

Cardiovascular health and wellbeing in Northern Ireland Literature review

**Health impact assessment
Northern Ireland cardiovascular service framework**



Aim

The aim of this review is to provide a summary of selected published evidence on the health inequality impacts that may arise from the implementation of the Northern Ireland *Service framework for cardiovascular health and wellbeing*.

Context

The service framework sets out explicit standards about the prevention, diagnosis, treatment, care, rehabilitation and palliative care of individuals and communities.

It is to be used by patients, clients, carers and their wider families to help them understand the standard of care they can expect to receive. The framework is also to be used by health and social care (HSC) organisations in planning and delivering services.

This review has been undertaken as part of a health impact assessment (HIA) of the service framework.

Health impact assessment is a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population (World Health Organization, 1999).

The scope of this work is to identify and review evidence that builds understanding of how the implementation of the service framework may impact on health inequalities in Northern Ireland.

Methodology

This is a 'brief' literature review that has been undertaken with reference to the London Health Observatory document, *A guide to reviewing published evidence for use in health impact assessment* (2006).

A key part in any HIA is the identification and review of evidence relating to the proposals and how they may impact on health inequalities. The HIA steering group provided a list of areas for the literature review to focus on:

- baseline data, interventions and impacts relating to health inequalities and cardiovascular health and wellbeing, illness and services;
- burden of disease, service access, utilisation and outcomes as well as economic considerations and determinants of health of vulnerable groups within the area of overall disadvantage, eg women, migrants, older people.

The evidence used in this literature review has been identified in a number of ways:

- websites of key organisations including the Cochrane Library, Department of Health (DH), Association of Public Health Observatories (APHO), Institute of Public Health in Ireland (IPH), NHS Evidence;
- peer-reviewed professional journals;
- grey literature, ie scientific research or reports from government agencies.

The initial focus was on systematic reviews, ie overviews of primary research that use explicit and reproducible methods. The search then widened to previously conducted HIAs.

Results

A. Lifestyle and personal circumstances

Potential impacts on health and health inequalities

A review of social statistics in Northern Ireland in 2009 noted that whilst life expectancy is increasing and there has been some reduction in the death rate from heart disease, Northern Ireland still fares badly in comparison to other UK countries in terms of death rates from circulatory diseases and diabetes rates in the population.¹

Major risk factors

Considerable research has been undertaken to identify the main causes of heart disease. A comprehensive review of data on the prevalence of major risk factors across the globe found that across developed regions, tobacco, high blood pressure, alcohol, high cholesterol and high body mass index (BMI) were consistently the leading causes of loss of healthy life.²

This was supported by the INTERHEART study which assessed the importance of risk factors for coronary artery disease worldwide.³ Nine measured and potentially modifiable risk factors accounted for more than 90% of the proportion of the risk for acute myocardial infarction.

Smoking, history of hypertension or diabetes, waist hip ratio, dietary pattern, physical activity, alcohol consumption, blood apolipoproteins and psychological factors were identified as the key risk factors. The effect of these risk factors was consistent in men and women across different geographic regions and by ethnic group. The British regional heart study (BRHS) also found that smoking, blood pressure and cholesterol accounted for 90% of attributable risk of cardiovascular disease.⁴

Smoking increases the risk of coronary, cerebral, and peripheral arterial disease and this adverse effect is related to the amount of tobacco smoked daily and the duration of smoking.⁵⁻⁹ The impact of smoking on atherosclerosis progression is greater for individuals with hypertension or diabetes.¹⁰ Men who smoke are three times more likely to die aged 45–64 years and twice as likely to die aged 65–84 years than non smokers.⁵

The risk of cardiovascular disease as a result of smoking is affected by the number of cigarettes smoked. A large case control study noted the strong relationship between risk of myocardial infarction (MI) and number of cigarettes smoked, with individuals who smoked over 40 cigarettes per day having almost 10 times the relative risk of MI as non smokers.³ Passive smoking also increases the risk of coronary heart disease.¹¹

There are complex relationships between diet and cardiovascular disease. The epidemiological evidence started with the seven countries study, which showed that total fat, and specifically saturated fat, are both positively associated in these populations with coronary mortality.¹² At the level of individuals within each population in this international study, saturated fatty acids were also related to coronary mortality. Salt intake is a major determinant of cardiovascular disease in the UK, mainly due to its effect on blood pressure. On average, 70–90% of people's intake comes from salt added during the manufacturing process; only 10–30% comes from adding it during cooking or at the table.¹³

A review of epidemiological studies on the association between physical activity and the prevention and treatment of cardiovascular disease found there was conclusive evidence that physical activity reduces the incidence of coronary artery disease.¹⁴ A sedentary lifestyle is associated with an increased risk of cardiovascular disease.¹⁵⁻¹⁹

As body weight (defined as BMI) increases, so does the risk of cardiovascular disease.²⁰⁻²³ In addition to total adiposity, the distribution of fat and, particularly visceral fat, increases cardiovascular disease risk.^{24,25}

Alcohol is known to have both beneficial and harmful effects on the biochemical basis for coronary heart disease.²⁶ The degree of reduction in risk of coronary events following light or moderate drinking is small but significant.²⁷ Conversely, binge drinking is harmful and associated with an adverse effect on blood pressure and increased risk of thrombosis.^{28,29}

Vulnerable population groups

People who enjoy a lifetime of advantage are likely to live longer, healthier lives than those who experience disadvantage.^{30,31} The greater the length of time that people live in disadvantaged circumstances, the more likely they are to suffer from a range of health problems, particularly cardiovascular disease.³²

In addition, despite increased prosperity and reductions in mortality among some population groups, cardiovascular disease, other smoking-related diseases and smoking are still more prevalent among lower socioeconomic and certain ethnic groups compared with the general population.³³

A report on how social, economic and environmental conditions play a major role in determining health in Northern Ireland and Ireland noted that, while life expectancy has been increasing in recent years for men and women, both in deprived areas and in Northern Ireland overall, there is no evidence of a narrowing of the inequality gap.³⁴

A key finding of an all-island report on trends on selected chronic conditions was that local socioeconomic circumstances affected the prevalence of these conditions in an area.³⁵ Adults living in more deprived areas are more likely to be living with a chronic condition.

The report found that this was true across all the chronic conditions, among males and females, in each age group, and in both the Republic of Ireland and Northern Ireland. The recently published *All Ireland Traveller health study (AITHS)* found that deaths from cardiovascular diseases are more markedly increased in Travellers compared to the general population.³⁶

The Scottish clinical guideline on cardiovascular disease states that individuals from deprived socioeconomic groups must be regarded as being at higher total cardiovascular risk than indicated by risk estimation tools that do not use social deprivation to calculate total risk.³⁷ It also cited evidence that the incidence and mortality rates from cardiovascular disease in those aged under 65 are higher in deprived areas than in more affluent areas.³⁸⁻⁴⁰

A report prepared for the London Health Commission reviewed evidence on how proposals in *Healthcare for London: consulting the capital* could impact on health inequalities. It concluded that people with mental health problems are more likely than the general population to suffer from health risks including obesity, smoking, heart disease, hypertension, diabetes and stroke.⁴¹ People with serious mental health problems are also more likely than others to get illnesses like coronary heart disease and stroke before 55.

The Welsh Assembly commissioned a review to identify indicators of social determinants for older people's health.⁴² It found evidence of potential associations between coronary heart disease and stroke and area deprivation and low social class/wealth.

Reviews of evidence on mortality/prevalence of diseases, including cardiovascular, and access to health services by a range of ethnic groups found excess mortality from cardiovascular disease in people of south Asian origin. Chinese- and Caribbean-born groups have rates lower or comparable to the general population, although levels of stroke among Afro-Caribbean groups are much higher than other ethnic groups.^{43,44}

A study on cardiac surgery concluded that patients living in areas with high deprivation scores undergoing coronary artery bypass graft are younger, have more clinical risk factors and experience more post-operative cardiovascular complications than patients living in low deprivation score areas.⁴⁵

In some people, a high cholesterol concentration in the blood is caused by an inherited genetic defect known as familial hypercholesterolaemia (FH). This cholesterol condition is present from birth and may lead to early development of atherosclerosis and coronary heart disease. The prevalence of heterozygous FH in the UK population is estimated to be 1 in 500, which means that approximately 110,000 people are affected.

The elevated serum cholesterol concentration that characterises heterozygous FH leads to a greater than 50% risk of coronary heart disease in men by the age of 50 years

and at least 30% in women by the age of 60 years. In 2008, the National Institute for Health and Clinical Excellence (NICE) published guidance on the identification and management of this condition.

As stated in the DHSSPS *Service framework for cardiovascular health and wellbeing*, diabetes is a major risk factor for cardiovascular disease. The potential impact of diabetes includes reduced life expectancy, five times higher mortality rates from coronary heart disease, three times higher risk of stroke. In addition, diabetes is the leading cause of renal failure.

The service framework also cites evidence on the association between renal failure, peripheral vascular disease, foot ulcers, gangrene and amputation, and indicates this association is three to five times greater in patients with diabetes.

Appropriate and effective interventions

One of the key messages in the Marmot Review was that focusing solely on the most disadvantaged will not reduce health inequalities sufficiently and that actions must be universal, but with a scale and intensity proportionate to the level of disadvantage.⁴⁶ Its highest priority recommendation was to give every child the best start in life, citing evidence that what happens in the early years has lifelong effects on many aspects of health, such as obesity and heart disease.⁴⁷

The primary prevention of cardiovascular disease is dependent on the effective reduction of the major risk factors, particularly by reducing tobacco use and adopting a healthier diet.⁴⁸ Epidemiological modelling suggests that substantial reductions in cardiovascular disease rates can be achieved by reducing the major risk factors as much as possible. This is the case even in countries where cardiovascular disease mortality rates are already relatively low, such as Italy.⁴⁹

A recent study on the decrease in coronary heart disease mortality in Northern Ireland concluded that approximately two thirds of this decrease was attributable to reductions in the cardiovascular risk factors of cholesterol, smoking and blood pressure. However, it raised concerns about the future impact of the growing trends in diabetes, obesity and physical inactivity on the cardiovascular disease burden.⁵⁰

The all-island report on trends on selected chronic conditions noted the World Health Organization's (WHO) recommendations that strategies for chronic diseases should incorporate both population-level disease prevention programmes as well as targeted disease management programmes that focus on individuals at high risk.³⁵

However, a review of evidence on the effectiveness of different approaches to cardiovascular disease prevention concluded that screening and treating high risk individuals is relatively ineffective and typically widens socioeconomic inequalities.⁵¹

Population-wide approaches, such as smoke-free legislation, are generally effective and cost-saving and can reduce health inequalities.^{51,52} In 2010, NICE published guidelines on the prevention of cardiovascular disease using population-wide approaches.¹³

These ranged from protecting children and young people from marketing, advertising and promotions which encourage an unhealthy diet, to ensuring that guidance for local transport plans support physically active travel.

There are many guidelines and policy documents covering mainstream NHS smoking cessation services and wider primary prevention. A systematic review of 20 studies concluded that quitting smoking is associated with a 36% reduction in risk of mortality for patients with coronary heart disease who quit compared with those who continued smoking.⁵³

Another systematic review which compared different forms of nicotine replacement therapy concluded that all forms of this therapy can help people to stop smoking, almost doubling long-term success rates.⁵⁴ A review of interventions noted that several studies in England and one in Glasgow have now found that NHS stop smoking services are effective in reaching smokers living in more disadvantaged areas.⁵⁵

Stopping smoking can be followed by a rapid decline in the risk of coronary heart disease. In people with coronary heart disease, the risk falls within 2–3 years to the level of those people with coronary heart disease who have never smoked.⁹

The report *Food matters* estimated that a total of around 70,000 lives would be saved each year in the UK if people's diet matched the nutritional guidelines on fruit and vegetable consumption and saturated fat, added sugar and salt intake.⁵⁶ A diet based on fruit, legumes, pulses, other vegetables, wholegrain foods, fish and poultry is consistently associated with lower levels of cardiovascular risk factors and lower cardiovascular disease mortality.⁵⁷⁻⁶⁰

Vegetarian and 'Mediterranean' diets are also consistently associated with lower cardiovascular disease mortality.^{61,62} Interventions promoting these types of diet have been shown to be highly effective in reducing blood pressure, cholesterol and subsequently cardiovascular disease.^{63,64}

In Finland and Iceland, coronary heart disease mortality rates declined by 63% between 1982 and 1997. Seventy five per cent of this was attributed to a reduction in smoking, blood pressure and cholesterol levels.^{65,66} In Poland, a 26% decrease in coronary deaths followed a substantial reduction in the consumption of animal fats and increased consumption of vegetable oils and fruit after the break-up of the Soviet Union.⁶⁷ A study of UK data revealed that, relative to the above countries, blood pressure and cholesterol levels have fallen a modest amount.⁶⁸

A review of a number of studies indicated that those improvements in blood pressure, lipid profile and glucose handling are produced by maintained weight loss and concluded that it is possible to extrapolate these to the reduction of the cardiac events that would be predicted by risk analysis.³⁷

Summaries of best available evidence on interventions to treat childhood and adult obesity respectively have been issued by the National Obesity Observatory.^{69,70} They highlight the role of multi-component tailored interventions including physical activity and dietary components.

For adults, the importance of behavioural and weight management components was noted. Likewise for children, the importance of family and peer support and the need to tailor the interventions to the target population.

This review also concluded that there is strong evidence from a wide range of studies of an inverse relationship between physical activity and the risk of a coronary event. The evidence suggested that physical activity can reduce the risk of a coronary event, by as much as a half when all other major risk factors are controlled.

There is review-level evidence to suggest that heavy drinkers receiving brief interventions are twice as likely to moderate their drinking 6 to 12 months after an intervention when compared with drinkers receiving no intervention.⁷¹

Brief interventions (especially multi-contact interventions) can reduce net weekly drinking.⁷² There is also review-level evidence to support the moderate efficacy of brief interventions for hazardous drinkers in the primary care setting.⁷³

As chronic conditions such as heart disease, hypertension and diabetes have replaced acute and infectious diseases as the major cause of death, disease and disability, models for the management of such conditions have been developed.⁷⁴

A core element of many of these models is the support of patient self-management, ie individual and group interventions that emphasise patient empowerment and self-management skills. There is evidence that this is effective in the management of diabetes.^{75,76}

There is also evidence that self-management programmes for patients with heart failure decreases the overall hospital admissions and readmissions for heart failure.⁷⁷

B. Access

Potential impacts on health and health inequalities

A report for the Belfast Health and Social Care Trust looked at ways that people in the most deprived parts of Northern Ireland use hospital services compared to those from better-off areas.⁷⁸ It found that in the nine year period up to 2006–07, a person in the most deprived tenth of the region was almost two thirds more likely to have been treated as a patient than a person in the least deprived tenth.

It also showed that while someone in the most deprived tenth is 17% more likely than a person in the most affluent tenth to be admitted on an elective basis, they are 132% more likely to be admitted on a non-elective basis.

People living in the most deprived tenth are more than twice as likely as those in the least deprived tenth to need non-elective admission to hospital for cardiology treatment.

The report raised a concern that elective hospital services are not provided to people from economically deprived areas at the level which would be anticipated, and stressed the need to take account of this when reviewing/changing hospital services.

Other studies have also concluded that socioeconomic deprivation is associated with reduced access to specialist cardiac services and less uptake of non-invasive cardiac investigations.⁷⁹⁻⁸¹

One study on NHS services suggested that a source of inequity in access to elective specialist care lies in the relationship between the GP and the patient, either by GPs finding it easier to deal with more affluent people and to respond to their concerns, or the better off may be more able to persuade GPs that their needs can only be properly addressed by specialist services.⁸²

A UK-wide review of cardiac rehabilitation services concluded that referral and attendance of older people and women at cardiac rehabilitation tended to be low. There was a suggestion that patients from ethnic minorities and those with angina or heart failure were less likely to be referred to or join programmes.⁸³

It also found that the overall provision of cardiac rehabilitation services in the UK was low. It noted that information on referral to, and uptake of, cardiac rehabilitation across the UK was incomplete and that, whilst the reasons reported by patients for non attendance are amenable to intervention, few interventions have been formally evaluated.

The *national sentinel stroke audit* UK-wide report published in 2010 found that further work was needed to ensure that all stroke patients:

- are admitted directly to a stroke unit;

- have access to thrombolysis;
- have access to specialist stroke early supported discharge services.⁸⁴

A report prepared for the London Health Commission identified and reviewed evidence on how proposals in *Healthcare for London: Consulting the Capital* could impact on health inequalities. It found that people with mental health problems and learning disabilities are less likely to get some standard checks and treatment such as statin treatment for heart disease, and face access and attitude barriers in using health services.⁴¹

The AITHS found that access to health services for Travellers is good, with Travellers stating that their access is at least as good as that of the rest of the population. However, the research reports that the healthcare experience is not as good as the general population, with communication cited as a major issue by both Travellers and service providers.³⁶

A Centre for Evidence in Ethnicity, Health and Diversity (CEEHD) review found extensive anecdotal, qualitative and quantitative evidence to support the view that most minority ethnic groups have poorer access to, worse experience of, and less beneficial outcomes from the use of services across the HSC field.⁴⁴

Appropriate and effective interventions

NICE issued guidance on what works in driving down population mortality rates in disadvantaged areas. It found that few, if any, studies in the effectiveness reviews focused primarily on reducing health inequalities. Hence, it is unclear from these studies which methods are most effective at reaching people or groups that are disadvantaged. Its recommendations focused on smoking cessation services and the provision of statins.³³

A study of the effects of the introduction of the quality and outcomes framework (QOF) in primary care concluded that blood pressure monitoring and control improved substantially. These improvements have been accompanied by the near disappearance of the achievement gap between least and most deprived areas.⁸⁵

The report prepared for the London Health Commission which identified and reviewed evidence on how proposals in *Healthcare for London: consulting the capital* could impact on health inequalities found evidence that:

- People from more deprived communities are less likely to benefit from services to improve lifestyle, such as smoking cessation and healthy diet campaigns.
- Preventative interventions are less likely to benefit deprived communities. People in higher social classes are more likely to attend health checks for cardiovascular disease and are more likely to use protective drugs such as statins. One study found that smokers were about half as likely to take statins than non smokers and it has been suggested that since smoking prevalence is strongly correlated with socioeconomic status, this close relationship may also create inequalities of access to prevention services for heart disease.⁴¹

C. Social support

Potential impacts on health and health inequalities

A study which utilised the community survey data collected as part of the Project on Human Development in Chicago Neighbourhoods (PHDCN) found that neighbourhood social capital, as measured by reciprocity, trust and civic participation, was associated with lower neighbourhood mortality rates, after adjustment for neighbourhood material deprivation.

Higher levels of neighbourhood social capital were associated with lower neighbourhood death rates for total mortality. This also applied to death from heart disease and other causes for white men and women and, to a less consistent extent, for black men and women.⁸⁶

A report of the findings of a survey on social capital and health cited research findings that people with the fewest social connections have the highest mortality rates. A lack of participation in organisations, few friends and not being married are associated with greater overall mortality.^{87,88}

A WHO report referred to a study of a community with initially high levels of social cohesion which showed low rates of coronary heart disease. However, when social cohesion declined, heart disease rates rose.³²

An evaluation of systematic reviews of the evidence relating to major psychosocial risk factors to assess any associations between these and the development and progression of coronary heart disease, or the occurrence of acute cardiac events, concluded that there is strong and consistent evidence of association between depression, social isolation and lack of quality social support and the causes and prognosis of coronary heart disease.⁸⁹

D. Economic

Potential impacts on health and health inequalities

The IPH has reviewed the health impacts of employment.⁹⁰ It found that unemployment has the biggest impact on the most disadvantaged members of the population and thereby contributes to health inequalities. Evidence was cited that the loss of 'position' or status and the loss of self-esteem were linked to depression which can increase risk of diseases such as coronary heart disease, and that people who are unemployed are more likely to smoke and drink to excess.^{91,92}

The review also found evidence from studies on UK civil servants that men and women with low job control were nearly twice as likely to report coronary heart disease than other workers.⁹³ Those who experienced job insecurity reported a significant worsening of self-rated health compared with those who experienced continuing job security.

Women who experienced reduced job security reported an increase in long standing illness. Women also showed a larger elevation in blood pressure associated with reduced job security, marking them at risk for cardiovascular disease.⁹⁴ One study cited described links between long working hours and cardiovascular disease, diabetes, poor self-reported health and fatigue.⁹⁵ In addition, Japanese and South Korean studies demonstrated the negative effects of regular overtime on the cardiovascular system.⁹⁶

The IPH review of the health impact of education noted that low family socioeconomic status can be a barrier to educational attainment throughout the lifespan, from pre-primary through compulsory schooling to higher education and beyond.⁹⁷

Low education level has been associated with increased risk of death from stroke and cardiovascular disease.^{98,99} Evidence reviewed suggested that those who achieve a higher level of educational attainment are more likely to engage in healthy behaviours and less likely to adopt unhealthy habits, particularly in relation to physical activity, diet and smoking.¹⁰⁰

E. Environment

Potential impacts on health and health inequalities

The IPH reviewed evidence of the health effects of the built environment and found evidence that a number of health outcomes such as obesity and cardiovascular disease were associated with having fewer social networks.^{87,101}

There was also evidence of the link between residential environment and cardiovascular risk and the increasing recognition within the disciplines of planning and public health of the importance of the urban environment and its influence on healthy lifestyle choices, especially physical activity.^{102,103} Research has shown that people living in sprawling areas walked less for exercise were heavier and were more likely to have high blood pressure compared to those living in compact areas.¹⁰⁴

It has been found that populations living in areas with higher air pollution show a range of differences in health to otherwise similar people. The effects include higher death rates, respiratory and circulatory effects and cancer.^{105,106} High levels of air pollution are known to particularly affect those with cardiovascular and respiratory conditions.

Some people with cardiopulmonary diseases can be adversely affected by day-to-day changes in the levels of air pollutants as demonstrated by increased deaths and hospital admissions when air pollution levels are high, especially among the elderly.^{107,108}

The primary function of transport is in enabling access to people, goods and services. In doing so, it promotes health indirectly through the achievement and maintenance of social networks.¹⁰⁹ In rural areas, accessibility becomes more difficult, both because of distance needed to travel and associated travel costs.

As services are restructured, this has a particularly strong effect on vulnerable groups such as the elderly who frequently lack access to private transport and may be unable to use public transport.¹¹⁰ In the UK, it has been estimated that over a 12 month period, 1.4 million people miss, turn down or choose not to seek medical help because of transport problems.¹¹¹

Fear of crime can be a cause of mental distress and social exclusion and may prevent women, children and older people from accessing health services.¹⁰⁹ Furthermore, the likelihood of being physically active is 50% less in residential environments that contain high levels of impoliteness, and the likelihood of being overweight or obese is 50% greater.¹¹²

The problem of fuel poverty is an important public health issue linked to housing and low income. Living in cold, damp, thermally inefficient conditions has an adverse impact

on health. At their most extreme, the health effects include an increased risk of death in winter months, higher levels of respiratory illness, high blood pressure, heart disease and stroke, with older people at particular risk.¹¹³⁻¹¹⁵

Research has shown noticeable differences between annoyance impacts due to noise on different age groups. For adults, one of the main symptoms was impact on the cardiovascular system. The main symptom experienced by the elderly population was an increase in stroke.¹¹⁶

Appropriate and effective interventions

Good neighbourhood design enables community connections. Designs which promote social networks were mixed use and pedestrian oriented, enabling residents to perform their daily activities without the use of a car.¹¹⁷

Studies have shown that improved access to places for physical activity increased the likelihood of people taking exercise and decreased the level of obesity.^{118,119} However, one study found that although public spaces are highly valued by all sections of society, they are not used equally by all age and socioeconomic groups.¹²⁰

A review of the economic benefits of green space estimated that provision of green space to bring about a 1% change in the sedentary population could have an economic value ranging from £479m to £1,442m per year, depending on whether older people (75+) were included or excluded in the analysis.¹²¹

The likelihood of being physically active may be up to three times higher in residential environments that contain high levels of greenery, and the likelihood of being overweight or obese may be up to 40% less.¹¹²

The IPH reviewed evidence of the health effects of transport and stated that transport initiatives can encourage active transport by reducing perceived danger, making active transport the norm, increasing enjoyment and making access to physical activity easier.¹²²

In addition, it found evidence that incorporation of physical activity through active transport makes it part of a person's overall routine in life, and this is felt to be key to sustaining the change in behaviour required initially to become more active.^{123,124}

Conclusions

The key themes identified in this literature are as follows:

- The major risk factors for cardiovascular disease include smoking, history of high blood pressure or diabetes, waist hip ratio and physical inactivity. The primary prevention of cardiovascular disease is dependent on the effective reduction of these risk factors, especially smoking and diet.
- People from deprived areas are regarded as being at higher risk from cardiovascular disease than people living in more affluent areas. Smoking is more prevalent in people from deprived areas. Unemployment, job insecurity and low education levels are all associated with increased risk of cardiovascular disease. The quality of the residential environment has an impact on cardiovascular risk, eg in terms of opportunities to be physically active, enhancement of social capital/cohesion and having adequately warm housing.
- Access to cardiovascular services may be reduced for people from deprived areas and also for women, older people, people from ethnic minorities and people with mental health problems or learning disabilities.
- It has been found that people from more deprived areas are less likely to benefit from services to improved lifestyle and preventative interventions. However, focusing solely on the most disadvantaged will not reduce health inequalities sufficiently and actions must be universal, but with a scale and intensity proportionate to the level of deprivation. This is supported by evidence that population-wide approaches are generally effective and, unlike individual screening approaches, can reduce health inequalities.

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