

Socioeconomic inequalities in cardiovascular disease in Wales: an analysis

About our report

Health inequalities are a critical priority for BHF and for the NHS. Unfair differences in cardiovascular risk and outcomes are not inevitable. Instead, these differences are often rooted in systemic inequalities in society and our health and care systems.

As part of BHF's [Equality, Diversity, and Inclusion strategy](#), we are committed to better understanding the inequalities that we know exist, so we can make informed decisions and support efforts to close the gaps.

In 2024, we published a report that analysed health inequalities relating to deprivation in Wales across the cardiovascular disease (CVD) pathway. This report found evidence of significant inequalities across the CVD pathway, often to the detriment of the most deprived parts of Wales. We have also examined the same topic in the context of [England](#), [Scotland](#) and [Northern Ireland](#).

Now, in light of two more years of data on CVD in Wales, we have decided to update our Wales report. We analysed data on CVD and its risk factors in Wales from several sources, including the National Survey for Wales, Digital Health and Care Wales, and the Office for National Statistics.

Our report findings

We found that, when compared to the least deprived areas, the most deprived areas of Wales have:

- Higher prevalence of hypertension, diabetes, obesity and smoking
- Higher prevalence of coronary heart disease, heart failure, and stroke/Transient ischaemic attack
- Higher premature (under 75) death rates from CVD

1. Introduction

Over 400,000 people are estimated to be living with cardiovascular disease in Wales today.¹ Many thousands more have risk factors for these conditions such as high blood pressure, obesity, and diabetes. Cardiovascular diseases account for more than one in four (26%) of all deaths in Wales, or around 9,300 each year. About 2,700 of these deaths occur in people under the age of 75. Cardiovascular diseases are strongly associated with health inequalities in Wales. With this report we aim to quantify the degree to which this association exists across the cardiac pathway, from prevention to treatment, prevalence, and mortality.

Cardiovascular health is deeply connected to and impacted by wider determinants of health. In other words, the disparities seen among people with cardiovascular diseases are driven by factors such as income, housing, education, the environment, and access to health and social care. On average, people in more deprived areas develop multiple conditions 10-15 years earlier than in more affluent areas.²

Health inequalities encompass differences in health status, healthcare, and health-related risks between different population groups that are unfair and avoidable. They include:

- Health-related risks: e.g. some people may find it harder to access healthy foods than others.
- Healthcare: e.g. some people may find it harder to access healthcare services than others.
- Health status: e.g. some people may have a shorter life expectancy than others.

As with our original report on this topic, the subsequent report provides a holistic view of health inequalities by deprivation across the CVD pathway, giving additional insight into not only where improvement is needed, but also indications of where there are data gaps and opportunities for further analysis. This update draws the same conclusions as the original report, underlining the significant and persistent inequalities relating to deprivation in CVD across the cardiac pathway.

¹ [British Heart Foundation statistics compendium](#) (2026)

² The Richmond Group, Health Foundation. (2019) [The Multiple Conditions Guidebook](#).

2. Methods

The Welsh Index of Multiple Deprivation (WIMD) is the official relative measure of deprivation in Wales.³ The small geographies used for WIMD are known as Lower layer Super Output Areas (LSOAs). WIMD ranks LSOAs from 1 (most deprived) to 1,917 (least deprived). Each LSOA comprises between 400 and 1,200 households. WIMD incorporates income, employment, health, education, access to services, housing, community safety, and physical environment. WIMD 2025 is the most recent version and was used in this report.

Some of the analysis in this report used data from primary care clusters, which can be ranked by socioeconomic deprivation using WIMD. Primary care clusters are ranked by the proportion of patients registered to the constituent general practices who live in the most deprived 20% of areas in Wales. This is then divided into quintiles.⁴ We used the cluster list sizes to calculate a population-weighted mean prevalence for each quintile from the age-standardised rates in each cluster. We used a weighted two-sample t-test to assess differences between deprivation quintiles.

For some risk factors (including smoking and obesity) we have presented data from a previous National Survey for Wales conducted in 2022/23. The most recent iteration of the survey had a reduced sample size and limited statistical power to show deprivation trends.⁵

To estimate mortality from CVD in local authorities we calculated the average mortality rate per 100,000 people for the most recent three years (2022-24). Finalised mortality statistics for Wales for 2025 have not yet been published at the time of writing.

³ [Welsh Index of Multiple Deprivation \(2025\)](#)

⁴ StatsWales: [Deprivation at GP cluster level](#)

⁵ [National Survey for Wales 2024/25 technical report](#)

3. Results

Risk factors for cardiovascular disease

Thousands of people in Wales have risk factors that put them at an increased risk of developing CVD. These include high-risk conditions like hypertension (high blood pressure) and diabetes, and behavioural risk factors like smoking, poor diet, and physical activity. These factors are often influenced by access to health and care services and the social, physical, and economic environments in which people live. This has an impact on people's choices, behaviours, and exposure to risk. In Wales, it's estimated that over 70% of the cardiovascular disease burden can be attributed to modifiable risk factors, which are often considered to be preventable.⁶

Hypertension

Around 750,000 adults in Wales have high blood pressure, which is the leading modifiable risk factor for cardiovascular disease in Wales.⁷ However, only around 540,000 people in Wales are on their GP's hypertension register. This suggests that up to 210,000 could be undiagnosed and not receiving effective treatment.⁸ For patients who have been diagnosed with hypertension, effective treatment has not always been guaranteed. In June 2025, a Quality Improvement project for CVD prevention in people with high blood pressure found that just 51.3% of hypertensive patients in Wales were treated to target.⁹ This was compared to 66.8% in England at the time. Around 50% of heart attacks and strokes are associated with high blood pressure.¹⁰

There is a clear association between deprivation and hypertension in Wales. Figure 1 shows the age-standardised prevalence of diagnosed hypertension in primary care clusters by deprivation quintile. In the least deprived quintile, the mean prevalence of diagnosed hypertension was 13.9%, and in the most deprived quintile it was 16.5%. This means that the prevalence of diagnosed hypertension is almost 20% higher in the most deprived quintile relative to the least deprived ($p < 0.0001$).

⁶ [British Heart Foundation statistics compendium](#) (2026)

⁷ Institute for Health Metrics and Evaluation (IHME). GBD Results. Seattle, WA: IHME, University of Washington, 2025. Available from <https://vizhub.healthdata.org/gbd-results/>. (Accessed June 2026)

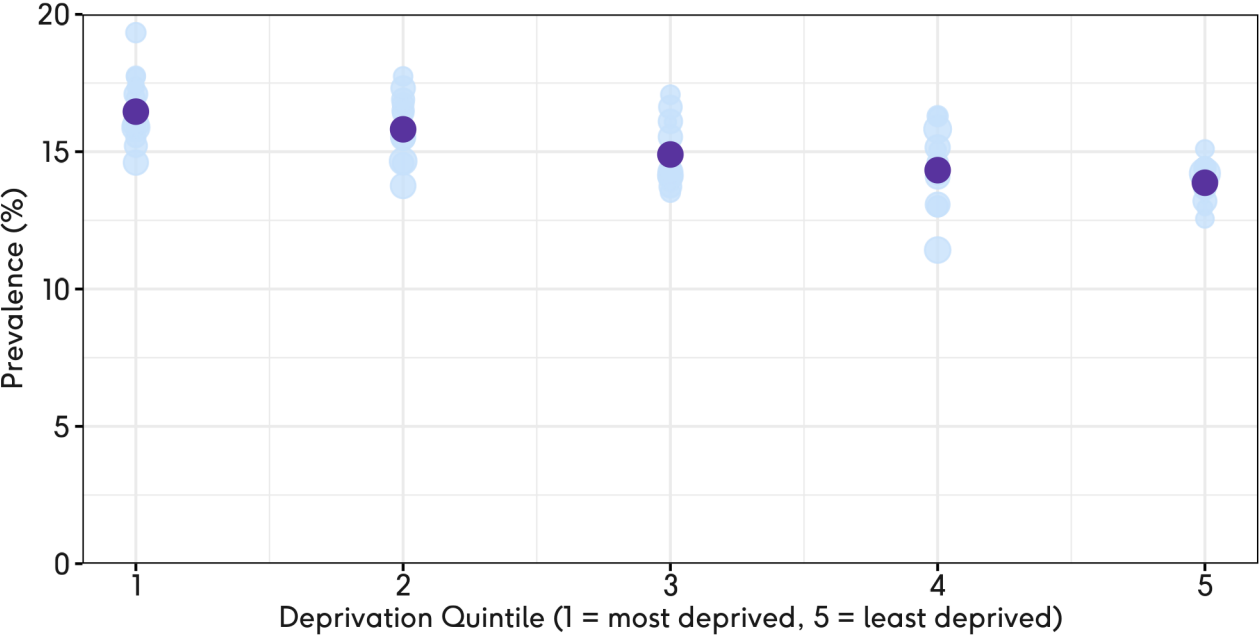
⁸ British Heart Foundation Statistics (2026) [Wales factsheet](#)

⁹ Government of Wales (2026). [Cardiovascular disease \(CVD\) prevention in people with high blood pressure year 2](#)

¹⁰ British Heart Foundation Statistics (2026) [Wales factsheet](#)

Figure 1: Age-standardised prevalence of diagnosed hypertension among GP-registered patients in Primary Care Clusters in Wales, 2024

Size of light blue points corresponds to the number of patients registered in the cluster
Purple points represent the mean prevalence among clusters in each quintile, weighted by list size



Source: Audit+, Digital Health and Care Wales

Diabetes

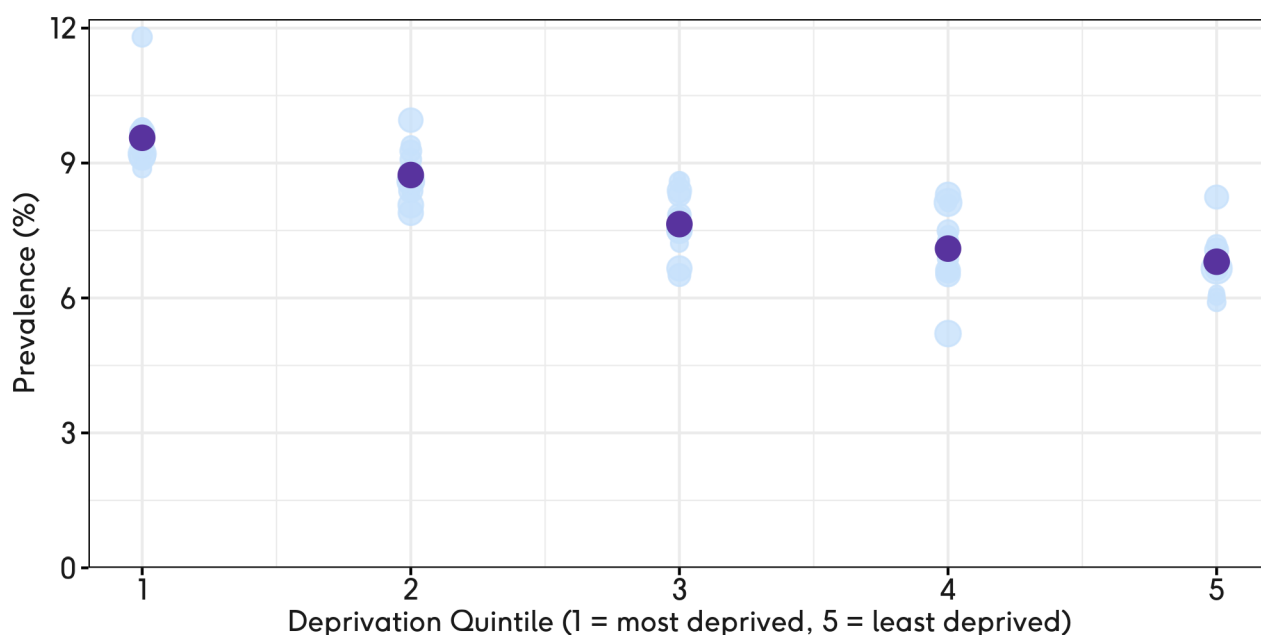
Diabetes is a condition in which blood sugar levels are elevated over a prolonged period. This results in damage to the inner lining of blood vessels. Consequently, diabetes is a significant risk factor for cardiovascular disease. Adults with diabetes are 2 to 3 times more likely to develop a cardiovascular condition, and nearly twice as likely to die from heart disease or stroke.^{11,12}

Over 230,000 adults in Wales have been diagnosed with diabetes (90% with type 2). Figure 2 shows the age-standardised prevalence of diagnosed diabetes in primary care clusters by deprivation quintile, calculated as above. In the least deprived quintile, the mean prevalence of diagnosed diabetes was 6.8% of people, and in the most deprived quintile it was 9.6%. This means that the prevalence of diagnosed diabetes is more than 40% higher in the most deprived quintile relative to the least deprived ($p < 0.0001$).

Figure 2: Age-standardised prevalence of diabetes among GP-registered patients in Primary Care Clusters in Wales, 2024

Size of light blue points corresponds to the number of patients registered in the cluster

Purple points represent the mean prevalence among clusters in each quintile, weighted by list size



Source: Audit+, Digital Health and Care Wales

¹¹ The Lancet. (2010) Diabetes mellitus, fasting blood glucose concentration, and risk of vascular disease: a collaborative meta-analysis of 102 prospective studies

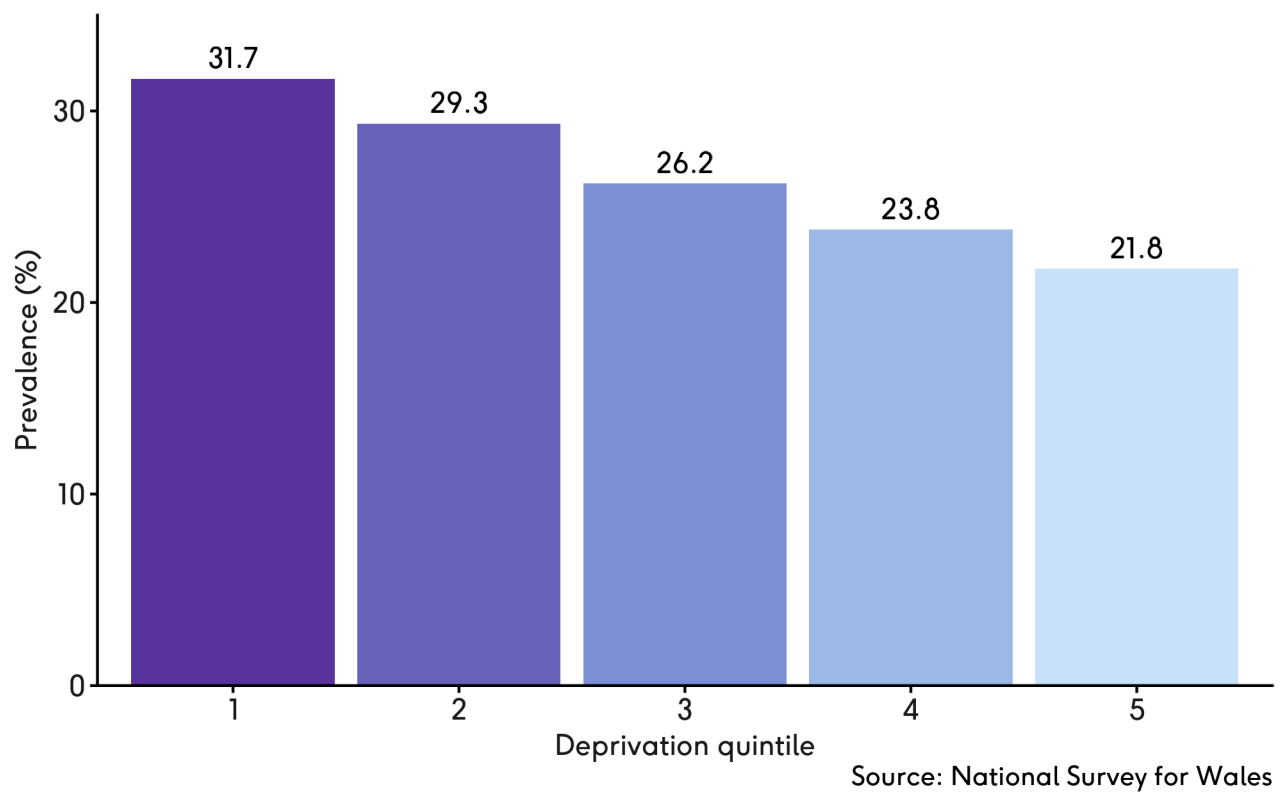
¹² Laakso M. (2010) Cardiovascular disease in type 2 diabetes from population to man to mechanisms: the Kelly West Award Lecture 2008. Diabetes Care

Overweight and obesity

Having a body-mass index (BMI) classed as overweight or obese increases the risk of developing cardiovascular disease.¹³ In Wales, over 1 in 6 cardiovascular deaths are associated with a high BMI.¹⁴ Figure 3 shows the prevalence of obesity in 2022/23 in Wales by WIMD quintile. The prevalence of obesity was 10 percentage points higher in the most deprived quintile than in the least deprived quintile (32% and 22%, respectively).

Figure 3: Prevalence of obesity among adults in Wales by deprivation quintile, 2022/23

Quintile 1 = most deprived, quintile 5 = least deprived



¹³ Adams KF, Schatzkin A, Harris TB, Kipnis V, Mouw T, Ballard-Barbash R, Hollenbeck A, Leitzmann MF. Overweight, obesity, and mortality in a large prospective cohort of persons 50 to 71 years old. N Engl J Med. 2006 Aug 24;355(8):763-78

¹⁴ Institute for Health Metrics and Evaluation (IHME). GBD Results. Seattle, WA: IHME, University of Washington, 2025. Available from <https://vizhub.healthdata.org/gbd-results/>. (Accessed June 2026)

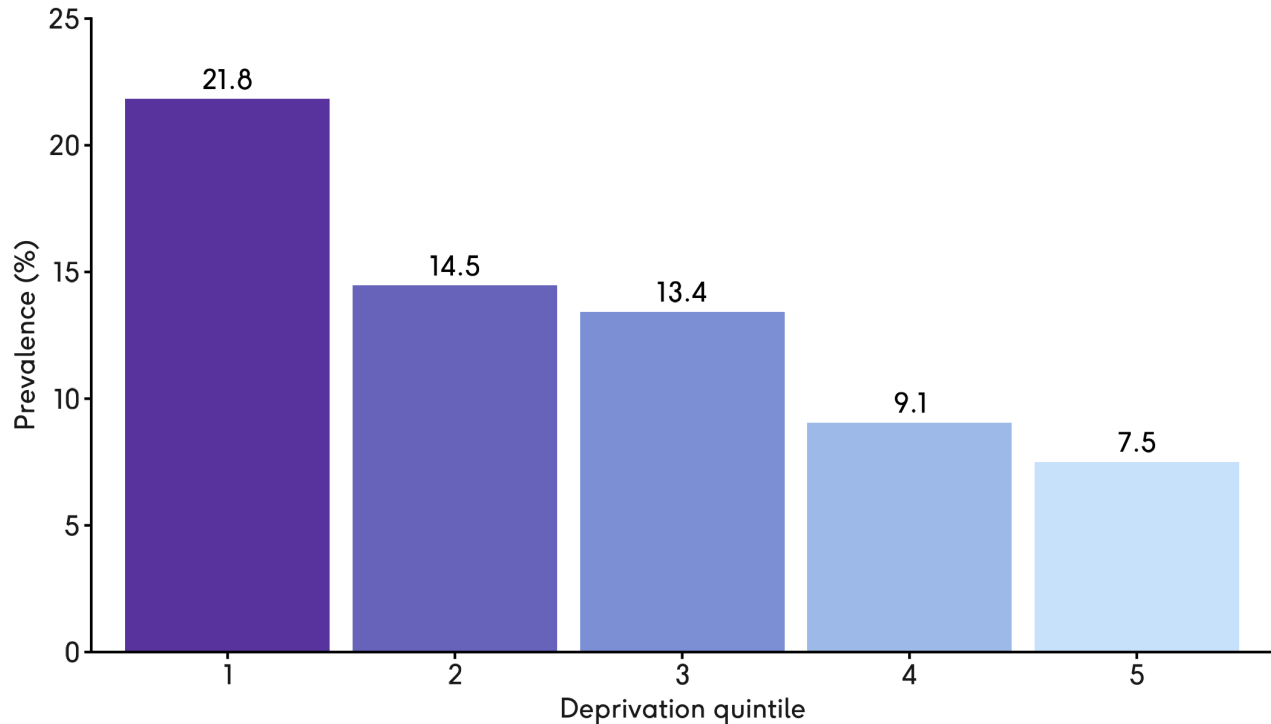
Smoking

The link between cigarette smoking and cardiovascular disease—particularly heart attack and stroke—is well evidenced.¹⁵ It is estimated that more than 1,100 deaths from cardiovascular diseases in Wales each year can be attributed to smoking.¹⁶

The prevalence of smoking varies by deprivation level and is more common in the most deprived areas of Wales, as shown in Figure 4. In the areas with the highest levels of deprivation, the prevalence of smoking was almost three times greater than it was in the least deprived areas (21.8% and 7.5%, respectively).

Figure 4: Prevalence of cigarette smoking in adults in Wales by deprivation quintile, 2022/23

Quintile 1 = most deprived, quintile 5 = least deprived



Source: National Survey for Wales

¹⁵ Action of Smoking and Health, 2021. [Smoking, the Heart and Circulation](#)

¹⁶ Institute for Health Metrics and Evaluation (IHME). GBD Results. Seattle, WA: IHME, University of Washington, 2025. Available from <https://vizhub.healthdata.org/gbd-results/>. (Accessed June 2026)

Prevalence

This section looks at the diagnosed prevalence of cardiovascular diseases (i.e. how many people are diagnosed with these diseases in a particular area and point in time). We analysed data from primary care clusters, and used the cluster list sizes to calculate a population-weighted mean prevalence for each quintile from the age-standardised rates in each cluster.

Coronary Heart Disease

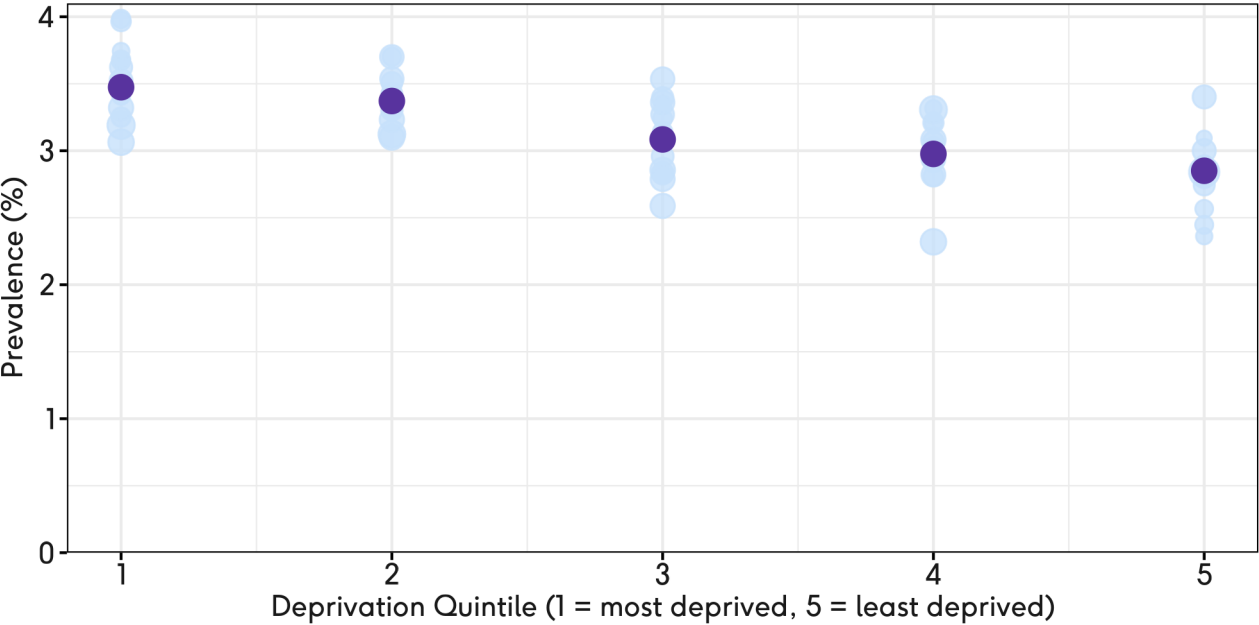
Coronary heart disease (CHD) is the prevalent type of heart disease in Wales. It occurs when coronary arteries become narrowed by a build-up of atheroma, a fatty material within artery walls. The pain or discomfort felt from such narrowing is called angina and if a blockage occurs it can cause a myocardial infarction (heart attack). There are more than 110,000 people living with CHD in Wales.¹⁷ Over a quarter of all deaths in Wales are caused by CHD, and it is the leading cause of heart attacks.

Figure 5 shows the age-standardised prevalence of diagnosed CHD in primary care clusters by deprivation quintile. In the least deprived quintile, the mean prevalence of CHD was 2.9%, and in the most deprived quintile it was 3.5%. This means that the prevalence of diagnosed CHD is more than 20% higher in the most deprived quintile relative to the least deprived. This represents a statistically significant difference ($p=0.002$).

¹⁷ British Heart Foundation Statistics (2026) [Wales factsheet](#)

Figure 5: Age-standardised prevalence of coronary heart disease among GP-registered patients in Primary Care Clusters in Wales, 2024

Size of light blue points corresponds to the number of patients registered in the cluster
Purple points represent the mean prevalence among clusters in each quintile, weighted by list size



Source: Audit+, Digital Health and Care Wales

Heart Failure

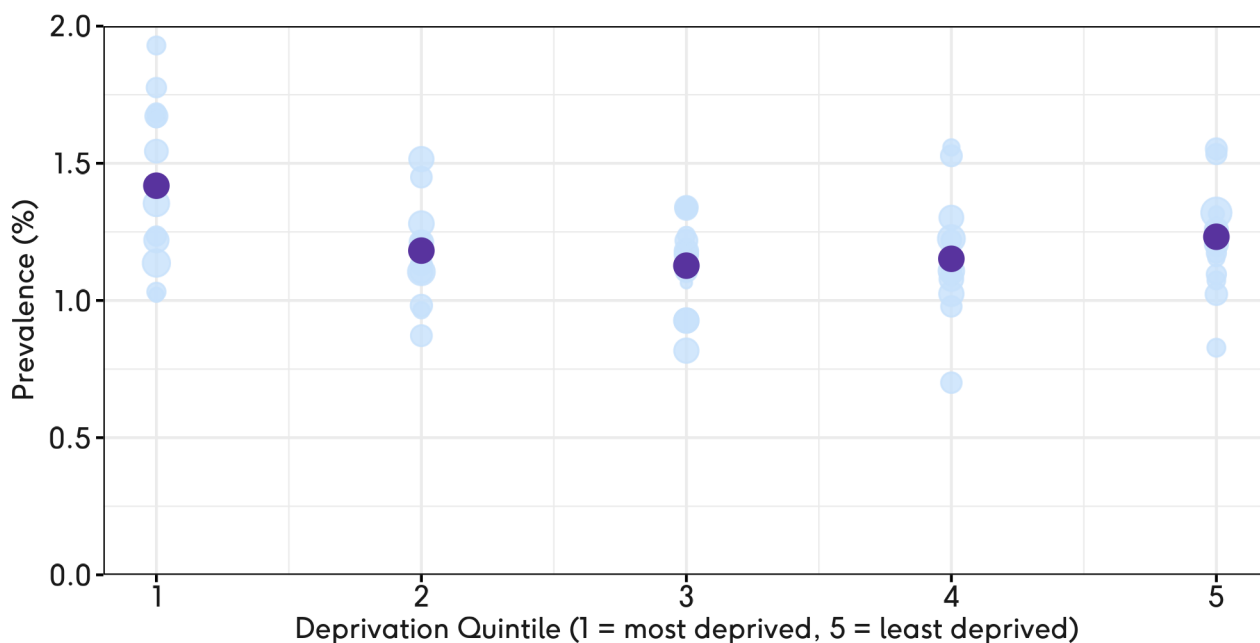
Heart failure occurs when the heart is not pumping blood around the body as well as it should, most commonly when the heart muscle has been damaged—for example, after a heart attack. More than 46,000 people in Wales have been diagnosed with heart failure by their GP.¹⁸ Estimates which include diagnoses at hospital suggest that there may be thousands more people living with the condition across the country.¹⁹

Figure 6 shows the age-standardised prevalence of diagnosed heart failure in primary care clusters by deprivation quintile. Heart failure was most prevalent in the most deprived quintile (1.4%). Prevalence was lowest in quintile 3 (1.1%). The difference in heart failure between quintiles 1 and 5 was statistically significant ($p=0.01$).

Figure 6: Age-standardised prevalence of heart failure among GP-registered patients in Primary Care Clusters in Wales, 2024

Size of light blue points corresponds to the number of patients registered in the cluster

Purple points represent the mean prevalence among clusters in each quintile, weighted by list size



Source: Audit+, Digital Health and Care Wales

¹⁸ British Heart Foundation Statistics (2026) [Wales factsheet](#)

¹⁹ Temporal trends and patterns in heart failure incidence: a population-based study of 4 million individuals. Conrad, Nathalie et al., The Lancet, Volume 391, Issue 10120, 572 - 580

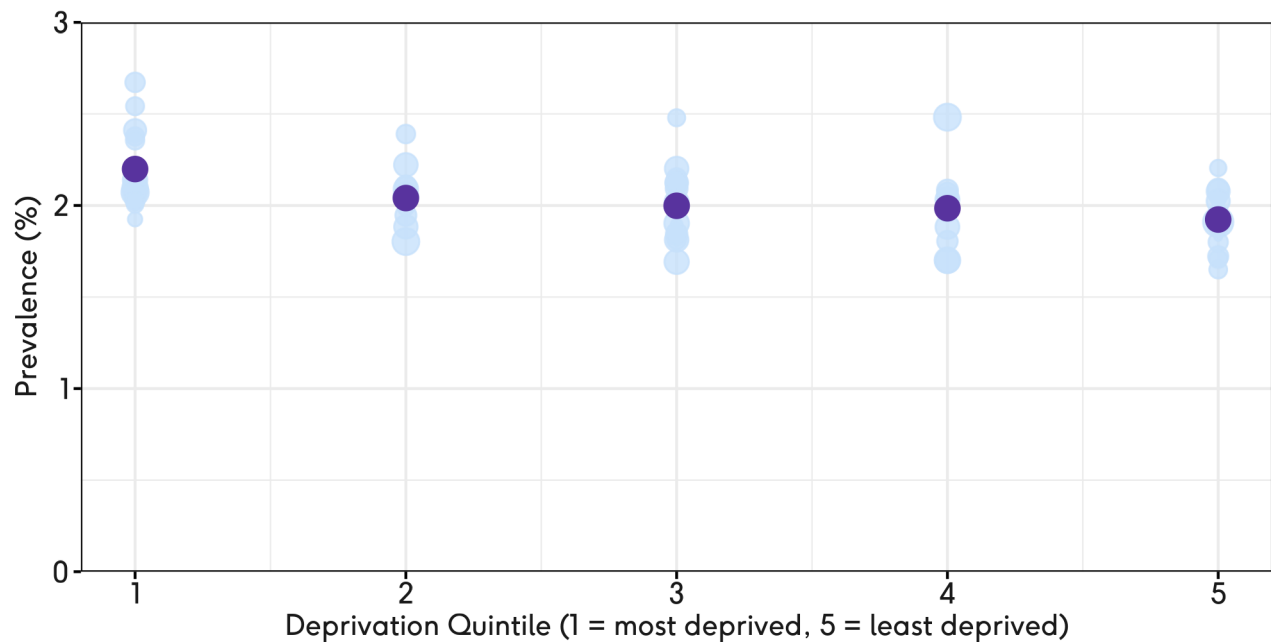
Stroke and transient ischaemic attack

A stroke occurs when the blood supply to part of the brain is cut off, causing brain cells to become damaged. A transient ischaemic attack (TIA), also known as a “mini stroke”, is caused by a temporary disruption in the blood supply to part of the brain. In Wales there are around 7,000 hospital admissions for stroke each year, and over 74,000 people living in Wales have survived a stroke or TIA.²⁰

Figure 7 shows the age-standardised prevalence of diagnosed stroke and TIA in primary care clusters by deprivation quintile. On average, more people living in the most deprived quintile had experienced a stroke or TIA compared to the least deprived (2.2% and 1.9%, respectively). This difference was statistically significant ($p=0.001$).

Figure 7: Age-standardised prevalence of stroke & TIA among GP-registered patients in Primary Care Clusters in Wales, 2024

Size of light blue points corresponds to the number of patients registered in the cluster
Purple points represent the mean prevalence among clusters in each quintile, weighted by list size



Source: Audit+, Digital Health and Care Wales

²⁰ British Heart Foundation Statistics (2026) [Wales factsheet](#)

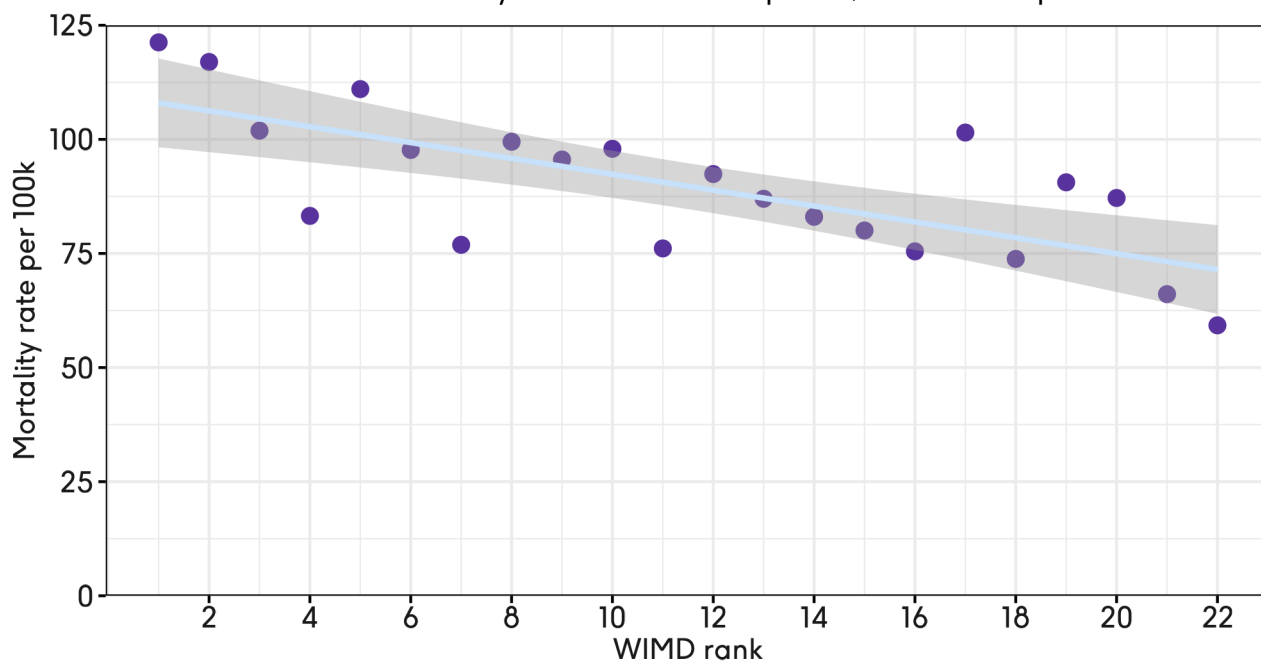
Mortality

CVD causes more than one in four of all deaths in Wales, or around 9,300 each year.²¹ People living in more deprived areas of Wales are far more likely to die from cardiovascular disease at a young age than those living in less deprived areas. This is illustrated in figure 8, which shows the premature (under-75) age-standardised mortality rate from cardiovascular disease in Wales's 22 local authorities by WIMD rank as a three-year average of 2022-24. This displays a clear association between deprivation and CVD mortality at the local authority level, with more deprived areas having significantly higher premature CVD mortality rates than less deprived areas.

Monmouthshire, the least deprived local authority in Wales, had the lowest age-standardised rate of premature death from CVD at 59 per 100,000 people. In Blaenau Gwent, the most deprived local authority, the death rate was more than double this, at 121 per 100k. This was the highest rate of any local authority.

Figure 8: Age-standardised premature (<75) mortality rate from cardiovascular disease in Welsh local authorities, 2022-24

The 22 local authorities are ranked by WIMD. 1 = most deprived, 22 = least deprived



Source: BHF analysis of NOMIS data

Light blue line represents linear regression with standard error

²¹ British Heart Foundation Statistics (2026) [Wales factsheet](#)

4. Discussion

The healthcare journey for cardiovascular disease patients is complex, and health inequalities exacerbate this further. In Wales, there are clear and consistent gaps between the most and least deprived areas when it comes to identifying, diagnosing and treating cardiovascular disease. From the greater burden of risk factors and cardiovascular conditions, to higher rates of premature mortality, the most deprived communities in Wales are at a disadvantage when it comes to their heart health. More broadly, the impact of socio-economic deprivation can be seen in the differences in life expectancy and healthy life expectancy. In 2022–24, in the most deprived areas of Wales, men and women were expected to live 18 and 19 fewer years in “good” health, respectively, compared to people living in the most affluent areas.²² The findings of this report are broadly consistent with the previous version of the report as well as historical data. This evidences the fact that the link between socioeconomic inequality and CVD risk in Wales has been a persistent issue.

Risk factors for CVD

Modifiable risk factors play a large role in determining a person’s risk of developing or dying from CVD. In this report, data from Digital Health and Care Wales and the National Survey for Wales show that, on average, people living in the most deprived areas of Wales have the highest prevalence of hypertension, diabetes, and obesity. Rates of cigarette smoking are also higher compared to the most affluent parts of the country. This demonstrates the need for a national CVD prevention approach in Wales which includes targeted support for specific groups or areas where the risk factor burden for CVD is higher.

We have not presented data for several lifestyle risk factors that were present in the previous version of this report, such as physical activity levels and fruit and vegetable consumption. This is due to a lack of robust recent data resulting from the limited sample size in the 2024/25 National Survey for Wales. For information, a selection of health indicators from this survey are shown in the appendix (Figure A1). Due to their significance as risk factors for CVD, we included the prevalence data for obesity and smoking despite being several years out of date. Robust, annual collection of data on a wide range CVD risk factors, stratified by deprivation level, is

²² Office for National Statistics, [Healthy life expectancy by national area deprivation, England and Wales: between 2013 to 2015 and 2022 to 2024](#)

needed to understand how socioeconomic status can impact the risk of developing CVD, and how this is changing over time.

Prevalence of CVD

The higher prevalence of modifiable risk factors undoubtedly contributes to higher prevalence of CVD in Wales's most deprived communities. Age-standardised prevalence in primary care clusters can shed some light on the effect of deprivation on certain cardiovascular conditions in Wales. The trend is clear, with the communities experiencing the greatest levels of deprivation also living with the greater burden of CVD. This was true for CHD, heart failure, and stroke/MI.

Since the last version of this report was produced, the addition of age-standardised prevalence data by primary care cluster to StatsWales has been a significant improvement. However, age-standardised prevalence statistics for all of Wales, stratified by WIMD, would be valuable to further enhance our understanding of health inequalities in Wales.

Mortality from CVD

Inequality in cardiovascular health in Wales also extends to mortality. Analysis of age-standardised premature cardiovascular mortality in local authorities ranked by WIMD score showed a clear association between deprivation and early death from cardiovascular disease. The rate of premature death from CVD in the most deprived local authority was more than double that of the least deprived.

Limited data in Wales

The lack of deprivation data in several health indicators related to cardiovascular disease in Wales prevents us from commenting on some aspects of the cardiac pathway. This is the case for secondary care, where inconsistencies in data collection makes it impossible to robustly ascertain whether patient deprivation is associated with the number and length of elective and emergency care episodes. StatsWales does provide data on emergency admissions by primary care clusters, but we elected not to include this due to issues with missing diagnosis codes for more than 50% of clusters in the recent data releases.

While we are able to describe some of the disparities in CVD prevalence and mortality across Wales, there is a clear absence of data relating to access and quality of care by deprivation level. This includes data on cardiac rehabilitation and management of cardiovascular

conditions. Access and quality of healthcare is a key element of health inequality, as outlined in the introduction.

5. Limitations

There are several limitations to this analysis. Multiple methods of measuring deprivation were used across the report, with varying levels of certainty. For obesity and smoking data, deprivation quintile was ascertained at a more granular level than the primary care cluster or local authority-level data. Analysing deprivation patterns using higher-level geographies (e.g., cluster-based quintile or local authorities) makes it harder to identify the true association between deprivation and CVD. There can be large disparities in the wider determinants of health within these areas. In these cases, our findings may not represent the true association between deprivation and the CVD metric in question, as outlying areas and populations in these local authorities or primary care clusters may skew the results.

The data used in this analysis were not granular enough to stratify by other patient demographics, which we recognise as another limitation. The effects of deprivation may be confounded by other social and demographic factors. Research utilises intersectionality as a framework that helps illustrate this phenomenon. Simply put, intersectionality describes how converging factors like ethnicity, class, sex, and other individual characteristics interact to exacerbate poor health outcomes. For example, our UK-wide Bridging Hearts report highlights the significant role played by sex, gender and ethnicity in influencing cardiovascular health.²³

6. Conclusions

In summary, there is a clear association between deprivation and cardiovascular disease in Wales. This is the case across the patient journey, from prevention to outcomes; the higher rates of CVD risk factors in more deprived areas are a clear contributor to the stark differences in premature CVD mortality between the most and least deprived communities in Wales. The persistent gap in the prevalence of CVD and its risk factors according to deprivation – despite significant advances in the treatment of CVD over recent decades – is also testament to just how much of the CVD challenge is driven by socioeconomic conditions and not just individual

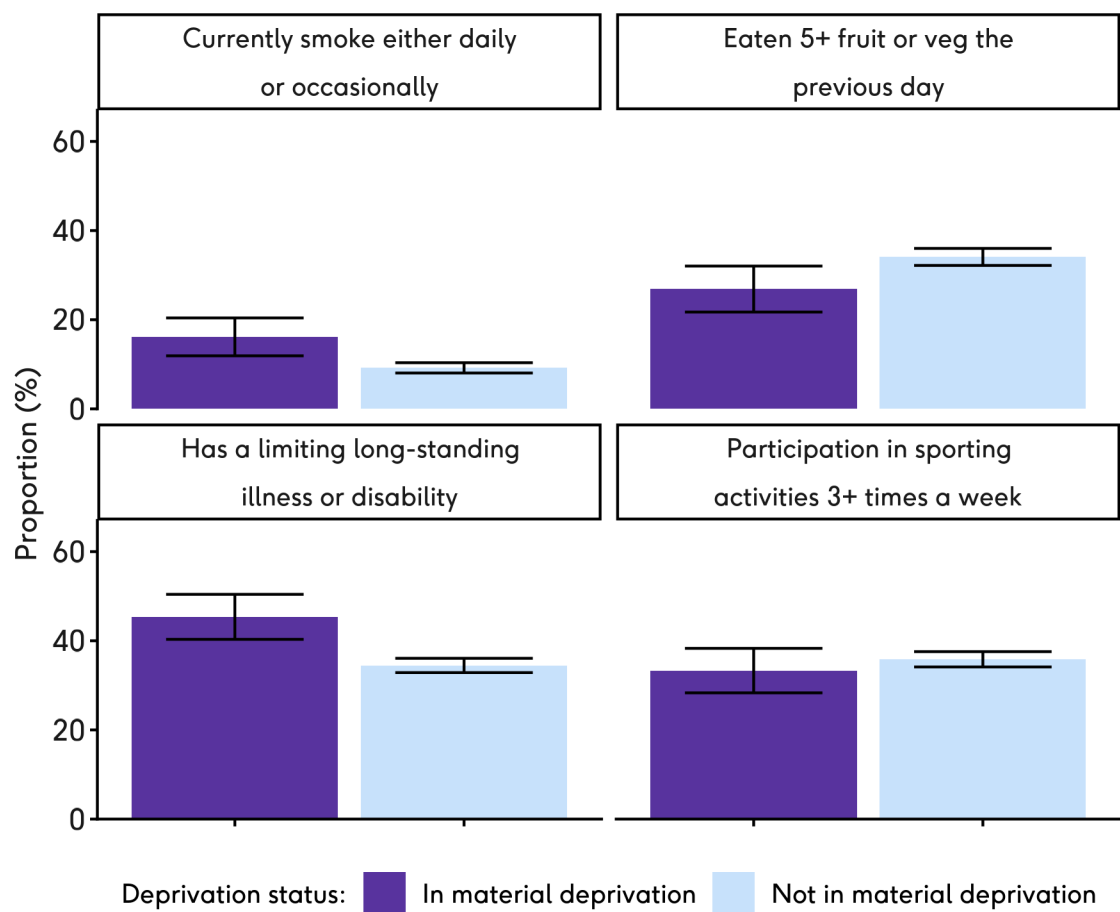
²³ [Bridging Hearts](#), British Heart Foundation, 2025.

differences in lifestyle. This demonstrates the importance of adopting a holistic approach to CVD prevention and health care in Wales.

7. Appendix

Figure A1: Prevalence of lifestyle factors related to CVD risk by household deprivation, Wales, 2024-25

Error bars represent the 95% confidence interval



Source: National Survey for Wales