the England average (42.5 per 100,000) but less than the North East average (49.0 per 100,000). The rate of sight loss due to diabetic eye disease was 2.0 per 100,000 (notably lower than the England average of 3.4 per 100,000). For glaucoma, it was 9.1 per 100,000 (lower than the England average of 12.9 per 100,000) and for age-related macular degeneration it was 139.7 per 100,000 (higher than the England average of 118.8 per 100,000).<sup>9</sup> The number of people aged over 65 who are recorded as deaf is lower than the England average (1.7 per 1000); however there are higher rates than average of people who are considered hard of hearing (36.2 per 1000) (based on 2010 data).

### 4.2.1.9 Dental health

The 2012/13 survey of oral health among 3-year old children (Public Health England) found that the mean number of teeth per child that were sampled which were either actively decayed, filled or missing (dmft) was 0.26 in Newcastle, which is better than the England average of 0.36. 6.9% of the 3-year old children surveyed in Newcastle had tooth decay, compared to the England average of 8.1%.

The 2011/12 survey of tooth decay in children aged 5 years old (Public Health England) shows that the mean number of teeth per child that were sampled which were either actively decayed, filled or missing (dmft) was 0.75 in Newcastle, which was better than the England average of 0.94.<sup>10</sup> Of the participating children that were examined, 22.6% had decayed, missing or filled teeth and the average number of decayed, missing or filled teeth in children with dmft was 3.33.

In Newcastle not all children participated in the survey; the participation rate was 46.9% and this varied across the city. The lowest participation rates were in the more deprived communities where levels of dental disease are highest. These ranged from 44% of 5 year old children having dental disease in Elswick to just 4% in Parklands ward. These variations are related to social deprivation. Thus the percentage of children with dental disease is likely to be underestimated.

Figure 4.2-11 shows the level of participation in the survey compared to the percentage of children with decayed, missing or filled teeth. It highlights the low level of participation in Elswick, Walker, Byker and Benwell & Scotswood, as well as showing the higher level of decay.

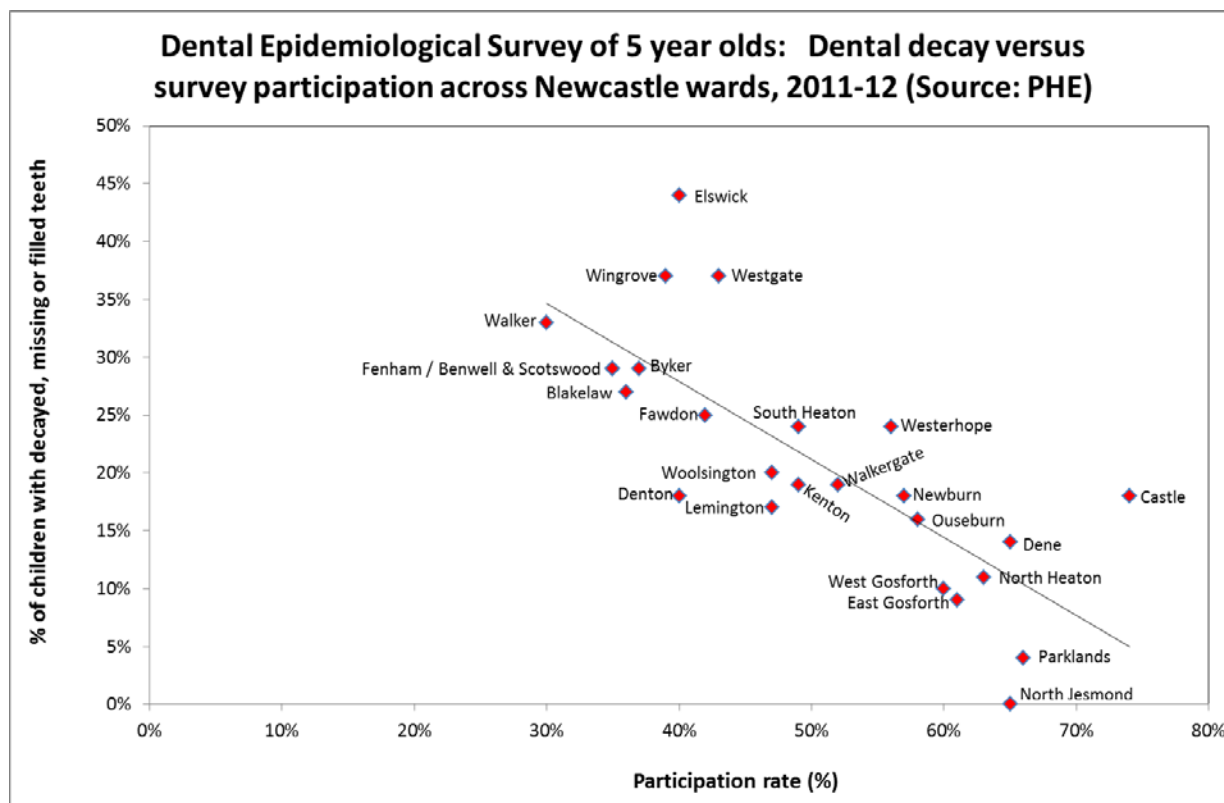


Figure 4.2-16: Dental epidemiological survey of 5 year olds. Source: Public Health England.

Data on the treatment provided by NHS primary dental care practitioners in 2014/15 (HSCIC) to Newcastle children aged 0-17 years show that:

- The proportion of children aged 0-17 years seen by a dentist in Newcastle (as a proportion of the population of children aged 0-17 in Newcastle) was 75.4% in 2014/15.
- Most children (93.7%) had dental examinations, 30.7% received preventive fluoride varnish treatments, and 85.3% had permanent fillings or sealant restorations.

## 4.2.2 Communicable diseases

### 4.2.2.1 Tuberculosis

Tuberculosis (TB) is caused by bacteria (*Mycobacterium tuberculosis*) that most often affect the lungs. Tuberculosis is curable and preventable.

TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air. A person needs to inhale only a few of these germs to become infected.

About a third of the world's population has latent TB, which means people have been infected by TB bacteria but are not (yet) ill with disease and cannot transmit the disease.

People infected with TB bacteria have a lifetime risk of 10% falling ill with TB. However, people with compromised immune systems, such as people living with HIV, malnutrition or diabetes, or people who smoke tobacco, have a much higher risk of falling ill.

When a person develops active TB (disease), the symptoms (cough, fever, night sweats, weight loss etc.) may be mild for many months. This can lead to delays in seeking care, and results in transmission of the bacteria to others. People ill with TB can infect up to 10-15 other people through close contact over the course of a year. Without proper treatment up to two thirds of people ill with TB will die.

Source: World Health Organisation Fact Sheet at <http://www.who.int/mediacentre/factsheets/fs104/en/index.html>

In 2011-2013 in Newcastle, the incidence rate of reported new Tuberculosis (TB) cases was 14.4 per 100,000 population. This is a decrease since 2010-12 (when it was 17.1 per 100,000). Figure 4.2-12 shows the incidence rate of TB in Newcastle compared to other core cities in 2010-12 and 2011-13 (as 3-year averages). Incidence of TB in Newcastle is 3<sup>rd</sup> lowest among the core cities, right after Liverpool and Leeds.

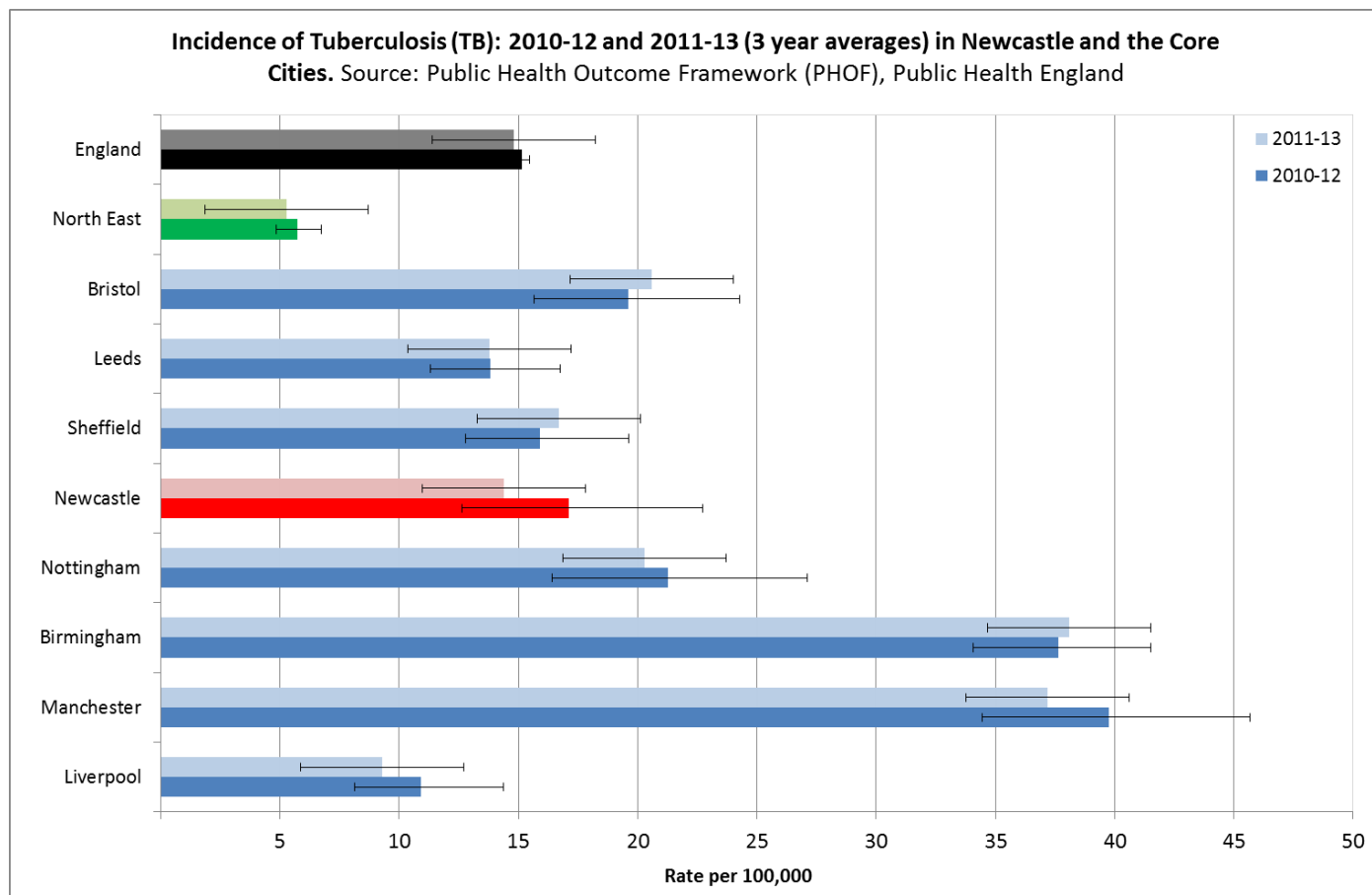


Figure 4.2-17: Incidence of Tuberculosis 2010-2012 and 2011-2013, 3 year average of the number of reported new cases per 100,000. Source: Public Health Outcome Framework.

#### 4.2.2.2 Infections that are predominantly sexually transmitted

Sexually transmitted infections (STIs) are caused by more than 30 different bacteria, viruses and parasites and are spread predominantly by sexual contact, including vaginal, anal and oral sex.

Some STIs may be spread via skin-to-skin sexual contact. The organisms causing STIs can also be spread through non-sexual means such as blood products and tissue transfer. Many STIs—including chlamydia, gonorrhoea, hepatitis B, human immunodeficiency virus (HIV), human papilloma virus (HPV), herpes simplex virus (HSV2) and syphilis—can also be transmitted from mother to child during pregnancy and childbirth.

A person can have an STI without having obvious symptoms of disease. Therefore, the term “sexually transmitted infection” is a broader term than “sexually transmitted disease” (STD). Common symptoms of STDs include vaginal discharge, urethral discharge in men, genital ulcers, and abdominal pain.

Eight of the more than 30 pathogens known to be transmitted through sexual contact have been linked to the greatest incidence of illness. Of these 8 infections, 4 are currently curable: syphilis, gonorrhoea, chlamydia and trichomoniasis. The other four are viral infections and are incurable, but can be mitigated or modulated through treatment: hepatitis B, herpes, HIV, and HPV.

Source: World Health Organisation Fact Sheet at <http://www.who.int/mediacentre/factsheets/fs110/en/index.html>

There is a clear relationship between sexual ill health, poverty, and social exclusion, with certain groups being more likely to experience poorer sexual health. The impact of poor sexual health is greatest in young heterosexual adults and in men who have sex with men (MSM). National data show that rates of STIs are higher in deprived areas. The most commonly diagnosed STIs, both nationally and locally, are **chlamydia, genital warts, genital herpes, gonorrhoea and syphilis**. The majority of diagnoses of other STIs are made in Genito-Urinary Medicine (GUM) clinics although a small proportion are made in other settings. In 2012, Newcastle’s New STI diagnosis rate was **1191 per 100,000**, which is significantly higher than the England average.

##### 4.2.2.2.1 Chlamydia

Chlamydia is the most commonly diagnosed STI in Newcastle (Table 4.2-4), there were 1830 people diagnosed in 2014, which is a rate of 638 per 100,000. In Newcastle 79% of those diagnosed were aged 15-24 in 2014, the diagnosis rate for 15-24 year olds was 2409 per 100,000, which is above the PHE recommended level of 2,300 per 100,000. Newcastle is seeing a declining trend in diagnosis rates for chlamydia.

Table 4.2-7: Number and rates of chlamydia diagnoses per 100,000, Source: Public Health England (PHE)

Chlamydia Diagnoses		2012	2013	2014
Newcastle	Number	2618	1876	1830
	Rate	927	654	638
North East	Rate	465	460	363
England	Rate	373	376	375

\*Data prior to 2012 is not comparable and has been excluded from this table.

#### 4.2.2.2.2 Other Sexually Transmitted Infections

Newcastle has higher diagnosis rates for genital warts (Figure 4.2-13), genital herpes (Figure 4.2-14), gonorrhoea (Figure 4.2-15) and syphilis (Figure 4.2-16) compared to the North East and England; this can be linked with the socioeconomic status of the city as well as the large student population residing in Newcastle. There is an upward trend for those diagnosed with gonorrhoea which is reflected nationally. This increase is also due to improvements in screening for gonorrhoea and the introduction of joint chlamydia and gonorrhoea screening introduced in 2012 in Newcastle. There is a sharp rise in the rate diagnosed with Syphilis in 2012, however the numbers are small and is confined to a specific population group.

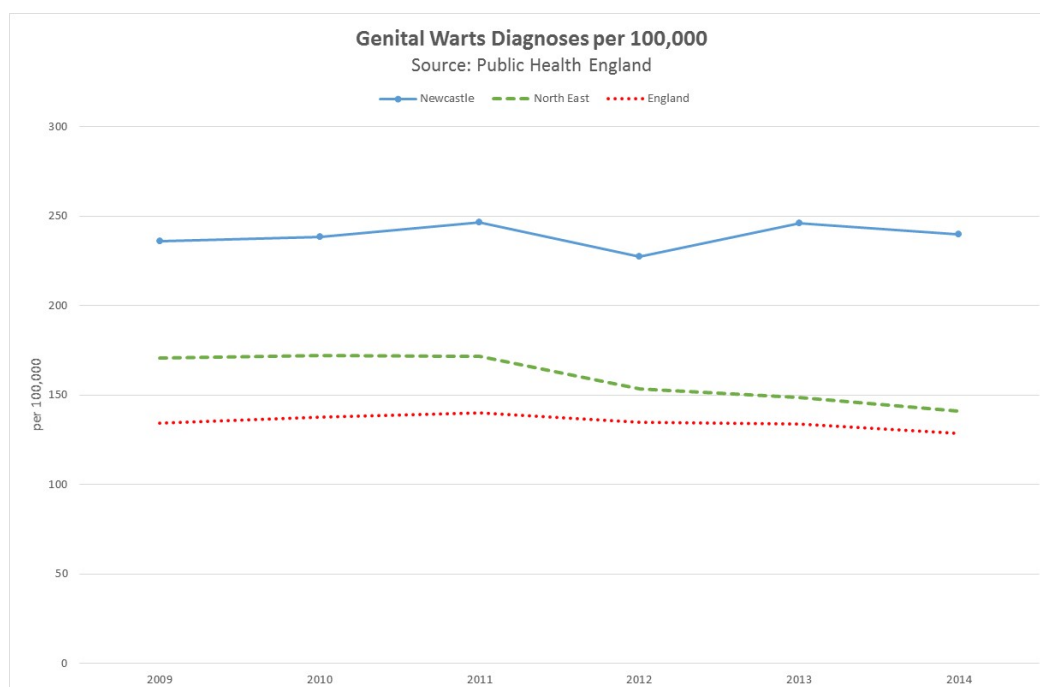


Figure 4.2-18: Warts: rates of acute STI diagnosis per 100,000. Source: Public Health England.

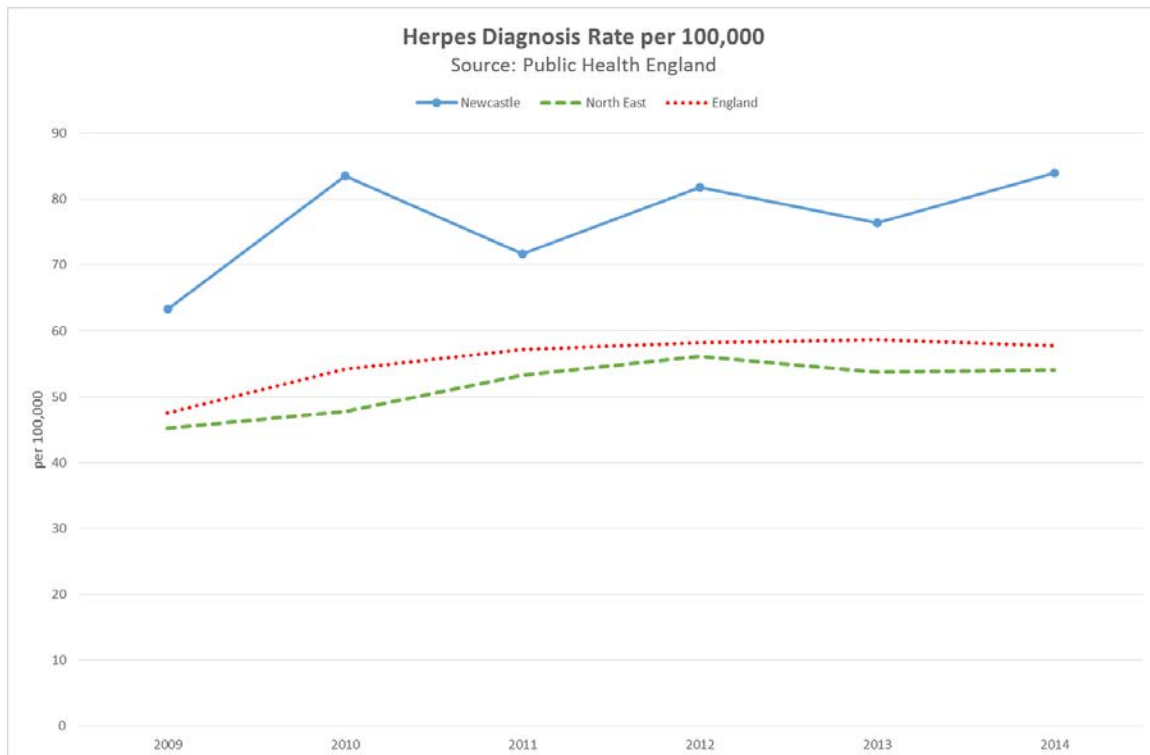


Figure 4.2-19: Herpes: rates of acute STI diagnosis per 100,000. Source: Public Health England.

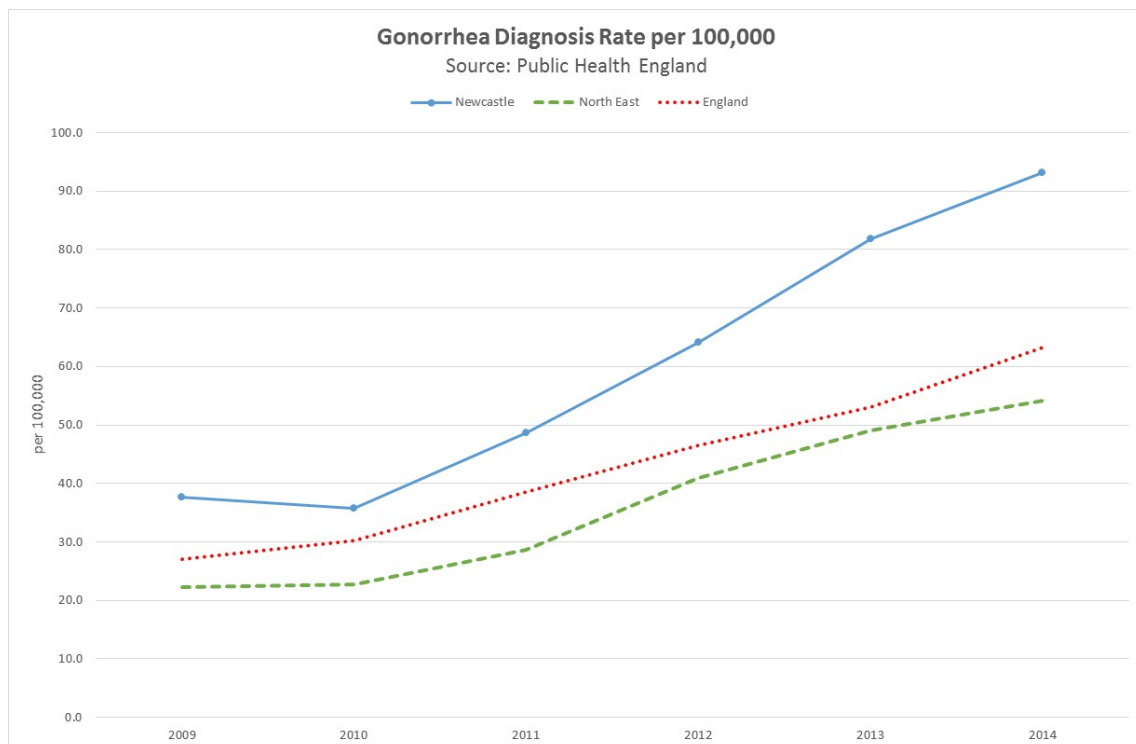


Figure 4.2-20: Gonorrhoea: rates of acute STI diagnosis per 100,000. Source: Public Health England.



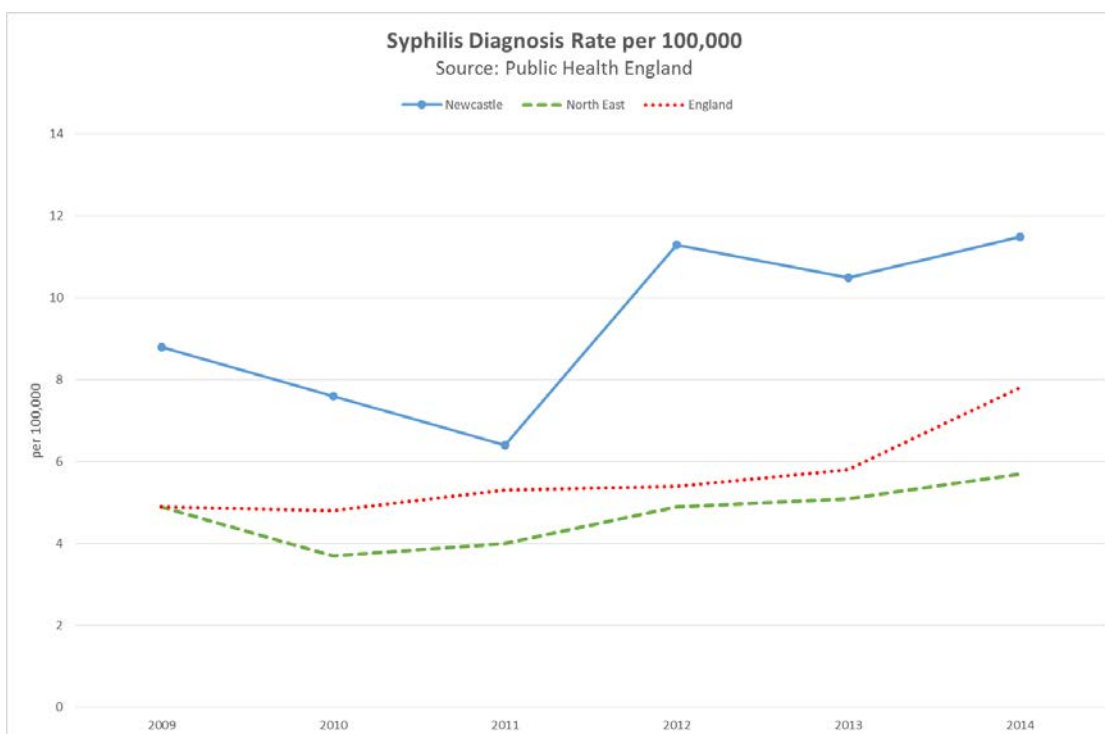


Figure 4.2-21: Syphilis: rates of acute STI diagnosis per 100,000. Source: Public Health England.

#### 4.2.2.2.3 Human Immunodeficiency Virus (HIV)

The **Human Immunodeficiency Virus (HIV)** targets the immune system and weakens people's surveillance and defence systems against infections and some types of cancer. As the virus destroys and impairs the function of immune cells, infected individuals gradually become immunodeficient. Immune function is typically measured by CD4 cell count. Immunodeficiency results in increased susceptibility to a wide range of infections and diseases that people with healthy immune systems can fight off.

The most advanced stage of HIV infection is **Acquired Immuno-Deficiency Syndrome (AIDS)**, which can take from 2 to 15 years to develop depending on the individual. AIDS is defined by the development of certain cancers, infections, or other severe clinical manifestations.

Source: World Health Organisation Factsheet at <http://www.who.int/mediacentre/factsheets/fs360/en/index.html>

In 2014, it was estimated that 100,000 people in the UK were living with diagnosed or undiagnosed HIV infection. Of those, an estimated 20-30% are unaware of their infection,<sup>11</sup> which means that sexual partners are potentially put at risk of contracting HIV. Each year in England, around half of all newly diagnosed individuals are diagnosed late (CD4 cell counts less than 350 cells per mm<sup>3</sup>) which increases the risk of early death. In 2011-13, 45.0% of people in England with HIV presented with the disease at a late stage of infection.

Public Health England provides statistics on diagnosed HIV prevalence. In 2013 in Newcastle, the diagnosed HIV prevalence rate (per 1,000 population aged 15-59) was 1.91, which is an increase since 2012 (when it was 1.89 per 1,000). This rate remains the highest in the North East, and is not significantly different to the England average (Figure 4.2-17).

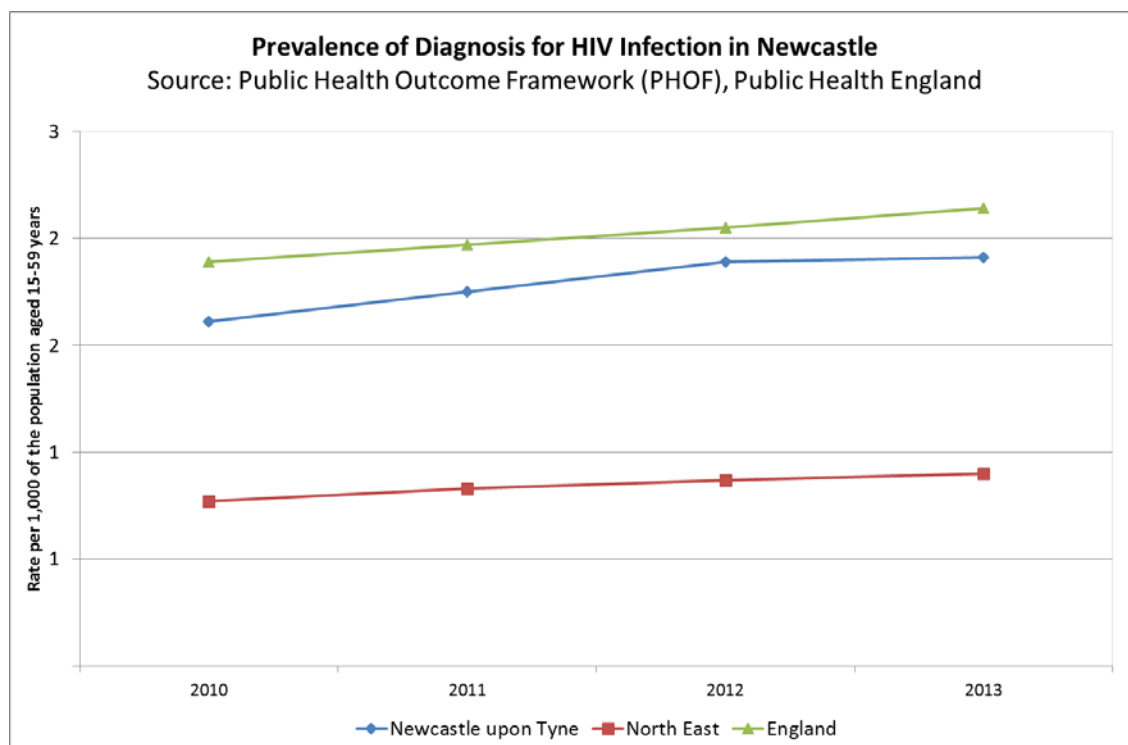


Figure 4.2-22: HIV diagnosis: prevalence of diagnosis HIV infection per 1,000 of the population aged 15-59. Source: Public Health Outcome Framework.

Late diagnosis is the most important predictor of morbidity and mortality among those with HIV infection, so it is essential to evaluate the success of expanded HIV testing. In Newcastle in 2011-13, 34.6% of people with HIV presented at a late stage of the infection (Figure 4.2-18), which is lower than it was in 2010-12 (40.8%) and lower than the England average (45.0%). However there is still a need to reach individuals who remain undiagnosed and target them with effective interventions that seek to increase awareness and the uptake of HIV testing.

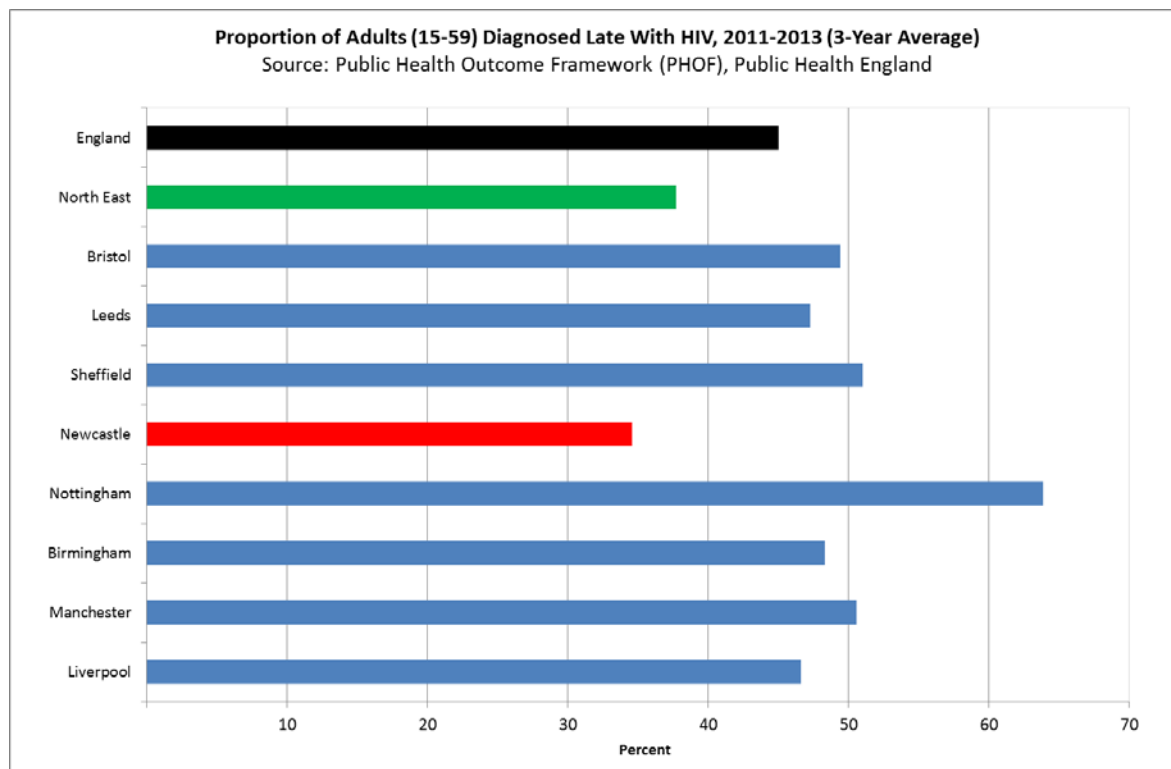


Figure 4.2-23: Late HIV diagnosis: Proportion of adults (15-59) diagnosed with HIV (with a CD4 count less than 350 cells per mm<sup>3</sup> within 91 days of HIV diagnosis) in 2011-2013. Source: Public Health Outcome Framework, Public Health England.

### 4.2.2.3 Viral Hepatitis

Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus. It is a major global health problem. It can cause chronic liver disease and chronic infection and puts people at high risk of death from cirrhosis of the liver and liver cancer.

Source: World Health Organisation Factsheet at  
<http://www.who.int/mediacentre/factsheets/fs204/en/index.html>

The prevalence of hepatitis B virus in Newcastle is difficult to estimate due to very low numbers. The UK has one of the world's lowest prevalence rates of hepatitis B, estimated at 0.1-0.5% of the population (source: HSE). According to PHOF, 100% of children aged 1 or 2 years were covered by hepatitis B vaccination in 2013/14, which is consistent with 2012/13 (when vaccination coverage was also 100%).

Hepatitis C is a contagious liver disease that results from infection with the hepatitis C virus. It can range in severity from a mild illness lasting a few weeks to a serious, lifelong illness. The hepatitis C virus is usually spread when blood from an infected person enters the body of a susceptible person. It is among the most common viruses that infect the liver.

Source: World Health Organisation Factsheet at  
<http://www.who.int/mediacentre/factsheets/fs164/en/index.html>

According to HSE, hepatitis C has a very low prevalence in England, estimated at 0.5-1.0%. Due to these low numbers, as well as the fact that most acute cases (an estimated 80%) are not symptomatic, it is difficult to provide an accurate estimate for hepatitis C prevalence in Newcastle. However, it is known that most infections in England tend to be among injecting drug users, primarily due to infections acquired from sharing injection apparatus.

#### 4.2.2.4 Influenza (flu)

Flu (influenza) is a highly infectious illness caused by the flu virus and can spread rapidly through small droplets coughed or sneezed into the air by an infected person. Flu vaccinations provide effective protection against the flu and the level of vaccination coverage can show the level of protection a population has against flu. The seasonal influenza vaccination programme takes place every year in England. The flu vaccination is offered to eligible groups of patients, which includes those aged 65 years and older and all those aged 6 months to 65 years that are in a clinical at risk group.

In 2014/15, uptake of the flu vaccine among people aged 65 years or over in Newcastle was 76.9%, which is lower than the vaccination rate in 2013/14 (77.2%). However, this drop also occurred nationally, and vaccination rates in Newcastle among this age group remain consistently higher than the England average (Figure 4.2-19) and the 75% target recommended by the World Health Organization.

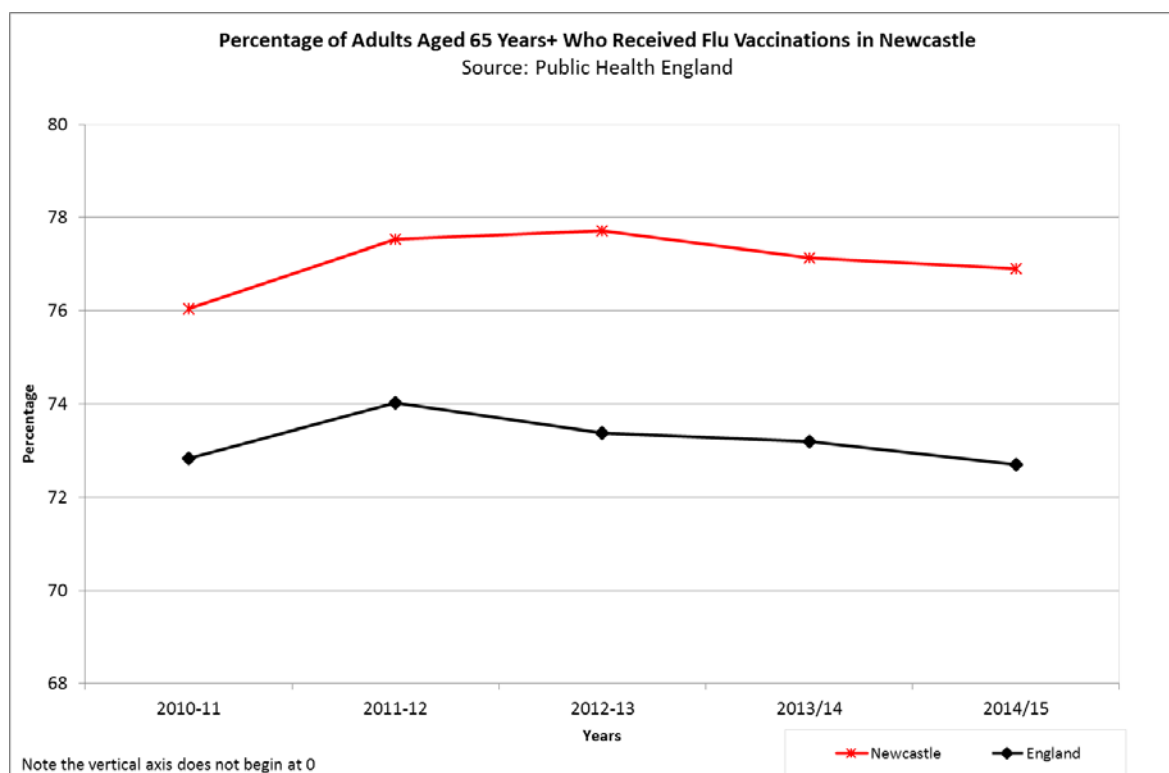


Figure 4.2-24: Flu vaccination uptake: percentage of adults aged 65 years and over that received flu vaccinations. Source: Public Health England.

Among all ‘at-risk’ individuals, the rate of uptake of the flu vaccine was 53.0% in 2014/15. This is lower than the rate in 2013/14 (55.5%), though this drop was observed nationally. Newcastle’s rates of flu vaccination among eligible groups remains consistently higher than the England average (Figure 4.2-20).

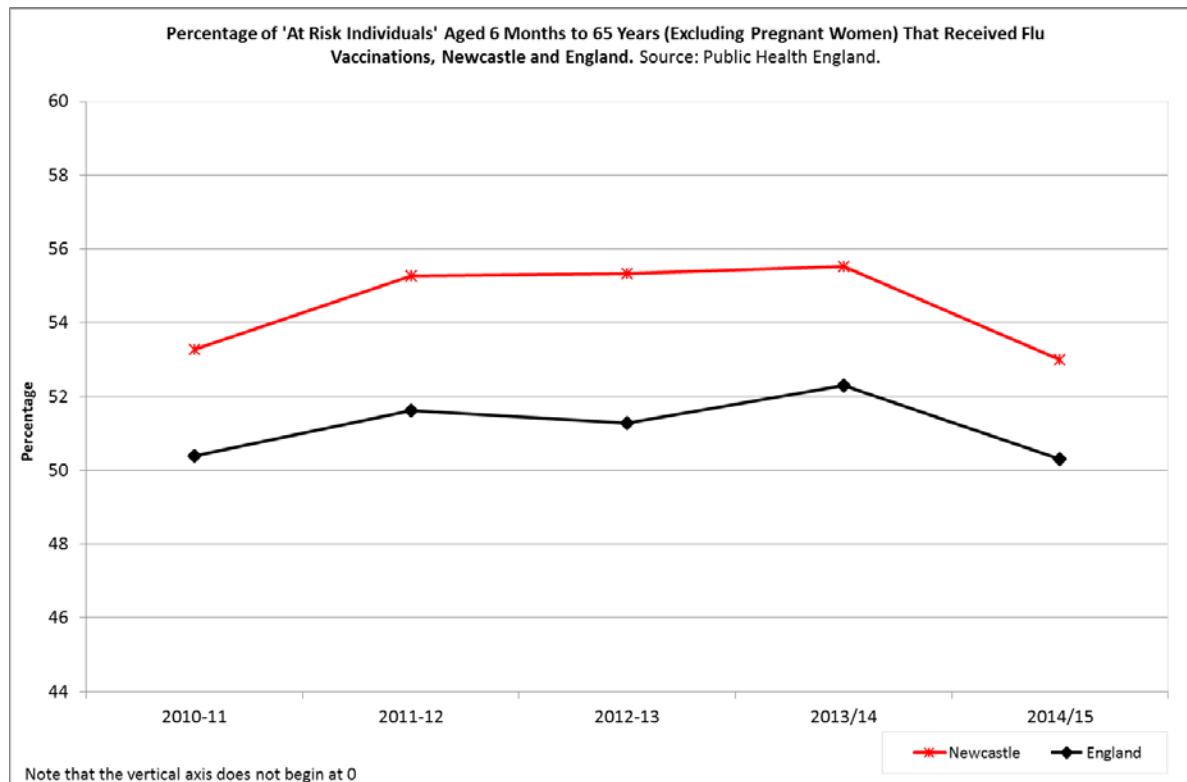


Figure 4.2-25: Flu vaccination uptake: percentage of 'at risk individuals' aged 6 months to 65 years that received a flu vaccination. Source: Public Health England.

## Sources

---

- <sup>1</sup> National Statistics (2006), Health Statistics Quarterly 30  
[http://www.statistics.gov.uk/downloads/theme\\_health/HSQ30.pdf](http://www.statistics.gov.uk/downloads/theme_health/HSQ30.pdf)
- <sup>2</sup> FRESH briefing, Sept 2011
- <sup>3</sup> Calderon-Larranaga A, Carnet L, Soljak M, et al., Association of population and primary healthcare factors with hospital admission rates for chronic obstructive pulmonary disease in England: national cross-sectional study, Thorax published online November 12, 2010.
- <sup>4</sup> YHPHO (2013), Diabetes prevalence Model for local authorities in England,  
<http://www.yhpho.org.uk/default.aspx?RID=154049>
- <sup>5</sup> PHOF, <http://www.phoutcomes.info>
- <sup>6</sup> PHE (2013), "Improving the dementia diagnosis rate in North East England"
- <sup>7</sup> State of Musculoskeletal Health 2017, Arthritis & Other Musculoskeletal conditions in numbers, Arthritis research UK.
- <sup>8</sup> State of Musculoskeletal Health 2017, Arthritis & Other Musculoskeletal conditions in numbers, Arthritis research UK.
- <sup>9</sup> Source: Public Health Outcomes Framework.
- <sup>10</sup> British Association for the Study of Community Dentistry (BASCD), <http://www.phoutcome.info>
- <sup>11</sup> Health Protection Agency, HIV in the UK: 2012 report Health Protection Report