Contents

1 Cardiovascular disease

1.1 Introduction

Cardiovascular disease (CVD) is the name for a group of conditions that primarily affect the heart and vascular system (blood vessels). CVD is the leading cause of death worldwide. [1] [2] [3] [4] In the UK, CVD is the cause of around a quarter of all deaths – 27% of all male deaths and 25% of all female deaths. In England, in 2015/16, around 1.5m admissions to hospital were for people with CVD (around 8% of all hospital inpatient episodes). The total cost of delivering hospital care to CVD patients in England was £196m in 2013/14. [5]

Numerous conditions are captured within the term 'CVD'. For the purpose of this section, the three main conditions described as CVD are:
- coronary heart disease (CHD)
- stroke and transient ischaemic attack (TIA)
- peripheral arterial disease (PAD).

Table 1 provides details of the main CVD conditions covered in this section, along with a description of aortic disease (for which a screening programme exists in the UK). Local data on aortic disease are not available and therefore not covered in the JSNA.

A common underlying risk factor for CVD is artherosclerosis, which causes a hardening or narrowing of the arteries (see Section 1.2). Several clinical risk factors for CVD (such as hypertension, diabetes and hypercholesterolemia) are indicative of microvasculature changes[1] that in themselves could be classified as early stage CVD (see Table 2).

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[1] The term 'microvasculature changes' refers to changes to the physiology of the smallest blood vessels in the body.

Table 1: Main conditions included within the CVD family of diseases

Disease/condition	Description
Coronary heart disease (CHD) – **also known as ischaemic heart disease**	CHD is a condition where the blood vessels supplying the heart become narrower or blocked due to atherosclerosis. This results in a reduction of blood supply to the heart, which can cause chest pain (known as angina), a heart attack or heart failure.[2]
Stroke and TIA	A stroke occurs when the blood supply to the brain is interrupted, and the brain is deprived of the necessary oxygen that it needs in order to function. There are two main types of stroke: ischaemic (when there is a blockage in the blood flow to the brain – usually caused by a clot) and haemorrhagic (caused by bleeding in to the brain). A TIA is caused by a temporary disruption in the blood supply to part of the brain. Symptoms can be similar to stroke, but resolve within 24 hours. Strokes cause a wide range of disabilities (depending on which part of the brain is affected), more than any other condition.
Peripheral arterial disease (PAD) – **also known as peripheral vascular disease**	PAD is a narrowing of the arteries. It mainly occurs in arteries that supply blood to the legs, which can lead to cool feet, and weak or no pulses in the arteries of the feet. If the condition continues to worsen, it can eventually lead to death of the tissue cells, resulting in severe leg pain and even necrosis and gangrene.
Aortic disease	The aorta is the large artery that carries oxygenated blood from the heart to the body. The most common manifestation of aortic disease is abdominal aortic aneurism (AAA). AAA is a condition where the aorta becomes swollen and enlarged, which increases the risk of rupture (bursting), causing life-threatening bleeding. It is not known exactly what causes AAA, but it is linked to atherosclerosis. AAA is usually symptomless until the aorta grows to a large size.

Source: Adapted from Public Health England. [6]

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[2] Heart failure occurs when the heart is unable to pump sufficient blood around the body.

Table 2: Clinical risk factors for CVD

Condition	Brief description	Risk of CVD
Hypertension	Consistently high blood pressure	Hypertension increases the risk of stroke, myocardial infarction ('heart attack'), heart failure, kidney disease and cognitive decline. [7] The risk of stroke is 25% higher in people with hypertension. [8]
Diabetes	Poor blood sugar control	People with type 1 and type 2 diabetes are at an increased risk of CVD. The risk of CVD mortality is more than doubled in people with type 2 diabetes. [9]
Hypercholesterolemia	High level of cholesterol	A meta-analysis of randomised trials showed that that reducing LDL[3] cholesterol by 1mmol/L reduces the risk of stroke by more than 21%. [10]
Chronic kidney disease (CKD)	Poor kidney function	People with CKD are 50% more likely to die from a CVD condition than people without CKD. [11]
Atrial fibrillation (AF)	Irregular heartbeat	The risk of stroke is five times higher in people with AF. Strokes caused by atrial fibrillation are more likely to be fatal than other types of stroke. [12]

1.2 Causes and risk factors

This subsection addresses the causes and risk factors of CVD as a group of conditions, rather than examining them at a detailed condition-specific level. This is in line with national guidance, which emphasises the importance of managing CVD (and relevant clinical risk factors) as a single family of diseases to ensure coordinated and efficient care for those affected. [13] [6] Information on detailed risk factors for specific CVD conditions can be found on the British Heart Foundation (BHF) website. [4]

1.2.1   Physiological cause of CVD

As discussed in Section 1.1, CVD is the collective name for a group of conditions that affect the heart and circulatory system through the development of atherosclerosis. Atherosclerosis occurs when there is a build-up of fatty substances known as plaques (or atheroma), which causes a hardening and narrowing of the arteries. This restricts blood flow and oxygen supply to vital organs and increases the risk of blood clots (which can block the flow of blood to the heart or brain). People affected by atherosclerosis will rarely be aware of this until symptoms appear (i.e. experiencing a stroke or TIA). Risk factors for atherosclerosis are described below.

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[3] Cholesterol travels through the blood on proteins called lipoproteins. LDL refers to 'low density lipoproteins' – known as 'bad cholesterol' because high levels increase risk of heart disease and stroke. 'High density lipoproteins' (or HDL), however, can help to lower CVD risk.

1.2.2 Risk factors

The Global Burden of Disease Study (2013) identifies the main risk factors for CVD to be 'behavioural' (e.g. alcohol and drug use, diet/nutrition, tobacco) and 'metabolic' (e.g. overweight/obesity, high blood pressure, high cholesterol, high blood sugar). Over 50% of the burden of CVD at population level (in terms of death and disability, defined using 'disability-adjusted life years', or DALYs) is attributed to these factors in this study. [14] Environmental risk factors (such as air pollution) represent a smaller, but increasingly important, contribution. [15] And certain risk factors have genetic causes (e.g. familial hypercholesterolemia).

The causes of CVD are multifactorial and often interact with each other. For example, low socio-economic status is associated with relatively low levels of physical activity, which in turn increases the risk of a number of clinical risk factors (such as hypertension and diabetes). The presence of more than one risk factor can have a multiplying effect on the risk of developing CVD. [1] [13]

Population and individual CVD risk can be quantified with algorithms using information on people's characteristics and presence of individual risk factors. An example of a risk assessment algorithm is the QRISK®2 tool used in primary care in England. QRISK®2 uses information on a variety of characteristics linked to a person's CVD risk (see Table 3) to produce an overall percentage score of an individual's 10-year risk of heart attack or stroke (QRISK®2 is only valid for use in people who do not already have a diagnosis of heart disease or stroke). The clinical threshold for further investigation or treatment is generally a risk score of 10% (see Section 1.6.2).

Table 3: Factors included in the QRISK®2 algorithm (2017/18)

QRISK® risk factors	
Age	Chronic kidney disease
Gender	Atrial fibrillation
Ethnicity	Taking blood pressure medication
Residential deprivation score	Rheumatoid arthritis
Smoking status	Cholesterol/HDL ratio
Diabetic status	Systolic blood pressure
Family history of angina or heart attack	Body mass index (BMI) (kg/m²)

Source: QRISK®2. [16]

For the remainder of this section, risk factors for CVD are classified according to whether they are:
- 'non-modifiable' (i.e. not amenable to intervention)
- 'modifiable' (this includes lifestyle/behaviours as well as clinical risk factors that are amenable to intervention).

1.2.3   Non-modifiable risk factors

Non-modifiable risk factors for CVD include:
- age
- gender
- ethnicity
- deprivation or socio-economic disadvantage[4]
- family history of CVD.

Age

Age is closely associated with CVD risk, due to the accumulation of risk factors over time. In the UK in 2015, three quarters (73%) of all deaths caused by CVD were in people aged 75+. [5]

Gender

The percentage of deaths attributed to CVD overall are slightly higher in men than women in the UK (27% and 25%, respectively). At younger ages (under 75 years), the gender differences are even more apparent, with 24% of male and 17% of female deaths attributed to CVD. The gender difference in CVD mortality rates has been steadily decreasing over the past 40 years. [5]

Ethnicity

People with a South Asian, Black African or Caribbean heritage are more likely to develop CVD, linked to a higher risk of diabetes and hypertension in these communities. For example, people of South Asian heritage are more likely to experience a stroke, develop CVD and have type 2 diabetes. Death rates from CVD are approximately 50% higher in South Asian people. [17]

Socio-economic disadvantage

People living in relatively deprived circumstances are at significantly greater risk of developing CVD, due to a number of interdependent factors. These can be related to risk behaviours (e.g. higher rates of smoking), awareness of the condition and how they can reduce their risk, and access to services, as well as the financial, social, and psychological demands of their day-to-day living environment. [18] [19] Premature death rates from CVD are up to six times higher among people from lower socio-economic groups. [20]

Family history of CVD

A family history of CVD is defined by the British Heart Foundation as a person having either:

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[4] This is included as a non-modifiable risk factor as local area deprivation is largely determined by national government policy and wider economic trends. It is recognised that some local action is possible to address this – see the 'Society and environment' chapter of the JSNA.

- a father or brother who was under the age of 55 when they were diagnosed with CVD
- a mother or sister who was under the age of 65 when they were diagnosed with CVD.

A person with a family history of CVD has a higher risk of developing the disease than someone who does not. While common lifestyle and environmental exposures play an important role in this, genetic factors are key. Certain gene mutations, known as polymorphisms, can alter the way cells function, which can directly predispose someone to developing CVD. In addition, certain mutations can have an indirect effect on the development of CVD, by increasing the risk of a person adopting unhealthy behaviours such as smoking. [21]

1.2.4   Modifiable risk factors

Modifiable risk factors for CVD can be grouped as follows.
- Lifestyle and behaviours (all of these topics are covered in the 'Lifestyle and behaviour' JSNA chapter): [2] [22]
  o smoking/tobacco use*
  o poor diet*
  o insufficient physical activity*
  o excess alcohol use* and substance misuse (substance misuse is covered in the 'Mental health and substance misuse' JSNA chapter).
- Clinical risk factors (see Section 1.1, Table 2)
  o hypercholesterolemia*
  o hypertension*
  o CKD
  o AF
  o diabetes* (also covered elsewhere in this chapter)
  o overweight/obesity* (obesity is covered elsewhere in this chapter)
- Psychosocial stress (linked to people's ability to influence the potentially stressful environments in which they live).*

* Research suggests that in more than 90% of cases, the risk of a first cardiac event is linked to the nine potentially modifiable risk factors starred in the above list. [2]

1.3 Local data and unmet need

This subsection describes local data on the number of people affected by CVD in Hackney and the City.

Data are also presented for specific key clinical risk factors for CVD – hypertension, CKD, raised cholesterol and AF. Other modifiable risk factors covered in other sections in this JSNA chapter include diabetes and obesity. A separate JSNA chapter ('Lifestyle and behaviour') describes local data on physical inactivity, smoking, alcohol and diet in some detail – these will not be covered again here.

Data used in this section cover adult (18+) residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets or Newham.

1.3.1 Numbers affected – known to services

This section is structured around the subsection headings of: CVD risk; prevalence (of CVD and key clinical risk factors); morbidity (using age-standardised hospital admissions as a proxy indicator); and mortality.

Prevalence – CVD

The most common CVD condition is CHD – 1.9% of Hackney adults and 2.6% in the City are recorded with the condition. The second most prevalent CVD condition is stroke/TIA, with 1.1% of Hackney adults and 1.4% in the City recorded as ever having experienced the condition. The higher prevalence of these conditions in the City compared with Hackney is likely due at least in part to the older age profile of the local populations. [23]

The prevalence of PAD is similar in Hackney and the City, at 0.4%.

See Table 4 and Figure 1 below for details.

Table 4: Percentage and number of Hackney and the City adult (resident) GP patients with a recorded CVD condition (age 18+, 2017)

Condition	Hackney		City of London	
	Percentage	Number of patients	Percentage	Number of patients
CHD	1.9%	4,282	2.6%	159
Stroke/TIA	1.1%	2,429	1.4%	89
PAD	0.4%	939	0.4%	27

Source: Extracted from the local GP register by Clinical Effectiveness Group (CEG), Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.

Figure 1: Prevalence of CVD conditions in Hackney and the City (resident) GP patients. (18+, 2017)
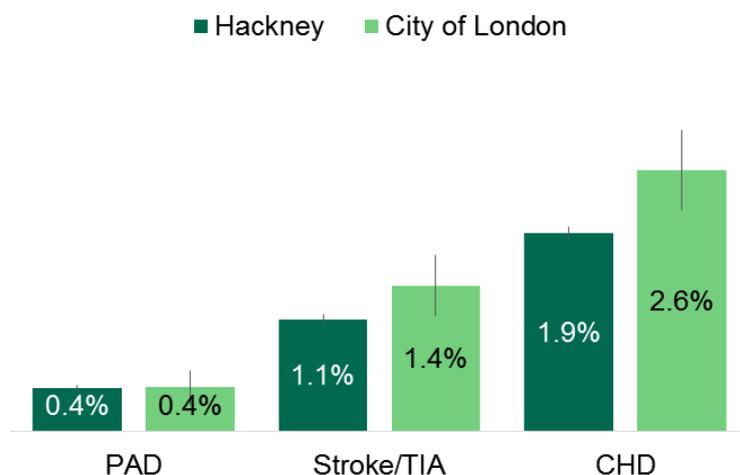
Source: Extracted from the local GP register by CEG, Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.

Prevalence – CVD risk

The majority (93%) of Hackney and City of London adults aged 40-74 have a QRISK®2 score recorded by their GP.

Using this measure, a third of people aged 40-74 tested (in both Hackney and the City of London) have a 10-year risk of heart attack or stroke of 10% or above. One in 10 people aged 40-74 tested (in both Hackney and the City of London) has a risk of 20% or above.

The prevalence of high cholesterol (>4.5mmol/mol), hypertension, CKD and AF is presented in Figure 2. High cholesterol is the most common of these clinical risk factors, with 20% of Hackney adults affected by the condition (n=44,998) and 26% in the City of London (n=1,595).

Figure 2: Prevalence of clinical CVD risk factors in Hackney and the City (resident) GP patients (18+, 2017)
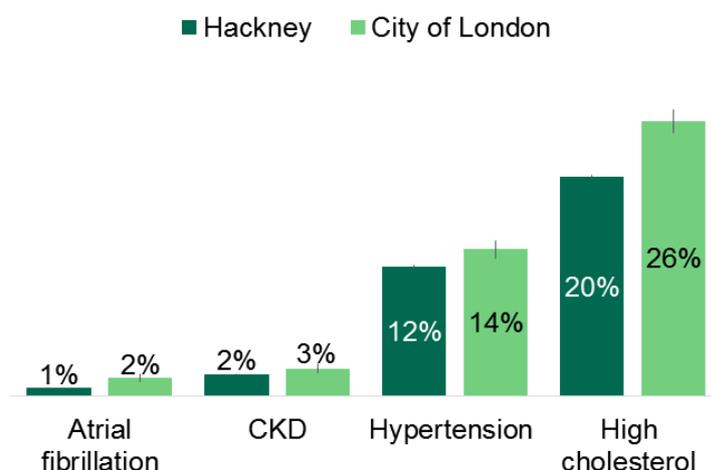
Source: Extracted from the local GP register by CEG, Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.

Morbidity

Hackney and the City patients accounted for 2,534 episodes of inpatient care related to a CVD diagnosis in 2016/17.[5] Separate data for Hackney and the City of London are not available.

Mortality

CVD is the most common cause of death in Hackney and the City, with an estimated 349 deaths on average attributed to this cause each year.[6] Of all CVD deaths, around 50% are caused by CHD (n=171) and 20% are caused by stroke (n=77). Around a third (35%) of all CVD deaths (n=123) are considered to be 'preventable' or 'amenable to healthcare'. [24]

1.3.2   Numbers affected – estimates

The most robust source of estimates of CVD prevalence come from the Association of Public Health Observatories (APHO), which was formerly responsible for producing public health intelligence for the UK. However, it should be noted that the use of modelled estimates using national data for local use must be treated with some caution. For example, these models do not reflect the ethnic diversity of our local population, which may result in an over- or under-estimate of the 'true' prevalence by these models.

With these caveats in mind, APHO estimates CHD prevalence to be 3.8% and stroke prevalence to be 2.0% in Hackney and the City (separate data for the two areas are

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[5] This refers to any patient with a finished admission episode (FAE) of care paid for by the NHS/CCG.FAE refers to the first period of inpatient care under one consultant, within one healthcare provider. Admissions do not represent the number of inpatients, as a person may have more than one admission within the year. [51]
[6] Based on death records between 2006 and 2014.

not available). Compared with the data presented in Section 1.3.1, this may suggest some level of under-diagnosis of these conditions locally.

1.3.3 Unmet need

Given the limitations of modelled estimates for local use, as described in Section 1.3.2, it is not possible to reliably quantify the extent of undiagnosed CVD in Hackney or the City. However, the relatively high rates of hospital admission for CHD and stroke, and relatively higher premature (under 75) CVD mortality rate locally, described later in Section 1.5, suggest that there may be significant unmet need locally.

A recent Hackney and the City hypertension needs assessment concluded that there is likely to be a pool of younger adults (under 45) with undiagnosed hypertension living locally, due to low blood pressure testing rates in this group. [25]

1.4 Inequalities

Data used to describe CVD inequalities below are combined for the City of London and Hackney. Data are presented for the three main CVD conditions (and for age, also QRISK®2). Similar patterns are observed for the most common clinical CVD risk factors in national data.

1.4.1   Age

The risk of a person having a heart attack or stroke in the next 10 years increases with age, as shown by Figure 3 and Figure 4 below.
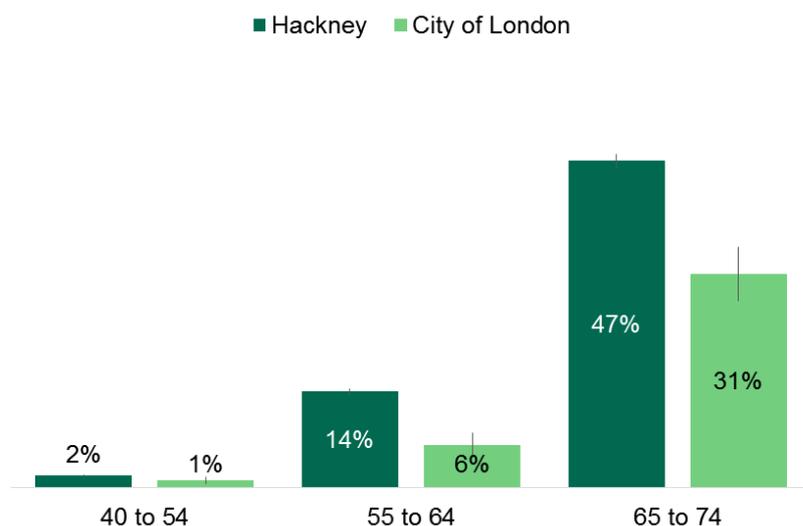
Figure 3: Percentage of Hackney and the City (resident) patients with a QRISK2® risk of 10% or above, by age group (2017)
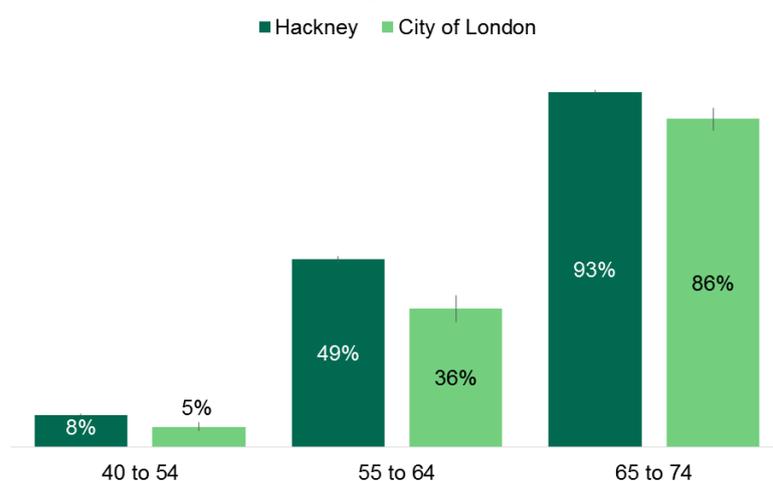
Source: Extracted from the local GP register by CEG, Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.

Figure 4: Percentage of Hackney and the City (resident) patients with a QRISK®2 risk of 20% or above, by age group (2017)

Source: Extracted from the local GP register by CEG, Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.

Local GP data also show a higher prevalence of CVD conditions in older Hackney and the City patients (see Figure 5). Fewer than 0.1% of patients under the age of 40 are recorded with a CVD condition.

Figure 5: Prevalence of CVD conditions in Hackney and the City (resident) GP patients, by age group (2017)
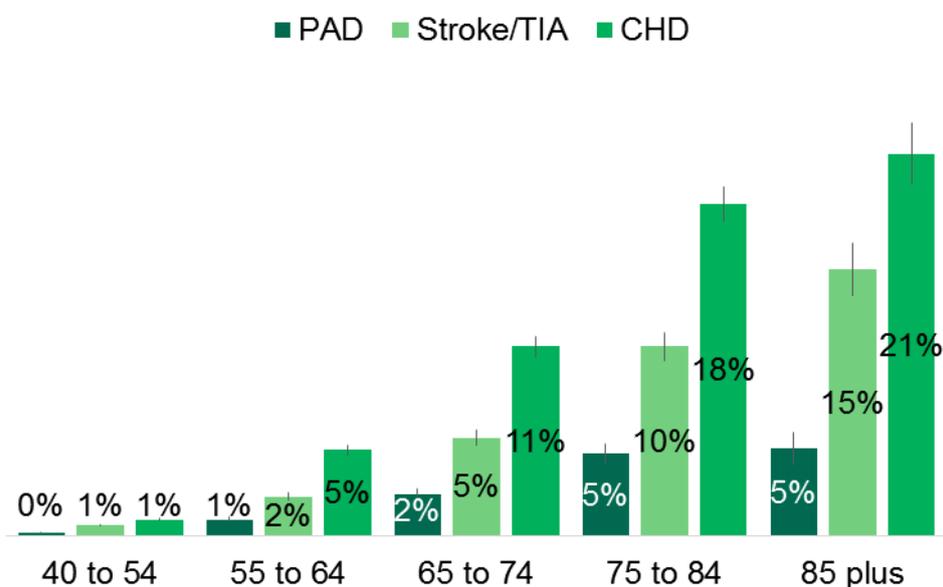

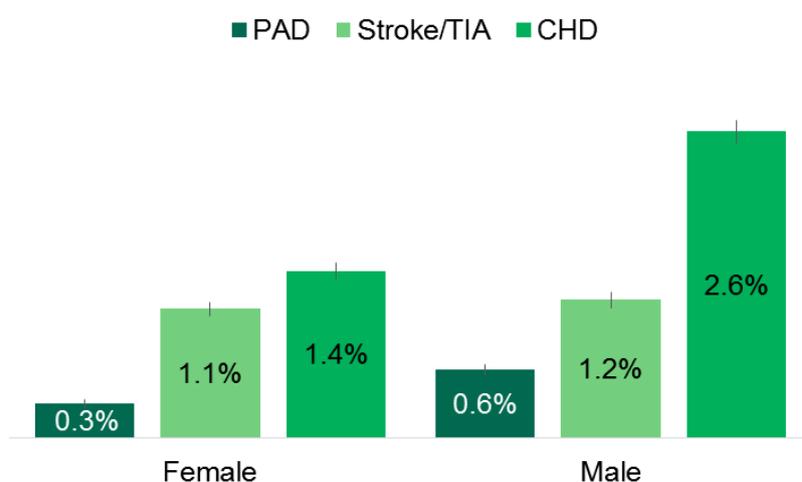Source: Extracted from the local GP register by CEG, Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.

1.4.2   Gender

Figure 6 shows that CHD and PAD are more common in men than women locally. GP-recorded stroke/TIA prevalence is similar for males and females. These patterns are observed across all age groups.

Men aged 65+ are at significantly increased risk of AAA. The national AAA screening programme targets this group (see Section 1.7.2).

Figure 6: Prevalence of CVD conditions in Hackney and the City (resident) GP patients, by gender (18+, 2017)

Source: Extracted from the local GP register by CEG, Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.

1.4.3   Ethnicity

Figure 7 shows local prevalence of the three CVD conditions considered here by broad ethnic group. In summary:
- adults from Asian backgrounds are significantly more likely to be diagnosed with CHD than people from other ethnic groups
- people of Black ethnicity have higher recorded prevalence of stroke/TIA
- PAD is most common in Black and White ethnic groups.

Figure 7: Prevalence of CVD conditions in Hackney and the City (resident) GP patients, by broad ethnic group (18+, 2017)

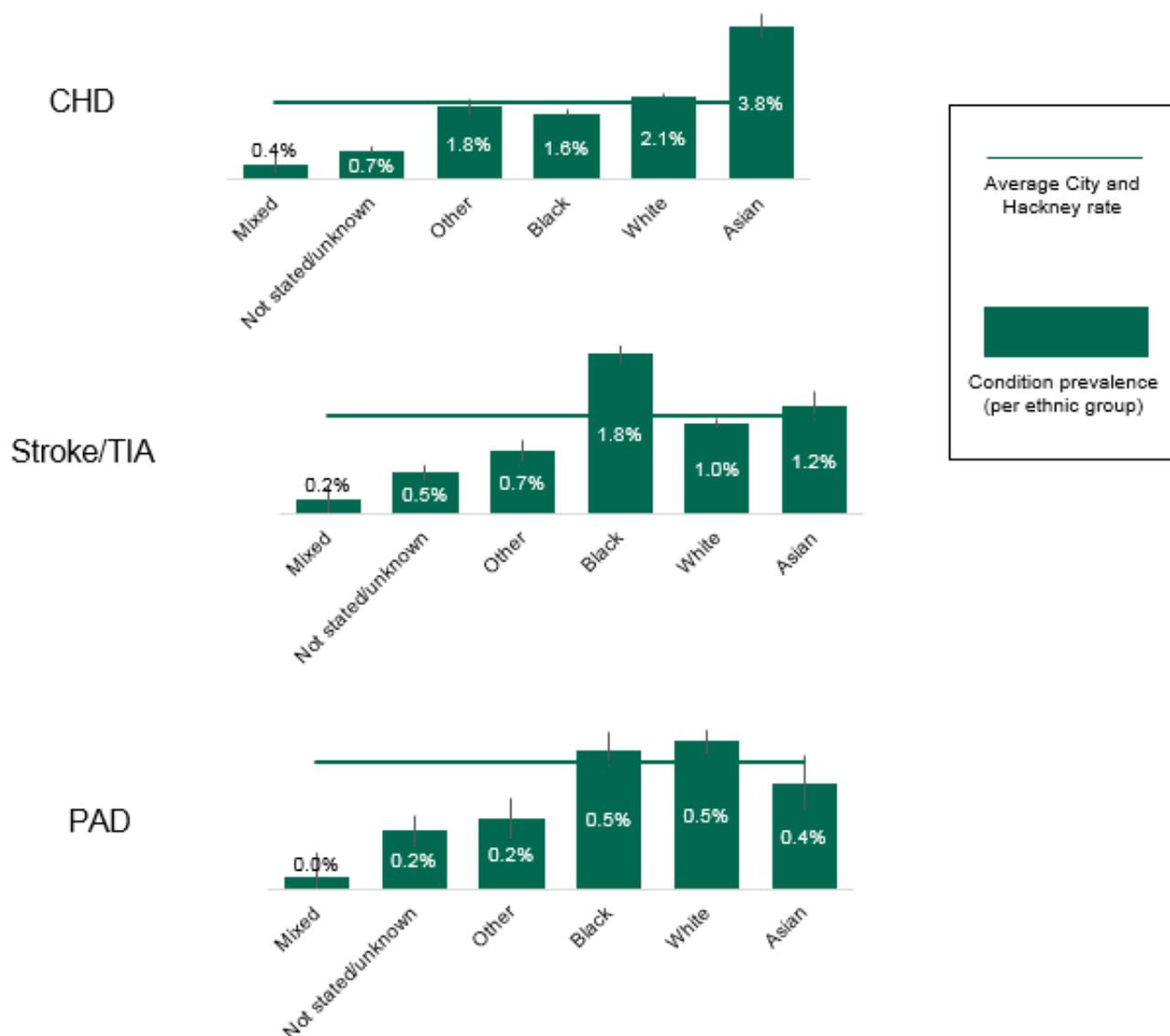Source: Extracted from the local GP register by CEG, Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.

1.4.4   Disability

Evidence from the JSNA 'Lifestyle and behaviour' chapter suggests that adults with a disability are more exposed to lifestyle risk factors for CVD. For example, they are less likely to take part in regular physical activity and may also face difficulties in achieving a healthy diet. [26]

Stroke causes a greater range of disabilities than any other condition. [27] Half of all stroke survivors have a disability as a result of their stroke. [28] In terms of physical functions, strokes can affect walking, talking, speech, balance, coordination, vision, spatial awareness, swallowing, and bladder and bowel control, and can cause

memory impairment. It is estimated that over a third of stroke survivors in the UK are dependent on others and that, of those, one in five is cared for by family or friends. [28]

GP patients with a learning disability are at significantly increased risk of heart failure and stroke/TIA than those without a learning disability – linked to a range of behavioural, social and environmental factors. [29] [30]

1.4.5 Sexual identity

A study looking at predictive factors for CVD identified that sexual minority women[7] are at a greater risk of developing these conditions compared to heterosexual women. [31]

There is insufficient local information on CVD by sexual identity and orientation to draw local inference.

1.4.6 Socio-economic disadvantage

Environmental and behavioural factors associated with low socio-economic status contribute to poor CVD health. [19] Deprivation correlates with wide inequalities in the incidence of stroke and coronary heart disease; and those from more deprived areas are more likely to experience complications. Stroke and CHD mortality also show a deprivation gradient nationally, in particular for male CHD deaths. [32]

In Hackney and the City, there is a small but significant positive relationship between deprivation and CVD prevalence – CHD, stroke/TIA and PAD are all more common in the most (compared with the least) deprived local neighbourhoods (Figure 8).

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[7] Sexual minority women refers to those who indicate their sexual orientation is not exclusively heterosexual or those who engage in same-sex sexual behaviour

Figure 8: Prevalence of CVD conditions in Hackney and the City (resident) GP patients, by deprivation quintile (18+, 2017)
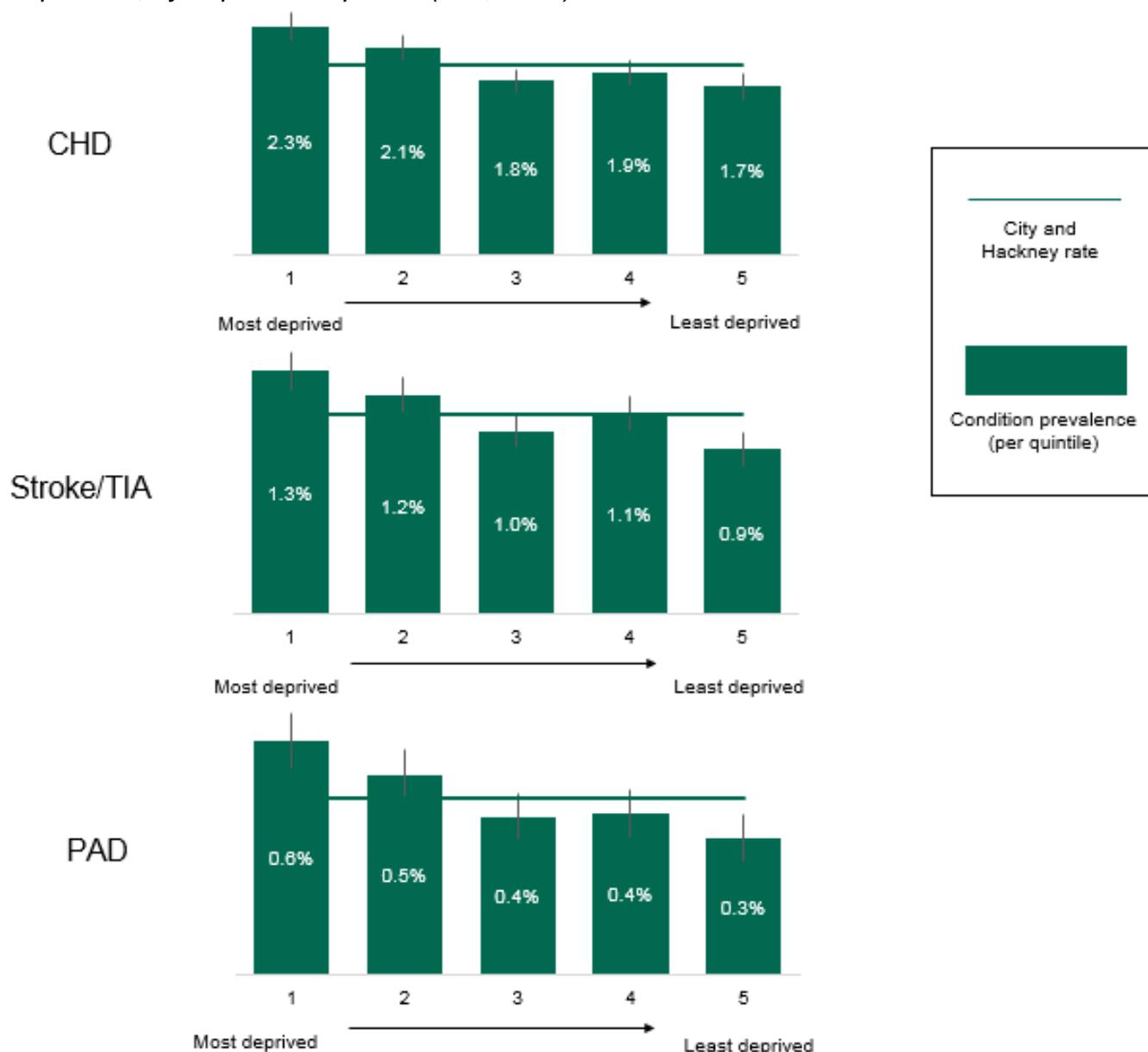
Source: Extracted from the local GP register by CEG, Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.
Note: Deprivation is defined using the Index of Multiple Deprivation 2015 (IMD). IMD is a measure of relative deprivation for small areas that combines 37 separate indicators, each reflecting a different aspect of deprivation experienced by individuals living in an area. Deprivation groupings are reported from 1 (most deprived) to 5 (least deprived).

1.4.7   Location within Hackney and the City

Data on variation in prevalence of CHD, stroke and a number of CVD risk factors across different parts of Hackney are presented in some detail in the health and wellbeing ward profiles for 2016. [33]

1.5 Comparisons with other areas and over time

Public Health England (PHE) has produced CVD profiles that act as a free, online tool allowing users to compare local, regional and national figures on a number of different indicators. [33]

1.5.1   Prevalence

Please note that the data presented here are from a different source to the GP data reported in Section 1.3. Separate data for Hackney and the City are not available.

Figure 9 shows that prevalence of CHD, stroke/TIA and PAD in Hackney and the City is similar to most of Hackney's statistical peers. Local prevalence of all three conditions is significantly lower than the London and England averages (linked to a younger population age profile).

Clinical risk factors for CVD also show a similar prevalence in Hackney and the City to comparable local areas. The rate of CKD is significantly lower than the London average, but broadly similar to Hackney's statistical peers. [33]

A detailed comparative analysis of the incidence and prevalence of hypertension is available in the City and Hackney hypertension needs assessment carried out in 2016. [25] Other sections of this JSNA chapter provide a similar analysis for diabetes and obesity.

Figure 9: Percentage of GP patients diagnosed with CHD, stroke/TIA and PAD (all ages, 2015/16)
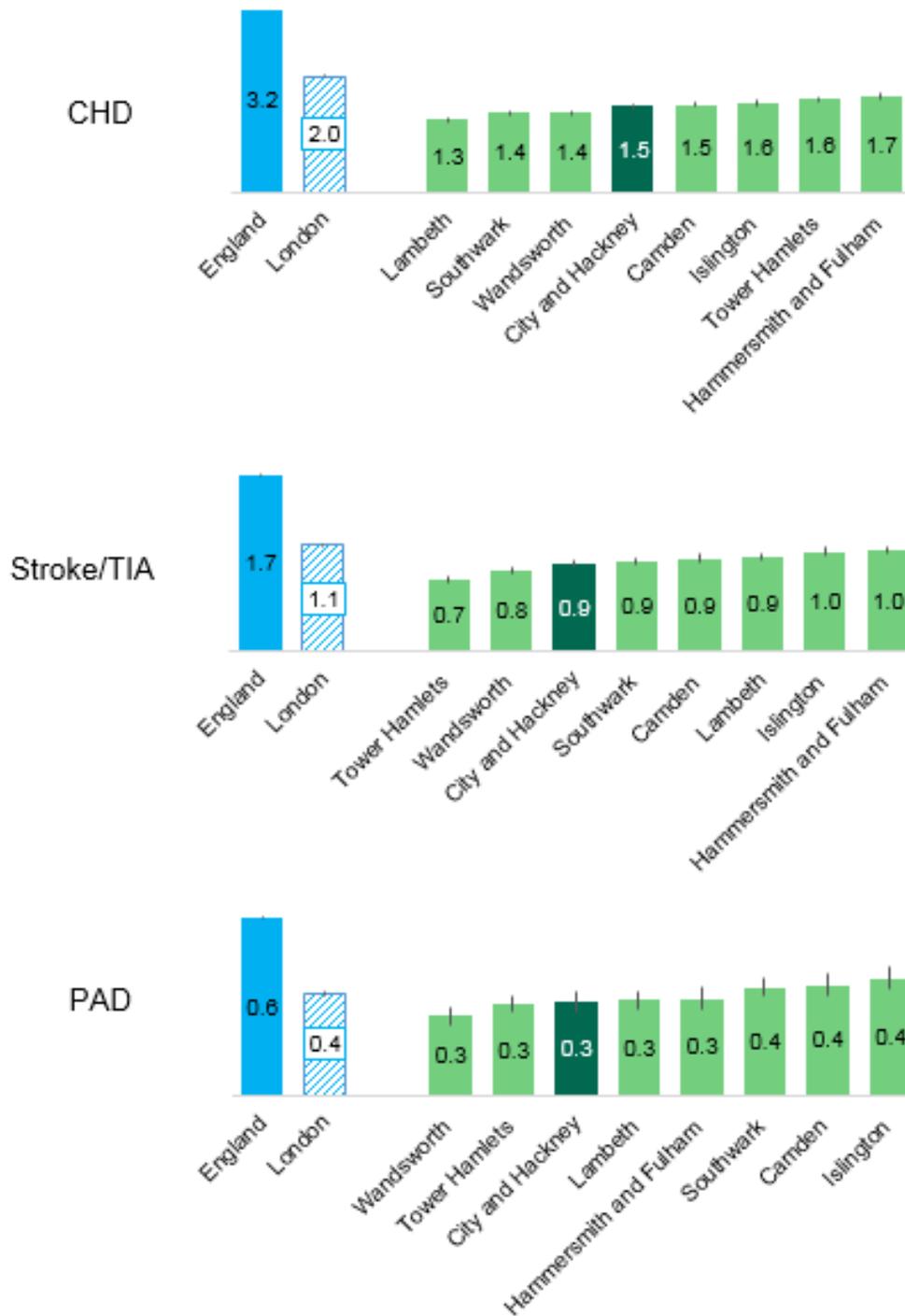
Source: Extracted from the local GP register by CEG, Blizard Institute, April 2017.
Note: Data cover residents of Hackney and the City registered with a GP in Hackney, the City of London, Tower Hamlets and Newham.

1.5.2   Morbidity

Hackney and the City have an age-standardised rate of hospital admissions for CHD that is higher than the majority of Hackney's statistical peers as well as the England average (Figure 10). For stroke admissions, the rate locally is broadly similar to comparable local areas, but is significantly higher than England (Figure 11). Separate data for Hackney and the City are not available.

Comparatively high rates of CVD admissions, and under-75 mortality (see Section 1.5.3), may indicate an unmet need locally and may also reflect local population characteristics (e.g. relatively high levels of deprivation).

Figure 10: Directly age standardised CHD admissions rates per 100,000 population (all ages, 2015/16)
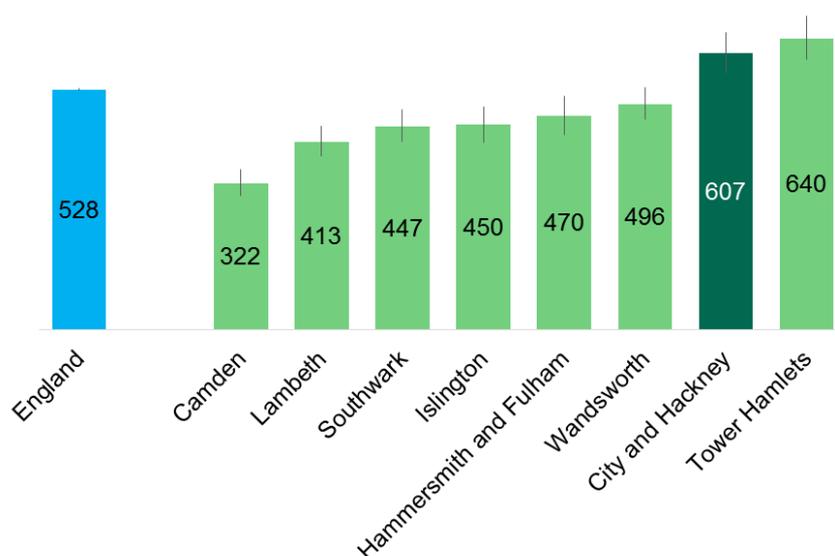
Source: PHE Fingertips Health Profiles tool. [33]

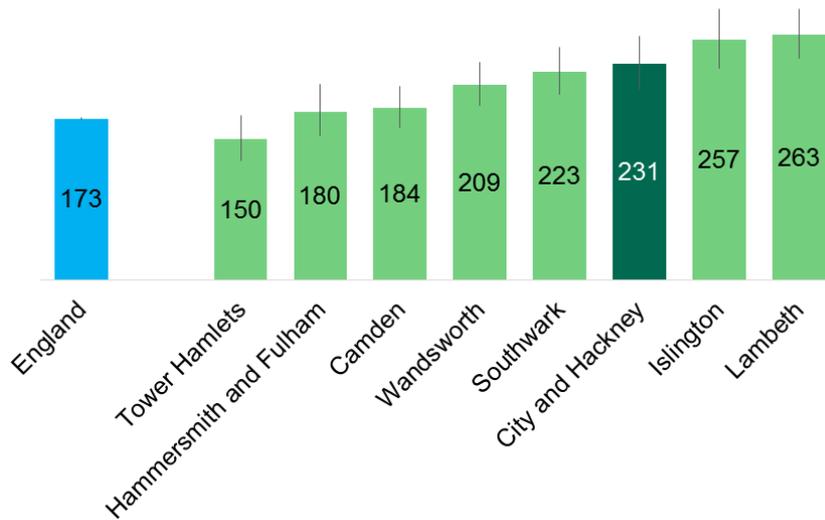*Figure 11: Directly age standardised stroke admissions rates per 100,000 population (all ages, 2015/16)*

England	Tower Hamlets	Hammersmith and Fulham	Camden	Wandsworth	Southwark	City and Hackney	Islington	Lambeth
173	150	180	184	209	223	231	257	263

Source: PHE Fingertips Health Profiles tool. [33]

1.5.3   Mortality

Hackney has the highest rate of under-75 CVD mortality of all its statistical peers, and this rate is much higher than the England and London averages (Figure 12). No data are available for the City.

Figure 12: Age standardised CVD mortality rate (per 100,000 people, under 75, 2013–15)

England	London region	Camden	Southwark	Wandsworth	Hammersmith and Fulham	Lambeth	Islington	Tower Hamlets	Hackney
75	77	62	81	86	86	91	93	103	106
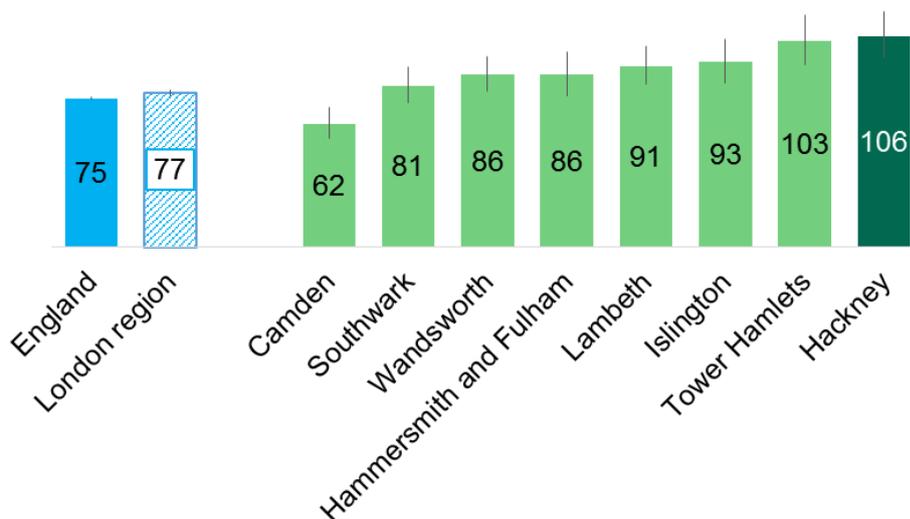
Source: British Heart Foundation. [5]

1.6 Evidence and good practice

In September 2016, PHE published 'Action on cardiovascular disease: getting serious about prevention'. [34] This identifies a number of ways PHE is striving to address CVD through a range of initiatives and interventions. The report includes the following infographic that highlights individual and population level interventions and their impact on cardiovascular risk factors, as well as opportunities for risk detection and management in primary care. The interventions highlighted have a strong evidence base linked to risk reduction and improved outcomes.

Figure 13: CVD prevention: key interventions for the detection and management of CVD risk [34]
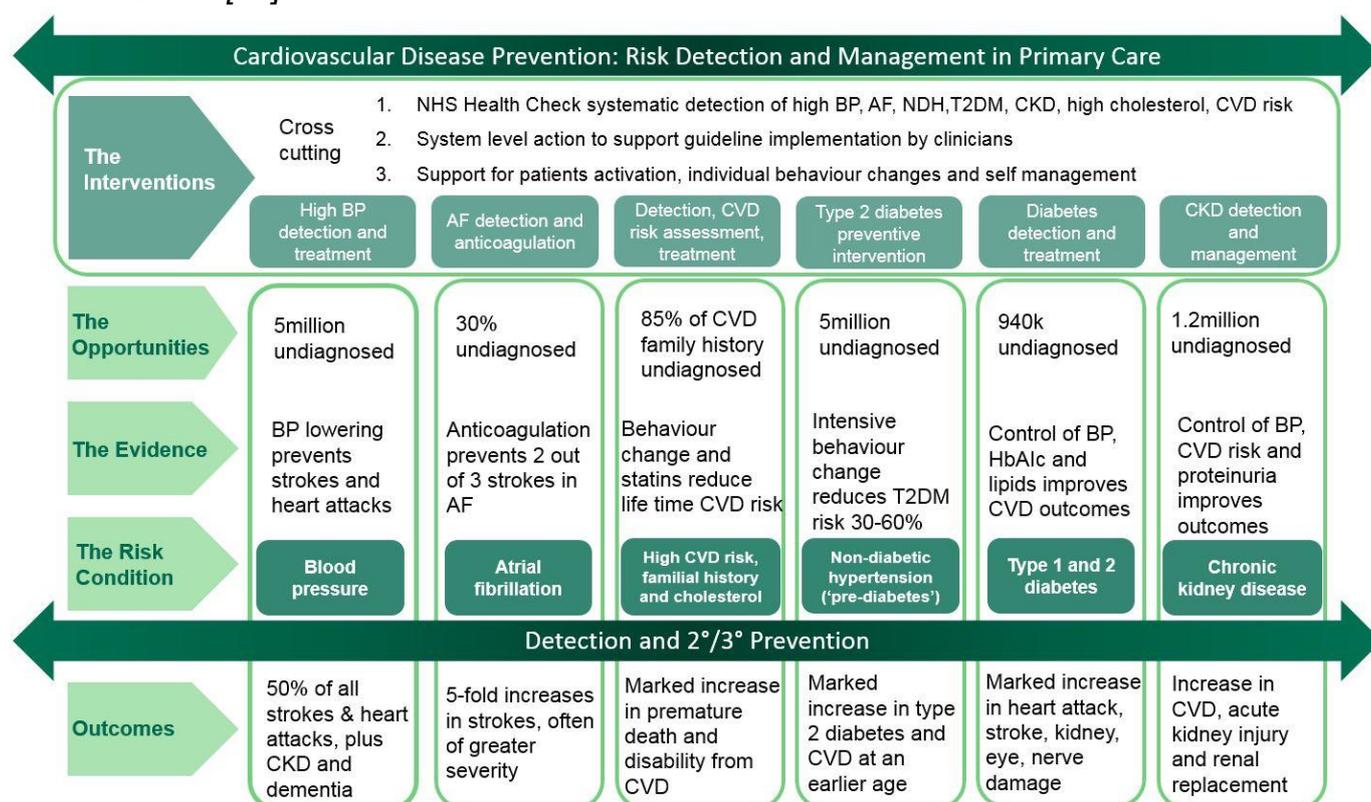
1.6.1 Prevention

A 'whole-system approach' to CVD prevention must include both population level activity to address unhealthy environments, as well as early intervention to identify and address high-risk behaviours and clinical risk factors. [35]

The National Institute for Health and Care Excellence (NICE) has produced specific guidance on CVD prevention, which includes recommendations for national policy and recommendations for local practice. [2] Recommendations for local practice are summarised in Box 1 below.

Box 1: Summary of NICE practice recommendations for CVD prevention [2]

- Establish comprehensive CVD prevention programmes – including tobacco control, healthy eating and physical activity
- Help children and young people to have a healthy diet and lifestyle
- Food provision in public sector offices and services
- Promoting physical activity
- Health impact assessments of regional and local plans and policies
- Regulating takeaways and other food outlets
- Nutrition training for catering managers

A more detailed discussion of best practice evidence to address the main lifestyle and behavioural risk factors for CVD, specifically physical inactivity, smoking, alcohol and dietary factors, is included in the 'Lifestyle and behaviour' chapter of the JSNA.

1.6.2 Identification and early intervention

One of the primary approaches to identifying people at high risk of CVD in England is the NHS Health Check programme for adults aged 40-74. This programme aims to prevent heart disease, stroke, type 2 diabetes and kidney disease, and raise awareness of dementia. Local authorities are responsible for ensuring that all eligible people are offered an NHS Health Check once every five years. The NHS Health Check is made up of three key components: risk assessment, risk awareness and risk management. [36]

A rapid evidence synthesis by the NHS Health Check Expert Scientific and Clinical Advisory Panel (ESCAP) found that, among other things, the NHS Health Check programme is reaching people with the greatest risk of CVD, and that the detection of disease is significantly more frequent among attendees compared to non-attendees (for CKD, familial hypercholesterolemia, hypertension, peripheral vascular disease, and type 2 diabetes). [37]

In addition, the Quality and Outcomes Framework (QOF) rewards GP practices for activity that supports early identification and management of CVD risk factors (see Section 1.6.3 for more detail).

Box 2 summarises recent NICE guidance on identification and assessment of CVD risk in primary care specifically.

Box 2: NICE guidance on identification and assessment of CVD risk in primary care [38] [39]

- Use a systematic strategy to identify people who are likely to be at high risk of CVD (such as the NHS Health Check).
- Prioritise people on the basis of an estimate of their CVD risk before a full formal risk assessment. Estimate their CVD risk using cardiovascular disease risk factors already recorded in primary care electronic medical records.
- People older than 40 should have their estimate of CVD risk reviewed on an ongoing basis.
- Prioritise people for a full formal risk assessment if their estimated 10-year risk of CVD is 10% or more.
- Discuss the process of risk assessment with the person identified as being at risk, including the option of declining any formal risk assessment.
- Do not use opportunistic assessment as the main strategy in primary care to identify CVD risk in unselected people.
- Routinely record ethnicity, BMI and family history of premature CVD in medical records.
- Consider socio-economic status as an additional factor that contributes to CVD risk.

NICE has also published guidance on identifying and supporting people most at risk of dying early from cardiovascular disease. [19] NICE based its recommendations around smoking cessation and statin interventions, because both are generally agreed to be effective and cost effective, and because epidemiological data show a clear socio-economic gradient for smoking and CVD (see Section 1.4.6). Targeting these interventions therefore provides an opportunity to address health inequalities.

Reflecting the increased risk of AAA in men aged 65 and over, a routine one-off screening test is offered to this population group (excluding those already treated for AAA) as part of a national screening programme. [40] The screening test includes a quick and painless abdominal ultrasound scan.

1.6.3 Treatment, care and support

NICE has produced a range of guidelines on the treatment and management of specific CVD conditions, including myocardial infarction ('heart attack') and stroke. [41] [42]

In addition to guidance, NICE has produced a set of quality standards to guide the commissioning and delivery of care for people with CVD – including stroke, hypertension, AF, heart failure, hypercholesterolemia and CKD. [43] [39] [44]

The Quality and Outcomes Framework (QOF) is an incentive programme to reward the provision of high-quality primary care. It is a voluntary scheme, introduced as part of the GP contract in 2004. QOF awards practices achievement points for:
- managing some of the most common chronic diseases (e.g. diabetes)
- managing major public health concerns (e.g. smoking, obesity)
- implementing preventative measures (e.g. regular blood pressure checks).

The NICE hypertension pathway provides a useful overview of all published guidance on this topic,[8] and the Blood Pressure Leadership Group[9] has set out best practice proposals for the prevention, detection and management of this important CVD risk factor. [45]

Evidence and best practice in relation to treatment of the other key clinical risk factors referred to in Section 1.2 (diabetes and obesity) are described elsewhere in this JSNA chapter.

1.7 Services and support available locally

1.7.1   Prevention

Local services and support available to address the main modifiable risk factors for CVD are described elsewhere in the JSNA:

- 'Lifestyle and behaviour' chapter – physical inactivity, smoking, alcohol and dietary factors
- This chapter – obesity and diabetes.

1.7.2   Identification and early intervention

There have been significant improvements in the performance of the local NHS Health Check programme in recent years, delivered by the City & Hackney GP Confederation and commissioned by Hackney Council and City of London public health teams. In the four years to 2016/17, 48.9% of people eligible for an NHS Health Check in Hackney had received one, which is significantly above the England average (36.2%). For the City of London, 44.2% of eligible people had received an NHS Health Check over this period. [46]

City and Hackney Clinical Commissioning Group (CCG) currently commissions the City & Hackney GP Confederation to ensure delivery of evidence-based care in relation to a range of long-term conditions across all 42 local GP practices. This contract is over and above QOF, and incentivises GP practices to meet certain targets and key performance indicators that support best practice in the identification and management of patients with a range of CVD conditions – including CHD, heart failure, stroke/TIA, PAD, hypertension, diabetes and CKD.

On most measures, primary care management of people with hypertension and diabetes in Hackney and the City outperforms many similar areas. [47]

As described in Section 1.6.2, AAA screening is offered to all men in England when they turn 65. In 2015/16, around 69% of the eligible Hackney and the City population

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[8] https://pathways.nice.org.uk/pathways/hypertension
[9] The Blood Pressure Leadership Group is formed of representatives from national and local government, the health system, voluntary and community sector and academia. The board is supported by PHE with the main objective of tackling high blood pressure alongside work to prevent and manage CVD.

had an AAA screening test. This value is around average for similar local areas, but lower than the London and England averages. [48]

1.7.3 Treatment, care and support

As mentioned in Section 1.7.2, City and Hackney CCG currently commissions the local GP Confederation to deliver a long-term conditions contract, which incorporates the management of key CVD risk factors and symptoms.

There are also various secondary care and emergency treatment services available to people with CVD in Hackney and the City – see below for an overview of services relevant to each main CVD condition covered in this section.

For people with CHD, there are various specialist services available locally, including:
* direct access cardiac diagnostics team at Homerton Hospital
* rapid access chest pain clinic (Homerton Hospital)
* heart failure community nursing team
* cardiac rehabilitation programmes (based in hospital and community settings).

For people experiencing stroke locally, there are various specialist services available, including:
* hyper-acute stroke unit (at the Royal London Hospital)
* stroke unit (Homerton Hospital)
* transitional neurological rehabilitation unit (Homerton Hospital)
* regional neurological rehabilitation unit (Homerton Hospital).

PAD is primarily managed in primary care with medication, along with lifestyle and behaviour advice and support. Services relating to complications arising from PAD (such as gangrene) are delivered via the vascular surgery service based at Barts Health NHS Trust. There is also a daily (weekdays) emergency foot clinic at St Leonard's Hospital for urgent foot health problems, including a self-referral route. City of London residents have access to the services listed above and are geographically close to St Bartholomew's Hospital (based within the Square Mile), which includes a specialist cardiac centre and houses the regional centre for acute heart attack.

1.8 Service gaps and opportunities

The new City and Hackney integrated commissioning system provides the opportunity to bring a fresh, much more joined-up approach to the prevention, detection and management of CVD risk and disease. A key focus of the new system is to shift activity and resources towards prevention, and the redesign of health and services to support people to better manage their own health and provide care closer to home. As a major cause of premature death, CVD is a major priority within this programme of work.

In 2016, two population health needs assessments, on stroke and hypertension, identified a number of areas for action across heath and care pathways to reduce the

burden of CVD in the local population – through better targeted prevention activities and improved detection of clinical risk factors (especially hypertension and AF). [25] [12]

Through the NHS England RightCare programme,[10] further local action is being taken to identify opportunities to improve services and outcomes specifically for stroke.

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