

Cardiovascular Disease Prevention Strategy for the City of Liverpool, 2018-2028



it's liverpool

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Foreword

I warmly welcome the launch of this 10 year CVD Prevention Strategy for Liverpool. It is a bold and ambitious strategy, and it needs to be! Cardiovascular disease (CVD), including heart attacks, strokes and some dementia, accounts for a fifth of all premature deaths in Liverpool. It is also a major driver of health inequalities and accounts for a quarter of the gap in life expectancy between rich and poor.

Death rates from heart attack and stroke have fallen sharply over the last 40 years because of public health improvements and advances in medical care. But the burden of CVD remains huge and is set to grow as more people are living to an older age, and as the obesity epidemic spreads. CVD is also very expensive and threatens the sustainability of the NHS and local authorities as it drives up spend on acute health care and more long term social care.

But CVD is also very preventable. At its heart this strategy focuses on 5 key factors that have the biggest impact in preventing heart attacks, strokes and related conditions - diet, smoking, physical activity, alcohol and mental wellbeing. And it also highlights the need for improved clinical care in high risk conditions (such as high blood pressure, high cholesterol and atrial fibrillation) where late diagnosis and suboptimal management remains common.

The strategy has been developed in partnership by the Liverpool Clinical Commissioning Group and Liverpool City Council. This reflects the size of the prevention task and recognition that a core driver of progress will be the development of policies that take us upstream, shaping the city environment to make healthier choices easier for citizens.

The strategy is a great start, articulating both the opportunity and the size of the challenge. Now the work can begin!

Dr Matt Kearney, General Practitioner and National Clinical Director for Cardiovascular Disease Prevention

I am very happy to support the launch of the cardiovascular disease prevention strategy for Liverpool.

Liverpool is one of the most socio-economically deprived local authority areas in the country, and our residents are more likely to engage in unhealthy lifestyle behaviours than those living elsewhere in the country. Combined with a decade of austerity and government funding cuts, these are some of the major contributing factors to poor health and wide health inequalities, not only between Liverpool and the national average, but also within the city itself. The difference of 12 years in life expectancy between our most and least deprived wards is shocking.

On average, the people of Liverpool can expect to live in good health (healthy life expectancy) for only 58 years - significantly lower than the 63 years nationally. More importantly, there is a wide variation in healthy life expectancy within the city, with a stark and unacceptable gap of 23 years across Liverpool in the number of years people can expect to live in good health. Cardiovascular disease (CVD) (20% of all deaths) is our second biggest killer in the City.

In order to address the burden of the cardiovascular and other chronic diseases in the city, we will be working on the Health in All Places agenda, integrating health outcomes across the city council as part of the Mayoral Inclusive Growth Plan, and continuing to work closely with the NHS.

Through this agenda, rather than simply improving Liverpool's ability to respond to disease, more emphasis will be placed on actions that promote the conditions for good health. To halt the epidemic of chronic conditions in Liverpool, we will work to make the healthy option the easy option in Liverpool. This is why I am pleased to support and champion our CVD strategy; because it is an example of what we can do together through this agenda to reduce poor health outcomes and tackle health inequalities.

Cllr Paul Brant, Labour Councillor for Fazakerley, & Cabinet member for Health & Social Care, Liverpool City Council.

Background

This strategy focuses on how everyone in Liverpool can work together to prevent deaths and chronic illness from cardiovascular disease (CVD) over the next decade. It will form part of the Non-Communicable Disease Prevention strategy for the city. CVD includes coronary heart disease, heart failure, stroke and peripheral vascular disease. The Liverpool Health and Wellbeing strategy aims to improve health and wellbeing and to reduce health inequalities in the city (Liverpool City Council 2014). It sets out a number of principles that are relevant to this strategy including:

- building community concern for health,
- a household focus,
- reducing health inequalities, and
- a commitment to sustainability.

This strategy presents a bold paradigm shift in Liverpool: to create an environment where healthy choices are made the easier and more natural choices for everyone, especially for communities with the greatest burden of CVD. The strategy was developed by the cardiovascular disease prevention group, with input from a wide range of stakeholders at a city-wide event, held in July 2017.

Our Vision

To create a health-enabling city, which will prevent and reduce CVD in Liverpool, strengthen early recognition and diagnosis, and prevent progression of disease in those already affected.

Aims

The CVD prevention strategy aims to:

- Achieve a 25% relative reduction in premature mortality from CVD by 2027
- Prevent CVD by making policy decisions to support heart health and to refrain from activities that might worsen CVD
- Maximise the opportunities across the health and care system to create health enabling environments, to embed prevention strategies and to support individuals to change their behaviour

- Mobilise the system, i.e., the public sector organisation, industry, community organisations, and all individuals within, to promote healthy lifestyle choices
- Change the environment so that the default option for individuals is the healthy one

National Context

Nationally, total CVD mortality declined by 68% between 1980 and 2013 in the UK (Bhatnagar et al 2016), thanks to effective prevention initiatives and improved treatment.

However, CVD remains the second most common cause of death in England (Department of Health, 2014). CVD is responsible for almost a quarter of all premature deaths (22%) and kills around 33,700 people before they reach the age of 75 each year (British Heart Foundation, 2017).

CVD is strongly associated with health inequalities. People living in the poorest areas of the UK are three times more likely to die before reaching age 75 from CVD than those living in the richest areas (British Heart Foundation, 2017).

Improvements in healthcare, along with increases in obesity rates mean that many more people now live with chronic CVD conditions than used to be the case. An estimated 7 million people are affected by CVD in the UK (Public Health England, 2016). Living with disabilities caused by stroke or the daily exhaustion of severe heart failure can have enormous impacts on quality of life. According to the Global Burden of Disease Study 2016, CVD accounts for 16% of total Disability Adjusted Life Years (DALYs) in North West England, the second largest disease burden in the country.

The annual cost of CVD in England is estimated to be almost £16 billion. Healthcare costs exceed £7 billion, mostly incurred in secondary care (British Heart Foundation, 2017). More hidden costs include those incurred by informal carers, usually family members, and the loss to economic productivity. The British Heart Foundation suggest that production losses due to mortality and morbidity associated with CVD cost the UK £6 billion, with around 21% of this cost due to death and 13% due to illness in those of working age. Productivity losses due to mortality and morbidity associated with stroke cost the UK almost £1billion. The cost of informal care for people with CVD in the UK was around 3.8 billion and for stroke was £1 billion in 2009 (British Heart Foundation: Cardiovascular Disease Statistics 2014).

Tobacco use, physical inactivity, poor diet and excessive alcohol use are known major risk factors for CVD. According to the World Health Organisation, if these risk factors were eliminated, 80% of heart disease, stroke and type 2 diabetes could be avoided. While individuals can (and indeed do) make efforts to change their behaviours, an enabling environment is also needed to make healthy choices easier. There are underlying causes, which influence people's health behaviours, such as the quality of their housing, the amount of income, access to work, good healthcare and education. Consequently, the concentration

of risks affects those worst off in our communities. A strong system-wide commitment to creating an enabling environment is needed.

There is a compelling argument to shift the focus of action to preventing CVD rather than trying to treat it after it has happened. A shift towards prevention across the whole population, and not just those at high risk has the greatest potential for preventing CVD. This universal approach should be applied proportionately, with greater input into communities with poor health outcomes (Marmot, 2011).

In 2016, Public Health England (PHE) released an action plan for the prevention of CVD in England. It recommends cross cutting interventions at a population and individual level across the three tiers of prevention:

- Primary prevention – tackling risk factors and their causes to prevent preventing CVD from occurring in the first place
- Secondary prevention – identifying people at risk of developing CVD and where it is present, intervening early to prevent the illness from getting worse, for example by managing high blood pressure, atrial fibrillation, high cholesterol and pre-diabetes
- Tertiary – supporting people living with CVD to have a good quality of life and receive good health and care services for their condition

Regional context: Hypertension Strategy

In 2016, Liverpool signed up to the Cheshire and Merseyside hypertension strategy. It includes the following broad aims:

- to reduce the burden of ill-health and deaths caused by high blood pressure (notably stroke and coronary heart disease deaths)
- to ensure more people with high blood pressure are aware of their condition
- to empower more people with high blood pressure to control it with lifestyle interventions alone
- for those known to have high blood pressure, and who are unable to be successfully treated with lifestyle alone, to be prescribed appropriate drug therapy
- for hypertension to be optimally controlled with medication
- to reduce inequalities so that populations at higher risk of high BP will have similar rates of treatment and control to the general population
- to be the most improved sub-region in England

The prevention, detection and management of hypertension is one of three prevention priorities for the region.

Liverpool Context – the need for a coherent city-wide strategy

There is a strong commitment within Liverpool to address the burden of CVD. The ‘Liverpool Health and Wellbeing Strategy 2014-2019’ (Liverpool City Council, 2014) was developed by Liverpool Health and Wellbeing Board (HWB). It sets out the commitment to reduce health inequalities both within the city and between Liverpool and England as a whole. In addition to this, the ‘Healthy Liverpool Programme’ envisioned that by 2020 all people in Liverpool will be ‘enjoying longer, healthier lives’. The Healthy Liverpool is now being continued by the One Liverpool strategy – the Long and Winding road to a Healthier Life. One Liverpool is a whole-system plan, setting out how partners will come together to deliver improved health in our city, collaborating to establish integrated services that will better meet people’s needs and ensure that our local health and care system is financially fit for the future. One Liverpool strategy has three main aims: a radical upgrade in population health and prevention; integrated community services; and sustainable acute and specialist services. All these documents recognise the need to reduce the incidence of CVD in the city.

The rationale for developing a CVD prevention strategy links to a wider ambition to develop an overarching strategy for the city that tackles our four biggest diseases: cancer, CVD, diabetes and chronic respiratory diseases. The modifiable risk factors for these diseases are broadly the same: smoking, alcohol, diet and physical inactivity. Preventing these illnesses will have a cumulative impact, not only on health and wellbeing, but also on the economic, social and cultural growth of the city.

We need a fresh approach that tackles these risk factors in an integrated, place-based way, recognising the interaction of physical and mental wellbeing and strengthening asset based approaches in order to build resilient communities. A “health in all policies” approach is important - this embeds health improvement and protection in all key policy decisions. Without a notable change in activities toward preventing CVD, Liverpool will continue to lag behind other cities in the burden of death and disease caused by these conditions, and it will continue to pay the expensive health and social care costs of treating people with CVD.

Liverpool must take the lead to make effective, lasting change to the city environment that enables our communities to have healthy hearts. This approach will also have lasting beneficial effects on other killer diseases too. In order to do this, our interventions need to start with strong focus on good maternal health, from conception through to infants and children. Interventions must acknowledge and tackle the interactions between physical and mental health and ensure that all sectors make a contribution to the overall goal of reducing cardiovascular disease in the city.

This strategy identifies what can be done at a local level across five key areas: smoking, diet, physical activity, alcohol, psychosocial stress and early detection. The strategy also advocates a more integrated approach between these areas and mental health and wellbeing, recognizing the link between poor mental health, health inequalities and resilient communities.

CVD Mortality

Each year approximately 332 people in Liverpool die prematurely from CVD, with these conditions contributing to almost one fifth of all deaths among people under 75 years old.

There has been a significant reduction in the Liverpool premature mortality rate from CVD in recent years, with the rate falling by more than half (51%) between 2001-03 and 2014-16 (Figure 1). Over the same period, the gap between the Liverpool and England average has narrowed by 13 percentage points from 45% to 32%. However, the Liverpool premature mortality rate remains significantly above the national average, and is third highest among the eight core cities in England (Figure 2).

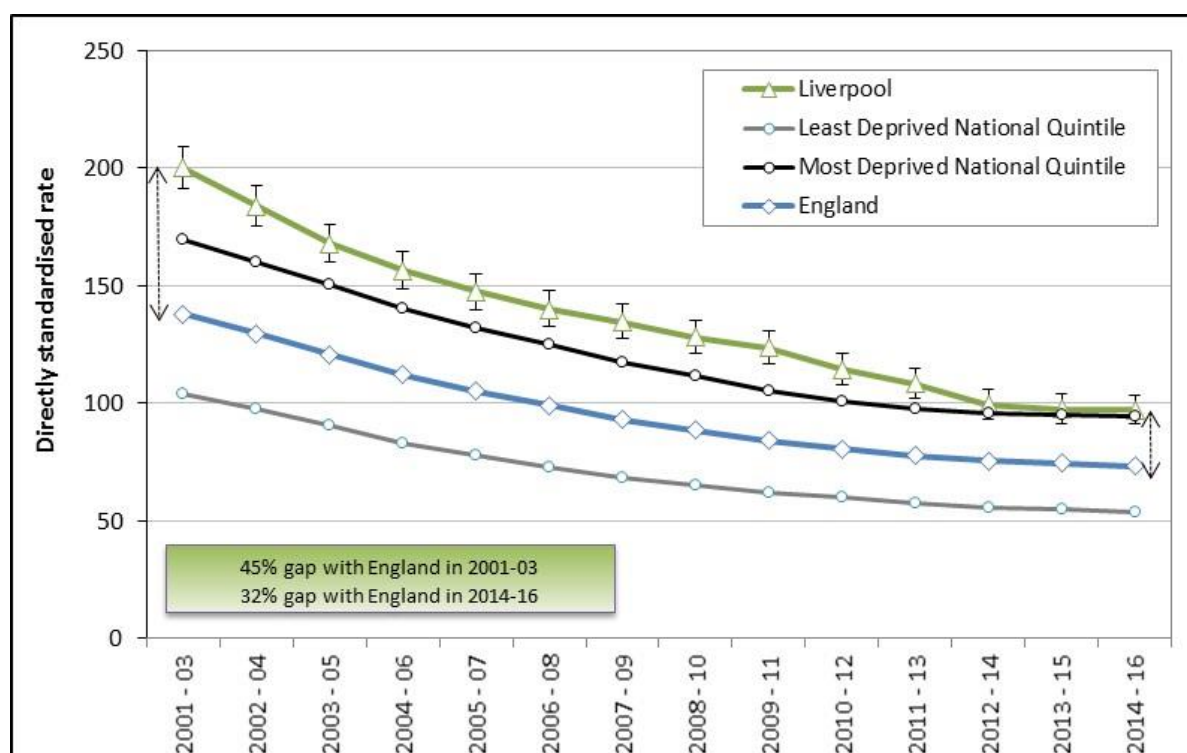


Figure 1: Trends in Liverpool under 75 CVD mortality Source: PHE/ONS

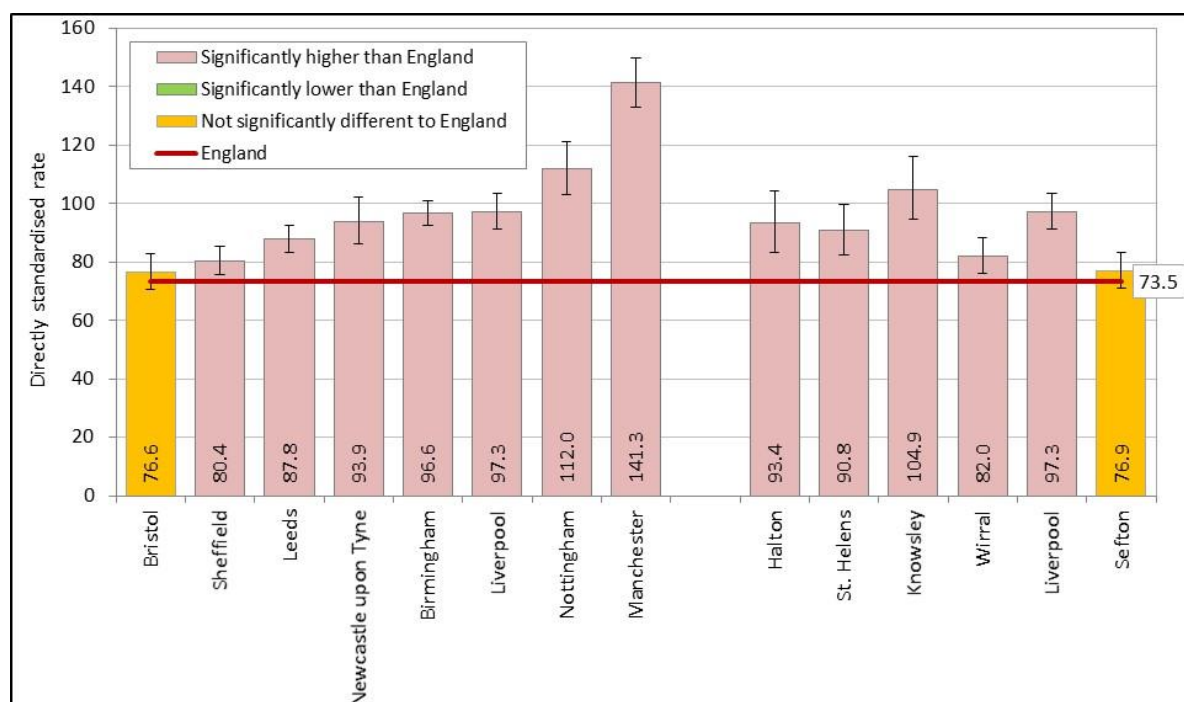


Figure 2: Under 75 CVD mortality by core cities and Liverpool city region Source: PHE/ONS

Premature mortality from CVD among Liverpool men is **double** that of women (Figure 3). This is an important issue that is contributing to the lower life expectancy among men, and it should be addressed urgently.

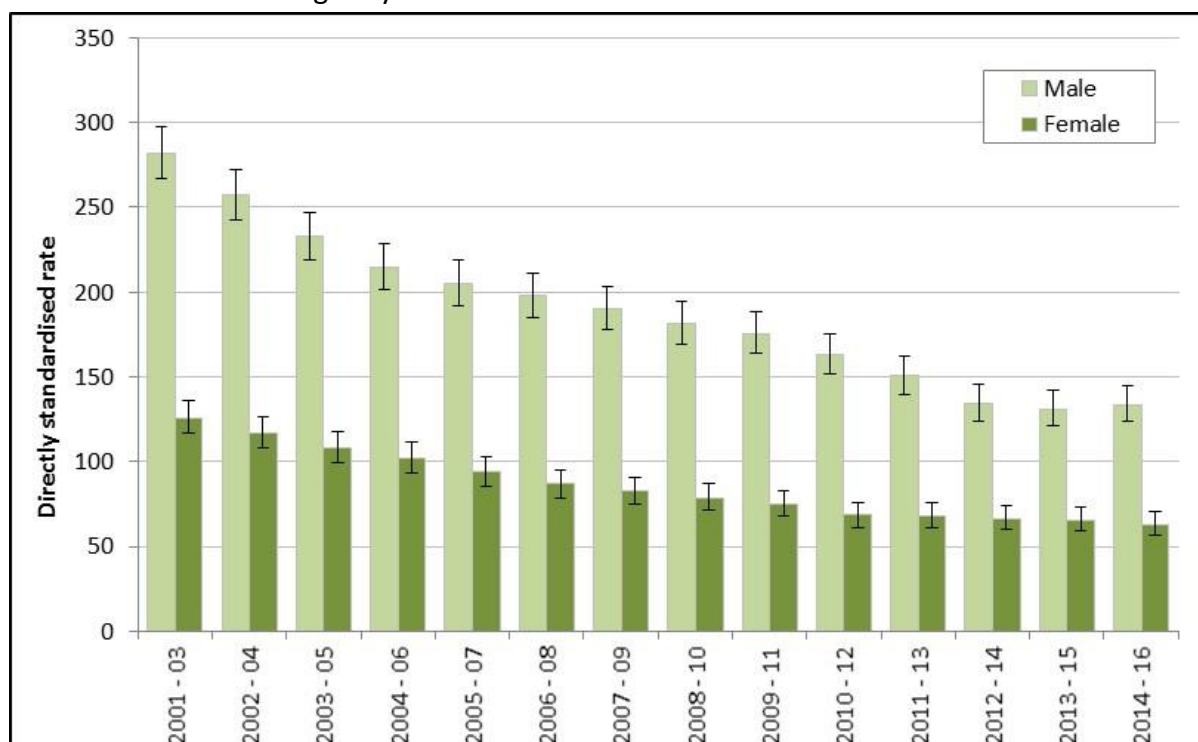


Figure 3: Trends in Liverpool under 75 CVD mortality by sex Source: PHE/ONS

Living with CVD

Around one in every 13 adults in Liverpool aged 40 and over have been diagnosed with coronary heart disease (narrowing or blockage of the coronary arteries). Around 1 in 27 adults aged 40 and over have been diagnosed with stroke/transient ischaemic attack and 1 in 28 with atrial fibrillation (a type of irregular heartbeat).

More people in Liverpool have cardiovascular disease (CVD) than the national average. Figure 4, below, illustrates the prevalence of these conditions among people registered with General Practice in the city. The figure for CVD shows the number of people aged 40 and over diagnosed with at least one of the following: Coronary Heart Disease, Hypertension, Atrial Fibrillation, Heart Failure, Stroke/Transient Ischaemic Attack (TIA) and Peripheral Arterial Disease (PAD).

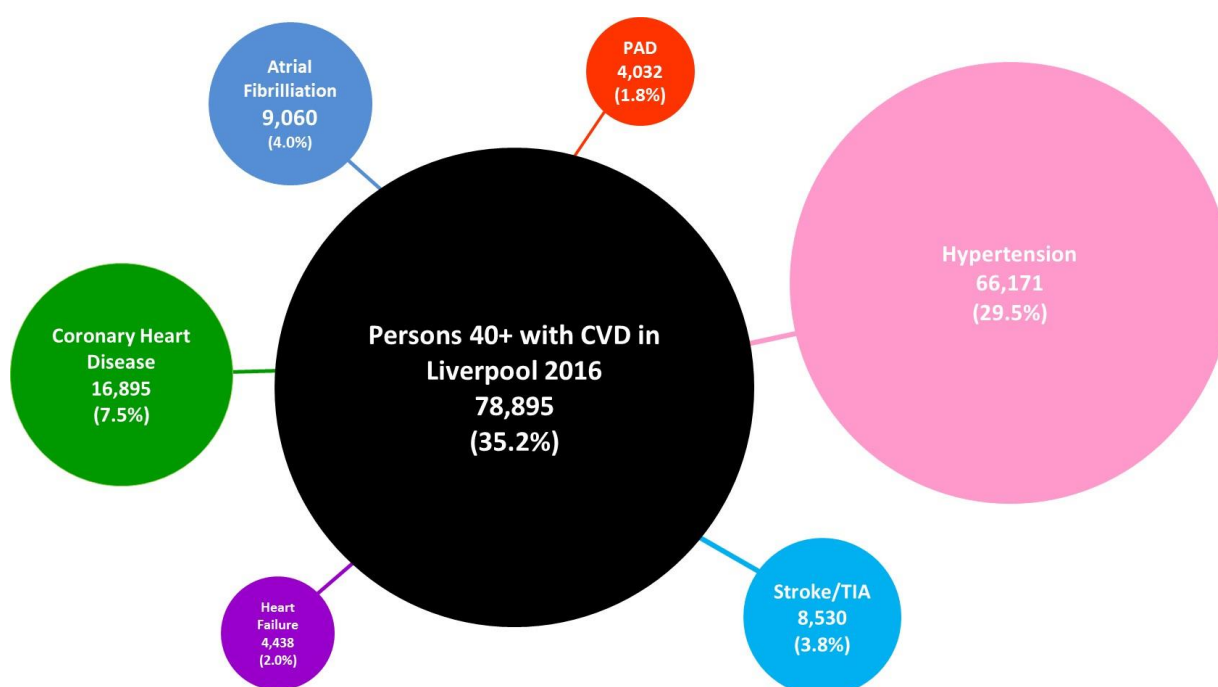


Figure 4: Prevalence of CVD and related conditions, Liverpool persons 40 years and over

*Source: Liverpool CCG Risk Stratification Data Extract Effective Date: October 2017. CVD=Cardiovascular Disease
PAD= Peripheral Arterial Disease; TIA=Transient Ischaemic Attack*

Whilst CVD mortality rates have fallen substantially in the last twenty years, there has not been an equivalent fall in the number of people living with CVD. Table 1 shows that since 2008/09, there has been an overall increase in the number of people living with CVD. Some

of this increase may be due to improved case finding within primary care, but it is also likely to be because of improved treatment and survival rates.

Time Period	Atrial Fibrillation		CHD		Heart Failure		Hypertension		Stroke/TIA	
	Count	%	Count	%	Count	%	Count	%	Count	%
2008/09	6,409	1.33	19,821	4.12	3,699	0.77	62,007	12.89	8,317	1.73
2009/10	6,551	1.35	19,620	4.03	3,657	0.75	63,515	13.04	8,483	1.74
2010/11	6,776	1.38	19,252	3.93	3,625	0.74	65,064	13.27	8,609	1.76
2011/12	7,118	1.44	19,076	3.87	3,805	0.77	66,020	13.40	8,776	1.78
2012/13	7,411	1.49	18,775	3.78	3,863	0.78	66,803	13.46	8,615	1.74
2013/14	7,676	1.53	18,447	3.69	3,953	0.79	67,396	13.48	8,666	1.73
2014/15	8,027	1.59	18,185	3.61	3,974	0.79	68,214	13.52	8,715	1.73
2015/16	8,604	1.68	17,931	3.50	4,300	0.84	68,990	13.46	8,921	1.74
2016/17	9,514	1.82	17,989	3.44	4,660	0.89	70,952	13.57	9,169	1.75
Variance 08/09 - 16/17	48%	37%	-9%	-17%	26%	16%	14%	5%	10%	1%

Table 1: Trends in Disease Prevalence, 2008/09 – 2016-17

Source: Quality and Outcomes Framework, Health and Social Care Information Centre

Hypertension

Hypertension (high blood pressure) is a major risk factor for stroke, myocardial infarction, heart failure, chronic kidney disease, cognitive decline and resulting premature death. Untreated hypertension is usually associated with a progressive rise in blood pressure, which in turn is associated with an increased risk of mortality from ischaemic heart disease and stroke (NICE Guidance CG127, August 2011). 29.5% of people aged 40 and over in Liverpool have high blood pressure (Risk Stratification Data Extract, October 2017). Evidence suggests that almost 50,000 people with high blood pressure remain unknown to Primary Care.

Atrial Fibrillation

1.1 million people have AF in England, but around a third (34.8%) are unaware of their condition. People with AF are five times more likely to have a stroke. But a high proportion of AF can be prevented by combining strategies, focusing on the high-risk population for better risk factor management, and emphasizing healthy lifestyle choices in the whole population (Du et al 2017).

There is a significant case for trying to increase identification of individuals at risk of AF, in order to provide treatment that can reduce the risk of stroke. Nationally, AF affects nearly 2.4% of the population. In Liverpool, 2.1% of the population are estimated to be living with AF. Atrial Fibrillation (AF) related illness costs the NHS 2.2bn per year.

Raised cholesterol

As many as 60% of adults in England have raised cholesterol, which is another key risk factor for CVD. In Liverpool there were 32,500 (6%) people with their CVD risk score measured in the last 12 months, of whom 8,000 (25%) were prescribed a statin (Source: EMIS January

2018). An estimated 1 in 500 people have Familial Hypercholesterolaemia (FH), a genetic cause of raised cholesterol affecting individuals since birth. In Liverpool, 627 people (0.1% of the registered patient population) were recorded as having familial hypercholesterolemia, which suggests this is an underestimate of the true prevalence. A further 6,174 people were recorded as having a family history of high cholesterol (Source: EMIS effective date March 2017). Once diagnosed, high cholesterol can be managed effectively, reducing the probability of developing further complications. In the case of FH, NICE recommend systematically searching primary care records to identify those at risk, cascading of testing to family members and prescribing of high intensity statins (NICE, CG71, 2008).

Poor metabolic health leads to high cholesterol, high blood pressure, pre-diabetes, diabetes and obesity. This is strongly linked to poor quality diet (lacking nutrient density and adequate protein) and sedentary behaviour. These specific triggers can lead to insulin resistance (a condition of impaired hormonal signalling within organs and tissues). This impairment of insulin balance within the body can drive higher insulin levels that further contribute (as a main driving force) for raised liver cholesterol production, salt retention in the kidney and high blood pressure, impaired fat breakdown etc. Therefore dietary recommendations and physical activity promotion are paramount over pills.

Major Risk Factors for Cardiovascular Disease

Cardiovascular diseases are a group of largely preventable conditions, which are caused by a mixture of social, economic and environmental factors and modifiable risk factors (often referred to as 'lifestyle' risk factors. Identifying people who are at increased risk of developing CVD is important for targeted approaches to prevention. However, evidence shows that universal, whole population approaches will deliver most benefit to the population as a whole.

Social, economic, and environmental factors

Many factors in the make-up of our society produce harmful behaviours by influencing individual and community understanding, actions, and behaviours. For example:

- The nature of food and drink production and availability,
- The presence or absence of environments that encourage and enable physical activity,
- The availability of smoke and pollution-free environments, and
- Access to good quality housing, education and quality employment.

These factors, and many more combine to make unhealthy choices easy and healthy choices difficult, especially in communities that already have poor health outcomes. However, focusing on individual behaviour places people under substantial pressure to change their lifestyles when they may not have the capacity or resources to do so. Indeed, estimates have suggested that of the gap in health outcomes between the most and least wealthy, only 10-30% may be explained by differences in health-related behaviours (Lantz *et al* 1998). This

suggests that the remaining 70–90% of the gap is determined by other factors in the individual's social environment.

Consequently, communities with poor quality housing, high unemployment and low incomes, are more likely to develop CVD and die younger than expected as a result. In Liverpool, premature mortality from CVD is strongly related to household deprivation. Mortality rates are more than twice as high in the most deprived areas of the city compared to the least deprived. Kensington and Fairfield, Picton, Everton, Norris Green and Kirkdale electoral wards have rates of premature mortality from CVD, which are significantly higher than the city as a whole, while rates are significantly lower in Church, Childwall, Mossley Hill, Allerton and Hunts Cross, Cressington and Woolton (Figure 5).

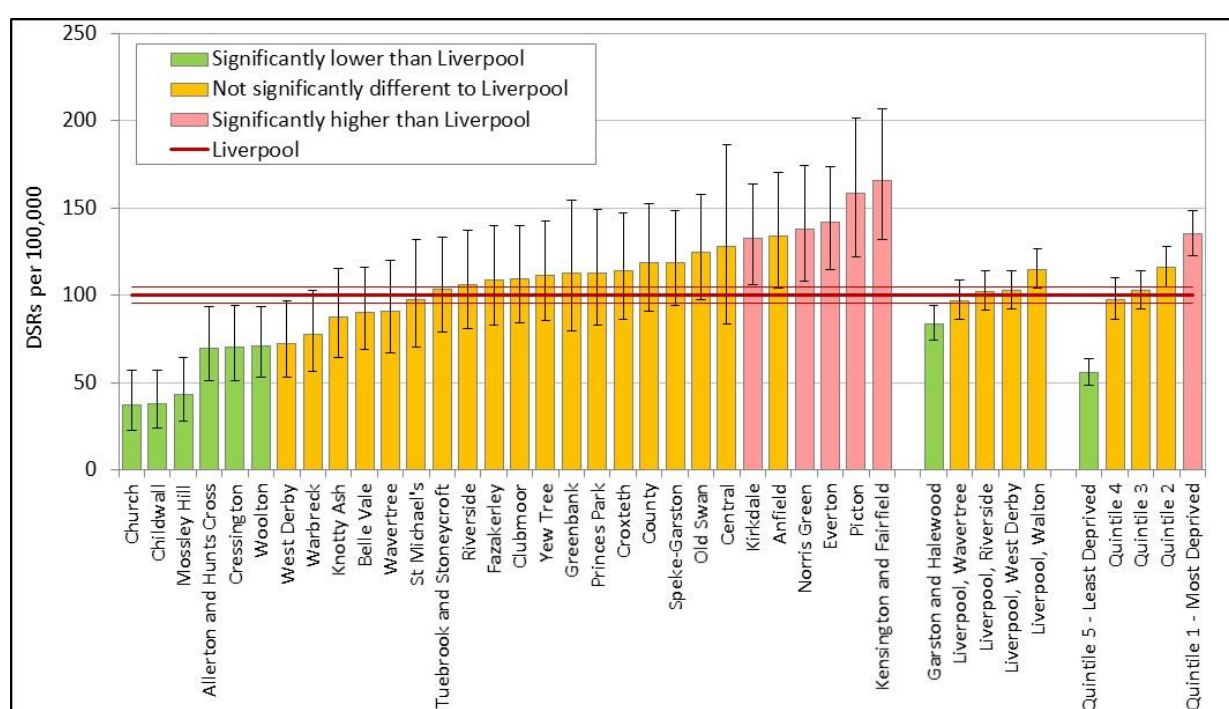


Figure 5: Under 75 CVD mortality by Liverpool ward and deprivation quintile, 2012-16 (5-Year Pooled)

Source: Open Exeter PCMD

Marmot's work on the social determinants of health emphasises the need for strong, resilient communities. Asset based approaches, which recognise the strengths that already exist in communities need to be enhanced and strengthened, so that communities find their own solutions to creating environments that enhance health.

Age, Sex and Ethnicity

As with other conditions, the prevalence of cardiovascular disease increases dramatically with age. For example, in England, the proportion of men with CVD increases from 1.5% in those aged 16-44, to 34% in those aged 75 and over (British Heart Foundation 2015).

National evidence shows that among the South Asian population, the risk of dying prematurely from Coronary Heart Disease is twice that of the general population (Department

of Health 2004), while the incidence of Stroke is highest among people of African Caribbean descent (Scarborough *et al.* 2011).

Adverse Childhood Experiences (ACEs)

In addition to these wider determinants of health, there is a growing recognition that family relationships play a crucial role in formative years, moulding the infant's brain in a way, which affects health throughout the life course. The risk of developing chronic illnesses in adulthood such as CVD is known to be strongly associated with exposure to adverse experiences during childhood (e.g. Felitti *et al* 1998; Korkeila *et al* 2010). The World Health Organization (WHO) recognises ACEs as some of the most intensive and frequently occurring sources of stress that children may suffer early in life that can later manifest as poor adult health (WHO 2015). Such traumatic experiences include exposure to:

- abuse (physical, emotional, and sexual)
- neglect (emotional and physical), and
- being part of a household that experiences:
 - domestic abuse
 - parental mental illness
 - substance misuse
 - an incarcerated family member,
 - parents who are separated or divorced.

ACEs are highly prevalent in the population. In a recent large survey in Wales (CPH 2015), almost half (47%) of respondents reported having experienced at least one ACE and more than 1 in 10 (14%) reported experiencing four or more ACEs during childhood.

There is good evidence that exposure to chronic, traumatic stress in childhood alters how a child's brain develops. Persistent exposure to a heightened state of alert or stress can lead to physiological 'wear and tear' on a child's body with an increased risk of premature ill health including the development of conditions such as cancer, CVD and diabetes. Furthermore, exposure to ACEs can also leave young people with feelings of low self-worth and an attraction to behaviours that offer short-term relief at the expense of their longer-term health. This may be a means of unconsciously helping regulate post-traumatic stress because of exposure to ACEs. The emerging evidence on ACEs add to the existing understanding that there are strong associations between various forms of childhood maltreatment and subsequent mental illness that can occur, such as depression, anxiety, post-traumatic stress, other psychiatric disorders, and emotional behavioural problems.

This combination leaves affected individuals prone to adopting a range of harmful behaviours during adolescence that include smoking, harmful alcohol consumption, poor diets and physical inactivity – all significant pre-cursors to CVD. Consequently, a number of studies have demonstrated that for those adults with ACE scores of four or more, there is a significantly higher risk of developing CVD and diabetes than those with ACE scores of zero.

It is clear that any strategy designed to prevent the development of CVD needs to recognise the importance of preventive services and approaches for vulnerable children and young

people who are at risk to abuse, neglect and problematic home environments. The evidence is well established in this regard, that the safeguarding of children and young people as the future adult population of the city plays a key role in preventing further onset of chronic illness in adulthood including CVD and which can help stem the rising tide of demand.

Cardiovascular Disease and Mental Health

The link between mental health and CVD is well established. People with mental health problems are more likely to develop cardiovascular disease, and people with existing cardiovascular disease have worse outcomes when they have associated mental health problems. Treating mental health as an important risk factor for cardiovascular disease is therefore important in reducing the burden of CVD in Liverpool, and placing mental health at the heart of treatment pathways for CVD is an essential part of improving outcomes for patients who develop CVD. Additionally, people with severe mental illness have especially high rates of cardiovascular disease and require tailored interventions in order to reduce these. Mental health problems are risk factors for the incidence, severity and outcome for CVD (Elderson and Whooley, 2013).

Approximately 20% of patients with CVD suffer from major depressive disorder. Depressive symptoms are a predictor for worsening CVD risk factors in patients with existent CVD, such as physical inactivity, higher BMI, and smoking. They are also associated with poorer medication adherence, meaning any resulting comorbidities may then be harder to treat (Sin et al 2016). CVD patients who have more depressive symptoms show higher rates of functional decline, in the same study traditional measures of CVD severity (Cardiac function, presence of angina) were not predictive of functional status decline (Sin et al 2014). Treating depression in CVD patients has potential to reduce morbidity and mortality from CVD. Evidence shows that treating depression in those with coronary heart disease can reduce further coronary heart disease events (number needed to treat (NNT) = 34) (Rutledge et al 2013).

Mental Health and Cardiovascular Disease

People with mental health problems are more likely to develop cardiovascular disease. This is only in part due to higher rates of modifiable risk factors and side effects of psychotropic medications; mental health problems are themselves independent risk factors for cardiovascular disease.

People with mood disorders are 1.5 times more likely to develop heart disease and those with anxiety are 1.8 times more likely than those without a mental health problem. A separate cohort study showed people with depression are 4.5 times more likely to have a myocardial infarction (De Hert et al, 2009). Mood disorders represent 6.2% of the population attributable risk for heart disease, while anxiety disorders represent 11.1% of the population attributable risk (Scott et al, 2016). The INTERHEART study showed that psychosocial factors (depression, locus of control, perceived stress and life events) increased the risk of myocardial infarction (a heart attack) by 2.67 times, accounting for 32.5% of the population attributable risk.

Psychosocial factors therefore represent a greater risk for myocardial infarction than obesity or diagnosed diabetes (Yusuf et al, 2004).

People with severe mental illness (SMI), such as schizophrenia or bipolar affective disorder have significant excess cardiovascular mortality. This is partly due to an increase in modifiable risk factors such as obesity, smoking, diabetes, hypertension, dyslipidaemia, antipsychotic medications can also worsen metabolic risk factors. People with SMI have lower rates of cardiovascular risk screening and treatment for risk factors.

Liverpool picture

The background prevalence of depression in Liverpool is 9.2% (PHE, 2017).

However people with cardiovascular disease have higher rates of depression:

- 18% of people in Liverpool with hypertension, 17% of people with heart failure, 21% of people with coronary artery disease and 15% of people with atrial fibrillation have an additional diagnosis of depression (CCG, 2017).

As a city, we cannot address CVD prevention without addressing the interactions between mental and physical health.

Intervention recommendations and evidence:

Efforts to improve mental health and wellbeing in the city should have knock on effects in prevention of CVD and improving CVD outcomes (King's Fund 2012).

Commissioners have a duty to promote services that integrate physical and mental health (King's Fund 2012).

People with long term conditions should be particular targets for public health approaches towards mental health (King's Fund 2012).

Active case-finding for mental health problems should be carried out in people with long term conditions (SIGN 2017).

Addressing mental health problems should form part of cardiac rehabilitation pathways (SIGN 2017).

People with severe mental health problems should undergo targeted screening for cardiovascular disease (NICE 2014, NICE 2016).

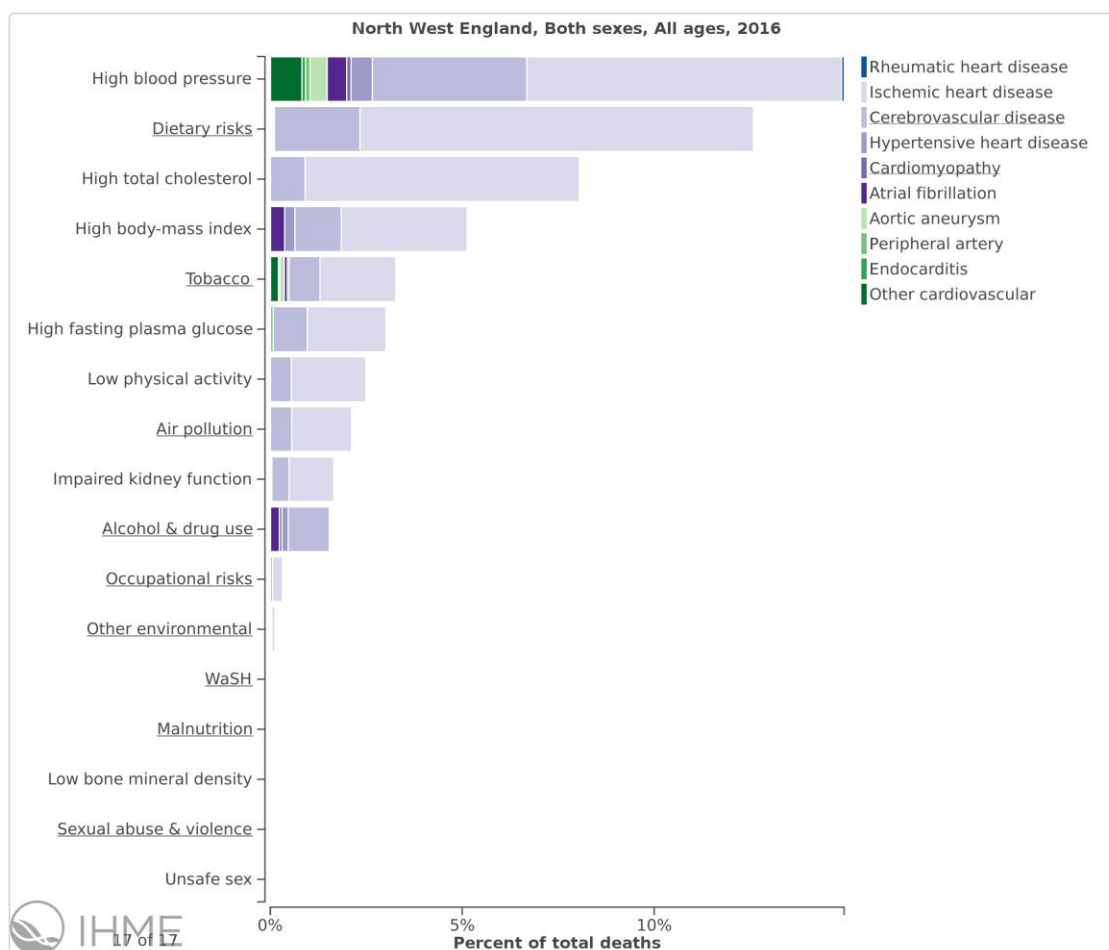
Diet, smoking, alcohol and physical activity

The lifetime risk of CVD is strongly influenced by smoking, dietary habits, alcohol consumption and physical activity levels. These habits are often established during childhood. In more than 90% of cases, the risk of a first heart attack is related to nine potentially modifiable and inter-related risk factors (NICE 2010), many of which are inter-related. For example, 20% of all hypertension is linked to alcohol misuse. These inter-related risk factors are:

- Poor diet
- Smoking/tobacco use
- High blood lipids
- High blood pressure
- Overweight/obesity
- Diabetes
- Psychosocial stress
- Excess alcohol consumption
- Insufficient physical activity

In 2016, the Global Burden of Disease Study (Institute for Health Metrics and Evaluation GBD 2015) identified high blood pressure, dietary risks, high cholesterol, obesity and tobacco as the leading risk factors for CVD deaths, among the North West (Figure 6).

The Global Burden of Disease study underlines both the interaction of risk factors and the importance of prevention in improving health and wellbeing. This suggests that strategies to address these risk factors need to be integrated and addressed at a population level in order to have maximum impact. Again, in the contemporary era, the recognition that lifestyle factors worsen insulin resistance (e.g. stress, smoking, sedentation, dietary excess) and this promotes further compensatory hyperinsulinaemia that manifests as further downstream effects, such as high blood pressure, high lipid values/ratios etc. must be understood to treat true root causes.



Source: Global Burden of Disease Study 2016

In Liverpool:

- 2 in 3 adults are overweight or obese
- 1 in 5 adults smoke
- 1 in 5 adults drink at increasing or high risk levels
- 1 in 4 adults have fast food once a week
- 1 in 4 adults are physically inactive

Available information for Liverpool on diet, smoking, alcohol and physical activity is summarised in the table below.

Lifestyle Factor	Liverpool Characteristics
Diet	<p>The average Liverpool citizen eats two portions of fruit and two portions of vegetables per day. Around two in five people (38%) eat the recommended daily amount of five portions of fruit and vegetables per day. The proportion of those who eat five or more portions of fruit and vegetables is highest among the following groups:</p> <ul style="list-style-type: none"> • Women compared to men (41% compared to 35%); • Black and Minority Ethnic (BME) people compared to White people (43% compared to 37%); • Full-time and part-time workers compared to non-workers (43% and 40% compared to 35%); • Owner occupiers and private renters compared to social renters (43% and 39% respectively compared to 30%); <p>Overall, 26% of adults in Liverpool consume fast food at least once a week. A further 46% consume fast food once or twice a month or less, and one in four report never eating any form of fast food (26%).</p> <p>More than half of all residents in Liverpool are overweight or obese: 34% are overweight and 21% are obese. Liverpool men are significantly more likely to be overweight than women. In total, 39% of men are classified as overweight, compared to 29% of women. However, there is little difference in the level of obesity (20% of women compared to 21% of men).</p>
Smoking	<p>Liverpool's adult smoking prevalence reduced from 35% to 18.9% between 2005 and 2016. One in five adults in Liverpool still smoke, which is still higher than the England average of less than one in six (15.5%). Smoking rates are higher among routine and manual workers in Liverpool (28.8%) than they are in the rest of England (26.5%).</p> <p>In Liverpool, one in seven pregnant women smoke at the time of delivery compared to one in ten nationally although the gap between Liverpool and the national average on this indicator has narrowed over the last five years.</p>
Physical Activity	<p>Just under a third of Liverpool citizens engage in moderate-intensity activities such as brisk walking, cycling, or swimming for at least 10 minutes continuously (32%). The average number of days on which moderate-intensity activities are conducted is 3.3.</p> <p>A smaller proportion of adults engage in vigorous-intensity activities such as running or football (23%). People engage in these sorts of activities on an average 3 days per week.</p> <p>Half of Liverpool's population do not take part in any sport or active recreation. Sport England estimate the cost of physical inactivity in Liverpool to be £10.8 million per year, based on five of the most common conditions that being physically active can prevent (diabetes, CHD, hypertension, breast cancer, and colon cancer).</p>
Alcohol	<p>Alcohol consumption is highest among Liverpool's youngest people (62% of those aged 18-24 drink alcohol compared to 47% of those aged 65 and over). Of the other adults in the city aged between 25 and 64, almost three in five (57%) are drinkers. Although older people are less likely to drink alcohol than younger people, those who do drink do so</p>

	<p>more often. The proportion that drink at least once a week grows with age, ranging from a low of 60% of 18-24 year olds to a high of 76% among those aged 55 and over.</p> <p>A significantly larger proportion of Liverpool men drink alcohol compared to Liverpool women (63% compared to 49%). Alcohol consumption is also more prevalent among:</p> <ul style="list-style-type: none"> • White people compared to BME people (60% compared to 30%); • Full-time and part-time workers compared to non-workers (67% and 60% respectively compared to 49%); • Owner occupiers and private renters compared to social renters (61% and 57% respectively compared to 48%); • People who smoke daily, occasionally, or who used to smoke, compared to those who have never smoked (58%, 70% and 66% respectively compared to 53%); • People who describe their general health as being good compared to those who consider it bad (60% compared to 38%). <p>Overall alcohol related hospital admissions have increased by 13.9% between 2008/09 and 2015/16 in Liverpool. This is contrasted with a reduction in the rate of admission for those under the age of 18, which is now similar to the England average. In 2015/16, there were 12,600 alcohol related admissions to hospital, with a clear socioeconomic gradient seen; alcohol is a more prevalent problem in more deprived communities.</p>
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Source: Tobacco Profiles (2017) The Liverpool Lifestyles Survey, 2011/12, Alcohol Profiles (2017) and Sport England

Air Quality

There is extensive evidence that long-term exposure to air pollution over several years contributes to the development of cardiovascular disease, lung cancer and respiratory disease. Poor air quality can have long-term impacts on all and more immediate effects on the vulnerable. It has a disproportionate impact on the young, elderly, those with cardiovascular and/or respiratory disease and the poor. Those who spend more time in highly polluted locations will be affected more. Air pollution can be viewed as a stressor, interacting with others stressors like diet and deprivation to increase susceptibility to disease (Royal College of Physicians, 2016). Deprived communities are more likely to be situated near busy roads and are more likely to have their health affected by air pollution.

Air pollution is a mixture of both particles and gases and key pollutants of concern include particulate matter (PM) and nitrogen dioxide. A 2010 study of the effects of long-term exposure to particulate matter air pollution estimated that it caused the equivalent of around 29,000 deaths and an associated loss of population life of 340,000 life years every year in the UK (COMEAP, 2010). Particulate air pollution contributes to an estimated 4% of all deaths in Liverpool.

The evidence-base around the health impact of nitrogen dioxide is developing. Defra has estimated that nitrogen dioxide contributes to the shortening of lives by around 5 months on average, with the greatest impact suffered by people with existing ill-health. The impact of nitrogen dioxide pollution in the air is estimated to be equivalent to nearly 23,500 deaths in the UK per year.

Day to day peaks of air pollution are linked with increased hospital admissions for both cardiovascular and respiratory conditions. PM is inhaled into lungs and the finest particles are absorbed into the bloodstream. Exposure for a few hours to high levels of PM can bring on heart attacks or strokes in people with pre-existing cardiovascular disease.

Both indoor and outdoor air pollution are important. Much of the air pollution in urban areas like Liverpool comes from traffic, with the highest concentrations beside busy roads. At a national level, 38% of particulate matter air pollution is produced by UK households burning wood, coal and solid fuels in open fires and stoves.

Legal limits are in place to protect health. Liverpool and the wider city region is close to failing to meet the European Union (EU) air quality standard for Nitrogen Dioxide (NO₂) which is measured as an annual mean of 40µg/m³. Liverpool meets the required EU air quality standard for particulates but not the WHO recommended standard. However, there is no evidence of a safe level of exposure to air pollution and peoples' health can be affected well below current EU and UK limits. Importantly, air pollution varies highly across local areas, with highest levels nearest sources of emissions, for example, right beside busy roads or closest to an open fire. Levels reduce rapidly over very short distances.

Local pollution hotspots create scope for local action to reduce peoples' exposure to air pollution. Any improvement in air quality will have positive health consequences.

People can reduce both their contribution to air pollution and their exposure to air pollution, for example, by being less reliant on cars, driving in a style that reduces emissions (avoiding rapid accelerations and decelerations, reducing the time spent with an engine "idling" and keeping vehicles correctly maintained), and changing routes to avoid highly congested areas.

Actions to limit air pollution can have wider population benefits. For example, active transport policies can reduce vehicle emissions and pollution, and reduce population rates of heart disease and diabetes.

The Mayor of Liverpool has established a group to accelerate action to improve air quality, including promoting use of cleaner vehicles, enforcing action against idling vehicles, active travel plans, increased use of public transport along with more sustainable transport methods such as walking and cycling, improving data and intelligence around air pollution and collaborative work with the Combined Authority to explore the feasibility of a Clean Air Zone. Priority work also includes raising public awareness about the impact of air pollution and actions they can take to protect themselves and contribute to reducing air pollution.

Green spaces

The benefits of green spaces are recognised as important determinants of public health. It is increasingly acknowledged that the ways in which cities are designed can help those who reside and work there to live healthy lives. Green spaces include both 'natural' and 'semi-natural' areas such as parks, woodlands, allotments, playing fields, amenity green spaces in and around housing, and green corridors such as cycle ways. 'Accessible' green space is considered to be that which is located close to residents' homes, easy to walk to, physically accessible, safe to use, and provides well-maintained facilities (Balfour and Allen, 2014).

However, green space is not evenly distributed: the most affluent 20% of wards in England have five times the amount of green space as the most deprived 10% of wards (Balfour and Allen, 2014).

Data from the *Monitor of Engagement with the Natural Environment* survey (Natural England, 2015) show that some population groups (disadvantaged social groups, those living in urban deprived areas, older people, minority ethnic groups, and those with disabilities) are less likely to visit green spaces, therefore have less opportunity to gain the health benefits associated with green space. Barriers to accessing green space include poor maintenance, inadequate facilities and fears over safety (Buck, 2016).

Green spaces can facilitate active travel if they are incorporated into walking and cycling routes used for everyday journeys. Urban planning can be used to create connected street network patterns within neighbourhoods to promote walking for transport and to reduce motor vehicle dependency (Giles-Corti *et al*, 2016).

Liverpool has a large number of green spaces. In addition to the Country Park at Croxteth, the city benefits from historic Victorian parks, small street-level, incidental and neighbourhood green and open spaces, civic and pedestrianised areas, green spaces within the grounds of institutions, and a long waterfront area (which blends 'blue' and 'green' spaces). Sefton Park, Stanley Park and Chavasse Park all have Green Flag status. However, open spaces are not evenly distributed across the city – the lowest levels of open space are in the City Centre and surrounding areas. It has been observed that the distribution of green infrastructure closely maps onto patterns of ill health: areas of the city with a higher incidence of non-communicable diseases also have lower levels of green infrastructure (Liverpool City Council, 2016).

The Public Health Outcomes Framework (PHOF) includes an indicator on the use of outdoor space for health or exercise reasons. In Liverpool, 17.4 % of people use outdoor space for exercise or health reasons (in the Liverpool City Region, only Sefton has a lower rate at 15.6%), compared to a North West average of 17.3% and an England average of 17.9%.

Impact of parks on population health

Natural England has described green spaces as the 'Natural Health Service' (Natural England, 2008), and there is a considerable body of evidence of association between access to high-quality green space and a wide range of physical and mental health indicators (Buck, 2016).

In terms of physical health conditions, living near good-quality green space has been shown to have a positive effect on blood pressure, and has been linked to long-term reductions in heart disease, cancer and musculoskeletal conditions, to better self-rated health, increased longevity in older people, and lower rates of type 2 diabetes (Balfour and Allen, 2014; Buck, 2016; Shanahan *et al*, 2016). Studies of people with dementia have shown that exposure to gardens reduces agitation, aggression and other symptoms (Buck, 2016). Research has also found that living in an area with more neighbourhood tree cover was significantly associated

with better general health (after adjusting for demographic, socioeconomic, and built environment covariates) (Ulmer *et al*, 2016).

Living near high-quality green space has also been associated with higher levels of wellbeing and improved mental health outcomes, particularly in urban areas, with the strongest association for depression and anxiety disorders (and after controlling for socioeconomic factors) (Balfour and Allen, 2014; Buck, 2016; Shanahan *et al*, 2016).

There is strong evidence that good-quality open spaces are associated with higher levels of physical activity (Balfour and Allen, 2014; Buck, 2016). Parks most likely to generate physical activity have specific characteristics: they typically form part of a network with trails, are well lit and are surrounded by lower speed streets. It has also been reported that exercising outdoors in a natural environment is associated with a greater intention to repeat the activity (compared to a synthetic indoor environment such as a gym) (Liverpool City Council, 2016).

Studies have also found an association between accessible green space and reduced levels of obesity (after controlling for socioeconomic status and other characteristics). Proximity to green space is a key issue, with those living close to green space most likely to use it frequently, and in turn to be more likely to maintain a healthy weight (Balfour and Allen, 2014; Buck, 2016).

Importantly, green spaces such as parks can moderate the effects of income inequality on health inequalities. Research suggests that people in low incomes who live near large areas of green space have lower death rates than people who have access to the least green space (Mitchell and Popham, 2008).

In the context of the benefits green spaces offer to health, social prescribing has been used to refer patients to nature-based interventions (also known as 'green care' and 'ecotherapy'). Participants can be referred (or self-volunteer) to a wide range of activities, from community gardening to woodland conservation (Buck, 2016).

Return on investment in parks for population health

Spending on parks and green spaces can offer a considerable return on investment (ROI) in the light of the high health and social costs associated with obesity, and poor mental and physical health. I

A cross-sectional study using nationally representative *Monitor of Engagement with the Natural Environment* survey data (n=280,790) estimated nature visit frequency across England. The study found that 19.5% of the population (more than 8 million adults) (95% CIs: 7.93, 8.54) made at least one 'active visit' lasting longer than 30 minutes to natural environments in the previous week – totalling more than 1 billion (95% CIs: 1.14, 1.32) 'active visits' annually. It was estimated that over 3 million (95% CIs: 3.05, 3.35) of these adults met the recommended physical activity guidelines (five half hour sessions each week) fully, or in part, through these visits. Active visits by this group were associated with an estimated 109,164 (95% CIs: 101,736, 116,592) Quality Adjusted Life Years (QALYs) annually – with an

annual value of more than £2bn (the social value of a QALY was assumed to be £20,000) (White *et al*, 2016).

This study however was limited by only measuring short-term benefits (over a 12 month period), and by using QALYs to measure health outcomes only, with no consideration of the wellbeing element. These limitations means that the authors' reported £2 billion value per year is likely to be a substantial underestimate of the ROI offered by programmes to promote the use of the natural environment.

Green Gyms

The British Trust for Conservation Volunteers Green Gym project is an intervention which uses special guides to support people to engage in physical, outdoor activities in local green spaces. Cost-benefit analysis has estimated that for every £1 invested in green gyms, £2.55 could be saved in treating illness related to physical inactivity. Cost-effectiveness analysis estimated that the scheme delivered 132 QALYs at a cost of £4,031 per QALY based on participation in one Green Gym session per week (Balfour and Allen, 2014)

Social prescribing

Analysis of data on social prescriptions for woodland activities for those with mental health problems in the Scottish Branching Out programme suggested a cost of £8,600 per QALY (highly cost effective by NICE benchmarks) (Buck, 2016).

Social prescribing of interventions including gardening in Rotherham reduced A&E attendance, outpatient appointments and inpatient admissions, and led to increases in wellbeing. The Rotherham scheme was estimated to be able to pay for itself over

18–24 months in terms of reduced NHS use (Buck, 2016).

Walking interventions

Walking for Health aims to increase physical activity through regular short walks within local communities. The programme is run by the Ramblers and Macmillan Cancer Support and has been delivered at the local level by NHS organisations, local authorities and the voluntary sector. Cost–benefit analysis has estimated that the intervention could deliver 2,817 QALYs at a cost of £4,008.98 per QALY - based on life-cost averted, this would make a saving to the NHS of approximately £81m (Balfour and Allen, 2014).

The Glasgow Health Walks intervention aims to improve physical activity levels and quality of life by working with local organisations to establish and support local health walks. Walks are facilitated by trained coordinators who work directly with communities to build community capacity to carry out the programme. Cost–benefit analysis of the intervention produced a ratio of £8 in benefits to every £1 invested (Balfour and Allen, 2014).

If all of the above interventions would be subject to an approval process for use in the NHS like the one used by the Technology Appraisal Programme at NICE (where a threshold on £20,000 per QALY is generally being used to assess cost-effectiveness), then the recommendations for the NHS would be to implement them within 90 days of approval.

Healthcare practitioners in Liverpool could use this evidence to support patients, especially those reluctant to engage in formal exercise programmes, recognising that even regular walks in the park can have meaningful benefits for their health.

By acknowledging the value to health from parks and other green spaces, the NHS could contribute to efforts to protect these settings from disrepair.

This could be done through a few avenues:

- Building preventive activities in parks with tariff based activities, for example using an 'Exercise for health' model around specific medical conditions (musculoskeletal conditions, cardiovascular disease rehabilitation, mental health).
- Invest in the Park Run concept, linked to GP practices which is being rolled out nationally. Use the investment to focus on inactive segments of the population, thus contributing to the implementation of the physical activity strategy in Liverpool.

Scaling up cardiovascular disease prevention in Liverpool: the pyramid of interventions

Evidence shows that the best approaches to CVD prevention are those that make healthier choices easier and shape society and the city environment to enable healthy lives. Our systems need to focus on upstream, population level interventions, including targeted policy interventions and 'Health in All Policy' approaches. We need to go beyond individual clinical care and individual level behaviour change. This is particularly the case when resources are scarce, because these approaches are generally more cost effective and equitable. Although politically challenging, these approaches can achieve substantial and surprisingly rapid reductions in CVD (Capewell and O'Flaherty, 2011).

Whilst education and awareness raising are important, they are the least effective interventions for changing the behaviour of the whole population. They can increase inequalities; as communities that are more affluent tend to have the resources which enable them to respond to these the most.

The 5-tier pyramid (figure 7) shows the relative value of interventions that will prevent CVD in Liverpool. In this pyramid, efforts to address socioeconomic determinants are at the top. These 'upstream' interventions will have the most impact on population health and require least individual effort. These are followed by public health interventions that change the context for health, protective interventions with long-term benefits, direct clinical care, and,

at the base of the pyramid, counselling and education. Interventions at the lower tiers are designed to help individuals rather than entire populations, but they could theoretically have a large population impact if universally and effectively applied. In practice, however, even the best programmes at the pyramid's lower levels achieve limited public health impact, largely because of their dependence on long-term individual behaviour change (Frieden, 2010).

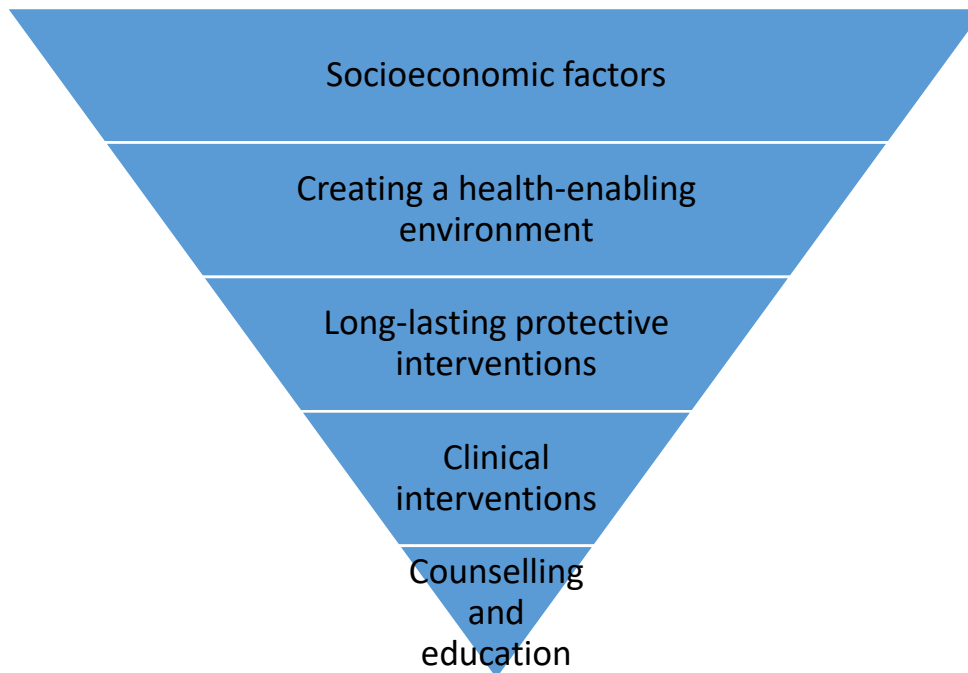


Figure 7. The health impact pyramid. Adapted from Frieden 2010

A recent study from the University of Liverpool (Kypridemos et al, 2016) supports this assertion and suggests that structural population-wide interventions targeting unhealthy diet and tobacco consumption could be three times more effective than the existing national health checks programme, and better able to reduce health inequalities. This study along with one that has been specifically modelled for the Liverpool population provides further evidence that a comprehensive strategy, which combines structural population wide interventions with targeted approaches in the most deprived areas, is most likely to maximize both effectiveness and equity for primary prevention of CVD. This is illustrated in Figure 8.

In order to prevent CVD in Liverpool, and reduce deaths from these conditions, public sector organisations, industry, civil society, communities, families, and individuals must work together to change the social, economic, and environmental determinants of CVD. Liverpool should become a city where healthy choices are normalised and enabled, and where society does not damage, but strengthens health. Though challenging, this vision can be achieved through a Health in All Policies approach.

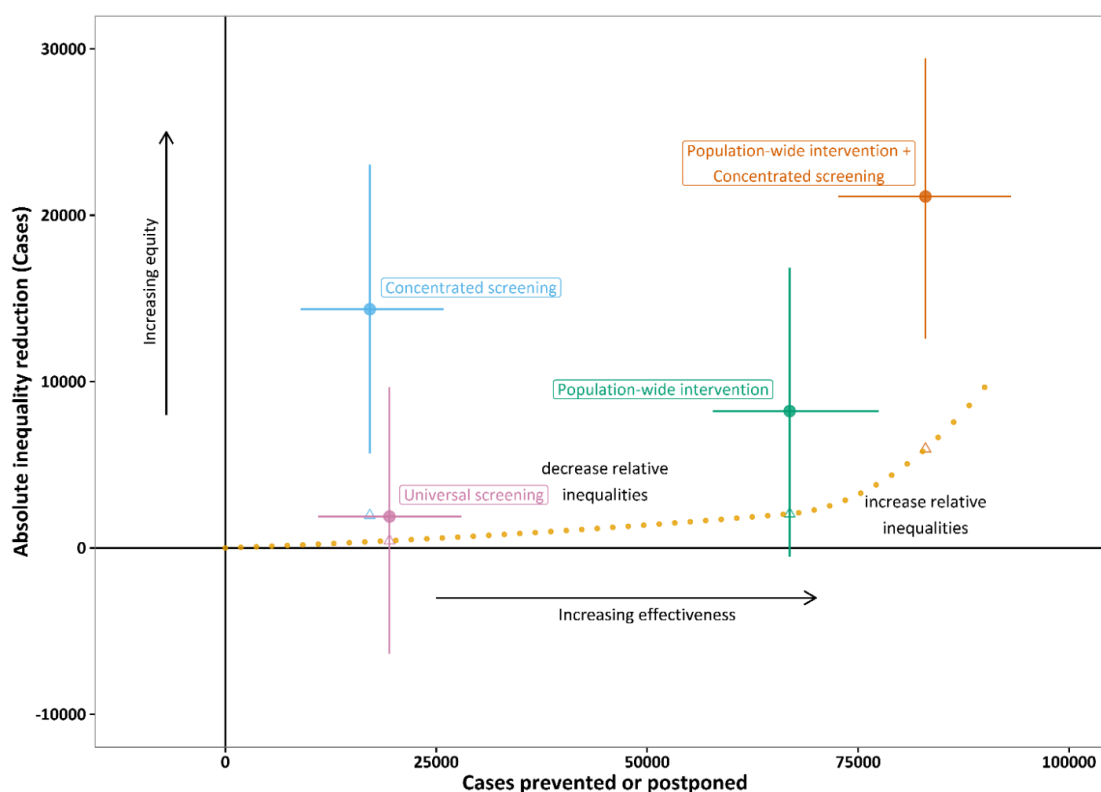


Figure 8 - Equity summary chart of effectiveness and equity of all modelled interventions, compared to baseline scenarios. Dashed line represents equity curve. Interventions below the curve increase relative inequity while interventions above it decreases relative

Focus areas for CVD prevention

This CVD prevention strategy focuses on six areas. These are:

1. Diet: Improve nutrition in children and adults
2. Smoking: Reduce illness, disability and death related to tobacco use and second hand smoke exposure
3. Physical Activity: Increase physical activity and reduce sedentary behavior
4. Alcohol: Reduce illness, disability and death related to alcohol consumption
5. Psychosocial stress: improve mental health and wellbeing
6. Healthcare: Identify a higher proportion of patients with poor metabolic health manifesting as high blood pressure, deranged cholesterol values, obesity, AF. Treat them with lifestyle interventions first line and ensure they are optimally managed.

Focus Area 1: Diet

- Overall Objectives and indicators:
 - By December 2027, reduce the percentage of children in Reception who are overweight and obese as measured by the NCMP from 26.8% to 22.8% or lower

- By December 2027, reduce the percentage of adults ages 18 years and older who are obese from 64.6% to 60%¹
- Increase the proportion of the population who eat 5 portions of fruit and vegetables per day from 48.2% to at least 63%²
- Reduce salt intake from 8-10g/day (national value) to the WHO target of 5g/day for adults and between 1 and 5g for children depending on age.
- Reduce added sugar, sugar sweetened processed food and drink intake in line with WHO recommendations.

“Over the last 30 to 40 years there have been profound changes in our relationship with food – how we shop and where we eat as well as the foods available and how they are produced. Food is now more readily available, more heavily marketed, promoted and advertised and, in real terms, is much cheaper than ever before. All of these nudge us towards over consumption. The changes have crept up on us and while none of this is anyone’s fault, it is time to do something about it”
(Public Health England, 2015)

Diet has overtaken tobacco as the major risk factor for its contribution to disease and CVD in particular. In 2014, it was estimated that almost 1 in 5 of the population are obese. Recent estimates suggest that over one third of children in Year 6 and almost two thirds of adults in Liverpool are now overweight or obese. Tackling obesity in children is crucial given the relationship between childhood and adult obesity.

There are two important aspects to healthy weight: diet and physical activity. However, the food we consume is the main factor effecting both obesity and CVD. A number of different approaches are required at a societal, community and individual level.

Interventions required to improve cardiovascular health include:

- Reduction in dietary salt and sugar consumption
- Reduction in certain forms of saturated fat consumption to <10% of total dietary energy (cakes, biscuits, pastries, processed foods etc), replaced with specific polyunsaturated fats and not with carbohydrates.
- Increase consumption of healthy fats from sources of Omega 3 PUFA and MUFA
- Elimination of trans-fat consumption
- Increasing proportion of people who consume five portions of fruit and green leafy vegetables per day (being mindful of high fructose tropical fruits)
- Food advertising standards to reduce exposure of unhealthy processed foods to children
- Public sector provision of healthy natural foods.
- Clearer food labelling for the public

¹ This reduction is based on a 10% relative reduction in overweight/obesity prevalence. A reduction at this level would not increase the numbers of people who are obese/overweight in the population. If prevalence stays at the same level (which it has for several years) there will be an additional 30,000 people in the population who are obese/overweight.

² This target is based on a 30% relative increase from the current level of 36.5%. The current England average is 52.3%

- Healthier 'out of home' food provision
- Nutrition/food preparation training for children and certain adults
- Promotion of healthy diet routines to children
- Building resilience to food advertising amongst children and young people

The Joint British Societies for the Prevention of Cardiovascular Disease (JBS 3) also recommend:

- Avoid/reduce consumption of:
 - Processed meats or commercially produced foods which tend to be high in salt and trans fatty acids
 - Refined carbohydrates, such as white bread, processed cereals
 - Sugar-sweetened beverages
 - Calorie-rich, but nutritionally poor snacks, such as sweets, cakes and crisps.
- Consider regular consumption of real wholegrains (not cereals) and nuts
- Consume at least two servings of fish (preferably oily) per week

In 2015, the Scientific Advisory Committee on Nutrition (SACN) concluded that the recommended average population maximum intake of sugar should be halved: it should not exceed 5% of total dietary energy. SACN also recommended that consumption of sugar sweetened drinks should be minimised by both adults and children, given the association between their consumption and weight gain. Regular consumption of sugar-sweetened beverages (i.e. two servings per day compared with one serving per month) has been associated with a 35% higher risk of Coronary Artery Disease in women, even after other unhealthy lifestyle and dietary factors were accounted for. (The ESC Guidelines on Cardiovascular Disease Prevention, 2016). It has been estimated that if we follow the SCAN recommendations, within 10 years we would not only improve an individual's quality of life but could save the NHS around £500m every year (Public Health England, 2015).

PHE identifies nine food groups that contribute the most to children's sugar intakes. These are yogurts, biscuits, cakes, morning goods (such as croissants, buns and waffles), puddings, ice-cream, breakfast cereals, confectionery, sweet spreads and sauces. There is a national programme to work with industry to reduce the amount of sugar in foods. In April 2018, the 'sugar tax' will come in to force with two rates:

- a lower rate of 18 pence per litre for drinks with a total sugar content between 5 to 8g per 100ml
- a higher rate of 24 pence per litre for drinks with total sugar more than 8g per 100ml

The Liverpool Healthy Weight Strategy

The Liverpool Healthy Weight Strategy, outlines the vision for Liverpool being a city where citizens achieve and maintain a healthy weight throughout their lives. The strategy has three priorities:

1. to reduce the impact of the obesogenic environment
2. to give children the best start in life and stop generational obesity and
3. to motivate and support children and adults to achieve a healthy weight.

Food and Health Priorities outlined in Healthy Weight Strategy

- Commit to the Local Government Declaration on Healthy Weight.
- Lead the development of a 'Health in all Places' plan to ensure all strategies, policies and planning decisions across the City take health into account including highways, social care, retail, the local food economy and health and wellbeing.
- Ensure easy access to nutritional guidance, affordable healthier food and drinks and cap portion sizes in nurseries, schools, youth provision, hospitals, workplaces, residential and care homes through procurement policies, nutrition training of catering staff, discouragement of sponsorship, product placement or private partnerships with companies associated with foods high in fat, sugar or salt.
- Advocate for national guidance to reduce the influence of advertising through marketing and advertising bans. Challenge unhealthy food promotion in particular foods high in sugar, fat and salt and increase children and young people's awareness of the impact of advertising and food marketing.
- Develop and support comprehensive social marketing campaigns to increase public awareness of healthier food and drink options.
- Provide access to information and support for children, young people and adults to enable them to choose and prepare healthier food and drinks e.g. Save Kids from Sugar campaign.
- Ensure women entering pregnancy have appropriate advice, support and guidance to achieve and maintain a healthy weight and good nutritional health throughout their pregnancy and beyond.
- Promote breastfeeding to be the norm for the first six months of life and provide women with motivation and support to initiate and continue breastfeeding for as long as they wish.
- Facilitate infants to be given appropriate and timely complementary foods from six months of age and continue to have a wide and varied healthy diet, following age appropriate nutritional guidance, throughout early childhood.
- Ensure sustainable weight management pathways are in place for adults, children and young people resident in Liverpool.

Interventions by health impact pyramid

Table 1 below lists a range of actions that can be taken at each level of the pyramid to improve nutrition in children and adults to bring about a reduction in CVD.

Focus Area 1: Diet: Improve nutrition in children and adults.	
Levels of Health Impact Pyramid	Local Interventions
Socio-economic factors	<ul style="list-style-type: none"> • Reduce poverty, increase education levels • Partners in all sectors to work together in local communities to develop and implement community-led interventions that address the social determinants of health, using the principle of universal proportionalism • Reduce inequalities in educational levels by deprivation that underlie disparities in obesity risk factors • Maximising income in low income families • Tackling fuel poverty and maximising energy efficiency in homes
Creating a health enabling environment: Change the context to make Individuals' Decisions Healthy	<ul style="list-style-type: none"> • Commit to Local Government Declaration Healthy Weight and through this introduce initiatives such as: <ul style="list-style-type: none"> ◦ Menu labelling & provision of nutritional information in fast food and other restaurants ◦ Rejection of industry sponsorship, advertising, product placement and private partnerships • Lead the development of an overarching Liverpool plan for 'Health in all Places' in order that the Liverpool local plan positively influences food choices, for example, using planning legislation to tackle fast food density, processed food "convenience stores" and increase "green cart" initiatives. • Create workplaces that are health promoting, through the Workplace Wellbeing Charter. All public sector organisations should have healthy vending machines, access to cool drinking water and healthy catering policies, which include clear labelling, portion control and supersize bans, actively managed through contracts. • Support increased use of healthy, locally grown, minimally processed foods at an affordable/subsidised price • Adequately invest in proven community-based programmes that result in improved nutrition and increase community support and reinforcement of these regulations and policies. • Work with local businesses to reduce levels of sodium and poor quality vegetable seed oils in cooking establishments

	<ul style="list-style-type: none"> • Make Liverpool a breastfeeding friendly city which means: adopting regulations, policies and standards to support breastfeeding • Increase the number of schools that establish strong nutritional standards for all foods and beverages sold and provided through schools • Develop 'whole school' approaches to the promotion of healthy eating and nutrient awareness in the school setting. <p>Lobby national government to:</p> <ul style="list-style-type: none"> • Reduce level of sodium in packaged foods and food served in food establishments • Stop the advertising of unhealthy foods to children/adults • Legislate for responsible in-store product placement and promotion for alcohol, high sugar and high salt products
Long-Lasting Protective Interventions	<ul style="list-style-type: none"> • Implement evidence-based wellness programmes for all public and private employees, retirees and their dependents through collaboration with unions, employers and community partnership • Increase awareness of the impact of advertising on children and young people and resilience against it. • Support food banks to offer food of nutritional value • Food policies for schools, hospitals, public institutions • Delivery of school based health promoting interventions that enable children and young people's understanding of food in its natural state, the process of cooking and its value for health and involve children in food preparation and cooking.
Clinical Interventions	<ul style="list-style-type: none"> • Nutrition advice systematically implemented as part of treatment and care pathways, at all levels of care. • Making Every Contact Count • Provide evidence based, perinatal support for breastfeeding mothers • Increase the number of adults from deprived communities who have a health check
Counselling and Education	<ul style="list-style-type: none"> • Ensure access to and incentives for breastfeeding education, breastfeeding counselling and support. • Provide guidance and information on healthy eating and healthy weight as an integral part of children's education from early years onwards • Improve cooking skills

Focus Area 2: Smoking

Overall Objectives and indicators:

- By December 2027, reduce the smoking prevalence to 13%

Around half of all lifelong smokers die prematurely and their deaths will be preceded by costly disease (ASH, June 2016). Smokers under the age of 40 have a five times greater risk of a heart attack than non-smokers. Having a high proportion of smokers in the city costs the local economy an estimated £29.5 million. In addition, smoking-related illnesses result in sickness absence from employment. If we reduced the number of smokers in the city significantly (to a prevalence of 13%), an estimated 91 million pounds that are currently spent on cigarettes could be spent within the local economy. Liverpool has seen smoking rates fall substantially in the last 12 years from 35% in 2005 to 18.9% in 2017.

Liverpool Tobacco Control Strategy

Liverpool City Council has a comprehensive Tobacco Control Strategy, which outlines the mechanisms that are in place to support people to live smoke-free, healthy lives (Liverpool City Council 2014). The strategy sets out the vision for Liverpool to be:

“... a city where children are no longer exposed to tobacco smoke, where smoking prevalence is decreasing year on year, and where smoking is no longer seen as ‘the norm’”

The objectives and priorities of the Tobacco Control strategy are outlined below. We know that people who start smoking at an early age are more likely to smoke for a longer time and are more likely to die from a smoking-related disease compared to those who start smoking later in life (British Medical Association 2007). Reducing smoking prevalence amongst young people is, therefore, a key priority for the CVD prevention strategy.

Similarly, we know that those living in the most deprived areas of Liverpool are more likely to smoke, strengthening the relationship between deprivation and CVD. By prioritising action on smoking prevalence amongst young people and in our most deprived communities, it is expected that we will have the greatest impact on smoking rates across the city.

Much of what has been achieved to date has been possible due to the support from partner agencies such as schools, midwifery services, the family nurse partnership and acute hospital teams and this collaboration must be maintained to further progress the tobacco control agenda.

Liverpool Tobacco Control Strategy Objectives

1. To eliminate children's exposure to second hand smoke
2. To reduce smoking prevalence amongst young people by reducing the uptake of smoking and increasing the rate at which young people quit
3. To reduce smoking related health inequalities within the city by targeting communities where smoking prevalence remains high
4. To reduce smoking prevalence in the adult population from 25% in 2013 to 20% by 2020
5. To lead local and national efforts to restrict and regulate the supply of tobacco – including smuggled and counterfeit tobacco products
6. To maximise the protection of workers from exposure to second hand smoke through effective enforcement of legislation
7. To make LCC an exemplar in smoke free policies and in the support provided to help employees stop smoking

NOTE: the target to reduce prevalence to 20% by 2020 was exceeded in 2017 when smoking prevalence fell to 18.9%

Stop Smoking Services

Two-thirds of smokers would like to quit, but many find this difficult to achieve, due to the addictiveness of nicotine and the psychological and social dimensions to smoking (Department of Health, 2011). Stop smoking services offering nicotine replacement therapy and behavioural support are the most effective way to help smokers quit, with smokers four times more likely to succeed using these services than going alone.

The Liverpool stop smoking service consists of several integrated work strands, co-ordinated by the stop smoking co-ordinator. It includes: a telephone helpline, drop-in group sessions facilitated by trained advisors from the Solutions for Health team, a network of pharmacies who deliver stop smoking support and specialist provision for young people, pregnant women, workers in the workplace and black and minority ethnic (BAME) community residents in Liverpool. Smoking cessation training is also provided to a range of health care professionals, including pharmacy, prison and primary care staff.

Written protocols have been developed for the use of smoking cessation pharmacotherapy, such as nicotine replacement therapy, within hospital settings in Liverpool and a patient group directive for the dispensing of varenicline is being developed.

Liverpool Tobacco Control Priorities

- Denormalise smoking and reduce children's exposure to second hand smoke, e.g. through establishing smoke-free places.
- Improve help for people to stop smoking or to abstain from smoking while using or working in our hospitals and mental health services through promotion of smoke-free policies and services.
- Support LCC staff to quit smoking.
- Shape our stop-smoking service "Smoke-Free Liverpool" to better meet the needs of our BME communities so that uptake is improved.
- Continue to target retailers of illicit and counterfeit tobacco and ensure that no tobacco is sold to under-age children through public health commissioning of Alcohol and Tobacco Unit (ATU).
- Harness the capacity of staff in other sectors to deliver brief interventions to support people to quit through training – e.g. prisons, pharmacies, social care.
- Use of targeted social marketing campaigns to trigger quit attempts, such as 'Kick the Ciggies' and 'Quit the Ciggies'.

Interventions by Levels of Health Impact Pyramid

Table 2 below lists a range of actions that can be taken at each level of the pyramid to reduce smoking prevalence to bring about a reduction in CVD.

Focus Area 2: Smoking - reduce illness, disability and death related to tobacco use and second-hand smoke exposure	
Levels of Health Impact Pyramid	Interventions
Socioeconomic Factors	<ul style="list-style-type: none"> • Reduce poverty, increase education levels • Develop and implement community-led, place-based interventions targeted to address the social determinants of health in identified high-priority vulnerable communities.

<p>Creating a health enabling environment: Change the context to make Individuals' Decisions Healthy</p>	<ul style="list-style-type: none"> • Further develop smoke free parks, public places, university campuses, shopping areas, and all health and social care environments • Introduction of a Liverpool Smokefree Homes Programme to de-normalise the practice of smoking. • Increase resources for tackling illegal purchasing of tobacco products • Use enforcement strategies to tackle tobacco smuggling – particularly counterfeit • Develop 'whole school' approaches to prevent young people from starting smoking • Establish workplace tobacco free policies • Use media to promote effective tobacco control policies and reshape social norms
<p>Long-Lasting Protective Interventions</p>	<ul style="list-style-type: none"> • Increase funding for tobacco prevention programmes • Make Every Contact Count: a range of frontline staff in different settings identify smokers and offer brief intervention including signposting to smoking cessation service • Sustainable implementation of PH48 and PH26 • Create workplaces that are health promoting with interventions to incentivise non-smoking and support smoking cessation
<p>Clinical Interventions</p>	<ul style="list-style-type: none"> • Treatment of tobacco addiction available within all healthcare services, as part of routine care • Include stop smoking services as part of routine clinical care in all pathways • Brief interventions/advice in clinical contacts (i.e. Making Every Contact Count)
<p>Counselling and Education</p>	<ul style="list-style-type: none"> • Use media to highlight the dangers of tobacco and motivate tobacco users to quit and ensure campaigns target those with highest tobacco use. • Develop social marketing campaigns, based on behavioral science to encourage people to stop and reshape social norm

Focus Area 3: Physical activity

- By December 2027, reduce the number of people who are inactive from 25% to 19%³.

Physical inactivity and sedentary behaviour is at epidemic levels. It is now the fourth leading risk factor for global mortality, surpassed by smoking, high blood pressure and poor diet. It has been estimated that being physically active can reduce the chances of developing CVD by 35%. Being physically active brings several benefits including: improved physical and mental health, improved sleep, maintaining a healthy weight, improved quality of life and stress management. It is effective treatment for depression and can improve the health of people with existing conditions such as diabetes, CHD, COPD and breast/colon cancer. Healthy bones, joints and muscles and developing good balance are also important for good health in later life, particularly in relation to falls prevention.

National guidelines state that:

- The intensity at which we exercise is key. Light activity such as strolling and housework is unlikely to have much positive impact on the health of most people. For aerobic exercise to be beneficial it must raise your breathing rate, heartbeat and make you sweat.
- The more exercise you do, the better. A minimum of 150 minutes a week of moderate-intensity aerobic exercise is the minimum for health benefits.
- Children (aged 5-18 years) should be active and undertake at least an hour of vigorous physical activity every day in addition to muscle and bone strengthening activities 3 times per week.
- Too much sedentary time (time spent sitting down to watch TV, use a computer, read or listen to music) is bad for health, even for those who are achieving 150 minutes of exercise a week.

Liverpool has the ambition to be the most active Core City in England by 2021, inspiring and enabling people who live and work in Liverpool to be active every day for life as set out within the Liverpool Activity City Strategy (2014-2021).

The aim is that by 2021 an additional 1 in 3 residents - 120,000 people in Liverpool – will be doing at least 30 minutes of moderate activity (or equivalent vigorous activity, per week. This would equate to at least 80% of the Liverpool adult population undertaking a level of activity that will be beneficial to their health.

Active transport policies are an important part of increasing physical activity. Encouraging more walking and cycling around the city will also have the co-benefit of reducing vehicle emissions and pollution.

³ This is based on a 25% relative reduction from the 2015 baseline of 35.6%. It would bring us close to the current England average, of 28.7%. The definition is the % of the 16+ population doing less than 30 minutes of moderate activity per week as measured by Sport England's Active Lives Survey.

As a key part of the strategy's approach to reducing inactivity, the 'Fit for Me' campaign was launched by Liverpool City Council and Liverpool Clinical Commissioning Group in July 2016, aiming to inspire the population to be more physically active. It is a behaviour change campaign based on extensive local insight of the population, aged 16-65, and delivers key messages to target audiences. It aims to create a social movement that inspires local people to start being more active by showing them how much they can personally benefit, through real life success stories from people like them, and by making it as easy and fun as possible for them to join in and feel good.

The Liverpool Active City Strategy

The strategy focuses on three groups within the population:

- The 'inactive': particularly people who are older, unwell, overweight or have a chronic long term health condition
- The 'nearly or just active': those who do some activity, but not enough to meet the recommended levels or intensity
- The 'active': people who are doing the recommended level and intensity of activity and need to maintain this to achieve the health benefits

The strategy has five key strands or enablers, which are:

Places: the development, improved access to and maintenance of quality indoor and outdoor places to play sport and physically active that meets local need and are sustainable long term

People and Partnerships – (i) involving and developing a high quality workforce of activity leaders, enablers and volunteers that meet local need (ii) jointly delivering high quality cost effective services that meet local need

Profile – an increased awareness of the benefits and availability of physical activity and sport in Liverpool

Performance – monitoring and evaluation of the strategy to drive service improvement and deliver value for money.

Interventions by Levels of Health Impact Pyramid

Table 3 below lists a range of actions that can be taken at each level of the pyramid to increase physical activity and reduce sedentary behaviour to bring about a reduction in CVD.

Focus Area 3: Increase physical activity and reduce sedentary behaviour	
Levels of Health Impact Pyramid	Interventions
Socioeconomic Factors	<ul style="list-style-type: none"> Partners in all sectors to work together in local communities to develop and implement community-led interventions, place-based approaches that address the social determinants of health, using the principle of universal proportionalism.
Creating a health enabling environment: Change the context to make Individuals' Decisions Healthy	<ul style="list-style-type: none"> Adopt, strengthen and implement local policies and guidelines that facilitate increased physical activity for residents of all ages and abilities. Lead the development of an overarching Liverpool plan for 'Health in all Places' in order that the Liverpool local plan positively promotes heart health, and improves air quality, including: <ul style="list-style-type: none"> active travel/public transport policies walkability access to cycle schemes, lanes and storage safe environment for outdoor activity Shift the focus from cars to active modes of transport and urban transport planning. Ensure the physical environment encourages people to be physically active through: <ul style="list-style-type: none"> prioritising the needs of pedestrians and cyclists over motorists when developing or redeveloping highways. developing and implementing public sector workplace travel plans that incorporate physical activity, e.g. workplace charter Apportion part of the local transport plan (LTP) block allocation to promote walking, cycling and other forms of travel that involve physical activity. The proportion allocated should be in line with growth targets for the use of these modes of transport. Provide adequate play spaces and opportunities for formal and informal physical activity for children and families. Build physical activity in planning and city design and promote physical activity for people with disabilities, mental health problems, and learning difficulties.

	<ul style="list-style-type: none"> • Build preventive activities in parks and green spaces and invest in a more equitable distribution of green spaces in the city • Design buildings and office spaces to promote movement and stair use.
Long-Lasting Protective Interventions	<ul style="list-style-type: none"> • Increase physical activity and reduce screen time in early childcare settings. • Work with all schools to develop a culture of physical activity as part of a whole-school, cross curricular approach, for example Daily Mile, Maths of the Day, Girls Active, My Personal Best, Bikeability, learn to swim programmes. • Adequately invest in proven community-based programmes that result in increased levels of physical activity. • Audit byelaws and amend those that prohibit physical activity in public spaces (such as those that prohibit ball games). • Invest in the Park Run concept and use the investment to focus on inactive segments of the population, thus contributing to the implementation of the physical activity strategy in Liverpool. • Provide workplace physical activity programmes
Clinical Interventions	<ul style="list-style-type: none"> • Physical activity advice systematically implemented as part of treatment and care pathways, at all levels of care. • Referral to community based physical activity programmes for people at risk of or living with CVD • Making Every Contact Count delivered at scale by clinicians.
Counselling and Education	<ul style="list-style-type: none"> • Educate and make the case for policies that encourage cycling and walking instead of driving; • Messaging and ideology that promotes physical activity for all versus sport for some.

Focus Area 4: Alcohol

Current alcohol consumption guidance from the UK Chief Medical Officer (UK Chief Medical Officer 2016) advises that those who choose to drink alcohol (male and female) should not regularly drink more than 14 units in a week. The guidance also recommends that when choosing to drink it is better to spread drinks throughout the week. The more alcohol that is consumed, the greater the risk of developing heart disease, in particular high blood pressure and cardiomyopathy.

Level of risk is currently defined using categories of lower risk (i.e. drinking within DH guidelines) through to increasing risk, higher risk and dependence.

In England in 2015/16, there were 557,000 alcohol-related hospital admissions for cardiovascular disease, accounting for half (49.8%) of all alcohol-related hospital admissions. In Liverpool admission rates for alcohol related CVD have been increasing, with an increase of 28.6% in directly standardised rates between 2008/09 and 2015/16. It should be noted that this increase is smaller than both the North West and England increases, 36.0% and 46.2% respectively, although the rate in Liverpool remains significantly higher than the England average.

The economic impact of alcohol misuse and alcohol related admissions in Liverpool is estimated to be approximately £206 million per year:

- NHS = £45.35M⁴
- Crime and licensing = £73M
- Work place = £71.34M
- Social services = £16.8M

A Liverpool Alcohol Strategy (2016-2021) has been developed, which sets out practical steps to reduce the impact of alcohol related harm on the city.

Liverpool Alcohol Strategic Objectives (2016-21)

- Encouraging and supporting responsible attitudes and behaviours towards drinking amongst those who choose to consume alcohol (Prevention and Early Intervention).
- Delivering evidenced based, recovery focused treatment support to meet individual needs and reduce the effects on health caused by excessive alcohol consumption (Treatment and Recovery).
- Reducing the number of people who experience crime and disorder related to alcohol misuse (Community Safety).
- Protecting children, young people and their families from harm related to alcohol misuse (Protection).
- Ensuring via local licensing decisions and influencing of government policy that accessibility of alcohol is responsibly controlled (Control).

⁴ Excludes crime related healthcare costs to avoid double counting

Key Steps to Reducing Alcohol Related CVD

- Advocate for national legislation on minimum unit pricing and explore local options.
- Empower individuals, families and communities to make informed decisions about their alcohol consumption via the provision of consistent, evidenced based behavioural change programmes e.g. Drop a Drinksize, Drier January.
- Deliver brief intervention training to ensure that primary care professionals are equipped with the skills and knowledge to carry out brief interventions.
- Provide education on alcohol and substance misuse to children and young people at all stages of development through early years and educational settings.
- Develop and implement the 'Drink Less, Enjoy More' campaign aimed at reducing the amount of alcohol consumed by binge drinkers, reducing preloading and making it less culturally acceptable to be drunk in drinking venues.
- Provision of treatment services for individuals drinking at risky levels including development of multi-agency approaches to support change resistant drinkers.

Interventions by Levels of Health Impact Pyramid

Table 4 below lists a range of actions that can be taken at each level of the pyramid to reduce illness, disability and death related to alcohol consumption to bring about a reduction in CVD.

Focus Area 4: Alcohol: Reduce illness, disability and death related to alcohol consumption	
Levels of Health Impact Pyramid	Interventions
Socioeconomic Factors	<ul style="list-style-type: none"> • Reduce poverty, increase education levels • Develop and implement community-led interventions targeted to address the social determinants of health in identified high-priority vulnerable communities
Creating a health enabling environment: Change the context to make Individuals' Decisions Healthy	<ul style="list-style-type: none"> • Advocate for best practice in relation to the affordability of alcohol, including the introduction of Minimum Unit Pricing. • Reduce the strength of alcohol sold.

	<ul style="list-style-type: none"> • Use local powers to minimise alcohol advertisements on public premises and prevent advertising of alcohol close to schools. • Seek devolution of powers from Westminster over all alcohol advertising. • Seek devolution of powers to include consideration of public health impact as a licensing objective. • Mandatory labels including enhanced health related information on all products containing alcohol. • Introduce a Late Night Levy to pay for policing and emergency services. • Introduce Cumulative Impact Zones to control the density of alcohol retailing in local areas where saturation of premises are having an adverse impact on local communities.
Long-Lasting Protective Interventions	<ul style="list-style-type: none"> • Alcohol brief interventions (including MECC). • Conduct review and robust monitoring of workplace Alcohol Policies, using workplace charter. • Educate children and young people about the harms and risks of alcohol and how to stay safe in environments where alcohol is being consumed.
Clinical Interventions	<ul style="list-style-type: none"> • Treatment of alcohol addiction tailored to meet individual needs including community, in patient and residential rehabilitation support as appropriate. • Develop multi-agency approaches to support treatment resistant drinkers. • Ensure provision of best practice multi-disciplinary alcohol care teams in all acute settings. • Include alcohol treatment and advice as part of routine clinical care for all pathways, as part of treatment
Counselling and Education	<ul style="list-style-type: none"> • Behavioural change programmes and new ways of conveying the message about the danger of alcohol consumption - changing the culture. • Increase awareness and provide improved guidance relating to the harm alcohol can cause to the unborn child • Educate children and young people about the harms and risks of alcohol and how to stay safe in environments where alcohol is being consumed.

	<ul style="list-style-type: none"> • Provision of an online support tool customised to support key drinking groups (Chardonnay Socialites/Ritual Relaxers/Balanced Bingers/Drinkers in Denial).
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Focus Area 5: Improving mental wellbeing

Overall objectives:

- To improve self-reported wellbeing within the population
- To improve the cardiovascular disease outcomes and risk factors for people with mental health problems

Improving mental health and wellbeing in communities is crucial to creating health and neglecting it undermines the opportunities to reduce both preventable suffering, poor health outcomes and health inequalities. Strengthening asset based approaches both within communities and at an individual level will strengthen mental wellbeing and community resilience.

A coherent strategic approach to population mental wellbeing for the City is needed.

Table 5 below lists a range of actions that can be taken at each level of the pyramid to improve mental health and wellbeing to bring about a reduction in CVD and improve the quality of life for people living with cardiovascular health conditions.

Focus Area 5: Improve mental health and wellbeing	
Levels of Health Impact Pyramid	Interventions
Socioeconomic Factors	<ul style="list-style-type: none"> • Develop and implement community-led interventions to address the social determinants of health using the principles of proportionate universalism. • Develop and implement policies to support people with or at risk of mental health problems in to employment, education or volunteering. • Improve quality, safety and affordability of housing, that harnesses social relationships within communities – to reduce loneliness
Creating a health enabling environment: Change the context to make Individuals' Decisions Healthy	<ul style="list-style-type: none"> • Challenge mental health stigma and discrimination. • Socialise the concept of mental health prevention • Within communities, encourage the widespread uptake of the five ways to wellbeing: be physically active, take notice, continue learning, connect and give.

	<ul style="list-style-type: none"> • Implement policies that support people with mental health problems in to work, education and purposeful activity such as volunteering
Long-Lasting Protective Interventions	<ul style="list-style-type: none"> • Shift resources to fund services that promote wellbeing. • Identify children experiencing Adverse Childhood Experiences and intervene to protect children and support families. • Implement NICE guidance on promotion of emotional and social wellbeing in vulnerable under 5s (PH40) • Develop whole school approaches to improve mental wellbeing and resilience among children, young people and staff (PH12 and PH20). • Integrate social prescribing at scale within primary care. • Promote widespread uptake of physical activity and prescribe physical activity as a treatment for people with low-moderate depression and anxiety. • Implement “Making Every Contact Count” at scale, ensuring connections between clinicians and community resources that support health • Implement workplace wellbeing programmes and ensure workplace policies support people with mental health conditions (NICE guidance PH22). • Improve access to debt counselling and advice. • Promote the mental wellbeing for older people (PH16).
Clinical Interventions	<ul style="list-style-type: none"> • Integrate physical and mental health services and approaches effectively. • Create effective perinatal care pathways. • Deliver universal infant programmes to support parental attachment and build parental confidence. • Increase access to early intervention services for children and young people. • Increase support for carers. • Increase physical health checks for people suffering mental health conditions- not just for those with Severe Mental Illness (SMI). • Increase uptake of screening programmes for people at risk of mental health problems. • Ensure cardiac and stroke rehabilitation addresses psychological wellbeing and functioning of patients and carers. • Ensure specialist mental health provision/expertise is available for particularly vulnerable groups e.g. antenatal/perinatal women with mental health problems.

	<ul style="list-style-type: none"> Primary care and secondary care signpost individuals with mental health problems to programmes and services which assist in mitigating CVD risk factors e.g. health check programme, health trainers, smoking cessation services, alcohol treatment and advice.
Counselling and Education	<ul style="list-style-type: none"> Use media to raise awareness of mental health and promote parity of esteem. Ensure training is provided to frontline staff on ACEs Improve psychological training for non-mental health professionals Provide community based mental health awareness training. Use health segmentation tools to embed behaviour change.

Focus Area 6: Early detection

Overall objectives

To deliver **at scale** a programme of prevention that identifies a higher proportion of patients with signs of poor metabolic health such as hypertension, atrial fibrillation, high cholesterol (including familial hypercholesterolemia) and ensure they are optimally managed.

- Increase detection of cardiovascular risk factors (hypertension, AF and high cholesterol) especially among at risk populations.
- Reduce CVD risk in high risk groups by providing optimal treatment through primary care so that 95% of the population achieve their respective NICE blood pressure and cholesterol targets by addressing lifestyle factors first.
- Mobilise the primary care workforce to support detection and management of risk factors, including community pharmacy.
- Increase in optimal anticoagulation rates for people with atrial fibrillation.
- Promote use of evidence-based care and treatment to manage chronic diseases.
- Promote relevant chronic disease self-management education and self-care.
- By 2027, reduce the number of people who die from cardiovascular disease by a minimum of 10%.
- Through optimal anti-hypertensive treatment of diagnosed hypertensives avert within 3 years 82 heart attacks and 123 strokes, in line with the “Size of the prize” expected outcomes.
- Through optimally treating high risk AF patients avert within 3 year 114 strokes, in line with the “Size of the prize” expected outcomes.

Identifying people at risk of CVD

The national NHS Health Check programme is the biggest cardiovascular screening programme in the world. In Liverpool, General Practice delivers the health checks

programme. Recent research from the University of Liverpool shows that current NHS Health Check implementation appears neither equitable nor cost-effective. Optimal implementation is likely to be cost-saving but not equitable, while targeted implementation is likely to be both. Adding structural policies targeting cardiovascular risk factors could substantially improve equity and generate cost savings (Kypridemos et al 2018).

Latest figures suggest that **only 59%** of the expected number of people in Liverpool with hypertension have been diagnosed, with the detection rate increasing to 67% for those with existing identified Coronary Heart Disease. There is also variation in the ratio of observed prevalence compared with expected prevalence between practices (0.26 - 0.66). Put simply, there are around 50,000 people living in the city with high blood pressure who are unaware of it, who are at an increased CVD risk.

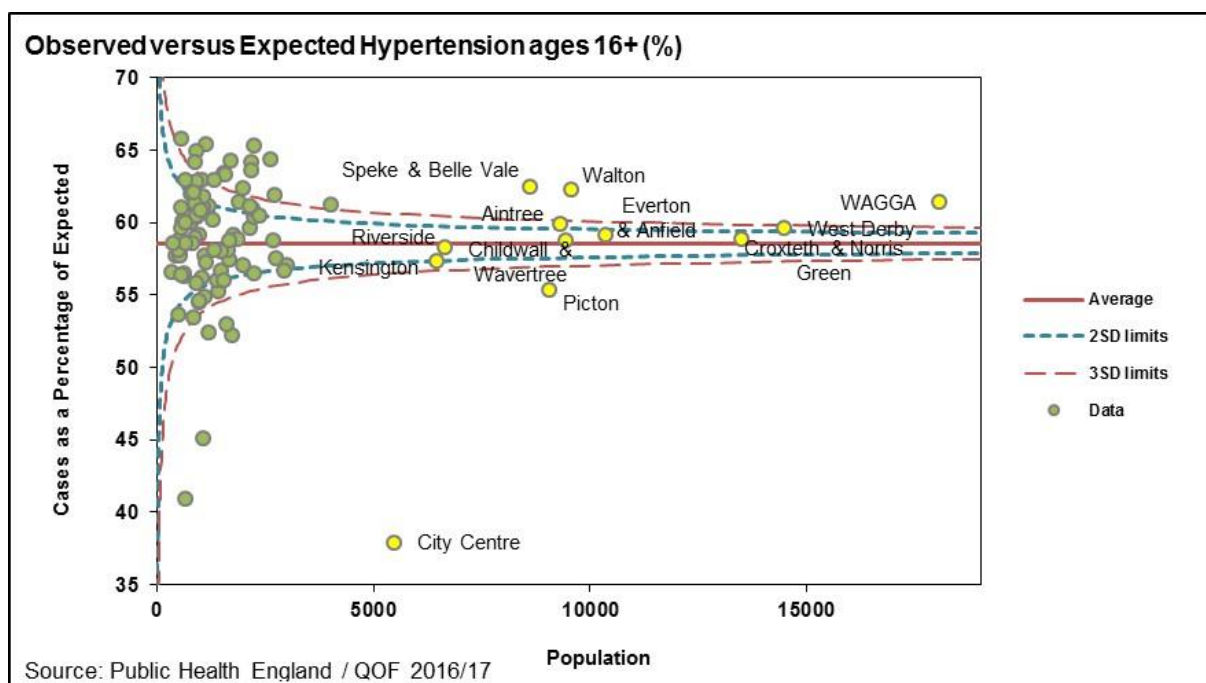


Figure 9 Percentage difference between the number of patients diagnosed with hypertension and number expected
Source: Public Health England, Quality Outcomes Framework 2016/17

However, there is variation in detection as shown on the graph below. This equates to 10,780 people with undiagnosed atrial fibrillation in Liverpool. At GP practice the range of observed to expected atrial fibrillation prevalence is 47.9% to 111.3%.

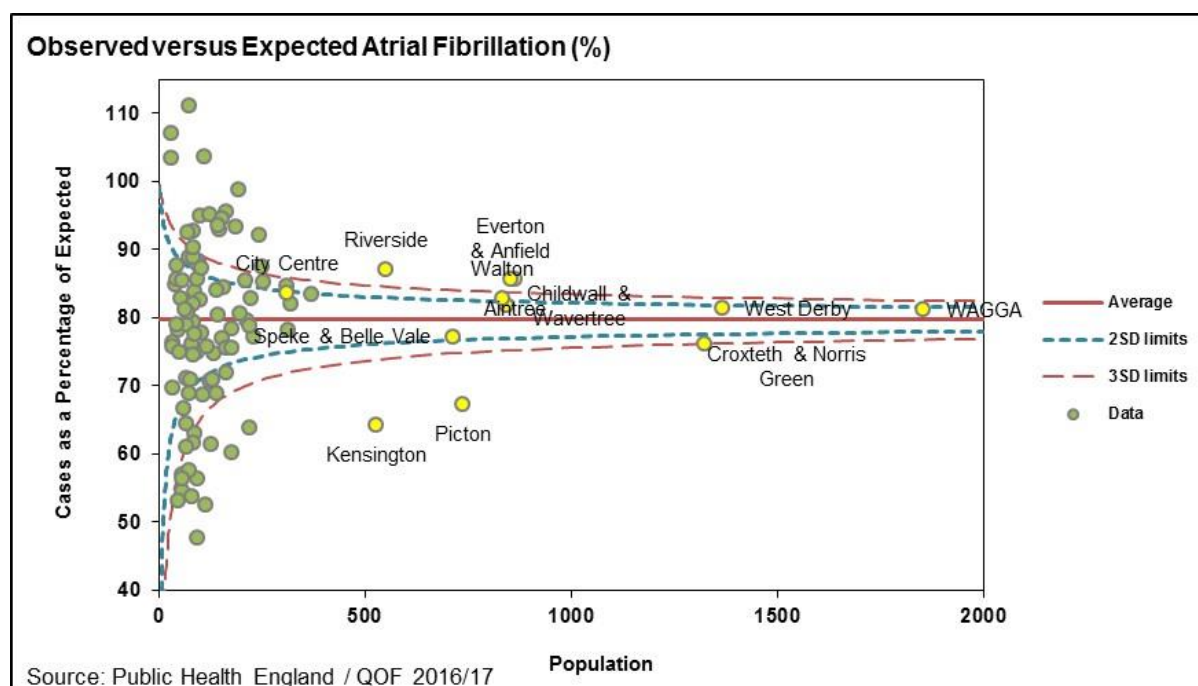


Figure 10 Percentage difference between the number of patients diagnosed with atrial fibrillation and number expected
Source: Public Health England, Quality Outcomes Framework 2016/17

As a city, we should be doing more to identify people who are at increased risk of CVD. Improving early detection within primary care is important and this can be enhanced through the work of community pharmacists, and in other community settings (such as workplaces). Finally, the rate of detection for common and Familial Hypercholesterolaemia needs to increase, and it is recommended that cascade testing takes place as recommended by NICE guidance (CG71).

35% of the gap in life expectancy in the UK can be explained by the burden of CVDs. Focused secondary prevention in primary care is the fastest way to reduce health inequalities (King's Fund 2014, PHE 2018). Moreover, inequalities in life expectancy can be narrowed by at least 10% by primary care interventions on smoking cessation, blood pressure and cholesterol control, also on stroke prevention in people with atrial fibrillation.

Early Management and Secondary Prevention in the Community

Liverpool Clinical Commissioning Group aims to reduce the variation in the management of blood pressure among patients diagnosed with Coronary Heart Disease. The percentage of Coronary Heart Disease patients within the desired blood pressure range in 2015/16 varies from 85.8% in Everton and Anfield neighbourhood to 91.8% in the Riverside neighbourhood. The variation between GP practices is significant ranging from 73.2% to 97.5% of hypertensive patients with a blood pressure reading of 150/90mmHg or less. To note, the NICE Quality Standard for Hypertension (QS28) statement 4 recommends that People with treated

hypertension have a clinic blood pressure target set to below 140/90 mmHg if aged under 80 years, or below 150/90 mmHg if aged 80 years and over.

As with detection of hypertension, community pharmacy can play an enhanced role in both the management of hypertension and anticoagulation.

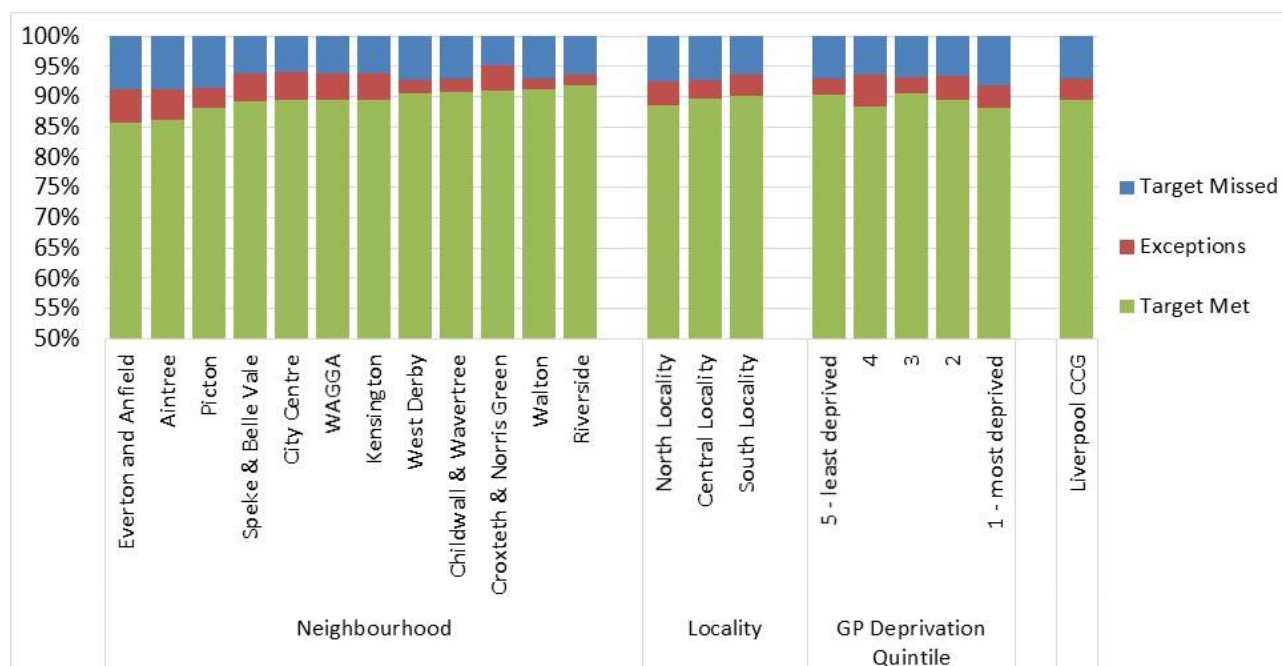


Figure 11 The percentage of patients with coronary heart disease in whom the last blood pressure reading (measured in the preceding 12 months) is 150/90 mmHg or less Source: Quality Outcomes Framework 2016/17

Anticoagulation for people with AF prevents two-thirds of strokes in people with AF.

In Liverpool, anticoagulation rates are comparable to the national average (82% compared to 81.2%) while rates at practice level range from 65% to 100%. Assuming that contraindications are present in 11.3% (Cowan et al 2013) of patients this means that around 1,354 people with AF are not receiving anticoagulation drug therapy (Source: QOF 2016/17).

The percentage of eligible patients with stroke treated with an antiplatelet agent, or an anti-coagulant in last 12 months is above the England average (93.8% compared to 91.9%) while variation at practice level ranges from 80% to 100%. Although this figure is significantly higher than nationally, this means 318 people were not treated (Source: QOF 2016/17). More strokes could be averted if variation between practices was reduced and the numbers of people on anticoagulants was increased.

When people feel that they have a sense of control over their health, they can gain the confidence to manage and live with their own conditions. The evidence suggests that when frontline practitioners listen and focus on what matters most to patients, this increases their ability to look after themselves and their self-efficacy. Similarly providing behaviour change

and lifestyle support to patients is important. More patients can be encouraged and supported to use digital technologies to self-monitor and manage their conditions.

Interventions by Levels of Health Impact Pyramid

Table 6 below lists a range of actions that can be taken at each level of the pyramid increase early detection of hypertension and AF in order to bring about a reduction in CVD. It also addresses the importance of secondary prevention, including self-care/management and rehabilitation.

Table 6: Identify a higher proportion of patients with hypertension, atrial fibrillation and familial hypercholesterolemia and ensure they are optimally managed.	
Levels of Health Impact Pyramid	Interventions
Socioeconomic Factors	<ul style="list-style-type: none"> • Develop and implement community-led, place-based interventions targeted to address the social determinants of health in high-priority vulnerable communities
Changing the Context to Make Individuals' Decisions Healthy	<ul style="list-style-type: none"> • Support chronic disease self-management programmes, such as wider use of self-monitoring by patients and use of telehealth. • Develop a sustainable infrastructure for widely accessible, readily available self-management interventions linked to the clinical setting- such as neighbourhood collaboratives and advice on prescription. • Raise public awareness of the link between treatable risk factors and serious disease. • Normalise the use of digital technology to enable and promote self-management. • CVD clinical risk factor management at scale – population approaches to the management of cholesterol and blood pressure, atrial fibrillation anticoagulation, using the GP registered list. • Identify groups with unmet need and implement programmes to improve access to preventive healthcare. • Developed a system to flag any patients with undiagnosed hypertension hiding in plain sight. • Use waist to height or waist to hip ratios along with BMI to identify people who have developed poor metabolic health and are therefore at greater risk of traditional CVD risk factors.

Long-Lasting Protective Interventions	<ul style="list-style-type: none"> • Shift system-wide resource from treatment to prevention and rehabilitation. • Establish clinical-community linkages that connect patients to self-management education and community resources. • Ensure parity of esteem for mental health, including both physical checks for people with mental health problems, as well as interventions to support mental health for people with CVD, for example through an integrated rehabilitation service. • Develop the role of community and GP practice-based pharmacists to monitor and control blood pressure of sub-optimally managed people with hypertension, support adherence to drug regimen and advise on lifestyle changes. • Improve the current delivery and performance of the health checks programme and build for the future a programme that optimise health and equity gains at population level in Liverpool.
Clinical interventions	<ul style="list-style-type: none"> • Normalise the idea that prevention and lifestyle changes are as good as treatment in preventing CVD. • Expand use of health information technology to remind, provide feedback and incentivize clinicians and health care systems. • Support the meaningful use of electronic health records in improving prevention and control of chronic diseases. • Promote the inclusion of decision support tools/reminder system modules in NHS electronic medical record packages. • Use health information technology to support a clinical referral/recommendation system that links patients to community-based resources. • Provide appropriate mental health support, for people with long term conditions, such as IAPT. • Undertake regular systematic audits of practice registers to identify diagnosed hypertensives with suboptimal blood pressure control, anticoagulation for AF and statins. • Perform a city wide practice-level audit against the NICE quality standards for managing hypertensive patients. • Develop clear pathways from secondary care to primary care to ensure appropriate screening for inheritable cardiac conditions such as Familial Hypercholesterolaemia and Hypertrophic Cardiomyopathy.
Counselling and Education	<ul style="list-style-type: none"> • Use media to build public awareness about and demand for chronic disease prevention and management programmes. • Increase people's knowledge of their blood pressure 'Know Your Numbers'.

	<ul style="list-style-type: none"> • Promote shared decision making: specific training for clinical staff. • Use existing NHS workforce as champions for CVD prevention. • Enable the creation of peer support networks. • Psychological support and training for staff.
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In order to deliver CVD prevention at scale, primary care needs to be supported to do things differently. Enhancing the role of pharmacists, mobilising communities to manage their health, increasing the use of digital technologies and providing real time data and intelligence are all important components. Strong and co-ordinated system leadership can drive through this change and we cannot afford to miss the opportunity to save many more lives from cardiovascular disease.

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