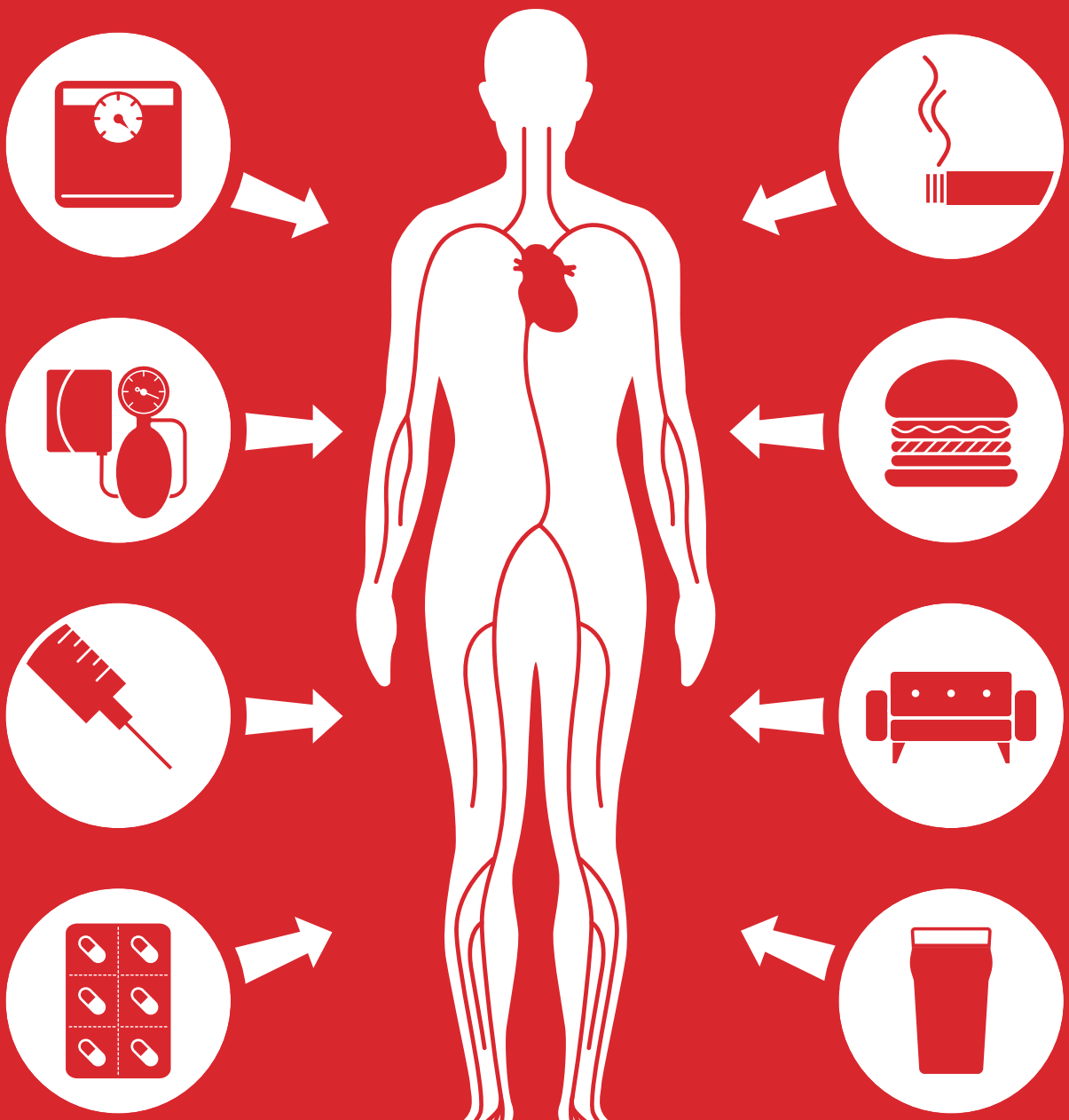
British Heart Foundation

CARDIOVASCULAR DISEASE STATISTICS 2015

British Heart Foundation Centre on Population Approaches for Non-Communicable Disease Prevention. Nuffield Department of Population Health, University of Oxford



FIGHT FOR EVERY HEARTBEAT

bhf.org.uk

ISBN 978-1-899088-32-4

Published by the British Heart Foundation, Greater London House, 180 Hampstead Road, London NW1 7AW

bhf.org.uk

Registered charity in England and Wales (225971) and in Scotland (SC039426)

Edited by Ed Dicks, British Heart Foundation

Compiled by Nick Townsend, Prachi Bhatnagar, Elizabeth Wilkins, Kremlin Wickramasinghe and Mike Rayner, British Heart Foundation Centre on Population Approaches for Non-Communicable Disease Prevention, Nuffield Department of Population Health, University of Oxford, Old Rd Campus, Headington, Oxford OX3 7LF
www.ndph.ox.ac.uk/bhfcpnp

Suggested citation:

Townsend N, Bhatnagar P, Wilkins E, Wickramasinghe K, Rayner M (2015). *Cardiovascular disease statistics, 2015.* British Heart Foundation: London.

CARDIOVASCULAR DISEASE STATISTICS, 2015

BRITISH HEART FOUNDATION CENTRE ON POPULATION APPROACHES FOR NON-COMMUNICABLE DISEASE PREVENTION

Nick Townsend, Prachi Bhatnagar, Elizabeth Wilkins, Kremlin Wickramasinghe and Mike Rayner. Nuffield Department of Population Health, University of Oxford

CONTENTS

CARDIOVASCULAR DISEASE STATISTICS, 2015 BRITISH HEART FOUNDATION

FOREWORD

This year, in addition to presenting our usual snapshot of the latest UK heart health statistics, this edition of *Cardiovascular disease statistics* also presents trend data relating to cardiovascular disease (CVD) in the UK over recent years. The British Heart Foundation (BHF) was founded 54 years ago to fund CVD research by doctors who were concerned about the seemingly unstoppable epidemic of coronary heart disease that was afflicting the UK at the time. The statistics presented here are a testament to the impressive progress that has been made since then.

Particularly satisfying are the continuing decreases in CVD death rates for all of the UK. Since 1980 age-standardised death rates from CVD have decreased by over two thirds for people of all ages and by more than three quarters for those under the age of 75 years. A number of factors have contributed to this success, including lifestyle changes such as smoking cessation and improved diet, as well as the increased use of drugs to treat risk factors such as high blood pressure and cholesterol and improved treatment of acute heart attacks and strokes in our hospitals. All of these changes have come about to a greater or lesser extent as a consequence of the BHF's research and activities.

But despite this success, or even as a consequence of it, the number of hospital admissions for cardiovascular disease across the UK continues to grow as more and more people are living with the consequences of having survived a damaging heart attack or stroke, placing a heavy burden on our already stretched health and social services. GP patient data show a stubbornly high prevalence for many cardiovascular conditions. Each week in the UK thousands of patients suffer a heart attack or stroke. And whilst average mortality rates are falling, there are substantial regional and gender variations in the incidence of cardiovascular events that reflect inequalities in prevention and treatment. There is still an awful lot more to do to improve the cardiovascular health of our population.

Only by collecting accurate data on risk factors and unhealthy behaviours in the populations most at risk of cardiovascular disease can we hope, through research, to devise ways of reducing this continuing burden of disease so that people can live, not just longer, but healthy lives.

Professor Peter Weissberg
Medical Director, British Heart Foundation

INTRODUCTION

In this, the twentieth edition of statistics related to heart disease published by the British Heart Foundation, we present trends in *Cardiovascular disease statistics* in the UK spanning the last thirty years or more. This builds on our *Trends in Coronary Heart Disease, 1961–2011* report published in 2011 that presented statistics back to the inception of the BHF.

The compendium is divided into six chapters. Chapter one describes mortality from cardiovascular disease (CVD), including total CVD, coronary heart disease (CHD) and stroke. Data are presented for all ages and for those under 75 years (premature mortality), by gender and region. This includes trends in age-standardised death rates for CVD, CHD and stroke covering the last thirty years. This is the first time these have been calculated using the 2013 European Standard Population. Chapter two describes the current morbidity burden of cardiovascular disease in the UK along with trends in incidence and prevalence. Hospital episode statistics are used as a proxy for incidence whilst prevalence data come from health surveys from UK countries and for Great Britain, along with Quality and Outcomes Framework data for the whole of the UK.

Chapter three includes statistics on the treatment of CVDs, presenting trends in the prescribing of drugs for treating CVD for all UK nations. Trends and current statistics on surgical interventions for CVD such as the use of percutaneous coronary interventions (PCIs) and coronary artery bypass grafts (CABGs) are also presented, along with transplant rates and out-of-hospital cardiac arrest survival data. For the first time costs of treating CVD are included for all UK countries in chapter four, with these broken down by region where possible. Chapter five presents summary statistics on the main medical risk factors of CVD: obesity, blood pressure, diabetes and cholesterol. Chapter six presents summary statistics for key behavioural risk factors: smoking, diet, physical inactivity and alcohol consumption.

Chapters one to four contain a set of tables and figures to illustrate key points and a brief review of the data presented. These include graphs of the most recent statistics along with those for trends over previous years, sometimes decades. Chapters five and six present summary statistics and links to health surveys where more information can be found. More statistics around risk factors, along with all the tables and figures included in this publication, are available from the British Heart Foundation's website at **bhf.org.uk/statistics** The website aims to be the most comprehensive source of statistics on cardiovascular disease in the UK; it is updated on a regular basis and contains a wider range of tables and figures than is available in the *Cardiovascular disease statistics* series of publications. Copies of this publication can be downloaded or ordered from the website, along with supplements to the *Cardiovascular disease statistics* series and other titles, including:

- Physical Activity Statistics (2015)
- Children and Young People Statistics (2013)
- European Cardiovascular Disease Statistics (2012)
- Trends in Coronary Heart Disease, 1961–2011 (2011)

SUMMARY

Chapter 1 MORTALITY

This section reports on cardiovascular disease (CVD) mortality in the United Kingdom, in the context of mortality from other chronic conditions; along with regional and seasonal differences and trends in CVD, coronary heart disease (CHD) and stroke.

- Diseases of the heart and circulatory system (or CVD) were the second most common cause of death in the United Kingdom in 2014, with a total of around 155,000 deaths. In 2014, CVD caused 27% of all deaths and cancers caused 29%.
- One quarter of premature deaths in men and 17% of premature deaths in women were from CVD in 2014. In total there were almost 41,000 premature deaths from CVD in the UK.
- CHD by itself is the biggest single cause of death in the UK. In 2014, 15% of male deaths and 10% of female deaths were from CHD, a total of around 69,000 deaths.
- Around 39,000 deaths were from stroke in 2014, with 6% and 8% of deaths from stroke in men and women respectively.
- Between 1980 and 2013, age-standardised CVD death rates declined by 69% in England, 67% in Wales and Scotland, and 74% in Northern Ireland.
- Between 1974 and 2013, UK age-standardised CHD death rates declined by 73% in those dying at any age and 81% for those dying before age 75.
- There is a pattern of excess winter cardiovascular mortality in the UK. In 2012/13, over 7,000 more people died of CVD in the winter months in England, Scotland and Wales. Between 2010/11 and 2012/13, excess winter mortality from CVD increased for those aged over 65.
- Age-standardised death rates in people aged below 75, for CVD, CHD and stroke, were highest in Scotland and the North of England; the lowest rates were found in the South of England.

Chapter 2 MORBIDITY

This section presents UK statistics for the incidence and prevalence of cardiovascular disease (CVD) and conditions including coronary heart disease (CHD), myocardial infarction (heart attack), heart failure and stroke.

- In the United Kingdom, there were almost 1.7 million episodes related to cardiovascular disease (CVD) in NHS hospitals, accounting for 10% of all inpatient episodes among men and 6.2% among women.
- The proportion of inpatient episodes attributed to CHD was more than twice as high among men as among women, accounting for 3.4% of all inpatient episodes in men and 1.4% in women in the United Kingdom.
- The number of hospital episodes attributed to CVD has been increasing in all UK nations in recent years.
- The incidence of other cardiovascular disease (not CHD or stroke) showed the greatest rises, increasing by 30% between 2005/06 and 2013/14 in England.
- Comparing between UK nations the prevalence of CVD is lowest in England. Within England prevalence rates are highest in the north.
- Using Quality and Outcomes Framework (QOF) data, the prevalence of CHD has decreased in all UK nations in recent years, whilst the prevalence of other conditions (including atrial fibrillation and stroke) has either increased or remained stable.

Chapter 3 TREATMENT

This chapter reports on different methods of treatment for cardiovascular disease (CVD), with a focus on treatments for coronary heart disease (CHD). The chapter includes tables and figures on the number of prescriptions, operations and cardiac arrest survival in the UK.

- In 2014, more than 313 million prescriptions were dispensed for CVD in England, more than six times as many as issued in 1981.
- In 2014, around 23 million prescriptions were dispensed for CVD in Wales, more than 24 million in Scotland and close to 9 million in Northern Ireland.
- Over 92,000 percutaneous coronary interventions (PCI) were carried out in the UK in 2013, more than two times higher than a decade ago.
- Aortic valve replacement has increased since 2003. In 2012 there were 4,561 isolated aortic valve replacements and a further 3,263 aortic valve replacements with coronary artery bypass graft surgery (CABGs) in the UK.
- Although the number of mitral valve repairs in the UK has increased since 2003 the number of mitral replacements has decreased. In 2012 there were 1,456 isolated mitral valve repairs and 638 isolated mitral valve replacements. There were a further 820 mitral valve surgeries with CABG in the UK.
- In 2014/15, there were 180 heart transplants, plus a further three heart/lung transplants. The overall heart transplant rate was 2.8 per million population, this was higher than found in 2010/11 when 126 heart transplants were performed (2.0 per million).
- In 2014, there were nearly 30,000 resuscitation attempts for out-of-hospital cardiac arrests (OHCA) in England and 8.8% of patients were discharged alive from hospital.

Chapter 4 HEALTHCARE COSTS

This chapter describes the burden of cardiovascular disease (CVD) within the UK. It presents total costs and costs per person to the NHS of treating CVD broken down by subtype, by NHS care setting and region for England. Costs by region and CVD subtype are also presented for Wales and Northern Ireland, and for the first time costs by care setting and condition are presented for Scotland.

- Data from Clinical Commissioning Groups (CCGs) do not cover as great a range of healthcare costs as previous data, with £4.3 billion spent on treating CVD through CCGs within the NHS in England in 2013/14.
- At 40% unscheduled care was the largest component of CCG CVD-related spending, with 23% within primary prescribing and 22% in scheduled care.
- Smaller CCGs with older populations and more rural areas demonstrated the highest expenditure per head (£87) and those in mixed communities in Inner London the lowest (£56).
- London had the lowest costs for CVD per head (£68) and the highest costs in England were in the North region.
- Expenditure data from the programme budget returns in Wales reported that in 2013/14 expenditure on CVD by the NHS within Wales came to more than £430 million.
- 2013/14 Welsh data showed that Powys Teaching LHB has the highest costs per head of population (£179) and Cardiff & Vale UHB the lowest (£106).
- Costs for inpatient episodes and day case attendances in acute hospital settings in Northern Ireland show the total expenditure on CVD in Northern Ireland in 2013/14 to be £393 million.
- Expenditure per head of population was greatest in Belfast (£448), more than twice that found for Northern Ireland as a whole (£215). The lowest expenditure by population is found in the Northern Trust with £128 spent on CVD per person.
- Programme budgeting data for Scotland show that in 2011/12 close to £800 million was spent on treating CVD, equating to more than £150 per person in the country.

GLOSSARY

This section provides a definition for some of the terms used throughout Cardiovascular disease statistics 2015 edition.

Age-standardised rate – a measure of the rate that a population would experience if it had a standard age structure. It is useful to present rates as age-standardised, as it allows for comparisons between populations with very different age structures.

Angina – the most common form of coronary heart disease. It is characterised by a heaviness or tightness in the centre of the chest which may spread to the arms, neck, jaw, face, back and/or stomach. Angina occurs when the arteries of the heart become narrow and not enough oxygen-rich blood can reach the heart muscle, especially when its demands are high, such as during exercise.

Angioplasty – a technique to widen a narrowed or obstructed blood vessel by inflating tightly folded balloons that have been passed into the narrowed location via a catheter. This technique squashes the fatty tissue that has caused the narrowing, hence widening the artery.

Atherosclerosis – a disease characterised by chronic inflammation in the artery walls. The disease is commonly referred to as 'hardening' or 'furring' of the arteries.

Atrial fibrillation – a heart condition that causes an irregular and often abnormally fast heart rate.

Blood pressure – the physical pressure of blood in the blood vessels. It is similar to the concept of air pressure in a car tyre. These values are quoted in units known as millimetres of mercury (mmHg). See systolic pressure and diastolic pressure.

Body Mass Index (BMI) – a formula relating body weight to height to assess whether a person is overweight. BMI is calculated by dividing a person's weight (in kilograms) by their height (in metres) squared. Adults with a BMI of 25-30 are considered to be overweight. Those with a BMI of over 30 are considered obese.

British National Formulary (BNF) – a publication that provides key information on the selection, prescribing, dispensing and administration of all medicines that are generally prescribed in the UK.

Cardiovascular disease (CVD) – the collective term for all diseases affecting the heart and blood vessels.

Cerebrovascular disease – the collective term for all diseases affecting blood vessels that supply the brain. Technically, stroke (and the many subtypes of stroke) is a subset of cerebrovascular disease, but the two terms are often used interchangeably.

Coronary Artery Bypass Graft (CABG) – an operation to bypass a narrowed section of a coronary artery and improve the blood supply to the heart muscle.

Coronary Heart Disease (CHD) – the collective term for diseases that occur when the walls of the coronary arteries become narrowed by a gradual build-up of fatty material called atheroma. The two main forms of CHD are heart attack (also known as myocardial infarction) and angina.

Diabetes – a disease caused by a lack of insulin (type 1) or an increased resistance of the body to insulin (type 2). Diabetes is characterised by high blood glucose levels. The resulting chronic high blood glucose levels (hyperglycaemia) are associated with long-term damage, dysfunction and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels.

Diastolic blood pressure – A common blood pressure reading might be 120/80 mmHg. The lower pressure (80) represents the pressure in the arteries when the heart is relaxed between beats. This pressure is called diastolic pressure.

The European Standard Population (ESP) – an artificial population structure, which is used in the weighting of mortality or incidence data to produce age-standardised rates. The ESP was updated in 2013 to better reflect the age distribution of Europe.

HDL (High-density Lipoprotein) cholesterol – the fraction of cholesterol that removes cholesterol (via the liver) from the blood. Low levels of HDL-cholesterol are associated with an increased risk of atherosclerosis.

Heart attack – a condition where the heart muscle is starved of oxygen, most commonly caused by a blockage of one of the coronary arteries. A heart attack usually causes severe pain in the centre of the chest. The pain usually feels like a heaviness or tightness which may also spread to the arms, neck, jaw, face, back or stomach. There may also be sweating, light-headedness, nausea and/or shortness of breath. Sometimes a heart attack can be 'silent' and produce little or no discomfort.

Heart failure – a clinical syndrome which occurs when the heart muscle is unable to pump blood as efficiently around the body. It occurs because the heart is damaged or overworked. Some people with minor heart failure may have few or no symptoms. People with moderate or severe heart failure often suffer from a number of problems, including shortness of breath, general tiredness and swelling of the feet and ankles.

Hospital Inpatient Episodes – periods of continuous admitted patient care under the same consultant.

Hypertension – a clinical condition of having a high blood pressure. Mostly it is considered blood pressures of 140/90 mmHg and greater to be high although this is influenced by other factors.

Incidence – a measure of morbidity based on the number of new episodes of an illness arising in a population over a defined time period.

International Classification of Disease (ICD) – a coding system published by the World Health Organization that provides an internationally recognised method of coding diseases in order to categorise mortality and morbidity statistics. The ICD is revised approximately every ten years. The tenth and most recent revision (ICD-10) was introduced in 2000. Change between revisions can result in discontinuities in mortality and morbidity trends, such as the move from ICD-9 to ICD-10 which resulted in an artificial increase in the number of reported stroke incidents and mortalities.

LDL (Low-density Lipoprotein) cholesterol – the more harmful fraction of cholesterol which carries cholesterol from the liver to the cells of the body and causes atherosclerosis.

Mitral valve – also called the bicuspid valve, the mitral valve separates the upper left heart chamber (left atrium) from the lower left heart chamber (left ventricle), and helps control blood flow through the heart.

Myocardial infarction (MI) – see heart attack.

Percutaneous Coronary Intervention (PCI) – a minimally invasive approach to open narrowed coronary arteries (see angioplasty) by accessing them through small needle-size punctures in the skin.

Peripheral Arterial Disease (PAD) – a condition in which a build-up of fatty deposits in the arteries restricts blood supply to parts of the body, most commonly the legs. It is also known as peripheral vascular disease (PVD).

Prevalence – a measure of morbidity based on the current level of a disease in the population at any particular time.

Primary prevention – interventions aimed at reducing the risk of disease before the disease has presented. Primary prevention interventions are usually aimed at populations, such as regulation of tobacco advertising.

Secondary prevention – interventions aimed at reducing the risk of disease recurrence after the disease has initially presented. Secondary prevention interventions are therefore targeted at individuals who have already experienced symptoms of or have been diagnosed with a disease.

Stent – a short tube of expandable mesh which is inserted at the part of the artery that is to be widened by coronary angioplasty. It helps to keep the artery open and prevent re-narrowing.

Stroke – the consequence of an interruption to the flow of blood to the brain. A stroke can vary in severity from a passing weakness or tingling of a limb to a profound paralysis, coma and/or death.

Systolic blood pressure – a common blood pressure reading might be 120/80 mmHg. The higher pressure (120) represents the pressure in the arteries when the heart beats, pumping blood into the arteries. This pressure is called systolic pressure.

Transient Ischaemic Attacks (TIA) – a temporary disruption in the blood supply to part of the brain. Sometimes called a mini-stroke, a TIA does not last as long as a stroke. The effects are usually fully resolved within 24 hours.

Waist Circumference (WC) – a measure of central obesity, where fat is concentrated in the abdomen. For men, central obesity is defined as a waist circumference greater than 102cm. For women, central obesity is defined as a waist circumference of greater than 88cm.

Chapter 1

MORTALITY

This chapter reports on cardiovascular disease (CVD) mortality in the United Kingdom. It presents CVD mortality in the context of mortality from other chronic conditions; local, regional and seasonal differences and trends over time in CVD, coronary heart disease (CHD) and stroke. Where possible, the latest data along with historical trend data from routinely collected, national datasets have been used.

We age-standardise all rates in this chapter to the 2013 European Standard Population (ESP). Mortality rates are standardised to the ESP in order to account for different age structures between populations in different regions and across time. Mortality is related strongly to age; therefore, by accounting for the age structure of a population, we are able to compare mortality rates between populations and time periods with very different age structures. The ESP is a theoretical population that has been designed to reflect the average age structure of all European populations. By standardising rates to this population, we are comparing mortality rates as if all deaths had occurred in populations with the age structures of the European Standard population.[1]

The 2013 ESP is an update from 1976 and reflects the older age structure of the present population of Europe. As CVD affects older age groups more than younger age groups, the larger number of older people in the 2013 ESP means that any age-standardised rates for CVD mortality calculated will be higher than if they were calculated using the old 1976 ESP. This means that the trends in ESP 2013 age-standardised mortality rates presented in this publication are not comparable to the trends that have been presented in older publications.

Within this chapter we present a selection of key tables and maps on mortality in the UK. A full selection of maps and tables related to mortality from CVD, CHD and stroke in men and women, for all ages and under-75s can be found on the BHF website at **bhf.org.uk/statistics**

TOTAL MORTALITY

In 2014, cardiovascular disease (CVD) was the second biggest cause of death in the United Kingdom, causing 27 per cent of all deaths while cancer caused 29 per cent. CVD is no longer the biggest cause of death for women, causing 26 per cent of all female deaths; cancer was responsible for 27 per cent in 2014. In men, 28 per cent of deaths were from CVD and 32 per cent were from cancer **(Table 1.1, Figures 1.1a and 1.1b)**.

The main forms of CVD are coronary heart disease (CHD) and stroke; just under half (45 per cent) of CVD deaths were from CHD and a quarter were from stroke (25 per cent). CHD by itself is the biggest single cause of death in the UK. In 2014, 15 per cent of male deaths and 10 per cent of female deaths were from CHD, a total of just over 69,000 deaths. The third biggest single cause of death is cerebrovascular disease (stroke). Around 39,000 deaths were from stroke, responsible for 6 per cent of all deaths in men and 8 per cent of all deaths in women **(Table 1.1, Figures 1.1a and 1.1b)**.

Other heart diseases caused 17 per cent of all CVD deaths, and were mainly due to pulmonary heart diseases, heart failure and atrial fibrillation. About 19 per cent of CVD deaths in women were from other heart diseases, compared to 14 per cent in men. Of people dying from CVD under the age of 35, almost half (49 per cent) of these deaths were from these other heart diseases **(Table 1.1, Figures 1.1a and 1.1b)**.

Table 1.1
Deaths by cause, by gender and age, United Kingdom 2014

		All ages	Under 35	35-44	45-54	55-64	65-74	75-84	85+
All causes	Men	278,455	7,232	6,244	14,139	27,734	55,484	86,823	80,799
	Women	291,886	4,315	3,839	9,495	18,871	39,532	79,610	136,224
	Total	570,341	11,547	10,083	23,634	46,605	95,016	166,433	217,023
All diseases of the circulatory system (cardiovascular disease) (I00-I99)	Men	78,240	433	1,153	3,722	7,605	15,034	25,667	24,626
	Women	76,399	239	509	1,423	3,049	7,845	21,568	41,766
	Total	154,639	672	1,662	5,145	10,654	22,879	47,235	66,392
Chronic rheumatic heart diseases (I05-I09)	Men	319	3	10	8	31	61	124	82
	Women	611	3	7	22	31	81	237	230
	Total	930	6	17	30	62	142	361	312
Hypertensive diseases (I10-I15)	Men	2,743	6	42	153	272	504	779	987
	Women	3,975	2	12	52	143	346	962	2,458
	Total	6,718	8	54	205	415	850	1,741	3,445
Coronary heart disease (I20-I25)	Men	41,364	98	544	2,285	4,911	8,997	13,421	11,108
	Women	27,799	33	133	540	1,385	3,392	8,331	13,985
	Total	69,163	131	677	2,825	6,296	12,389	21,752	25,093
Other heart diseases (I26-I52)	Men	11,090	206	246	516	831	1,637	3,273	4,381
	Women	14,737	120	122	244	461	1,150	3,565	9,075
	Total	25,827	326	368	760	1,292	2,787	6,838	13,456
Stroke (I60-I69)	Men	16,222	74	204	480	984	2,419	5,724	6,337
	Women	23,060	53	148	401	720	2,007	6,374	13,357
	Total	39,282	127	352	881	1,704	4,426	12,098	19,694
Diseases of arteries, arterioles and capillaries (I70-I79)	Men	4,629	17	39	115	308	963	1,791	1,396
	Women	3,891	6	28	47	106	472	1,353	1,879
	Total	8,520	23	67	162	414	1,435	3,144	3,275
Diseases of veins, lymphatic vessels and lymph nodes* (I80-I89)	Men	1,251	22	54	140	208	307	328	192
	Women	1,656	19	50	93	158	301	526	509
	Total	2,907	41	104	233	366	608	854	701

		All ages	Under 35	35-44	45-54	55-64	65-74	75-84	85+
All cancer (C00-D48)	Men	88,666	683	1,020	4,034	11,601	24,448	29,372	17,508
	Women	78,916	727	1,474	4,627	10,019	18,909	24,092	19,068
	Total	167,582	1,410	2,494	8,661	21,620	43,357	53,464	36,576
Colo-rectal cancer (C18-C21)	Men	8,727	44	106	406	1,153	2,298	2,933	1,787
	Women	7,563	50	107	326	751	1,452	2,473	2,404
	Total	16,290	94	213	732	1,904	3,750	5,406	4,191
Lung cancer (C33,C34)	Men	19,602	15	132	781	2,877	6,454	6,567	2,776
	Women	16,361	12	78	695	2,459	5,052	5,202	2,863
	Total	35,963	27	210	1,476	5,336	11,506	11,769	5,639
Breast cancer (C50)	Women	11,384	94	468	1,334	1,765	2,353	2,685	2,685
Prostate cancer (C61)	Men	11,301	1	3	73	583	2,302	4,309	4,030
Respiratory disease (J00-J99)	Men	36,344	193	195	671	2,163	6,503	12,541	14,078
	Women	38,938	172	164	504	1,756	5,092	11,336	19,914
	Total	75,282	365	359	1,175	3,919	11,595	23,877	33,992
Diabetes (E10-E14)	Men	3,018	68	84	151	293	575	1,009	838
	Women	3,295	32	39	85	170	428	970	1,571
	Total	6,313	100	123	236	463	1,003	1,979	2,409
Dementia and Alzheimer's (F01-03, G30)	Men	19,187	–	–	9	140	1,213	6,557	11,268
	Women	38,724	–	–	10	142	1,205	9,129	28,238
	Total	57,911	–	–	19	282	2,418	15,686	39,506

Notes ICD-10 codes in parentheses. ¶ *Not classified elsewhere ¶ This table compiles data from the four countries of the UK. In Northern Ireland and Scotland, the data for lung cancer only includes ICD-10 code C34. Source England and Wales, Office for National Statistics (2015) Deaths registered by cause, gender and age. www.statistics.gov.uk (accessed July 2015). ¶ Scotland, National Records of Scotland (2015) Deaths, by gender, age and cause. http://www.nrscotland.gov.uk/ (accessed September 2015). ¶ Northern Ireland, Statistics and Research Agency (2015) Deaths by sex, age and cause http://www.nisra.gov.uk/ (accessed July 2015)

Cardiovascular disease causes more than 1 in 4 deaths in the UK

Figure 1.1a
Deaths by cause in men, United Kingdom 2014

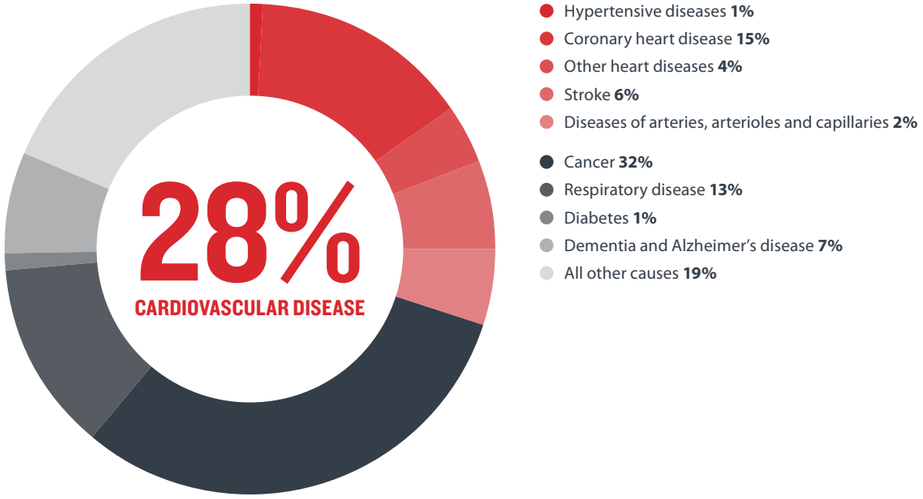
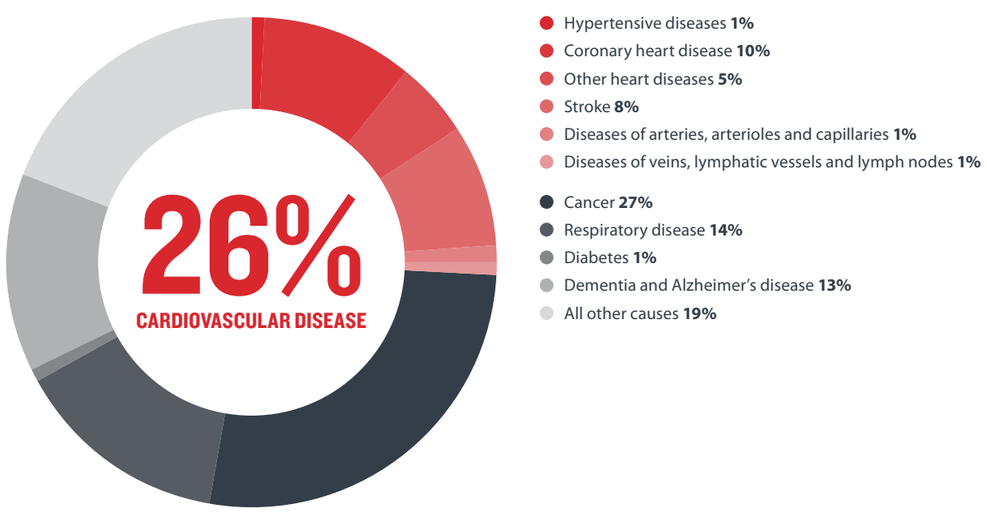


Figure 1.1b
Deaths by cause in women, United Kingdom 2014



PREMATURE MORTALITY

In the UK death before the age of 75 years is routinely considered to be premature. One quarter of premature deaths in men and around 17 per cent of premature deaths in women were from cardiovascular disease (CVD) in 2014. In total that year, there were over 41,000 premature deaths from CVD in the UK.

Coronary heart disease (CHD) by itself is the most common cause of premature death in the UK in men. About 15 per cent of male premature deaths in 2014 were from CHD, equating to around 16,800 deaths under the age of 75. In women, CHD by itself caused just under 7 per cent of premature deaths, equating to almost 5,500 deaths. Stroke accounted for about 7,500 premature deaths while other heart diseases totalled 5,500 (**Table 1.2, Figures 1.2a and 1.2b**).

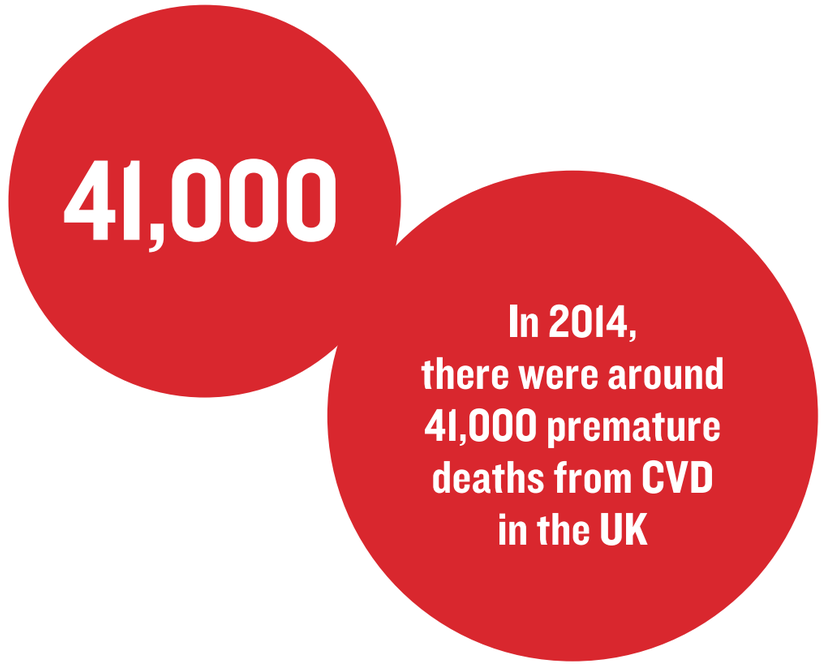


Table 1.2
Deaths by cause, by gender and age, England, Wales, Scotland and Northern Ireland 2014

		All ages				Under 75			
		England	Wales	Scotland	Northern Ireland	England	Wales	Scotland	Northern Ireland
All causes	Men	229,116	15,341	26,289	7,024	89,335	6,100	11,749	3,131
	Women	239,759	16,098	27,950	7,654	61,155	4,204	8,212	2,190
	Total	468,875	31,439	54,239	14,678	150,490	10,304	19,961	5,321
All diseases of the circulatory system (cardiovascular disease) (I00-I99)	Men	64,181	4,460	7,464	1,859	22,506	1,599	2,936	706
	Women	62,501	4,348	7,552	1,860	10,392	770	1,475	347
	Total	126,682	8,808	15,016	3,719	32,898	2,369	4,411	1,053
Chronic rheumatic heart diseases (I05-I09)	Men	263	27	24	5	94	12	6	1
	Women	491	42	54	22	111	11	17	3
	Total	754	69	78	27	205	23	23	4
Hypertensive diseases (I10-I15)	Men	2,314	140	240	37	796	69	92	12
	Women	3,446	200	260	67	477	29	40	8
	Total	5,760	340	500	104	1,273	98	132	20
Coronary heart disease (I20-I25)	Men	33,802	2,348	3,989	1,056	13,529	923	1,806	447
	Women	22,562	1,575	2,883	726	4,298	328	666	160
	Total	56,364	3,923	6,872	1,782	17,827	1,251	2,472	607
Other heart diseases (I26-I52)	Men	9,114	611	1,091	243	2,752	178	405	82
	Women	12,202	854	1,286	368	1,667	124	228	64
	Total	21,316	1,465	2,377	611	4,419	302	633	146
Stroke (I60-I69)	Men	13,208	963	1,605	423	3,345	260	427	115
	Women	18,579	1,353	2,518	579	2,661	189	380	82
	Total	31,787	2,316	4,123	1,002	6,006	449	807	197
Diseases of arteries, arterioles and capillaries (I70-I79)	Men	4,307	287	431	75	1,306	112	134	30
	Women	3,655	224	457	75	599	54	88	15
	Total	7,962	511	888	150	1,905	166	222	45
Diseases of veins, lymphatic vessels and lymph nodes* (I80-I89)	Men	1,161	84	83	20	681	45	66	19
	Women	1,546	99	92	21	576	35	55	14
	Total	2,707	183	175	41	1,257	80	121	33

		All ages				Under 75			
		England	Wales	Scotland	Northern Ireland	England	Wales	Scotland	Northern Ireland
All cancer (C00-D48)	Men	73,062	4,867	8,311	2,248	33,933	2,350	4,210	1,166
	Women	64,434	4,323	7,856	2,167	28,923	2,020	3,665	1,040
	Total	137,496	9,190	16,167	4,415	62,856	4,370	7,875	2,206
Colo-rectal cancer (C18-C21)	Men	7,165	538	802	207	3,247	264	371	115
	Women	6,153	408	773	221	2,157	141	303	82
	Total	13,318	946	1,575	428	5,404	405	674	197
Lung cancer (C33,C34)	Men	15,856	1,070	2,119	524	8,195	566	1,175	300
	Women	12,993	899	1,998	454	6,502	492	1,048	243
	Total	28,849	1,969	4,117	978	14,697	1,058	2,223	543
Breast cancer (C50)	Women	9,497	577	966	321	4,956	312	534	191
Prostate cancer (C61)	Men	9,529	613	906	242	2,456	150	286	66
Respiratory disease (J00-J99)	Men	30,086	2,145	3,143	931	7,916	559	974	254
	Women	31,971	2,299	3,563	1,073	6,157	450	877	188
	Total	62,057	4,444	6,706	2,004	14,073	1,009	1,851	442
Diabetes (E10-E14)	Men	2,362	176	376	99	870	76	176	46
	Women	2,602	166	424	100	565	29	133	24
	Total	4,964	342	800	199	1,435	105	309	70
Dementia and Alzheimer's (F01-03, G30)	Men	16,175	994	1,575	435	1,118	86	122	36
	Women	32,286	2,022	3,340	1,063	1,106	62	137	52
	Total	48,461	3,016	4,915	1,498	2,224	148	259	88

Notes ICD-10 codes in parentheses. ¶ *Not classified elsewhere. ¶ This table compiles data from the four countries of the UK. ¶ The data shown here do not add up to the United Kingdom totals in Table 1.1, as the separate England and Wales figures are only for people who were residing in the country at the time of death; therefore the mortality figures for England and Wales separately are different to the published mortality figures for England & Wales together. Source England and Wales, Office for National Statistics (2015) Personal communication. ¶ Scotland, National Records of Scotland (2015) Deaths, by gender, age and cause. http://www.nrscotland.gov.uk/ (accessed September 2015). ¶ Northern Ireland, Statistics and Research Agency (2015) Deaths by sex, age and cause http://www.nisra.gov.uk/ (accessed July 2015)

Coronary heart disease (CHD) is the most common cause of death in the UK

Figure 1.2a
Deaths by cause in men under 75, United Kingdom 2014

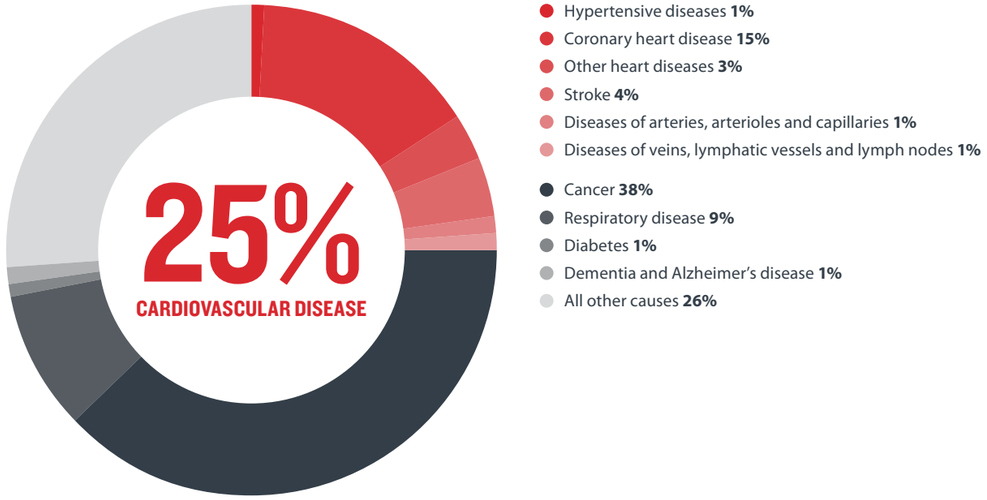
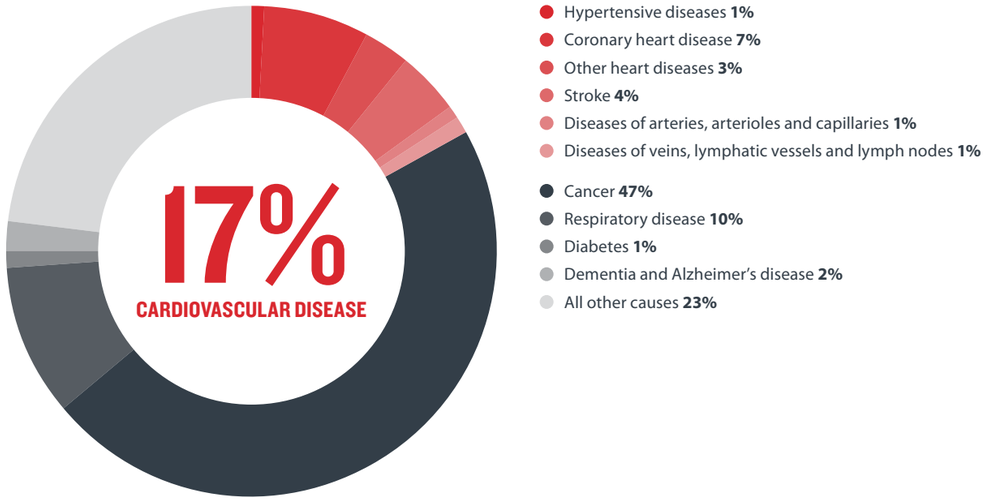


Figure 1.2b
Deaths by cause in women under 75, United Kingdom 2014



TRENDS IN AGE-STANDARDISED MORTALITY RATES

Age-standardised death rates from CVD, CHD and stroke have been declining in the UK since 1969, for both deaths at all ages and premature deaths under 75. Deaths for CVD were coded differently in Northern Ireland until 1979 and so rates before this year would not be comparable with the rest of the UK. Between 1980 and 2013, age-standardised CVD death rates declined by 69 per cent in England, 67 per cent in Wales and Scotland, and 74 per cent in Northern Ireland (**Table 1.3, Figure 1.3**). Premature death rates also declined significantly during the same period, with a 77 per cent decrease for England, 76 per cent for Wales, 75 per cent for Scotland and 82 per cent for Northern Ireland (**Table 1.4, Figure 1.4**).

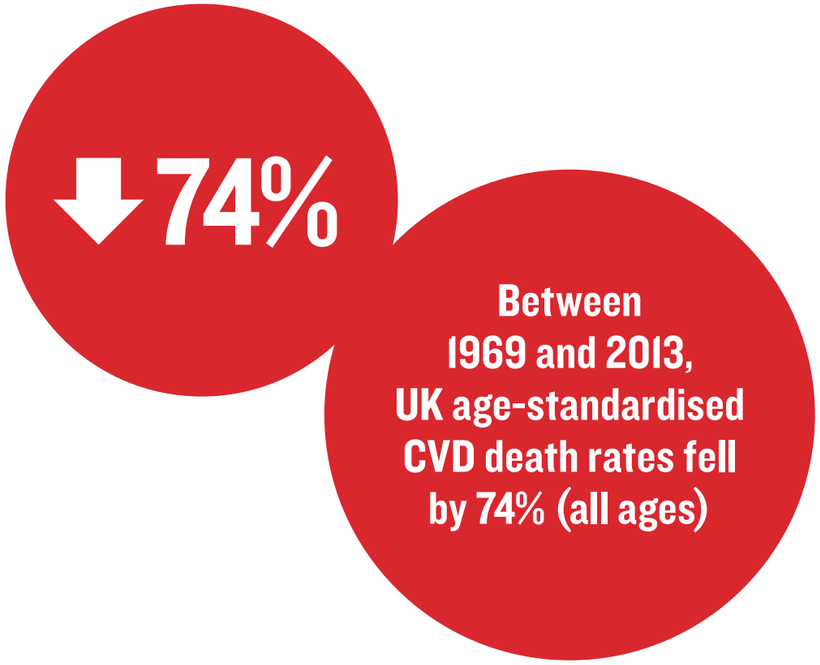
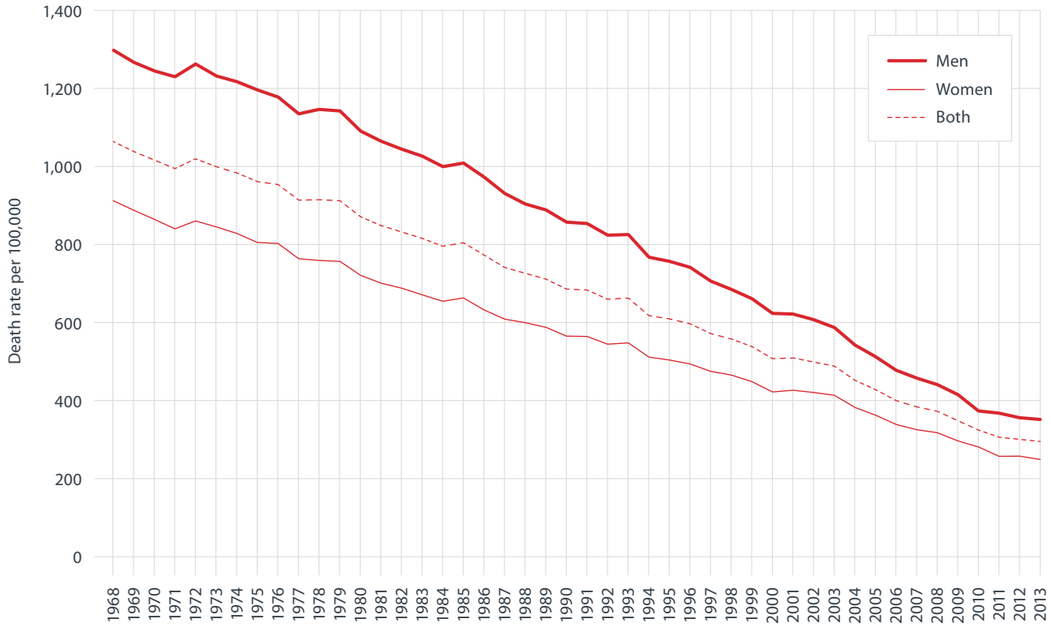


Table 1.3
Age-standardised death rates per 100,000 from cardiovascular disease (CVD), all ages, United Kingdom and England, Wales, Scotland, Northern Ireland, 1969 to 2013

	United Kingdom			England			Wales			Scotland			Northern Ireland		
Year	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
1969	1,281	889	1,045	1,245	861	1,013	1,476	985	1,178	1,481	1,066	1,229	1,423	1,062	1,218
1971	1,243	840	999	1,210	817	973	1,372	914	1,097	1,417	977	1,148	1,508	1,029	1,223
1973	1,245	845	1,004	1,209	821	976	1,363	913	1,092	1,456	995	1,176	1,546	1,047	1,243
1975	1,208	803	965	1,178	784	941	1,317	864	1,047	1,381	919	1,098	1,428	961	1,149
1977	1,145	760	916	1,114	740	892	1,240	823	994	1,297	871	1,036	1,510	969	1,182
1979	1,152	753	914	1,121	733	890	1,229	797	971	1,344	889	1,063	1,435	904	1,115
1981	1,072	695	848	1,046	678	828	1,137	737	899	1,248	814	982	1,247	786	974
1983	1,032	664	814	1,008	648	795	1,127	701	872	1,186	778	939	1,142	743	907
1985	1,014	656	803	994	641	786	1,083	688	848	1,163	763	920	1,062	713	859
1987	933	600	737	914	585	721	973	618	762	1,097	717	866	991	652	792
1989	890	578	706	867	562	688	929	608	740	1,076	706	851	963	615	755
1991	853	554	677	840	543	665	878	563	695	972	653	781	866	565	690
1993	824	537	656	805	521	639	855	568	691	987	663	795	865	558	686
1995	753	491	601	737	477	586	799	525	639	868	593	706	811	540	652
1997	701	461	562	685	449	548	741	486	592	822	559	668	761	492	602
1999	654	434	527	637	421	513	697	464	565	783	527	632	723	493	588
2001	613	411	497	603	402	487	657	448	537	684	476	564	648	439	526
2003	578	398	475	565	390	466	635	425	513	670	457	546	581	404	479
2005	500	345	413	490	337	404	536	376	447	577	406	480	519	350	421
2007	443	307	367	432	299	359	473	335	397	527	355	428	477	324	389
2009	399	277	331	392	271	325	424	300	356	450	316	375	421	295	350
2011	350	236	286	342	229	279	377	253	308	412	288	343	365	239	294
2013	333	227	275	325	221	268	377	246	304	392	275	327	336	232	277

Notes Directly age-standardised to the European Standard Population 2013. ¶ Northern Ireland coded deaths differently until 1979, therefore these underestimate the rate compared to rest of the UK. Source 1969 to 2009: England and Wales, Office for National Statistics (2010) Personal communication. ¶ Scotland, General Register Office (2010) Personal communication. ¶ Northern Ireland, Statistics and Research Agency (2010) Personal communication. ¶ 2010 to 2013: England and Wales, Office for National Statistics; Scotland, General Register Office for Scotland; Northern Ireland, Northern Ireland Statistics and Research Agency.

Figure 1.3
Age-standardised death rates per 100,000 from cardiovascular disease (CVD), by gender, United Kingdom, 1968 to 2013



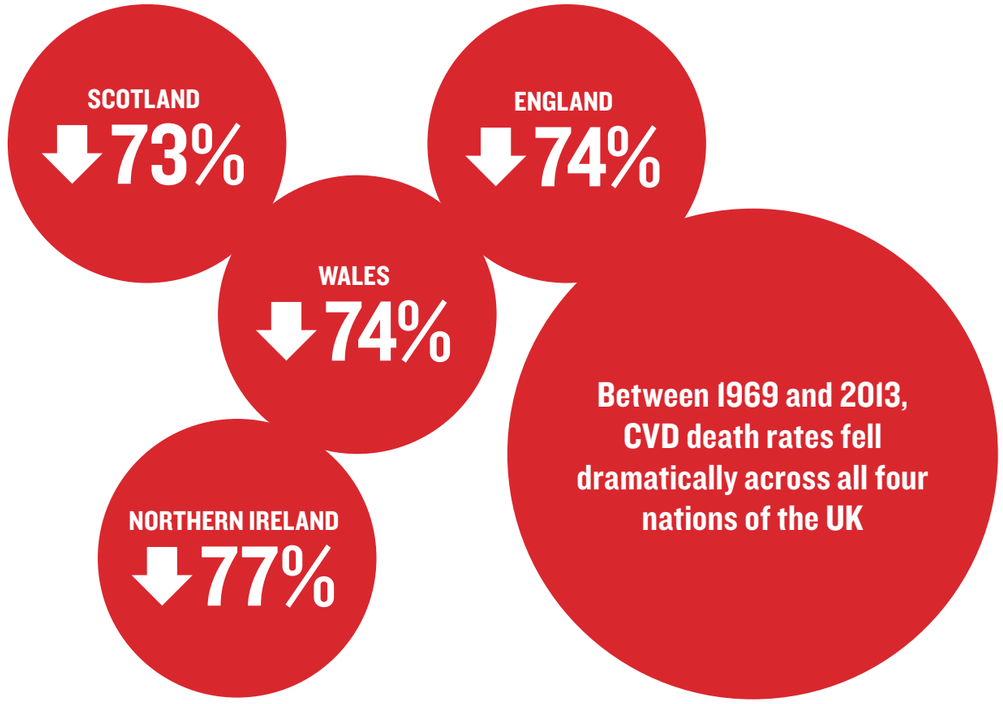
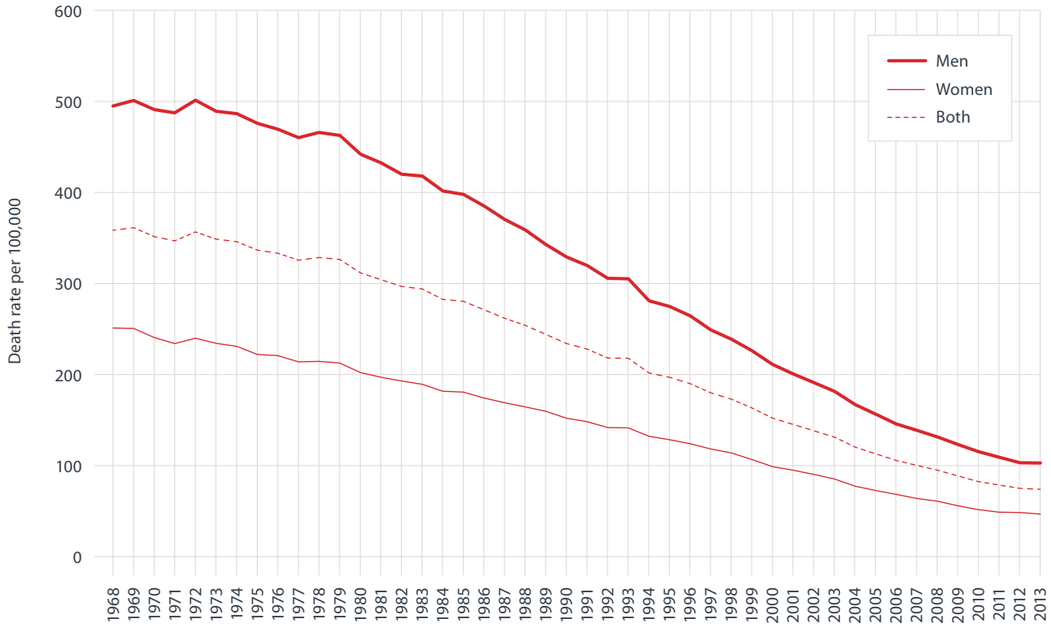


Table 1.4
Age-standardised death rates per 100,000 from cardiovascular disease (CVD), under 75, United Kingdom and England, Wales, Scotland, Northern Ireland, 1969 to 2013

	United Kingdom			England			Wales			Scotland			Northern Ireland		
Year	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
1969	500	250	360	485	238	347	580	286	417	582	320	433	566	312	426
1971	487	233	346	472	222	334	549	263	392	573	296	416	549	294	409
1973	488	233	348	472	222	335	544	265	390	593	297	426	576	304	427
1975	475	221	336	459	211	324	543	253	384	561	276	401	567	282	410
1977	459	213	325	445	203	313	521	245	370	527	268	382	588	278	417
1979	462	211	325	447	201	314	504	230	354	545	275	395	583	279	415
1981	432	196	304	418	187	293	469	210	328	513	259	373	534	245	375
1983	417	188	293	404	179	282	464	206	324	498	246	359	495	242	356
1985	397	179	279	384	170	269	433	194	304	480	241	348	473	228	339
1987	369	168	261	358	160	251	390	181	278	453	224	327	424	200	301
1989	342	158	243	329	150	233	363	171	260	433	217	314	404	185	284
1991	319	147	227	309	141	219	337	150	237	392	196	285	353	168	252
1993	304	140	217	293	134	209	329	149	233	381	186	275	346	161	245
1995	274	127	196	265	121	189	294	137	210	336	165	243	315	155	228
1997	248	117	179	239	112	172	271	129	196	307	153	224	282	129	199
1999	225	105	162	217	101	156	251	113	178	280	136	202	250	114	177
2001	199	93	144	194	90	140	219	105	159	240	117	174	201	97	145
2003	180	84	130	175	81	126	200	93	144	223	106	160	181	79	127
2005	155	71	111	150	68	108	172	80	124	193	91	139	156	73	112
2007	137	62	98	132	60	95	146	70	107	179	82	128	141	63	100
2009	122	54	87	118	52	84	134	63	97	148	71	108	122	60	90
2011	108	47	76	104	45	73	117	56	86	137	63	98	114	46	79
2013	101	45	72	98	43	70	113	51	81	127	60	92	99	45	71

Notes Directly age-standardised to the European Standard Population 2013. ¶ Northern Ireland coded deaths differently until 1979, therefore these underestimate the rate compared to rest of the UK. Source 1969 to 2009: England and Wales, Office for National Statistics (2010) Personal communication. ¶ Scotland, General Register Office (2010) Personal communication. ¶ Northern Ireland, Statistics and Research Agency (2010) Personal communication. ¶ 2010 to 2013: England and Wales, Office for National Statistics; Scotland, General Register Office for Scotland; Northern Ireland, Northern Ireland Statistics and Research Agency.

Figure 1.4
Age-standardised death rates per 100,000 from cardiovascular disease (CVD), by gender, aged under 75, United Kingdom, 1968 to 2013



80%

Age-standardised UK CVD death rates for under-75s fell by 80% between 1969 and 2013

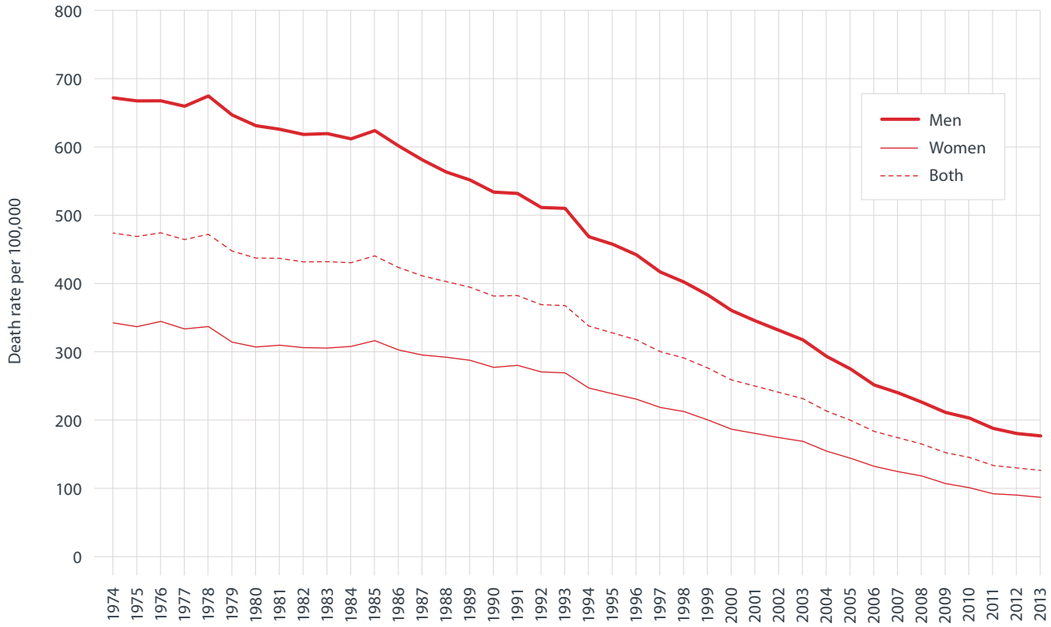
Comparable death rates for coronary heart disease (CHD) are only available from 1974 for Northern Ireland and consequently, the UK as a whole. Between 1974 and 2013, UK age-standardised CHD death rates declined by 73 per cent in those dying at any age and 81 per cent for those dying before age 75. In England, Scotland and Wales, between 1971 and 2013, rates declined more in women than in men, declining by 73 per cent in England and Wales and 74 per cent in Scotland for women and by 73 per cent, 72 per cent and 74 per cent for men in the same countries. In Northern Ireland between 1974 and 2013, death rates decreased by 77 per cent in men and 76 per cent in women. Between 1974 and 2013 in those aged under 75, age-standardised death rates decreased by 81 per cent for the UK as a whole and England, by 80 per cent for Wales and Scotland and by 84 per cent in Northern Ireland (**Tables 1.5 and 1.6, Figures 1.5 and 1.6**).

Table 1.5
Age-standardised death rates per 100,000 from coronary heart disease (CHD), all ages, United Kingdom and England, Wales, Scotland, Northern Ireland, 1971 to 2013

	United Kingdom			England			Wales			Scotland			Northern Ireland		
Year	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
1971	–	–	–	632	316	442	724	363	508	779	418	561	–	–	–
1973	–	–	–	652	331	459	739	367	516	818	440	590	–	–	–
1975	668	337	469	648	326	455	748	363	517	783	409	555	786	408	563
1977	660	333	465	640	322	450	728	349	502	765	414	553	856	428	599
1979	647	314	448	629	305	436	693	323	470	759	374	522	800	394	559
1981	626	310	437	611	301	426	664	319	456	722	374	511	747	367	522
1983	620	305	432	604	297	421	675	315	458	720	364	503	722	355	504
1985	624	316	441	611	308	431	676	328	467	713	378	509	675	360	490
1987	581	295	411	567	286	400	615	304	429	696	366	494	637	334	458
1989	552	287	395	537	278	383	587	303	418	665	360	479	628	327	448
1991	532	280	382	522	273	374	563	291	402	608	331	440	574	297	409
1993	510	269	368	498	260	358	548	291	396	599	331	439	552	294	400
1995	458	238	328	447	231	320	489	252	349	525	288	383	515	288	380
1997	417	218	300	407	212	292	447	225	315	483	269	355	477	251	344
1999	383	200	276	372	193	267	418	212	299	460	250	335	442	238	322
2001	345	180	249	338	174	242	376	200	274	394	222	293	380	209	279
2003	317	169	231	308	163	225	352	186	255	383	205	278	335	184	246
2005	275	144	199	266	138	193	307	162	224	332	180	244	312	164	225
2007	240	124	174	232	120	168	260	140	192	298	152	213	274	143	198
2009	211	107	152	205	102	147	228	118	167	251	134	183	242	131	178
2011	188	92	133	182	88	129	209	102	148	225	117	163	213	96	145
2013	177	86	126	172	83	122	201	97	143	206	108	151	187	95	134

Notes Directly age-standardised to the European Standard Population 2013. Source 1971 to 2009: England and Wales, Office for National Statistics (2010) Personal communication. ¶ Scotland, General Register Office (2010) Personal communication. ¶ Northern Ireland, Statistics and Research Agency (2010) Personal communication. ¶ 2010 to 2013: England and Wales, Office for National Statistics; Scotland, General Register Office for Scotland; Northern Ireland, Northern Ireland Statistics and Research Agency.

Figure 1.5
Age-standardised death rates per 100,000 from coronary heart disease (CHD), by gender, United Kingdom, 1974 to 2013



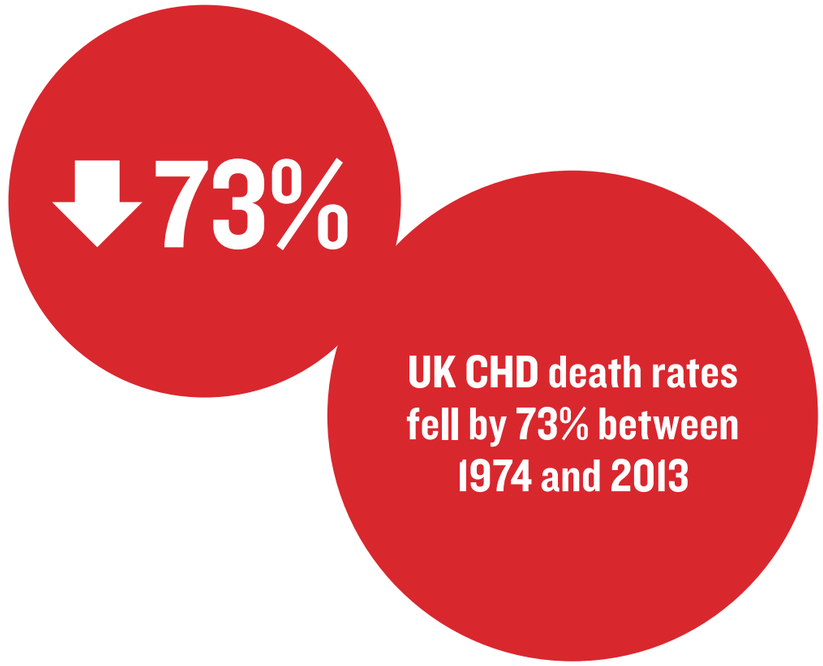
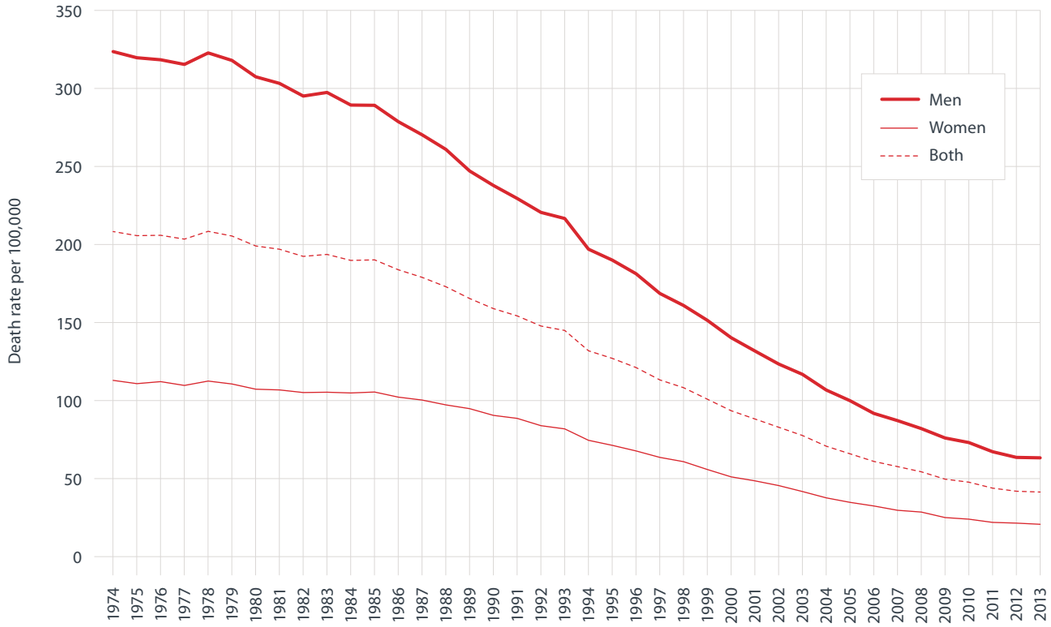


Table 1.6
Age-standardised death rates per 100,000 from coronary heart disease (CHD), under 75, United Kingdom and England, Wales, Scotland, Northern Ireland, 1969 to 2013

	United Kingdom			England			Wales			Scotland			Northern Ireland		
Year	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
1969	–	–	–	305	105	194	371	129	237	385	154	255	–	–	–
1971	–	–	–	305	101	193	353	122	227	383	144	248	–	–	–
1973	–	–	–	312	107	200	365	124	233	402	152	262	–	–	–
1975	320	111	206	309	105	198	371	127	238	379	144	248	390	144	255
1977	316	110	204	305	104	196	360	122	230	372	146	247	406	153	267
1979	319	111	206	308	104	198	345	120	222	384	149	254	403	155	267
1981	304	107	197	294	101	190	324	111	208	368	148	247	388	147	256
1983	298	105	194	287	99	186	332	111	212	365	146	244	366	138	241
1985	290	105	190	280	99	183	319	113	208	353	147	239	347	135	231
1987	271	100	179	261	95	172	288	108	192	338	140	229	319	124	212
1989	247	95	165	238	89	158	266	101	178	314	133	214	298	115	198
1991	230	88	154	222	84	149	246	90	163	284	120	194	265	102	176
1993	217	81	145	208	77	139	237	89	158	274	112	186	254	102	171
1995	190	71	127	183	67	121	209	74	137	236	96	160	232	95	157
1997	168	63	113	162	60	108	184	69	124	210	86	143	204	75	134
1999	151	55	100	144	52	96	171	58	112	193	75	130	178	64	117
2001	131	48	87	127	45	84	148	55	99	159	63	108	139	54	94
2003	116	41	77	112	39	74	127	46	85	149	56	99	119	41	77
2005	99	34	65	95	31	62	111	38	73	130	48	86	106	39	71
2007	86	28	56	82	27	53	90	32	60	117	42	77	97	32	63
2009	75	24	48	72	22	46	84	27	55	95	35	63	81	30	54
2011	66	21	43	63	19	41	71	24	47	87	29	56	75	22	48
2013	62	19	40	60	18	38	72	23	47	80	26	52	65	20	42

Notes Directly age-standardised to the European Standard Population 2013. Source 1969 to 2009: England and Wales, Office for National Statistics (2010) Personal communication. ¶ Scotland, General Register Office (2010) Personal communication. ¶ Northern Ireland, Statistics and Research Agency (2010) Personal communication. ¶ 2010 to 2013: England and Wales, Office for National Statistics; Scotland, General Register Office for Scotland; Northern Ireland, Northern Ireland Statistics and Research Agency.

Figure 1.6
Age-standardised death rates per 100,000 from coronary heart disease (CHD), by gender, aged under 75, United Kingdom, 1974 to 2013



81%

The UK CHD premature (under-75s) death rate fell by 81% between 1974 and 2013

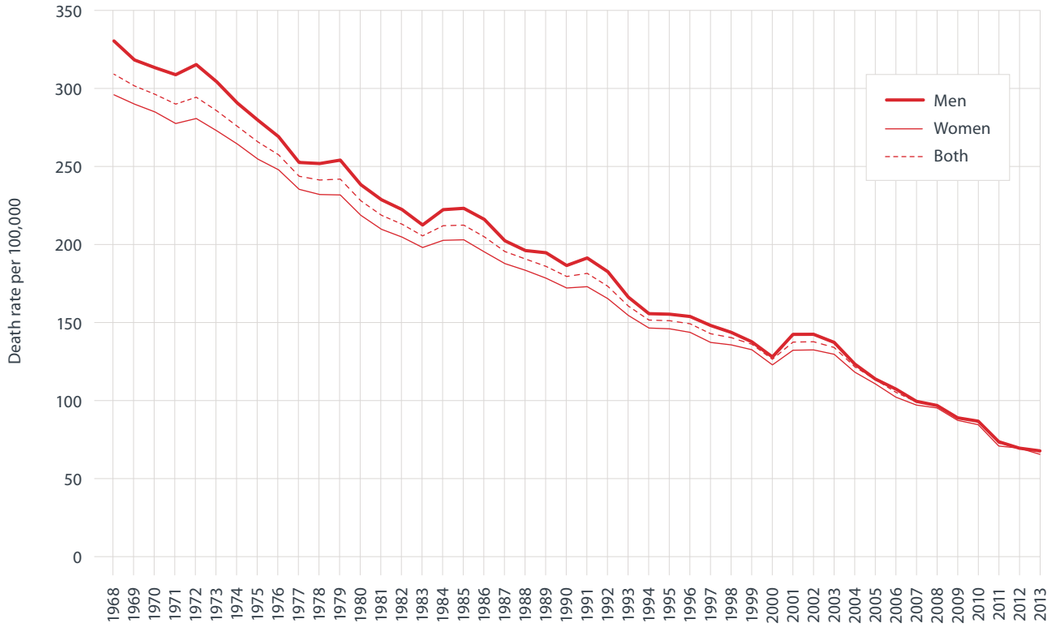
Comparable annual death rates for stroke are available from 1968 for Northern Ireland and subsequently for the whole UK. Death rates declined by around 78 per cent for the UK between 1968 and 2013. Rates decreased by 75 per cent for England and Wales. In Scotland rates in this period decreased by 73 per cent and by 76 per cent in Northern Ireland (**Table 1.7, Figure 1.7**). In those dying from stroke aged under 75, UK rates declined by 85 per cent between 1968 and 2013. Under-75 death rates for the same time period decreased by 83 per cent in England, 85 per cent in Wales, 82 per cent in Scotland and 86 per cent in Northern Ireland (**Table 1.8, Figure 1.8**).

Table 1.7
Age-standardised death rates per 100,000 from stroke, all ages, United Kingdom and England, Wales, Scotland, Northern Ireland, 1969 to 2013

	United Kingdom			England			Wales			Scotland			Northern Ireland		
Year	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
1969	318	290	301	307	278	290	344	330	337	400	373	384	334	327	330
1971	308	277	290	297	268	280	322	299	310	383	346	360	386	345	360
1973	304	273	285	290	263	274	333	290	306	392	346	365	413	333	360
1975	279	255	266	268	245	256	298	274	286	364	323	339	328	313	320
1977	253	236	244	243	227	235	267	272	273	317	282	295	344	314	325
1979	254	232	242	243	223	232	274	256	266	335	298	313	341	277	300
1981	229	210	219	220	201	210	245	233	241	308	273	287	240	253	252
1983	213	199	206	206	191	199	228	214	221	272	255	264	235	238	238
1985	224	204	213	219	199	208	228	220	225	272	240	253	223	189	201
1987	203	189	196	198	184	191	209	199	205	255	229	240	202	192	198
1989	195	179	187	190	174	181	194	187	192	253	228	239	198	184	191
1991	192	174	182	189	170	179	194	175	184	232	211	221	172	172	174
1993	167	156	162	160	149	154	161	156	161	241	222	231	201	165	180
1995	156	147	152	151	141	146	165	153	159	212	201	208	167	158	163
1997	149	139	144	144	135	140	153	142	148	196	174	184	167	148	156
1999	139	134	137	134	130	133	141	136	140	184	171	177	162	154	157
2001	144	134	139	140	130	136	149	141	145	174	162	168	148	136	142
2003	139	131	135	135	128	132	153	135	143	170	159	165	142	133	138
2005	115	112	115	113	110	112	118	113	117	142	139	142	114	109	112
2007	101	99	101	98	96	98	107	102	105	129	121	125	109	108	109
2009	91	89	91	89	87	88	95	97	97	110	110	111	91	92	93
2011	76	73	75	73	70	72	75	75	76	100	98	100	80	82	82
2013	70	68	69	67	65	66	79	71	74	96	92	95	79	75	77

Notes Directly age-standardised to the European Standard Population 2013. Source 1969 to 2009: England and Wales, Office for National Statistics (2010) Personal communication. ¶ Scotland, General Register Office (2010) Personal communication. ¶ Northern Ireland, Statistics and Research Agency (2010) Personal communication. ¶ 2010 to 2013: England and Wales, Office for National Statistics; Scotland, General Register Office for Scotland; Northern Ireland, Northern Ireland Statistics and Research Agency.

Figure 1.7
Age-standardised death rates per 100,000 from stroke, by gender, all ages, United Kingdom, 1968 to 2013



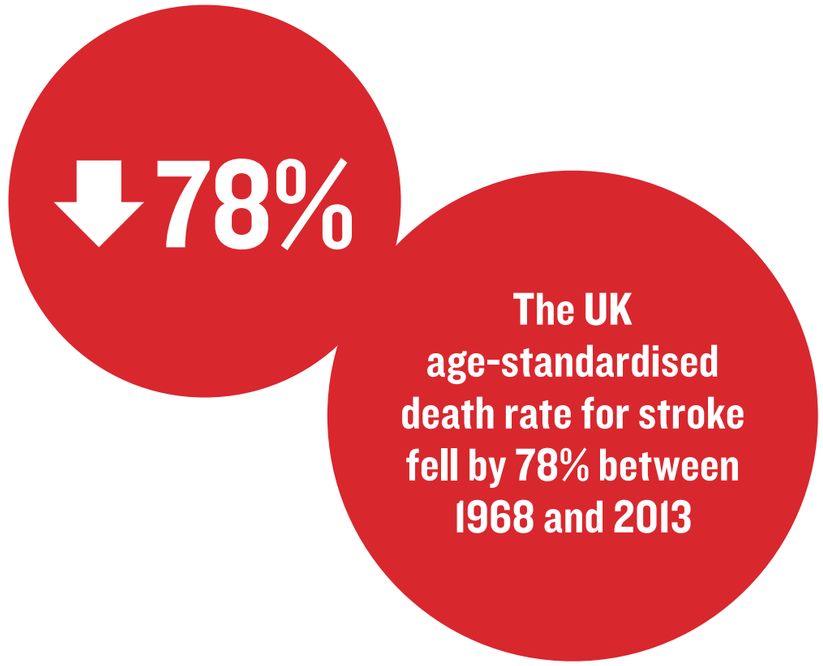
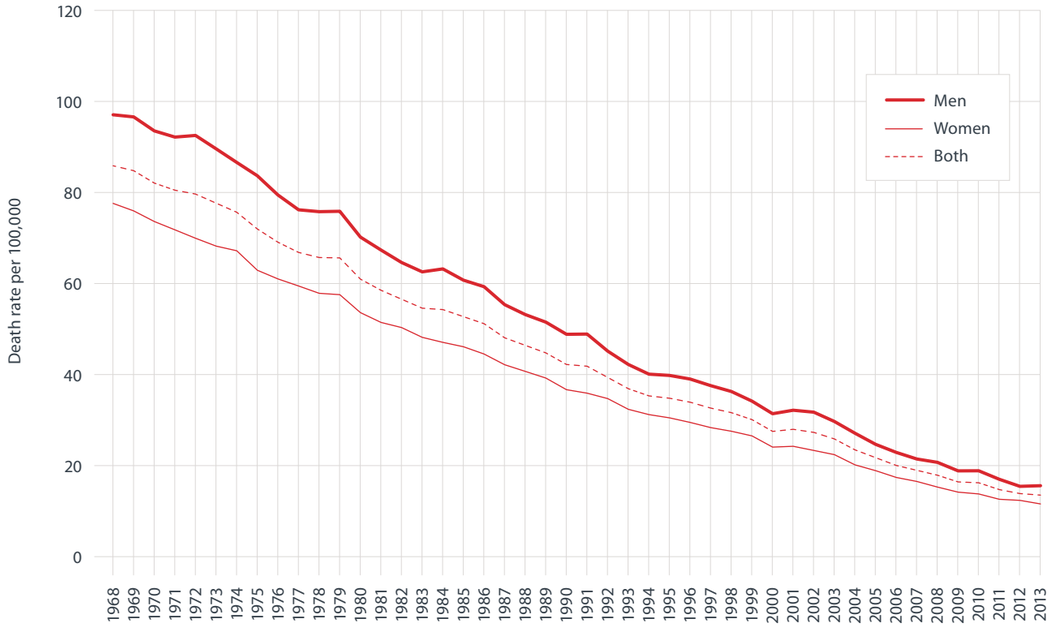


Table 1.8
Age-standardised death rates per 100,000 from stroke, under 75, United Kingdom and England, Wales, Scotland, Northern Ireland, 1969 to 2013

	United Kingdom			England			Wales			Scotland			Northern Ireland		
Year	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
1969	97	76	85	93	72	81	109	89	98	120	104	111	103	93	97
1971	92	72	81	88	68	76	108	80	92	122	97	107	102	97	100
1973	90	68	78	85	64	73	100	79	88	122	91	104	107	90	98
1975	84	63	72	79	59	68	98	69	81	118	87	100	99	81	89
1977	76	59	67	73	56	64	85	71	77	95	78	85	95	74	83
1979	76	57	66	72	54	62	85	64	73	102	79	89	96	74	84
1981	67	51	58	64	48	55	76	57	65	92	73	81	76	59	67
1983	62	48	54	60	45	52	68	53	60	83	66	73	72	69	71
1985	61	46	52	58	44	50	65	51	58	81	62	70	69	54	60
1987	55	42	48	53	40	46	56	45	50	73	54	62	58	43	50
1989	51	39	45	49	37	42	51	44	47	72	55	63	60	43	51
1991	49	36	42	47	34	40	53	36	44	65	48	55	48	42	45
1993	42	32	37	40	30	35	41	32	36	62	47	54	46	33	39
1995	40	30	35	38	29	33	40	31	35	58	42	49	42	35	38
1997	37	28	32	36	27	31	41	30	35	49	36	42	43	30	36
1999	34	26	30	33	25	29	37	27	31	43	34	38	40	29	34
2001	32	24	28	31	23	27	31	25	28	40	31	35	28	23	25
2003	29	22	26	28	21	25	32	25	28	38	28	32	30	19	24
2005	24	19	21	24	18	21	26	20	23	30	24	27	24	16	20
2007	21	16	18	20	15	18	23	18	21	29	20	24	19	18	18
2009	18	14	16	18	13	15	18	16	17	25	20	22	18	14	16
2011	17	12	14	16	12	14	18	15	16	24	16	20	18	13	15
2013	15	11	13	15	11	12	16	11	14	21	17	19	14	12	13

Notes Directly age-standardised to the European Standard Population 2013. Source 1969 to 2009: England and Wales, Office for National Statistics (2010) Personal communication. ¶ Scotland, General Register Office (2010) Personal communication. ¶ Northern Ireland, Statistics and Research Agency (2010) Personal communication. ¶ 2010 to 2013: England and Wales, Office for National Statistics; Scotland, General Register Office for Scotland; Northern Ireland, Northern Ireland Statistics and Research Agency.

Figure 1.8
Age-standardised death rates per 100,000 from stroke, by gender, aged under 75, United Kingdom, 1968 to 2013



85%

The UK age-standardised premature (under-75s) death rate for stroke fell by 85% between 1968 and 2013

EXCESS WINTER MORTALITY (EWM)

There is a pattern of excess winter cardiovascular disease (CVD) mortality in the UK. In 2012/13, over 7,000 more people died of CVD in the winter months in England in comparison to non-winter months. Between 2010/11 and 2012/13, excess winter mortality from CVD increased for those aged over 65; in the 85+ age group, there were 14 per cent excess winter CVD deaths in 2010/11, but 21 per cent in 2012/13. Excess winter mortality for CHD also increased between 2010/11 and 2012/13; in women dying at all ages, excess winter CHD deaths increased from 16 per cent in 2010/11 to 22 per cent in 2012/13 **(Table 1.9)**.

There is a pattern of excess winter mortality from cardiovascular disease in the UK

Table 1.9
Excess winter mortality for CVD and CHD by gender and age, England 2010/11 to 2012/13

		2010/11		2011/12		2012/13	
		Excess winter mortality	Excess winter mortality index	Excess winter mortality	Excess winter mortality index	Excess winter mortality	Excess winter mortality index
Cardiovascular disease (ICD-10 I00–I99)							
Men	0-64	570	15.9	270	8.0	450	13.7
	65-74	480	11.8	570	14.6	550	13.8
	75-84	1,200	16.6	1,000	14.6	1,220	17.6
	85+	990	14.9	1,300	20.5	1,350	20.4
	All ages	3,240	15.0	3,130	15.3	3,570	17.2
Women	0-64	190	13.8	210	15.9	280	21.3
	65-74	300	14.0	220	10.7	260	12.5
	75-84	930	14.0	970	15.7	1,090	18.2
	85+	1,700	14.1	2,210	19.5	2,500	21.5
	All ages	3,120	14.0	3,600	17.3	4,130	19.7
All	0-64	760	15.3	470	10.2	740	15.8
	65-74	790	12.5	790	13.3	810	13.4
	75-84	2,130	15.3	1,960	15.1	2,310	17.9
	85+	2,680	14.4	3,510	19.9	3,860	21.1
	All ages	6,360	14.5	6,730	16.3	7,710	18.4
Coronary heart disease (ICD-10 I20–I25)							
Men	0-64	310	13.8	230	11.4	270	13.3
	65-74	310	12.8	400	17.4	280	11.7
	75-84	790	20.9	560	15.4	700	18.9
	85+	480	15.6	720	24.7	620	20.2
	All ages	1,890	16.4	1,910	17.6	1,870	16.7
Women	0-64	80	15.3	70	13.3	160	30.6
	65-74	130	13.8	130	14.7	200	22.7
	75-84	430	16.3	420	17.3	430	18.1
	85+	670	16.4	840	21.2	880	22.3
	All ages	1,320	16.0	1,460	18.7	1,680	21.6
All	0-64	400	14.1	300	11.8	430	16.8
	65-74	450	13.1	530	16.6	490	14.7
	75-84	1,210	19.0	980	16.2	1,130	18.6
	85+	1,150	16.1	1,560	22.7	1,500	21.4
	All ages	3,200	16.2	3,370	18.1	3,550	18.7

Notes Excess winter mortality calculation: winter deaths less average non-winter deaths. ¶ Excess winter mortality index calculation: (excess winter mortality / average non-winter deaths)*100 ¶ The figures for individual age groups may not sum up to the 'all ages' total due to rounding of figures. Source Office for National Statistics (2015). Personal communication.

In Wales in 2012/13, there were almost 600 excess winter deaths from CVD, with 21 per cent excess male deaths and 18 per cent excess female deaths. Winter deaths from CVD have increased in Wales from 17 per cent excess deaths in 2010/11 to 19.5 per cent excess winter deaths in 2012/13. Excess winter deaths in Wales have also increased for CHD. In 2010/11 there were 20 per cent excess CHD winter deaths compared to 26 per cent in 2012/13 (**Table 1.10**).

Table 1.10
Excess winter mortality for CVD and CHD by gender and age, Wales 2010/11 to 2012/13

		2010/11		2011/12		2012/13	
		Excess winter mortality	Excess winter mortality index	Excess winter mortality	Excess winter mortality index	Excess winter mortality	Excess winter mortality index
Cardiovascular disease (ICD-10 I00–I99)							
Men	0-64	70	32.0	10	4.4	40	15.8
	65-74	30	9.1	50	16.6	50	17.0
	75-84	90	16.7	30	5.4	100	19.5
	85+	50	12.1	100	22.7	130	29.2
	All ages	240	16.2	180	12.5	320	21.4
Women	0-64	20	16.6	10	11.8	20	16.3
	65-74	20	11.0	0	1.8	40	28.6
	75-84	80	17.9	90	22.8	50	12.2
	85+	150	19.0	150	19.4	150	18.8
	All ages	270	17.6	250	17.8	270	17.7
All	0-64	90	27.4	20	6.6	50	16.0
	65-74	50	9.8	50	11.1	100	21.0
	75-84	170	17.2	120	13.1	150	16.1
	85+	210	16.5	240	20.6	280	22.5
	All ages	510	16.9	440	15.1	590	19.5
Coronary heart disease (ICD-10 I20–I25)							
Men	0-64	50	35.6	0	0.3	30	25.1
	65-74	30	20.0	40	24.3	50	24.4
	75-84	60	20.5	20	6.9	70	24.8
	85+	30	13.8	30	15.8	70	31.3
	All ages	170	21.3	100	11.7	210	26.4
Women	0-64	20	57.1	10	15.0	0	5.9
	65-74	10	14.3	0	1.3	20	27.4
	75-84	40	19.1	30	20.6	20	12.8
	85+	40	11.7	50	19.2	100	38.0
	All ages	100	17.0	90	16.8	150	26.4
All	0-64	70	39.8	10	3.5	40	20.6
	65-74	40	18.2	40	17.2	70	25.2
	75-84	90	20.0	50	12.0	90	20.1
	85+	70	12.6	90	17.7	170	35.0
	All ages	280	19.5	190	13.8	360	26.4

Notes Excess winter mortality calculation: winter deaths less average non-winter deaths. ¶ Excess winter mortality index calculation: (excess winter mortality / average non-winter deaths)*100 ¶ Low numbers of CVD deaths of each age group in the winter months for Wales may mean that there are large percentage variations in EWM between each year, which could be due to natural fluctuations rather than meaningful increases or decreases between each year. ¶ The figures for individual age groups may not sum up to the 'all ages' total due to rounding of figures. Source Office for National Statistics (2015). Personal communication.

In Northern Ireland in 2013/14, there were 2 per cent excess male CVD deaths and 15 per cent excess female CVD deaths in winter compared to non-winter months. There were 18 per cent excess CHD winter deaths in men and 13 per cent in women. There is no clear trend over time in Northern Ireland, however, because the numbers are relatively small. Results from individual years should therefore be treated with caution (**Table 1.11**).

Table 1.11
Excess winter mortality for CVD and CHD by gender and age, Northern Ireland 2011/12 to 2013/14

		2011/12		2012/13		2013/14	
		Excess winter mortality	Excess winter mortality index	Excess winter mortality	Excess winter mortality index	Excess winter mortality	Excess winter mortality index
Cardiovascular disease (ICD-10 I00–I99)							
Men	0–64	11	9.9	-9	-7.2	0	0.0
	65–74	17	12.9	18	14.0	-11	-8.3
	75–84	23	11.1	51	25.4	-1	-0.2
	85+	5	2.5	63	38.2	23	12.1
	All ages	55	8.8	123	20.1	11	1.7
Women	0–64	-5	-11.9	-2	-4.3	8	17.4
	65–74	10	15.2	4	5.7	3	3.9
	75–84	14	6.7	12	5.7	57	35.0
	85+	80	24.1	33	9.2	20	6.5
	All ages	98	15.2	46	6.8	88	15.0
All	0–64	6	3.9	-11	-6.4	1	0.6
	65–74	26	13.7	22	11.1	-18	-8.7
	75–84	37	8.9	63	15.5	43	10.7
	85+	84	16.6	95	18.4	7	1.3
	All ages	153	12.1	169	13.2	33	2.5
Coronary heart disease (ICD-10 I20–I25)							
Men	0–64	6.5	8.7	-4.5	-5.4	-1.0	-1.3
	65–74	0.5	0.6	6.5	7.6	-0.5	-0.7
	75–84	21.5	18.9	36.0	31.3	29.5	28.8
	85+	-10.5	-11.5	36.5	46.5	31.5	44.7
	All ages	18.0	4.9	74.5	20.6	59.5	18.4
Women	0–64	-1.0	-5.3	-1.0	-5.0	3.5	17.1
	65–74	4.0	13.8	-1.5	-3.8	-0.5	-1.8
	75–84	-2.5	-2.8	15.0	18.1	25.5	35.7
	85+	52.0	50.5	-13.0	-9.9	1.5	1.3
	All ages	52.5	21.9	-0.5	-0.2	30.0	12.8
All	0–64	6	5.9	-6	-5.3	-12	-10.9
	65–74	5	3.9	5	4.0	-13	-11.3
	75–84	19	9.4	51	25.8	32	15.9
	85+	45	21.7	18	7.9	9	4.3
	All ages	74	12.0	68	10.5	16	2.5

Notes Excess winter mortality calculation: winter deaths less average non-winter deaths. ¶ Excess winter mortality index: (excess winter mortality / average non-winter deaths)*100 ¶ Low numbers of CVD deaths of each age group in the winter months for Northern Ireland may mean that there are large percentage variations in EWM between each year, which could be due to natural fluctuations rather than meaningful increases or decreases between each year. Source Northern Ireland Statistics Research Agency (2015). Personal communication.

Longer-term trends in excess winter mortality for CVD are available for England and Wales combined. There is no consistent trend between 2007/08 and 2012/13, with quite large fluctuations between years for all age groups (**Table 1.12**). Overall, for excess winter deaths at all ages, there appears to have been a slight increase between 2007/08 and 2012/13 (16.5 per cent to 18.4 per cent), however excess winter deaths from CVD in this period peaked in 2008/09 with 25 per cent excess winter deaths from CVD (**Table 1.12**).

Table 1.12
Excess winter mortality for cardiovascular disease (CVD), by gender and age, England and Wales, 2007/08 to 2012/13

		2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Men							
0-64	Excess winter deaths	520	600	380	640	280	490
	EWM Index (%)	11.9	14.5	9.1	16.6	7.7	13.6
65-74	Excess winter deaths	670	930	780	500	600	580
	EWM Index (%)	13.6	19.8	16.9	11.1	14.4	13.5
75-84	Excess winter deaths	1,400	2,380	1,610	1,280	1,030	1,320
	EWM Index (%)	15.1	27.7	19.6	16.5	14.0	17.7
85+	Excess winter deaths	1,450	1,890	1,610	1,040	1,390	1,490
	EWM Index (%)	20.6	26.6	22.5	14.7	20.6	21.0
All ages	Excess winter deaths	4,040	5,790	4,370	3,460	3,310	3,870
	EWM Index (%)	15.8	23.7	18.1	14.9	15.1	17.3
Women							
0-64	Excess winter deaths	260	240	240	210	220	300
	EWM Index (%)	15.3	14.7	15.1	14.0	15.6	20.4
65-74	Excess winter deaths	390	380	400	320	230	300
	EWM Index (%)	14.3	14.5	16.4	13.4	10.0	13.5
75-84	Excess winter deaths	1,500	1,960	1,540	1,010	1,060	1,140
	EWM Index (%)	17.2	24.4	20.4	14.2	16.2	17.7
85+	Excess winter deaths	2,560	4,110	3,070	1,850	2,360	2,660
	EWM Index (%)	17.9	29.8	22.5	14.4	19.5	21.4
All ages	Excess winter deaths	4,700	6,680	5,240	3,390	3,860	4,390
	EWM Index (%)	17.1	25.7	20.8	14.2	17.3	19.5
All							
0-64	Excess winter deaths	770	840	620	850	500	780
	EWM Index (%)	12.8	14.6	10.8	15.9	9.9	15.6
65-74	Excess winter deaths	1,070	1,300	1,170	810	830	880
	EWM Index (%)	13.9	17.9	16.7	11.9	12.9	13.5
75-84	Excess winter deaths	2,900	4,330	3,150	2,300	2,090	2,450
	EWM Index (%)	16.1	26.1	20.0	15.4	15.0	17.7
85+	Excess winter deaths	4,010	6,000	4,670	2,890	3,750	4,140
	EWM Index (%)	18.8	28.8	22.5	14.5	19.9	21.2
All ages	Excess winter deaths	8,740	12,470	9,610	6,850	7,170	8,260
	EWM Index (%)	16.5	24.7	19.5	14.6	16.2	18.4

Notes Excess winter mortality calculation: winter deaths less average non-winter deaths. ¶ Excess winter mortality index calculation: (excess winter mortality / average non-winter deaths)*100 Source Office for National Statistics (2015). Personal communication.

REGIONAL DIFFERENCES IN MORTALITY

To compensate for the smaller numbers of deaths at regional and local authority level, three years' worth of data are combined in order to give more robust age-standardised death rates. Age-standardised death rates for 2011/13 have been calculated by standardising to the 2013 European Standard Population (ESP).

Regional and local mortality statistics paint a complex picture of health inequalities in the UK

Premature CVD death rates are highest in Scotland and North West England

AT UK FOUR NATION AND REGIONAL LEVEL

For men and women combined, age-standardised cardiovascular disease (CVD) death rates were the highest in Scotland and the lowest in the South West of England. For total CVD mortality, the rate in Scotland was 336 per 100,000 population whilst it was 257 in the South West. Within England, the all-ages CVD death rate was highest in Yorkshire and the Humber region, although the difference between this region and the North West was nominal; in 2010/12 the highest regional CVD death rate was for the North West region.

In those aged under 75, CVD deaths rates were also highest in Scotland at 95/100,000 and lowest in the South East of England at 60. A north-south gradient is seen in premature death rates. The North East, North West and Yorkshire & the Humber regions all had age-standardised death rates above 79/100,000; whilst the South East and South West regions had rates of less than 62/100,000 **(Table 1.13)**.

Yorkshire & the Humber has the highest rate in England

All-ages CVD death rates are highest in Scotland and Wales

Table 1.13
Number of deaths and age-standardised death rates per 100,000 for cardiovascular disease (CVD), all ages and under 75, by region and country, United Kingdom 2011/13

	All ages								
	Age-standardised CVD death rates per 100,000			Total number of CVD deaths 2011/13			Average number of annual CVD deaths for 2011/13		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
England	331.9	226.7	273.8	194,753	197,677	392,430	64,918	65,892	130,810
North East	343.2	238.0	284.9	10,201	10,287	20,488	3,400	3,429	6,829
North West	362.4	247.9	299.0	28,124	28,180	56,304	9,375	9,393	18,768
Yorkshire & The Humber	368.0	244.7	299.3	21,330	21,122	42,452	7,110	7,041	14,151
East Midlands	337.3	228.7	277.5	17,649	17,255	34,904	5,883	5,752	11,635
West Midlands	343.1	225.0	277.5	21,576	20,898	42,474	7,192	6,966	14,158
East of England	312.3	216.2	259.4	21,988	22,533	44,521	7,329	7,511	14,840
London	321.1	218.0	264.3	20,499	20,098	40,597	6,833	6,699	13,532
South East	308.1	216.6	257.8	31,371	34,022	65,393	10,457	11,341	21,798
South West	311.5	213.5	257.5	22,015	23,282	45,297	7,338	7,761	15,099
Wales	375.3	250.9	305.9	13,911	13,823	27,734	4,637	4,608	9,245
Scotland	400.0	283.9	335.7	22,973	24,397	47,370	7,658	8,132	15,790
Northern Ireland	347.2	238.0	286.2	5,811	6,058	11,869	1,937	2,019	3,956
UK	340.2	233.1	281.0	237,448	241,955	479,403	79,149	80,652	159,801

	Under 75								
	Age-standardised CVD death rates per 100,000			Total number of CVD deaths 2011/13			Average number of annual CVD deaths for 2011/13		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
England	99.8	44.3	71.2	68,518	31,931	100,449	22,839	10,644	33,483
North East	111.1	52.6	80.9	3,970	1,991	5,961	1,323	664	1,987
North West	116.0	54.5	84.5	10,947	5,380	16,327	3,649	1,793	5,442
Yorkshire & The Humber	111.9	48.8	79.5	7,790	3,574	11,364	2,597	1,191	3,788
East Midlands	101.5	45.3	72.9	6,354	2,919	9,273	2,118	973	3,091
West Midlands	105.3	45.5	74.7	7,842	3,529	11,371	2,614	1,176	3,790
East of England	88.9	39.8	63.7	7,062	3,313	10,375	2,354	1,104	3,458
London	103.4	45.1	72.9	8,064	3,764	11,828	2,688	1,255	3,943
South East	85.2	37.1	60.4	9,775	4,488	14,263	3,258	1,496	4,754
South West	87.1	36.6	61.1	6,714	2,973	9,687	2,238	991	3,229
Wales	113.6	53.2	82.6	4,962	2,448	7,410	1,654	816	2,470
Scotland	131.6	61.8	95.1	9,397	4,792	14,189	3,132	1,597	4,730
Northern Ireland	104.8	44.0	73.3	2,291	1,020	3,311	764	340	1,104
UK	103.4	46.3	74.0	85,168	40,191	125,359	28,389	13,397	41,786

Notes ICD-10 codes I00-I99. Directly age-standardised using the 2013 European Standard Population. Source England and Wales: rates calculated in partnership with the Office for National Statistics. ¶ Scotland: Rates calculated in partnership with the General Register Office for Scotland. ¶ Northern Ireland: Rates calculated in partnership with Northern Ireland Statistics and Research Agency.

For people dying from coronary heart disease (CHD), for both all ages and those under 75, death rates were highest for Scotland and Wales and lowest for the South East of England. Scotland had the highest premature CHD death rate for both men (83/100,000) and women (28/100,000). Within England, CHD death rates for men were highest for Yorkshire & the Humber region at 202/100,000 and highest for the North West region for women at 101/100,000; in the previous years, the highest CHD regional death rates for men in England were for the North West. In men and women dying under 75, the highest rates within England were in the North West, at 72/100,000 in men and 25/100,000 in women **(Table 1.14)**.

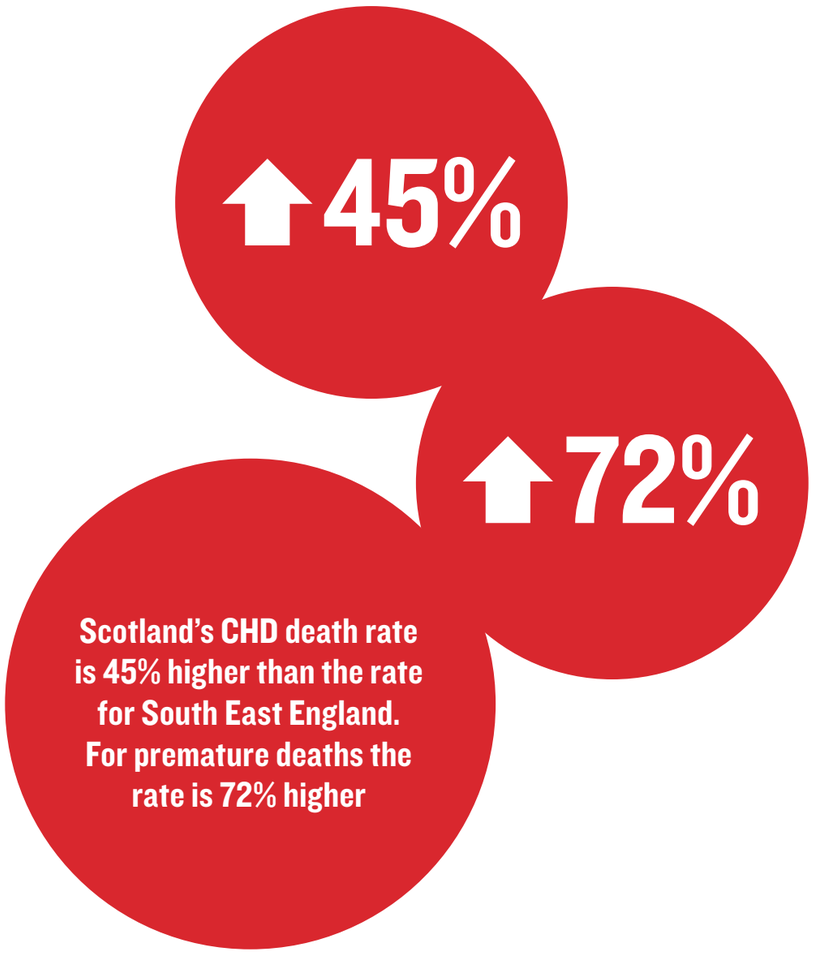


Table 1.14
Number of deaths and age-standardised death rates per 100,000 for coronary heart disease (CHD), all ages and under 75, by region and country, United Kingdom 2011/13

	All ages								
	Age-standardised CHD death rates per 100,000			Total number of CHD deaths 2011/13			Average number of annual CHD deaths for 2011/13		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
England	175.8	85.8	125.1	104,757	73,978	178,735	34,919	24,659	59,578
North East	180.8	93.1	131.6	5,506	3,996	9,502	1,835	1,332	3,167
North West	200.5	101.3	144.6	15,860	11,425	27,285	5,287	3,808	9,095
Yorkshire & The Humber	201.5	98.8	143.5	11,905	8,457	20,362	3,968	2,819	6,787
East Midlands	187.2	90.3	133.0	9,969	6,751	16,720	3,323	2,250	5,573
West Midlands	184.1	84.3	127.9	11,812	7,726	19,538	3,937	2,575	6,513
East of England	162.8	82.7	117.7	11,575	8,536	20,111	3,858	2,845	6,704
London	167.0	80.5	118.2	10,783	7,293	18,076	3,594	2,431	6,025
South East	152.7	74.0	108.3	15,736	11,474	27,210	5,245	3,825	9,070
South West	162.8	77.1	114.3	11,611	8,320	19,931	3,870	2,773	6,644
Wales	204.2	98.7	144.4	7,692	5,375	13,067	2,564	1,792	4,356
Scotland	215.3	113.4	157.5	12,733	9,683	22,416	4,244	3,228	7,472
Northern Ireland	198.7	96.5	139.9	3,419	2,438	5,857	1,140	813	1,952
UK	181.2	89.2	129.3	128,601	91,474	220,075	42,867	30,491	73,358

	Under 75								
	Age-standardised CHD death rates per 100,000			Total number of CHD deaths 2011/13			Average number of annual CHD deaths for 2011/13		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
England	60.7	18.8	39.2	41,702	13,519	55,221	13,901	4,506	18,407
North East	68.3	22.5	44.7	2,453	853	3,306	818	284	1,102
North West	72.4	24.7	48.0	6,842	2,436	9,278	2,281	812	3,093
Yorkshire & The Humber	70.5	21.6	45.4	4,915	1,579	6,494	1,638	526	2,165
East Midlands	64.8	19.1	41.5	4,061	1,232	5,293	1,354	411	1,764
West Midlands	65.8	19.6	42.2	4,905	1,517	6,422	1,635	506	2,141
East of England	51.8	16.8	33.8	4,118	1,401	5,519	1,373	467	1,840
London	61.9	19.1	39.5	4,731	1,542	6,273	1,577	514	2,091
South East	49.3	14.6	31.5	5,672	1,760	7,432	1,891	587	2,477
South West	51.8	14.7	32.7	4,005	1,199	5,204	1,335	400	1,735
Wales	70.3	23.9	46.5	3,074	1,101	4,175	1,025	367	1,392
Scotland	83.2	27.7	54.2	5,968	2,151	8,119	1,989	717	2,706
Northern Ireland	69.3	21.0	44.3	1,522	484	2,006	507	161	669
UK	63.4	19.9	41.0	52,266	17,255	69,521	17,422	5,752	23,174

Notes ICD-10 codes I20-I25. Directly age-standardised using the 2013 European Standard Population. Source England and Wales: rates calculated in partnership with the Office for National Statistics. ¶ Scotland: Rates calculated in partnership with the General Register Office for Scotland. ¶ Northern Ireland: Rates calculated in partnership with Northern Ireland Statistics and Research Agency.

In men of all ages, death rates from stroke in UK nations were highest in Scotland, at 96/100,000 and lowest in England, at 70/100,000. For men and women combined, premature death rates from stroke were highest in Scotland, at 19/100,000 and lowest in England, at 13/100,000.

Patterns within England differ between those dying at all ages and those dying before the age of 75, and while a north-south gradient is still present, stroke death rates for all ages for the West Midlands (72/100,000) were comparable to English regions in the north. Within England, the highest rate was for Yorkshire & the Humber, although in previous years the highest regional rate in England has been for the North West. The lowest rate was for London (61/100,000). In those aged under 75, stroke death rates were the highest for the North East and the North West (16/100,000), but regions in the south of England did not all have lower rates than other regions. Although the South East and South West both have rates around 11/100,000, London has a rate of 13.5/100,000 which is similar to that for the West Midlands with 13.4/100,000 (**Table 1.15**).

Scotland has the highest stroke death rate and London has the lowest. For premature deaths South East England is lowest

Table 1.15
Number of deaths and age-standardised death rates per 100,000 for stroke, all ages and under 75, by region and country, United Kingdom 2011/13

	All ages								
	Age-standardised stroke death rates per 100,000			Total number of stroke deaths 2011/13			Average number of annual stroke deaths for 2011/13		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
England	69.6	67.9	69.3	39,625	59,902	99,527	13,208	19,967	33,176
North East	76.4	74.5	75.8	2,177	3,249	5,426	726	1,083	1,809
North West	75.8	72.6	74.5	5,655	8,317	13,972	1,885	2,772	4,657
Yorkshire & The Humber	78.4	74.0	76.5	4,371	6,460	10,831	1,457	2,153	3,610
East Midlands	64.2	65.2	65.2	3,231	4,978	8,209	1,077	1,659	2,736
West Midlands	72.6	71.1	72.3	4,393	6,682	11,075	1,464	2,227	3,692
East of England	64.4	62.4	63.9	4,431	6,594	11,025	1,477	2,198	3,675
London	65.7	57.6	61.4	4,074	5,331	9,405	1,358	1,777	3,135
South East	65.7	65.2	66.1	6,557	10,372	16,929	2,186	3,457	5,643
South West	68.2	71.4	70.9	4,736	7,919	12,655	1,579	2,640	4,218
Wales	76.8	73.1	75.3	2,768	4,070	6,838	923	1,357	2,279
Scotland	96.1	95.7	96.9	5,227	8,288	13,515	1,742	2,763	4,505
Northern Ireland	77.8	78.4	79.1	1,230	2,009	3,239	410	670	1,080
UK	72.3	70.8	72.1	48,850	74,269	123,119	16,283	24,756	41,040

	Under 75								
	Age-standardised stroke death rates per 100,000			Total number of stroke deaths 2011/13			Average number of annual stroke deaths for 2011/13		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
England	14.9	11.2	13.0	10,090	8,050	18,140	3,363	2,683	6,047
North East	17.9	13.8	15.8	635	521	1,156	212	174	385
North West	17.8	13.9	15.8	1,661	1,366	3,027	554	455	1,009
Yorkshire & The Humber	16.4	12.1	14.2	1,125	886	2,011	375	295	670
East Midlands	13.2	11.3	12.3	816	733	1,549	272	244	516
West Midlands	15.1	11.8	13.4	1,111	919	2,030	370	306	677
East of England	13.7	9.2	11.4	1,079	765	1,844	360	255	615
London	16.1	11.1	13.5	1,251	948	2,199	417	316	733
South East	12.8	9.3	11.0	1,460	1,119	2,579	487	373	860
South West	12.4	9.8	11.1	952	793	1,745	317	264	582
Wales	17.2	12.9	15.0	749	592	1,341	250	197	447
Scotland	21.4	16.4	18.8	1,491	1,271	2,762	497	424	921
Northern Ireland	15.5	11.7	13.5	334	270	604	111	90	201
UK	15.6	11.7	13.6	12,664	10,183	22,847	4,221	3,394	7,616

Notes ICD-10 codes I60-I69. Directly standardised using the 2013 European Standard Population. Source England and Wales: rates calculated in partnership with the Office for National Statistics. ¶ Scotland: Rates calculated in partnership with the General Register Office for Scotland. ¶ Northern Ireland: Rates calculated in partnership with Northern Ireland Statistics and Research Agency.

AT LOCAL AUTHORITY LEVEL

Age-standardised death rates for cardiovascular disease (CVD), coronary heart disease (CHD) and stroke all show a clear pattern for higher death rates in urban authorities and northern areas of the UK, which can be seen in the maps included here. To download maps for men and women separately, and for the full tables and rankings for CVD, CHD and stroke mortality by local authority, please visit **bhf.org.uk/statistics**

While there is some variation for each condition, overall, the highest CVD, CHD and stroke death rates were in Scotland and the North of England, and the lowest rates were found in the South of England.

Age-standardised death rates by local authority demonstrate a clear trend for high CVD rates in Scotland and the North of England, and low CVD rates in the South of England. West Dunbartonshire in Scotland had the highest CVD death rate for 2011/13 at 384/100,000. For mortality under 75, the highest CVD death rate was in Glasgow City at 135/100,000. Five of the local authorities with the highest ten CVD death rates in the UK were in Scotland, and the other five were in the North of England **(Table 1.16, Figures 1.16a and 1.16b)**.

The City of London had the lowest death rates (124/100,000 for all-ages and 31/100,000 for under-75s), however its very small population makes it difficult to validly compare it to other UK authorities. For this reason we do not present data for the City of London in the following rankings. After the City of London, Waverley in the South East region of England had the lowest all ages CVD death rate for 2011/13 at 202/100,000. For premature CVD mortality, after the City of London, Hart in the South East region of England had the lowest premature CVD death rate at 34/100,000. Nine local authorities with the lowest under-75 CVD death rates were in the South and East of England, while the other one was from Yorkshire and the Humber **(Table 1.16, Figures 1.16a and 1.16b)**.

West Dunbartonshire (Scotland) has the highest CVD death rate. Five of the worst ten authority rates are in Scotland

Table 1.16
Rankings for ten local authorities with highest and lowest cardiovascular disease mortality rates, United Kingdom 2011/13

All ages				
Old code	New code	Local authority	Region/country	Age-standardised death rate per 100,000
Ten highest death rates				
00QG	S12000039	West Dunbartonshire	Scotland	383.8
00BT	E08000008	Tameside	North West	382.6
00QS	S12000046	Glasgow City	Scotland	382.1
00PL	W06000019	Blaenau Gwent	Wales	380.4
00QF	S12000005	Clackmannanshire	Scotland	379.6
30UD	E07000117	Burnley	North West	375.0
00QZ	S12000044	North Lanarkshire	Scotland	367.7
00RC	S12000038	Renfrewshire	Scotland	365.2
30UG	E07000120	Hyndburn	North West	364.4
36UG	E07000168	Scarborough	Yorkshire & The Humber	361.3
Median death rate				
37UB	E07000170	Ashfield	East Midlands	275.4
Ten lowest death rates*				
12UG	E07000012	South Cambridgeshire	East of England	218.5
24UP	E07000094	Winchester	South East	216.4
43UC	E07000208	Epsom and Ewell	South East	213.0
24UG	E07000089	Hart	South East	210.6
19UC	E07000048	Christchurch	South West	209.3
00AG	E09000007	Camden	London	207.4
00AW	E09000020	Kensington and Chelsea	London	205.7
19UD	E07000049	East Dorset	South West	205.0
00BD	E09000027	Richmond upon Thames	London	203.5
43UL	E07000216	Waverley	South East	201.9

Figure 1.16a
Age-standardised death rates from CVD in men and women of all ages, per 100,000, by local authority, United Kingdom 2011/13

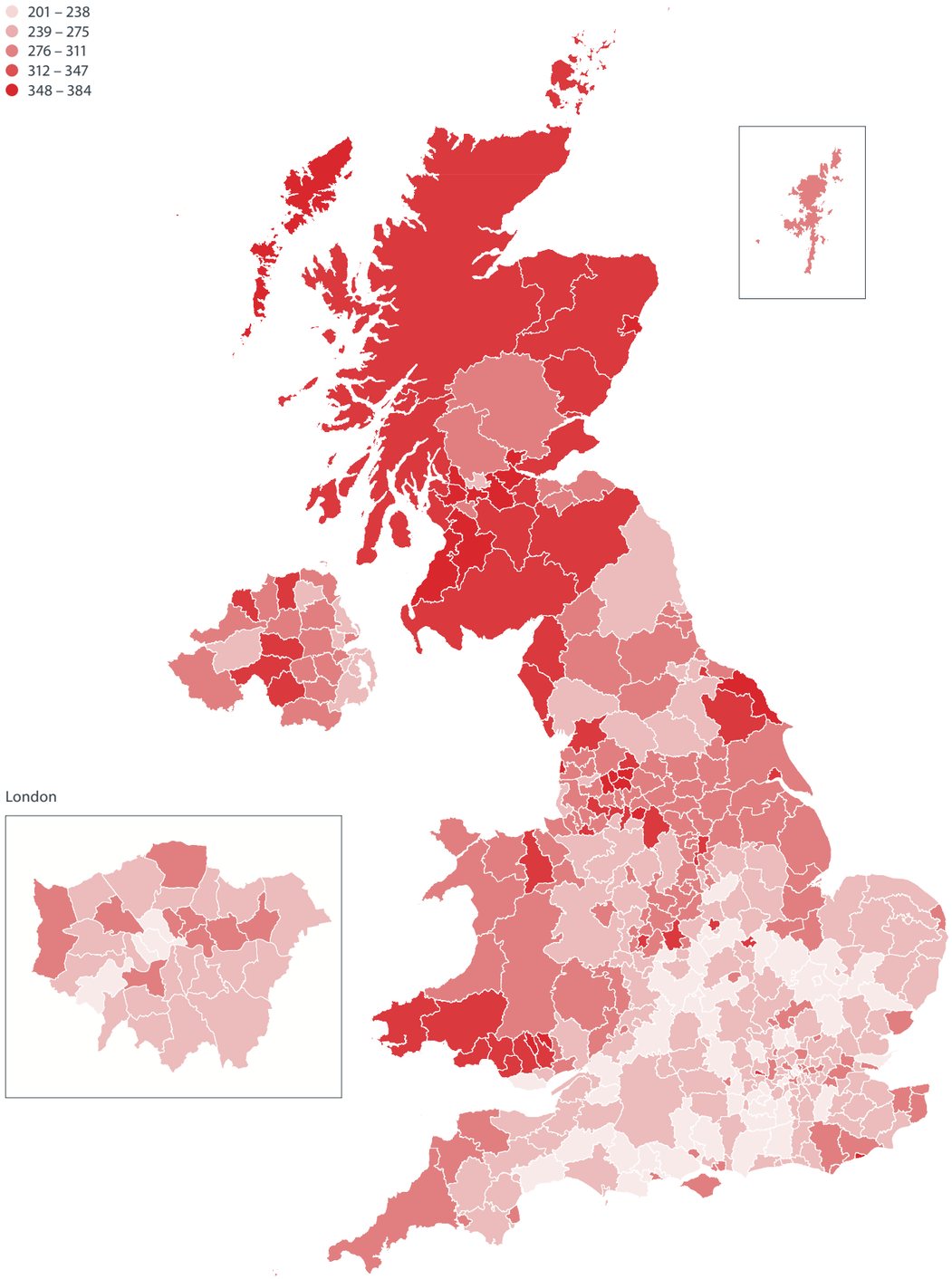
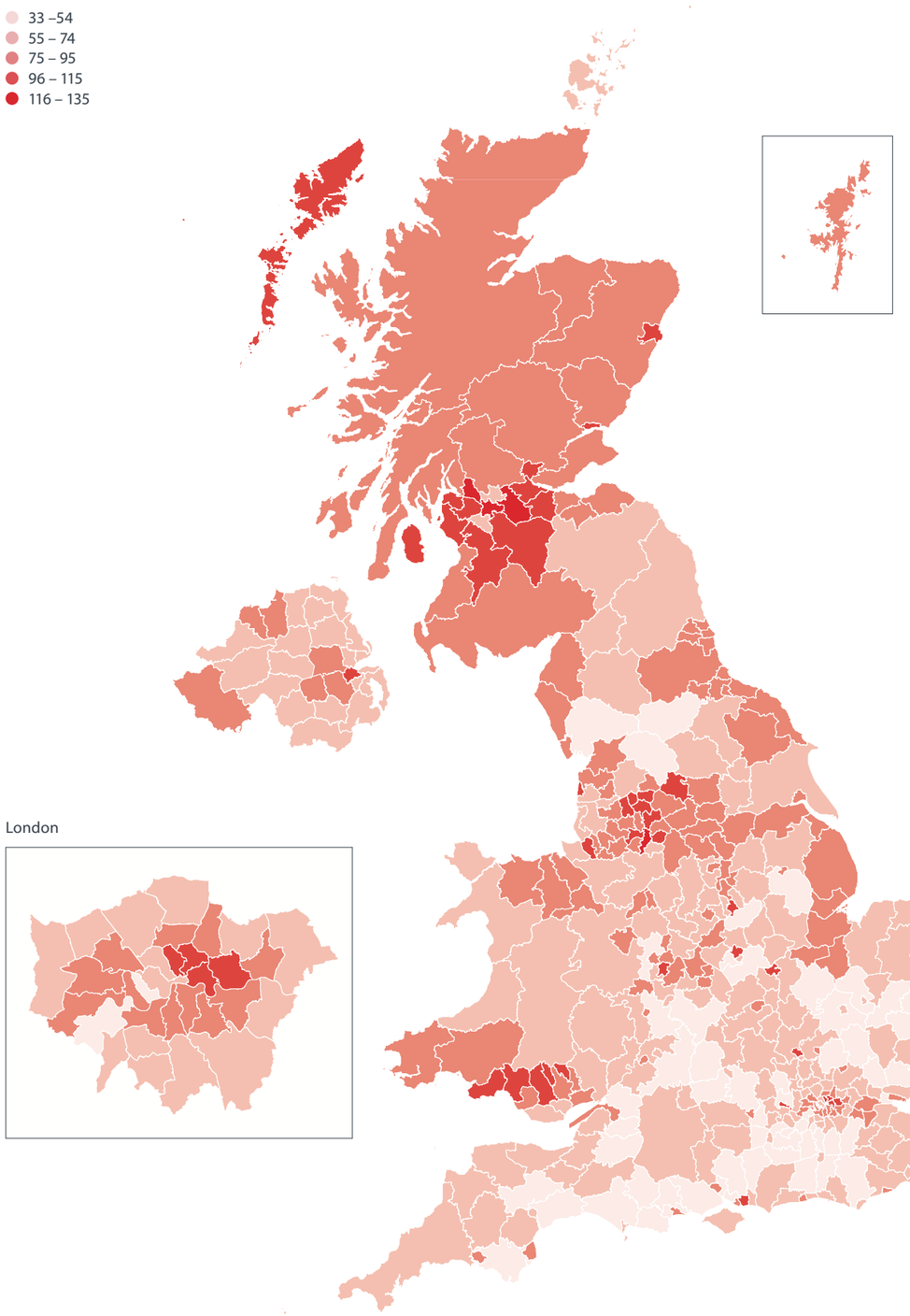


Table 1.16 (continued)
Rankings for ten local authorities with highest and lowest cardiovascular disease mortality rates, United Kingdom 2011/13

Under 75				
Old code	New code	Local authority	Region/country	Age-standardised death rate per 100,000
Ten highest death rates				
00QS	S12000046	Glasgow City	Scotland	135.0
00BN	E08000003	Manchester	North West	124.6
00QG	S12000039	West Dunbartonshire	Scotland	120.8
00QZ	S12000044	North Lanarkshire	Scotland	119.2
00EY	E06000009	Blackpool	North West	113.9
00PL	W06000019	Blaenau Gwent	Wales	112.7
00QJ	S12000042	Dundee City	Scotland	112.6
00BT	E08000008	Tameside	North West	110.4
00QY	S12000021	North Ayrshire	Scotland	108.2
00QF	S12000005	Clackmannanshire	Scotland	106.7
Median death rate				
37UG	E07000175	Newark and Sherwood	East Midlands	70.1
Ten lowest death rates*				
36UB	E07000163	Craven	Yorkshire & The Humber	46.2
19UD	E07000049	East Dorset	South West	45.3
19UH	E07000052	West Dorset	South West	44.7
43UE	E07000210	Mole Valley	South East	44.3
24UP	E07000094	Winchester	South East	44.1
22UQ	E07000077	Uttlesford	East of England	43.0
12UG	E07000012	South Cambridgeshire	East of England	42.7
43UL	E07000216	Waverley	South East	40.7
19UE	E07000050	North Dorset	South West	40.3
24UG	E07000089	Hart	South East	33.8

* City of London had the lowest rates but is not included here as its small population makes comparison inappropriate. ¶ Isles of Scilly are included with Cornwall and not presented as a separate authority as was done in previous years.

Figure 1.16b
Age-standardised death rates from CVD in men and women under 75, per 100,000, by local authority, United Kingdom 2011/13



A similar pattern of high death rates in Scotland and the North of England is also apparent for coronary heart disease (CHD). Tameside in Greater Manchester had the highest all-ages CHD death rate for 2011/13 at 238/100,000 and Glasgow City in Scotland had the highest premature CHD death rate (79/100,000). For CHD deaths at all ages, five of the local authorities with the top ten highest death rates were in the North West region of England, four were in Scotland and one was from the South East of England. For premature death rates, nine of the ten local authorities with the highest CHD death rates were in Scotland or the North West region of England, with one from the East of England region **(Table 1.17, Figures 1.17a and 1.17b)**.

After the City of London, Kensington & Chelsea in London had the lowest all-ages CHD death rate (79/100,000). The ten local authorities with the lowest CVD death rates were all in the South of England **(Table 1.17, Figures 1.17a and 1.17b)**.

Table 1.17
Rankings for ten local authorities with highest and lowest coronary heart disease mortality rates, United Kingdom 2011/13

All ages				
Old code	New code	Local authority	Region	Age-standardised death rate per 100,000
Ten highest death rates				
00BT	E08000008	Tameside	North West	237.7
30UG	E07000120	Hyndburn	North West	200.6
00EX	E06000008	Blackburn with Darwen	North West	199.7
30UD	E07000117	Burnley	North West	196.6
00QG	S12000039	West Dunbartonshire	Scotland	190.0
00QS	S12000046	Glasgow City	Scotland	184.5
30UM	E07000125	Rossendale	North West	184.1
00QZ	S12000044	North Lanarkshire	Scotland	184.1
00QK	S12000008	East Ayrshire	Scotland	182.3
00MD	E06000039	Slough	South East	177.8
Median death rate				
00NN	W06000023	Powys	Wales	126.4
Ten lowest death rates*				
19UC	E07000048	Christchurch	South West	90.5
00AG	E09000007	Camden	London	90.2
45UF	E07000227	Horsham	South East	89.6
45UG	E07000228	Mid Sussex	South East	89.1
19UD	E07000049	East Dorset	South West	88.0
43UL	E07000216	Waverley	South East	85.6
29UK	E07000111	Sevenoaks	South East	84.9
24UG	E07000089	Hart	South East	83.5
43UK	E07000215	Tandridge	South East	79.0
00AW	E09000020	Kensington and Chelsea	London	78.8

Figure 1.17a
Age-standardised death rates from CHD in men and women of all ages, per 100,000, by local authority, United Kingdom 2011/13

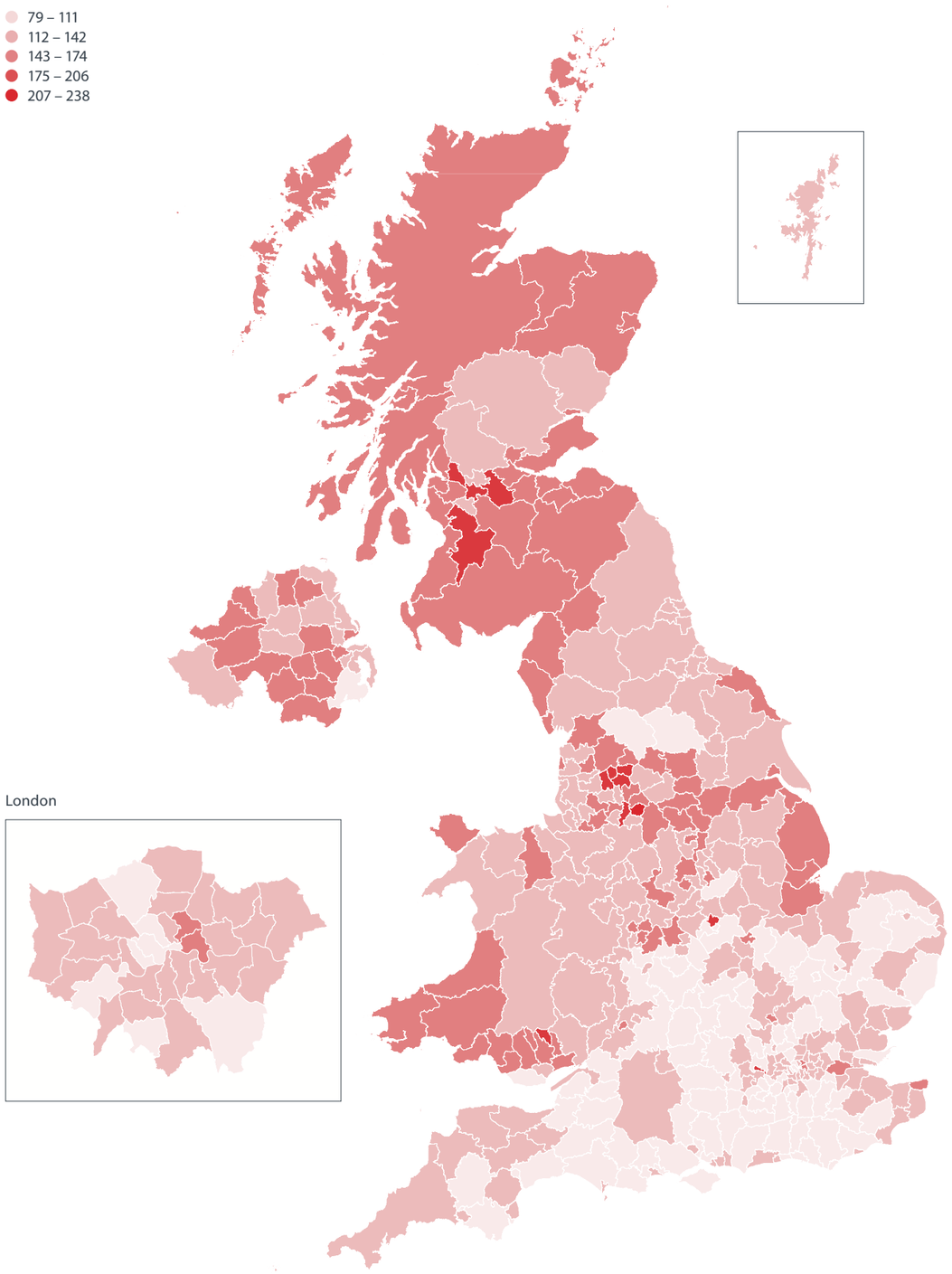
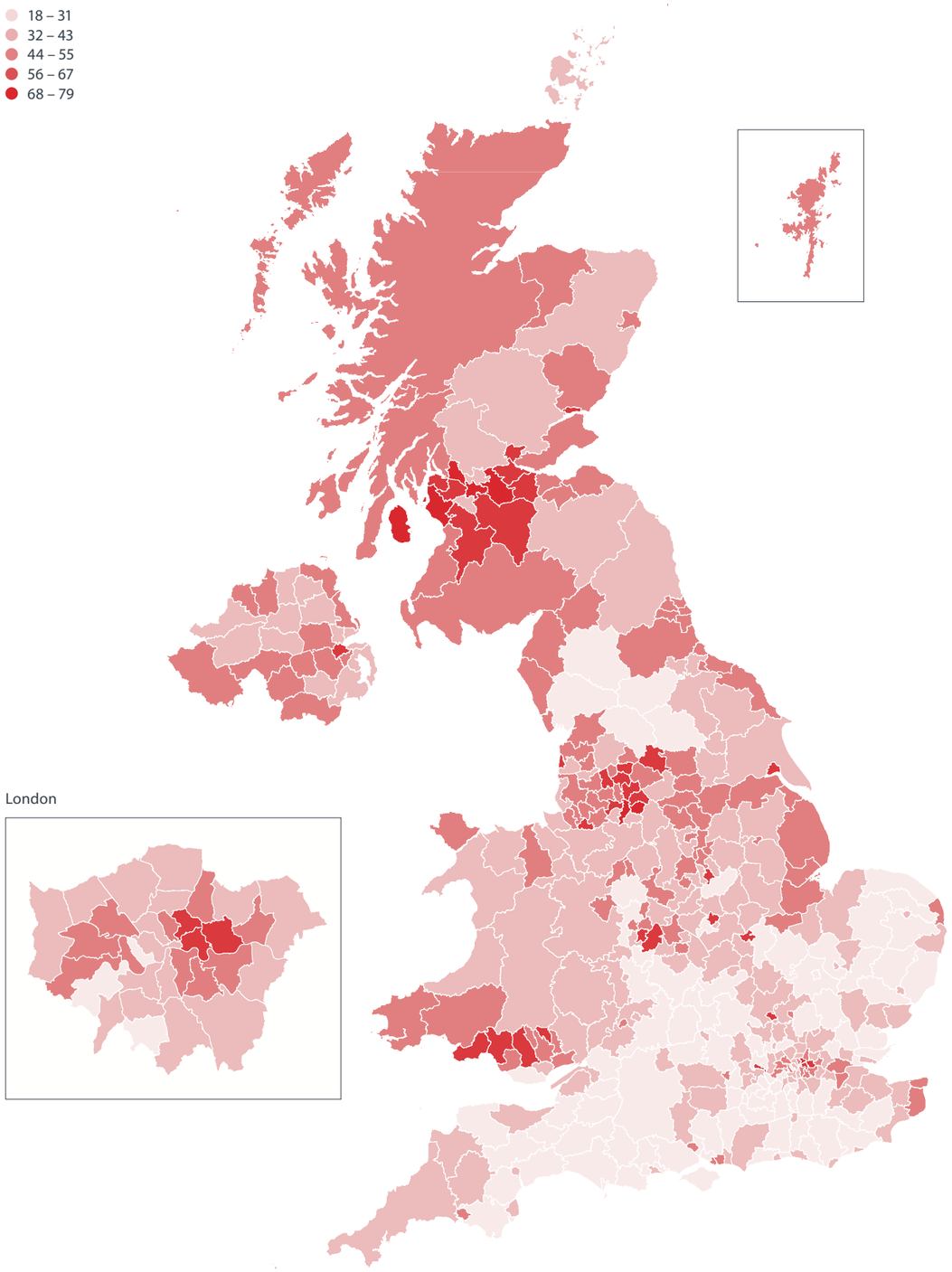


Table 1.17 (continued)
Rankings for ten local authorities with highest and lowest coronary heart disease mortality rates, United Kingdom 2011/13

Under 75				
Old code	New code	Local authority	Region	Age-standardised death rate per 100,000
Ten highest death rates				
00QS	S12000046	Glasgow City	Scotland	78.6
00BT	E08000008	Tameside	North West	74.0
00QG	S12000039	West Dunbartonshire	Scotland	73.5
00BN	E08000003	Manchester	North West	71.5
00QZ	S12000044	North Lanarkshire	Scotland	71.4
00QY	S12000021	North Ayrshire	Scotland	67.7
00EX	E06000008	Blackburn with Darwen	North West	66.1
30UD	E07000117	Burnley	North West	64.9
00KA	E06000032	Luton	East of England	64.8
00QJ	S12000042	Dundee City	Scotland	64.5
Median death rate				
95C	95C	Coleraine	Northern Ireland	38.8
Ten lowest death rates*				
24UC	E07000085	East Hampshire	South East	21.7
36UB	E07000163	Craven	Yorkshire & The Humber	21.7
43UF	E07000211	Reigate and Banstead	South East	21.5
45UF	E07000227	Horsham	South East	21.5
43UE	E07000210	Mole Valley	South East	21.4
11UC	E07000005	Chiltern	South East	21.3
19UE	E07000050	North Dorset	South West	20.2
22UQ	E07000077	Uttlesford	East of England	19.5
43UL	E07000216	Waverley	South East	19.3
24UG	E07000089	Hart	South East	18.8

* City of London had the lowest rates but is not included here as its small population makes comparison inappropriate. ¶ Isles of Scilly are included with Cornwall and not presented as a separate authority as was done in previous years.

Figure 1.17b
Age-standardised death rates from CHD in men and women under 75, per 100,000, by local authority, United Kingdom 2011/13



The highest age-standardised death rates from stroke were found in Northern Ireland, Scotland and Yorkshire & the Humber for deaths at all ages. Ballymena and Cookstown in Northern Ireland had the highest death rates from stroke in the UK, at 140/100,000 and 136/100,000 respectively, however six of the ten local authorities with the highest stroke death rates were in Scotland. For premature stroke deaths, the highest rates were in Scotland, the North West of England, Northern Ireland and the East Midlands. Glasgow City in Scotland had the highest stroke death rate in the UK at 27/100,000 **(Table 1.18, Figures 1.18a and 1.18b)**.

The lowest death rates from stroke were in the City of London. The next lowest rates were in the East Midlands for stroke deaths at all ages and in the South East region of England and for premature stroke death rates **(Table 1.18, Figures 1.18a and 1.18b)**.

Table 1.18
Rankings for ten local authorities with highest and lowest stroke mortality rates, United Kingdom 2011/13

All ages				
Old code	New code	Local authority	Region	Age-standardised death rate per 100,000
Ten highest death rates				
95G	95G	Ballymena	Northern Ireland	140.4
95I	95I	Cookstown	Northern Ireland	135.8
00RC	S12000038	Renfrewshire	Scotland	121.7
00QG	S12000039	West Dunbartonshire	Scotland	120.6
36UG	E07000168	Scarborough	Yorkshire & The Humber	111.9
00RE	S12000028	South Ayrshire	Scotland	111.8
00QS	S12000046	Glasgow City	Scotland	111.6
00QU	S12000018	Inverclyde	Scotland	109.7
36UF	E07000167	Ryedale	Yorkshire & The Humber	108.8
00RA	S12000023	Orkney Islands	Scotland	107.0
Median death rate				
17UC	E07000033	Bolsover	East Midlands	69.7
Ten lowest death rates*				
00BJ	E09000032	Wandsworth	London	53.4
00AQ	E09000015	Harrow	London	52.4
29UL	E07000112	Shepway	South East	52.4
22UL	E07000075	Rochford	East of England	52.3
00AG	E09000007	Camden	London	50.6
00BK	E09000033	Westminster	London	50.4
29UM	E07000113	Swale	South East	49.7
00BD	E09000027	Richmond upon Thames	London	49.5
42UB	E07000200	Babergh	East of England	49.0
34UG	E07000155	South Northamptonshire	East Midlands	48.3

Figure 1.18a
Age-standardised death rates from stroke in men and women of all ages, per 100,000, by local authority, United Kingdom 2011/13

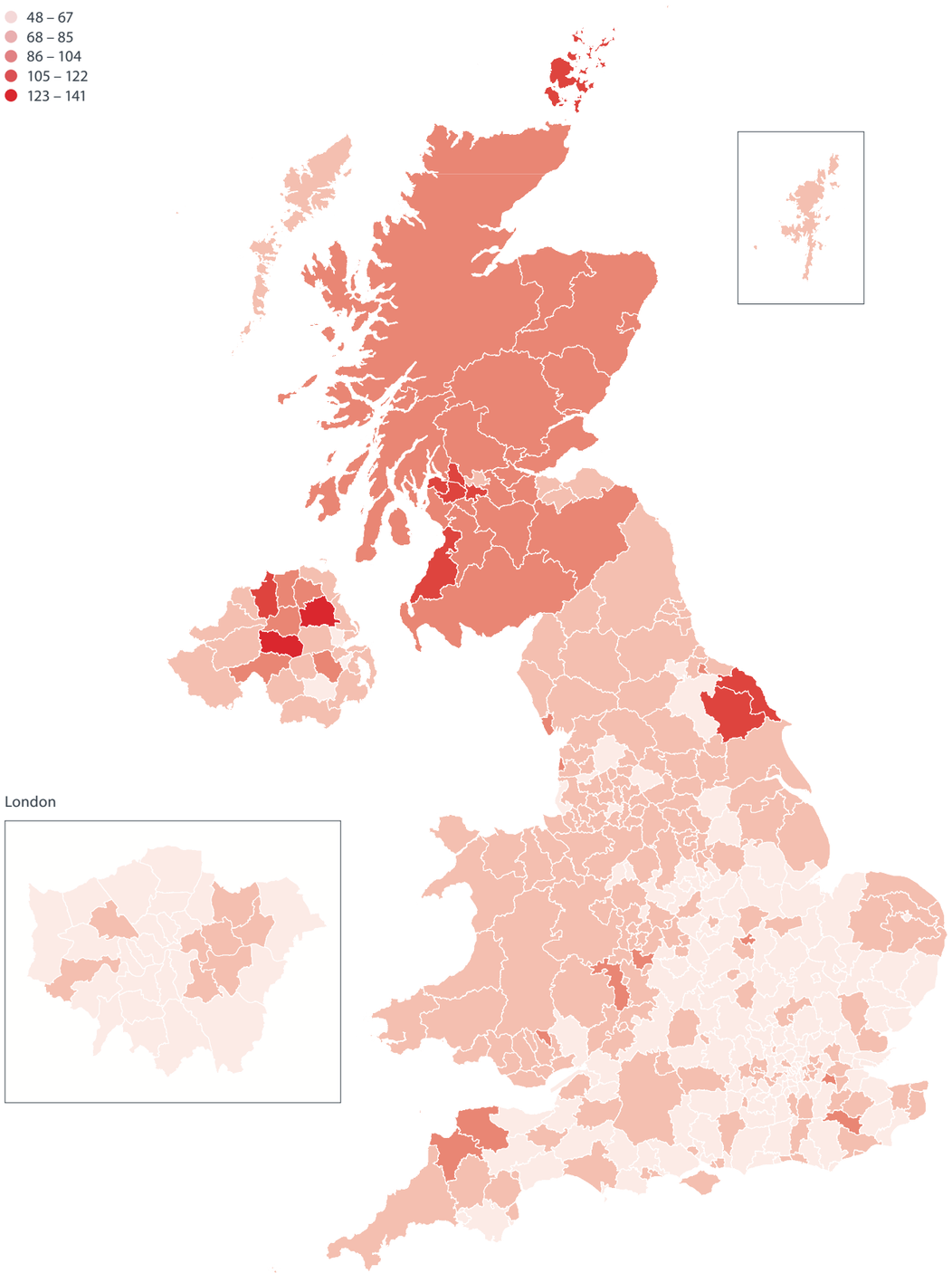
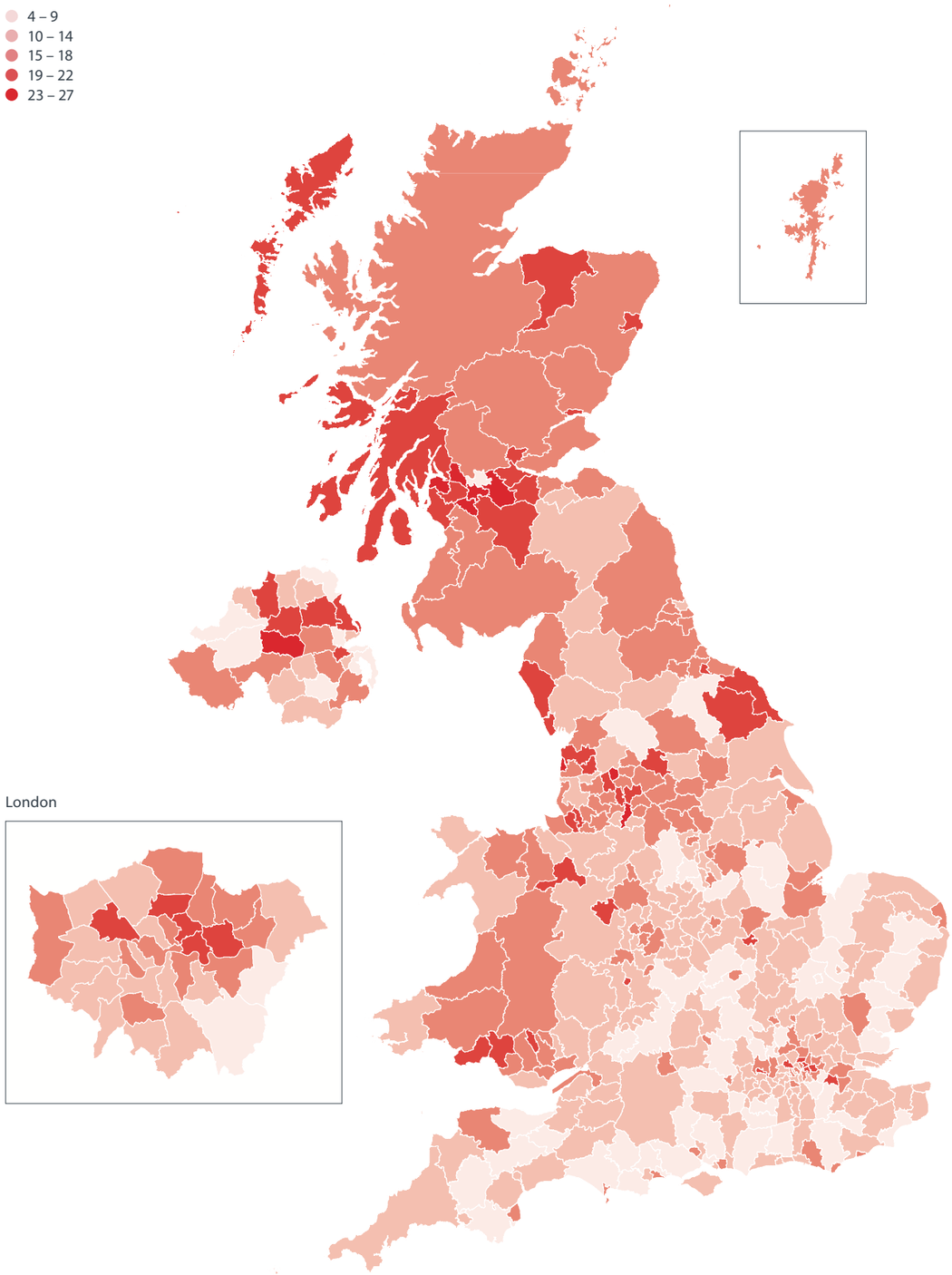


Table 1.18 (continued)
Rankings for ten local authorities with highest and lowest stroke mortality rates, United Kingdom 2011/13

Under 75				
Old code	New code	Local authority	Region	Age-standardised death rate per 100,000
Ten highest death rates				
00QS	S12000046	Glasgow City	Scotland	26.8
00BN	E08000003	Manchester	North West	24.9
00QG	S12000039	West Dunbartonshire	Scotland	23.7
00QU	S12000018	Inverclyde	Scotland	23.5
95I	95I	Cookstown	Northern Ireland	23.4
00EY	E06000009	Blackpool	North West	22.6
30UG	E07000120	Hyndburn	North West	22.6
00QN	S12000011	East Renfrewshire	Scotland	22.5
00QZ	S12000044	North Lanarkshire	Scotland	22.4
34UB	E07000150	Corby	East Midlands	22.4
Median death rate				
00JA	E06000031	Peterborough	East of England	12.8
Ten lowest death rates*				
37UJ	E07000176	Rushcliffe	East Midlands	7.2
18UG	E07000044	South Hams	South West	7.1
17UB	E07000032	Amber Valley	East Midlands	6.9
40UF	E07000191	West Somerset	South West	6.8
19UH	E07000052	West Dorset	South West	6.0
19UE	E07000050	North Dorset	South West	5.9
12UG	E07000012	South Cambridgeshire	East of England	5.8
95E	95E	Moyle	Northern Ireland	5.4
42UB	E07000200	Babergh	East of England	5.0
24UG	E07000089	Hart	South East	4.9

* City of London had the lowest rates but is not included here as its small population makes comparison inappropriate. ¶ Isles of Scilly are included with Cornwall and not presented as a separate authority as was done in previous years.

Figure 1.18b
Age-standardised death rates from stroke in men and women under 75, per 100,000, by local authority, United Kingdom 2011/13



ENDNOTE

1 For more information on the European Standard Population, please visit http://ec.europa.eu/eurostat/documents/3859598/5926869/KS-RA-13-028-EN.PDF

Chapter 2

MORBIDITY

This chapter reports on the morbidity of a number of cardiovascular conditions, including coronary heart disease (CHD), myocardial infarction (heart attack), heart failure, and stroke. Drawing on data from hospital episode statistics, GP registers and national health surveys, we present current estimates as well as trend data for the incidence and prevalence of these conditions.

Collecting accurate morbidity data is a challenge since, unlike deaths, the presence and onset of disease is not absolute. Individuals may not be aware that they have a disease or may not be able to report the date of its onset accurately. Moreover, some diseases might be misdiagnosed by health professionals. As a result, the estimates of morbidity presented in this chapter should be interpreted with some caution.

CARDIOVASCULAR DISEASE STATISTICS, 2015 BRITISH HEART FOUNDATION

INCIDENCE

The incidence of a disease represents the number of new cases that develop within a population over a specified period of time. The incidence data we present here are derived from annual records of inpatient episodes from National Health Service (NHS) hospitals in England, Scotland, Wales and Northern Ireland. An episode is defined as the main diagnosis attributed to a patient when he or she is discharged from hospital. These hospital records represent the best available estimates of morbidity for the UK, although they also have several limitations as a source of incidence data which should be borne in mind. First, in cases where an individual has multiple hospital episodes over the course of the year, the true number of new cases may be overestimated. Conversely, the true number of new cases may be underestimated in cases where individuals suffering from a condition do not attend hospital. This is a particular problem for conditions with a high mortality rate where a significant number of sufferers are likely to die before reaching medical care, with the result that their episodes will not be noted in the hospital records.

Two main types of hospital episodes statistic are commonly reported: finished consultant episodes (FCE) and ordinary admissions. Here we report FCEs since they include both ordinary admissions and day cases. Sometimes, statistics based only on hospital admissions are used to estimate the incidence of diseases, but this results in an underestimate of incidence for conditions that do not require hospital admissions or long hospital stays.

1.7 million

In 2013/14 there were 1.7 million hospital episodes in the UK for cardiovascular disease

Table 2.1
Inpatient episodes by main diagnosis in National Health Service hospitals by gender, England, Scotland, Wales, Northern Ireland and United Kingdom 2013/14

	England		Scotland		Wales	
	Men	Women	Men	Women	Men	Women
All diagnoses	8,110,876	10,050,289	723,863	808,471	433,839	539,003
All diseases of the circulatory system (I00-I99)	793,952	607,280	87,460	69,838	49,671	38,434
Coronary heart disease (I20-I25)	264,934	136,073	31,695	17,920	16,806	8,841
Stroke (160-169)	97,593	99,763	9,430	9,827	6,617	6,648
Other cardiovascular disease	431,425	371,444	46,335	42,091	26,248	22,945
Specific conditions						
Angina pectoris (I20)	60,756	40,483	4,270	3,166	4,434	3,021
Acute myocardial infarction (I21)	93,389	53,311	16,003	9,857	6,126	3,510
Heart failure (I50)	70,320	63,328	6,878	6,073	4,873	4,197
Diabetes (E10-E14)	39,517	32,903	4,514	3,980	2,653	2,033
Obesity (E66)	2,951	7,445	157	313	59	106
All cancer (C00-D48)	949,389	984,143	94,440	108,002	37,835	34,912
Colo-rectal cancer (C18-C21)	92,372	64,049	10,704	8,421	3,227	2,289
Lung cancer (C33-C34)	58,555	49,906	8,769	8,837	2,287	1,852
Breast cancer (C50)	1,106	190,229	92	21,941	23	4,018
Bladder cancer (C67)	59,399	18,657	3,248	1,555	3,092	1,011
All diseases of the nervous system (G00-G99)	191,210	225,870	17,337	21,073	9,754	12,082
All diseases of the respiratory system (J00-J99)	657,864	642,393	64,861	70,641	43,143	42,764
All diseases of the digestive system (K00-K93)	1,054,285	1,088,387	92,796	97,159	54,270	55,597
All diseases of the genitourinary system (N00-N99)	479,833	669,984	42,636	59,198	27,312	37,629
Injury and poisoning (S00-T98)	596,575	614,801	60,702	64,314	33,780	34,796
All other diagnoses	3,345,300	5,177,083	258,960	313,953	175,362	280,650

	Northern Ireland		United Kingdom	
	Men	Women	Men	Women
All diagnoses	310,097	293,857	9,578,675	11,691,620
All diseases of the circulatory system (I00-I99)	25,674	18,622	956,757	734,174
Coronary heart disease (I20-I25)	10,697	4,681	324,132	167,515
Stroke (160-169)	1,742	1,641	115,382	117,879
Other cardiovascular disease	13,235	12,300	517,243	448,780
Specific conditions				
Angina pectoris (I20)	1,975	983	71,435	47,653
Acute myocardial infarction (I21)	3,426	1,799	118,944	68,477
Heart failure (I50)	2,151	2,162	84,222	75,760
Diabetes (E10-E14)	1,235	1,050	47,919	39,966
Obesity (E66)	15	27	3,182	7,891
All cancer (C00-D48)	31,698	33,342	1,113,362	1,160,399
Colo-rectal cancer (C18-C21)	3,338	2,482	109,641	77,241
Lung cancer (C33-C34)	2,095	1,819	71,706	62,414
Breast cancer (C50)	16	6,591	1,237	222,779
Bladder cancer (C67)	1,710	537	67,449	21,760
All diseases of the nervous system (G00-G99)	4,870	6,247	223,171	265,272
All diseases of the respiratory system (J00-J99)	23,867	24,463	789,735	780,261
All diseases of the digestive system (K00-K93)	37,684	38,265	1,239,035	1,279,408
All diseases of the genitourinary system (N00-N99)	72,947	60,521	622,728	827,332
Injury and poisoning (S00-T98)	19,556	17,220	710,613	731,131
All other diagnoses	92,551	94,100	3,872,173	5,865,786

Notes Finished consultant episodes (FCE); ordinary admissions and day cases combined. Pregnancy cases not included. ICD-10 codes in parentheses. ¶ Differences between countries in the categorisation of episodes: in both England and Scotland, a FCE ends when the consultant changes. However, in Scotland a change of sub-specialty results in a new FCE, whereas in England it does not. E.g. if a patient goes from a cardiac ward to an ITU and is still under the care of the same consultant, in England this would be counted as 1 FCE and in Scotland it would be counted as 2 FCE. Source Department of Health (2014). Hospital Episode Statistics 2013/14. www.hesonline.nhs.uk (accessed April 2015). ¶ Information Services Division Scotland (2014) Main diagnosis discharges from hospital 2013/14. www.isdscotland.org (accessed April 2015). Personal communication. ¶ NHS Wales Informatics Service (2014). The Patient Episode Database for Wales – 2013/14. www.infoandstats.wales.nhs.uk (accessed April 2015). ¶ Hospital Information Branch (2014). Northern Ireland Episode Based Acute Inpatient and Day Case Activity Data (2013/14) www.dhsspsni.gov.uk (accessed April 2015). Personal correspondence.

Along with cancers, digestive and intestinal conditions and respiratory diseases, cardiovascular conditions represent a major source of NHS hospital episodes in the UK and its constituent countries. In 2013/14 in the UK, there were almost 1.7 million episodes related to CVD in NHS hospitals. In men in the UK, CVD accounted for 10 per cent of all inpatient episodes while in women it accounted for 6.2 per cent. Amongst men, the incidence of CVD as a proportion of FCEs is highest in Scotland (12.1 per cent) and the lowest in Northern Ireland (8.3 per cent) with England (9.8 per cent) and Wales (11.5 per cent) falling in between. Amongst women, the incidence of CVD as a proportion of FCEs is also highest in Scotland (8.6 per cent) but lowest in England (6.1 per cent). In all UK nations, the proportion of FCEs for cardiovascular conditions is notably higher in men than in women **(Table 2.1, Figures 2.1a to 2.1j)**.

Figure 2.1a
Inpatient episodes by main diagnosis in men for National Health Service hospitals, United Kingdom, 2013/14

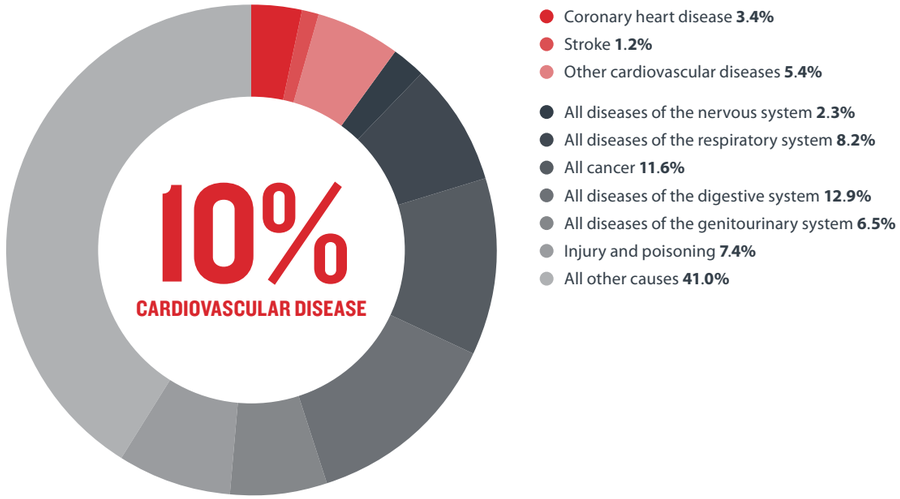
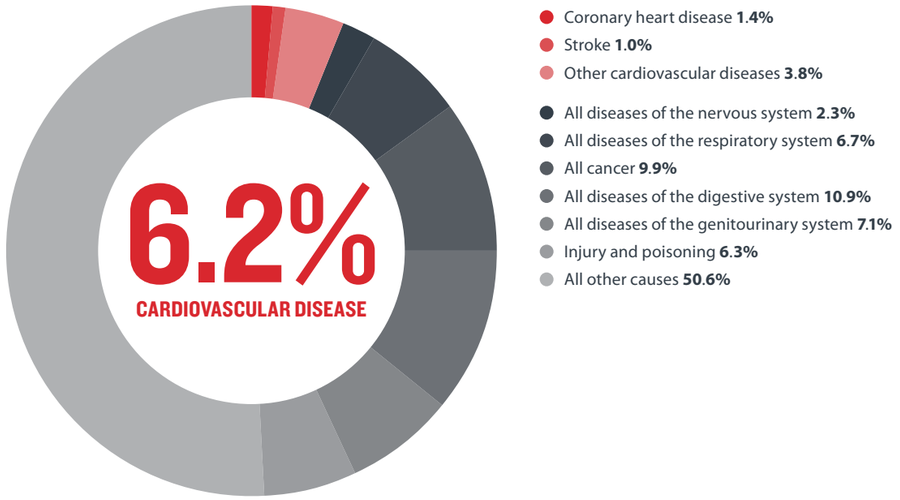


Figure 2.1b
Inpatient episodes by main diagnosis in women for National Health Service hospitals, United Kingdom, 2013/14



There were more than 491,000 inpatient episodes of coronary heart disease (CHD) in NHS Hospitals in the UK in 2013/14. In England the figure was around 401,000; in Scotland it was just over 49,000; in Wales more than 25,000; and in Northern Ireland more than 15,000. The proportion of inpatient episodes attributed to CHD was more than twice as high amongst men (3.4 per cent) as amongst women (1.4 per cent) for the UK as a whole. This gender difference was also apparent in each UK nation **(Table 2.1, Figures 2.1a to 2.1j)**.

Figure 2.1c
Inpatient episodes by main diagnosis in men for National Health Service hospitals, England, 2013/14

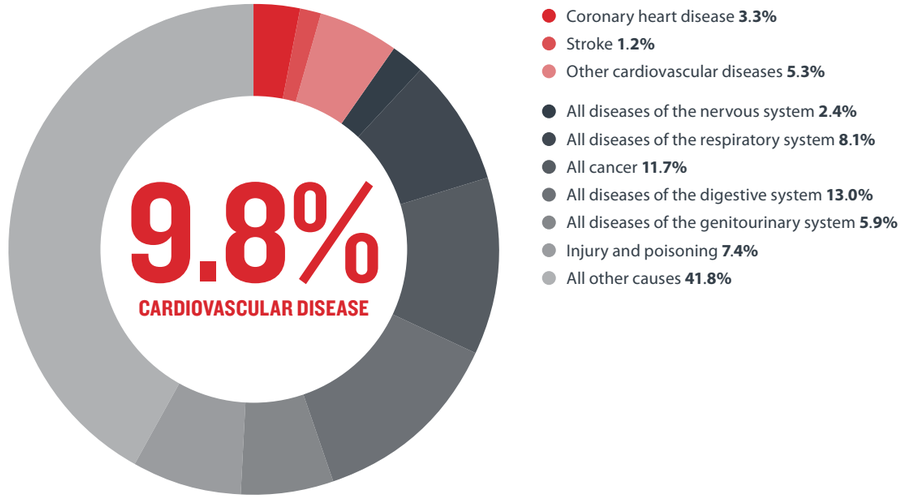
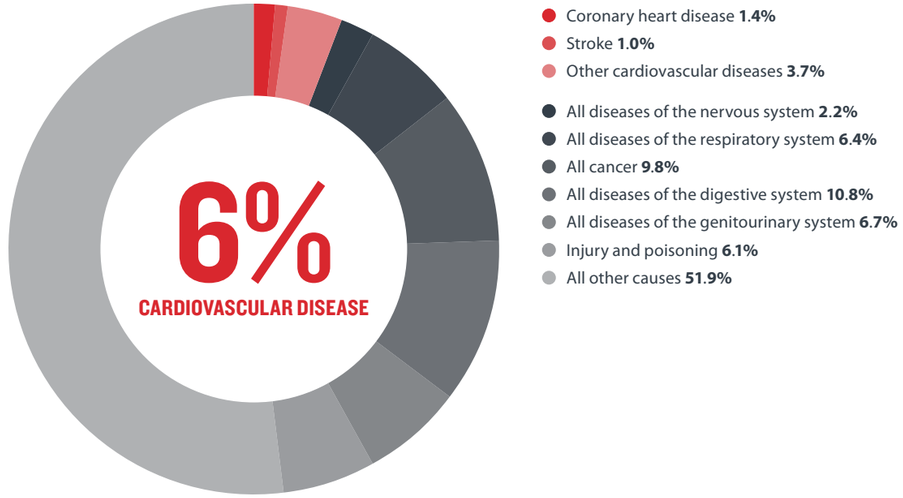


Figure 2.1d
Inpatient episodes by main diagnosis in women for National Health Service hospitals, England, 2013/14



In 2013/14, there were more than 146,000 inpatient episodes of acute myocardial infarction (MI) in England, just under 26,000 in Scotland, more than 9,000 in Wales, and over 5,000 in Northern Ireland, totalling 187,421 for the entire UK. If hospital episodes were an exact representation of disease incidence, this would translate to someone in the UK having a heart attack roughly every three minutes. MI accounts for about 1.2 per cent of all episodes in men and about 0.6 per cent of all episodes in women in the UK. This gender difference is found in all four UK nations **(Table 2.1)**.

Figure 2.1e
Inpatient episodes by main diagnosis in men for National Health Service hospitals, Scotland, 2013/14

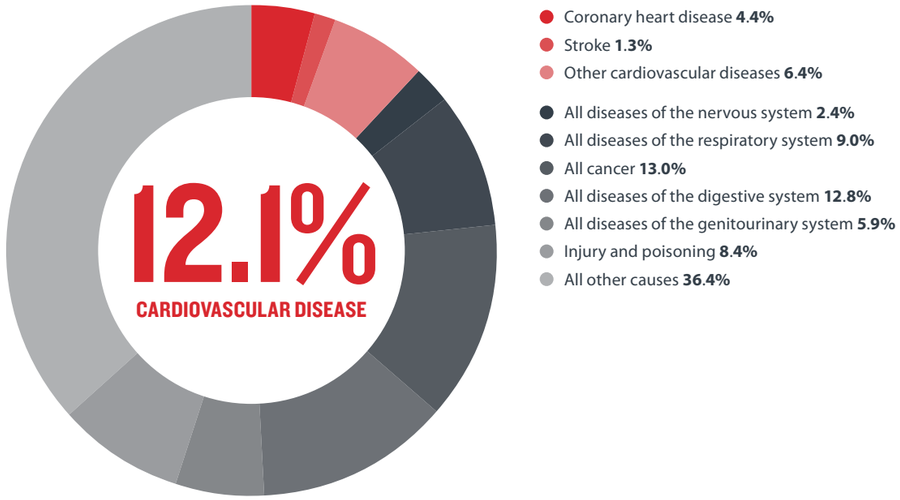
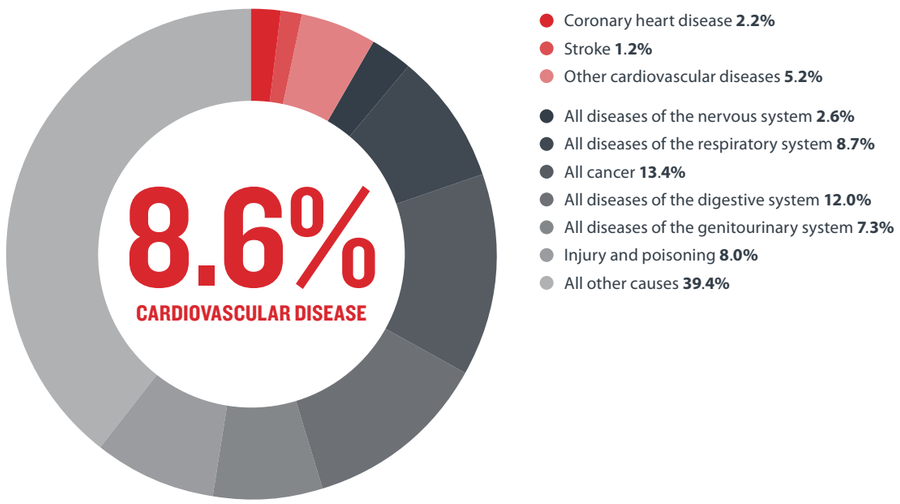


Figure 2.1f
Inpatient episodes by main diagnosis in women for National Health Service hospitals, Scotland, 2013/14



There were almost 160,000 inpatient episodes for heart failure in the UK in 2013/14, 84,222 of which occurred in men and 75,760 occurred in women. There were slightly more episodes among men than among women in every country except Northern Ireland **(Table 2.1)**.

Figure 2.1g
Inpatient episodes by main diagnosis in men for National Health Service hospitals, Wales, 2013/14

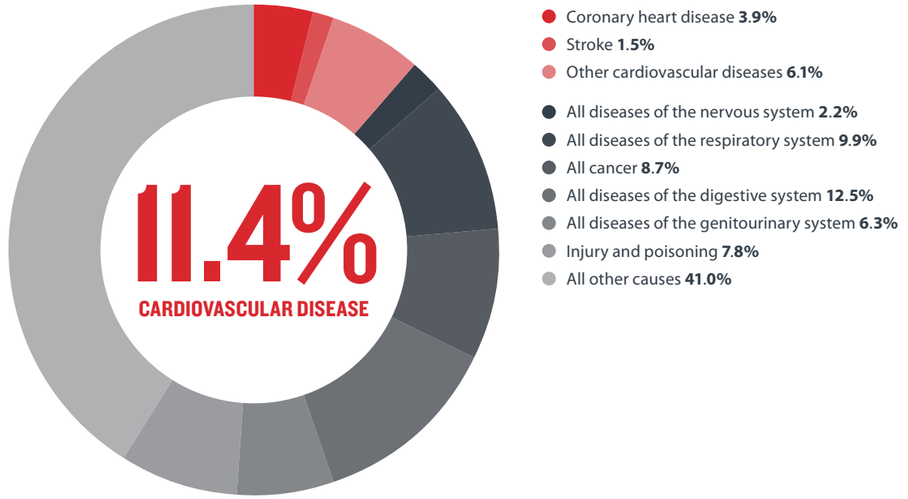
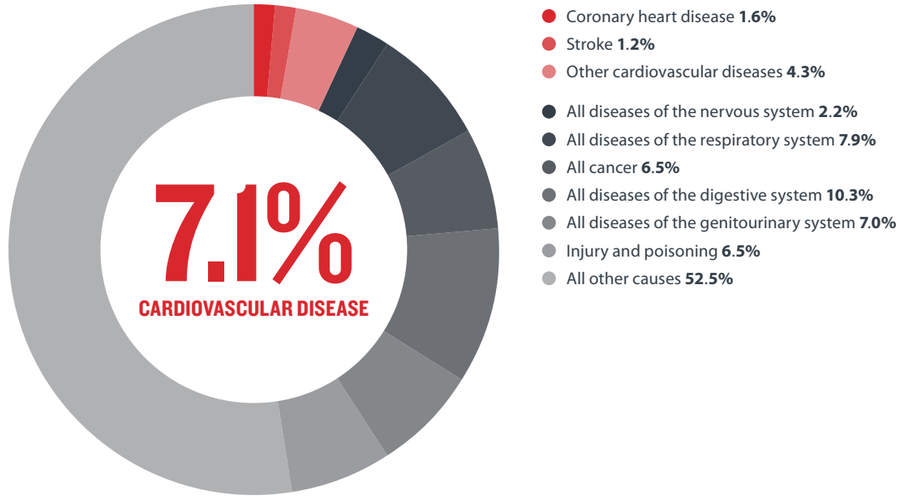


Figure 2.1h
Inpatient episodes by main diagnosis in women for National Health Service hospitals, Wales, 2013/14



The overall number of stroke episodes in 2013/14 in the UK was 233,261, which translates as someone going to hospital just over every two minutes due to stroke. As a proportion of all conditions in the UK, stroke accounts for about 1.1 per cent of all hospital episodes. Unlike the other main cardiovascular conditions, the incidence of stroke was higher in women than in men in every UK country, with the exception of Northern Ireland. In England, 97,593 and 99,763 stroke episodes were recorded among men and women respectively (**Table 2.1, Figures 2.1a to 2.1j**).

Figure 2.1i
Inpatient episodes by main diagnosis in men for National Health Service hospitals, Northern Ireland, 2013/14

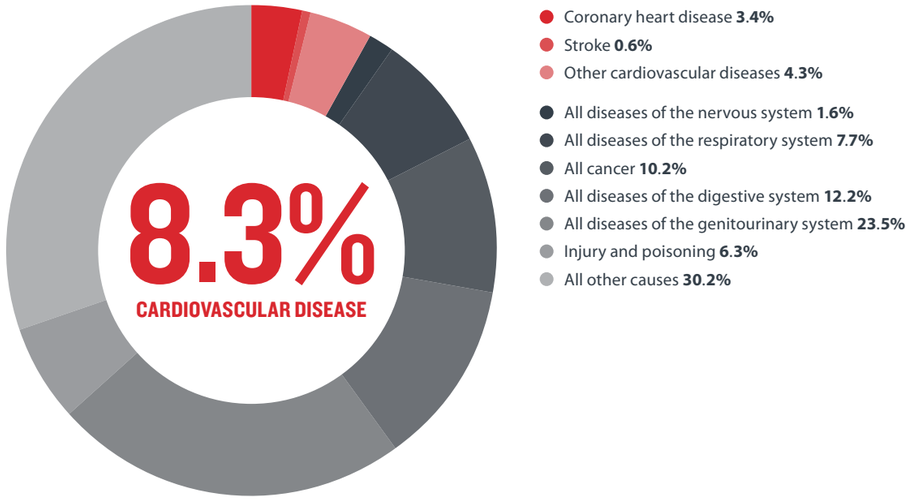
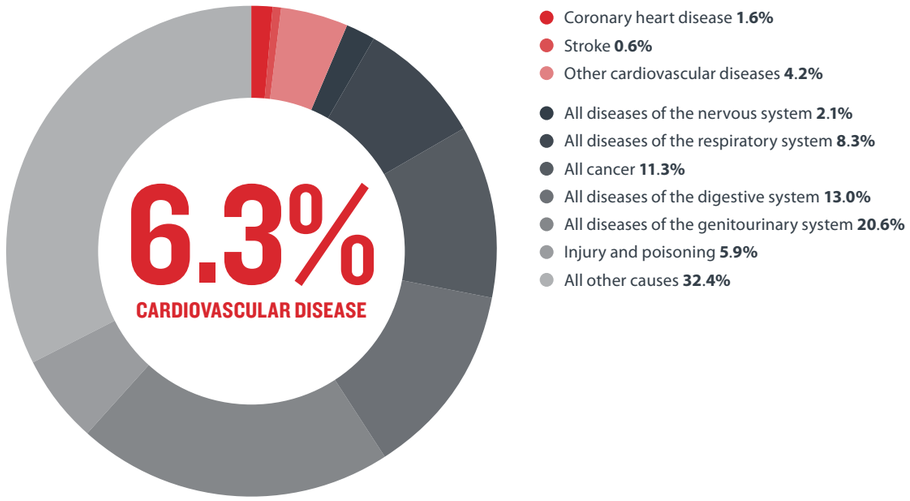


Figure 2.1j
Inpatient episodes by main diagnosis in women for National Health Service hospitals, Northern Ireland, 2013/14



TRENDS IN INCIDENCE

This year, in addition to publishing incidence estimates for the current year, we present trend data on inpatient episodes for CHD, stroke, and other cardiovascular conditions by gender for each of the four UK nations.

Table 2.2a
Inpatient episodes by main diagnosis in National Health Service hospitals in men, England, Scotland, Wales, Northern Ireland and United Kingdom, 2005/06 to 2013/14

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
England									
All diseases of the circulatory system (CVD) (I00-I99)	694,974	705,822	715,200	741,384	759,672	767,889	779,921	777,888	793,952
Coronary heart disease (I20-I25)	274,816	276,900	275,069	274,163	265,667	263,538	266,954	265,102	264,934
Stroke (I60-I69)	85,041	84,271	86,372	91,363	97,878	96,364	95,294	96,502	97,593
Other cardiovascular disease	335,117	344,651	353,759	375,858	396,127	407,987	417,673	416,284	431,425
Scotland									
All diseases of the circulatory system (CVD) (I00-I99)					80,575	83,336	83,040	83,723	87,460
Coronary heart disease (I20-I25)					30,871	32,357	31,154	31,154	31,695
Stroke (I60-I69)					10,898	10,965	10,864	11,565	9,430
Other cardiovascular disease					38,806	40,014	41,022	41,004	46,335
Wales									
All diseases of the circulatory system (CVD) (I00-I99)	40,598	41,128	41,525	43,120	44,510	44,492	42,800	45,446	49,671
Coronary heart disease (I20-I25)	15,153	15,597	15,821	15,946	15,915	15,621	15,240	15,745	16,806
Stroke (I60-I69)	5,461	5,460	5,304	5,715	5,827	6,045	5,389	5,672	6,617
Other cardiovascular disease	19,984	20,071	20,400	21,459	22,768	22,826	22,171	24,029	26,248
Northern Ireland									
All diseases of the circulatory system (CVD) (I00-I99)						24,499	26,591	24,154	25,674
Coronary heart disease (I20-I25)						9,800	9,521	9,846	10,697
Stroke (I60-I69)						2,485	1,628	1,437	1,742
Other cardiovascular disease						12,214	15,442	12,871	13,235
United Kingdom									
All diseases of the circulatory system (CVD) (I00-I99)						920,216	932,352	931,211	956,757
Coronary heart disease (I20-I25)						321,316	322,869	321,847	324,132
Stroke (I60-I69)						115,859	113,175	115,176	115,382
Other cardiovascular disease						483,041	496,308	494,188	517,243

Notes Finished consultant episodes: ordinary admissions and day cases combined. Pregnancy cases not included. ICD-10 codes in parentheses. Source Department of Health (2014). Hospital Episode Statistics 2013/14. www.hesonline.nhs.uk (accessed April 2015). ¶ Information Services Division Scotland (2014) Main diagnosis discharges from hospital 2013/14. www.isdscotland.org (accessed April 2015). Personal correspondence. ¶ NHS Wales Informatics Service (2014). The Patient Episode Database for Wales – 2013/14. www.infoandstats.wales.nhs.uk (accessed April 2015). ¶ Hospital Information Branch (2014). Northern Ireland Episode Based Acute Inpatient and Day Case Activity Data (2013/14) www.dhsspsni.gov.uk (accessed April 2015). Personal correspondence.

Table 2.2b
Inpatient episodes by main diagnosis in National Health Service hospitals in women, England, Scotland, Wales, Northern Ireland and United Kingdom, 2005/06 to 2013/14

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
England									
All diseases of the circulatory system (CVD) (I00-I99)	549,030	549,768	559,474	580,911	598,575	603,920	601,714	596,206	607,280
Coronary heart disease (I20-I25)	153,446	151,013	149,178	148,171	142,008	141,558	142,554	138,987	136,073
Stroke (I60-I69)	93,280	92,181	93,627	98,738	105,827	101,971	99,142	99,579	99,763
Other cardiovascular disease	302,304	306,574	316,669	334,002	350,740	360,391	360,018	357,640	371,444
Scotland									
All diseases of the circulatory system (CVD) (I00-I99)					64,325	65,696	65,699	65,043	69,838
Coronary heart disease (I20-I25)					17,052	17,800	17,545	16,486	17,920
Stroke (I60-I69)					11,543	11,674	11,798	12,172	9,827
Other cardiovascular disease					35,730	36,222	36,356	36,385	42,091
Wales									
All diseases of the circulatory system (CVD) (I00-I99)	34,220	34,207	34,456	35,594	37,089	36,410	34,789	35,507	38,434
Coronary heart disease (I20-I25)	9,357	9,461	9,335	9,128	8,978	8,679	8,664	8,590	8,841
Stroke (I60-I69)	6,199	5,683	5,884	6,598	6,584	6,426	6,071	6,408	6,648
Other cardiovascular disease	18,664	19,063	19,237	19,868	21,527	21,305	20,054	20,509	22,945
Northern Ireland									
All diseases of the circulatory system (CVD) (I00-I99)						18,388	20,026	18,721	18,622
Coronary heart disease (I20-I25)						4,609	4,539	4,674	4,681
Stroke (I60-I69)						2,387	1,571	1,506	1,641
Other cardiovascular disease						11,392	13,916	12,541	12,300
United Kingdom									
All diseases of the circulatory system (CVD) (I00-I99)						724,414	722,228	715,477	734,174
Coronary heart disease (I20-I25)						172,646	173,302	168,737	167,515
Stroke (I60-I69)						122,458	118,582	119,665	117,879
Other cardiovascular disease						429,310	430,344	427,075	448,780

Notes Finished consultant episodes: ordinary admissions and day cases combined. Pregnancy cases not included. ICD-10 codes in parentheses. ¶ For England, data for females up to and including 2011/12 is calculated as the difference between total finished consultant episodes and male consultant episodes. Source Department of Health (2014). Hospital Episode Statistics 2013/14. www.hesonline.nhs.uk (accessed April 2015). ¶ Information Services Division Scotland (2014) Main diagnosis discharges from hospital 2013/14. www.isdscotland.org (accessed April 2015). Personal correspondence. ¶ NHS Wales Informatics Service (2014). The Patient Episode Database for Wales – 2013/14. www.infoandstats.wales.nhs.uk (accessed April 2015). ¶ Hospital Information Branch (2014). Northern Ireland Episode Based Acute Inpatient and Day Case Activity Data (2013/14) www.dhsspsni.gov.uk (accessed April 2015). Personal correspondence.

Table 2.2c
Inpatient episodes by main diagnosis in National Health Service hospitals, England, Scotland, Wales, Northern Ireland and United Kingdom, 2005/06 to 2013/14

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
England									
All diseases of the circulatory system (CVD) (I00-I99)	1,244,004	1,255,590	1,274,674	1,322,295	1,358,247	1,371,809	1,381,635	1,374,094	1,401,232
Coronary heart disease (I20-I25)	428,262	427,913	424,247	422,334	407,675	405,096	409,508	404,089	401,007
Stroke (I60-I69)	178,321	176,452	179,999	190,101	203,705	198,335	194,436	196,081	197,356
Other cardiovascular disease	637,421	651,225	670,428	709,860	746,867	768,378	777,691	773,924	802,869
Scotland									
All diseases of the circulatory system (CVD) (I00-I99)					144,900	149,032	148,739	148,766	157,298
Coronary heart disease (I20-I25)					47,923	50,157	48,699	47,640	49,615
Stroke (I60-I69)					22,441	22,639	22,662	23,737	19,257
Other cardiovascular disease					74,536	76,236	77,378	77,389	88,426
Wales									
All diseases of the circulatory system (CVD) (I00-I99)	74,824	75,338	75,981	78,714	81,599	80,903	77,589	80,953	88,105
Coronary heart disease (I20-I25)	24,516	25,060	25,156	25,074	24,893	24,300	23,904	24,335	25,647
Stroke (I60-I69)	11,660	11,143	11,188	12,313	12,411	12,471	11,460	12,080	13,265
Other cardiovascular disease	38,648	39,135	39,637	41,327	44,295	44,132	42,225	44,538	49,193
Northern Ireland									
All diseases of the circulatory system (CVD) (I00-I99)						42,887	46,617	42,875	44,296
Coronary heart disease (I20-I25)						14,409	14,060	14,520	15,378
Stroke (I60-I69)						4,872	3,199	2,943	3,383
Other cardiovascular disease						23,606	29,358	25,412	25,535
United Kingdom									
All diseases of the circulatory system (CVD) (I00-I99)						1,644,631	1,654,580	1,646,688	1,690,931
Coronary heart disease (I20-I25)						493,962	496,171	490,584	491,647
Stroke (I60-I69)						238,317	231,757	234,841	233,261
Other cardiovascular disease						912,352	926,652	921,263	966,023

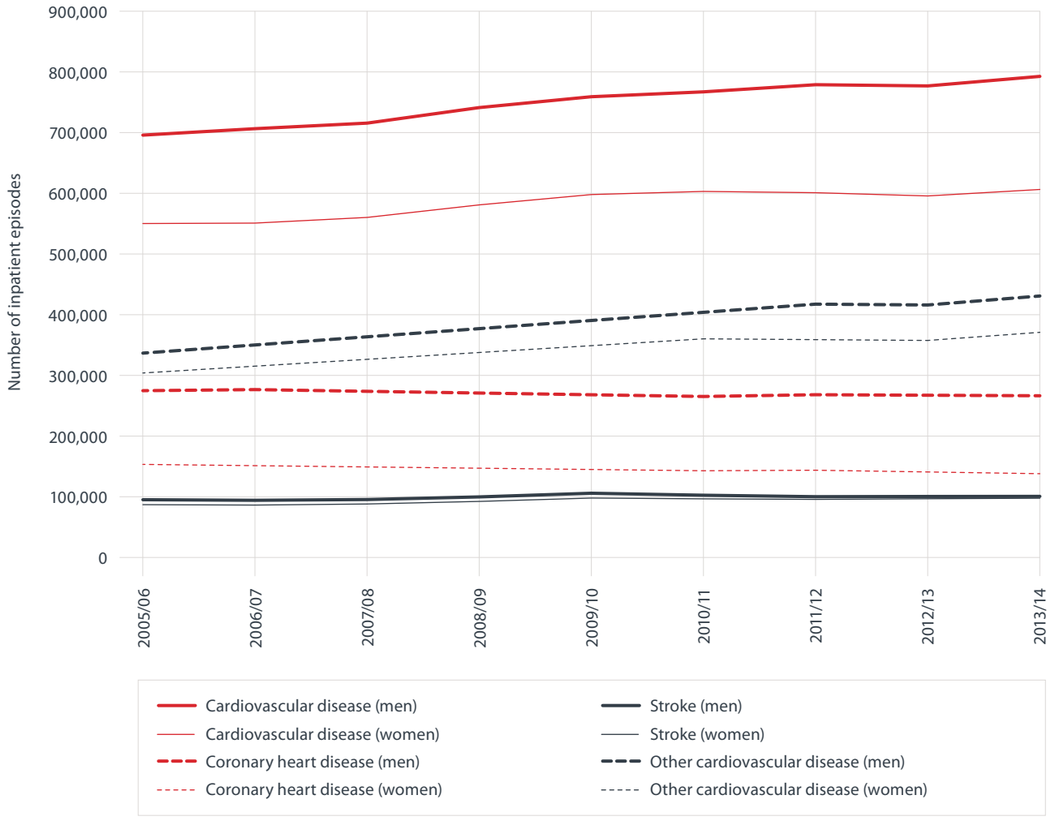
Notes Finished consultant episodes: ordinary admissions and day cases combined. Pregnancy cases not included. ICD-10 codes in parentheses. Source Department of Health (2014). Hospital Episode Statistics 2013/14. www.hesonline.nhs.uk (accessed April 2015). ¶ Information Services Division Scotland (2014) Main diagnosis discharges from hospital 2013/14. www.isdscotland.org (accessed April 2015). Personal correspondence. ¶ NHS Wales Informatics Service (2014). The Patient Episode Database for Wales – 2013/14. www.infoandstats.wales.nhs.uk (accessed April 2015). ¶ Hospital Information Branch (2014). Northern Ireland Episode Based Acute Inpatient and Day Case Activity Data (2013/14) www.dhsspsni.gov.uk (accessed April 2015). Personal correspondence.

For England we present data for all years between 2005/06 and 2013/14. There has been a small continuous decline in the number of inpatient episodes due to coronary heart disease (CHD) in both men and women during this period. In men, the number of episodes declined by around 4 per cent from 274,816 to 264,934 between 2005/06 and 2013/14, whilst in women there was a decrease of around 11 per cent from 153,446 to 136,073. In all years between 2005/06 and 2013/14, the incidence of CHD in men was close to double that in women **(Tables 2.2a and 2.2b, Figure 2.2a)**.

In England, between 2005/06 and 2009/10, the number of inpatient episodes due to stroke amongst men increased by about 12,800 and amongst women it increased by about 12,500. Between 2009/10 and 2013/14, the incidence of stroke has remained roughly constant in men, whereas in women the incidence declined. In all years between 2005/06 and 2013/14, the incidence of stroke in women has been slightly higher than that in men, although the gap between the genders has narrowed over the period **(Tables 2.2a and 2.2b, Figure 2.2a)**.

There was a noticeable increase in the number of inpatient episodes due to other cardiovascular conditions in both men and women in England between 2005/06 and 2013/14. In men, the number of episodes increased across the period by around 29 per cent from 335,117 to 431,425, whilst in women the number of episodes increased by about 23 per cent from 302,304 to 371,444 **(Tables 2.2 and 2.3, Figure 2.2a)**.

Figure 2.2a
Inpatient episodes for cardiovascular conditions in England, 2005/06 to 2013/14

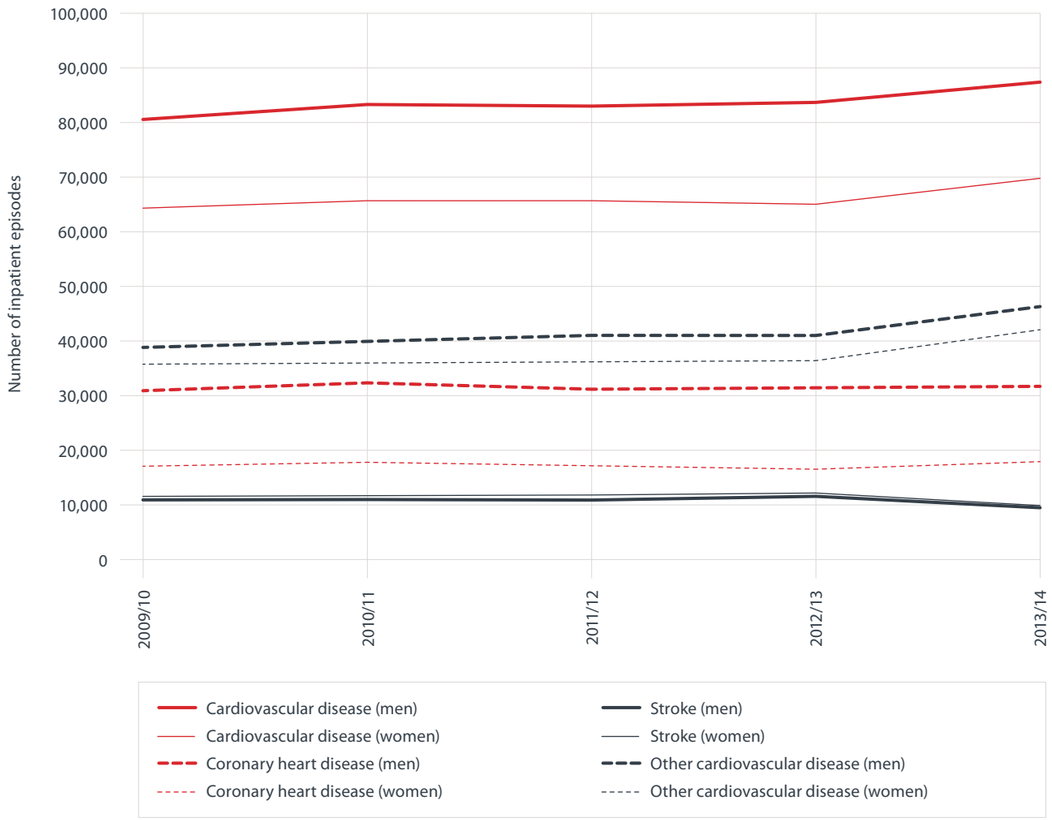


Incidence data for Scotland are presented for all years between 2009/10 and 2013/14. For both men and women the number of inpatient episodes due to CHD remained roughly constant during this period. In all years, the number of inpatient episodes due to CHD in men was almost double that in women **(Tables 2.2a and 2.2b, Figure 2.2b)**.

The number of inpatient episodes due to stroke decreased in both men and women by about 14 per cent and 15 per cent respectively between 2009/10 and 2013/14. In all years, the number of inpatient episodes due to stroke in women was slightly greater than that in men **(Tables 2.2a and 2.2b, Figure 2.2b)**.

Between 2009/10 and 2013/14, there was an increase in the number of inpatient episodes due to other cardiovascular conditions in Scotland. Across the period we present here the increase was around 19 per cent in men and 18 per cent in women. In both sexes, the greatest increase took place between 2012/13 and 2013/14 **(Tables 2.2a and 2.2b, Figure 2.2b)**.

Figure 2.2b
Inpatient episodes for cardiovascular conditions in Scotland, 2009/10 to 2013/14

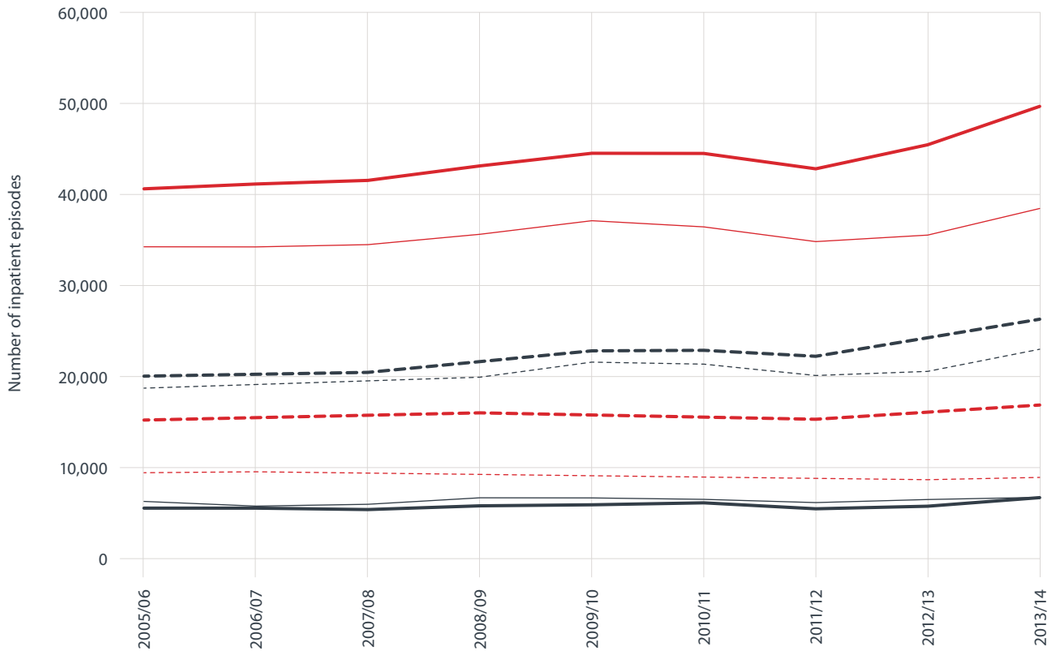


For Wales we present inpatient data for all years between 2005/06 and 2013/14. Amongst men the number of inpatient episodes due to CHD increased from 15,153 in 2005/06 to 15,946 in 2008/09. It then declined steadily back to 15,240 in 2011/12 before increasing to 16,808 in 2013/14. Amongst women, there was a continuous decline in the number of inpatient episodes due to CHD between 2005/06 and 2013/14. In all years shown here there have been more CHD inpatient episodes in men than in women, and in recent years this gap has widened **(Tables 2.2a and 2.2b, Figure 2.2c)**.

The number of inpatient episodes due to stroke in Wales has fluctuated slightly in both men and women between 2005/06 and 2011/12. However, in both sexes there has been a slight overall increase of about 1,200 in men and about 450 in women across the period. In every year between 2005/06 and 2011/12, more inpatient episodes due to stroke occurred in women than men **(Tables 2.2a and 2.2b, Figure 2.2c)**.

The number of inpatient episodes due to other cardiovascular conditions followed a similar pattern in men and women in Wales between 2005/06 and 2013/14. In men, there was a period of increase between 2005/06 and 2010/11. This was followed by a small decline between 2010/11 and 2011/12 before a sharp increase up until 2013/14. In women, the number of inpatient episodes for other cardiovascular conditions increased between 2005/06 and 2009/10. This was followed by a small decrease between 2009/10 and 2011/12 before a sharp increase up until 2013/14. In both men and women there was an overall increase of about 6,300 and about 4,300 respectively in the number of inpatient episodes due to other cardiovascular conditions between 2005/06 and 2013/14. In all years in this period, the number of episodes was greater in men than in women **(Tables 2.2a and 2.2b, Figure 2.2c)**.

Figure 2.2c
Inpatient episodes of specific cardiovascular conditions in Wales, 2005/06 to 2013/14



In Wales there were over 88,000 hospital episodes for cardiovascular disease in 2013/14

For Northern Ireland we present finished consultant episodes (FCE) data for all years between 2010/11 and 2013/14. Over this period, the number of episodes due to coronary heart disease (CHD) in men increased by about 900 with the greatest increase occurring between 2012/13 and 2013/14. In women, the incidence of CHD remained roughly constant between 2010/11 and 2013/14 **(Tables 2.2a and 2.2b, Figure 2.2d)**.

Stroke in Northern Ireland between 2010/11 and 2013/14 exhibits a very similar pattern in men and women. The number of episodes declined between 2010/11 and 2011/12 by about 860 in men and about 820 in women. The incidence of stroke then remained roughly constant in both sexes between 2011/12 and 2013/14 **(Tables 2.2a and 2.2b, Figure 2.2d)**.

For both sexes there has been no obvious trend in the number of inpatient episodes due to other cardiovascular conditions **(Tables 2.2a and 2.2b, Figure 2.2d)**.

Figure 2.2d
Inpatient episodes for specific cardiovascular conditions in Northern Ireland, 2010/11 to 2013/14

PREVALENCE

The prevalence of a disease describes the number of people in a population who are currently living with the disease, or in the case of cardiovascular events, the number of people living today who have ever suffered (and survived) an event.

One source of prevalence estimates for cardiovascular conditions in UK nations, as well as the regions of England, is the Quality and Outcomes Framework (QOF). This framework became part of general practice contracts in 2004 and rewards GPs for keeping records of the number of patients within their practices who have been diagnosed with certain conditions. According to QOF data, there are 2.29 million people in the UK living with CHD, around 1.18 million people living with stroke, around 9.25 million living with hypertension, 493,000 living with heart failure, 1.06 million diagnosed with atrial fibrillation, and 446,000 suffering from peripheral arterial disease (PAD) **(Table 2.3)**.

Comparing the rates between UK nations, England had the lowest prevalence of all conditions except hypertension, for which the prevalence was lowest in Northern Ireland. Scotland had the highest prevalence of CHD, stroke and PAD, whilst Wales had the highest prevalence of hypertension, heart failure and atrial fibrillation **(Table 2.3)**.

Comparing the rates for English regions, the overall prevalence of all selected cardiovascular conditions is higher in regions in the north than those in the south. The North East region had the highest prevalence of all conditions except atrial fibrillation, which was highest in the South West. London had the lowest prevalence of all conditions **(Table 2.3)**.

It is important to note that these rates have not been adjusted to account for differences in the age structures of populations, an issue which is of significance for cardiovascular disease when old age is a prominent driver. As such, comparisons between regions and between countries should be treated with some caution.

Prevalence of cardiovascular conditions is generally lowest in the south of England

Table 2.3
Prevalence of selected cardiovascular conditions by region and country, United Kingdom

Country/Government Office Region (GOR)	List size	Coronary Heart Disease Register		Stroke or Transient Ischaemic Attacks (TIA) Register		Hypertension Register	
		N	%	N	%	N	%
North East	2,705,831	120,276	4.4	58,505	2.2	421,239	15.6
North West	7,436,971	288,461	3.9	141,165	1.9	1,061,265	14.3
Yorkshire and the Humber	5,563,908	215,969	3.9	106,463	1.9	784,928	14.1
East Midlands	4,772,165	170,279	3.6	86,947	1.8	686,799	14.4
West Midlands	5,894,626	200,154	3.4	105,947	1.8	869,479	14.8
East of England	6,162,937	198,639	3.2	103,988	1.7	870,841	14.1
London	9,078,143	191,732	2.1	95,776	1.1	1,003,148	11.1
South East	9,135,750	273,292	3.0	153,069	1.7	1,228,605	13.4
South West	5,578,752	196,201	3.5	114,323	2.0	810,015	14.5
England	56,329,083	1,855,003	3.3	966,183	1.7	7,736,319	13.7
Scotland	5,526,549	234,582	4.2	119,265	2.2	768,526	13.9
Wales	3,161,321	122,552	3.9	64,003	2.0	492,376	15.6
Northern Ireland	1,936,339	74,395	3.8	35,100	1.8	255,386	13.2
UK	66,953,292	2,286,532	3.4	1,184,551	1.8	9,252,607	13.8

Country/Government Office Region (GOR)	List size	Heart Failure Register		Atrial Fibrillation Register		Peripheral Arterial Disease (PAD) Register	
		N	%	N	%	N	%
North East	2,705,831	24,182	0.9	46,738	1.7	26,251	1.0
North West	7,436,971	64,242	0.9	122,870	1.7	64,597	0.9
Yorkshire and the Humber	5,563,908	43,197	0.8	91,279	1.6	43,040	0.8
East Midlands	4,772,165	38,435	0.8	79,172	1.7	30,302	0.6
West Midlands	5,894,626	44,299	0.8	94,229	1.6	39,097	0.7
East of England	6,162,937	44,316	0.7	102,474	1.7	34,708	0.6
London	9,078,143	44,331	0.5	83,444	0.9	34,471	0.4
South East	9,135,750	55,843	0.6	153,397	1.7	50,514	0.6
South West	5,578,752	42,930	0.8	110,423	2.0	37,633	0.7
England	56,329,083	401,775	0.7	884,026	1.6	360,613	0.6
Scotland	5,526,549	45,756	0.8	88,049	1.6	48,942	0.9
Wales	3,161,321	30,141	1.0	60,260	1.9	22,784	0.7
Northern Ireland	1,936,339	15,142	0.8	30,758	1.6	13,679	0.7
UK	66,953,292	492,814	0.7	1,063,093	1.6	446,018	0.7

Notes England – Copyright © Health and Social Care Information Centre 2015. ¶ These data are raw prevalence rates: they are not adjusted to account for patient age distribution or other factors that may differ between general practices. Source England – Health and Social Care Information Centre. QOF achievement data 2013/14. ¶ Wales – StatsWales. QOF achievement data 2013/14. ¶ Scotland – ISD Scotland. QOF achievement data 2013/14. ¶ Northern Ireland – Department of Health, Social Services and Public Safety. QOF achievement data 2014/15.

TRENDS IN PREVALENCE

In this year's compendium, in addition to publishing prevalence estimates for the current year, we are publishing prevalence trend data from a variety of sources.

Quality & Outcomes Framework (QOF) data on trends in the prevalence of heart failure, atrial fibrillation, CHD and stroke/TIA (transient ischaemic attack) are available for each UK country. These data relate to individuals of all ages. For England, QOF prevalence data for CHD and stroke/TIA are available from 2004/05 while data on the prevalence of heart failure and atrial fibrillation are available from 2006/07. There was little change in the prevalence of CVD conditions in England across the years with available data; there were slight decreases in heart failure and CHD and slight increases in atrial fibrillation and stroke/TIA (**Table 2.4, Figure 2.4**).

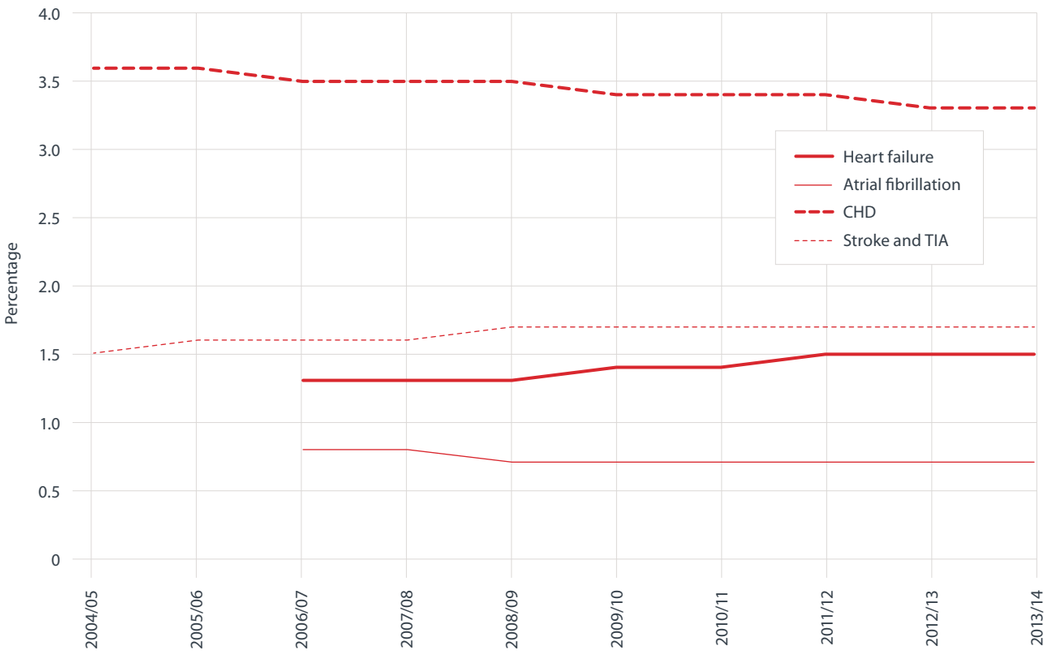
Prevalence rates for CHD have decreased in recent years; rates for other cardiovascular conditions have increased or remain stable

Table 2.4
Prevalence of selected cardiovascular conditions, England 2004/05 to 2013/14

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
	%	%	%	%	%	%	%	%	%	%
CHD	3.6	3.6	3.5	3.5	3.5	3.4	3.4	3.4	3.3	3.3
Stroke and TIA	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7
Atrial fibrillation	–	–	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.5
Heart failure	–	–	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7

Notes CHD: Coronary Heart Disease. ¶ TIA: Transient Ischaemic Attack. ¶ These data are raw prevalence rates: they are not adjusted to account for patient age distribution or other factors that may differ between general practices. Source England – Health and Social Care Information Centre. QOF achievement data.

Figure 2.4
Prevalence of selected cardiovascular conditions, England 2004/05 to 2013/14



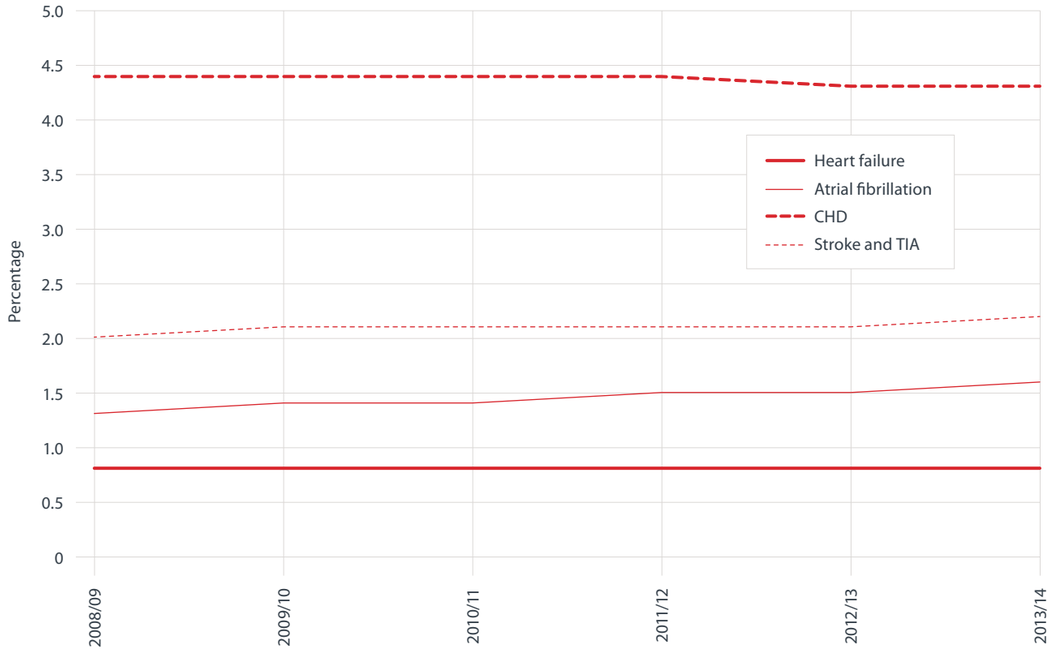
For Scotland, QOF trend data are available from 2008/09. Although there was a modest increase from 1.3 per cent to 1.6 per cent in the prevalence of atrial fibrillation, the prevalence of other conditions changed little across this period **(Table 2.5, Figure 2.5)**.

Table 2.5
Prevalence of selected cardiovascular conditions, Scotland 2008/09 to 2013/14

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
	%	%	%	%	%	%
CHD	4.4	4.4	4.4	4.4	4.3	4.3
Stroke and TIA	2.0	2.1	2.1	2.1	2.1	2.2
Atrial fibrillation	1.3	1.4	1.4	1.5	1.5	1.6
Heart failure	0.8	0.8	0.8	0.8	0.8	0.8

Notes CHD: Coronary Heart Disease. ¶ TIA: Transient Ischaemic Attack. ¶ These data are raw prevalence rates: they are not adjusted to account for patient age distribution or other factors that may differ between general practices. Source Scotland – ISD Scotland. QOF achievement data.

Figure 2.5
Prevalence of selected cardiovascular conditions, Scotland 2008/09 to 2013/14



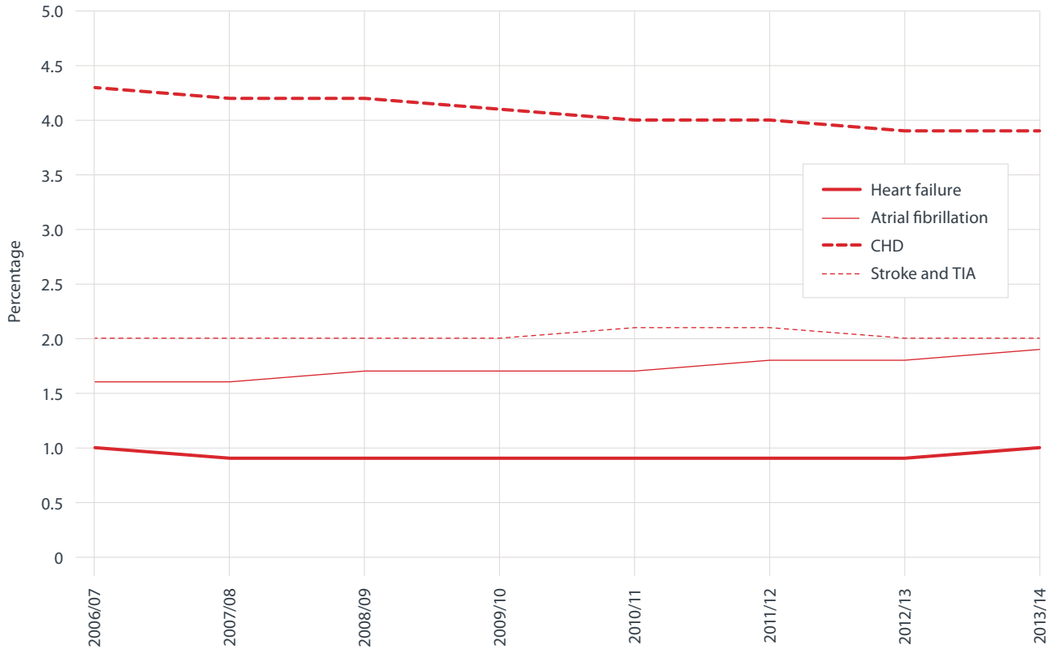
For Wales, QOF data are available from 2006/07. As found for the other UK nations prevalence for cardiovascular conditions changed little over these years. There was a modest increase from 1.6 per cent to 1.9 per cent in the prevalence of atrial fibrillation whilst the prevalence of coronary heart disease decreased from 4.3 per cent to 3.9 per cent over this period; heart failure and stroke/TIA remained at fairly constant levels (**Table 2.6, Figure 2.6**).

Table 2.6
Prevalence of selected cardiovascular conditions, Wales 2006/07 to 2013/14

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
	%	%	%	%	%	%	%	%
CHD	4.3	4.2	4.2	4.1	4.0	4.0	3.9	3.9
Stroke and TIA	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0
Atrial fibrillation	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.9
Heart failure	1.0	0.9	0.9	0.9	0.9	0.9	0.9	1.0

Notes CHD: Coronary Heart Disease. ¶ TIA: Transient Ischaemic Attack. ¶ These data are raw prevalence rates: they are not adjusted to account for patient age distribution or other factors that may differ between general practices. Source Wales – StatsWales. QOF achievement data.

Figure 2.6
Prevalence of selected cardiovascular conditions, Wales 2006/07 to 2013/14



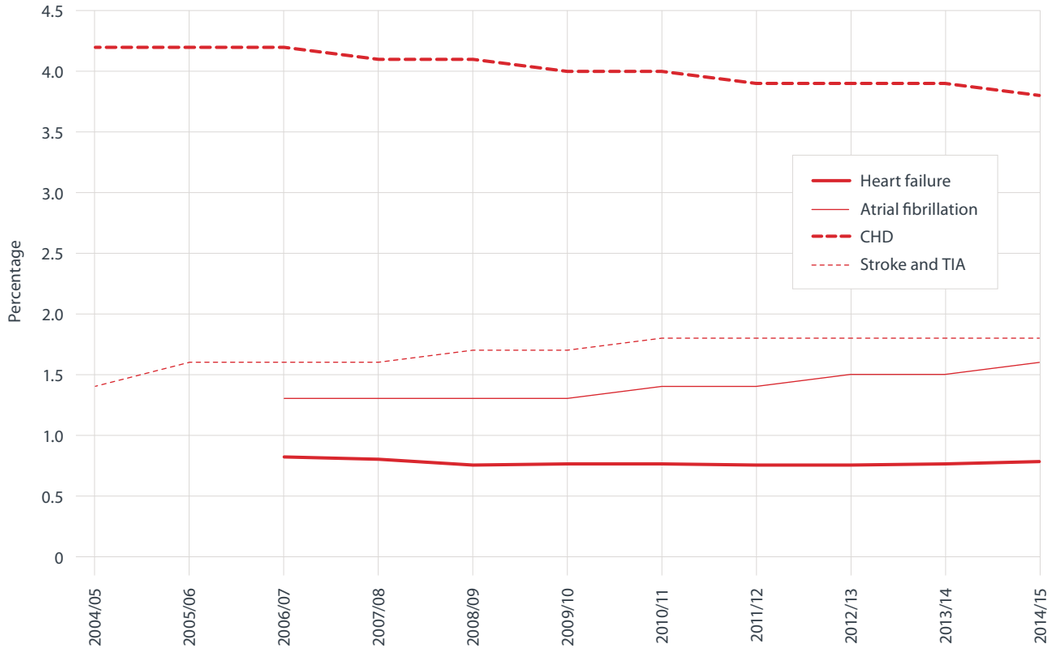
QOF data for Northern Ireland showed that the prevalence of heart failure remained constant between 2006/07 and 2014/15 at 0.8 per cent. Slight increases in the prevalence of atrial fibrillation and stroke/TIA were found, whilst the prevalence of coronary heart disease declined steadily from 2004/05 when it was 4.2 per cent to its most recent rate of 3.8 per cent in 2014/15 (**Table 2.7, Figure 2.7**).

Table 2.7
Prevalence of selected cardiovascular conditions, Northern Ireland 2004/05 to 2014/15

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
	%	%	%	%	%	%	%	%	%	%	%
CHD	4.2	4.2	4.2	4.1	4.1	4.0	4.0	3.9	3.9	3.9	3.8
Stroke and TIA	1.4	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.8
Atrial fibrillation	–	–	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.6
Heart failure	–	–	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

Notes CHD: Coronary Heart Disease. ¶ TIA: Transient Ischaemic Attack. ¶ These data are raw prevalence rates: they are not adjusted to account for patient age distribution or other factors that may differ between general practices. Source Health, Social Services and Public Safety (2014). Quality and Outcomes Framework Achievement Data, Northern Ireland 2014/15. ¶ http://www.dhsspsni.gov.uk/index/statistics/qof/qof-achievement.htm (accessed June 2015).

Figure 2.7
Prevalence of selected cardiovascular conditions, Northern Ireland 2004/05 to 2014/15



Health surveys represent another source of estimates of cardiovascular disease prevalence over time. Unlike QOF data, the data from health surveys are self-reported. This difference in the method of data collection is likely to be responsible for at least some of the discrepancies in the estimates obtained from these two types of sources. It is also worth noting that, while the QOF prevalence estimates relate to all ages, those from the health surveys we present relate only to adults aged 16 years and older. This difference is unlikely to contribute significantly to the different prevalence estimates, however, since the number of cardiovascular events that occur between birth and 16 years of age is relatively small.

Since it is reported by individuals themselves, there is a risk of report bias associated with self-reported health survey data. This could influence the resulting prevalence estimates, which should therefore be interpreted with some caution. However, analysing the general trends in the prevalence of conditions is less problematic, if we assume that the extent of self-report bias remains roughly consistent between years.

The General Household Survey (up to 2005) and the General Lifestyle Survey (from 2006) collect data on the prevalence of myocardial infarction (MI), stroke, and cardiovascular disease (CVD) in Great Britain. Here we present these data from 1988 to 2011. The prevalence of MI in men in Great Britain remained around 2.3 per cent from 1988 to 1998. It then declined slightly to 1.7 per cent in 2011. In women, the prevalence of MI increased slightly between 1988 and 1996 before declining gradually to 1.0 per cent in 2011 **(Tables 2.8a and 2.8b, Figure 2.8)**.

Table 2.8a
Prevalence of cardiovascular conditions in men by age, Great Britain 1988 to 2011

	1988	1989	1994	1995	1996	1998	2000	2001	2002
	%	%	%	%	%	%	%	%	%
Myocardial infarction									
16-44	0.2	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.1
45-64	4.7	4.6	3.1	3.4	3.0	4.0	3.1	3.2	2.6
65-74	7.5	10.0	6.6	9.2	6.6	8.9	8.6	7.5	7.0
75+	8.2	7.9	8.1	5.4	7.5	11.1	9.4	11.3	11.8
All ages	2.2	2.3	2.3	2.5	2.3	3.2	2.5	2.5	2.4
Stroke									
16-44	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.1
45-64	1.0	1.0	1.0	0.6	0.9	0.8	1.1	1.1	0.8
65-74	3.9	3.0	3.0	2.0	2.7	2.6	3.6	1.8	2.6
75+	3.8	4.8	3.7	3.1	4.3	3.0	3.6	2.3	3.9
All ages	0.8	0.7	0.9	0.6	1.0	0.8	1.0	0.8	0.9
CVD									
16-44	1.7	1.2	1.6	1.2	1.4	1.9	1.8	2.2	1.7
45-64	14.3	13.3	13.8	12.9	14.1	15.5	13.7	15.0	15.2
65-74	24.7	25.9	24.6	27.2	26.8	28.1	29.0	31.3	33.0
75+	22.3	22.1	23.6	23.8	24.9	31.0	30.8	33.3	39.8
All ages	7.3	6.9	9.3	9.3	9.9	11.3	10.7	11.0	11.9

	2003	2004	2005	2006	2007	2008	2009	2010	2011
	%	%	%	%	%	%	%	%	%
Myocardial infarction									
16-44	0.2	0.0	0.1	0.2	0.0	*	0.2	0.2	0.1
45-64	2.2	2.6	3.0	2.4	2.2	2.2	2.1	2.1	1.9
65-74	8.7	8.4	6.2	6.4	6.5	5.4	5.8	5.8	4.7
75+	8.0	8.3	6.5	7.2	5.7	5.8	6.3	6.3	7.2
All ages	2.3	2.3	2.1	2.0	1.8	1.7	1.9	1.9	1.7
Stroke									
16-44	0.1	0.1	0.1	0.1	0.0	0.1	*	*	0.1
45-64	0.9	0.8	1.0	0.7	0.8	0.6	0.8	0.8	0.8
65-74	2.0	1.7	1.8	3.2	2.8	2.4	2.3	2.3	1.7
75+	3.7	5.4	3.5	3.5	3.8	3.3	3.1	3.1	2.6
All ages	0.8	0.8	0.8	0.9	0.8	0.7	0.7	0.7	0.7
CVD									
16-44	1.7	1.4	1.5	1.3	1.0	1.4	1.6	1.5	1.5
45-64	14.7	14.6	16.7	15.9	14.7	15.6	14.9	14.6	14.6
65-74	34.5	29.5	28.8	35.5	32.0	31.2	32.2	33.9	28.5
75+	31.7	37.3	32.9	38.4	33.8	31.1	33.7	35.5	34.1
All ages	11.3	11.1	11.4	12.0	10.9	11.1	11.4	11.7	11.1

Notes * Information is suppressed for low cell count as a measure of disclosure control. Source Office for National Statistics (2006) 2005 General Household Survey. ¶ Office for National Statistics (2007-2012) General Lifestyle Survey 2006-2011.

Table 2.8b

Prevalence of cardiovascular conditions in women by age, Great Britain 1988 to 2011

	1988	1989	1994	1995	1996	1998	2000	2001	2002
	%	%	%	%	%	%	%	%	%
Myocardial infarction									
16-44	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0
45-64	2.0	2.4	2.0	1.7	2.8	1.8	1.8	1.6	1.5
65-74	6.7	6.4	5.9	4.5	6.5	6.5	5.4	3.9	5.8
75+	6.6	6.5	7.3	7.3	8.3	8.6	7.8	5.3	9.0
All ages	1.7	1.7	2.1	1.8	2.4	2.2	2.0	1.5	2.0
Stroke									
16-44	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.0	0.1
45-64	0.4	0.4	0.5	0.5	0.5	0.5	0.7	0.7	0.8
65-74	2.4	1.5	1.8	1.9	1.7	1.5	1.7	2.0	2.2
75+	3.0	4.0	3.6	3.5	2.2	4.1	3.3	3.9	3.7
All ages	0.6	0.6	0.8	0.7	0.6	0.8	0.8	0.9	0.9
CVD									
16-44	1.7	2.2	1.7	1.3	1.5	1.3	1.8	1.5	1.9
45-64	10.8	11.5	10.6	9.7	12.4	10.6	11.7	11.5	12.9
65-74	22.8	22.0	23.9	19.7	22.4	26.8	26.2	25.2	29.1
75+	26.5	26.8	25.1	29.2	25.4	29.9	30.6	32.2	37.9
All ages	7.7	7.7	9.2	8.7	9.5	9.9	10.4	10.2	11.9

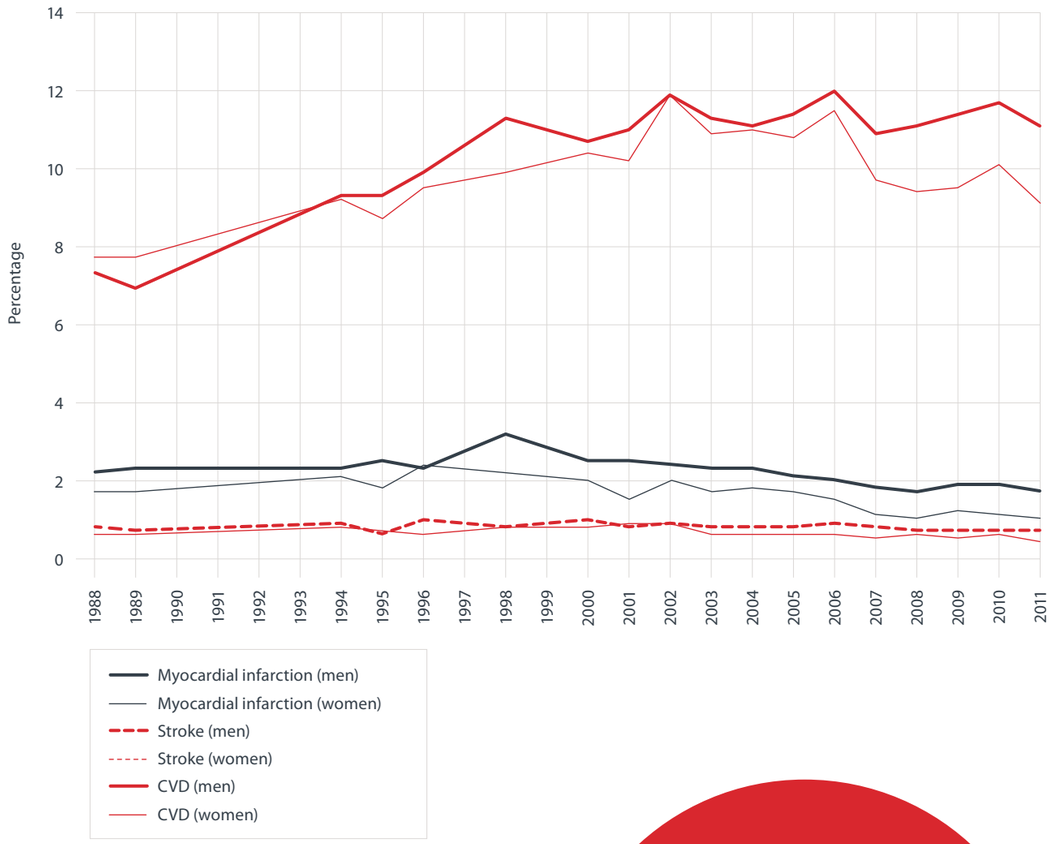
	2003	2004	2005	2006	2007	2008	2009	2010	2011
	%	%	%	%	%	%	%	%	%
Myocardial infarction									
16-44	0.1	0.0	0.0	0.1	0.1	*	0.1	0.1	0.1
45-64	1.3	1.8	1.4	1.2	0.8	0.8	0.9	0.7	0.8
65-74	6.3	5.1	4.8	3.9	2.6	2.6	2.9	3.1	3.1
75+	5.2	6.7	7.0	6.5	5.1	4.5	4.9	4.6	3.7
All ages	1.7	1.8	1.7	1.5	1.1	1.0	1.2	1.1	1.0
Stroke									
16-44	0.0	0.0	0.1	0.1	0.1	*	0.1	0.1	0.1
45-64	0.4	0.5	0.4	0.5	0.5	0.6	0.4	0.7	0.3
65-74	1.9	1.2	1.5	1.7	1.2	1.6	1.3	1.4	1.2
75+	2.6	2.8	3.0	2.1	1.9	2.7	2.1	1.8	1.4
All ages	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.6	0.4
CVD									
16-44	2.2	1.7	2.0	2.3	1.8	1.2	1.7	2.1	1.9
45-64	11.8	13.2	12.3	12.8	11.0	9.9	9.8	10.6	8.4
65-74	29.7	26.6	26.0	29.0	23.9	23.0	26.2	22.3	22.5
75+	30.3	31.9	31.3	33.3	27.7	32.5	27.5	31.7	29.8
All ages	10.9	11.0	10.8	11.5	9.7	9.4	9.5	10.1	9.1

Notes *Information is suppressed for low cell count as a measure of disclosure control. Source Office for National Statistics (2006) 2005 General Household Survey. ¶ Office for National Statistics (2007-2012) General Lifestyle Survey 2006-2011.

The prevalence of stroke in both sexes in Great Britain changed very little between 1988 and 2011, at around 0.8 per cent for men and 0.7 per cent for women. The prevalence of cardiovascular disease (CVD) in men increased from 7.3 per cent to 11.9 per cent between 1988 and 2002 after which it remained relatively constant at around 11 per cent. In women, the prevalence of CVD increased from 7.7 per cent to 11.9 per cent between 1988 and 2002 before declining slightly to 9.1 per cent in 2011 **(Tables 2.8a and 2.8b, Figure 2.8)**.

Figure 2.8

Prevalence of cardiovascular conditions by gender, Great Britain 1988 to 2011



Prevalence rates reported in the General Lifestyle Survey (GB) show a decrease in stroke and heart attacks. Overall CVD prevalence in this period peaked in 2006

Prevalence trend data for individual nations are also available from the national health surveys of England, Scotland and Wales. It is worth noting that the health surveys of the different UK nations collect data on slightly different combinations of cardiovascular conditions, which is reflected in the information we present.

Prevalence trend data for England are available in relation to myocardial infarction (MI), angina, coronary heart disease (CHD) and stroke. The prevalence rate of MI in England in 2011 was 3.7 per cent for men and 1.6 per cent for women. In men, in 2003, the prevalence was similar to that in 2011. However, there was an increase to 4.1 per cent in 2006 before it declined again to 3.7 per cent in 2011. In women, the prevalence of MI remained fairly constant between 2003 and 2011. In all years, the prevalence of MI in men was more than two times that in women (**Table 2.9, Figure 2.9**).

Table 2.9
Prevalence of selected cardiovascular conditions by gender, England 2003 to 2011

	2003	2006	2011
	%	%	%
Myocardial infarction			
Men	3.8	4.1	3.7
Women	1.7	1.7	1.6
All adults	–	2.9	2.6
Angina			
Men	4.8	4.8	3.9
Women	3.4	3.3	2.5
All adults	–	4.0	3.2
CHD			
Men	6.4	6.5	5.7
Women	4.1	4.0	3.5
All adults	5.2	5.2	4.6
Stroke			
Men	2.4	2.4	2.7
Women	2.2	2.2	2.1
All adults	2.3	2.3	2.4
Any CVD			
Men	13.6	13.6	13.9
Women	13.0	13.0	13.4
All adults	–	13.3	13.6

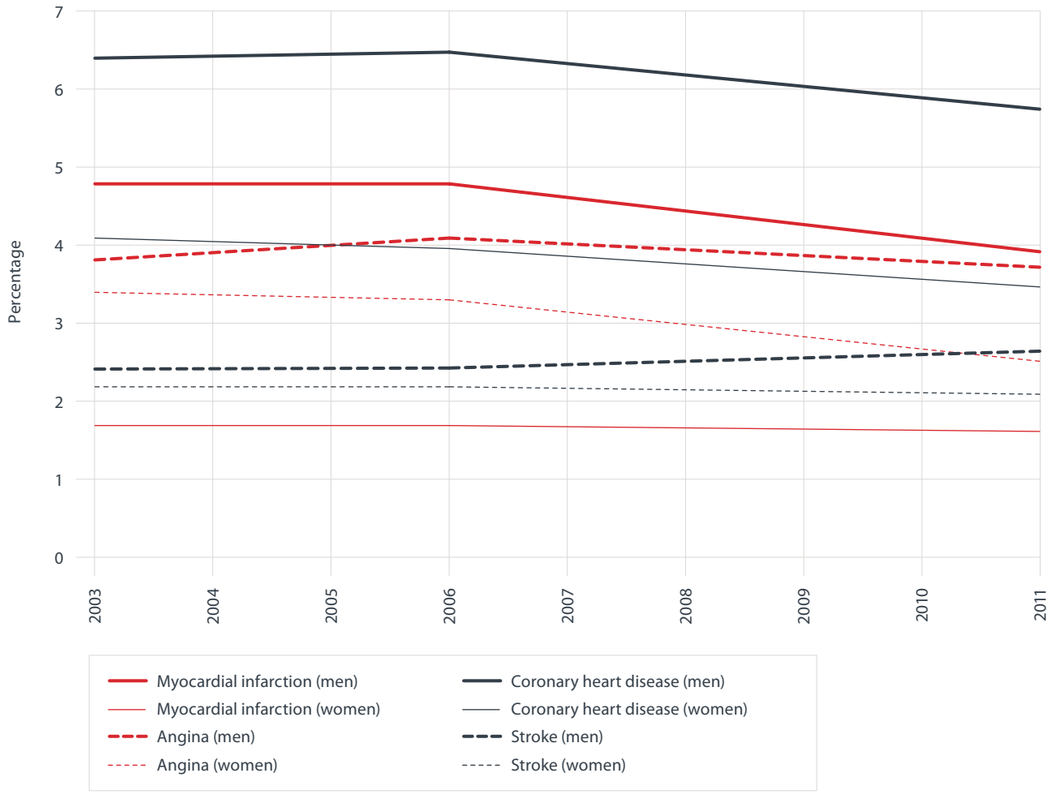
Notes For adults aged 16 years and over. ¶ CHD: Coronary heart disease. ¶ CVD: Cardiovascular disease. ¶ Data have been weighted for non-response. ¶ Source Health & Social Care Information Centre. (2014). Health Survey for England 2013, Trend Tables. www.hscic.gov.uk (accessed June 2015).

In 2011, the prevalence rate of angina in England was 3.9 per cent in men and 2.5 per cent in women. In both men and women there was a decrease in the prevalence between 2003 and 2011.

The prevalence of coronary heart disease (CHD), which includes both MI and angina, in England in 2011 was 5.7 per cent in men and 3.5 per cent in women. There was a notable decrease in the prevalence of CHD in both men and women between 2003 and 2011.

The prevalence of stroke shows a different pattern from that of the other conditions presented here. In men in England, there was no change in the prevalence of stoke between 2003 and 2006; then between 2006 and 2011 there was a slight increase from 2.4 per cent to 2.7 per cent. In women, there has been very little change in the prevalence of stroke between 2003 and 2011.

Figure 2.9
Prevalence of selected cardiovascular conditions by gender, England 2003 to 2011



Prevalence trend data for Scotland are available for coronary heart disease (CHD) and stroke for 2003 and then for every year from 2008 to 2014. In men, the prevalence of CHD between 2003 and 2013 decreased from 8.2 per cent to 7.1 per cent, but 2014 saw a rise to 7.8 per cent. In women, the prevalence of CHD declined from 6.5 per cent in 2003 to 4.7 per cent in 2014 **(Table 2.10, Figure 2.10)**.

Table 2.10
Prevalence of selected cardiovascular conditions by gender, Scotland 2003 to 2014

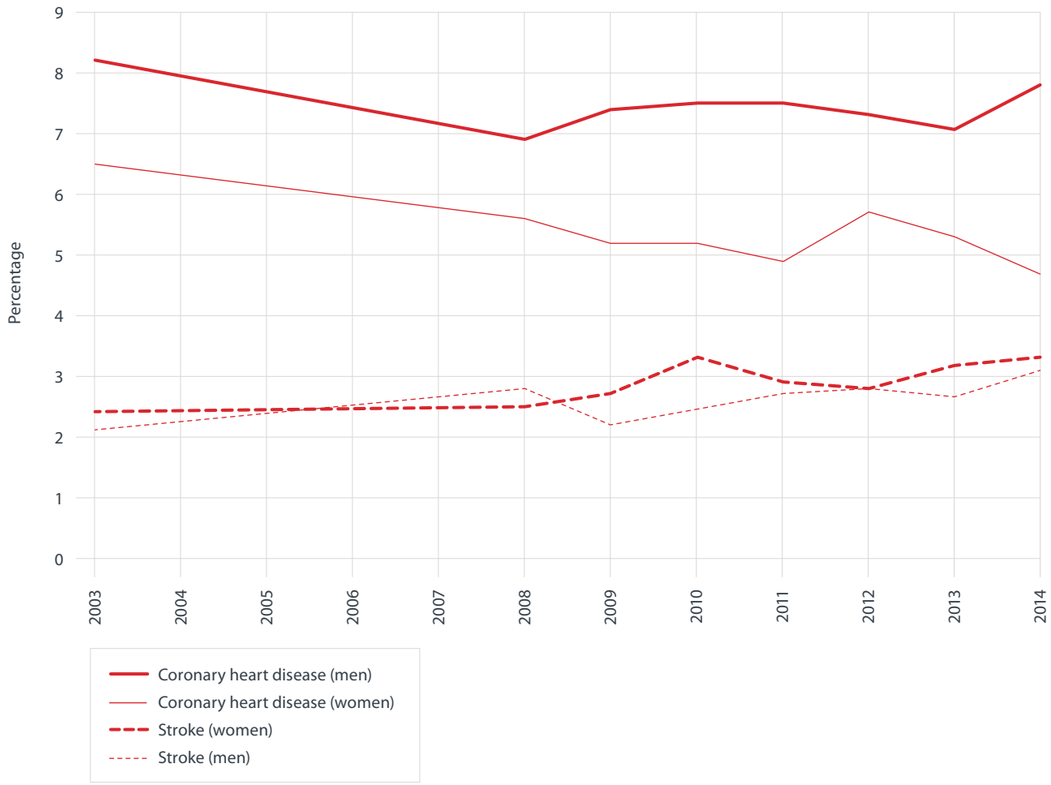
	2003	2008	2009	2010	2011	2012	2013	2014
	%	%	%	%	%	%	%	%
CHD								
Men	8.2	6.9	7.4	7.5	7.5	7.3	7.1	7.8
Women	6.5	5.6	5.2	5.2	4.9	5.7	5.3	4.7
All adults	7.3	6.2	6.2	6.3	6.2	6.5	6.1	6.2
Stroke								
Men	2.4	2.5	2.7	3.3	2.9	2.8	3.2	3.3
Women	2.1	2.8	2.2	2.5	2.7	2.8	2.7	3.1
All adults	2.2	2.6	2.5	2.9	2.8	2.8	2.9	3.2
Any CVD								
Men	14.9	15.1	15.2	16.3	15.6	16.6	15.7	18.2
Women	14.5	15.5	13.7	14.0	13.8	15.9	15.3	13.8
All adults	14.7	15.3	14.4	15.1	14.6	16.2	15.5	15.9

Notes For adults aged 16 years and over. ¶ CHD: Coronary heart disease. ¶ CVD: Cardiovascular disease. Source The Scottish Government (2015). The Scottish Health Survey 2014. http://www.gov.scot/Publications/2015/09/6648 (accessed September 2015).

Recent prevalence rates show a decrease in CHD and an increase in stroke in Scotland. Overall CVD prevalence in this period peaked in 2012 with rates for men and women diverging in 2014

The prevalence of stroke in Scotland in 2014 was 3.3 per cent for men and 3.1 per cent for women. In both sexes, this represents an increase from the prevalence of stroke in 2003 (2.4 per cent for men and 2.1 per cent for women) **(Table 2.10, Figure 2.10)**.

Figure 2.10
Prevalence of selected cardiovascular conditions by gender, Scotland 2003 to 2014



In Wales, prevalence trend data are available for MI, angina and heart failure for 2003/04 and then for every year between 2007 and 2014. In men, the prevalence of MI was the same in 2003/04 and 2008 (6.0 per cent). The prevalence of MI then dropped from 6.0 per cent to 5.0 per cent between 2008 and 2009 and remained around this level between 2009 and 2013 before a reported drop to 4.6 per cent for 2014. In women, there was an overall decrease in the prevalence of MI from 3.0 per cent in 2003/04 to 2.4 per cent in 2014 **(Table 2.11, Figure 2.11)**.

There has been a strong decline in the prevalence of angina amongst both men and women in Wales between 2003/04 and 2014. In men, the prevalence declined from 6.0 per cent in 2003/04 to 3.3 per cent in 2014. In women, there was a continuous decline in the prevalence from 5.0 per cent in 2003/04 to 3.0 per cent in 2014 **(Table 2.11, Figure 2.11)**.

Table 2.11
Prevalence of selected heart conditions by gender, Wales 2003/04 to 2014

	2003/04	2007	2008	2009	2010	2011	2012	2013	2014
	%	%	%	%	%	%	%	%	%
Myocardial infarction									
Men	6.0	6.0	6.0	5.0	5.0	5.1	5.1	5.0	4.6
Women	3.0	3.0	2.0	3.0	2.6	2.5	2.6	2.3	2.4
All adults	5.0	4.0	4.0	4.0	3.8	3.8	3.8	3.6	3.5
Angina									
Men	6.0	5.0	4.0	5.0	4.1	4.0	3.9	3.8	3.3
Women	5.0	4.0	4.0	4.0	3.4	3.5	3.2	3.1	3.0
All adults	5.0	5.0	4.0	4.0	3.7	3.7	3.5	3.4	3.2
Heart failure									
Men	2.0	2.0	2.0	2.0	1.6	1.9	1.5	1.9	1.6
Women	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.2	1.0
All adults	2.0	2.0	1.0	1.0	1.4	1.5	1.3	1.5	1.3
Any heart condition									
Men	11.0	11.0	10.0	10.0	9.5	9.7	9.9	9.9	9.6
Women	9.0	8.0	8.0	8.0	7.3	7.6	7.6	7.0	7.5
All adults	10.0	9.0	9.0	9.0	8.4	8.6	8.7	8.4	8.5

Notes For adults aged 16 years and over. Source The Welsh Government. Welsh Health Surveys: 2003/04-2014. http://gov.wales/statistics-and-research/welsh-health-survey/?tab=previous&lang=en (accessed September 2015).

The prevalence of heart failure in men in Wales changed little between 2003/04 and 2011. In 2014, 1.6 per cent of males over 16 years had experienced heart failure. In women, the prevalence of heart failure remained relatively constant, with a prevalence rate for 2014 of 1 per cent, the same as that reported in 2003/04 **(Table 2.11, Figure 2.11)**.

Figure 2.11
Prevalence of selected heart conditions by gender, Wales 2003/04-2014

Chapter 3

TREATMENT

This chapter reports on different methods of treatment for cardiovascular disease (CVD), with a focus on treatments for coronary heart disease (CHD). The chapter includes tables and figures for trends and latest statistics on the number of prescriptions, operations and cardiac arrest survival in the UK.

CARDIOVASCULAR DISEASE STATISTICS, 2015 BRITISH HEART FOUNDATION

PRESCRIPTIONS

The Prescription Cost Analysis (PCA) data are based on the therapeutic groups used in the British National Formulary. A prescription item refers to a single item prescribed by a doctor or authorised prescribers, such as nurses and dentists, on a prescription form. Currently PCA data includes all prescriptions dispensed in the community. The rapid increase in the number of prescriptions for the treatment and prevention of CVD began in the late 1980s. In 2014, more than 313 million prescriptions were dispensed for CVD in England, more than six times as many as issued in 1981, and an increase of almost two per cent from the number of prescriptions in 2013 (**Table 3.1**). Since 1990, the number of prescriptions dispensed for antiplatelet drugs has increased steadily; there are now over 38 million prescriptions for antiplatelet drugs in England every year. The increase in the number of prescriptions of lipid-lowering drugs was slow until the late 1990s, but since then has been very rapid, with the number of prescriptions for lipid-lowering drugs now more than six times higher than in 2000. The number of prescriptions for antihypertensive and heart failure drugs increased from around 5 million in 1981 to more than 70 million in 2014 (**Table 3.1, Figure 3.1**).

In 2014 there were over 370 million prescriptions for cardiovascular disease in the UK

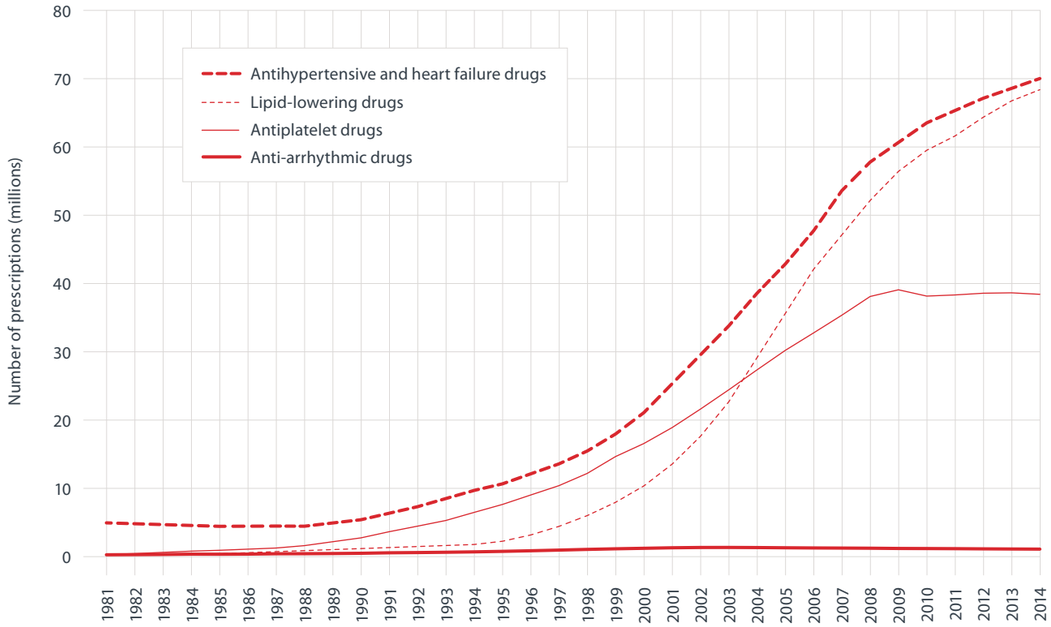
Table 3.1
Prescriptions used in the prevention and treatment of cardiovascular disease, England 1981 to 2014

Prescriptions	Thousands (000s)				
	1981	1986	1991	1996	2001
Digoxin and other positive inotropic drugs (2.1)	4,243	3,722	3,822	3,871	4,031
Diuretics (2.2)	20,678	21,996	22,195	23,106	30,203
Anti-arrhythmic drugs (2.3)	232	334	532	840	1,292
Beta-adrenoreceptor blocking drugs (2.4)	9,827	12,525	14,282	14,375	20,439
Antihypertensive and heart failure drugs (2.5)	4,912	4,424	6,431	12,125	25,047
Nitrates, calcium blockers and other antianginal drugs (2.6)	5,156	10,314	16,718	21,971	26,814
Anticoagulants and protamine (2.8)	629	900	1,356	2,609	4,609
Antiplatelet drugs (2.9)	281	1,058	3,619	9,002	18,891
Anti-fibrinolytic drugs and haemostatics (2.11)	–	–	–	–	282
Lipid-lowering drugs (2.12)	295	247	1,066	3,138	13,523
All prescriptions for disease of the circulatory system	46,252	55,520	70,022	91,037	145,131

Prescriptions	Thousands (000s)				
	2006	2011	2012	2013	2014
Digoxin and other positive inotropic drugs (2.1)	4,126	4,006	3,900	3,770	3,634
Diuretics (2.2)	37,582	37,563	37,258	36,650	36,208
Anti-arrhythmic drugs (2.3)	1,265	1,156	1,129	1,107	1,088
Beta-adrenoreceptor blocking drugs (2.4)	27,378	30,924	32,355	33,597	34,859
Antihypertensive and heart failure drugs (2.5)	47,742	65,449	67,184	68,652	70,071
Nitrates, calcium blockers and other antianginal drugs (2.6)	34,707	43,086	44,675	45,868	46,992
Anticoagulants and protamine (2.8)	6,790	9,773	10,723	11,906	13,173
Antiplatelet drugs (2.9)	32,779	38,351	38,603	38,661	38,443
Anti-fibrinolytic drugs and haemostatics (2.11)	327	392	396	393	408
Lipid-lowering drugs (2.12)	42,098	61,649	64,399	66,795	68,436
All prescriptions for disease of the circulatory system	234,793	292,370	300,647	307,424	313,342

Notes The data up to 1990 are not consistent with data from 1991 onwards. Figures up to 1990 are based on fees and on a sample of 1 in 200 prescriptions dispensed by community pharmacists and appliance contractors only. Figures from 1991 are based on items and cover all prescriptions dispensed by community pharmacists, appliance contractors, dispensing doctors and prescriptions submitted by prescribing doctors for items personally administered. British National Formulary (BNF) codes in parentheses. Source Office for National Statistics (2015). Prescription cost analysis 2014. Health and Social Care Information Centre, and previous editions.

Figure 3.1
Prescriptions used in the prevention and treatment of CVD, England 1981 to 2014



In 2014 there were nearly seven times as many CVD prescriptions in England as there were dispensed in 1981

The number of prescriptions dispensed for the treatment and prevention of CVD in Wales in 2014 was just over 23.5 million. This is almost 5.5 million more than in 2005 (**Table 3.2, Figure 3.2**).

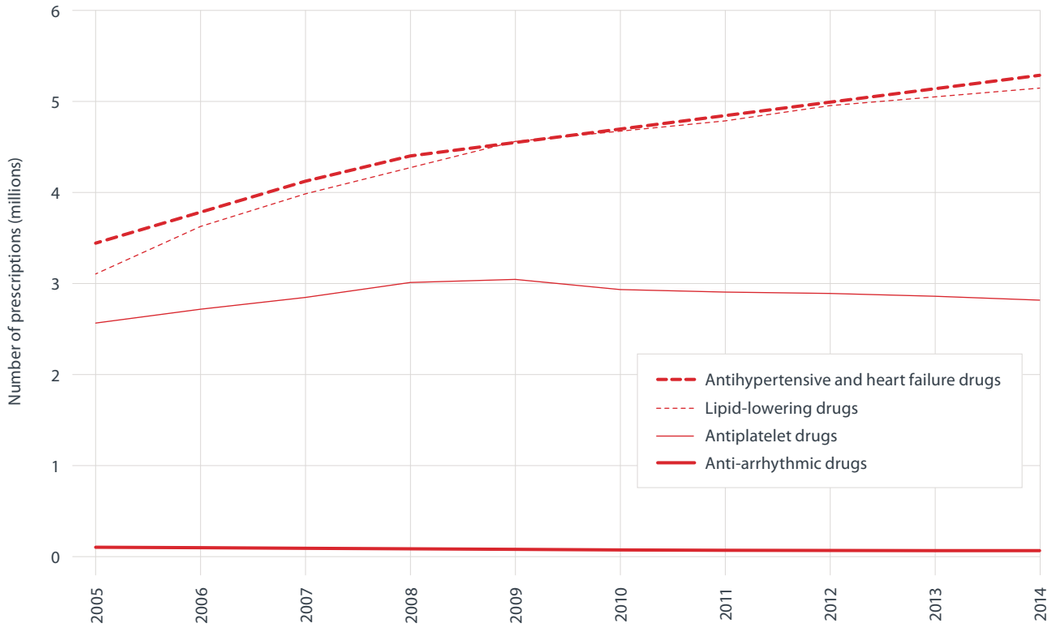
Table 3.2
Prescriptions used in the prevention and treatment of cardiovascular disease, Wales 2005 to 2014

Prescriptions	Thousands (000s)				
	2005	2006	2007	2008	2009
Digoxin and other positive inotropic drugs (2.1)	362	357	337	319	307
Diuretics (2.2)	3,083	3,091	3,028	3,000	2,979
Anti-arrhythmic drugs (2.3)	99	94	87	81	75
Beta-adrenoreceptor blocking drugs (2.4)	2,093	2,110	2,071	2,116	2,165
Antihypertensive and heart failure drugs (2.5)	3,442	3,774	4,124	4,402	4,601
Nitrates, calcium blockers and other antianginal drugs (2.6)	2,731	2,892	3,032	3,135	3,205
Anticoagulants and protamine (2.8)	576	612	650	689	723
Antiplatelet drugs (2.9)	2,563	2,716	2,846	3,011	3,045
Anti-fibrinolytic drugs and haemostatics (2.11)	23	24	28	30	30
Lipid-lowering drugs (2.12)	3,103	3,626	3,985	4,297	4,562
All prescriptions for disease of the circulatory system	18,073	19,296	20,188	21,082	21,691

Prescriptions	Thousands (000s)				
	2010	2011	2012	2013	2014
Digoxin and other positive inotropic drugs (2.1)	296	284	273	259	249
Diuretics (2.2)	2,971	2,960	2,940	2,897	2,860
Anti-arrhythmic drugs (2.3)	68	64	62	60	60
Beta-adrenoreceptor blocking drugs (2.4)	2,237	2,322	2,424	2,505	2,584
Antihypertensive and heart failure drugs (2.5)	4,781	4,920	5,063	5,173	5,290
Nitrates, calcium blockers and other antianginal drugs (2.6)	3,263	3,314	3,390	3,437	3,488
Anticoagulants and protamine (2.8)	764	808	874	944	1,030
Antiplatelet drugs (2.9)	2,933	2,905	2,890	2,859	2,816
Anti-fibrinolytic drugs and haemostatics (2.11)	31	33	34	33	33
Lipid-lowering drugs (2.12)	4,693	4,788	4,956	5,076	5,149
All prescriptions for disease of the circulatory system	22,037	22,399	22,906	23,247	23,570

Notes British National Formulary (BNF) codes in parentheses. Source Health Statistics and Analysis Unit (2015). Prescription cost analysis 2014. Welsh Government:Cardiff and previous editions.

Figure 3.2
Prescriptions used in the prevention and treatment of CVD, Wales 2005 to 2014



In Wales the number of prescriptions for cardiovascular disease continues to rise each year

In Scotland more than 24 million prescriptions were dispensed in the treatment of CVD in 2014/15 and this number has remained fairly consistent since 2008. Prescriptions for lipid-lowering drugs have increased by three fold since 2001 and those for antihypertensive and heart failure drugs have doubled over the same period **(Table 3.3, Figure 3.3)**.

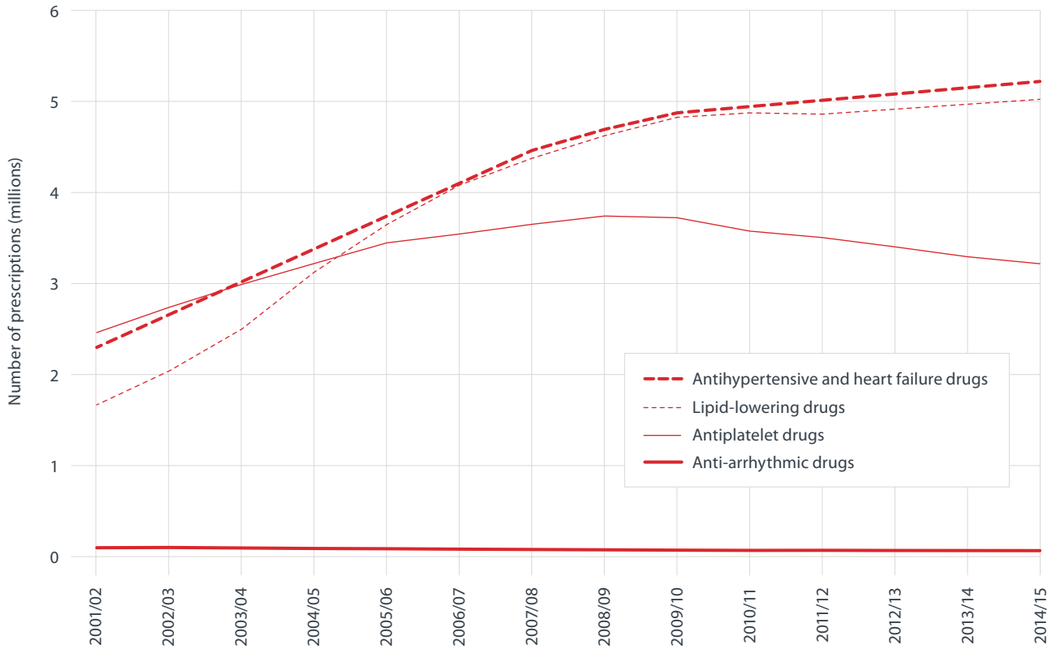
Table 3.3
Prescriptions used in the prevention and treatment of cardiovascular disease, Scotland 2001/02 to 2014/15

Prescriptions	Thousands (000s)					
	2001/02	2005/06	2006/07	2007/08	2008/09	2009/10
Digoxin and other positive inotropic drugs (2.1)	358	323	315	305	296	291
Diuretics (2.2)	3,469	3,914	3,810	3,680	3,597	3,544
Anti-arrhythmic drugs (2.3)	102	90	85	81	77	73
Beta-adrenoreceptor blocking drugs (2.4)	2,508	3,027	2,940	2,853	2,850	2,883
Antihypertensive and heart failure drugs (2.5)	2,298	3,777	4,127	4,462	4,693	4,875
Nitrates, calcium blockers and other antianginal drugs (2.6)	3,278	3,542	3,625	3,666	3,683	3,714
Anticoagulants and protamine (2.8)	489	612	646	676	707	743
Antiplatelet drugs (2.9)	2,461	3,448	3,545	3,652	3,743	3,724
Anti-fibrinolytic drugs and haemostatics (2.11)	35	36	38	39	41	42
Lipid-lowering drugs (2.12)	1,667	3,649	4,081	4,376	4,624	4,826
All prescriptions for disease of the circulatory system	16,667	22,418	23,212	23,791	24,312	24,716

Prescriptions	Thousands (000s)				
	2010/11	2011/12	2012/13	2013/14	2014/15
Digoxin and other positive inotropic drugs (2.1)	283	276	269	260	252
Diuretics (2.2)	3,457	3,382	3,269	3,154	3,057
Anti-arrhythmic drugs (2.3)	70	71	69	68	67
Beta-adrenoreceptor blocking drugs (2.4)	2,909	2,957	2,998	3,048	3,102
Antihypertensive and heart failure drugs (2.5)	4,965	5,045	5,095	5,160	5,220
Nitrates, calcium blockers and other antianginal drugs (2.6)	3,697	3,699	3,716	3,735	3,788
Anticoagulants and protamine (2.8)	773	819	884	958	1,035
Antiplatelet drugs (2.9)	3,577	3,506	3,404	3,295	3,218
Anti-fibrinolytic drugs and haemostatics (2.11)	43	44	47	47	47
Lipid-lowering drugs (2.12)	4,875	4,861	4,907	4,977	5,024
All prescriptions for disease of the circulatory system	24,649	24,660	24,657	24,703	24,764

Notes British National Formulary (BNF) codes in parentheses. Source ISD Scotland (2015). Prescription Cost Analysis 2014/15. NHS National Services: Edinburgh. and previous editions.

Figure 3.3
Prescriptions used in the prevention and treatment of CVD, Scotland 2001/02 to 2014/15



In Scotland the annual number of prescriptions for cardiovascular disease has remained fairly constant since 2008. Antiplatelet prescription numbers are in decline

There were more than 8.8 million prescriptions dispensed for the treatment and prevention of CVD in Northern Ireland in 2014, an increase of more than 4 million compared to 2000. Prescriptions for lipid-lowering drugs showed the greatest increase, from 376,000 dispensations in 2000 to just under 2 million in 2014 **(Table 3.4, Figure 3.4)**.

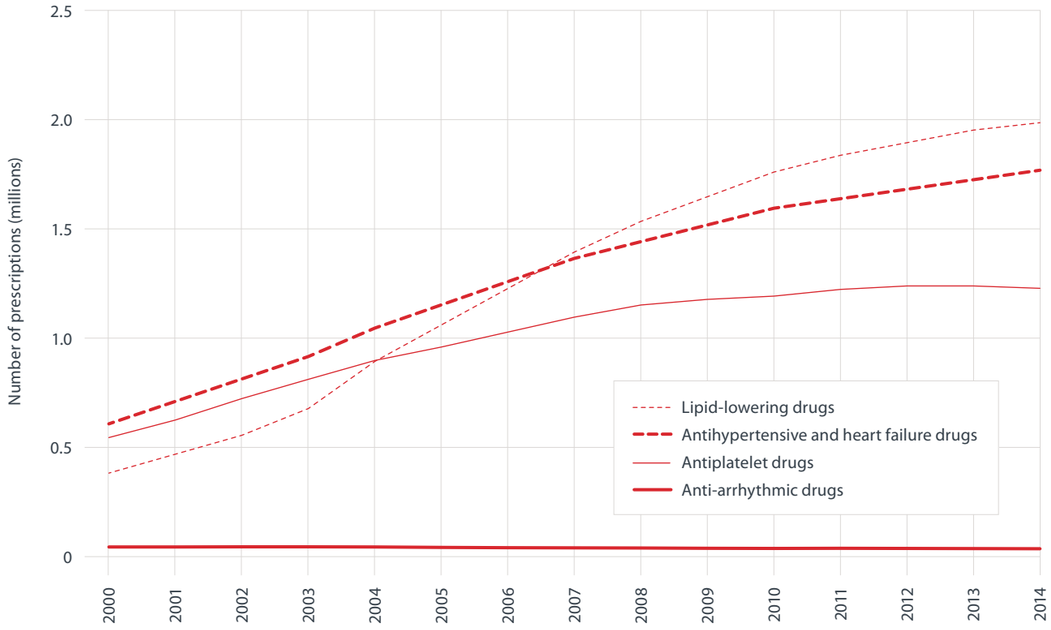
Table 3.4
Prescriptions used in the prevention and treatment of cardiovascular disease, Northern Ireland 2000 to 2014

Prescriptions	Thousands (000s)					
	2000	2005	2006	2007	2008	2009
Digoxin and other positive inotropic drugs (2.1)	132	107	104	101	99	96
Diuretics (2.2)	819	1,015	1,009	992	983	983
Anti-arrhythmic drugs (2.3)	41	38	36	35	34	32
Beta-adrenoreceptor blocking drugs (2.4)	641	908	918	915	937	967
Antihypertensive and heart failure drugs (2.5)	602	1,145	1,247	1,364	1,445	1,517
Nitrates, calcium blockers and other antianginal drugs (2.6)	928	1,001	1,039	1,080	1,089	1,097
Anticoagulants and protamine (2.8)	138	183	194	207	220	233
Antiplatelet drugs (2.9)	539	957	1,026	1,095	1,151	1,177
Anti-fibrinolytic drugs and haemostatics (2.11)	0	12	12	13	13	14
Lipid-lowering drugs (2.12)	376	1,047	1,227	1,393	1,534	1,652
All prescriptions for disease of the circulatory system	4,226	6,413	6,812	7,195	7,505	7,769

Prescriptions	Thousands (000s)				
	2010	2011	2012	2013	2014
Digoxin and other positive inotropic drugs (2.1)	95	93	92	90	87
Diuretics (2.2)	992	1,002	996	978	960
Anti-arrhythmic drugs (2.3)	31	32	31	30	29
Beta-adrenoreceptor blocking drugs (2.4)	1,020	1,059	1,108	1,150	1,189
Antihypertensive and heart failure drugs (2.5)	1,595	1,640	1,689	1,728	1,770
Nitrates, calcium blockers and other antianginal drugs (2.6)	1,124	1,154	1,188	1,218	1,233
Anticoagulants and protamine (2.8)	249	274	300	334	365
Antiplatelet drugs (2.9)	1,192	1,223	1,239	1,239	1,228
Anti-fibrinolytic drugs and haemostatics (2.11)	14	16	17	16	16
Lipid-lowering drugs (2.12)	1,761	1,838	1,901	1,954	1,988
All prescriptions for disease of the circulatory system	8,073	8,331	8,560	8,736	8,869

Notes British National Formulary (BNF) codes in parentheses. Source HSC (2015). Prescription Cost Analysis 2014. Business Services Organisation: Belfast.

Figure 3.4
Prescriptions used in the prevention and treatment of CVD, Northern Ireland 2000 to 2014



In Northern Ireland prescriptions for cardiovascular disease continue to rise, with nearly 8.9 million in 2014

In 2014 antihypertensive drugs were the most prescribed drugs for CVD in England, Scotland and Wales. In Northern Ireland they were second to lipid-lowering drugs. The total number of prescriptions dispensed for CVD in the UK was over 370 million. More than 22 per cent of these prescriptions were for antihypertensive and heart failure drugs and just over 21 per cent of them were for lipid-lowering drugs (**Table 3.5**).

Table 3.5
Prescriptions used in the prevention and treatment of cardiovascular disease, United Kingdom latest available year

Prescriptions	Thousands (000s)				
	England 2014	Wales 2014	Scotland 2014/15	Northern Ireland 2014	UK
Digoxin and other positive inotropic drugs (2.1)	3,634	249	252	87	4,222
Diuretics (2.2)	36,208	2,860	3,057	960	43,085
Anti-arrhythmic drugs (2.3)	1,088	60	67	29	1,244
Beta-adrenoreceptor blocking drugs (2.4)	34,859	2,584	3,102	1,189	41,734
Antihypertensive and heart failure drugs (2.5)	70,071	5,290	5,220	1,770	82,351
Nitrates, calcium blockers and other antianginal drugs (2.6)	46,992	3,488	3,788	1,233	55,501
Anticoagulants and protamine (2.8)	13,173	1,030	1,035	365	15,603
Antiplatelet drugs (2.9)	38,443	2,816	3,218	1,228	45,705
Antifibrinolytic drugs and haemostatics (2.11)	408	33	47	16	504
Lipid-lowering drugs (2.12)	68,436	5,149	5,024	1,988	80,597
All prescriptions for disease of the cardiovascular system	313,342	23,570	24,764	8,869	370,545

Notes Figures are based on items and cover all prescriptions dispensed by community pharmacists, appliance contractors, dispensing doctors and prescriptions submitted by prescribing doctors for items personally administered. British National Formulary (BNF) codes in parentheses. Source Office for National Statistics (2015). Prescription cost analysis 2014. The Information Centre: Leeds. ¶ Welsh Government (2015). Prescription Cost Analysis 2014. Health Statistics and Analysis Unit:Cardiff. ¶ ISD Scotland (2015). Prescription Cost Analysis 2014/15. NHS National Services: Edinburgh. ¶ HSC (2015). Prescription Cost Analysis 2014. Business Services Organisation: Belfast.

Despite the increased number of prescriptions the cost of prescriptions dispensed for hypertension and heart failure therapy decreased by approximately £23 million between 2013 and 2014 to just over £175 million.[1] However, the cost of prescriptions for cardiovascular diseases may not increase at the same rate as the increase in the number of prescriptions, as when commonly used drugs come out of patent they can be replaced by cheaper generic drugs.

OPERATIONS

When coronary artery obstruction develops due to atherosclerosis, surgical management is considered to improve the blood supply to the heart muscle. These operations fall into two main categories: coronary artery bypass graft (CABG) surgery and catheter-based percutaneous coronary interventions (PCI).

The total number of operations carried out to treat CHD is increasing in the UK. The number of PCIs carried out in the UK in 2013 was more than two times higher than a decade earlier; over 92,000 procedures are now carried out annually in the UK. But the number of CABG surgeries reached a peak in the late 1990s to early 2000s; these have become less common due to the more widespread use of less invasive procedures such as PCIs. Currently just under 17,000 CABG procedures are carried out in the UK each year **(Table 3.6, Figure 3.6)**.

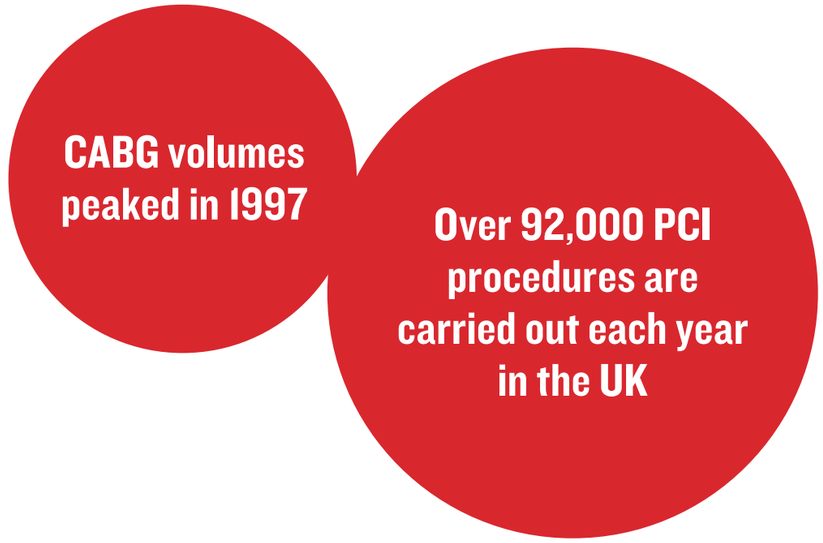
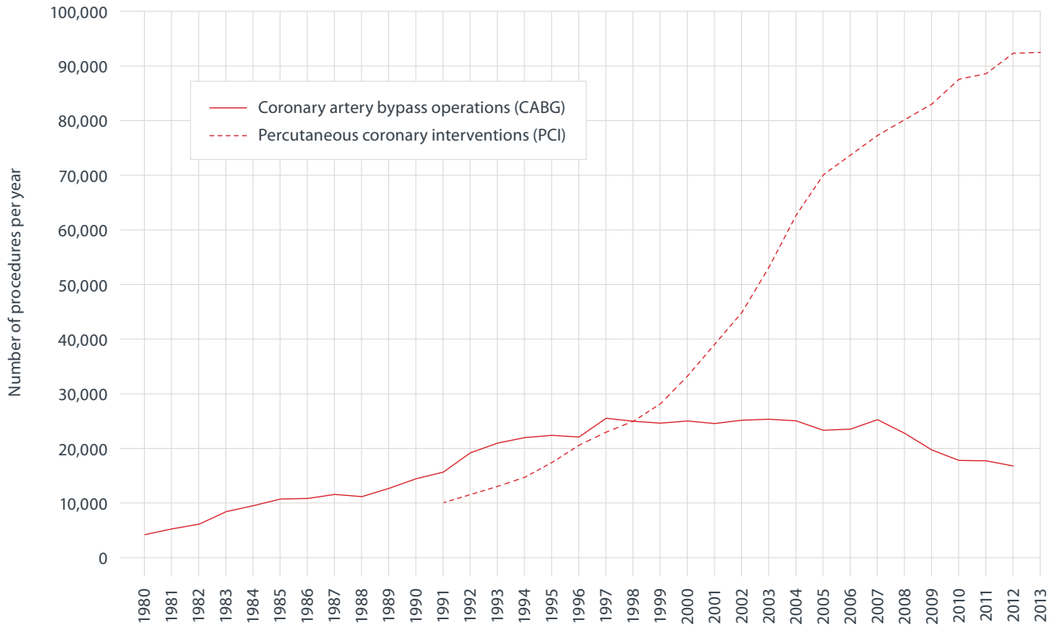


Table 3.6
Number of CABGs and PCIs, United Kingdom 1977 to 2013

	Coronary artery bypass surgery (CABG)	Percutaneous coronary interventions (PCI)
1977	2,297	
1978	2,653	
1979	2,918	
1980	4,057	
1981	5,130	
1982	6,008	
1983	8,332	
1984	9,433	
1985	10,667	
1986	10,767	
1987	11,521	
1988*	11,113	
1989	12,648	
1990	14,431	
1991	15,659	9,933
1992	19,241	11,575
1993	21,031	12,937
1994	22,056	14,624
1995	22,475	17,344
1996	22,160	20,511
1997	25,639	22,902
1998	25,083	24,899
1999	24,733	28,133
2000	25,127	33,256
2001	24,663	38,992
2002	25,277	44,913
2003	25,461	53,261
2004	25,160	62,780
2005	23,412	70,142
2006	23,623	73,692
2007	25,372	77,373
2008	22,846	80,331
2009	19,766	83,130
2010	17,986	87,676
2011	17,751	88,692
2012	16,791	92,445
2013		92,589

Notes Operations performed in NHS hospitals and selected private hospitals are included. Source British Cardiovascular Intervention Society (2014). BCIS Audit returns . Personal communication. ¶ The Society for Cardiothoracic Surgery in Great Britain & Ireland (2014). http://bluebook.scts.org/#ActivityRates. Accessed in May 2015

Figure 3.6
Number of coronary artery bypass operations and percutaneous coronary interventions per year, United Kingdom 1980 to 2013



Despite the substantial shift towards PCIs in the past years, CABG procedures will remain as one of the main surgical treatments for certain more complex conditions.[2] For example it is recommended that CABGs remain as the standard revascularisation care for patients with complex coronary lesions or left main coronary diseases. Where patients are eligible for both CABG and PCI the National Institute for Health and Care Excellence (NICE) reports that although CABG is still effective it is not cost-effective when compared with PCI and so the latter procedure should be performed.[3]

VALVE REPLACEMENTS

Heart valve disease can be congenital or acquired later in life. The aortic valve lies between the left ventricle (which pumps blood to the brain and body) and the aorta (the main artery which carries oxygen-rich blood away from the heart). There are two main diseases associated with the aortic valve – stenosis and regurgitation. Stenosis is due to thickening of the valve and narrowing of the lumen. This will limit the blood flow during contractions of the heart. Regurgitation (also called valvular insufficiency) is due to the inability of the valve leaflets to close completely. It will allow ejected blood to flow back through the closed valve into the heart when it relaxes. In 2012 there were 4,561 isolated aortic valve replacements and a further 3,263 aortic valve replacements with CABGs **(Table 3.7)**.

Table 3.7
Number of valve replacements and repairs, United Kingdom 2003 to 2012

Operation	2003	2004	2005	2006	2007
Isolated aortic valve replacement	3,361	3,494	3,549	3,627	4,051
Aortic valve replacement and coronary artery bypass graft (CABG)	2,445	2,520	2,797	2,912	3,111
Isolated mitral repair	771	911	1,019	1,119	1,189
Mitral repair and coronary artery bypass graft (CABG)	450	552	582	653	591
Isolated mitral replacement	797	805	742	734	845
Mitral replacement and coronary artery bypass graft (CABG)	347	341	308	350	325

Operation	2008	2009	2010	2011	2012
Isolated aortic valve replacement	4,445	4,389	4,284	4,799	4,561
Aortic valve replacement and coronary artery bypass graft (CABG)	3,426	3,194	3,134	3,204	3,263
Isolated mitral repair	1,332	1,308	1,358	1,378	1,456
Mitral repair and coronary artery bypass graft (CABG)	663	625	577	576	588
Isolated mitral replacement	876	739	668	684	638
Mitral replacement and coronary artery bypass graft (CABG)	315	301	244	250	232

Notes First time operations only. ¶ Operations performed in NHS hospitals and selected private hospitals are included. Source The Society for Cardiothoracic Surgery in Great Britain & Ireland (2014). http://bluebook.scts.org/#ActivityRates. Accessed in May 2015

The mitral valve is located between the left atrium and left ventricle, acting as a one-way valve which allows blood to flow into the ventricle when the atrium contracts. Disorders of the mitral valve are the most common of the valvular heart diseases. The main types of mitral valve diseases are bulging backwards during closure (prolapse), leaking blood when the valve is closed (regurgitation) and obstruction due to narrowing of the valve (stenosis)[4]. In 2012 there were 1,456 isolated mitral valve repairs and 638 isolated mitral valve replacements. There were a further 820 mitral valve surgeries with coronary artery bypass graft (CABG) surgery in the UK **(Table 3.7)**.

CARDIOTHORACIC TRANSPLANTS (HEART AND/OR LUNG TRANSPLANTS)

A heart, or cardiac, transplant is a surgical procedure in which a diseased heart is replaced by a healthy heart from a human donor. Patients who develop severe heart failure might need a heart transplant. Children may also require a heart transplant to treat congenital heart diseases. Since this is a very specialised activity, a relatively small number of operations are carried out in the country in a select number of hospitals; seven hospitals carry out heart transplants on adults. During 2014/15, 293 patients who required transplants joined the heart list and there were 547 patients in total on the list **(Table 3.8)**.

Table 3.8
Cardiothoracic transplant list, United Kingdom 2014/15

	New registrations in 2014 /15		Total	
	Number	%	Number	%
Heart transplant list				
Remained active / suspended	129	44	290	53
Transplanted	121	41	180	33
Removed	21	7	43	8
Died	22	7	34	6
Total	293		547	
Heart/lung transplant list				
Remained active / suspended	5	56	14	56
Transplanted	1	11	3	12
Removed	1	11	4	16
Died	2	22	4	16
Total	9		25	

Notes Includes re-registrations for second or subsequent transplants. ¶ Excludes patients not resident in the UK. ¶ Activities for the year ending 31 March 2015. Source NHS Blood and Transplant (2015). Organ donation and transplantation. NHS

During the year ending 31 March 2015, there were 180 heart transplants in the UK, plus a further three heart/lung transplants. Northern Ireland did not report any transplants during this year and Scotland reported the highest transplant rate with 3.0 per million population **(Table 3.9)**. From 2010/11 to 2014/15 the heart transplant rate in the UK increased from 2.0 to 2.8 per million.

Table 3.9
Cardiothoracic transplants and rate per million population, by country, United Kingdom 2010/11 to 2014/15

Country	2010/11		2011/12		2012/13		2013/14		2014/15	
	n	rate	n	rate	n	rate	n	rate	n	rate
England	94	1.8	113	2.2	119	2.2	163	3.0	155	2.9
Wales	6	2.0	8	2.7	5	1.6	4	1.3	7	2.3
Scotland	12	2.3	13	2.5	13	2.5	21	4.0	16	3.0
Northern Ireland	14	7.8	4	2.2	5	2.8	5	2.7	0	0.0
UK	126	2.0	138	2.2	142	2.2	193	3.0	179	2.8

Notes Excludes patients whose postcodes were unknown (i.e. totals do not match those in Table 3.8). Source NHS Blood and Transplant (2015) and previous reports. Organ donation and transplantation. NHS

OUT-OF-HOSPITAL CARDIAC ARRESTS

Survival rates for out-of-hospital cardiac arrests (OHCA) depend on several factors, such as the presence of bystanders, time to arrive for emergency medical services, prompt cardiopulmonary resuscitation (CPR) and pre-hospital return of spontaneous circulation.[5] Improved response times and training on CPR for ambulance services have contributed to improvements in the survival rates. In 2014 nearly 30,000 patients received a resuscitation attempt for an OHCA in England and 8.8 per cent of them were discharged alive from hospital. Since records started in April 2011 the proportion of patients discharged alive from hospital has increased from 7.2 to 8.8 per cent. **(Table 3.10)**.

Table 3.10
Out-of-hospital cardiac arrest survival rates, England 2011 to 2014

	2011 (Apr-Dec)	2012	2013	2014
Number of resuscitation attempts	17,122	28,202	29,376	29,919
Number discharged from hospital alive	1,230	2,152	2,477	2,625
Proportion discharged from hospital alive %	7.2	7.6	8.4	8.8

Notes Resuscitation commenced / continued by ambulance service. Source NHS England (2015). Ambulance Quality Indicators. Analytical Service (Operations): Leeds.

ENDNOTES

1 Office for National Statistics (2015). Prescription cost analysis. The Health and Social Care Information Centre: London, and previous editions.

2 Mohr FW, Morice M, Kappetein AP, et al (2013). Coronary artery bypass graft surgery versus percutaneous coronary intervention in patients with three-vessel disease and left main coronary disease: 5-year follow-up of the randomised, clinical SYNTAX trial. The Lancet (381):629-638.

3 NICE (2011) Cost effectiveness of CABG and PCI – Appendix H: Cost-effectiveness analysis. http://www.nice.org.uk/nicemedia/live/11878/54386/54386.pdf

4 Turi ZG (2004). Mitral Valve Disease. Circulation. (109):e38-e41

5 Sasson C1, Rogers MA, Dahl J, Kellermann AL (2010). Predictors of survival from out-of-hospital cardiac arrest: a systematic review and meta-analysis. Circulation: Cardiovascular Quality and Outcomes. (3): 63-81.

Chapter 4

HEALTHCARE COSTS

In this chapter we present the cost to the NHS of treating CVD in the UK. Although the data presented are updates to those presented in last year's compendium, changes to the structure of the NHS and therefore the way in which these data are collected, particularly in England, mean that comparisons to previous years are not possible and hence no trend data are presented.

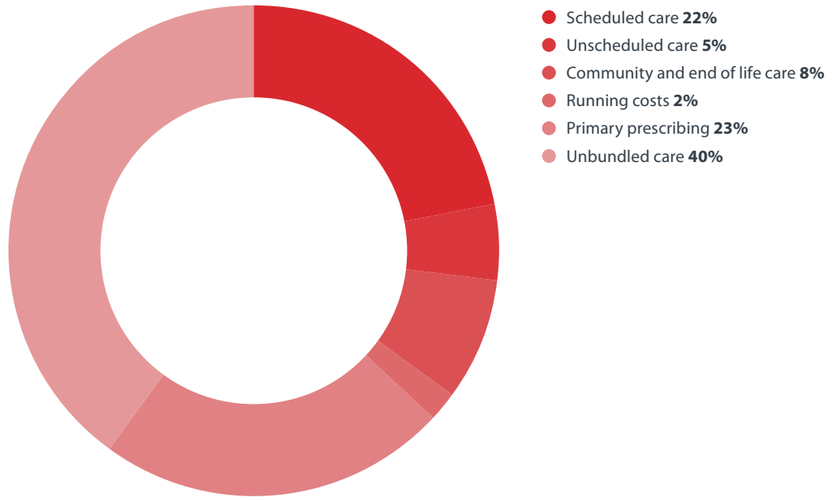
In addition, differences in data collected and reported between UK countries mean that comparisons in these cost figures between countries should be made with caution.

As well as the health burden that cardiovascular disease (CVD) places on UK countries, it also confers an economic burden through the costs of treating and supporting individuals with CVD.

ENGLAND

The programme budgeting data return is an analysis of commissioning expenditure by healthcare condition (such as circulatory diseases) and care setting (e.g. scheduled and unscheduled care). It provides commissioner-level analysis of NHS expenditure on specific healthcare conditions. Estimates of expenditure are calculated using the price paid for specific activities and the services purchased from healthcare providers for each region. Regions follow standard guidance, procedures and mappings when calculating programme budgeting data. Previous programme budgeting data for England were collected by primary care trusts (PCTs) and covered around 80 per cent of planned NHS funding in England.[1] Data in this compendium come from 2013/14 and were reported by Clinical Commissioning Groups (CCGs), the PCT successor organisations. CCGs do not cover as great a range of NHS spending as PCTs used to, hence 2013/14 figures are much lower than those previously published. CCGs are not responsible for certain services commissioned directly by the NHS Commissioning Board, health improvement services commissioned by local authorities and health protection and promotion services provided by Public Health England.[2]

Figure 4.1
Percentage of NHS expenditure on CVD by care setting and condition, England 2013/14



Programme budgeting data for the whole of England, aggregated to care settings, demonstrate the expenditure on CVD by treatment type. The highest expenditure for all CVD is found within unscheduled care (£1,732 million), equating to 40 per cent of total CVD expenditure (£4,292 million). Unscheduled care also had the highest expenditure for stroke (£400 million), rhythm (£176 million) and other CVD (£842 million) subtypes. Primary prescribing demonstrated the highest expenditure for CHD (£346 million) and the second highest expenditure overall, making up 23 per cent of total expenditure. Scheduled care made up 22 per cent of total costs and the majority of total secondary care costs at £937 million, compared to £196 million from unbundled care. Running costs made up the smallest component of CVD costs **(Table 4.1, Figure 4.1)**. Once again, due to changes in NHS structure and commissioning, these findings are not comparable to last year's given changes to the care settings in which data are assigned. Definitions for 2013/14 care settings can be found in Box 4.1 below.

Box 4.1
Programme Budgeting Care Settings

Care setting		Definition
Primary Care Prescribing		Primary care activity relating to prescribing or pharmaceutical services.
Unscheduled Care	Non-elective admission (PBR)	Expenditure on non-elective or emergency admissions to hospital for activity covered by the Payment by Results mandatory tariff. This should not include any unbundled or separately paid-for elements of care (e.g. chemotherapy, critical care, diagnostics) – these are reported in the unbundled/high cost settings.
	A&E	Expenditure on core A&E services. Other triage services based in A&E departments (e.g. urgent care centres, GPs) should be included within Unscheduled Care: Other Urgent Care.
	Emergency Transport	Includes Ambulance and other emergency transport expenditure (e.g. air ambulance and helicopter services).
	Other Urgent Care	Walk-in-centres, minor injury units, urgent care centres, out-of-hours, GPs in A&E, telephone triage services (including 111), primary care assessment services, investment in programmes to reduce avoidable A&E attendances.
Scheduled Care	Day case and elective (PBR)	Expenditure on elective or admissions to hospital or day cases for activity covered by the Payment by Results mandatory tariff. This should not include any unbundled or separately paid-for elements of care (e.g. chemotherapy, critical care, diagnostics) – these are reported in the unbundled/high cost settings.
	Outpatient – (PBR and Non-PBR)	Expenditure on outpatient attendances and procedures. Should not include any unbundled or separately paid-for elements of care (e.g. chemotherapy, diagnostics) – these are reported in the unbundled/high cost settings. Should not include expenditure on Obstetric Outpatients and Midwife Episodes which should be included within the Integrated Care setting.
Unbundled	Diagnostic Imaging	Expenditure on diagnostic imaging activity unbundled from outpatients (e.g. MRI Scan, CT scan, DEXA scan, Contrast Fluoroscopy, Ultrasound Scan, Nuclear medicine, flexible sigmoidoscopy and airflow studies).
	Critical Care	Expenditure on adult, neonatal and paediatric critical care (allocated via the primary diagnosis of the normal inpatient admission).
	Drugs and devices	Expenditure on high cost/unbundled drugs and devices.
	Other	Expenditure on chemotherapy, radiotherapy, renal, cancer, IVF, cleft lip and palate.
	Direct Access Diagnostic Imaging	Expenditure on direct access diagnostic imaging activity (e.g. plain film X-rays, MRI scan, CT scan, DEXA scan, contrast fluoroscopy, ultrasound scan, nuclear medicine, flexible sigmoidoscopy and airflow studies).

Box 4.1 (continued)
Programme Budgeting Care Settings

Care setting	Definition
Community and Integrated care	Services in this setting are provided in various locations and settings in the community, such as community hospitals, clinics, GP practices, health centres, schools and patients' homes. Inpatient and outpatient activity carried out within community hospitals should not be included. This setting should include expenditure on Primary Care enhanced services, any expenditure such as year-of-care tariffs which cover a range of settings; step-up/step-down services, rehab and recovery (including unbundled rehab), intermediate care, hospital at home, early discharge schemes, admission avoidance schemes, wheelchairs services, and continuing healthcare.
End of Life Care	Specialist palliative care and hospices.
Running Costs	Expenditure which is not related to the commissioning of health and social care services (e.g. costs relating to facilities and estates).

Source NHS England – Analytical services – Programme Budgeting Team (2015) 2013/14 Programme Budgeting Benchmarking.

When comparing between CVD subtypes, 'other CVD' resulted in the highest total expenditure with around 54 per cent of the total costs and was the biggest proportion in each care setting. Although this subtype includes a large range of diseases (including rheumatic and hypertensive diseases) these data were not available broken down any further. Additionally, due to the way data are collected and classified, distinguishing between costs due to subtype can be challenging **(Table 4.1)**.

Table 4.1
NHS expenditure on cardiovascular disease by care setting and condition, England 2013/14

	Expenditure (£ million)			
	Primary prescribing	Unscheduled care	Scheduled care	Unbundled care
Coronary heart disease	346.1	314.9	186.5	32.4
Stroke	21.0	399.5	47.8	40.6
Rhythm	11.3	176.1	118.8	12.0
Other CVD	588.6	841.5	583.7	110.8
Total CVD	967.0	1,732.0	936.8	195.7

	Expenditure (£ million)			
	Total secondary care	Community and end of life care	Running costs	Total costs
Coronary heart disease	218.8	51.8	22.2	953.7
Stroke	88.4	165.8	15.1	689.9
Rhythm	130.8	14.2	7.8	340.2
Other CVD	694.5	132.0	51.1	2,307.7
Total CVD	1,132.5	363.8	96.3	4,291.5

Notes Expenditure data included within this workbook are taken from the 2013-14 CCG programme budgeting returns. Programme budgeting returns represent a subset of overall NHS expenditure data. ¶ Analysis of programme budgeting data is complex and not all healthcare activity or services can be classified directly to a programme budgeting category or care setting. When it is not possible to reasonably estimate a programme budgeting category, expenditure is classified as 'Other'. The allocation of expenditure to programme budgeting subcategories is not always straightforward, and subcategory level data should therefore be used with caution. ¶ Estimates of expenditure are calculated using price paid for specific activities and services purchased from healthcare providers. ¶ CCGs follow standard guidance, procedures and mappings when calculating programme budgeting data. ¶ Unscheduled care includes, Unscheduled Care: Non-elective admissions (PBR), Unscheduled Care: A&E, Unscheduled Care: Emergency Transport and Unscheduled Care: Other Urgent Care Scheduled care includes, Scheduled Care: Daycase and elective (PBR) and Scheduled Care Outpatient – (PBR & Non-PBR). ¶ Unbundled care includes, Unbundled Diagnostic Imaging, Unbundled/high cost: Critical Care, Unbundled/high cost: Drugs & devices, Unbundled/high cost: Other and Direct Access Diagnostic Imaging. ¶ Total secondary care includes, all Scheduled and Unbundled care. ¶ Community and end of life care includes, Community and integrated care and End of Life Care. ¶ More information on care settings can be found in Box 4.1 and in the source detailed below. Source NHS England – Analytical services – Programme Budgeting Team (2015) 2013/14 Programme Budgeting Benchmarking Tool. https://www.england.nhs.uk/resources/resources-for-ccgs/prog-budgeting/ (accessed May 2015).

ENGLAND CCG CLUSTER

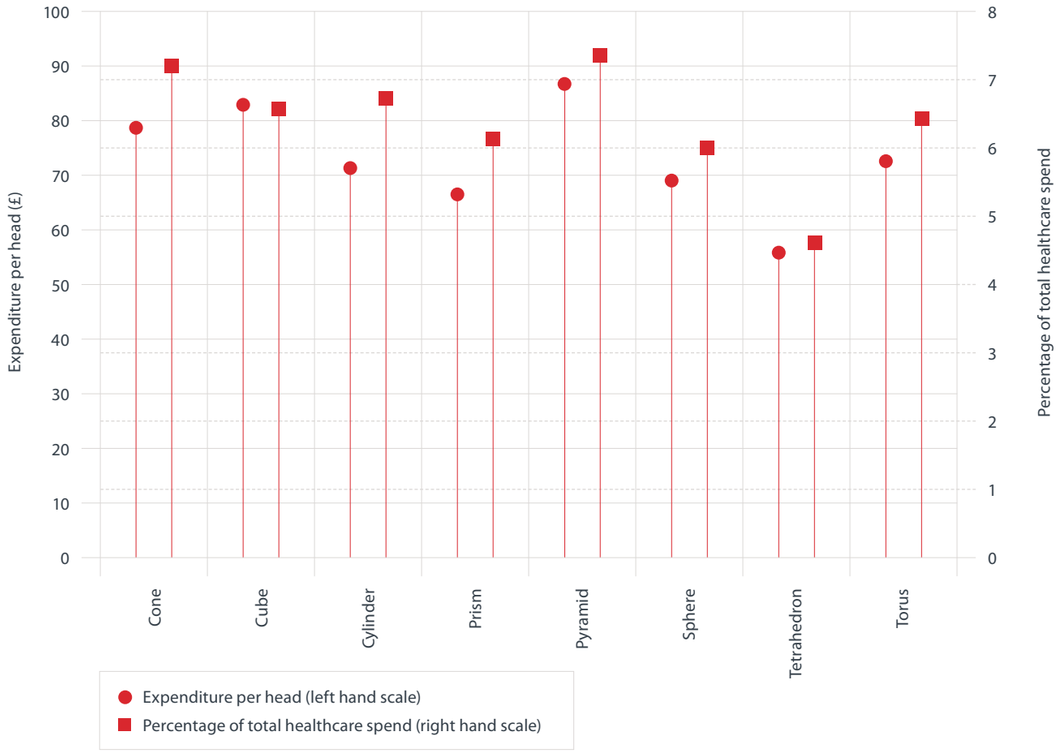
CCGs are categorised into clusters based on a number of measures, including indices of deprivation, population number, population density, population age distribution and ethnicity (**Box 4.2**).

Box 4.2
CCG clusters

Cluster name	Cluster description
Cone	Larger CCGs with older populations and more rural areas
Cube	Traditional communities with deprived areas and poorer health
Cylinder	Areas with lower deprivation and better health
Prism	Deprived urban areas with younger people and ethnic diversity, particularly Asian
Pyramid	Smaller CCGs with older populations and more rural areas
Sphere	Areas with younger adults and university cities
Tetrahedron	Mixed communities in Inner London
Torus	Deprived urban areas with younger people and ethnic diversity, particularly Black

Although CCGs in the Cube cluster show the highest overall expenditure, as there are unequal numbers of CCGs in each cluster, comparison of absolute costs will be misleading. Cube CCGs were found to have the second highest expenditure per head of population with £82.88, compared to the pyramid cluster which had the highest with £86.89 and spent a greater percentage of their total healthcare costs on CVD (7.4 per cent) than CCGs in any other cluster type. The tetrahedron cluster type, all Inner London CCGS, had the lowest CVD expenditure per head of population with £55.79 and the lowest percentage of total healthcare expenditure spent on CVD (4.6 per cent) (**Table 4.2, Figure 4.2**).

Figure 4.2
NHS expenditure on CVD by CCG cluster, England 2013/14



As with the national costs 'other CVD' was the highest expenditure for all clusters, with pyramid types spending the most per head on this category. Cube cluster types spent the most on CHD per head with pyramid cluster types spending the most for stroke and rhythm. CVD expenditure expressed as a percentage of total healthcare expenditure varied less, with clusters spending similar amounts of their total health expenditure on CVD conditions. However, tetrahedron cluster types spent the lowest proportion of their total healthcare expenditure on CVD and all subtypes.

Table 4.2
NHS expenditure on CVD by CCG cluster, England 2013/14

	Expenditure per head of population / £							
	Cone	Cube	Cylinder	Prism	Pyramid	Sphere	Tetrahedron	Torus
Coronary Heart Disease	17.51	19.48	16.21	15.41	18.14	14.50	10.78	15.57
Stroke	13.19	13.70	9.96	9.25	16.77	9.87	5.45	10.27
Rhythm	6.69	5.88	6.14	4.85	7.29	5.64	4.51	5.11
Other CVD	41.31	43.83	39.19	37.08	44.70	38.96	35.05	41.65
Total CVD	78.70	82.88	71.50	66.58	86.89	68.97	55.79	72.60

	Gross Expenditure (£ million)							
	Cone	Cube	Cylinder	Prism	Pyramid	Sphere	Tetrahedron	Torus
Coronary Heart Disease	192.5	245.0	124.8	82.7	164.1	76.1	16.0	52.5
Stroke	145.1	172.3	76.7	49.6	151.7	51.8	8.1	34.6
Rhythm	73.5	73.9	47.3	26.0	65.9	29.6	6.7	17.3
Other CVD	454.3	551.3	301.7	199.0	404.4	204.5	52.0	140.5
Total CVD	865.4	1042.5	550.4	357.3	786.2	361.9	82.8	245.0

	Percentage of total health care expenditure							
	Cone	Cube	Cylinder	Prism	Pyramid	Sphere	Tetrahedron	Torus
Coronary Heart Disease	1.6	1.5	1.5	1.4	1.5	1.3	0.9	1.4
Stroke	1.2	1.1	0.9	0.9	1.4	0.9	0.5	0.9
Rhythm	0.6	0.5	0.6	0.4	0.6	0.5	0.4	0.5
Other CVD	3.8	3.5	3.7	3.4	3.8	3.4	2.9	3.7
Total CVD	7.2	6.6	6.8	6.1	7.4	6.0	4.6	6.4

Notes Expenditure data included within this workbook are taken from the 2013-14 CCG programme budgeting returns. Programme budgeting returns represent a subset of overall NHS expenditure data. ¶ Analysis of programme budgeting data is complex and not all healthcare activity or services can be classified directly to a programme budgeting category or care setting. When it is not possible to reasonably estimate a programme budgeting category, expenditure is classified as 'Other'. The allocation of expenditure to programme budgeting subcategories is not always straightforward, and subcategory level data should therefore be used with caution. ¶ Estimates of expenditure are calculated using price paid for specific activities and services purchased from healthcare providers. ¶ CCGs follow standard guidance, procedures and mappings when calculating programme budgeting data. ¶ CCGs are categorised into clusters based on a number of measures, including indices of deprivation, population numbers, population density, population age distribution and ethnicity. ¶ More information on CCG clusters can be found in Box 4.2 and in the source detailed below. Source NHS England – Analytical services – Programme Budgeting Team (2015) 2013/14 Programme Budgeting Benchmarking Tool. https://www.england.nhs.uk/resources/resources-for-ccgs/prog-budgeting/ (accessed May 2015).

ENGLAND REGIONAL LEVEL

CCGs are divided into four regional teams in England: London, North, South and Midlands & East. The regions cover healthcare commissioning and delivery across their geographies and provide professional leadership on number of issues. The regional teams work closely with organisations such as clinical commissioning groups (CCGs), local authorities, health and wellbeing boards as well as GP practices.

The expenditure for total CVD per head of population ranged between regions from a low in London of £67.71 to a high of £83.23 in the North region. The North spent the highest per head on CHD, stroke and other circulation, with the South spending the most per head on cardiac rhythm. London spent the least per head on all conditions. London also had the lowest percentage expenditure on CVD as a percentage of total NHS costs, with the South region having the highest. Although the North region had the highest costs per head it was lower than both Midlands & East and South regions in percentage of costs spent on CVD. However, regional expenditure is affected by the local cost of health services provision. This is taken into account when calculating allocated budgets, along with population, the level of healthcare need and health inequalities. The amount of money each region receives is based on the interaction of these factors alongside others, calculated through a complex funding formula. In general the North of England tends to have higher allocations than they would under a simple population-based formula, and the South (excluding London) a lower allocation. The reason for this is that health needs, as measured by the formula, tend to be greater in the North region.[3]

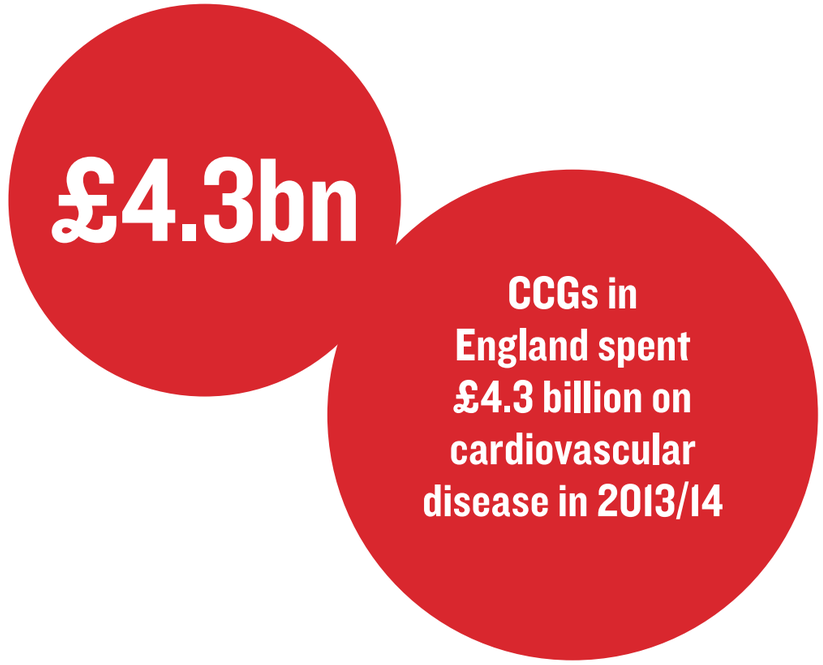


Table 4.3
NHS expenditure on CVD by Commissioning Region, England 2013/14

Region	Expenditure per head of population / £				
	CHD	Stroke	Rhythm	Other circulation	Total CVD
London	14.60	8.59	5.40	39.12	67.71
Midlands and East	16.36	12.62	5.92	40.96	75.86
North	19.48	13.61	6.01	44.13	83.23
South	16.90	13.09	6.87	40.16	77.03

Region	Total expenditure (£ million)				
	CHD	Stroke	Rhythm	Other circulation	Total CVD
London	132.2	77.8	48.9	354.4	613.4
Midlands and East	277.8	214.3	100.5	695.5	1288.1
North	308.4	215.5	95.1	698.6	1317.6
South	235.3	182.3	95.7	559.2	1072.5

Region	Percentage of total health care expenditure				
	CHD	Stroke	Rhythm	Other circulation	Total CVD
London	1.3	0.8	0.5	3.5	6.1
Midlands and East	1.5	1.1	0.5	3.7	6.8
North	1.6	1.1	0.5	3.5	6.6
South	1.5	1.2	0.6	3.6	7.0

Notes Expenditure data included within this workbook are taken from the 2013-14 CCG programme budgeting returns. Programme budgeting returns represent a subset of overall NHS expenditure data. ¶ Analysis of programme budgeting data is complex and not all healthcare activity or services can be classified directly to a programme budgeting category or care setting. When it is not possible to reasonably estimate a programme budgeting category, expenditure is classified as 'Other'. The allocation of expenditure to programme budgeting subcategories is not always straightforward, and subcategory level data should therefore be used with caution. ¶ Estimates of expenditure are calculated using price paid for specific activities and services purchased from healthcare providers. ¶ CCGs follow standard guidance, procedures and mappings when calculating programme budgeting data. ¶ CCGs were allocated to commissioning regions following details at http://www.england.nhs.uk/about/regional-area-teams/ (accessed June 2015). Source NHS England – Analytical services – Programme Budgeting Team (2015) 2013/14 Programme Budgeting Benchmarking Tool. https://www.england.nhs.uk/resources/resources-for-ccgs/prog-budgeting/ (accessed May 2015).

WALES

Expenditure data from Wales come from the programme budget returns from Health Boards (HBs). Total expenditure from this source on CVD in Wales in 2013/14 came to £431.3 million. These data show that Powys Teaching has the highest costs per head of population (£179.20) and Cardiff & Vale the lowest (£105.56). Cardiff & Vale had the lowest expenditure per head for all CVD subtypes, whilst Powys Teaching LHB had the highest expenditure per head for stroke and other CVD, Hywel Dda LHB the highest for CHD and Betsi Cadwaladr the highest for rhythm **(Table 4.4)**.

Table 4.4
NHS expenditure on CVD by Health Board, Wales 2013/14

Health Board	Expenditure per head / £				
	CHD	Stroke	Rhythm	Other CVD	Total CVD
Abertawe Bro Morgannwg UHB	36.63	30.24	9.56	63.58	140.01
Aneurin Bevan LHB	38.90	18.62	10.48	69.05	137.05
Betsi Cadwaladr UHB	39.10	29.95	13.82	68.40	151.26
Cardiff & Vale UHB	28.32	18.29	9.32	49.63	105.56
Cwm Taf LHB	41.08	29.27	12.79	65.44	148.57
Hywel Dda LHB	42.96	27.48	12.86	63.04	146.34
Powys Teaching LHB	41.51	49.26	11.60	76.79	179.16
Wales	37.75	26.52	11.46	64.20	139.92

Health Board	Total expenditure (£ million)				
	CHD	Stroke	Rhythm	Other CVD	Total CVD
Abertawe Bro Morgannwg UHB	19.1	15.7	4.9	33.1	72.9
Aneurin Bevan LHB	22.5	10.8	6.1	40.0	79.4
Betsi Cadwaladr UHB	27.1	20.7	9.6	47.3	104.7
Cardiff & Vale UHB	13.6	8.8	4.5	23.8	50.6
Cwm Taf LHB	12.1	8.6	3.8	19.3	43.9
Hywel Dda LHB	16.5	10.6	4.9	24.2	56.2
Powys Teaching LHB	5.5	6.5	1.5	10.2	23.8
Wales	116.3	81.7	35.3	197.9	431.3

Notes Health Boards allocate as much expenditure as they can, given the activity information available. The apportionment of the remainder means that some figures are approximate. ¶ Some services are commissioned on a 'host' authority basis and have not been recharged to HB area. ¶ Programme budget categories are defined by reference to ICD-10 codes. ¶ To calculate expenditure per head of population, the ONS revised mid-year population 2014 estimates were used. Source Financial Information Strategy, Public Health Wales (2015) Personal communication.

NORTHERN IRELAND

Although programme budgeting data are not available for Northern Ireland, information is available on the cost of inpatient episodes and day case attendances in an acute hospital setting. Hospital Information Branch identifies finished consultant episodes where a patient was treated for a diagnosis of coronary heart disease, stroke, or other cardiovascular disease using the relevant ICD-10 codes. To this activity information, Finance Directorate of The Department of Health, Social Services and Public Safety Northern Ireland (DHSSPSNI) has applied 2013/14 Healthcare Resource Group (HRG) reference costs derived from annual trust costing returns, in order to produce an estimate of the total cost. HRG reference costs are fully absorbed unit costs including capital charges. All costs relate only to inpatient and day case admitted care. Costs for some services are not collected at the level of detail required to enable an estimate on what has been spent on individuals with specific diagnoses. This means comparisons with other UK data cannot be made confidently **(Table 4.5)**.

Table 4.5
NHS expenditure on CVD by Health and Social Care Trust, Northern Ireland 2013/14

HSCT Name	Expenditure per head of population /£			
	CHD	Stroke	Other CVD	Total CVD
Belfast	172.76	22.60	252.85	448.20
Northern	49.49	9.64	68.78	127.91
Southern	62.62	10.66	83.67	156.95
South Eastern	68.70	9.69	102.34	180.74
Western	70.06	12.46	106.44	188.96
Northern Ireland	82.69	12.79	119.47	214.95

HSCT Name	CVD expenditure (£ million)			
	CHD	Stroke	Other CVD	Total CVD
Belfast	60.4	7.9	88.4	156.7
Northern	23.1	4.5	32.1	59.7
Southern	22.9	3.9	30.6	57.4
South Eastern	24.1	3.4	35.9	63.4
Western	20.8	3.7	31.6	56.1
Northern Ireland	151.3	23.4	218.6	393.3

Notes Hospital Information Branch identifies finished consultant episodes where a patient was treated for a diagnosis of coronary heart disease, cardiovascular disease or stroke using the relevant ICD-10 codes. To this activity information, Finance Directorate has applied 2012/13 HRG reference costs derived from annual trust costing returns, in order to produce an estimate of the total cost. ¶ All costs relate only to inpatient and day case admitted care. Substantial A&E, outpatient, primary care, community and personal social services may also be provided to patients. ¶ Costs for these services are not collected at the level of detail required to enable an estimate on what has been spent on individuals with specific diagnoses. Source Hospital Information Branch, Department of Health, Social Services and Public Safety, Northern Ireland Executive (2015) Personal communication.

The total expenditure on CVD in Northern Ireland in 2013/14 was estimated to be £393 million. Expenditure per head of population was greatest in Belfast (£448.20), more than twice that found for Northern Ireland as a whole (£214.95 per person). The lowest expenditure by population is found in the Northern Trust with £127.91 spent on total CVD per person. Comparison with figures in our previous compendium shows slight increases in some Trusts (Belfast, Northern and Western) and slight decreases in others (Southern and South Eastern) **(Table 4.5)**.

SCOTLAND

We present cost data for Scotland for this first time in this year's publication. The total cost of CVD to the NHS in Scotland came to an estimated £797 million, making it the second highest clinical programme budget group expenditure, with only mental health costing slightly more at £799 million. Expenditure per head of population was around £150, with the greatest costs coming from 'other CVD' (£377 million, or £71.50 per head of population). The hospital sector was the care setting with the highest expenditure on treating CVD, accounting for 64 per cent of total costs (£509 million); within the hospital sector £430 million of CVD expenditure was spent in acute services, more than half of the total costs of CVD to the NHS Scotland **(Table 4.6)**.

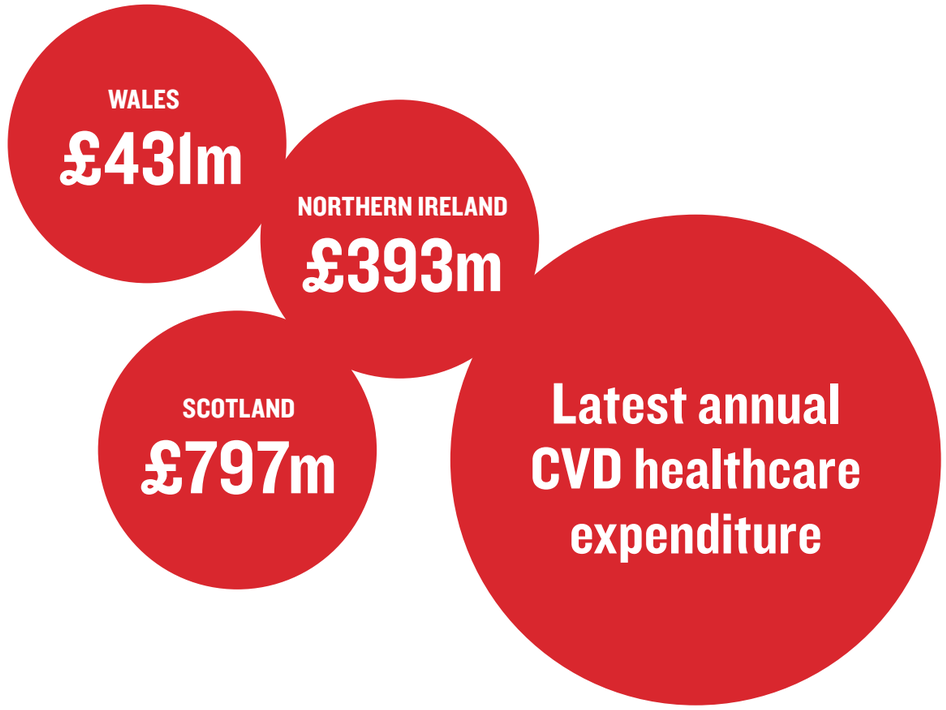


Table 4.6
NHS expenditure on CVD by care setting and condition, Scotland 2011/12

	Expenditure per head of population / £			
	Hospital Sector			
	Acute Services	Geriatric Long Stay	A&E and outpatient services	Total Hospital Sector
Coronary heart disease	22.82	0.55	1.62	25.00
Stroke	17.63	3.43	0.89	21.95
Rhythm	7.71	0.12	0.71	8.55
Other CVD	33.02	1.36	6.25	40.63
Total CVD	81.19	5.46	9.47	96.12

	Expenditure per head of population / £			
			Family Health Services	Total costs
	Pharmaceutical Services	General Medical Services	Total Family Health Services	
Coronary heart disease	18.41	1.64	20.05	45.05
Stroke	0.65	1.27	1.91	23.87
Rhythm	0.29	1.30	1.59	10.14
Other CVD	15.46	15.16	30.62	71.25
Total CVD	34.80	19.38	54.18	150.30

	Gross Expenditure (£ million)			
	Hospital Sector			
	Acute Services	Geriatric Long Stay	A&E and outpatient services	Total Hospital Sector
Coronary heart disease	120.9	2.9	8.6	132.5
Stroke	93.5	18.2	4.7	116.3
Rhythm	40.9	0.6	3.8	45.3
Other CVD	175.0	7.2	33.1	215.3
Total CVD	430.3	28.9	50.2	509.4

	Gross Expenditure (£ million)			
			Family Health Services	Total costs
	Pharmaceutical Services	General Medical Services	Total Family Health Services	
Coronary heart disease	97.6	8.7	106.3	238.8
Stroke	3.4	6.7	10.1	126.5
Rhythm	1.5	6.9	8.4	53.7
Other CVD	81.9	80.4	162.3	377.6
Total CVD	184.5	102.7	287.2	796.6

Notes Expenditure data included within this workbook are taken from the 2011/12 programme budgeting returns. Programme budgeting returns represent a subset of overall NHS expenditure. ¶ Programme budgeting in Scotland involves collating and presenting NHS expenditure on the basis of programmes of care rather than on the basis of inputs or accounting conventions. ¶ The 2011/12 Scottish Health Service Costs Book was used as the primary data source, with much of the programme budgeting category distribution based on analysis conducted using nationally available datasets. ¶ Scotland does not currently collect programme level cost information from NHS Boards. The principal cost data collection is the Scottish Health Service Costs Book which reports expenditure on the basis of specialty or service (e.g. Family Health Services (FHS)). ¶ To calculate expenditure per head of population, the ONS revised mid-year population 2011 estimates were used. Source Population Health, Analytical Services, Health Finance, eHealth and Analytics; Scottish Government (2015) Personal communication

ECONOMIC COSTS

Looking only at healthcare costs grossly underestimates the total cost and burden of cardiovascular disease (CVD) in the UK. Production losses from death and illness in those of working age contribute greatly to the overall financial burden. There are no data for production losses from CVD regularly published in the UK. However, a report by the Centre for Economics and Business Research (CEBR) published in 2014 analysed the healthcare costs of CVD in the UK, along with the costs from lost productivity due to mortality and morbidity, as part of a study of six European countries[4]. Although results were published in euros we have used the 2014 average exchange rate of 1.24 euros to the pound when presenting results here. CEBR estimated healthcare costs of CVD in the UK in 2014 to be £11.3 billion, with costs from lost work days from mortality and morbidity to be £3.9 billion and £151.6 million respectively. This resulted in total estimated costs of CVD in the UK of £15.2 billion. The report also estimated that these total costs would rise to £18.7 billion in 2020, with the greatest increases coming through rising healthcare costs.

ENDNOTES

1 Harker (2012). NHS Funding and expenditure. House of Commons, London. http://www.nhshistory.net/parlymoney.pdf

2 Commissioning fact sheet for clinical commissioning groups (2012). NHS. http://www.england.nhs.uk/wp-content/uploads/2012/07/fs-ccg-respon.pdf

3 DH Financial Planning and Allocations Division (2011). Equality Impact Assessment: PCT Resource Allocations 2011-12. Department of Health, Leeds.

4 Centre for Economic and Business Research (2014). The economic cost of cardiovascular disease from 2014-2020 in six European Economies. www.cebr.com/wp-content/uploads/2015/08/Short-Report-18.08.14.pdf (accessed September 2015)

Chapter 5

MEDICAL RISK FACTORS

Over the following pages we present summary statistics for a number of medical risk factors all of which are associated with cardiovascular disease (CVD). These include obesity, hypertension, diabetes and blood cholesterol. Statistics in this section are taken from health surveys collected in each UK nation. Some data, such as key anthropometric measurements, are updated annually, while others are only refreshed when surveys include additional cardiovascular fieldwork.

OBESITY

Being overweight or obese increases the risk of multiple diseases including CVD, cancer and type II diabetes.[1] Adults with a body mass index (BMI) (kg/m^2) of 25 to 30 are considered to be overweight. Those with a BMI of over 30 are considered obese.[2] Both generalised and abdominal obesity are associated with increased risk of morbidity and mortality. Abdominal obesity (fat concentrated in the abdomen) is a predisposing factor for cardiovascular disease. Central abdominal obesity is measured using waist circumference and waist-hip ratio. The World Health Organization recommended cut-off points, above which individuals are at risk, are a waist circumference of 94cm for men and 80cm for women. For waist-hip ratio, cut-off points are 0.9 for men and 0.85 for women.[3]

HIGH BLOOD PRESSURE

Risk of coronary heart disease (CHD) is directly related to higher levels of blood pressure.[4] Unhealthy diet is estimated to be accountable for half of hypertension whereas physical inactivity and obesity are both accountable for about 20 per cent each.[5] Drug treatment and lifestyle changes, particularly weight loss, physical activity and dietary improvements, can effectively lower blood pressure.

DIABETES

There are two main types of diabetes: type 1 and type 2. Diabetes substantially increases the risk of CHD and people who suffer from diabetes are at about three times the risk of heart attack compared to those without the condition.[6] Recent data show that the CVD burden attributable to diabetes is on the rise.[7]

BLOOD CHOLESTEROL

Blood cholesterol level is positively associated with coronary heart disease in both middle and old ages.[8] Blood cholesterol levels can be reduced by physical activity, dietary changes and by drugs. High-density lipoprotein (HDL) cholesterol is an independent predictor of cardiovascular risk, high levels being protective and lower levels increasing the risk. NICE guidelines were revised in 2014, with a new recommendation to use non-HDL cholesterol, rather than the ratio of total/HDL cholesterol, as the optimal predictor of CVD risk.[9]

OBESITY

ADULTS

- In England in 2013, the percentage of adults aged 16 years and over measured as overweight or obese (BMI > 25) was 67 per cent in men and 57 per cent in women; the percentage measured as obese was 26 per cent in men and 24 per cent in women.[10]
- In Scotland in 2014, 69 per cent of men and 61 per cent of women aged 16 years and over were overweight or obese; 26 per cent of men and 29 per cent of women were defined as obese.[11]
- In Northern Ireland in 2013/14, 67 per cent of men and 56 per cent of women were overweight or obese; 25 per cent of men and 23 per cent of women were obese.[12]
- In Wales in 2014, 61 per cent of men and 54 per cent of women aged 16 years and over were overweight or obese; 21 per cent of men and 22 per cent women were obese.[13] Unlike the data for England, Scotland and Northern Ireland, the height and weight data used for BMI calculations for Wales are self-reported. This gives rise to the possibility of report bias, whereby individuals report their measurements inaccurately. These data for Wales should therefore be treated with some caution.
- In England in 2012, 44 per cent of women and 34 per cent of men had a very high waist circumference. A very high waist circumference is measured as greater than 102cm in men and greater than 88cm in women.[10]
- Taking data from each nation's health survey and weighting results by population suggests that 26 per cent of men and 24 per cent of women in the UK are obese.

CHILDREN

- In England in 2013, 30 per cent of boys (aged 2-15 years) and 29 per cent of girls (aged 2-15 years) were classed as overweight or obese; 16 per cent of boys and 15 per cent of girls were measured as obese.[10]
- In Scotland in 2014, for those aged 2 to 15, 28 per cent of boys and 34 per cent of girls were at risk of being overweight or obese; 16 per cent of boys and 18 per cent of girls were considered to be at risk of obesity.[11]
- In Northern Ireland in 2013/14, 25 per cent of children aged 2-10 years were classed as overweight including obese and 7 per cent were classed as obese. The proportion of children classified as either overweight or obese has not changed since 2005/06.[12]
- In Wales in 2013, 35 per cent of boys and 33 per cent girls were overweight or obese; 20 per cent of boys and 19 per cent of girls were obese.[13] As with the Welsh adult data, the height and weight measurements used to calculate BMI for children in Wales are self-reported and should therefore be interpreted with some caution.

HIGH BLOOD PRESSURE

- In England, the prevalence of hypertension in adults has remained at a similar level over the last few years. In 2013 this was 31 per cent for men and 26 per cent for women.[10]
- In England, between 2003 and 2013, the percentage of the population with controlled hypertension increased from 5 per cent to 9 per cent among men, and from 6 per cent to 10 per cent among women.[10]
- In England, the percentage of men with uncontrolled hypertension was 6 per cent in both 2003 and 2013, while in women it decreased from 8 per cent to 6 per cent.[10]
- In England, the percentage of men with untreated hypertension decreased from 20 per cent in 2003 to 16 per cent in 2013, whilst the percentage of women with untreated hypertension decreased from 16 per cent in 2003 to 11 per cent in 2013.[10]
- In Scotland, in 2012/13, 29 per cent of both men and women aged 16 and over had hypertension. Nineteen per cent of men and 14 per cent of women had untreated hypertension.[14]
- In Wales, in 2014, 20 per cent of men and 19 per cent of women reported being treated for high blood pressure.[13]
- In Northern Ireland in 2013/14, 22 per cent of respondents reported that they had ever been diagnosed with high blood pressure. This percentage was the same for men and women.[12]

DIABETES

- In England, the prevalence of doctor-diagnosed diabetes increased between 1994 and 2013 from 2.9 per cent to 6.9 per cent among men and from 1.9 per cent to 5.6 per cent among women.[10]
- In Wales, 8 per cent of men and 6 per cent women reported currently being treated for diabetes.[13]
- In Scotland, the proportion of men with doctor-diagnosed diabetes has increased from 3.8 per cent in 2003 to 7.9 per cent in 2014; the proportion for women has increased from 3.7 per cent in 2003 to 5.2 per cent in 2014.[11]
- In Northern Ireland, 5 per cent of adults (6 per cent of men and 5 per cent of women) had doctor-diagnosed diabetes in 2013/14.[12]
- According to Quality and Outcomes Framework (QOF) data there were over 3.3 million diagnosed diabetes patients (aged 17 and over) in the UK in 2013/14.[14]
- It is estimated that there are around 590,000 people in the UK who have diabetes but have not been diagnosed.[15]

CHOLESTEROL

- In England, average levels of total serum cholesterol were lower in men than women (5.1mmol/L and 5.2mmol/L respectively) in 2011.[16]
- In England, 56 per cent of men and 57 per cent of women had total cholesterol levels above 5mmol/l (the audit level for those with CVD, diabetes or hypertension who are on drug treatment), while only 14 per cent and 12 per cent respectively had levels below 4mmol/L (the current target for the same group) in 2011.[16]
- In Scotland, between 1995 and 2008-11 combined, mean total cholesterol in men aged 16 to 64 years declined from 5.6 to 5.2 mmol/l. The equivalent figures for women were 5.6mmol/l and 5.3 mmol/l.[17]
- In Scotland, in 2008-11, more than half of men (56 per cent) and women (61 per cent) with a valid cholesterol measurement reported having a total cholesterol measurement of above 5 mmol/l.[17]

ENDNOTES

1 Guh DP, Zhang W, Bansback N, Amarsi Z, Birmingham CL, Anis AH. The incidence of co-morbidities related to obesity and overweight: a systematic review and meta-analysis. BMC public health. 2009;9:88.

2 WHO (2014). Obesity. World Health Organization: Geneva.

3 WHO (2008). Waist circumference and waist-hip ratio. Report of a WHO expert consolation. World Health Organization: Geneva.

4 Lim SS et al (2012). A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2012; 380: 2224–60

5 Campbell NRC, Lackland DT, Niebylski ML, the World Hypertension L, International Society of Hypertension Executive C. (2014) High Blood Pressure: Why Prevention and Control Are Urgent and Important—A 2014 Fact Sheet From the World Hypertension League and the International Society of Hypertension. The Journal of Clinical Hypertension;16:551-3.

6 Fox CS, Coady S, Sorlie PD, D'Agostino RB Sr, Pencina MJ, Vasan RS, et al (2007). Increasing cardiovascular disease burden due to diabetes mellitus: the Framingham Heart Study. Circulation; 115: 1544-50.

7 Kelly TN, Bazzano LA, Fonseca VA, Thethi TK, Reynolds K, He J (2009). Systematic Review: Glucose Control and Cardiovascular Disease in Type 2 Diabetes. Ann Intern Med; 151: 394-403

8 Prospective Studies Collaboration (2007). Blood cholesterol and vascular mortality by age, sex, and blood pressure: a meta-analysis of individual data from 61 prospective studies with 55 000 vascular deaths. Lancet; 370: 1829–39

9 NICE (2014). Lipid modification: cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. National Institute for Health and Care Excellence: London.

10 HSCIC (2014). Health Survey for England 2013, Trend tables. Health and Social Care Information Centre: London. Accessed January 2015

11 The Scottish Government (2015). The Scottish Health Survey 2014. The Scottish Government: Edinburgh. Accessed September 2015.

12 Department of Health, Social Services and Public Safety (2014). Quality and Outcomes Framework (QOF) Achievement Prevalence data.

13 Welsh Government (2015). Welsh Health Survey 2014. Knowledge and Analytical Services: Cardiff. Accessed June 2015.

14 Estimated from the Quality and Outcomes Framework (QOF) Achievement Prevalence and exceptions data 2013/14 for England, Wales, Scotland and Northern Ireland.

15 Diabetes UK (2015). Diabetes: Facts and Stats. Diabetes UK: London.

16 HSCIC (2012). Health Survey for England 2011, Trend tables. Health and Social Care Information Centre: London. Accessed January 2015.

17 The Scottish Government (2012). The Scottish Health Survey 2011. The Scottish Government: Edinburgh. Accessed January 2015.

Chapter 6

BEHAVIOURAL RISK FACTORS

In the following sections, we present statistics related to four major lifestyle factors that increase the risk of cardiovascular disease (CVD): smoking, poor diet, physical inactivity and excess alcohol consumption.

SMOKING

Tobacco smoking is one of the leading risk factors for disease.[1] Among its many health consequences, smoking increases risk of coronary heart disease by raising blood pressure and the tendency of blood to clot while decreasing exercise tolerance and blood levels of HDL ('good' cholesterol). The long-term hazards of cigarette smoking have been studied over a long period of time, most notably by Sir Richard Doll and colleagues who demonstrated in a 50-year cohort study that smoking kills about half of all persistent smokers.[2] In England in 2013, an estimated 78,200 deaths among adults aged 35 and older (around 17 per cent of deaths) were attributed to smoking, including 13 per cent of deaths (16,700) from circulatory diseases.[3]

POOR DIET

Dietary patterns also influence risk of CVD. In particular, a high-sodium diet increases the risk of hypertension, which is a risk factor for CVD. High consumption of saturated and trans fats contributes to the development of atherosclerosis. Consumption of fruits and vegetables, by contrast, has a protective effect.[4]

PHYSICAL INACTIVITY

Another key risk factor for CVD is physical inactivity. A sedentary lifestyle contributes to risk factors such as high blood pressure, elevated triglycerides, low HDL, diabetes and obesity.[5]

ALCOHOL CONSUMPTION

Excessive alcohol consumption represents a major risk factor: it increases blood pressure and blood levels of triglycerides, which increase a person's risk of atherosclerosis.[6]

SMOKING

ADULTS

- The prevalence of cigarette smoking among adults (over 16 years) in Great Britain has fallen by more than half in the last 40 years, from 46 per cent in 1974 to 19 per cent in 2013.[7]
- This decline is the result of both fewer people taking up smoking and more previous smokers having quit.
- According to estimates from 2013, in England, 24 per cent of men and 17 per cent of women are current smokers.[8]
- In 2014 in Scotland, an estimated 23 per cent of men and 21 per cent of women were current smokers.[9]
- In 2014 in Wales, an estimated 22 per cent of men and 19 per cent of women were current smokers.[10]
- The prevalence of smoking in Northern Ireland has been declining since the 1980s. In 1983, 39 per cent of men and 29 per cent of women in Northern Ireland smoked. In 2013/14, 23 per cent of males and 21 per cent of females were current smokers.[11]

CHILDREN

- Overall, there has been a decline in the proportion of children in the UK who smoke regularly (defined as usually smoking at least one cigarette per week).
- In England, the prevalence of regular smoking among boys and girls aged 11 to 15 years decreased from 9 per cent in 2003 to 3 per cent in 2013.[12] Historically, a higher percentage of girls have been regular smokers compared to boys (7 per cent of boys and 11 per cent of girls in 2003), but the figures from recent years indicate that this gap is closing and similar proportions of boys and girls are regular smokers (4 per cent of boys and girls in 2012; 3 per cent of boys and 4 per cent of girls in 2013).
- In Scotland, the prevalence of regular smoking among both 13-year-olds and 15-year-olds of both sexes is at its lowest level since 1982 when the Scottish national health survey began collecting data. Among 13-year-old boys, smoking prevalence has declined from 11 per cent in 1994 to 2 per cent in 2013. Among 13-year-old girls, smoking prevalence has declined from 10 per cent in 2000 to 2 per cent in 2013. Among 15-year-olds, regular smoking prevalence peaked at 34 per cent for girls (in 1984) and 30 per cent for boys (in 1996), and has now declined to 8 per cent for boys and 9 per cent for girls.[13]
- Consistent with the UK trend, the prevalence of regular smoking among young people in Wales increases with age. According to the most recent estimates, 3 per cent of boys and 6 per cent of girls aged 13 years smoked regularly, while among 15-year-olds, 16 per cent of girls and 11 per cent of boys reported regular smoking in 2011. The prevalence of weekly smoking in Wales has shown a continuous decline in both boys and girls since 1998 when the prevalence was 22 per cent amongst 15-year-old boys and 29 per cent amongst 15-year-old girls.[14]
- In Northern Ireland, there was an increase between 2006 and 2013 in the proportion of 11- to 16-year-old boys who reported smoking at least once a week, from 5 per cent to 8 per cent. Among females, by contrast, the prevalence decreased from 10 per cent to 8 per cent. In 2013, 9 per cent of pupils aged 11 to 16 reported that they had smoked at least one whole cigarette in the last year.[15]

POOR DIET

ADULTS EATING 5 A DAY

- Current guidelines recommend that adults and children should aim to eat at least five portions of fruit and vegetables, including up to one portion each of fruit juice and beans or pulses, each day. The latest National Diet and Nutrition Survey provides an assessment of the quality of the diet for adults in the United Kingdom. These results, which relate to 2008/09 to 2010/11 combined, suggest that adults aged 19 to 64 years consumed an average of 4.1 portions of fruit and vegetables per day.[16]
- In general, household food purchases do not match recommendations in terms of the proportions of food types that compose a healthy diet. Household purchases of vegetables (particularly fresh vegetables) declined between 2005 and 2013, when purchases fell 4.7 per cent from 1,156 grams to 1,102 grams per person per week.[17]

ADULTS CONSUMPTION OF FAT

- Average intake of total fat should account for no more than 35 per cent and saturated fatty acids no more than 11 per cent of food energy intake. Between 2001-02 and 2013, the percentage of energy from saturated fatty acids decreased from 14.8 per cent to 14.3 per cent, whilst the percentage of energy from fat was generally stable, with an average of 38.3 per cent. Percentage energy intake of both fat and saturated fat in 2013 exceeds the recommended levels.[17]
- Mean consumption of oily fish fell below the recommended portion (140g per week) in all age groups: the mean consumption in adults was 54 grams per week.[16]

ADULTS CONSUMPTION OF SALT

- The best available estimates indicate that the average daily intake of salt among adults in the UK exceeds the recommended target of no more than 6g per day.
- A 2008 study estimated salt intake by analysing the urine of a representative sample of UK adults and found that both men and women exceeded recommendations: the estimated daily salt intake was 9.7 grams for men and 7.7 grams for women (8.6 g/day overall).[18]
- More recent data are available from England and it suggests that in 2011 men had a mean intake of 9.3 g per day and women a mean intake of 6.8 grams per day. Overall, 70 per cent of adults exceed recommendations.[19]

CHILDREN EATING 5 A DAY

- According to the latest National Diet and Nutrition Survey, which relates to the years 2008/09 to 2010/11 combined, the mean consumption among children aged 11 to 18 years was 3.0 portions of fruit/vegetables per day for boys and 2.8 portions per day for girls.[16]
- According to the Health Survey for England, in 2013 16 per cent of boys and 17 per cent of girls consumed at least five portions of fruit and vegetables per day. Boys consumed an average of 2.8 portions per day and girls an average of 3.2. This reflects an overall increase in mean intake since 2001, from 2.4 and 2.6 daily portions among boys and girls respectively.

PHYSICAL INACTIVITY

2011 UK GUIDELINES FOR PHYSICAL ACTIVITY

ADULTS AGED BETWEEN 19 AND 64

- Adults should aim to be active daily. Over a week, activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of 10 minutes or more – one way to approach this is to do 30 minutes on at least 5 days a week.
- Alternatively, comparable benefits can be achieved through 75 minutes of vigorous intensity activity spread across the week or combinations of moderate and vigorous intensity activity.
- Adults should also undertake physical activity to improve muscle strength on at least two days a week.
- All adults should minimise the amount of time spent being sedentary (sitting) for extended periods.

CHILDREN AND YOUNG PEOPLE AGED BETWEEN 5 AND 18

- All children and young people should engage in moderate to vigorous intensity physical activity for at least 60 minutes and up to several hours every day.
- Vigorous intensity activities, including those that strengthen muscle and bone, should be incorporated at least three days a week.
- All children and young people should minimise the amount of time spent being sedentary (sitting) for extended periods.

CHILDREN AGED UNDER 5 WHO CAN WALK

- Children of pre-school age who are capable of walking unaided should be physically active daily for at least 180 minutes (3 hours), spread throughout the day.
- All under-5s should minimise the amount of time spent being sedentary (being restrained or sitting) for extended periods (except time spent sleeping).

ADULTS

- In England in 2012, 67 per cent of men and 55 per cent of women aged 16 and over met the most recent physical activity guidelines.[20] These guidelines were updated in 2011 to allow for more flexibility in how the recommended levels for adults can be achieved.
- Figures for adults aged over 16 were similar in Scotland, with 68 per cent of men and 59 per cent of women meeting the guidelines in 2014.[9]
- Activity levels are lower in Northern Ireland with 60 per cent of men and 47 per cent of women aged over 19 meeting the physical activity guidelines in 2013/14.[11]
- The data for Wales are in relation to pre-2011 guidelines so are not comparable to data from the other UK nations. In Wales in 2014, 38 per cent of men and 23 per cent of women met the previous physical activity guidelines, which was similar to previous years.[10] The pre-2011 guidelines recommended 30 minutes of moderate activity on at least five days a week.
- The proportion of people meeting the physical activity guidelines decreases with age in all countries of the UK.

CHILDREN

- In 2012, 9 per cent of boys and 10 per cent of girls in England aged 2 to 4 years were active for at least 180 minutes on all 7 days in the previous week, excluding activity in school.[20]
- In Scotland in those aged 2 to 4 in 2012, 82 per cent of boys and 72 per cent of girls were active for at least 60 minutes on all seven days in the previous week.[9]
- In 2012, of those aged 5 to 15 years in England, 21 per cent of boys and 16 per cent of girls met the physical activity guidelines for children and young people.[12]
- In Wales in 2012, in those aged 4 to 14, 40 per cent of boys and 29 per cent of girls were physically active every day of the previous week.[10]
- In Scotland in 2014, 79 per cent of boys and 73 per cent of girls amongst children aged 2 to 15 years met the physical activity guidelines for children and young people.[9]

ALCOHOL CONSUMPTION

ADULTS

- Current government guidelines advise that men should not drink more than four units of alcohol per day, while women should not drink more than three units of alcohol per day.
- In England, the proportion of men consuming more than four units of alcohol on the heaviest day's drinking in a surveyed week showed a small decrease between 2006 and 2013 (37 per cent in 2013), as did the proportion of men that drank more than twice the recommended amount (21 per cent in 2013).[18]
- In England, the proportion of women consuming more than three units on the heaviest day's drinking in the previous week also exhibited a decrease between 2006 (33 per cent) and 2013 (27 per cent), as did the proportion of women drinking more than twice the recommended amount (from 16 per cent in 2006 to 13 per cent in 2013).[8]
- In Wales, in 2013, 46 per cent of men and 35 per cent of women reported drinking above the recommended daily allowance.[10]
- In Scotland, the proportion of men consuming more than four units on the heaviest day's drinking in a surveyed week showed a steady decrease between 2003 (45 per cent) and 2014 (41 per cent), and the proportion drinking more than twice the recommended amount on that day decreased from 29 per cent in 2003 to 24 per cent in 2014.[9]
- The proportion of women in Scotland consuming more than three units on the heaviest day's drinking in a surveyed week decreased between 2003 and 2014 from 37 per cent to 33 per cent, and the proportion drinking more than twice the recommended amount on that day decreased from 19 per cent in 2003 to 16 per cent in 2014.[9]
- In Northern Ireland, around three-quarters (76 per cent) of respondents aged 18 and over stated that they drank alcohol. This was higher amongst males (81 per cent) than females (73 per cent). About one quarter of males (23 per cent) drank above the recommended weekly limits (more than 21 units per week), whereas this was the case for only 12 per cent of females (for which the recommended weekly limit is defined as 14 units per week). There has been a reduction from 2011/12 in the proportion of adults in Northern Ireland drinking above recommended weekly limits from 19 per cent to 16 per cent in 2013/14.[11] This is primarily attributable to a reduction among males.

CHILDREN

- In England in 2013, 20 per cent of boys and 23 per cent of girls aged 8-15 years had drunk a proper alcoholic drink at least once.[8] The proportion of children of both sexes who have ever had an alcoholic drink increased from 3 per cent among 8- to 10-year-olds to 45 per cent of 13- to 15-year-olds.[17]
- In Scotland, 32 per cent of 13-year-old pupils (33 per cent of boys and 30 per cent of girls) and 70 per cent of 15-year-olds (67 per cent of boys and 72 per cent of girls) reported ever having had a proper alcoholic drink. These figures are the lowest of any time since 1996.[13]
- In Wales, 17 per cent of boys and 14 per cent of girls (aged 11-16 years) reported drinking alcohol at least once a week, 2009/10.[21]

ENDNOTES

1 Lim SS et al (2012). A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2012; 380: 2224–60

2 Doll R ,Peto R ,Boreham J ,Sutherland I (2004). Mortality in relation to smoking: 50 years' observations on male British doctors. BMJ; 328: 1519-27.

3 Health and Social Care Information Centre (2015). Statistics on Smoking: England, 2015.

4 Mente, Andrew, et al (2009). A systematic review of the evidence supporting a causal link between dietary factors and coronary heart disease. Archives of internal medicine; 169.7: 659-669.

5 World Health Organization (2010). Global Recommendations on Physical Activity for Health. WHO: Geneva.

6 World Health Organization (2002). The World Health Report 2002. Reducing Risks, Promoting Healthy Life. World Health Organization: Geneva.

7 ONS (2014) Opinions and Lifestyle Survey, Adult Smoking Habits in Great Britain, 2013.

8 HSCIC (2014). Health Survey for England 2013, Trend tables. Health and Social Care Information Centre: London. Accessed January 2015

9 The Scottish Government (2015). The Scottish Health Survey 2014. The Scottish Government: Edinburgh. Accessed September 2015.

10 Welsh Government (2015). Welsh Health Survey 2014. Knowledge and Analytical Services: Cardiff. Accessed June 2015.

11 NISRA (2014). Health Survey Northern Ireland 2013/14. The Northern Ireland Statistics and Research Agency: Belfast. Accessed January 2015.

12 Health and Social Care Information Centre (2014). Smoking, drinking and drug use among young people in England in 2013, HSCIC: London. Accessed 25 July 2014.

13 Information Services Division (2014). Scottish Schools Adolescent Lifestyle and Substance Use Survey, 2013. NHS National Services Scotland: Edinburgh. Accessed January 2015

14 Currie, C et al. (2012). Social determinants of health and well-being among young people: Health Behaviour in School-Aged Children (HBSC) study: international report from the 2009/10 survey. World Health Organization Regional Office for Europe: Copenhagen

15 Northern Ireland Statistics and Research Agency (2014). Young Persons' Behaviour and Attitudes Survey 2013. Central Survey Unit, Belfast. Accessed January 2015.

16 Department of Health, UK Food Standards Agency (2014). National Diet and Nutrition Survey: headline results from Years 1, 2 and 3 combined (2008/9-2011/12). London. Accessed January 2015

17 Department for Environment Food & Rural Affairs (2014). Family Food 2013. London. Accessed January 2015

18 National Centre for Social Research, MRC Human Nutrition Research (2008). An assessment of dietary sodium levels among adults (aged 19-64) in the UK general population in 2008, based on analysis of dietary sodium in 24 hour urine samples

19 Department of Health (2012). National Diet and Nutrition Survey – Assessment of dietary sodium levels in adults (aged 19 to 64 years) in England, 2011. London. Accessed January 2015.

20 HSCIC (2013). Health Survey for England 2012, Trend tables. Health and Social Care Information Centre: London. Accessed January 2015.

21 Public Health Wales Observatory (2013). Health of Children and Young People in Wales. Public Health Wales NHS Trust: Cardiff. Accessed January 2015.

BRITISH HEART FOUNDATION RESOURCES

The following resources will give you more information on making changes to your lifestyle and reducing your risk of diseases of the heart and circulation.

These are our resources most closely related to the topics in this publication. For more information on the services, programmes and resources that are available from the British Heart Foundation please order our **Heart Health Resources and Services catalogue (order code: M116)**.

Information for teachers, parents and youth workers of 3- to 18-year-olds can also be found in our **Teaching Heart Disease a Lesson catalogue (order code: G66)**.

Details of how to order our resources are provided at the end of this list.

MEDICAL RISK FACTORS

Blood pressure (order code: HIS4)
This booklet is for people who want to know more about blood pressure. It may be particularly useful for people with high blood pressure, and for their family and friends.

10 minutes to change your life – High blood pressure (order code: G933)
This simple guide is for people who have been told they have high blood pressure, or are at risk of getting it. It explains what high blood pressure is, what can cause it, and what you can do to lower it. This booklet comes with a planner for you to track your salt intake, alcohol intake, and physical activity, then set a goal to help reduce your blood pressure.

Reducing your blood cholesterol (order code: HIS3)
This booklet explains what cholesterol is, its role in coronary heart disease, what causes high levels and how it can be kept under control. It also explains which medicines are used to treat high levels.

10 minutes to change your life – Lowering cholesterol (order code: G991)
This simple guide is for people who have been told they have high cholesterol, or are at risk of getting it. It explains what high cholesterol means, what can cause it, and what you can do to lower it. This booklet comes with a challenge chart for you to track your physical activity and saturated fat intake over a week, then set a goal to help reduce your cholesterol.

Diabetes and your heart (order code: HIS22)
This booklet is for people who have diabetes, and for their families and friends. It may also be useful if you don't have diabetes but you have been told you may develop it in the future.

Risking It (order code: DVD21)
This series of short motivational films is designed to help identify and tackle risk factors for coronary heart disease. The films cover high cholesterol, high blood pressure, smoking, weight loss and more. Following six people who decide to take positive action to lower their risk of CHD, these films show how small changes can make a big difference.

For more information, visit **bhf.org.uk/riskfactors**

DIET

Eating well (order code: G186)
If you want to eat more healthily to look after your health and reduce your risk of heart disease, then our Eating Well booklet can help. It explains the benefits of a balanced diet and how you can follow a healthy eating plan as part of your daily life.

Cut the saturated fat (order code: M4)
Our wall chart includes information on the different types of fat in food and advice on the healthiest options to choose, both when cooking or eating out.

Cut down on salt (order code: G160)
This booklet provides practical tips and recipe ideas. It describes guideline levels of salt intake for adults and how to identify high salt foods.

This label could change your life (order code: G54)
Our new guide helps people choose which foods to shop for, and which to drop. It includes a small card that explains colour-coded labels on foods and drinks. These labels could change lives by helping people to check, compare and choose heart-healthy options.

10 minutes to change your life – Time to eat well (order code: G923)
This booklet explains what to eat and what not to eat to help keep your heart healthy. It comes with a challenge chart to help track how much fruit and veg you're eating, and tells you which foods are high in saturated fat and salt.

For more information, visit **bhf.org.uk/healthyeating**

PHYSICAL INACTIVITY

Get active, stay active (order code: G12)
This A5 booklet helps you understand why you need to keep your heart healthy with physical activity. It also gives you tips and tools to work physical activity into your daily routine.

10 minutes to change your life – Time to get moving (order code: G924)
This simple guide to getting active includes information about why you should be active, and tells you what type of activity you need to do to help your heart. It comes with a challenge chart to help you track your activity over a week and set yourself a goal for the future.

For more information, visit **bhf.org.uk/active**

ALCOHOL

10 minutes to change your life – Call time on alcohol (order code: G989)
This booklet is a simple guide to how alcohol can affect your heart. It comes with a challenge chart to help you track how much you're drinking, and set a goal to cut down if you need to.

For information on alcohol and cardiovascular disease, go to **bhf.org.uk/alcohol**

Use our Alcohol Calculator to see how many units are in your drinks.

SMOKING

Stop smoking (order code: G118)
This booklet provides practical tips for smokers who are thinking about giving up and helps them to understand more about why they smoke and how they can stop smoking for good. It explains the link between smoking and heart disease and discusses different approaches to quitting, with tips and activities to help you on your journey.

10 minutes to change your life – Time to quit (order code: G925)
A quick guide explaining why it's important to quit smoking. It talks about different ways to quit and how to find people who can help you. It comes with a chart to help you plan how you're going to quit, and tick off your smoking-free days.

For more information, visit **bhf.org.uk/smoking**

HEART CONDITIONS

Quick guides for patients (order codes: G960-G970)
Our new quick guides cover 11 of the most common heart and circulatory conditions, tests and treatments. These guides provide information on a range of topics including heart attack, stroke, atrial fibrillation, cardiac rehab and atherosclerosis.

Inherited heart conditions (order codes: M111A-M111F)
Our series of six inherited heart conditions booklets cover topics such as familial hypercholesterolaemia, cardiomyopathies and heart rhythm disturbances. They describe the conditions, diagnosis and treatments for a condition and how they can be passed on through families.

For more information, visit **bhf.org.uk/conditions**

ORDERING RESOURCES

To order any of our resources:

– call the BHF Orderline on **0870 600 6566**, or

– email **orderline@bhf.org.uk** or

– visit **bhf.org.uk/publications**

Most of our booklets can also be downloaded from **bhf.org.uk/publications**

Our resources and services are free of charge, but we rely on donations to continue our vital work. If you'd like to make a donation, please call our donation hotline on **0300 330 3322** or visit our website at **bhf.org.uk/donate**

bhf.org.uk/publications

Acknowledgements

The compilers would like to thank Ed Dicks, Matt McArdle, Claire Sand, Chris Allen, Nadhim Ahmed, Rosie Rumsey, Will Slater, Kimberley Ferguson, Andrew Tooley, Louisa Smith, Frank Dixon, Bryn Shorney, Denise Roberts, Shona Cunningham, Marjorie Marshall, Donna Mikolajczak, Grant Lee, Daniel Adams, Andrew Deas, Josh Dixon, Katie McClelland, Mary Scarlett, Mervyn Wilson, Sam Hastings, Alex Henriquez, Damien Dixon, and Mark Wheatcroft for their help in producing this publication.

British Heart Foundation

For over 50 years we've pioneered research that has transformed the lives of millions of people living with heart disease. Our work has been central to the discoveries of vital treatments that are changing the fight against heart disease.

But heart and circulatory disease still kills around one in four people in the UK, stealing them away from their families and loved ones.

From babies born with life threatening heart problems, to the many mums, dads and grandparents who survive a heart attack and endure the daily battles of heart failure.

Join our fight for every heartbeat in the UK. Every pound raised, minute of your time and donation to our shops will help make a difference to people's lives.

Text FIGHT to 70080 to donate £3*

FIGHT FOR EVERY HEARTBEAT

bhf.org.uk

*This is a charity donation service for the BHF. Texts cost £3 + 1 standard rate msg. The BHF will receive 100% of your donation to fund our life saving research. To opt out of calls and SMS text NOCOMMS BHF to 70060, or if you have any questions about your gift call 02032827863.

CVDSTATS15