British Heart
Foundation

Bridging Hearts

Addressing inequalities in cardiovascular health and care

Contents

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Foreword

Dr Charmaine Griffiths, Chief Executive

Since British Heart Foundation (BHF) was founded in the 1960s, the number of people dying from cardiovascular disease (CVD) in the UK each year has fallen by nearly half. At BHF we are proud to have powered unimaginable advances in treatment, diagnosis and care that mean millions more people are living longer and can spend more time with their loved ones.

We should be proud of this progress and recognise the brilliant clinicians, scientists and policy-makers who have made it happen. But the story is far from over.

Today, CVD remains the world's biggest killer and, across the UK, the burden of disease is far from shared equally. CVD and the factors that drive it are more concentrated in our poorest communities and can also affect people differently due to their sex or ethnic background. It remains one of the largest drivers of the widening health gap in people's lives across our four nations, a price that people pay everyday in loss of life and quality of life.

We must do better.

This timely analysis draws together key data on the unequal burden of CVD and the steps we need to take to tackle it. Given the heart of our mission is to save and improve lives, this will shape our approach to play our part in tackling a major cause of premature death across the UK and beyond. We know we cannot achieve this alone, and we share this with the intention of stimulating policy discussion and partnerships.

We will never accept a world in which our chances of living in good health, or staying well enough to enjoy our later years, are set by factors such as where we are from, our sex, or our ethnicity. We know we cannot achieve change alone, but as a leading global research funder and voice of the UK's heart patients, we must play our part.

Executive summary

Progress to address health inequalities will be essential in accelerating stalled progress on cardiovascular health in the UK

'Health inequalities' are the avoidable, unfair differences between the health of different groups of people. They include the relative risk of developing a disease or condition, differences in access to and the quality of care people receive, exposure to risk factors and, ultimately, how long people can expect to live.

Inequalities cannot be attributed simply to any one cause. They arise from a combination of factors: differences in environments and lifestyle, people's ability to engage with healthcare services, as well as genetics and many other influences. These drivers of health inequalities interact in complicated ways – but many of the differences in people's health can be attributed to the fact that we do not all have the same opportunities to live healthy lives.

Living in good health is overwhelmingly influenced by where we live, grow, learn, work and play. The wider determinants of health – described as the 'causes of the causes' by Sir Michael Marmot – include income, work, the environment and access to healthcare services. The combination of factors such as socioeconomic status, ethnicity and sex can significantly determine their influence on health and life expectancy.

Perhaps the most sobering example of health inequality is the fact that someone living in the poorest areas of Scotland can expect to live 25 fewer years in good health than someone in the richest areas.[1] In England, this gap is around 20 years,[2] with cardiovascular disease (CVD) the single biggest contributor to the gap in overall life expectancy.[3] Therefore, it is impossible to discuss health inequalities without discussing heart health. Governments across the four nations of the UK must act on the cardiovascular drivers of poor health to reduce this gap.

BHF has long been sounding the alarm on the growing crisis in cardiovascular health in the UK, where progress on reducing early deaths has been stalling, and even beginning to reverse.[4] Indeed, the rate of early death (i.e. before the age of 75) from CVD in the UK is higher than it was 10 years ago. But the lost progress falls most acutely on those already at a disadvantage. From higher prevalence of risk factors to feeling the sharpest effects of immense health-service pressure, large parts of the population are being disproportionately affected by this crisis. This cannot be ignored.

Intersectionality: the effects of inequalities can be cumulative

This report takes an ‘intersectional’ approach to cardiovascular health, which acknowledges that identities and factors intersect and combine, resulting in multifaceted and complex experiences: no individual can be defined by a single characteristic. Inequalities can interact and compound, resulting in an inequality that is greater than the sum of its parts.

Adopting an intersectional approach in cardiovascular health is essential for developing effective, tailored, and well-targeted policy solutions. Acknowledging and addressing the diverse needs of different populations better enables efforts to reduce health inequalities and improve cardiovascular health for all.

This is why BHF is publishing this report on what is known about cardiovascular health inequalities through three lenses: deprivation, sex, and ethnicity. Each chapter explores the risk and prevalence of CVD, and the difference that these factors make to patients’ experiences and health. These findings are used to make broad recommendations on where and how governments should take action to minimise disparities. The report ends by also briefly exploring the relationship between mental health and CVD, as well as learning disabilities and CVD.

The report provides data that are sometimes specific to the UK’s four nations – but the primary aim is to paint a UK-wide picture. It is by no means a comprehensive analysis of all heart health inequalities, but it does set out a clear statement of the readily available data and evidence.

Where quantitative data falls short, it draws upon rich, qualitative insights of people’s experiences, perceptions and behaviours, which have helped to capture nuance that can be missed by using solely quantitative evidence. Limits to currently available data are discussed and, in places, it is still the case that too little is known to draw conclusions and provide solutions. We believe that further research is required to understand and address these problems effectively.

BHF is committed to learning more about the clear inequalities that we know exist, to improve efforts to close these gaps. This report represents one step in a bigger journey of unpicking the complex relationships between the wider determinants of health and CVD. BHF will publish deeper analysis of the issues raised in the following pages.

Policy recommendations

These recommendations are drawn from the three substantive chapters and are, largely, aimed at national and devolved Governments.

Deprivation

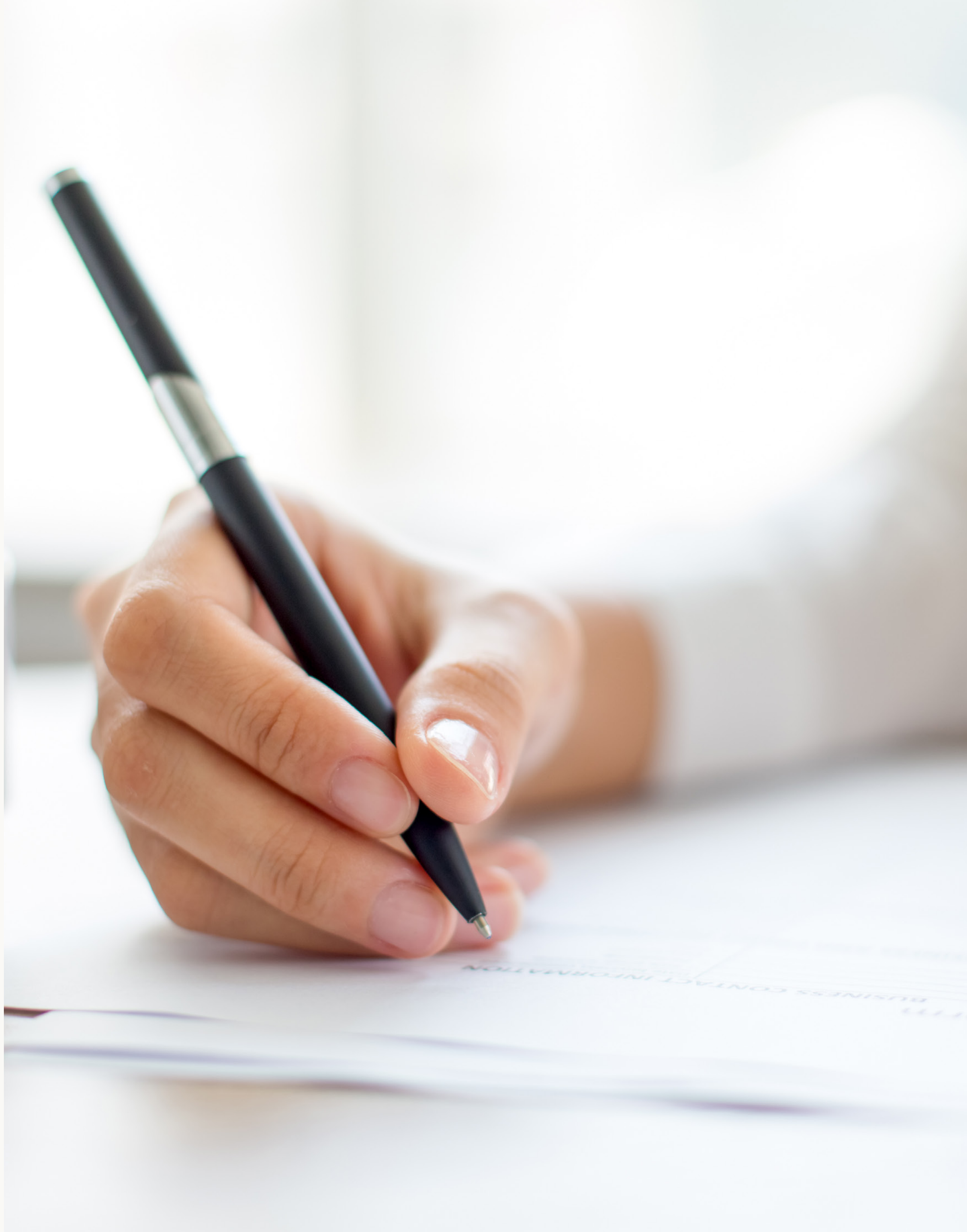
1. Adequate and equitable investment in prevention and public health.
2. Introduce a health inequalities strategy.
3. Incentivise healthier food and drink production through introducing a reformulation levy.
4. Further extend advertising restrictions of high fat, salt and sugar foods.
5. Introduce a 'polluter pays' tobacco levy.

Sex

6. Improve men's engagement with primary care.
7. Opportunistically assess and record women's cardiovascular risk across the life-course.
8. Tackle gender bias in clinical decision-making.
9. Implement Women's Health Strategies in all nations, with cardiovascular health as a priority.
10. Improve representation of women in cardiovascular research.

Ethnicity

11. Prevention with a 'proportionate universalism' approach.
12. Better and more consistent data collection.
13. Services, information and support need to be culturally sensitive and accessible to all.
14. Improve representation of ethnic minorities in clinical research.

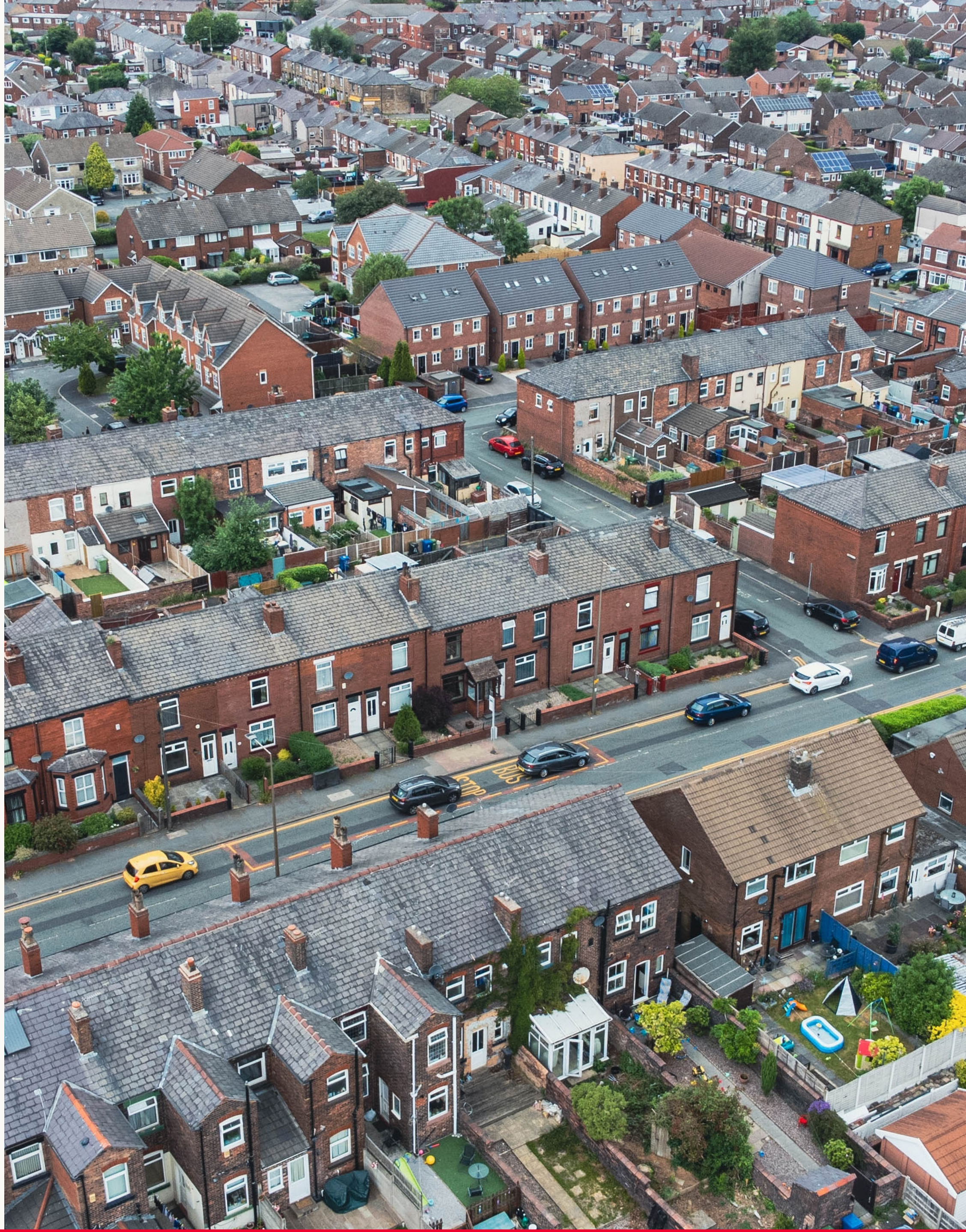


The impact of deprivation on cardiovascular disease

The most deprived communities in the UK are at the sharp end of the current crisis in health care. People living in them have higher prevalence of heart and circulatory diseases, are more likely to die young from cardiovascular disease (CVD), and often have worse access to important healthcare services that could help them to manage and treat their condition. For example, CVD accounts for around a fifth of the life-expectancy gap between the most and least deprived communities in England.[5]

There is nothing inevitable about this; it is a result of policy failure and inaction on the wider determinants of poor health, in the face of clear evidence. Health inequalities manifest long before people fall ill with a cardiac condition; risk factors for CVD are more prevalent in the more deprived areas of the UK, causing increased ill health and ultimately resulting in unjust differences in early death rates.

It is important to note that much of this inequity is driven by broader factors than access to healthcare, such as income, access to education, and employment status. BHF acknowledges that others are best placed to influence on these, but will use its role in fora such as the Health Equals coalition to drive forward change in this space.



People in deprived areas are much more likely to die prematurely from cardiovascular disease

Tragically, in 2022 the rate of people dying early from CVD (i.e. before the age of 75) in the UK reached its highest level in more than a decade,[6] with the rate remaining almost identical in 2023.[7] This alarming rise has been steepest in the poorest parts of the country:

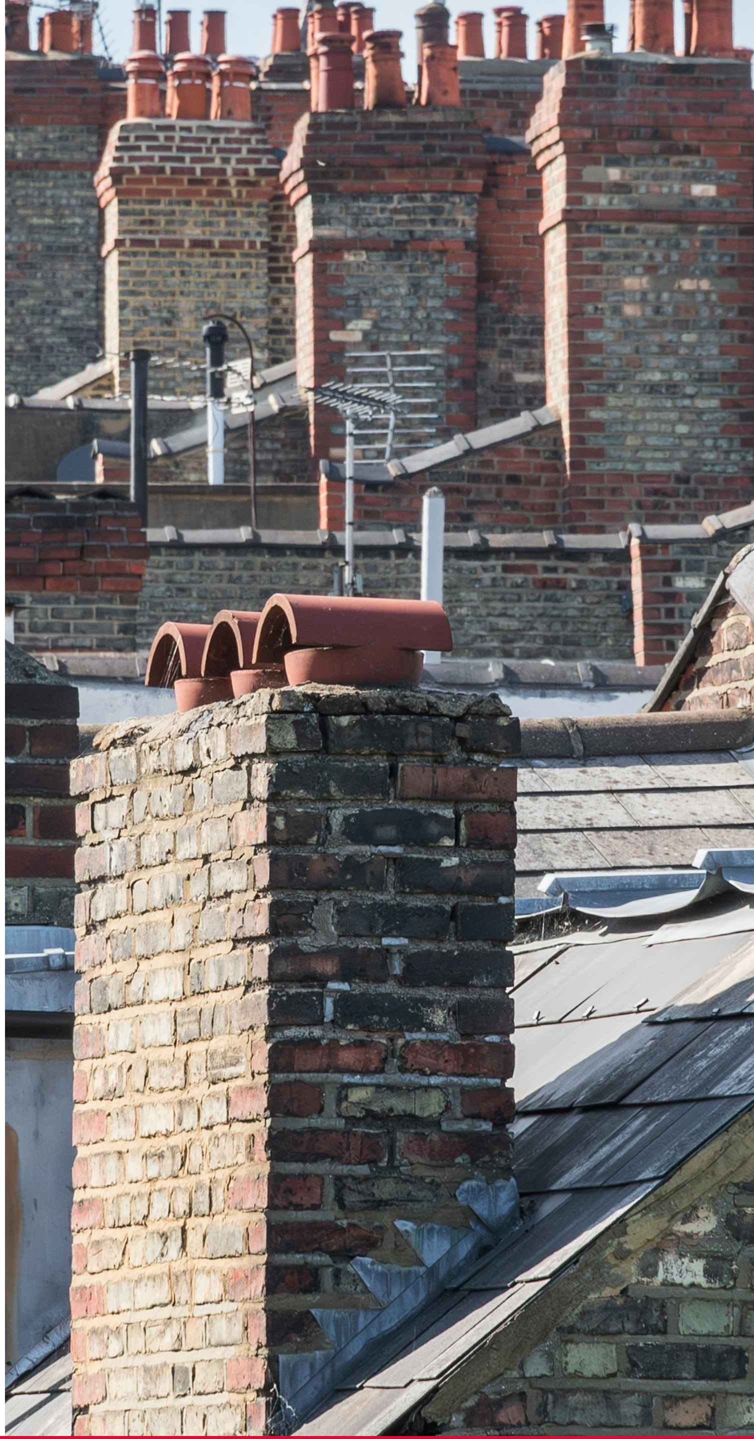
- The most deprived areas of England have been experiencing a rate of early deaths from CVD that is 2.5 times higher than the rate in the least deprived areas.[8]
- In Wales, the rate of early death from CVD in the most deprived local authorities is 1.5 times higher than the rate in the least deprived local authorities.[9]
- In Scotland, the rate of death from coronary heart disease among 45–75-year-olds is more than 5 times higher in the most deprived decile than in the least deprived decile.[10]
- In Northern Ireland, the rate of early death from CVD in the most deprived areas is more than twice as high as the rate in the least deprived areas.[11]

In addition, research finds that those in more deprived areas in England are more likely to die within one year of having cardiac surgery than those living in more affluent areas.[12]

The drivers of this disparity are complex, but the result is clear: the risk of early death from CVD is significantly influenced by the level of deprivation of the area in which people live.

Deprivation is generally defined as a 'situation in which you do not have the things or conditions that are usually considered necessary for a pleasant life'. The main measure used to understand deprivation is the Index of Multiple Deprivation (IMD) in England,[13] and its equivalents in Scotland,[14] Wales,[15] and Northern Ireland.[16] The components of IMD are: income; employment; health deprivation and disability; education, skills and training; crime; barriers to housing and services; and living environment.

IMD measures relative deprivation in geographic areas. In other words, under IMD, an area can be more or less deprived, but not a person. In contrast, socioeconomic status (like social class) is something that individuals have.



People in deprived areas are more exposed to cardiovascular risks

> "Olive oil, oily fish and salmon – they are all really expensive. Five years ago we used to eat salmon but we don't now. Who can afford olive oil? It's becoming impossible – we can't afford to eat heart healthy stuff as they are expensive."

50, male,
African background,
living with high blood pressure,
England, BHF Patient Insights

> "But [they] want us to work full time, have families, I should look at ways of improving my lifestyle – exercise, make fresh meals, but the cost has gone up … If I've got five minutes, am I going to exercise or go in the bath? Where am I, with all these kids and external pressures, going to find a minute?"

36, female,
Caribbean and White background,
living with pre-diabetes and high blood pressure,
Wales, BHF Patient Insights

Around 70% of the CVD burden in the UK is attributable to modifiable risk factors,[17] such as obesity and smoking. These risks are often more prevalent in deprived communities, so addressing them offers an effective way to reduce the inequalities in cardiovascular outcomes (including early death) between the most and least deprived areas. However, despite the clear need to increase prevention activity suggested by this trend, deprived areas in England have been disproportionately impacted by the 28% real-terms per-person cut to the Public Health Grant since 2015/16.[18] This Grant is a fund paid from the UK Government health budget to local authorities in England for public health services, including weight management and smoking cessation, that are known to be effective in changing behaviour.

Obesity

Excess weight and obesity can lead to fatty material building up in arteries, which increases the risk of CVD. Obesity can also increase the risk of high blood pressure, high cholesterol and type 2 diabetes, which are all risk factors for CVD. The overweight and obesity burden in the UK is stubbornly high: 64% of adults and nearly 30% of children are living above a healthy weight.[19] This strongly correlates with deprivation. In England, the prevalence of obesity is 15 percentage points higher in the most than least deprived areas.[20] The same patterns are seen in Scotland: in 2023, 36% of adults in the most deprived areas had obesity, compared to 25% in the least deprived areas.[21, 22]

The causes of this are complex, but the prices and inaccessibility of healthier foods and drinks are significant drivers of this social patterning of obesity prevalence. Obesity is not best viewed as a personal choice or the result of a lack of self-discipline. In reality, the food environment impacts people's ability to make informed, healthy, autonomous choices, and will frequently incentivise consumption of highly processed food and drinks that are high in fat, salt and sugar (HFSS).

Research has found that healthy food has grown more expensive at twice the rate of unhealthy foods.[23] The most deprived fifth of the population would have to spend half of their disposable income on food to meet the UK Government's dietary recommendations.[24] Unhealthy food sites, such as fast-food outlets, tend to cluster in areas of high deprivation,[25] and these communities are also exposed to a higher concentration of outdoor advertisements for HFSS products.[26]

The evidence is plain: both price and accessibility are fundamental drivers of the higher rates of obesity in more deprived areas. Fundamentally, the healthy option must become the easy option.

Compounding this inequity, evidence suggests nearly half of England's Integrated Care Boards (ICBs) do not have comprehensive weight loss services, due to restricted budgets.[27] Given the higher burden of obesity in more deprived areas, it is vital to ensure sufficient and fairly distributed funding to provide equitable access to weight-management services.

Smoking

Smoking significantly increases the risk of developing CVD, as the chemicals in cigarettes make artery walls sticky and lead to clogging by fatty material.

Despite smoking rates plummeting by about two thirds over the last 50 years,[28] it is still one of the leading causes of CVD and premature death in the UK. At least 15,000 deaths from CVD each year in the UK are due to smoking.[29]

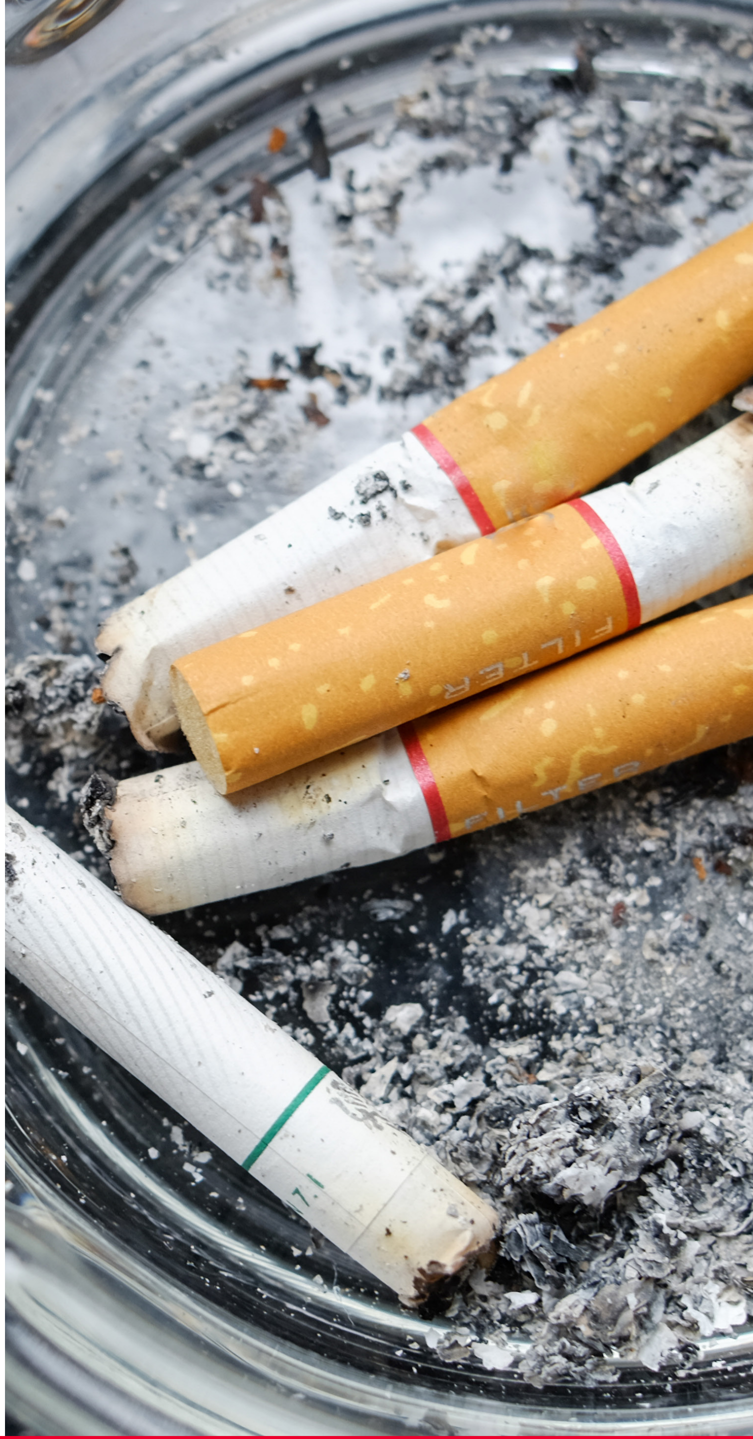
As with obesity, this risk factor and health inequality is heavily skewed towards the most deprived areas. Research suggests that as much as half of the difference in life expectancy between the richest and poorest groups in England is due to smoking.[30, 31]

Though not directly comparable, due to data on smoking and deprivation being reported differently across the four nations, this pattern of higher tobacco use in more deprived areas in England[32] is mirrored across the UK:

- In Scotland, smoking prevalence is almost 5 times higher in the most deprived quintile than the least.[33]
- In Wales, smoking prevalence in the most deprived local authorities is over 2.5 times higher than the least deprived authorities.[34]
- In Northern Ireland, smoking prevalence is 2 to 3 times higher in the most deprived quintile than the least.[35]

The reasons why people smoke are complex and varied, and disproportionately high smoking rates in deprived areas are often driven by a harmful cycle of social norms, familiarisation, and addiction. Younger people living in areas of high deprivation are more likely to experience stresses in their lives that lead them to smoking, and are also more likely to see adults smoking around them.[36] This is particularly pertinent in Wales, where illicit tobacco availability in deprived areas is rife.[37]

In England, smoking cessation is another aspect of disease prevention that has been affected by the cuts in the Public Health Grant, which have fallen most heavily on the most deprived areas,[38] despite strong evidence that smoking-cessation programmes drive notable reductions in tobacco use. The North East of England, for example, has seen sustained success in reducing historically high smoking rates through a comprehensive tobacco-control programme introduced in 2005, involving mass-media campaigns and local-authority partnership working. These interventions have resulted in the fastest decline in smoking rates in England.[39] It will be hard to replicate these improvements without governments across the UK investing in public health.



People in deprived areas often have greater need for treatment but less access to it

A BHF-commissioned UK-wide survey found significant differences in how social class impacts interactions with healthcare professionals: only 51% of working-class respondents felt they were listened to and believed by healthcare professionals, versus 62% of middle-class respondents.

The inequalities outlined above persist and compound along the cardiac pathway. Research undertaken in 2022 by BHF and the NHS Strategy Unit found that, in England, people's access to different parts of the healthcare system is impacted by their socioeconomic status.[40] People in deprived areas are less likely to reach treatment targets and less likely to access care.

Clinical risk factor detection and management

This inequality starts at the very beginning of the pathway. The data are strong for clinical risk factors. In Table 1, red indicates that the prevalence of the risk factor is worse in more deprived areas, amber indicates no significant difference in risk factor prevalence, and green indicates that the risk-factor prevalence is better in (i.e. to the relative advantage of) more deprived areas. Grey indicates an absence of publicly reported data for a particular risk factor by deprivation. Data sources are provided in the Appendix.

The importance of hypertension as a risk factor for CVD is recognised in NHS England's Core20PLUS5 framework for addressing health inequalities, in which hypertension case-finding is one of five clinical areas of focus.[41]

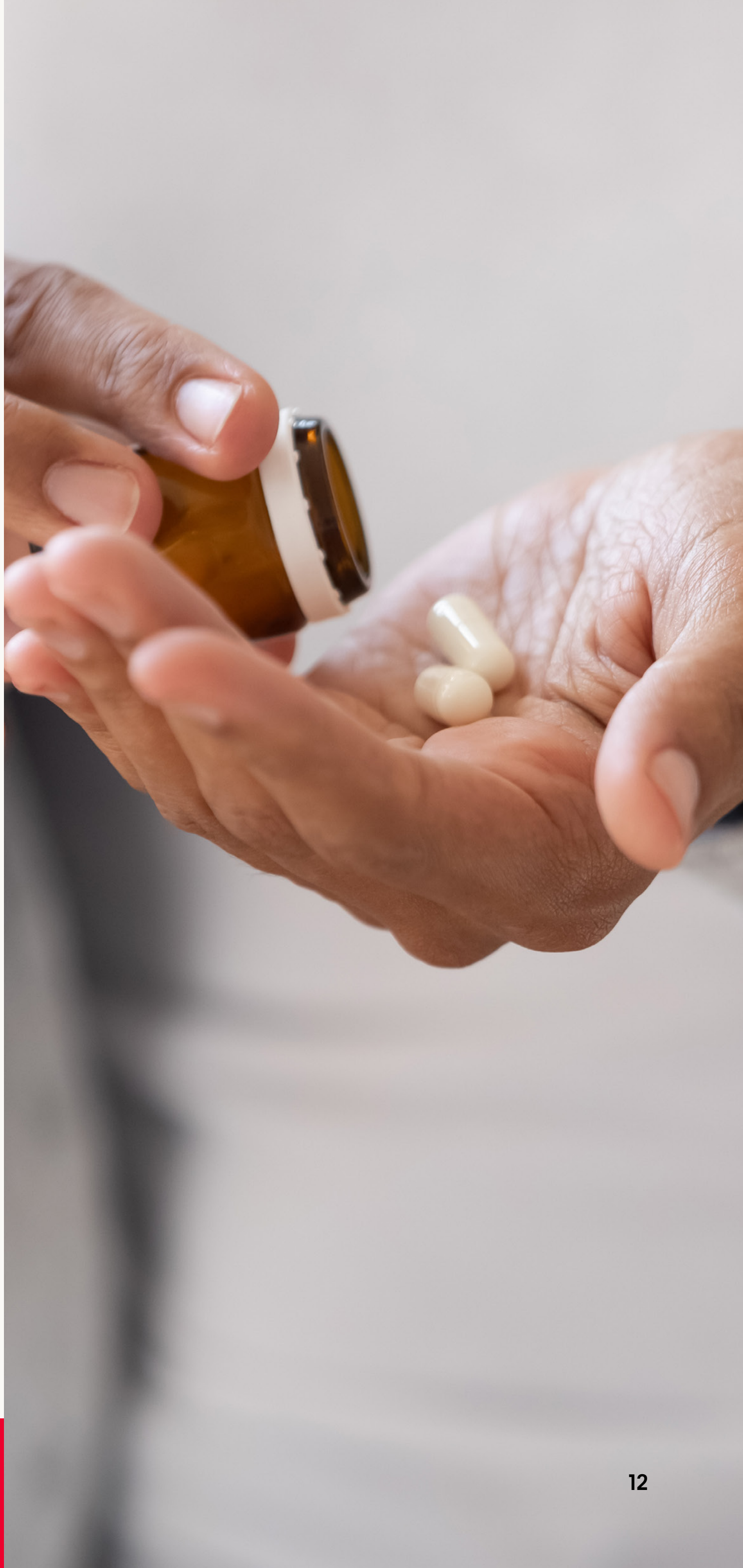
Cardiovascular disease risk factor	England	Scotland	Wales	Northern Ireland
Hypertension[42]	🟥	🟥	🟩 See note[43]	⬜
High cholesterol	🟧	⬜	⬜	⬜
Obesity	🟥	🟥	🟥	🟥
Diabetes	🟥	🟥	⬜	⬜
Smoking (current smoker)	🟥	🟥	🟥	🟥
Diet (meets 5-a-day recommendation for fruit and vegetables)	🟥	🟥	🟥	🟥
Physical activity (meets 150 minutes of weekly recommended activity	🟥	🟥	🟥	🟥

Table 1 – Comparison of CVD risk-factor prevalence between the most- and least-deprived areas: a nation specific assessment

Not all diagnoses translate into adequate management of these conditions – and evidence indicates that this is a particular issue in more deprived communities. Medication adherence is fundamental to optimal management of clinical risk factors. Generally, higher income levels are associated with better adherence to statins[44] and, although those in deprived areas are more likely to receive lipid-lowering therapy for high cholesterol, they are less likely to have their cholesterol treated to target levels.[45] This disparity suggests that socioeconomic factors significantly impact medical adherence and health outcomes.

More research on the drivers of (non-)adherence is required. It is possible that adhering to treatment advice and recommendations is more challenging amidst difficult life circumstances – for example, among people with lower earnings, in poorer living conditions, or experiencing poorer mental health. These factors can impose barriers, such as making prescription charges less affordable and getting time off work to attend appointments. In BHF's qualitative research, patients from more deprived backgrounds told us they have to prioritise other immediate needs over their health.

More deprived areas have both fewer general practitioners[46] and a higher caseload than more affluent areas,[47] so it is likely that these GP surgeries have less available capacity to monitor and manage clinical risk factors adequately. Research by the Nuffield Trust also highlights that the Carr-Hill formula – a formula that decides the distribution of funding for general practice in England – fails to take account of deprivation and the increased need of these areas. This is a factor in the most deprived quintile in England receiving 9.8% less funding per needs-adjusted patient across all income streams for general practice than those in the most affluent quintile in 2022/23.[48] Practices in more deprived areas also had poorer scores in the Quality and Outcomes Framework (an incentive programme for GP practices in England) than more affluent areas.[49]



Planned versus emergency care

The combined effect of these inequalities shape how and when patients access care at different points along the cardiac pathway, and what state of health they are in at each point. People living in more affluent areas have a higher rate of planned (elective) care, while people in more deprived areas tend to access care in a worse state of health.[50] This is evidenced by the fact that, in 2021, the admission rate for first heart attacks among under-75s in Scotland's most deprived areas was more than double the rate in the least deprived areas.[51] Similarly, in England, the rate of urgent and emergency admissions for CVD is much higher in England's most deprived areas.[52] If clinical risk factors such as high blood pressure could be adequately managed in primary care, many of these acute complications could be avoided.

Another example of the disadvantage faced by deprived communities is their poor provision of defibrillators, a device that can prove lifesaving during a cardiac arrest: around 40% of the most deprived areas in the UK have no registered defibrillators, compared with 31% of the least deprived areas.[53]

Recovery and support

Following a cardiac event, many heart patients need to manage their condition over many years. Evidence shows that cardiac rehabilitation (CR) helps patients to recover, reduces the probability of hospital readmission, improves both mental and physical health outcomes, and allows them to return to as full a life as possible.[54]

However, data show that people living in areas of higher deprivation are less likely to access and finish CR: in 2022, significantly fewer patients from the most deprived areas completed CR in England, Northern Ireland, and Wales (by as much as 19 percentage points fewer in Wales).[55] This disparity may be attributed to barriers faced by patients from deprived communities, including limited time availability due to longer working hours, with CR programmes not optimally designed to meet these specific needs. Addressing such barriers is crucial to improving CR participation and outcomes.

What needs to happen?

BHF is calling on the UK Government, the Scottish Government, the Welsh Government and the Northern Ireland Executive to introduce bold, population-level health measures that will help to break the grip that CVD has on the UK's most deprived communities.

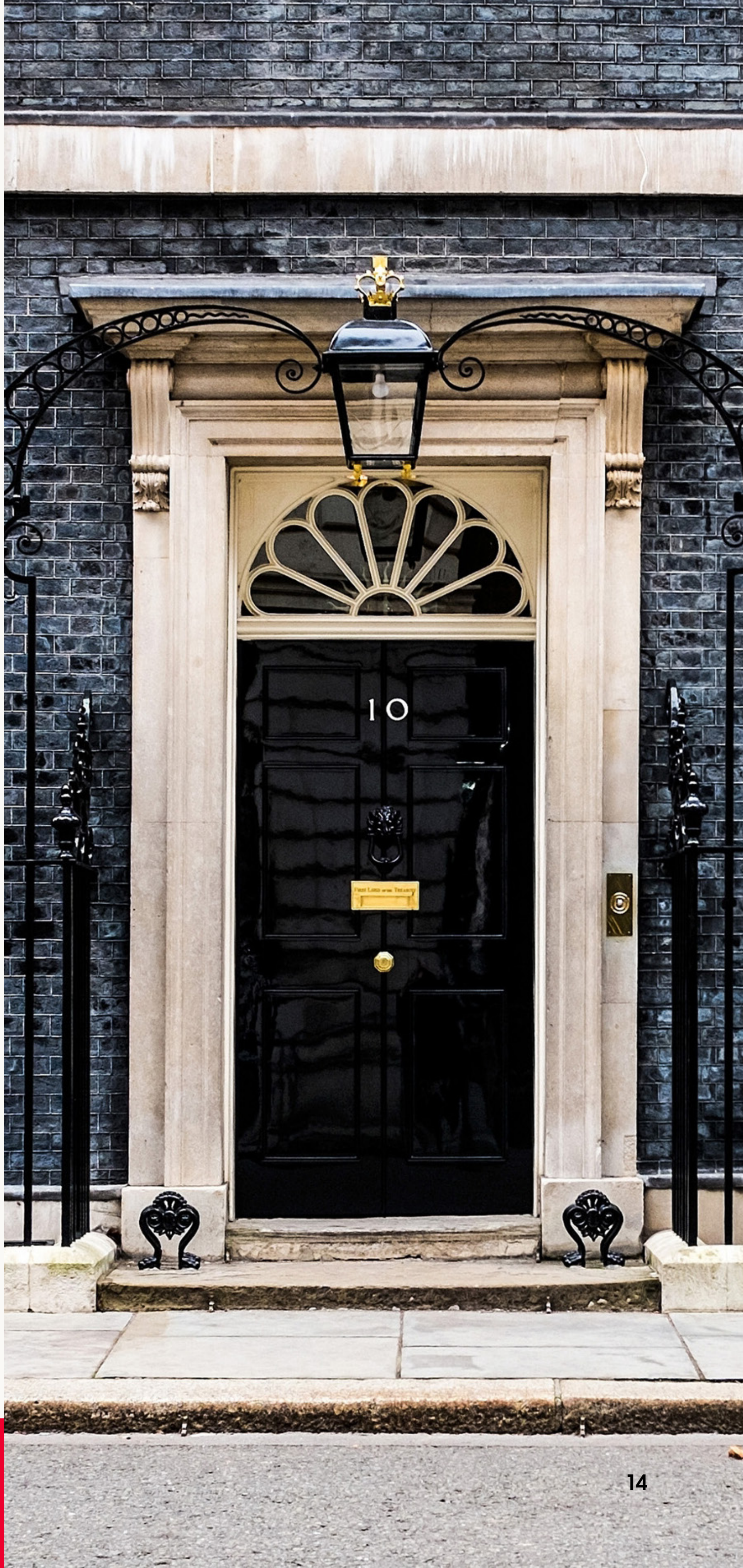
The available data on the link between deprivation and CVD are strong and paint a clear picture. BHF's recommendations below are driven by where the evidence says governments can make the most difference.

Adequate and equitable investment in prevention and public health. It is critical that the Public Health Grant in England is restored to historic levels. Funding should also be proportionately invested where there is greatest need, to facilitate equitable service delivery. Not only should the Grant be fully restored; it should also be ringfenced for services that have been proven to work, such as smoking cessation and weight management.

Funding flows do not currently incentivise the prevention agenda adequately. A failure to rectify this will impede the desired shift from sickness to prevention. The UK Government's Health Mission Board should oversee a new, sustainable funding model for promotion across government which recognises that the responsibility for health lies across government departments. BHF looks to the upcoming 10 Year Health Plan, and the transition plan following the abolition of NHS England, to set out how the Health Mission Board will drive health-improving change across government.

It is critical that the devolved administrations also invest in prevention through the appropriate funding mechanisms.

Introduce a health inequalities strategy. Provision of clinical care only drives a small proportion of health outcomes. Therefore, only part of the potential reduction in socioeconomic inequalities in cardiovascular health is achievable through health service interventions. Investing in the building blocks of health – housing, early years, employment, education, access to leisure activities and green space – will all improve individual chances of better health, but these conditions are not in the power of health services to address. These determinants should therefore be incorporated in a cross-government health inequalities strategy, with appropriate departments responsible and accountable for the necessary action.



Incentivise healthier food and drink production through introducing a reformulation levy. The UK's Soft Drinks Industry Levy (SDIL) has already shown that mandatory measures can lead to reformulation of unhealthy products. The UK Government must build on this success and introduce a similar levy to other food and drinks. The National Food Strategy proposed a wholesale tax on sugar and salt, which could prevent almost two million cases of chronic, non-communicable diseases (NCDs) in the UK (over half of which would be cardiovascular diseases), and bring down the prevalence of adults classed as overweight and/or obese by over 10%.[56] Such a levy also has the potential to raise up to £3.4 billion each year, which could be channelled towards making healthy diets more affordable for people on lower incomes.[57]

Further extend advertising restrictions of high fat, salt and sugar foods. The UK food environment must not continue to place HFSS products in the spotlight. The forthcoming implementation of legislation to restrict price promotions and TV and online advertising of these products is a good start, but BHF is calling for this to be extended to other aspects of the food environment, including outdoor and radio advertising, sports sponsorship, and for mandatory front-of-pack nutritional labelling. This will begin to rectify the level of attention on food products that is currently dictated by food manufacturers. As outdoor marketing is a devolved issue, this should be applied in all nations through an aligned approach.

Introduce a 'polluter pays' tobacco levy. The measures set out in the Tobacco and Vapes Bill to increase the age of sale of tobacco each year present a unique opportunity to phase out smoking in the UK permanently. However, the current rates of smoking-related disease cannot be allowed to continue to persistently drive inequalities in the meantime. Implementing a levy on the tobacco industry's vast profits – a Smokefree Fund – could raise up to £700 million per year.[58]

What is BHF doing?

Supporting organisations to tackle the drivers of poor health. BHF will continue to influence change in this space by supporting expert organisations that specifically work on the wider determinants, such as the Obesity Health Alliance, Health Equals, Action on Smoking and Health (ASH), ASH Scotland, ASH Wales, Obesity Alliance Cymru, NCD Alliance Scotland and NCD Alliance Northern Ireland.

Working with health systems. We will also continue our role as a partner to health systems in improving cardiovascular care, bringing our analytical expertise to highlight the underlying healthcare inequalities experienced by more deprived groups. For example, in 2022 we launched an interactive tool in partnership with the NHS Strategy Unit, which highlights the inequalities across the coronary heart disease pathway. Every Integrated Care System in England can use this tool to understand where on the care pathway these inequalities manifest, to inform targeted service improvements to tackle any inequities in accessing care.[59] In Wales, we have worked alongside the National Strategic Clinical Network for Cardiovascular Conditions to develop the Quality Statement for Heart Conditions.

Funding defibrillators in areas of high deprivation. BHF has a Community Defibrillator Programme, which uses data from the Circuit – a network that maps defibrillators across the UK – to identify areas where access to public devices is currently limited and which then funds defibrillators to fill these gaps.[60] In the first year of the programme (2023), we awarded 300 defibrillators and expect to continue this in coming years.

How sex shapes cardiovascular risk, care and outcomes

Of the 7.6 million people in the UK living with cardiovascular disease (CVD), roughly 4 million are men and 3.6 million are women. Men make up around two-thirds of all heart attack admissions each year in the UK, and they represent almost two-thirds of coronary heart disease patients in England.[61]

These striking statistics have contributed to a perception that heart disease is not a significant health risk for women. Too often, women are under-aware, under-diagnosed and under-treated. Coronary heart disease kills more than twice as many women in the UK as breast cancer each year[62] and, globally, is the leading cause of death in women.[63] When women are at risk of, or diagnosed with, CVD, evidence shows that they are significantly more likely to be misdiagnosed, receive lower quality treatment and have a worse prognosis than men.[64]

This chapter explores both male and female cardiovascular inequalities, but spends more time unpicking the latter, in an attempt to redress the historic lack of attention paid to women's cardiovascular health.

Men have higher prevalence and incidence of cardiovascular disease

In the UK, more men live with – and die early from – CVD than women.[65,66] This is due to a combination of physiological, behavioural, and cultural factors.

Physiologically, higher prevalence and incidence of CVD is in part due to hormonal differences: males have lower levels of oestrogen than females, a hormone widely considered to have a cardioprotective effect.[67] Oestrogen can help to control cholesterol levels and reduce the risk of fat building up in arteries.[68] Additionally, males are more likely to accumulate visceral fat – i.e. fat that wraps around organs, rather than sitting just underneath the skin (known as subcutaneous).[69,70] Evidence suggests that higher proportions of this visceral fat are associated with increased risk of CVD.[71]

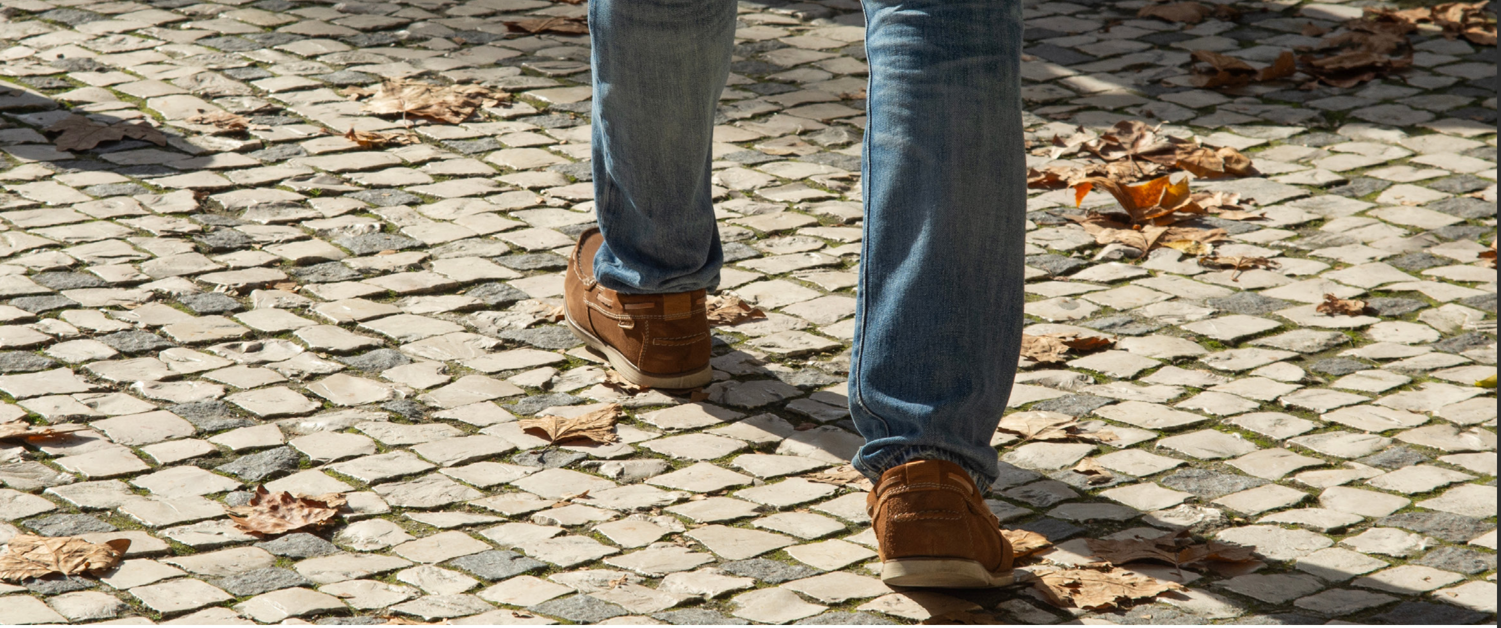
It is likely that psycho-social influences also contribute to men's heightened CVD risk and higher CVD mortality rates. For example, men have higher prevalence of several heart-harming behaviours, such as smoking,[72] and poor diet.[73]

More generally, evidence suggests that men may be more reluctant to engage with primary and community healthcare than women. For example, men in the UK are less likely to see their GP than women.[74] In the most recent GP Patient Survey, only 64% of men said they went to the GP in the last six months, vs 75% of women.[75] Additionally, fewer men than women in England are referred to local stop-smoking services,[76] and men are less likely to attend an NHS Health Check.[77]

A relative reluctance among men to engage with healthcare services may influence their CVD risk and outcomes, because around 70% of death and disability from CVD in the UK is due to modifiable risk factors such as high blood pressure, obesity, and smoking.[78] Engaging with primary health care services is essential to managing these major risk factors, particularly because some of these – such as high blood pressure – can have no obvious symptoms.

There is not enough evidence available to say for sure why men engage less with healthcare services for CVD. More general research has suggested that it might be driven by ideals of traditional masculinity, and health being seen as a traditionally feminine concern.[79] For example, a survey from the US found that 65% of men said they avoid seeking medical attention for as long as possible, citing several reasons, one being feelings of weakness.[80] There is a strong evidence base that explores the role of these cultural attitudes in driving help-seeking behaviour for mental health, but more research is needed to dig into the drivers of these in other conditions, including cardiovascular, in order to craft appropriate solutions.

Secondly, one – albeit dated – study found that men were twice as likely to have inadequate health literacy.[81] People with lower health literacy are more likely to struggle with their health and wellbeing, use fewer health-promotion services, and communicate less effectively with practitioners.[82]



Deprivation and geography influence men's cardiovascular risk

However, there is also a socioeconomic dimension to this cardiovascular risk. As highlighted in the first chapter, cardiovascular health is significantly worse in the most deprived areas of the UK. This is true for both men and women in the UK.

However, in terms of premature mortality due to CVD, the absolute difference between the most and least deprived areas of the UK is particularly large for men.[83,84] In England, for example, the rate of death from CVD among under-75s in 2023 was 150 deaths per 100k population in the most deprived areas, compared to just 70 per 100k in the least deprived areas.

Similarly, stark inequalities in cardiovascular health are apparent between men in different geographies within the UK. Men under 75 in North West England, for example, have a mortality rate from CVD that is nearly 50% higher than men in South East England.[85] These geographic differences persist across the four nations: the premature death rate from CVD for males in Scotland is 52% higher than it is for South East England.[86]

Consequently, as with women, efforts to improve the cardiovascular health and outcomes of men need to consider intersectionality, and the manner in which sex-based differences interact with other wider determinants of health to drive unacceptable cardiovascular health outcomes.

A note on terminology

Both sex and gender play a role in cardiac health.

Sex refers to the biological and physical characteristics that define humans as male, female or intersex. Biological factors and conditions can place men and women at higher risk at certain stages in the life course.

Gender refers to the socially constructed characteristics, roles and behaviours of men, women and other gender identities. Gender ideals contribute to the persistent myth that CVD only impacts men, which can lead to both patients and clinicians being insufficiently aware of the risk of heart health issues for women.

A note on transgender people:
Some studies conducted in the United States suggest that transgender men and transgender women are at greater risk of CVD. Unfortunately, to date there is limited UK evidence for this cohort.

Cardiovascular risk factors impact women differently than men

Women experience a multitude of sex-specific risk factors that present at certain life stages and lead to heightened risk of CVD later in life. Early menarche (onset of first period), polycystic ovary syndrome, use of oral contraceptive medication, and complications during pregnancy can all be associated with an increased risk of CVD.[87,88,89,90] Despite this, tailored care and treatment often do not align with these events.

In particular, the onset of menopause, and thereafter, is associated with increased cardiovascular risk due to falling levels of oestrogen, a hormone with a cardioprotective function.[91] It is generally agreed that lower oestrogen levels lead to a decline in endothelial function, which helps blood flow.[92] For example, Takotsubo cardiomyopathy (a type of heart failure) is significantly more prevalent in postmenopausal women across the United States and Europe: women aged over 50 account for nearly 80% of all cases.[93]

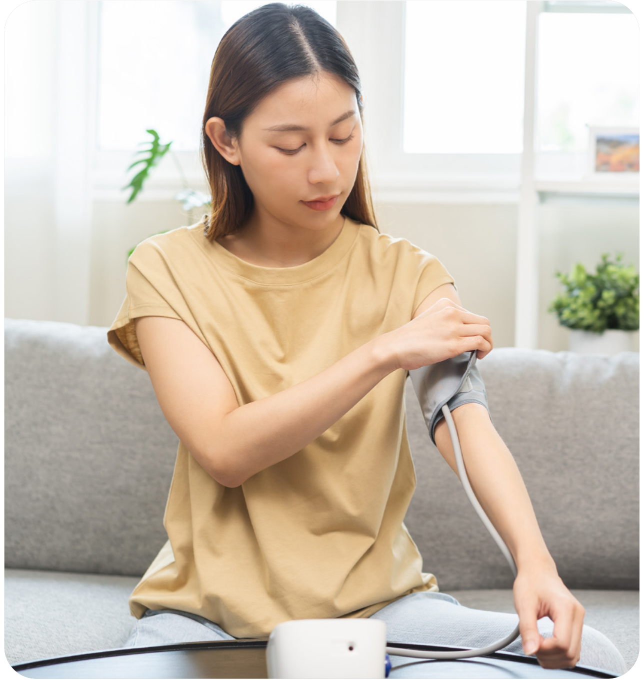
Additionally, evidence shows that high blood pressure disorders during pregnancy, such as pre-eclampsia, are linked to higher rates of maternal mortality and increase the risk of future cardiovascular events.[94] This intersects with ethnicity: reports suggest that pre-eclampsia is more common among Black women in the UK.[95]

Given that these cardiovascular risks arise at key milestones throughout a woman's life, it is essential that risk assessment in women takes a life-course approach – for example, women who experience a hypertensive disorder of pregnancy need to be made aware this is a risk factor for future CVD and to be offered care when they need it. However, studies have shown that there is a lack of uniform recommendations for such assessments across the life-course.[96]

In addition to sex-specific risk factors, common risk factors for CVD have also been found to impact men and women differently. Although fewer women than men smoke, the habit has been found to be more harmful for women's cardiovascular health: female smokers have a 25% greater risk of developing coronary heart disease than male smokers.[97,98] Similarly, some studies suggest that women with a history of high blood pressure have poorer CVD outcomes than men.[99]

The relationship is less clear for diabetes, with several studies finding a greater CVD risk in women with diabetes than men,[100] but others finding no statistically significant difference.[101] Further research is necessary to provide clarity on the potential physiological and gendered drivers behind these differences.

Women are also less likely than men to have their risk factors effectively managed. For example, women with established CVD in England are less likely to have cholesterol levels adequately treated, and are less likely to have a recent prescription for lipid-lowering therapy.[102] Further research is needed to fully explain these patterns.



Lack of awareness leads to underdiagnosis and inadequate treatment

A UK-wide, BHF-commissioned survey found that a significantly smaller proportion of female patients felt that they:

- were listened to and believed by healthcare professionals (51% of women; 63% of men)
- were provided with all the information they needed about their condition (49% of women; 62% of men)
- received all the support they needed throughout their treatment (46% of women; 58% of men)

The enduring misperception of CVD as only a man's disease has been a significant barrier to women receiving timely and effective cardiac care. This myth has driven two harmful outcomes. First, it has led women to be less aware of their cardiovascular risk and less empowered to act upon it. Secondly, it has resulted in unconscious bias during clinical decision-making and care-delivery. International research confirms that delays in treatment for women are driven by delays in seeking care compounded by bias in symptom interpretation.[103] Societal and clinician under-awareness of women's cardiac health is resulting in inaccurate assessment of women's cardiovascular risk.

Women's own understanding and action

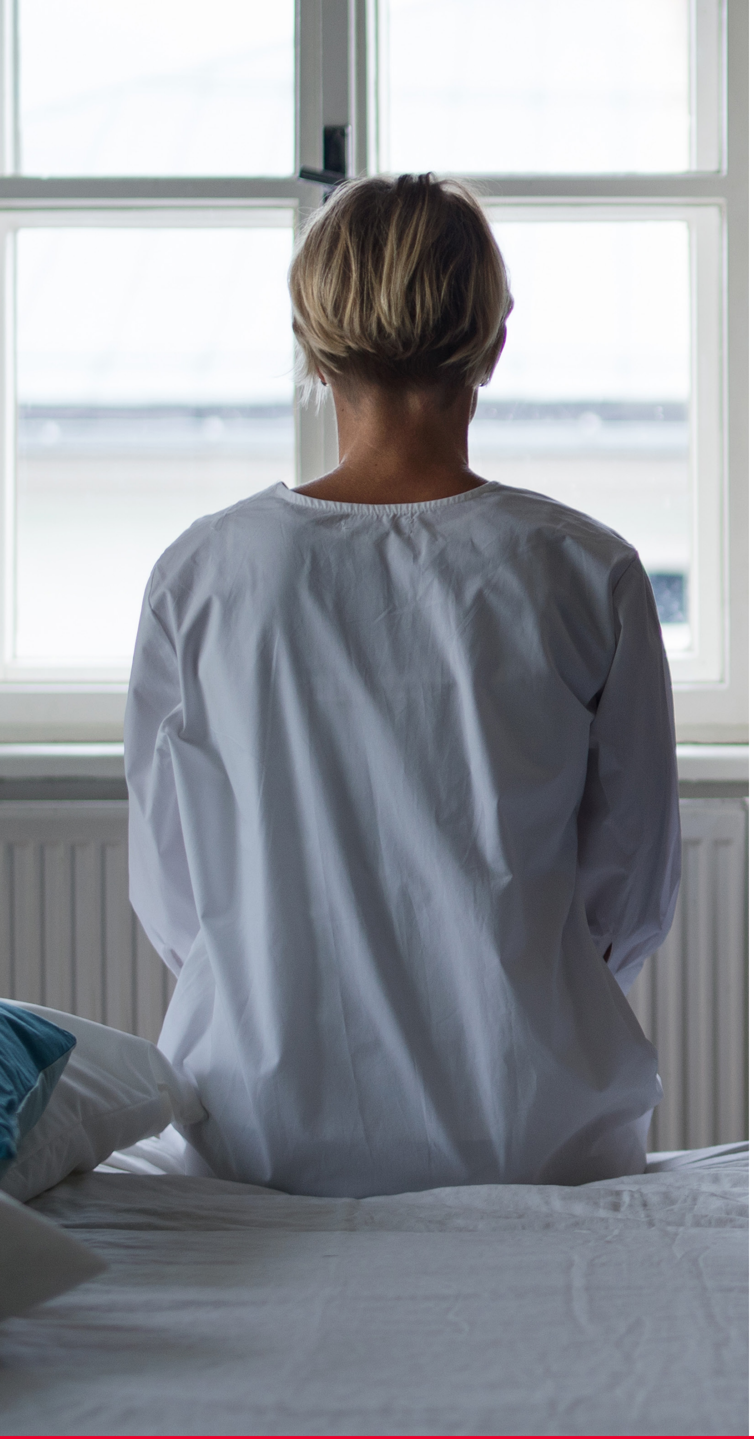
Because CVD has historically been understood as a disease that mostly impacts men, women may be less aware than men of the risk they face from CVD. A 2024 BHF-commissioned survey found that nearly 6 in 10 are not aware that heart disease is one of the leading causes of death for women in Northern Ireland.[104] This under-awareness may partly explain why women are slower to seek treatment.

Solutions to minimising delays in seeking help must go beyond increased awareness and examine in more detail what deters women from seeking care and treatment. One study in Switzerland found that women wait approximately 37 minutes longer than men before contacting medical services,[105] and a separate study found that women are less likely than men to call an ambulance for themselves.[106] This was associated with a greater-risk of 30-day mortality and starkly demonstrates the risks of delaying time-critical care.

Clinical bias

Delays to treatment can also be the result of biases during clinical decision-making, much of which is likely to be 'unconscious' bias. The evidence is stark: the likelihood of a woman receiving the wrong diagnosis is significantly higher than for a man. A 2018 study found that women in England or Wales were 50% more likely than men to receive the wrong initial diagnosis for heart attack.[107]

Misdiagnoses can also be driven by bias within clinical guidelines themselves, such as diagnostic tests failing to account for differential symptom presentation between men and women. For example, BHF-funded research found that the 'one-size-fits-all' ≥15mm threshold for diagnosing hypertrophic cardiomyopathy using left ventricular maximum wall thickness is likely to be leading to women being inaccurately diagnosed.[108] The research found that when personalised thresholds were applied, there was a 20 percentage point reduction in missed diagnoses in women using the same test.



Women face inadequate treatment and long-term management of cardiovascular conditions

Misdiagnosis can result in delays to women receiving the correct course of care, with potentially fatal results. Even when symptom presentation by men and women is similar, studies show that women are less likely to be prescribed preventative therapies, compared to men with equivalent risk profiles.[109] BHF-funded researchers found that women in England and Wales were less likely to receive the care indicated in guidelines, resulting in higher mortality rates than men following a heart attack.[110]

BHF-funded research estimates that, over a 10 year period, over 8,200 women's lives were needlessly lost to heart attack in England and Wales because they did not receive the same standard of care as men.[111] Women were less likely than men to receive 13 of the 16 recommended treatments following a heart attack, including timely restoration of blood flow and dual antiplatelet therapy to help prevent a second heart attack. Cardiac surgery is another example: women are 59% less likely to access coronary artery bypass surgery and 24% more likely to die within one year.[112]

The same pattern is evidenced in long-term management. Women's participation in cardiac rehabilitation (CR) effectively illustrates the compounding impact of symptom under-awareness and clinician bias. Internationally, women are substantially less likely to be referred to CR programmes by clinicians.[113] If they do get referred, they are less likely to complete the full course.[114] A consensus statement from the British Cardiovascular Society cites personal, logistical or programme-related barriers, and hospital anxiety as potential explanations for this.[115] Finally, if women do complete the programme successfully, data show they do not reap the same benefits as men. Compared to men's outcomes, CR is less likely to improve women's physical fitness[116] and women are less likely to meet the clinical target thresholds.[117]

Women are poorly represented in cardiovascular research

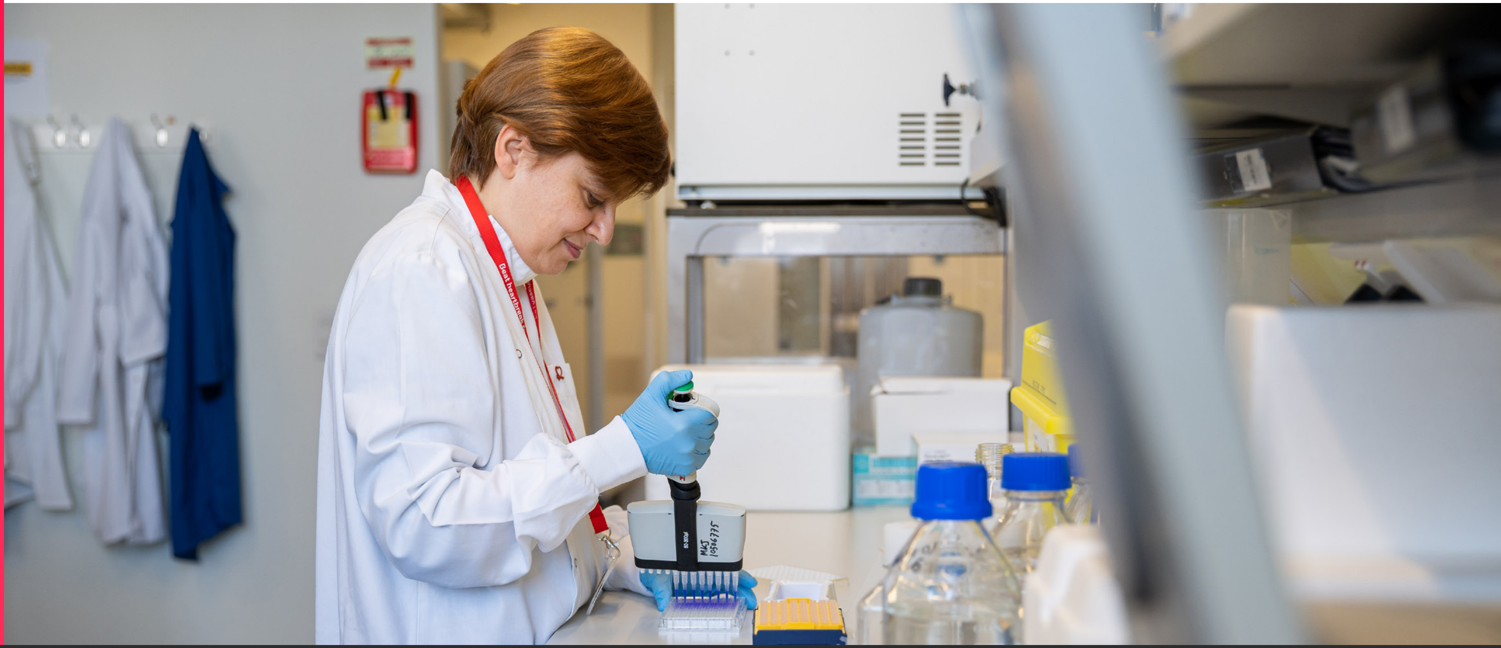
Many of the inequalities outlined above are driven by gaps in knowledge, and poor representation of women in cardiovascular research is exacerbating the harm they already face.

Despite the significant prevalence of CVD in both men and women, cardiovascular clinical trials have historically under-represented women.[118] An analysis of 740 international CVD clinical trials conducted between 2010 and 2017 found that only 38.2% of clinical trial participants were women.[119]

Critically, the underrepresentation of female participants in clinical research means that trials may not adequately detect sex differences.

Research has begun to explore why women are less represented, with the European Society for Cardiology citing a higher perceived risk of harm among female participants as a specific driver.[120]

It is important that women are well represented as researchers themselves, too. Women's presence creates a more inclusive research workforce and also, critically, tends to correlate with more representative and equitable research samples. A review of international heart failure trials found that those with a female-first or senior author have better recruitment rates of women patients into research.[121]



What needs to happen?

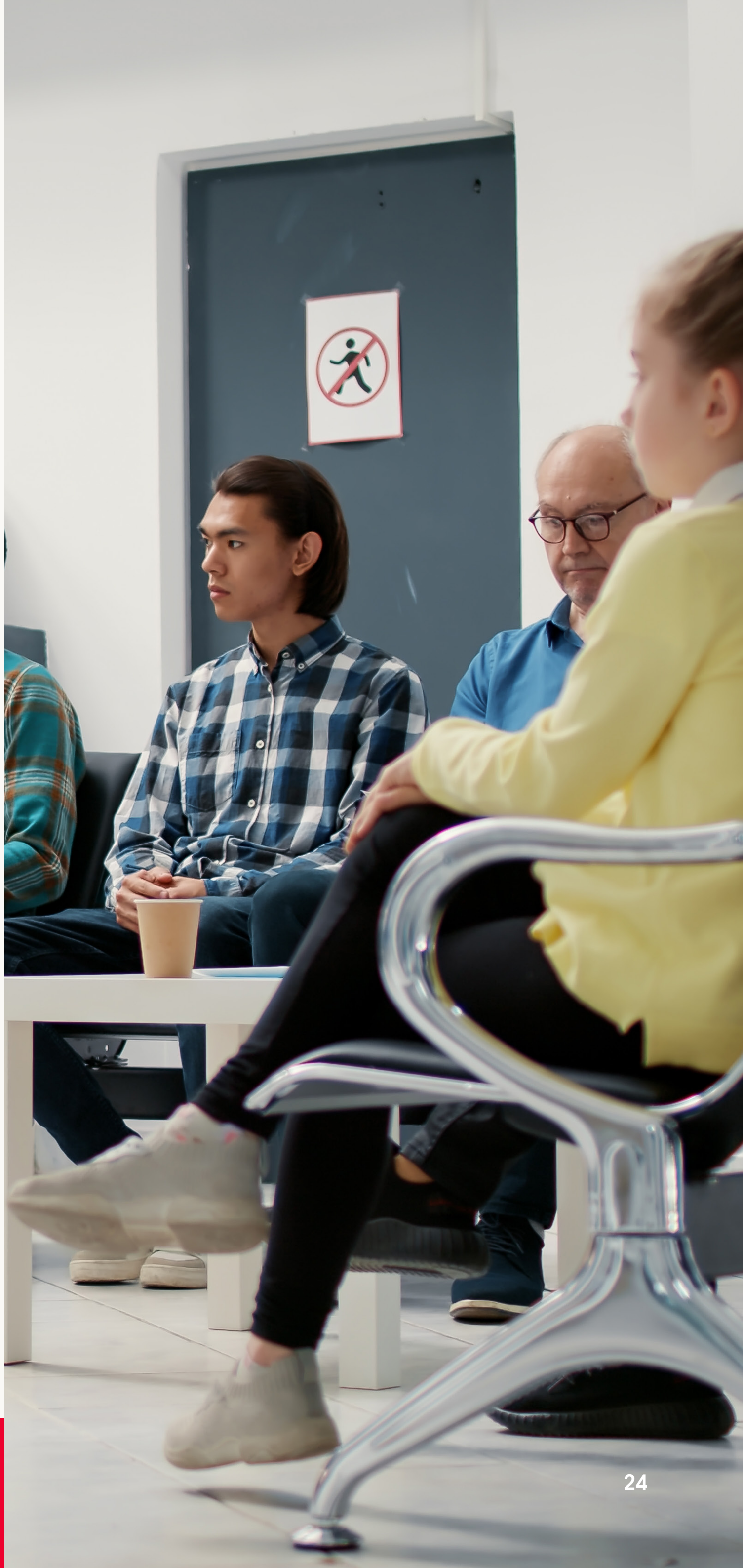
Gendered inequalities in relation to cardiovascular health affect both sexes, albeit at different points in the life course and, to a degree, depending on their social background. For men, the biggest gains to be made are by improving working-class men's engagement with healthcare systems and challenging stereotypes about health seeking behaviour. For women, the need to improve outcomes is more systemic and rooted in a generalised under-recognition of women's risk, particularly around the time of the menopause, when the risk of having a heart attack or stroke significantly rises.

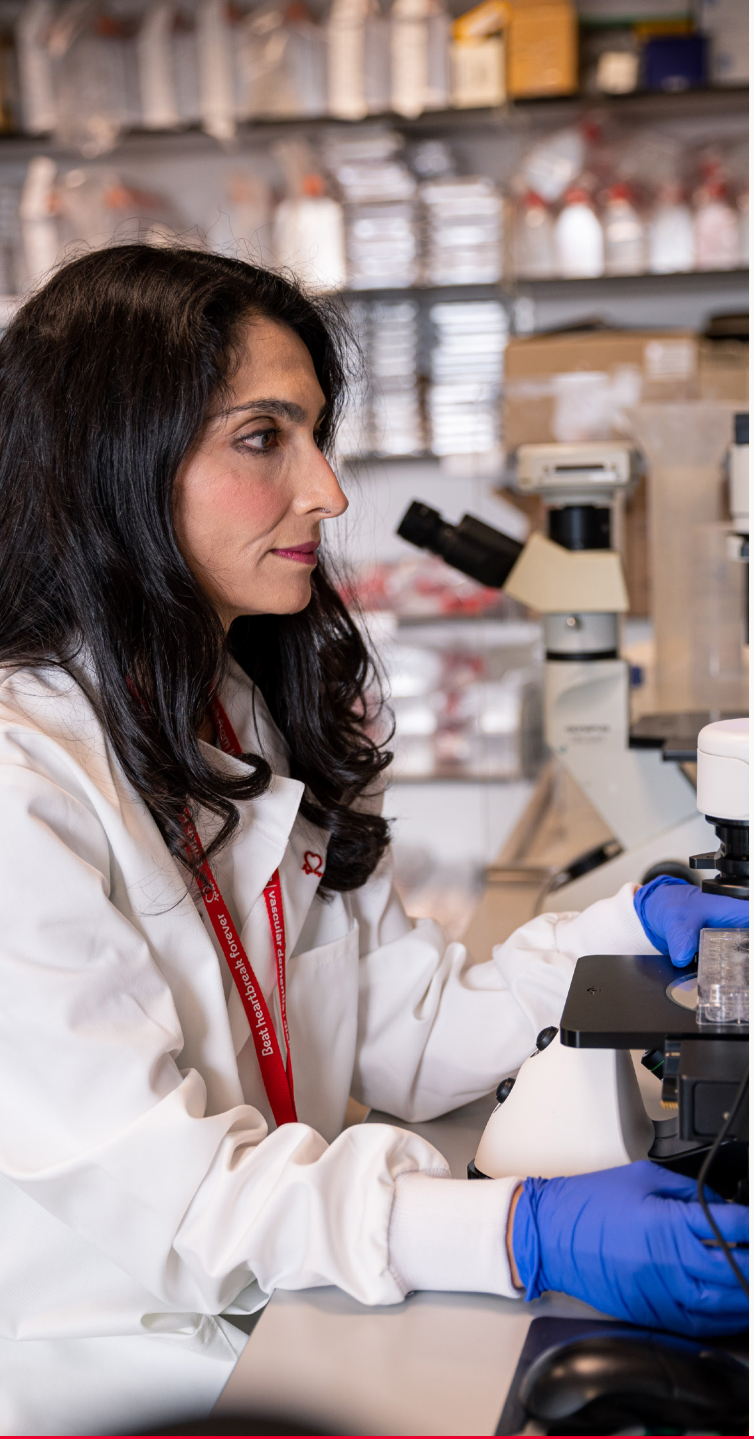
Improve men's engagement with primary care. BHF is looking forward to influencing the UK Government's first ever Men's Health Strategy for England, which will rightly have CVD as a priority area. It is vital that this strategy has increasing engagement with primary care and preventative health interventions as a core focus. Engagement is likely to be improved by 'meeting men where they are' in the community. This would also align with efforts to shift more care into the community. Normalising these conversations in men's community settings is likely to begin to reduce stigma around men's health, improve health literacy, and encourage uptake of healthy behaviours and health-promotion services.

Interventions are best spread to be proportional to need, i.e. a higher concentration in the most deprived areas. There should also be greater efforts to improve health literacy, particularly in deprived areas. The Institute of Health Equity and Public Health England have outlined a multitude of ways this can be achieved to reduce inequalities.[122]

We do not underestimate the difficulties of improving people's engagement in their own health, particularly in communities where social and financial pressures may take priority. Opportunities to change perceptions lie not just in touchpoints with the health service, but also in in the community. There are opportunities in leisure activities: some football clubs, for example, have worked with supporters' groups to promote physical activity and healthier lifestyles amongst male fans.[123]

Opportunistically assess and record women's cardiovascular risk across the life-course. Sex-specific risk factors for CVD in women require a life-course approach to optimally manage women's cardiovascular health. Specific moments or transition periods over the life-course provide clear opportunities for intervention to manage





sex-specific risk factors as they occur. It is important that increased cardiovascular risk is systematically recorded in medical notes and flagged appropriately in primary or secondary care in future. BHF welcomes Scotland's commitment to appoint women CVD champions in every health board.

The UK Government should reinstate the target to have one Women's Health Hub in every Integrated Care Board (ICB), and should mandate that ICBs have cardiovascular health as a priority in these hubs.

Tackle bias in clinical decision making. The National Institute for Health and Care Excellence (NICE) and the Scottish Intercollegiate Guidelines Network (SIGN) should promote evidenced clinical decision-making checklists to ensure that diagnosis and treatment guidelines are applied consistently to both sexes to close the gap on diagnostic test rates and treatments.

Implement Women's Health Strategies in all nations, with cardiovascular health as a priority. The four nations are at different stages of developing and implementing strategies for Women's Health. It is a positive development that cardiovascular health is a priority in Scotland's Women's Health Plan and in the recently published Women's Health Plan in Wales. BHF expects to see it given similar prominence in the forthcoming plan being developed in Northern Ireland and the next phase of England's Women's Health Strategy. For the latter, Women's Health Champions, who currently sit within Integrated Care Systems (ICSs), should be consulted throughout development and involved in implementation. These plans should incorporate a commitment to improving public awareness for women's cardiovascular health, as has been done in Scotland.[124]

Improve representation of women in cardiovascular research. Rectifying the historical under-representation of women in clinical cardiovascular research is key to addressing long-standing disparities and, ultimately, to improved and more equitable outcomes. Healthcare systems, research funders and research institutions should prioritise improving gender diversity and inclusion in the NHS cardiovascular clinical and research workforce. BHF welcomes the recent announcement from Welsh Government and Health & Care Research Wales to fund and launch a new 'Women's Health Research Wales' organisation, and we look forward to seeing how this aligns with the Women's Health Plan for Wales, which has a specific CVD focus.[125]

What is BHF doing?

As the biggest independent funder of cardiovascular research in the UK, BHF has a responsibility and commitment to improve representation of women in this research through our practice and influencing. We know we need to do more.

Improving the number of female senior leaders in cardiovascular research. Of the current 31 BHF personal chairs (an award to professors with outstanding research achievements), only four are women. Of these four, only one is a cardiologist. We know this is not good enough: supporting women to thrive in research careers is not just the right thing to do, it is also integral to our priority to fund the highest-impact research.

This is why we launched our Women in Science programme in 2024, which aims to double the number of female senior leaders in cardiovascular research within the next decade, through enabling grants, leadership and coaching, and convening and connecting programmes.

BHF grant applicants must complete a diversity and inclusion section, and the diversity of clinical trial participants and teams is considered as part of the independent expert review process. BHF has also contributed to the shaping of the Medical Science Sex and Gender Equity (MESSAGE) initiative. This has brought together different national research funders to create a policy framework to improve sex representation in research trials, which will shape expectations on researchers to consider sex and gender at every stage of the research cycle.[126] BHF has worked to reach consensus around international best practice with global cardiovascular research funders[127] and has funded an international research challenge with the goal of transformative change in women's cardiovascular health outcomes.[128]

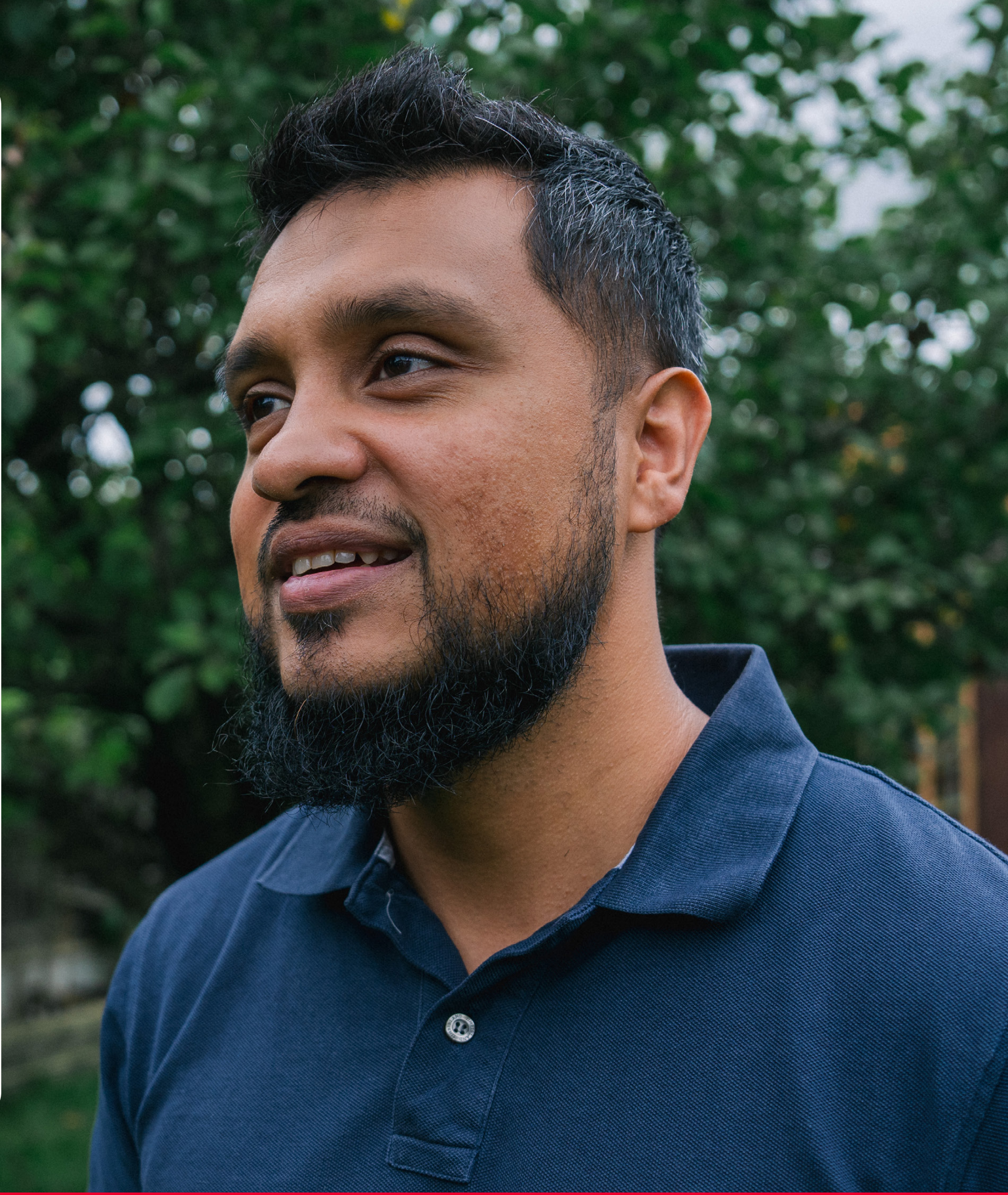
We are continually improving our understanding of the demographics of the cardiovascular research workforce and the experiences of different groups, including exploring the barriers that women face within their research careers and outline solutions to overcoming these.

Salman's story

Salman had a sudden heart attack when he was just 34, which came as a shock because he had none of the traditional risk factors. Salman works as a GP in Tower Hamlets, so he has experience both of experiencing cardiac problems, as well as treating others. Salman is now trying to raise awareness in his community and reduce the stigma that can come with talking about these issues.

"I was born and raised in Tower Hamlets and my family was part of the Bengali community there. I would call myself a strict Muslim and pray five times a day. I have since moved out of London to Redbridge, Essex, where I live with my extended family, but I still work in Tower Hamlets. It is a very financially challenged area and I know – from both a personal and medical professional point of view – that there can be an issue within the South Asian community about speaking openly about heart health issues, but also other marginalised groups.

Most of the time people have tended to react with disbelief that someone like me could have a heart attack. In my experience, young Asian males don't come to the doctor unless they absolutely have to. Only when there's a crisis like very high blood pressure will you get them through the door. This is partly why I'd like to be able to use my story as a way to speak to people at an earlier stage when they prevent with some of the risk factors like diabetes. I want to unlock the conversation about heart health in my local community."



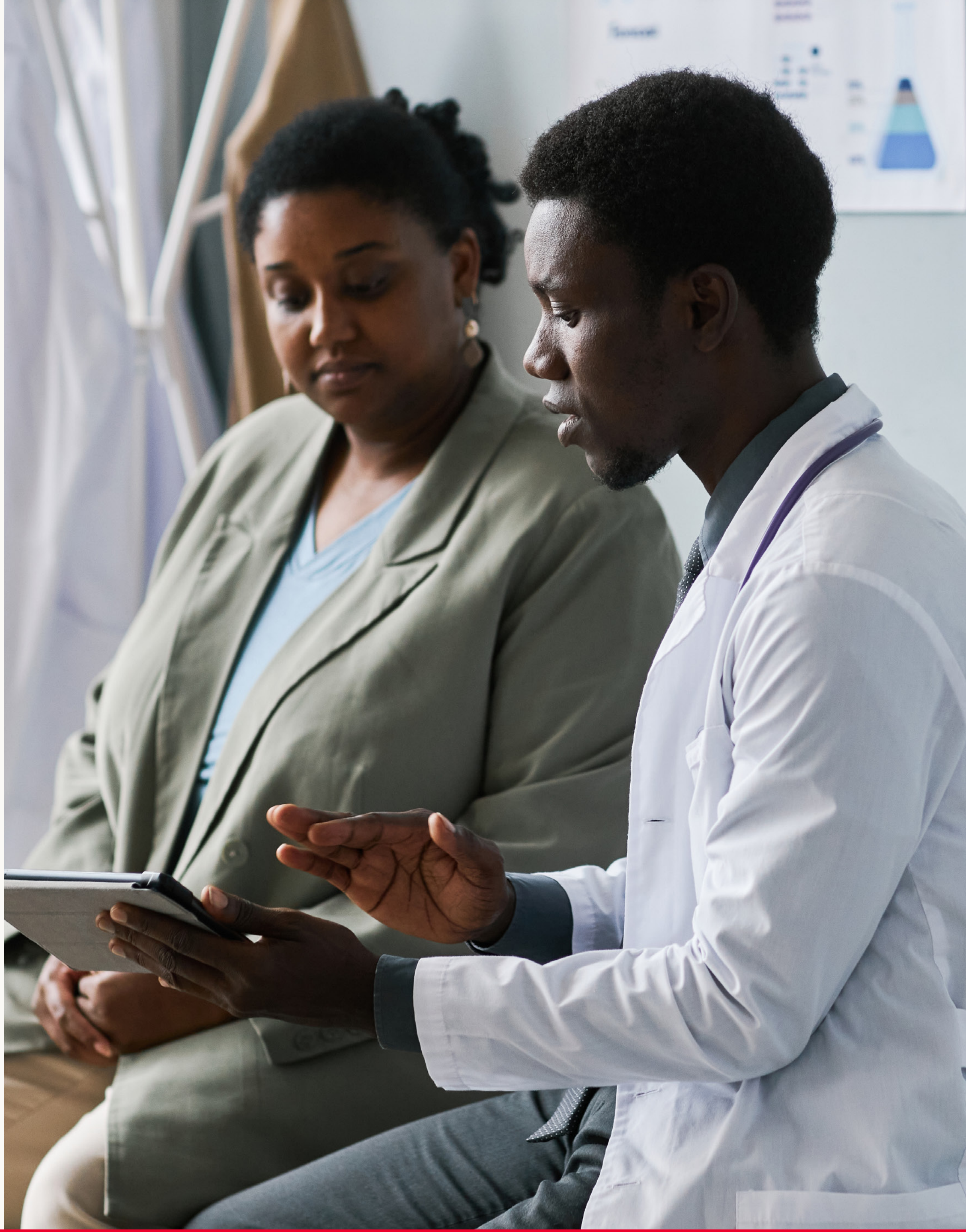
The link between ethnicity and cardiovascular disease

There is clear evidence of differences in cardiovascular risk and mortality between different ethnic groups in the UK. Population-level data is incomplete, however, and much better data collection is needed to better understand the links between ethnicity and cardiovascular disease (CVD), and subsequently design effective policy and interventions.

There is a large volume of literature and analysis on inequalities in cardiovascular health, much of which clearly evidences higher rates of CVD and/or many of their risk factors in South Asian and Black ethnic groups compared to White ethnic groups in the UK. Evidence also suggests that access to care for CVD and its clinical risk factors can be more limited for Black ethnic groups.

Ultimately, the associations between ethnicity and health – including CVD risk, (self-reported) experiences, and clinical outcomes – are complex and nuanced. Ethnic inequalities in health are undeniable, as the Covid-19 pandemic starkly laid bare,[129] but unpicking the underlying drivers, and how they manifest in cardiovascular outcomes, is challenging.

This chapter concludes with some broad recommendations about what needs to be done to address inequalities in care and improve experiences of the system.



Quantitative data can signal trends but does not tell the full story

Quantitative data provides some essential insights into the health risks and outcomes associated with ethnicity. Many of the studies cited in this report assess the extent to which ethnicity has an independent effect on cardiovascular risk and outcomes, or whether it is related to other factors such as deprivation, environmental and lifestyle factors, including how they intersect to influence health outcomes. However, quantitative analysis can fall short in capturing the full complexity of the ways in which ethnicity may affect health. Qualitative feedback and lived experiences offer rich, contextual information that can point to underlying issues and barriers faced by different ethnic groups.

In 2024, BHF reviewed the academic literature around ethnicity and CVD, alongside publicly available data from the Office of National Statistics (ONS) and the Health Survey for England, to build a contemporary picture of the burden of CVD. The work was supplemented with qualitative insights from patients of different ethnicities living in the devolved nations, to enhance BHF's understanding of the experiences of navigating the cardiovascular treatment pathway.

Before looking at this analysis, it is useful to clarify the terminology and categories used to describe ethnicity. The report, where possible, avoids using homogenising terms such as Black, Asian and Minority Ethnic (BAME) in favour of more specific descriptors. This is because there are as many differences between and within 'minority' groups in terms of health risk, experiences and outcomes, as there are between White and ethnic minority groups (see box).

The quantitative analysis came with a range of challenges and limitations that are important to consider when looking to draw conclusions from the findings:

- The nations of the UK have different, and generally insufficient, levels of publicly available data about ethnicity, and associated health risks and outcomes.
- Ethnicity has been included on death certificates in Scotland since 2012,[130] but in England and Wales only since late 2024,[131] and there appear to be no publicly available plans for its inclusion in Northern Ireland. This means researchers are largely reliant on experimental statistics and academic studies to understand how CVD mortality differs between ethnic groups, and to monitor changes over time.
- Numeric data can provide important pointers as to how ethnicity and CVD may be linked, but, as with all data, the effect of confounding variables (i.e. other factors that influence the relationship between the variables being studied) should be considered.
- Some research studies may not be truly representative of the population of the UK and may lack the statistical power to draw conclusions about the association between ethnicity and CVD risk in the UK population.
- Unfortunately, BHF is not able to comment on the cardiovascular health of Gypsy, Roma and Traveller populations in the UK due to insufficient evidence. Research is needed to understand the cardiovascular health of these communities in the UK.

Standard UK ethnic groupings are typically based on the census, which use the following main categories:

- Asian or Asian British: Indian, Pakistani, Bangladeshi, Chinese, any other Asian background
- Black, Black British, Caribbean or African: Caribbean, African, any other Black, Black British, or Caribbean background
- Mixed or multiple ethnic groups: White and Black Caribbean, White and Black African, White and Asian, any other mixed or multiple ethnic background
- White: British, English, Welsh, Scottish, Northern Irish, Irish, Gypsy or Irish Traveller, Roma, any other White background
- Other: Arab, any other ethnic group

Modifiable risk factors affect ethnic groups in different ways

Clinical risk factors for heart disease and stroke, such as hypertension and diabetes, are generally more prevalent in Black and South Asian groups than in the White population. There are also differences in the prevalence of behavioural risk factors between ethnic groups, such as smoking[132] and physical inactivity.[133] Below we give examples, which are not exhaustive, of how risk factors for, and experience of, CVD differs between ethnic groups.

Hypertension

In England, where data is most readily available, hypertension is notably higher among people from Black Caribbean, Black African, and Pakistani backgrounds than White groups.[134] There is insufficient data to make an equivalent statement for the devolved nations, suggesting that more data-gathering and research is needed.

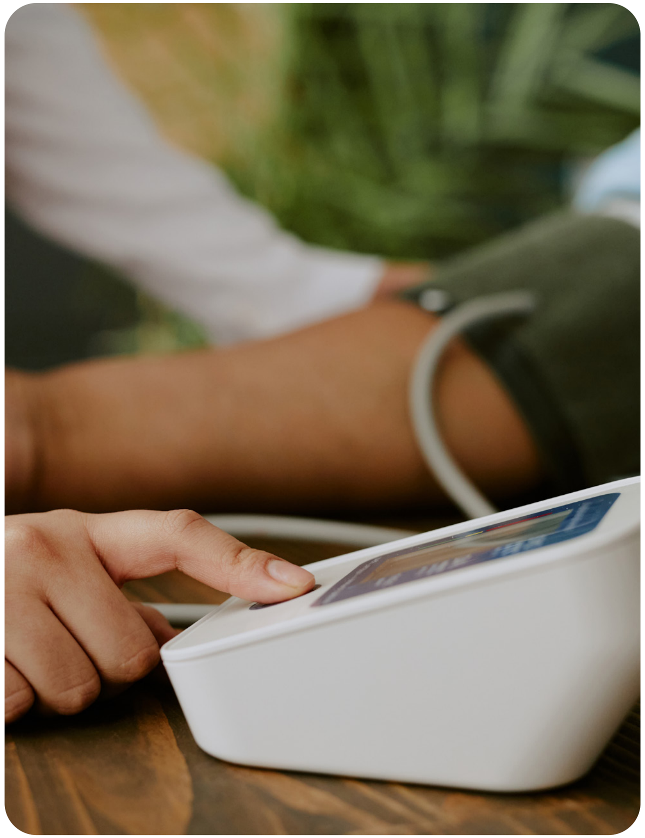
Diabetes

A similarly heightened risk is seen with diabetes. Across all four nations, people from South Asian, African, and African-Caribbean ethnic backgrounds are two to four times more likely to have type 2 diabetes than White people.[135] People from South Asian, African, and Afro-Caribbean backgrounds are also at higher risk of developing diabetes at a significantly younger age than White groups.[136]

Diabetes is associated with an increased risk of both developing and dying from CVD, and research has found that it contributes to some of the differences in the incidence of, and mortality from, CVD between ethnic groups in the UK.[137]

Obesity

The prevalence of obesity varies between ethnic groups, with prevalence highest in England among Black African and Black Caribbean groups.[138] Evidence collated by NICE also suggests that people from Black and Asian ethnic backgrounds have an increased risk of cardiovascular and metabolic diseases at lower body mass index (BMI) and waist circumference thresholds. This has been attributed, in part, to people from these ethnic backgrounds being more prone to central adiposity (i.e. fat stored around the midriff or torso). Body mass index is recognised as a poor proxy of obesity, and it may be that waist circumference is a better reflection of risk. These findings illustrate a potential role for more personalised BMI and waist circumference thresholds, and accordingly tailored interventions.



Smoking

There are also significant differences in smoking use between ethnic groups. It is important, with smoking data, to look at more granular ethnic groups (e.g. Bangladeshi, rather than South Asian), because there is significant variation within broad ethnic groups. Smoking prevalence is highest among White (particularly non-British Whites), Black Caribbean, and Bangladeshi adults, and lowest among adults from Black African, Chinese, and Indian ethnic backgrounds.[139]

Racial discrimination

Some proportion of CVD risk among ethnic minority groups may also be explained by the physiological impact of racial discrimination. Evidence affirms that 'racial burnout' – a prolonged fatigue response to racial prejudice – can lead to severe impacts on both the mental and physical health of ethnic minority groups, and there are well-evidenced links between poor mental health and cardiovascular risk.[140] There is a lack of conclusive evidence to affirm this link for the purposes of this report, and BHF recommends this as an area for deeper study.

> **"Racism needs to be included as a risk for health and wellbeing. It should be a recognised health determinant, constantly navigating racism in life / workplace, micro aggressions. Tell me why I won't develop hypertension if I'm navigating overt and covert racism in life."**
>
> BHF social conversation analysis

Ethnic groups are affected differently by cardiovascular disease

Overall, there is a significantly higher risk of developing CVD among people in the UK with South Asian backgrounds, compared to White groups.

In BHF's analyses of available public data and published research, a heightened level of CVD risk amongst South Asians was consistently present, even after accounting for differences in age, sex, deprivation, and for specific risk factors such as diabetes and smoking.[141,142,143,144,145,146] The analysis also showed that those of South Asian background have the highest death rates from some cardiovascular conditions, particularly coronary heart disease.[147,148,149]

The evidence base points to a more complex picture of cardiovascular risk for Black groups in the UK. Two recent UK Biobank studies have explored the independent effect of ethnicity on measures of CVD risk that combined non-fatal cardiac events and death from all types of CVD.[150,151] They found no statistically significant difference in CVD risk between Black and White participants, after adjusting for confounding factors.

However, other studies have shown that risk differs significantly between ethnic groups by specific cardiovascular condition. A 2013 cohort study found that Black ethnic groups had a higher risk of stroke than White groups, but a lower risk of coronary heart disease.[152] This is supported by statistics showing that mortality from stroke among Black groups is significantly higher than White groups.[153] However, these findings are taken from a subset of people from CVDPREVENT who have previously been diagnosed with CVD, so it is possible they may differ in the population as a whole.

The role of deprivation and the wider determinants of health

Furthermore, while focusing on the CVD risk independently associated with ethnicity may be useful in predicting individual risk, it is also important to understand how confounding factors, such as the wider determinants of health (and the previously described clinical risk factors), can contribute to differing CVD outcomes. This is crucial in understanding how population-level health interventions can reduce inequalities in CVD health.

The higher prevalence of some cardiovascular risk factors among some ethnic-minority groups may be partly due to some ethnic groups (particularly Black, Pakistani, and Bangladeshi) being more likely to live in areas of high deprivation.[154]

This is an important illustration of the socially determined nature of health. These complex interactions have been studied and evidenced by Sir Michael Marmot, whose work plays a leading role in exploring the underlying social, economic and environmental factors driving different levels of health risk. As Sir Marmot has done in his recent report on ethnic health inequalities in London, it is essential to acknowledge that structural racism drives this pattern of ethnic-minority groups living on lower incomes.[155]

Unpicking those interactions and understanding exactly how governments can make a difference is challenging for public policy.

Sir Michael Marmot states:

> 'Racism and the resulting inequalities in policies and institutions that shape education, employment and income drive the disadvantage experienced by ethnic minority groups'[155]

There is significant variation in access to care between ethnic groups

There is variation in access to care between ethnic groups in the UK.

In primary care settings, there are often significant differences between ethnic groups, with Black and Mixed ethnic groups experiencing reduced access, and being less likely to be prescribed medication, receive consistent monitoring, or achieve treatment targets.[156] This is not universally true, though: for example, Asian groups are more likely to be prescribed lipid-lowering therapies[157] and have their cholesterol treated to target than other ethnic groups,[158] and are more likely than other ethnic groups (except White) to have their blood pressure treated to target.[159] In hospital settings, Black people are less likely to have cardiac surgery, and are at increased risk of mortality and readmission following cardiac surgery.[160]

Neighbourhoods with more people from ethnic minority backgrounds tend to have higher out-of-hospital cardiac arrest rates, lower rates of bystander resuscitation, and are less likely to have publicly accessible defibrillators.[161,162] Deprivation is likely to be a confounding factor for these associations (see deprivation chapter).

Ethnic groups experience healthcare systems differently

The interactions between patients and healthcare systems play a crucial role in determining health outcomes. A positive relationship between patients and healthcare providers can lead to better adherence to treatment plans, timely diagnosis and personalised care. Conversely, poor interactions can lead to misunderstanding and lack of trust, ultimately leading to a reduced ability of patients to follow a prescribed treatment plan and poorer health outcomes, including for cardiovascular health.[163]

A person's ethnicity may influence these interactions. For example, implicit bias towards ethnic minority groups can exist and may manifest itself through insufficient consideration of cultural and religious norms, language barriers and stigma. These may drive lower engagement with – and trust of – healthcare services.

These more subtle drivers of inequality cannot fully be explained by quantitative data alone, and BHF's qualitative insights from ethnic minority patients living across the UK can help fill this gap in understanding of navigating the cardiovascular treatment pathway. Several key themes are drawn out below, supplemented with wider literature.

BHF's qualitative research streams:

- Ethnography with nine ethnic minority individuals living in the devolved nations
- Social conversation analysis of online UK discourse surrounding CVD and ethnic health inequalities
- Patient Insights – mixed methods project, which involved 1-1 interviews and focus groups with patients living with CVD in the UK

Cultural barriers can deter engagement with healthcare services

The level of trust an individual or community has in the health system influences how likely they are to seek out support and engage with services. For some, historical and ongoing disparities in healthcare access and treatment have contributed to a lasting sense of mistrust in the medical establishment.[164] For example, research has shown that African Caribbean men were wary of, and avoided, NHS hospitals, often in the belief that cultural differences between themselves and healthcare professionals could lead to harm.[165]

> **"Sometimes when getting advice, you want people to look like you and understand your culture, but you do not want to share personal details with them"**
>
> 47, female,
> Black African background, living with hypertension, Scotland, BHF ethnography project

BHF's insight research looked into this and found that many people feel most comfortable seeking advice from those who are from and who understand their cultural background. However, others said they may prefer to speak to healthcare professionals outside their community, especially around emotional, social and mental-health issues, due to fear of judgement. This is affirmed by a 2025 survey conducted by the NHS Race and Health Observatory (RHO), which found that, while some participants felt better representation of minorities in healthcare improved trust, others reported experiencing discrimination from healthcare professionals who were ethnic minorities and put this down to institutional racism.[166] Both perceptions could reduce the likelihood of members of these communities seeking professional care for health issues, engaging with appointments or following prescribed treatments.

> "It's very hard for people to talk about medical conditions, from my culture. So until we fix that I feel that's a big hindrance."
>
> 22, female,
> Asian background,
> living with epilepsy & tachycardia,
> Northern Ireland, BHF ethnography project

Communication barriers can leave patients feeling unheard

Feelings of mistrust may also be driven by previous negative experiences. During BHF's interviews, individuals reported experiences of implicit and explicit forms of discrimination, which create a persistent sense of exclusion and stress, and a sense of not belonging. This could lead to a harmful cycle of not feeling heard and being increasingly less likely to share details about their health. The recent RHO survey also found that poor communication directly impacted future engagement with healthcare services.[167]

> **"Thrilled about pacemaker but my journey to getting it was very hard. If I hadn't been able to advocate myself and had the medical background I wouldn't have been able to get here."**
>
> 44, female,
> Caribbean and White background,
> living with heart condition and high cholesterol, Scotland, BHF Patient Insights

During BHF's interviews, patients specifically raised communication barriers as an example of implicit bias. Language barriers go beyond simple translation: they include challenges with accents, body language, and nuanced cultural differences that complicate healthcare interactions at many levels. These issues are amplified by complex medical language and jargon that can make information even more challenging to understand.

Navigating the health system also requires specific knowledge: patients told BHF that the NHS has its own language. Those that understand 'the rules' or who have advocates within the system were perceived to achieve better outcomes. Together, these barriers can lead to stress and poor adherence to medical advice.

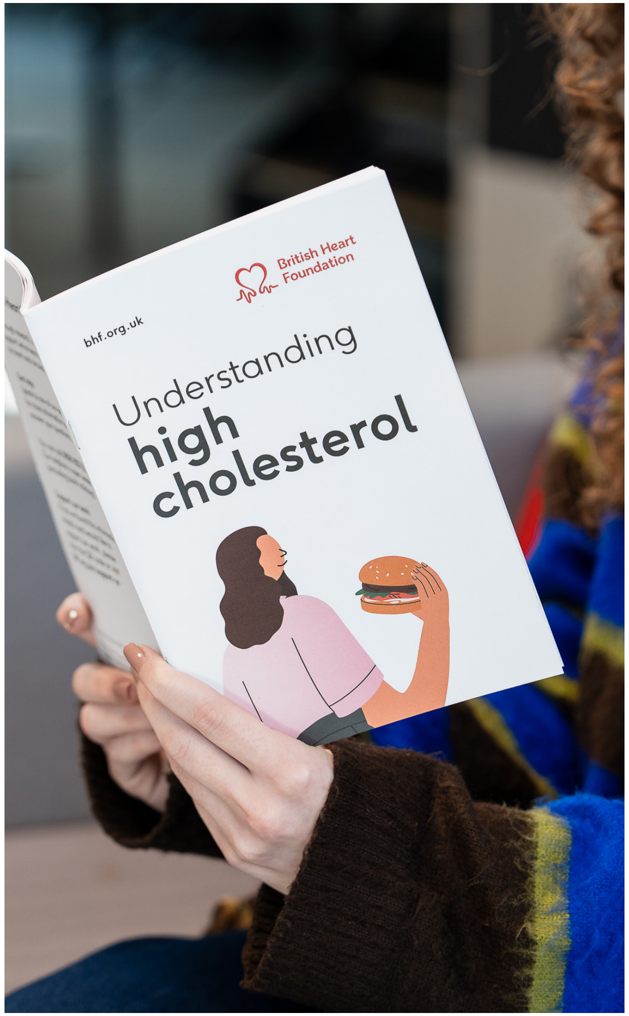
Lack of tailored advice and support can cause distress and confusion

Experiences of poor communication were paired with a lack of information and tailored support to address the role ethnicity plays in patients' cardiovascular health. The perception that different ethnicities may be at increased risk was often unclear and confusing for patients, sometimes causing additional distress that further affects wellbeing. In our qualitative research, patients told us they were confused about specific ethnic risk and wanted clearer information on this.

These findings reiterate the critical need for more research, to clarify the extent to which ethnicity can present a differential genetic risk.

> "I don't know if being Nigerian or having Black skin gives a higher chance, or if it's irrespective? It would be nice to know."
>
> 34, female,
> Black African background,
> living with high blood pressure,
> England, BHF Patient Insights

A lack of culturally sensitive advice was also highlighted by individuals as a barrier to engaging with health recommendations. For example, generic dietary advice is often focused on Western foods, reducing the motivation of patients from ethnic minority groups to make changes to their diet.



What needs to happen?

Fundamentally, comprehensive data collection is required to fully unpick the link between ethnicity and heart health. While this evolves, health services need to continue efforts to better target historically underserved communities.

Prevention with a 'proportionate universalism' approach. GP practices, or Primary Care Networks in England, should use population stratification data tools to identify where specific ethnic groups are at higher CVD risk and prioritise these for health information and prevention activity.

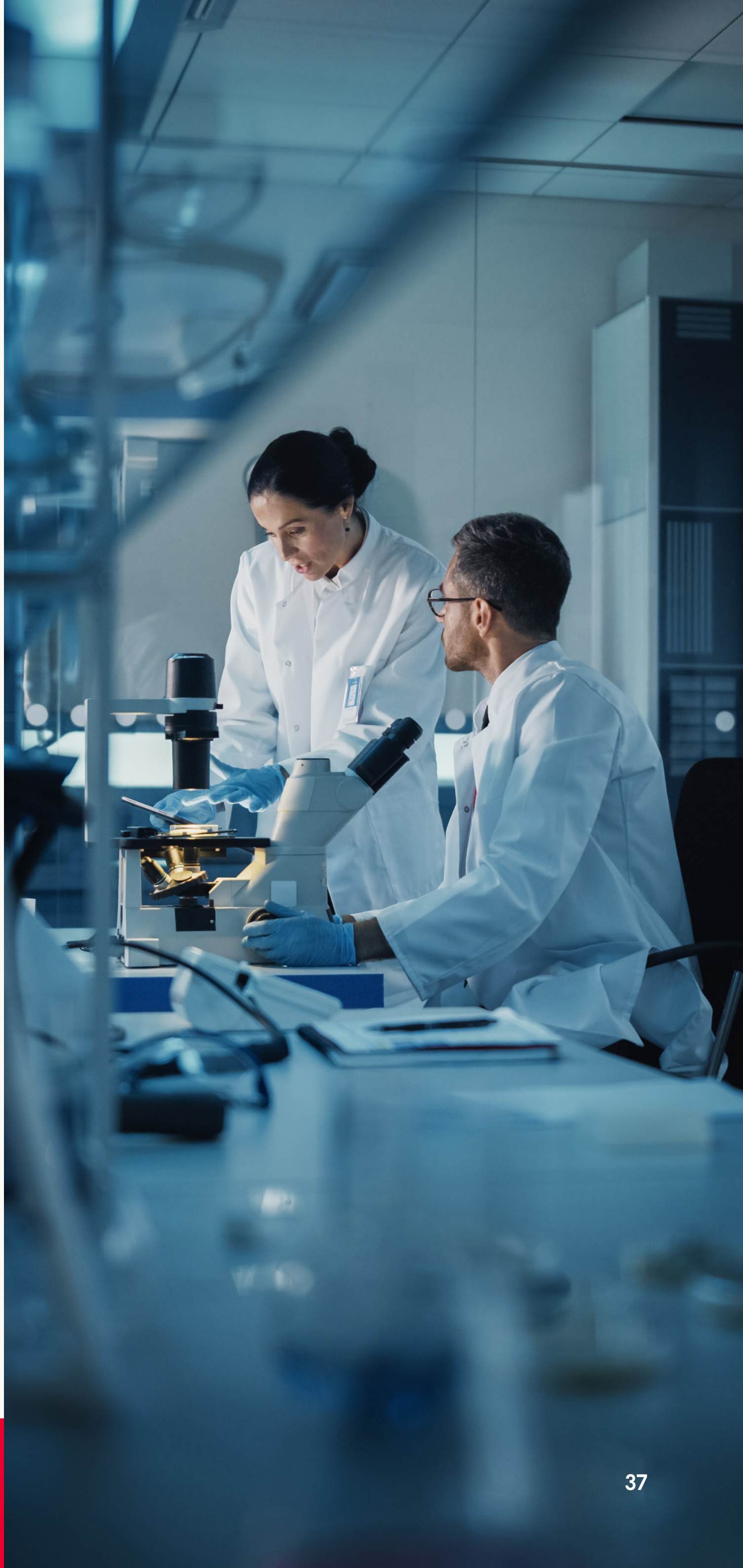
Better and more consistent data collection. As this chapter illustrates, quantitative, population-level data on health and ethnicity are limited, particularly in the three devolved nations, which makes it difficult to unpick the relationship between ethnicity and CVD with enough precision to design mitigating policy. Improving this data is crucial for policymakers and healthcare professionals to address inequality in cardiovascular health.

Joint research by the Race Equality Foundation and the Wellcome Trust found there are efforts being made to improve recording of ethnicity data across different clinical areas and with different communities – but to do this consistently across the UK will require collaboration between governments.[168]

In the first instance, BHF would like to see a commitment for ethnicity to be reported on death certificates in Northern Ireland in line with other nations. Additionally, BHF would welcome more ethnicity reporting in CVDPREVENT and an adoption of similar primary care audits in the other nations.

Services, information and support need to be culturally sensitive and accessible to all. The qualitative insights demonstrate that poor communication can cause complications in healthcare interactions. The workforce must be properly equipped to manage situations in which there are communication barriers, and different cultural or religious needs must be adapted for the most effective delivery and uptake. Equipping the workforce with these skills will help to embed long-lasting cultural change and, over time, regain the trust of historically underserved communities. Local health systems should ensure that the information and support offered serves the needs of the local population.

Improve representation of ethnic minorities in clinical research. The underrepresentation of ethnic minorities in clinical trials is well-evidenced. To understand the full extent to which ethnicity plays a role in cardiovascular outcomes, research must be reflective of the general population. As Diabetes UK rightly highlight, research designed to inform clinical practice should be designed to reflect all those who could benefit from the findings. We echo their recommendation to meet these communities where they are to effectively develop long-term and trusting relationships.[169]



What is BHF doing?

BHF uses its role as a funder to drive research into ways in which ethnic background impacts individuals' risk of CVD, including through support for two major ongoing research studies – LOLIPOP and SABRE.

Our qualitative work referenced in this chapter was also an opportunity to ask participants how they saw the role of BHF itself. Although attitudes were generally positive, many of the participants did not see BHF as relevant in their lives. Participants also provided other practical feedback about how our information and support can be made more appropriate and accessible to all patients.

It is clear that we need to be doing more to ensure that we are reaching a range of communities, and that our information and support is tailored to a range of groups, regardless of background. BHF has started using this insight to understand how to better support a wider range of communities in the UK.

Engaging and co-producing with diverse communities across the UK. BHF is committed to partnering with community-focused organisations across the UK. Organisations that have been embedded in communities for a long time will always be best placed to articulate the challenges facing those they represent, and to suggest the most appropriate solutions. This is why we formed the Community Engagement Advisory Forum in 2024, which will be used to codesign BHF's approach to community engagement and shape ongoing development and delivery. This group will act as a critical friend to BHF and provide advice on how to better engage with different communities.

Creating accessible information and support. We have made efforts to support a broader range of groups by translating our most popular heart health pages into the five most widely spoken languages in the UK.

NHS driving change:

the role of the health system in alleviating inequalities

This report has been written on the cusp of a major change in the English NHS, with the abolition of NHS England having been recently announced and a new 10 Year Health Plan due to be published imminently. Whatever new health service bodies emerge, or are reinvented, from this process, the recommendations in this report will still apply to any new body or groupings of providers responsible for the health of a specific population in England.

The recommendations in this report are predominantly aimed at the UK Government, but health systems also have a fundamental role to play in eliminating inequalities. NHS England's Core20PLUS5 approach is a helpful framework to support Integrated Care Systems (ICSs) in driving this action, acting on five clinical priorities, one of which is to identify more people who have high blood pressure.[170]

The 2022 Health and Care Act for England set out the legal responsibilities of ICSs, which include improving outcomes in population health and healthcare; and tackling inequalities in outcomes, experience and access.

Given that the primary role of ICSs in England is to design joined-up services, they are well placed to convene partners to fulfil these responsibilities. Collaboration between care providers is essential to tailoring interventions to the specific needs of local communities in a way that builds engagement and trust. There are countless examples of well-designed innovations that have had strong impacts at the local level, but it is critical that health systems are empowered to tackle CVD-related health inequalities:

1. Funding needs to be sustained and protected, to allow systems to make data-led decisions on how best to target interventions and maximise engagement with those who are currently most underserved by cardiac services. BHF agrees with the recommendation from Diabetes UK's 'Tackling Inequality' Commission, which states that funding for local innovations should be protected for at least three years.[171] This will help to ensure that programmes can embed change in their communities and that there is sufficient time for community involvement and evaluation.

2. Health services need access to data and tools that can identify where inequalities are present in a population. Data tools such as CVDACTION, for example, a GP resource linked to CVDPREVENT, give practices the capability to precisely identify highest risk and to see where this is evident by deprivation, ethnicity and sex.

The chapters above explore three aspects of cardiovascular inequality, but the issues go far beyond these three factors. There are many additional characteristics that may have a bearing on people’s cardiovascular health. The following sections briefly explore the relationship between mental health and CVD and learning disabilities and CVD. We are committed to undertaking more research in this space, in collaboration with external experts.

Mental health and cardiovascular disease

In recent BHF-commissioned research, individuals told us that managing mental-health challenges while living with cardiovascular disease (CVD) was a key unmet need, and those with co-morbidities reported experiencing greater challenges in taking care of their wellbeing.

There is a strong, bidirectional relationship between poor mental health and cardiovascular health: an individual’s cardiovascular condition can trigger the onset of a mental illness, just as poor mental health increases the risk of developing CVD.[172,173,174]

Research suggests this is due, in part, to shared risk factors.[175] For example, people with mental health conditions are more likely to smoke, often using it as a coping mechanism. However, smoking can actually increase anxiety, reduce wellbeing, and significantly raise the risk of CVD.

Stress

It is thought that stressful life events could trigger CVD in susceptible individuals.[176] While research into the impact of heightened stress on heart health is still evolving, studies have evidenced a clear relationship.

For example, BHF-funded research found that high cortisol levels – a stress hormone – can lead to a hardening of the arteries, which suggests that mental stress could increase the risk of developing CVD.[177] Additionally, an international review of 27 cohort studies found that work-related stress was associated with a moderately elevated risk of incident coronary heart disease and stroke.[178]

Given the high prevalence of stress in the general population, experts have called for universal public health approaches to reduce this, alongside targeted interventions.[179]

Serious mental illness

Serious mental illnesses (SMI) are psychological conditions that significantly impact an individual's ability to function or engage in day-to-day activities, and can include bipolar disorder, schizophrenia, and severe depression.[180]

Individuals with a SMI live with a 4.1 times greater risk of developing CVD.[181] This phenomenon plays out globally. One international study, which included data from the UK Biobank, found that depression was associated with an increased risk of CVD, including both coronary heart disease and stroke.[182] Another international study found people with SMI have an 85% higher risk of dying from CVD than the general population.[183]

Despite this elevated risk, the physical health of SMI patients can often fall into a gap in the system.[184]

One study found that patients with coronary heart disease were less likely to receive primary care to national standards, and a second study found that people with schizophrenia were 15% less likely to have a recent prescription for a statin.[185] Similarly, a study on a London borough suggested an under-recording of CVD co-morbidities for people with SMI.[186]

Consequently, the health outcomes of this group have been rightly prioritised and reflected in NHS England's Core20PLUS5 framework for reducing inequalities. However, it is disappointing that NHS England's planning guidance for 2025/26 has dropped the commitment to offer annual physical checks to patients with SMIs, which includes a cardiovascular risk assessment.

Learning disabilities and cardiovascular disease

The prevalence of some cardiovascular conditions, particularly heart failure, is higher among people with learning disabilities.[187] This appears to be driven by a combination of behavioural and genetic factors.[188] It is estimated that at least 10% of adults with congenital heart disease have some form of learning disability.[189] Approximately 50% of newborns with Down Syndrome have congenital heart disease.[190]

In addition to higher morbidity, people with a learning disability experience poorer outcomes from cardiovascular disease (CVD). In 2022, CVD was the most common cause of death in this group.[191] Tragically, so many of these are preventable. The Learning from Lives and Deaths Review (LeDeR) found that 42% of deaths among people with a learning disability were avoidable (compared to 22% of the general population), with cardiovascular conditions being the most significant contributor.[192]

Higher CVD morbidity and poorer CVD outcomes are likely to be driven, in part, by the increased prevalence of behavioural and clinical risk factors for CVD in people with learning disabilities. Evidence shows that this group may have higher rates of obesity and diabetes and are more likely to be classed as 'incredibly inactive'.[193]

Despite this, there is likely to be inadequate identification and management of these risk factors in people with learning disabilities. One study found that of 53 people with learning disabilities who died of a cardiovascular condition, just 15% had had a CVD risk assessment recorded.[194]

This is why it is concerning that the latest NHS England planning guidance for 2025/26 has dropped the target to provide an annual health check to 75% of people with learning disabilities. As the LeDeR review concludes, it is critical that people with learning disabilities be proactively monitored and managed for these risk factors at an early stage.[195]

Appendix 1

Table 1 data sources

Table 1 visualises CVD risk-factor prevalence between the most and least deprived areas, for the four nations of the United Kingdom. For some risk factors in some nations, there is an absence of publicly reported data by deprivation. The data sources are as follows:

Hypertension:

- England: CVDPREVENT, 2025. Data Explorer. Available from: https://data.cvdprevent.nhs.uk/data-explorer
- Scotland: Scottish Government, 2024. Scottish Health Survey – Dashboard. Available from: https://scotland.shinyapps.io/sg-scottish-health-survey/
- Wales: British Heart Foundation, 2024. Cardiovascular inequalities in Wales: an analysis. Available from: https://www.bhf.org.uk/what-we-do/our-research/heart-statistics/health-inequalities-research/cardiovascular-inequalities-in-wales-an-analysis

High Cholesterol:

- England: NHS England, 2024. Health Survey for England 2022, Part 2: Data tables. Available from: https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2022-part-2/health-survey-for-england-hse-2022-part-2-data-tables

Obesity:

- England: Office for Health Improvement and Disparities, 2025. Fingertips – Obesity prevalence in adults (using adjusted self-reported height and weight) (18+ years). Available from: https://fingertips.phe.org.uk/
- Scotland: Scottish Government, 2024. Scottish Health Survey – Dashboard. Available from: https://scotland.shinyapps.io/sg-scottish-health-survey/
- Wales: StatsWales, 2023. Adult lifestyles by area deprivation, 2020-21 onwards. Available from: https://statswales.gov.wales/Catalogue/National-Survey-for-Wales/Population-Health/Adult-Lifestyles/adultlifestyles-by-areadeprivation-from-202021
- Northern Ireland: Health Survey Northern Ireland, 2024. Health Survey Northern Ireland Trend Tables – 2023/24. Available from: https://www.health-ni.gov.uk/sites/default/files/2024-12/hsni-trend-tables-23-24.xlsx

Diabetes:

- England: Office for Health Improvement and Disparities, 2025. Fingertips – Diabetes: QOF prevalence. Available from: https://fingertips.phe.org.uk/
- Scotland: Scottish Government, 2024. Scottish Health Survey – Dashboard. Available from: https://scotland.shinyapps.io/sg-scottish-health-survey/

Smoking (current smoker):

- England: Office for Health Improvement and Disparities, 2025. Fingertips – Smoking prevalence in adults (aged 18 and over) – current smokers. Available from: https://fingertips.phe.org.uk/
- Scotland: Scottish Government, 2024. Scottish Health Survey – Dashboard. Available from: https://scotland.shinyapps.io/sg-scottish-health-survey/
- Wales: StatsWales, 2023. Adult lifestyles by area deprivation, 2020-21 onwards. Available from: https://statswales.gov.wales/Catalogue/National-Survey-for-Wales/Population-Health/Adult-Lifestyles/adultlifestyles-by-areadeprivation-from-202021
- Northern Ireland: Health Survey Northern Ireland, 2024. Health Survey Northern Ireland Trend Tables – 2023/24. Available from: https://www.health-ni.gov.uk/sites/default/files/2024-12/hsni-trend-tables-23-24.xlsx

Diet (Meets '5-a-day' recommendation for fruit and vegetables):

- England: Office for Health Improvement and Disparities, 2025. Fingertips – Percentage of adults meeting the '5-a-day' fruit and vegetable consumption recommendations (new method). Available from: https://fingertips.phe.org.uk/
- Scotland: Scottish Government, 2024. Scottish Health Survey – Dashboard. Available from: https://scotland.shinyapps.io/sg-scottish-health-survey/
- Wales: StatsWales, 2023. Adult lifestyles by area deprivation, 2020-21 onwards. Available from: https://statswales.gov.wales/Catalogue/National-Survey-for-Wales/Population-Health/Adult-Lifestyles/adultlifestyles-by-areadeprivation-from-202021
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Physical activity

- England: Office for Health Improvement and Disparities, 2025. Fingertips – Percentage of physically active adults (19+ years). Available from: https://fingertips.phe.org.uk/
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