Stroke statistics

2009 edition

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Contents

Foreword

The British Heart Foundation and The Stroke Association are pleased to present *Stroke Statistics* – the first comprehensive collection of national statistics regarding the burden of stroke to the UK. In this publication you will find data on the heavy cost that stroke still exerts on our country, in terms of mortality, morbidity, treatment levels and financial costs.

The death rate from stroke has fallen over the last forty years, thanks to great advances in treatment, particularly in drug therapy aimed at reducing blood pressure in people at high risk of stroke. The fall in the death rate also reflects generally positive changes in risk factors for stroke over this period, particularly in smoking rates which fell dramatically between 1970 and 1990. But this is no reason to be complacent. Cardiovascular disease remains the UK's biggest killer, and with an ageing population, stroke incidence is likely to rise in future decades. With improvements in hyperacute care, numbers surviving their stroke will increase, potentially increasing the burden of stroke disability.

Over recent years we have seen unsettling trends in risk factors with increasing obesity and diabetes prevalence coupled with a smoking prevalence that has changed little since the mid 1990s. The social patterning of these risk factors is clearly shown in this report, and much work is still needed if we are to remove the huge social inequalities in stroke that exist today just as they did forty years ago. The role of charities such as The Stroke Association and the British Heart Foundation in addressing these issues is vital.

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CEO, The Stroke Association

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Introduction

This publication is the latest edition of a series of statistical compendia and supplements that document the burden of cardiovascular disease in the United Kingdom. This series of publications, published by the British Heart Foundation, usually focuses on coronary heart disease, but *Stroke Statistics* is jointly published by the British Heart Foundation and The Stroke Association and focuses on the important and substantial burden of stroke in the United Kingdom.

Stroke Statistics is designed for policy makers, health professionals, medical researchers and anyone else with an interest in stroke or cardiovascular disease. It aims to provide the most recent statistics related to the burden of stroke and to document the geographic, social and ethnic inequalities in the experience of stroke.

Stroke Statistics is divided into five chapters. Chapter 1 documents trends and patterns in stroke mortality and premature mortality. Chapter 2 reports on the morbidity burden of stroke, both in terms of prevalence (the rate of people who have had a stroke in the past) and incidence (the rate of first ever strokes). Chapter 3 describes the burden of stroke on the National Health Service, in terms of drug therapy, hospitalisations and surgical procedures. Chapter 4 provides estimates of the prevalence of risk factors for stroke, broken down by age, sex, socioeconomic status and ethnicity. Details about Government targets to tackle the risk factor status of the population are also provided where available. Chapter 5 provides new estimates, calculated specifically for *Stroke Statistics*, of the economic cost of stroke to the National Health Service and to the United Kingdom economy.

Where the supporting data have allowed, results have been presented for as many stroke subtypes as possible, using the following breakdown: cerebrovascular disease, consisting of *stroke* and *other cerebrovascular disease; stroke* consisting of *haemorrhagic stroke, ischaemic stroke* and *unspecified stroke; haemorrhagic stroke* consisting of *subarachnoid haemorrhage* and *intracranial haemorrhage*. In addition, results regarding transient ischaemic attack have been included where possible. Because of inconsistencies between datasets, it has not always been possible to follow this structure. For example, in some tables the term 'stroke' refers to all cerbrovascular diseases. Notes to the tables indicate where this structure has been deviated from.

Various sources of information have been used in compiling *Stroke Statistics* and these sources are listed in the footnotes to each table. The sources of data can be divided into: routinely collected data, national studies and local studies. Each source has its strengths and weaknesses and not all sources provide data for all ages or even both sexes. Data are not always available for all regions of the United Kingdom and data are collected in different ways with different degrees of validity and reliability. Sample sizes of studies vary considerably, as do sampling methods. Comparisons between these different data sets should be made with caution.

All of the tables and figures in *Stroke Statistics* are also available on the British Heart Foundation's *www.heartstats.org* website. Further copies of this publication can be downloaded from this website, as well as copies of the most recent *Coronary Heart Disease Statistics* compendium

and other recent supplements on *Diet, Physical Activity and Obesity* and *Regional and Social Differences in Coronary Heart Disease* and *European Cardiovascular Disease Statistics*.

The *www.heartstats.org* website aims to be the most comprehensive and up-to-date source of statistics on cardiovascular disease in the United Kingdom. The website is updated on an ongoing basis and contains a wider range of tables and figures that are available in any of the publications in the *Coronary Heart Disease Statistics* series.

Summary

- Stroke is a major cause of mortality in the UK, accounting for around 53,000 deaths every year.
- In those aged under 75, around one in twenty deaths are from stroke, making it a major cause of premature mortality.
- Stroke mortality rates for men and women are now at about a third of the level they were in 1968.
- There is a north-south gradient in stroke mortality with rates in Scotland around 50% higher than in London.
- Social inequalities in stroke are persistent and premature death rates in the most deprived areas are around three times higher than in the least deprived.
- The stroke mortality rate for men born in Bangladesh is three times higher than those born in England and Wales and this gap has increased since the early 1980s.
- Using the most recent measures of stroke incidence rates, we estimate that there are around 111,000 first strokes in the UK every year.
- The prevalence of stroke among those aged over 75 is increasing in England. For men, the prevalence in this age group has increased from 9% in 1994 to 13% in 2006.
- There are over 21,000 surgical procedures related to stroke every year in England, with a similar number performed on men and women.
- The number of inpatient cases for stroke in English NHS hospitals has increased by around 25% since the 1990s.
- Nearly 40% of men and more than 30% of women in England have high blood pressure, a key risk factor for stroke. Half of people with high blood pressure are not receiving treatment.
- The prevalence of obesity in England in 2006 was around 50% higher than in 1994.
- The total economic costs of stroke to the UK in 2006/07 were £4.5 billion.

Glossary

This section provides a definition for some of the terms used throughout Stroke Statistics.

Aneurysm – a balloon-like bulge in the wall of an artery that may burst and cause a haemorrhage.

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.

Cardiovascular disease – the collective term for all diseases affecting the circulatory system (heart, arteries, blood vessels). Cardiovascular disease is coded as I00-I99 by the International Classification of Disease Tenth Revision.

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. Cerebrovascular disease is coded as I60-I69 by the International Classification of Disease Tenth Revision.

CT (Computed Tomography) scan – a rotational mechanical device used to produce a large series of two-dimensional X-ray images of the interior of an object (such as the brain). These two-dimensional scans can be combined to generate a three-dimensional image of the object.

Decompressive haemocraniectomy – a surgical procedure whereby a section of the skull is removed to treat swelling within the brain.

Endarterectomy – a surgical technique used to widen a narrowed artery by removing fatty plaque material from the within the artery.

Equivalised household income – a measure of household income adjusted for the number of dependents within the household.

Extradural – referring to the outermost part of the spinal canal.

Haematoma – a collection of blood that has spilled from the blood vessels, as a result of a haemorrhage.

Haemorrhage – the technical term for bleeding. The term is commonly used to refer to internal bleeding.

Haemorrhagic stroke – a subtype of stroke resulting from a haemorrhage of one of the major arteries that feed the brain (the carotid, cerebral and subclavian arteries). It is often referred to as cerebral haemorrhage or intracerebral haemorrhage. In some instances the term haemorrhagic stroke incorporates subarachnoid haemorrhage and is coded I60-I62 by the International Classification of Disease Tenth Revision. In other instances, subarachnoid haemorrhage is not included, and haemorrhagic stroke is coded I61-I62.

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.

Ischaemic stroke – a subtype of stroke that is a result of a blockage in one of the major arteries that feed the brain (the carotid, cerebral or subclavian arteries). It is often referred to as occlusive stroke. Ischaemic stroke is coded as I63 by the International Classification of Disease Tenth Revision.

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 fraction of cholesterol associated with increased risk of atherosclerosis.

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 already at high-risk of disease.

Subarachnoid haemorrhage – a subtype of stroke that is a result of internal bleeding in the subarachnoid space (the area between the arachnoid membrane and the brain). Subarachnoid haemorrhage is coded as I60 by the International Classification of Disease Tenth Revision.

Subdural – referring to the artificial space created by the separation of the outer membrane of the brain and spinal canal from the inner material.

Transient Ischaemic Attack – a condition caused by a brief delay in the blood supply to a particular area of the brain resulting in neurologic dysfunction that persists for less than 24 hours. It is often referred to as a mini stroke or TIA. Transient ischaemic attack is coded as G45.9 by the International Classification of Disease Tenth Revision.

Transluminal embolisation – a non-surgical procedure that aims to introduce a blockage to a specific artery in order to prevent internal bleeding.

Unclassified stroke – a subtype of stroke classification that is used when it is not clear whether a haemorrhagic or ischaemic stroke has occurred. The symptoms for different forms of stroke are virtually identical and identification of stroke subtype is only possible via a CT scan or an autopsy. When neither procedure is necessary, the incident or mortality is coded as 'unclassified stroke'. Unclassified stroke is coded as I64 by the International Classification of Disease Tenth Revision.

1. Mortality

Stroke is a major cause of mortality in the UK, accounting for around 53,000 deaths every year (around 9% of all deaths)[1]. As a single cause of death, stroke is second only to coronary heart disease as the biggest killer in the UK. Stroke is also a major cause of premature mortality, responsible for over 9,500 deaths every year in people under the age of 75, about one in twenty of all deaths in this age group (Table 1.2, Table 1.3 and Figures 1.3a, 1.3b, 1.3c and 1.3d).

There are a number of different forms of stroke, including subarachnoid haemorrhage, haemorrhagic stroke and ischaemic stroke. It is often difficult for medical practitioners to identify the particular stroke subtype without access to evidence from autopsy or a brain scan. Therefore a large number of stroke mortalities are recorded as either 'unspecified stroke' or 'other cerebrovascular disease'. Because of this, it is not possible to know exactly how many deaths are caused each year by the individual stroke subtypes.

Public health targets

Government targets for the reduction in stroke mortality for the United Kingdom are shown in Table 1.1. Recent trends indicate that the *Our Healthier Nation* target to reduce the death rate from cardiovascular diseases in people under 75 years by at least two fifths by 2010 will be met (Figure 1.1a).

Progress towards the cardiovascular disease inequalities target in England is also steady. If current trends continue, the target to reduce the inequalities gap in premature death rates from CVD between the areas with the worst health and deprivation indicators and the population as a whole by 40% by 2010 will also be met (Figure 1.1b).

Trends in stroke death rates in the UK

Interpreting recent trends in stroke death rates in the UK is complicated by changes made to the International Classification of Disease (ICD) coding system. The tenth revision of this coding system was introduced in 2000 and it represented the biggest change in the coding system for over thirty years. As a result of this change there is a discontinuity in recorded stroke death rates in 2000. It has been estimated that there was an increase in reported stroke deaths of approximately 10% that was a direct result of the introduction of the tenth revision of the ICD[2]. Disregarding the discontinuity, stroke mortality rates have been consistently falling in England and Wales since the late 1960s in all age and sex groups (Table 1.4, and Figures 1.4a and 1.4b).

Age-standardised stroke mortality rates have fallen considerably in the last forty years. Both male and female rates now stand at about a third of the level in 1968 (Table 1.5). Over this time period there has been a 90% drop in reported ischaemic stroke mortality rates and a 75% drop in reported haemorrhagic stroke rates. It is difficult to draw conclusions in trends on stroke subtype mortality due to inconsistency in the rate of reporting 'unspecified stroke' mortality (Figures 1.5a and 1.5b). A recent study concluded that there has been a steady fall in haemorrhagic stroke death rates over the twentieth century whereas ischaemic stroke death rates increased until the 1970s and have been falling consistently since[3].

National and regional differences

Death rates from stroke vary geographically in the UK, with the highest rates in Scotland, high rates in the North of England, Wales and Northern Ireland, and lower rates in the South of England (and London in particular). The rate of stroke deaths in Scotland for both men and women is about 50% higher than the rate in London, and about 30% higher for deaths under the age of 75. There is similar regional variation in reported haemorrhagic and ischaemic stroke mortality rates, with the lowest rates in the South of England (Table 1.6). The geographic variation in rates is not dramatic in comparison to coronary heart disease, where female premature mortality rates in Scotland are nearly double that of rates in the South of England[4].

Maps of stroke mortality by local authority in the UK demonstrate the North-South gradient and show how higher mortality rates are also found in urban areas (Table 1.7 and Figures 1.7a and 1.7b).

Socio-economic differences

The stroke mortality rate for men and women of working age (under 65) has fallen consistently since the late 1970s. However the rate has fallen quicker in adults of higher social classes, resulting in an increase in social inequalities in stroke mortality. For men working in non-manual employment stroke mortality fell by 70% between the late 1970s and the late 1990s while the rate for men in manual employment fell by 45%. For women, the difference in stroke mortality for manual compared to non-manual social classes increased between the late 1970s and early 1990s from 40% higher to nearly double, but has fallen since (Table 1.8 and Figure 1.8).

The social gradient in stroke mortality is more clearly demonstrated when mortality rates from areas of differing deprivation are compared. Data from the early 2000s show that stroke mortality increases with deprivation for both men and women. For premature (under 65) mortality, the rate in the most deprived twentieth of England and Wales is over three and a half times higher for men, and over two and a half times higher for women (Table 1.9 and Figure 1.9).

To help reduce these socio-economic inequalities, cardiovascular disease inequalities targets have been introduced in England, Scotland and Wales (Table 1.1). There has been clear progress towards this target in England: the absolute gap in CVD mortality between the fifth most deprived areas and the general population (for those aged under 75) has fallen by just over 20% since the mid-1990s (Figure 1.1b).

Ethnic differences

The premature (under 70) mortality rate for stroke in England and Wales is higher among people born outside the UK than those born within. The difference is most marked among men born in Bangladesh for whom the stroke mortality rate is more than three times higher than those born in England and Wales. The stroke mortality rate for men and women born in Jamaica is nearly double of those born in England and Wales, and men born in West Africa experience a stroke mortality rate over two and a half times higher than those born in England and Wales (Table 1.10 and Figure 1.10).

Stroke mortality rates in all minority ethnic groups are falling, but not as quickly as for the general population. This has resulted in an increase in the gap between stroke mortality rates in minority

ethnic groups and the general population. For example, the stroke mortality rate for men born in England and Wales fell by around 55% between the early 1980s and the early 2000s, whereas the equivalent rate in men born in Bangladesh and Pakistan fell by only 30%.

International differences

Death rates from stroke vary considerably within those areas of Europe where comparable data are available. Rates are higher in Central and Eastern Europe than in Northern, Southern and Western Europe. The death rate in men aged under 65 living in the Russian Federation is seventeen times higher than in Switzerland and for women of the same age it is thirteen times higher (Table 1.11). The situation for all age stroke mortality rates is similar, with far higher rates in Eastern and Central Europe. The male mortality rate in Ukraine is around five times higher than in Ireland, and the female rate is around four times higher (Table 1.12 and Figure 1.12a).

Death rates from stroke are falling rapidly in most European countries with some exceptions in Eastern and Central Europe. Since 1986, the male mortality rate in Belarus has increased by over 25%, and in Poland it has increased by over 15%. In most Western and Northern European nations the stroke mortality rates have fallen over this time period by at least 20%. The combined mortality rate in the 27 European Union countries has fallen by over 40% for both men and women in the last twenty years (Table 1.12 and Figure 1.12b).

1. *This figure includes all mortality from cerebrovascular disease (ICD-10 coding I60-I69).*
2. *Griffiths C, Brock A, Rooney C (2004). The impact of introducing ICD-10 on trends in mortality from circulatory diseases in England and Wales. Health Statistics Quarterly; 22: 14-20.*
3. *Lawlor D, Davey Smith G, Leon D, Sterne J, Ebrahim S (2002) Secular trends in mortality by stroke subtype in the 20th century: a retrospective analysis. The Lancet; 360: 1818-1823.*
4. *Scarborough P, Allender S, Peto V, Rayner M (2008) Regional and social differences in Coronary Heart Disease. British Heart Foundation: London.*

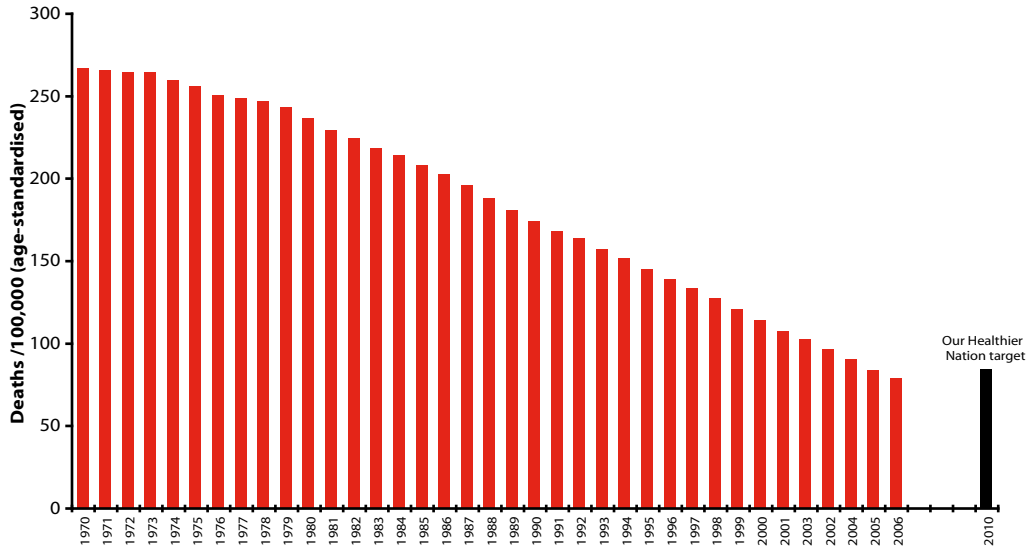
Table 1.1 Stroke mortality targets for the United Kingdom

England	
CVD - Target	To reduce the death rate from CHD, stroke and related diseases in people under 75 years by at least two fifths by 2010 – saving up to 200,000 lives in total
CVD - Inequalities target	To reduce the inequalities gap in death rates from CHD, stroke and related diseases between the fifth of areas with the worst health and deprivation indicators and the population as a whole in people under 75 years by 40% by 2010
Wales	
Stroke - Target	To reduce stroke mortality in 65-74 year olds by 20% by 2012, from the 2002 baseline of 179.5 per 100,000 population (standardised to the European Standard Population)
Scotland	
Stroke - Target	To reduce mortality rates from stroke among people under 75 years by 50% between 1995 and 2010, from the 1995 baseline of 37.5 to 18.8 per 100,000 population (standardised to the European Standard Population)
Northern Ireland	No target set

Notes: *New strategies for CVD in Northern Ireland are currently being developed by the Department of Health, Social Services and Public Safety.*

Source: *Department of Health (1999) Our Healthier Nation. DH: London.*
Department of Health (2004) National Standards, Local Action: Health and Social Care Standards and Planning Framework 2005/06 and 2007/08. DH: London.
Welsh Assembly Government (2008) Health gain targets – National high-level targets and indicators for Wales. Welsh Assembly: Cardiff.
Welsh Assembly Government (2005) Health Status Wales 2004-05: Chief Medical Officer's Report Series. Welsh Assembly: Cardiff.
Scottish Executive (2006). Delivering a Healthy Scotland - Meeting the Challenge. Scottish Executive: Edinburgh.

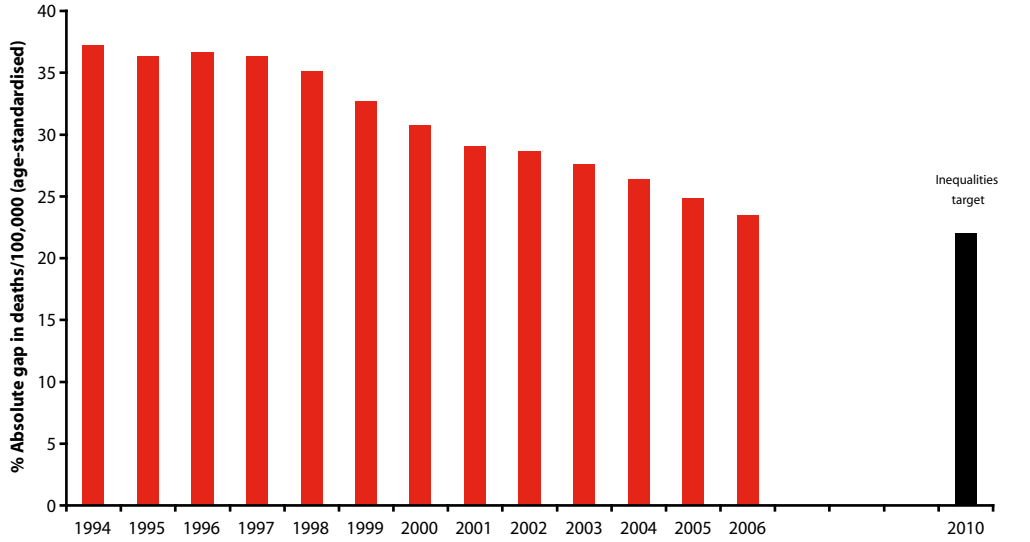
Figure 1.1a Death rates from CVD, adults aged under 75, 1969 to 2007, England, with "Our Healthier Nation" target



Notes: *Data are three year moving averages plotted against middle year. ICD-9 data have been adjusted to be comparable with ICD-10 data.*
Data from 1984-1992 have been adjusted due to the effects of coding medical enquiries and WHO Rule 3.

Source: *Data from Office for National Statistics; analysis by Health Improvement Analytical Team - Monitoring Unit, Department of Health.*

Figure 1.1b Absolute gap in death rates from CVD, between the fifth most deprived areas and the population as a whole, adults aged under 75, 1993 to 2007, England, with inequalities target



Notes: *Data are three year moving averages plotted against middle year.*
There is a discontinuity in the data around year 2000 due to the change to the 10th revision of the WHO International Classification of Diseases.

Source: *Data from Office for National Statistics; analysis by Health Improvement Analytical Team - Monitoring Unit, Department of Health.*

Table 1.2 Deaths by cause, sex and age, 2007, United Kingdom

		All ages	Under 35	35-44	45-54	55-64	65-74	75+
All causes	Men	274,153	9,044	7,372	13,946	31,835	55,173	156,783
	Women	299,351	4,720	4,380	9,440	20,952	39,570	220,289
	Total	**573,504**	**13,764**	**11,752**	**23,386**	**52,787**	**94,743**	**377,072**
All diseases of the circulatory system (I00-I99)	Men	93,050	539	1,431	4,081	9,949	18,431	58,619
	Women	100,237	294	613	1,500	3,781	10,476	83,573
	Total	**193,287**	**833**	**2,044**	**5,581**	**13,730**	**28,907**	**142,192**
Stroke (I60-I69)	Men	20,358	106	210	552	1,196	3,141	15,153
	Women	32,828	80	185	462	970	2,635	28,496
	Total	**53,186**	**186**	**395**	**1,014**	**2,166**	**5,776**	**43,649**
Coronary heart disease (I20-I25)	Men	51,373	129	783	2,679	6,687	11,335	29,760
	Women	40,085	27	183	578	1,779	4,978	32,540
	Total	**91,458**	**156**	**966**	**3,257**	**8,466**	**16,313**	**62,300**
Other diseases of the circulatory system (I00-I19, I26-I59, I70-I99)	Men	21,319	304	438	850	2,066	3,955	13,706
	Women	27,324	187	245	460	1,032	2,863	22,537
	Total	**48,643**	**491**	**683**	**1,310**	**3,098**	**6,818**	**36,243**
Diabetes (E10-E14)	Men	2,991	36	65	124	280	638	1,848
	Women	3,362	48	56	95	164	480	2,519
	Total	**6,353**	**84**	**121**	**219**	**444**	**1,118**	**4,367**
Cancer (C00-D48)	Men	82,834	754	1,233	4,031	13,073	22,606	41,137
	Women	76,477	702	1,748	4,728	11,279	17,310	40,710
	Total	**159,311**	**1,456**	**2,981**	**8,759**	**24,352**	**39,916**	**81,847**
Colo-rectal cancer (C18-C21)	Men	8,487	42	117	409	1,395	2,359	4,165
	Women	7,538	31	102	350	867	1,492	4,696
	Total	**16,025**	**73**	**219**	**759**	**2,262**	**3,851**	**8,861**
Lung cancer (C33, C34)	Men	19,669	12	137	853	3,516	6,107	9,044
	Women	14,883	14	125	723	2,507	4,173	7,341
	Total	**34,552**	**26**	**262**	**1,576**	**6,023**	**10,280**	**16,385**
Breast cancer (C50)	Women	11,995	77	627	1,374	2,260	2,378	5,279
Other cancers (C00-C17, C22-C32, C35-C49, C51-D48)	Men	54,678	700	979	2,769	8,162	14,140	27,928
	Women	42,061	580	894	2,281	5,645	9,267	23,394
	Total	**96,739**	**1,280**	**1,873**	**5,050**	**13,807**	**23,407**	**51,322**
Respiratory disease (J00-J99)	Men	35,713	224	289	753	2,393	6,143	25,911
	Women	42,617	189	198	523	1,810	4,774	35,123
	Total	**78,330**	**413**	**487**	**1,276**	**4,203**	**10,917**	**61,034**
Injuries and poisoning (V01-Y98)	Men	12,687	3,617	2,150	1,618	1,400	1,026	2,876
	Women	7,684	893	539	603	568	654	4,427
	Total	**20,371**	**4,510**	**2,689**	**2,221**	**1,968**	**1,680**	**7,303**
All other causes	Men	46,878	3,874	2,204	3,339	4,740	6,329	26,392
	Women	68,974	2,594	1,226	1,991	3,350	5,876	53,937
	Total	**115,852**	**6,468**	**3,430**	**5,330**	**8,090**	**12,205**	**80,329**

Notes: *ICD codes in parentheses.*

Source: *England and Wales, Office for National Statistics (2008) Deaths registered by cause, sex and age, personal communication.*
Scotland, General Register Office (2008) Registrar General Annual Report. GRO: Edinburgh. www.gro-scotland.gov.uk, Accessed November 2008.
Northern Ireland, Statistics and Research Agency (2008) Registrar General Annual Report. NISRA: Belfast. www.nisra.gov.uk, Accessed December 2008.

Table 1.3 All deaths and deaths under 75 by cause and sex, 2007, England, Wales, Scotland, Northern Ireland and United Kingdom

		All ages					Under 75				
		England	Wales	Scotland	Northern Ireland	United Kingdom	England	Wales	Scotland	Northern Ireland	United Kingdom
All causes	Men	224,556	15,494	26,895	7,208	274,153	94,080	6,631	13,265	3,394	117,370
	Women	246,165	16,654	29,091	7,441	299,351	63,299	4,507	9,094	2,162	79,062
	Total	**470,721**	**32,148**	**55,986**	**14,649**	**573,504**	**157,379**	**11,138**	**22,359**	**5,556**	**196,432**
All diseases of the circulatory system (I00-I99)	Men	76,348	5,364	8,999	2,339	93,050	27,625	1,955	3,924	927	34,431
	Women	82,260	5,898	9,580	2,499	100,237	13,218	996	1,998	452	16,664
	Total	**158,608**	**11,262**	**18,579**	**4,838**	**193,287**	**40,843**	**2,951**	**5,922**	**1,379**	**51,095**
Stroke (I60-I69)	Men	16,657	1,172	2,039	490	20,358	4,156	312	618	119	5,205
	Women	26,882	1,817	3,294	835	32,828	3,449	256	500	127	4,332
	Total	**43,539**	**2,989**	**5,333**	**1,325**	**53,186**	**7,605**	**568**	**1,118**	**246**	**9,537**
Coronary heart disease (I20-I25)	Men	41,720	3,000	5,260	1,393	51,373	17,180	1,215	2,581	637	21,613
	Women	32,465	2,436	4,083	1,101	40,085	5,854	447	1,018	226	7,545
	Total	**74,185**	**5,436**	**9,343**	**2,494**	**91,458**	**23,034**	**1,662**	**3,599**	**863**	**29,158**
Other diseases of the circulatory system (I00-I19, I26-I59, I70-I99)	Men	17,971	1,192	1,700	456	21,319	6,289	428	725	171	7,613
	Women	22,913	1,645	2,203	563	27,324	3,915	293	480	99	4,787
	Total	**40,884**	**2,837**	**3,903**	**1,019**	**48,643**	**10,204**	**721**	**1,205**	**270**	**12,400**
Diabetes (E10-E14)	Men	2,348	166	370	107	2,991	868	55	180	40	1,143
	Women	2,718	185	356	103	3,362	643	45	124	31	843
	Total	**5,066**	**351**	**726**	**210**	**6,353**	**1,511**	**100**	**304**	**71**	**1,986**
Cancer (C00-D48)	Men	68,057	4,740	7,926	2,111	82,834	33,868	2,426	4,262	1,141	41,697
	Women	62,729	4,223	7,644	1,881	76,477	29,040	1,981	3,796	950	35,767
	Total	**130,786**	**8,963**	**15,570**	**3,992**	**159,311**	**62,908**	**4,407**	**8,058**	**2,091**	**77,464**
Colo-rectal cancer (C18-C21)	Men	6,878	525	822	262	8,487	3,460	280	431	151	4,322
	Women	6,171	431	741	195	7,538	2,278	176	305	83	2,842
	Total	**13,049**	**956**	**1,563**	**457**	**16,025**	**5,738**	**456**	**736**	**234**	**7,164**
Lung cancer (C33,C34)	Men	15,811	1,103	2,239	516	19,669	8,468	597	1,269	291	10,625
	Women	11,869	791	1,876	347	14,883	5,921	408	1,023	190	7,542
	Total	**27,680**	**1,894**	**4,115**	**863**	**34,552**	**14,389**	**1,005**	**2,292**	**481**	**18,167**
Breast cancer (C50)	Women	9,986	637	1,062	310	11,995	5,583	342	619	172	6,716
Other cancers (C00-C17, C22-C32, C35-C49, C51-D48)	Men	45,368	3,112	4,865	1,333	54,678	21,940	1,549	2,562	699	26,750
	Women	34,703	2,364	3,965	1,029	42,061	15,258	1,055	1,849	505	18,667
	Total	**80,071**	**5,476**	**8,830**	**2,362**	**96,739**	**37,198**	**2,604**	**4,411**	**1,204**	**45,417**
Respiratory disease (J00-J99)	Men	29,508	2,000	3,284	921	35,713	7,973	529	1,042	258	9,802
	Women	35,092	2,376	4,078	1,071	42,617	5,906	475	923	190	7,494
	Total	**64,600**	**4,376**	**7,362**	**1,992**	**78,330**	**13,879**	**1,004**	**1,965**	**448**	**17,296**
Injuries and poisoning (V01-Y98)	Men	9,983	727	1,443	534	12,687	7,638	540	1,185	448	9,811
	Women	6,101	484	860	239	7,684	2,515	204	393	145	3,257
	Total	**16,084**	**1,211**	**2,303**	**773**	**20,371**	**10,153**	**744**	**1,578**	**593**	**13,068**
All other causes	Men	38,312	2,497	4,873	1,196	46,878	16,108	1,126	2,672	580	20,486
	Women	57,265	3,488	6,573	1,648	68,974	11,977	806	1,860	394	15,037
	Total	**95,577**	**5,985**	**11,446**	**2,844**	**115,852**	**28,085**	**1,932**	**4,532**	**974**	**35,523**

Notes: *ICD codes (10th revision) in parentheses.*

Source: *England and Wales, Office for National Statistics (2008) Deaths registered by cause, sex and age, personal communication.*
Scotland, General Register Office (2008) Registrar General Annual Report. GRO: Edinburgh. www.gro-scotland.gov.uk, Accessed November 2008.
Northern Ireland, Statistics and Research Agency (2008) Registrar General Annual Report. NISRA: Belfast. www.nisra.gov.uk, Accessed December 2008.

Figure 1.3a Deaths by cause, men, 2007, United Kingdom

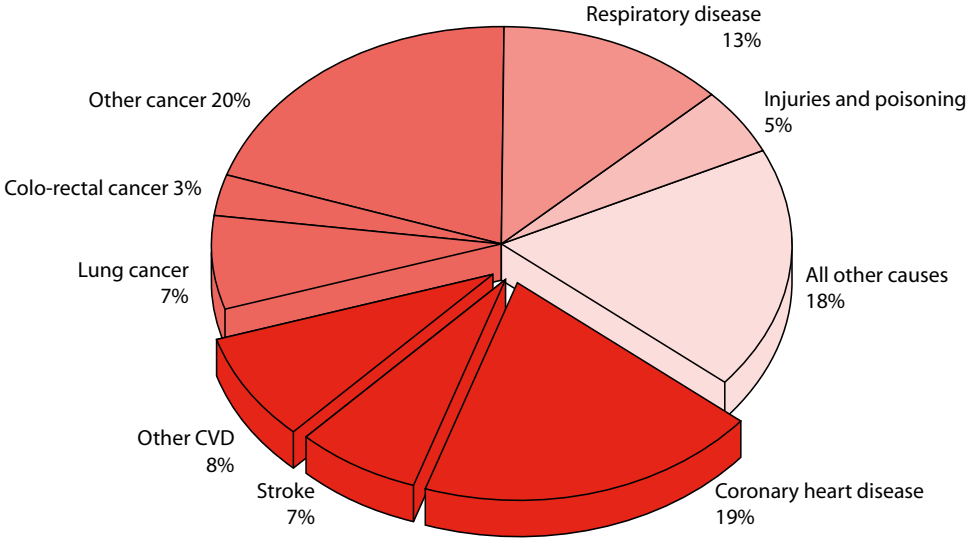


Figure 1.3b Deaths by cause, women, 2007, United Kingdom

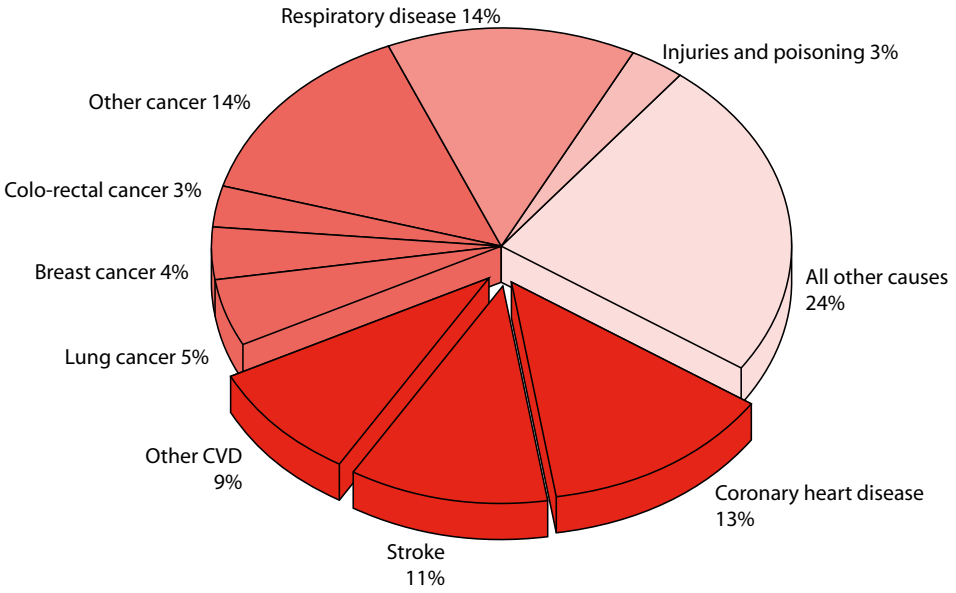


Figure 1.3c Deaths by cause, men under 75, 2007, United Kingdom

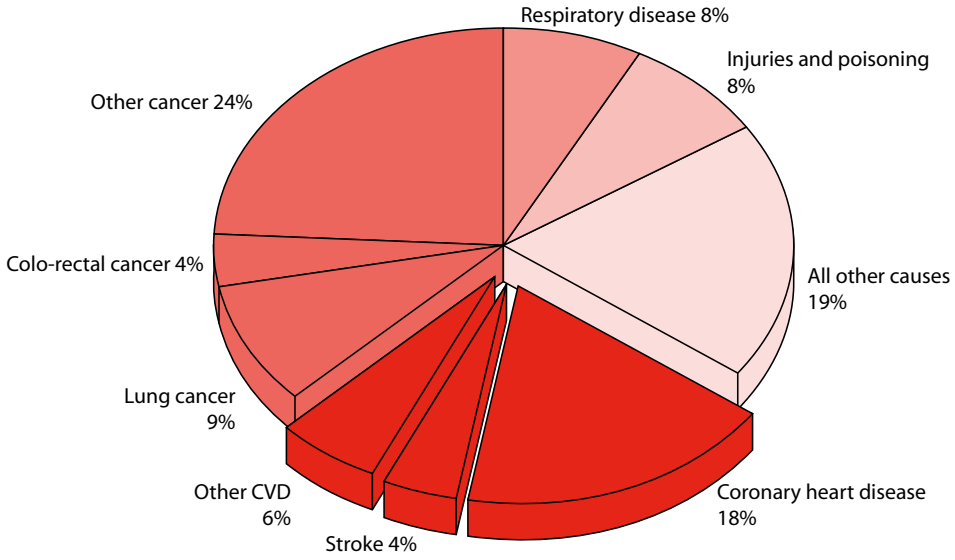


Figure 1.3d Deaths by cause, women under 75, 2007, United Kingdom

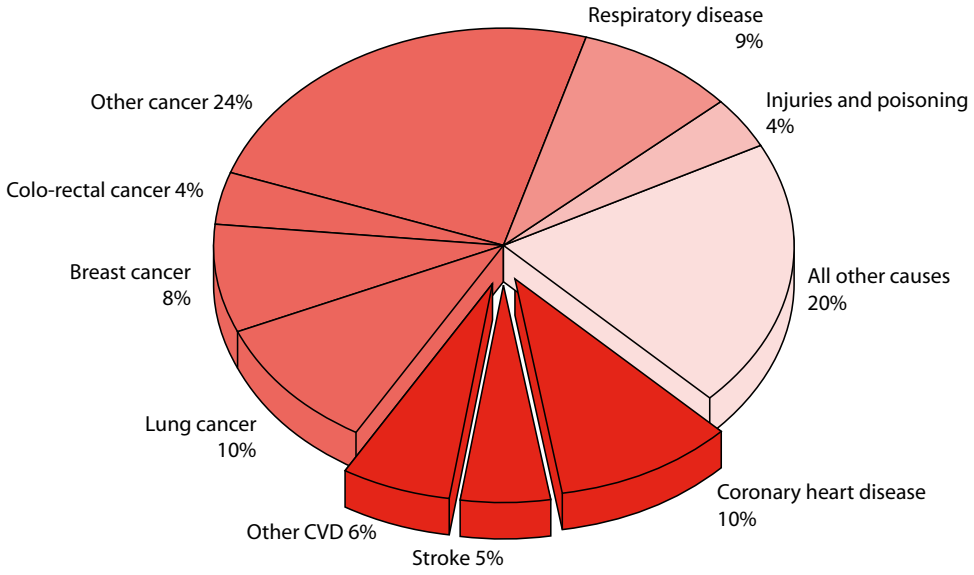


Table 1.4 Age-specific death rates from stroke by sex, 1968 to 2006, England and Wales

Age-specific death rates per 100,000 population

	45-54		55-64		65-74		75+	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
1968	31	26	150	105	574	443	2,127	2,080
1969	33	25	146	97	566	439	2,019	2,046
1970	31	26	137	95	551	417	1,986	2,020
1971	29	23	136	93	542	409	2,000	2,013
1972	32	23	136	88	548	406	2,042	2,065
1973	31	21	134	87	523	395	1,975	2,013
1974	31	23	129	87	512	383	1,887	1,938
1975	28	21	125	81	489	359	1,810	1,886
1976	28	20	117	77	474	347	1,738	1,828
1977	28	19	109	74	454	340	1,613	1,737
1978	25	17	108	70	456	331	1,601	1,717
1979	27	18	107	72	448	323	1,601	1,706
1980	26	18	102	64	416	310	1,524	1,611
1981	24	15	94	61	406	295	1,453	1,555
1982	22	15	94	63	390	288	1,425	1,523
1983	22	14	92	59	381	278	1,360	1,488
1984	20	13	94	57	399	284	1,446	1,559
1985	21	13	88	59	376	270	1,494	1,597
1986	19	11	88	54	362	267	1,446	1,529
1987	18	13	82	51	335	246	1,376	1,493
1988	17	10	75	48	322	235	1,345	1,479
1989	14	8	74	47	302	224	1,328	1,447
1990	15	9	70	42	292	213	1,307	1,421
1991	16	8	69	42	296	211	1,353	1,458
1992	13	8	68	41	272	203	1,313	1,406
1993	13	8	59	37	250	184	1,184	1,318
1994	13	8	54	32	240	180	1,138	1,278
1995	13	7	52	33	236	175	1,132	1,277
1996	13	8	55	33	229	170	1,103	1,256
1997	11	8	51	31	222	159	1,056	1,199
1998	13	8	50	30	211	151	1,029	1,189
1999	12	8	47	29	200	146	986	1,165
2000	12	7	39	24	180	131	923	1,090
2001	17	14	50	35	202	151	1,082	1,239
2002	18	16	48	33	196	142	1,087	1,249
2003	17	15	45	33	179	137	1,054	1,224
2004	17	13	40	30	162	120	949	1,119
2005	15	13	39	27	147	113	900	1,072
2006	15	12	35	25	134	104	870	1,008

Notes: *For comparability across ICD revisions, stroke includes all cerebrovascular diseases (ICD-8 and ICD-9: 430-438. ICD-10: I60-I69). There are discontinuities in the data between the years 1978 and 1979, and 1999 and 2000 due to installment of new ICD revisions.*

Source: *1968 to 1999: Office for National Statistics (2006) 20th century mortality (England & Wales 1901-2000) CD-ROM. Office for National Statistics: London.*
From 2000: Office for National Statistics (personal communication).

Figure 1.4a Age-specific death rates from stroke, men, 1968 to 2006, England and Wales, plotted as a percentage of the rate in 1968

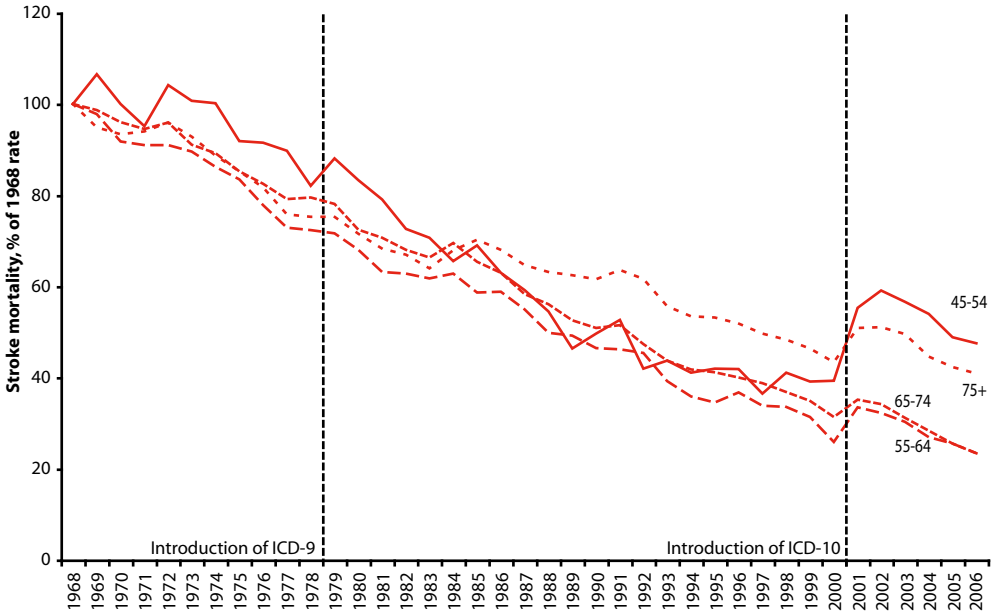


Figure 1.4b Age-specific death rates from stroke, women, 1968 to 2006, England and Wales, plotted as a percentage of the rate in 1968

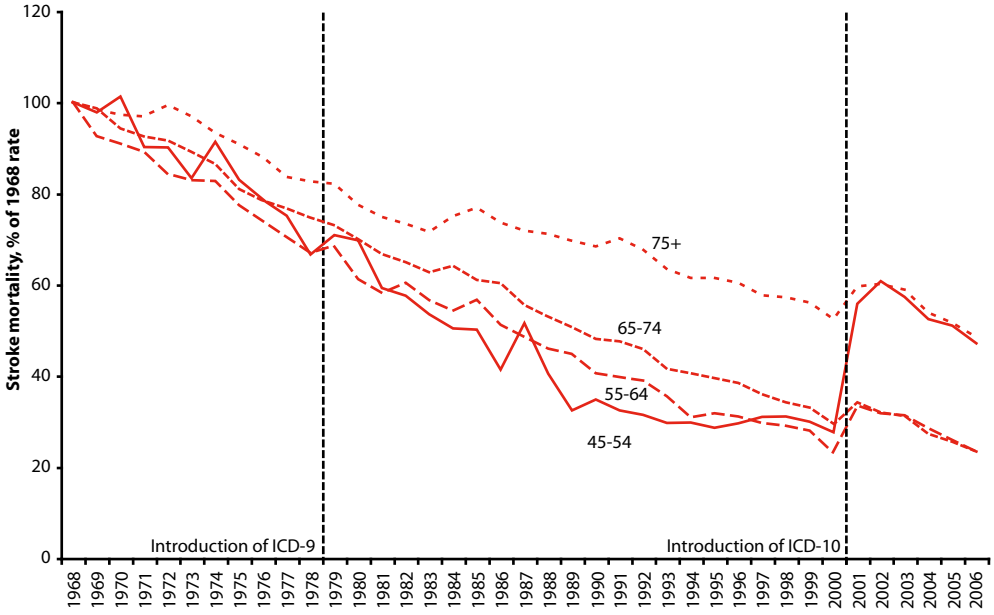


Table 1.5 Age-standardised death rates from haemorrhagic stroke, ischaemic stroke and unspecified stroke by sex, 1968 to 2006, England and Wales

Age-specific death rates per 100,000 population

	Haemorrhagic stroke		Ischaemic stroke		Unspecified stroke	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
1968	40	36	73	61	46	39
1969	37	34	67	58	49	41
1970	35	32	63	53	52	44
1971	33	29	59	49	56	48
1972	31	28	58	48	61	52
1973	28	25	53	45	63	54
1974	27	24	48	41	64	54
1975	25	22	44	38	64	55
1976	22	20	40	35	66	57
1977	20	18	35	31	65	57
1978	19	17	34	29	68	58
1979	18	16	33	28	69	59
1980	17	14	28	25	68	58
1981	16	13	27	23	67	57
1982	15	12	25	22	66	57
1983	13	11	23	20	66	57
1984	12	10	22	19	73	62
1985	10	9	20	18	76	64
1986	10	9	18	15	75	63
1987	9	8	16	14	72	63
1988	8	7	15	13	71	62
1989	7	7	14	11	71	61
1990	7	6	13	11	68	60
1991	7	6	13	10	70	60
1992	7	6	13	9	66	58
1993	7	6	9	7	60	53
1994	7	6	8	7	57	51
1995	7	6	8	6	57	51
1996	7	6	8	6	56	51
1997	7	6	7	6	54	48
1998	8	6	7	5	52	48
1999	8	6	6	5	50	47
2000	7	6	6	5	45	42
2001	11	11	9	6	49	45
2002	11	10	8	6	50	45
2003	11	11	7	6	48	44
2004	11	10	6	5	43	40
2005	10	10	6	5	39	37
2006	10	9	6	5	37	34

Notes: *Rates age-standardised to the European Standard Population.The following ICD codes were used to define the conditons: Haemorrhagic stroke: ICD-8 430-431; ICD-9 430-432; ICD-10 I60-I62. Ischaemic stroke: ICD-8 432-434; ICD-9 433-434; ICD-10 I63. Unspecified stroke: ICD-8 435-438; ICD-9 435-438; ICD-10 I64-I69. Subarachnoid haemorrhage is included in haemorrhagic stroke. There are discontinuities in the data between the years 1978 and 1979, and 1999 and 2000 due to installment of new ICD revisions.*

Source: *1968 to 1999: Office for National Statistics (2006) 20th century mortality (England & Wales 1901-2000) CD-ROM. Office for National Statistics: London.*
From 2000: Office for National Statistics (personal communication).

Figure 1.5a Age-standardised death rates from haemorrhagic stroke, ischaemic stroke and unspecified stroke, men, 1968 to 2006, England and Wales

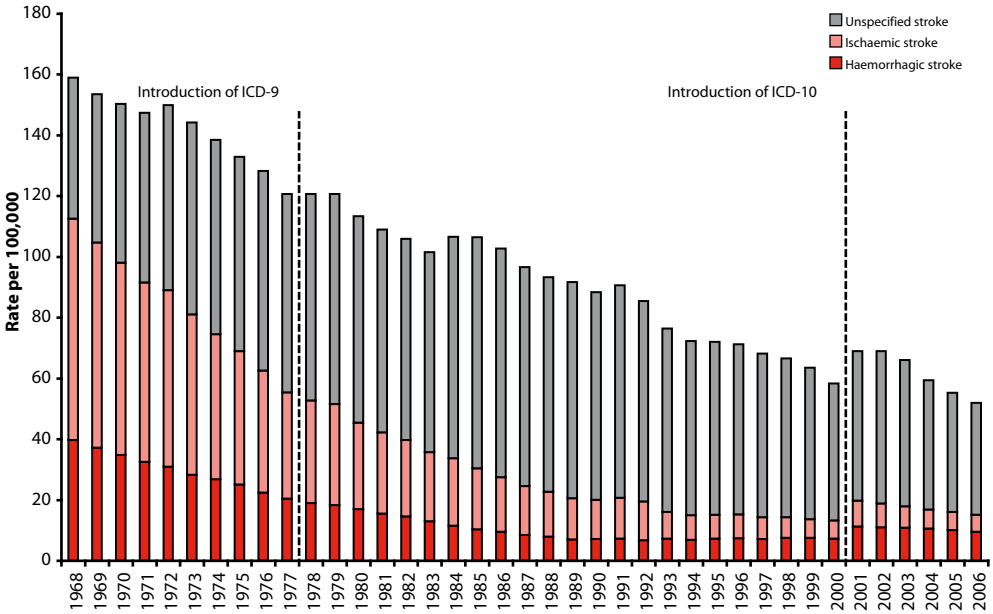


Figure 1.5b Age-standardised death rates from haemorrhagic stroke, ischaemic stroke and unspecified stroke, women, 1968 to 2006, England and Wales

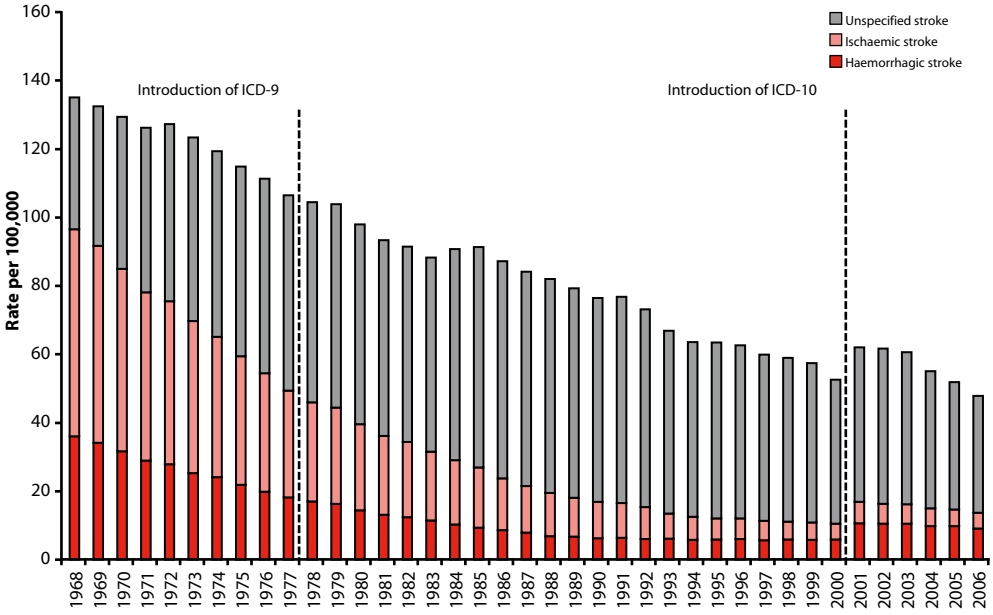


Table 1.6 Age-standardised death rates from all stroke, haemorrhagic stroke and ischaemic stroke by sex, age, country and Government Office Region, 2007, United Kingdom

Death rates per 100,000

	All ages			Under 75		
	All stroke	Haemorrhagic stroke	Ischaemic stroke	All stroke	Haemorrhagic stroke	Ischaemic stroke
MEN						
United Kingdom	51	10	5	16	6	2
England	49	10	5	15	6	2
North East	55	11	6	18	7	2
Yorkshire and Humberside	52	10	5	16	6	2
North West	59	10	7	19	6	3
East Midlands	46	8	5	13	4	2
West Midlands	54	9	5	17	6	2
East	43	8	5	12	4	1
South East	45	9	5	12	5	1
London	44	11	5	17	7	2
South West	48	10	6	13	6	2
Wales	54	11	7	18	7	3
Scotland	65	13	6	22	8	2
Northern Ireland	53	12	6	14	7	2
WOMEN						
United Kingdom	48	10	5	13	6	1
England	46	9	4	12	5	1
North East	50	11	6	14	6	2
Yorkshire and Humberside	50	10	4	13	6	1
North West	53	11	5	15	7	2
East Midlands	47	10	4	11	5	1
West Midlands	48	8	4	12	5	1
East	43	8	4	10	5	1
South East	43	9	4	11	5	1
London	38	9	4	11	5	1
South West	44	8	5	9	4	1
Wales	49	10	7	14	6	2
Scotland	58	11	5	15	7	1
Northern Ireland	52	12	6	13	7	1

Notes: *Haemorrhagic stroke includes subarachnoid haemorrhage. Definition of stroke subtypes used the following ICD-10 codes: All stroke I60-69; Haemorrhagic stroke I60-62; Ischaemic stroke I63. Data for Northern Ireland mortality are provisional.*

Source: *England and Wales: data provided by Office for National Statistics.*
Scotland: data provided by General Register Office for Scotland.
Northern Ireland: data provided by Northern Ireland Statistics and Research Agency.

Table 1.7 Numbers of deaths and age-standardised death rates from stroke for men and women under 75 by local authority, 2005/07, United Kingdom

Map reference	Local authority code	Local authority name	Men: Number of stroke deaths 2005-2007	Men: Age-standardised under 75 death rate per 100,000	Women: Number of stroke deaths 2005-2007	Women: Age-standardised under 75 death rate per 100,000
ENGLAND			**13,301**	**17.2**	**10,979**	**13.6**
A		**South East**	**1,794**	**14.7**	**1,536**	**12.2**
1	00LC	Medway Towns UA	62	16.5	63	15.7
2	00MA	Bracknell Forest UA	19	12.7	12	7.2
3	00MB	West Berkshire UA	33	14.0	18	7.4
4	00MC	Reading UA	30	16.6	22	11.5
5	00MD	Slough	27	17.9	24	16.2
6	00ME	Windsor & Maidenhead UA	31	14.3	23	9.4
7	00MF	Wokingham UA	23	9.9	24	9.2
8	00MG	Milton Keynes UA	34	11.5	41	13.6
9	00ML	Brighton & Hove UA	49	14.5	52	13.7
10	00MR	Portsmouth UA	50	19.1	41	14.5
11	00MS	Southampton UA	55	18.4	27	8.6
12	00MW	Isle of Wight UA	42	15.6	22	8.4
13	11UB	Aylesbury Vale	31	11.2	22	8.1
14	11UC	Chiltern	18	10.8	11	5.8
15	11UE	South Bucks	9	7.5	10	8.8
16	11UF	Wycombe	36	13.7	29	10.4
17	21UC	Eastbourne	18	11.6	16	8.2
18	21UD	Hastings	25	17.3	17	10.5
19	21UF	Lewes	17	9.1	16	7.4
20	21UG	Rother	27	14.9	32	14.9
21	21UH	Wealden	44	15.9	32	10.7
22	24UB	Basingstoke & Deane	25	10.1	27	10.8
23	24UC	East Hampshire	22	11.6	21	10.0
24	24UD	Eastleigh	21	10.9	26	12.5
25	24UE	Fareham	19	9.0	22	10.5
26	24UF	Gosport	21	16.4	25	18.5
27	24UG	Hart	24	17.1	8	5.4
28	24UH	Havant	22	9.9	30	11.5
29	24UJ	New Forest	43	12.3	29	7.4
30	24UL	Rushmoor	13	10.7	14	11.5
31	24UN	Test Valley	20	10.2	16	7.6
32	24UP	Winchester	22	11.7	16	8.4
33	29UB	Ashford	24	13.1	19	10.2
34	29UC	Canterbury	36	14.7	25	9.2
35	29UD	Dartford	29	20.9	19	13.2
36	29UE	Dover	24	11.7	22	9.9
37	29UG	Gravesham	21	13.1	19	10.8
38	29UH	Maidstone	25	10.3	32	12.8
39	29UK	Sevenoaks	24	11.7	18	8.3
40	29UL	Shepway	36	18.8	23	11.4
41	29UM	Swale	36	16.6	31	14.2
42	29UN	Thanet	36	15.5	46	16.8
43	29UP	Tonbridge & Malling	28	14.3	14	6.8
44	29UQ	Tunbridge Wells	26	15.5	24	12.6
45	38UB	Cherwell	29	13.7	24	11.3
46	38UC	Oxford	28	16.9	27	16.3
47	38UD	South Oxfordshire	27	12.5	20	8.3
48	38UE	Vale of White Horse	23	11.8	17	8.0
49	38UF	West Oxfordshire	15	8.8	26	13.9
50	43UB	Elmbridge	18	9.2	16	7.1
51	43UC	Epsom & Ewell	16	14.1	7	5.1
52	43UD	Guildford	21	10.6	18	8.0
53	43UE	Mole Valley	19	13.1	26	16.2
54	43UF	Reigate & Banstead	24	11.7	25	11.4
55	43UG	Runnymede	22	18.0	14	9.8
56	43UH	Spelthorne	18	12.0	17	9.8
57	43UJ	Surrey Heath	13	10.0	13	8.7
58	43UK	Tandridge	19	13.9	21	13.2
59	43UL	Waverley	21	10.4	19	8.1
60	43UM	Woking	24	17.4	14	9.7
61	45UB	Adur	18	16.7	11	7.8
62	45UC	Arun	34	11.7	33	10.0
63	45UD	Chichester	18	7.5	24	10.0
64	45UE	Crawley	28	20.1	14	9.0
65	45UF	Horsham	19	8.6	20	8.4
66	45UG	Mid Sussex	33	15.2	22	8.7
67	45UH	Worthing	30	18.1	28	15.4
		London	1,686	18.4	1,276	12.9
68	00AA	City of London	1	13.3	2	26.7
69	00AB	Barking & Dagenham	39	19.7	45	19.5
70	00AC	Barnet	52	12.0	50	9.8
71	00AD	Bexley	58	16.5	44	11.1
72	00AE	Brent	61	17.6	51	13.5
73	00AF	Bromley	59	12.7	53	10.0
74	00AG	Camden	50	21.8	25	9.4
75	00AH	Croydon	81	17.4	58	11.3
76	00AJ	Ealing	73	19.2	41	9.9
77	00AK	Enfield	59	14.5	57	13.5
78	00AL	Greenwich	71	27.0	49	16.3
79	00AM	Hackney	45	20.4	39	16.9
80	00AN	Hammersmith & Fulham	32	16.6	32	15.0
81	00AP	Haringey	60	23.3	44	16.4
82	00AQ	Harrow	36	12.0	41	11.9
83	00AR	Havering	54	14.2	43	10.0
84	00AS	Hillingdon	51	14.4	36	9.5
85	00AT	Hounslow	56	19.9	36	12.3
86	00AU	Islington	48	25.4	36	17.1
87	00AW	Kensington & Chelsea	18	8.1	14	5.3
88	00AX	Kingston upon Thames	32	16.0	18	8.3
89	00AY	Lambeth	78	28.9	56	19.0
90	00AZ	Lewisham	64	23.5	46	14.7
91	00BA	Merton	28	11.7	34	12.3
92	00BB	Newham	85	34.0	54	20.4
93	00BC	Redbridge	47	13.6	31	8.5
94	00BD	Richmond upon Thames	25	10.4	31	11.7
95	00BE	Southwark	49	17.8	44	14.1
96	00BF	Sutton	56	21.4	32	10.7
97	00BG	Tower Hamlets	62	32.6	34	17.1
98	00BH	Waltham Forest	58	21.5	38	12.4
99	00BJ	Wandsworth	55	20.4	41	13.3
100	00BK	Westminster	43	16.0	21	7.2
B		**South West**	**1,248**	**15.0**	**1,012**	**12.0**
101	00HA	Bath & North East Somerset UA	42	15.2	26	8.1
102	00HB	Bristol UA	81	14.9	80	14.0
103	00HC	North Somerset UA	47	13.0	51	12.6
104	00HD	South Gloucestershire UA	50	11.8	34	7.7
105	00HG	Plymouth UA	44	11.5	46	10.6
106	00HH	Torbay UA	44	16.5	32	11.8
107	00HN	Bournemouth UA	40	15.3	26	8.7
108	00HP	Poole UA	45	18.7	28	9.8
109	00HX	Swindon UA	38	13.5	38	12.5
110	15UB	Caradon	26	14.8	13	7.5
111	15UC	Carrick	31	17.8	25	13.6
112	15UD	Kerrier	24	11.8	30	14.2
113	15UE	North Cornwall	27	15.2	21	12.0
114	15UF	Penwith	15	10.7	15	10.7
115	15UG	Restormel	17	7.7	27	12.7
116	15UH	Isles of Scilly	1	13.3	1	16.7
117	18UB	East Devon	39	13.6	30	9.6
118	18UC	Exeter	22	12.9	25	13.2
119	18UD	Mid Devon	14	9.0	16	10.7
120	18UE	North Devon	21	12.5	22	11.5
121	18UG	South Hams	28	15.5	16	8.7
122	18UH	Teignbridge	41	17.1	27	8.9
123	18UK	Torridge	12	7.8	11	7.2
124	18UL	West Devon	16	16.0	10	9.0
125	19UC	Christchurch	15	13.5	13	10.4
126	19UD	East Dorset	19	9.3	20	8.6
127	19UE	North Dorset	17	13.7	8	6.0
128	19UG	Purbeck	8	8.8	5	6.0
129	19UH	West Dorset	31	14.4	18	7.2
130	19UJ	Weymouth & Portland	22	17.8	9	6.7
131	23UB	Cheltenham	28	16.3	21	11.0
132	23UC	Cotswold	21	13.8	15	8.3
133	23UD	Forest of Dean	24	15.0	24	14.8
134	23UE	Gloucester	24	14.0	25	13.7
135	23UF	Stroud	29	14.3	32	16.0
136	23UG	Tewkesbury	16	10.7	10	6.6
137	40UB	Mendip	33	17.1	20	9.9
138	40UC	Sedgemoor	29	14.6	20	9.3
139	40UD	South Somerset	40	14.0	32	10.4
140	40UE	Taunton Deane	32	16.4	16	7.4
141	40UF	West Somerset	4	4.2	11	11.1
142	46UB	Kennet	8	5.6	13	9.1
143	46UC	North Wiltshire	29	13.5	20	8.9
144	46UD	Salisbury	22	11.0	15	6.7
145	46UF	West Wiltshire	32	14.2	15	6.6
C		**East of England**	**1,240**	**14.8**	**1,068**	**12.3**
146	00JA	Peterborough UA	39	16.2	29	11.5
147	00KA	Luton UA	40	14.8	42	15.7
148	00KF	Southend-on-Sea UA	42	15.7	38	12.9
149	00KG	Thurrock UA	33	15.8	30	13.0
150	09UC	Mid Bedfordshire	24	11.6	25	11.5
151	09UD	Bedford	32	13.5	31	11.8
152	09UE	South Bedfordshire	27	14.1	17	8.2
153	12UB	Cambridge	14	10.0	13	8.5
154	12UC	East Cambridgeshire	14	10.0	9	6.0
155	12UD	Fenland	25	13.3	25	13.6
156	12UE	Huntingdonshire	35	13.0	21	7.7
157	12UG	South Cambridgeshire	15	7.0	15	6.2
158	22UB	Basildon	46	18.2	36	11.8
159	22UC	Braintree	31	13.7	25	10.3
160	22UD	Brentwood	18	14.6	9	5.9
161	22UE	Castle Point	25	13.5	27	13.3
162	22UF	Chelmsford	28	10.4	26	9.1
163	22UG	Colchester	43	16.4	22	7.9
164	22UH	Epping Forest	23	11.1	34	14.8
165	22UJ	Harlow	18	15.6	11	8.3
166	22UK	Maldon	17	14.0	16	14.6
167	22UL	Rochford	21	13.5	13	7.3
168	22UN	Tendring	42	14.5	47	13.0
169	22UQ	Uttlesford	12	9.7	12	9.1
170	26UB	Broxbourne	28	19.8	24	15.0
171	26UC	Dacorum	24	11.1	29	12.3
172	26UD	East Hertfordshire	32	15.2	19	8.3
173	26UE	Hertsmere	21	15.0	14	8.6
174	26UF	North Hertfordshire	21	10.5	22	10.9
175	26UG	St Albans	26	12.8	30	13.9
176	26UH	Stevenage	19	16.4	18	13.8
177	26UJ	Three Rivers	15	10.8	10	6.7

Map reference	Local authority code	Local authority name	Men: Number of stroke deaths 2005-2007	Men: Age-standardised under 75 death rate per 100,000	Women: Number of stroke deaths 2005-2007	Women: Age-standardised under 75 death rate per 100,000
178	26UK	Watford	15	13.8	15	13.2
179	26UL	Welwyn Hatfield	29	18.5	20	12.8
180	33UB	Breckland	36	13.3	28	10.7
181	33UC	Broadland	35	14.0	21	7.7
182	33UD	Great Yarmouth	23	11.9	28	13.6
183	33UE	Kings Lynn & West Norfolk	25	8.6	32	9.9
184	33UF	North Norfolk	18	6.3	19	7.6
185	33UG	Norwich	25	14.4	20	9.6
186	33UH	South Norfolk	22	8.6	22	8.7
187	42UB	Babergh	15	8.7	11	6.8
188	42UC	Forest Heath	18	19.3	8	8.9
189	42UD	Ipswich	38	20.7	17	8.6
190	42UE	Mid Suffolk	6	3.2	17	9.9
191	42UF	St Edmundsbury	32	17.5	15	7.6
192	42UG	Suffolk Coastal	22	8.7	30	11.0
193	42UH	Waveney	31	12.3	26	10.1
D		**East Midlands**	**1,126**	**16.9**	**968**	**14.4**
194	34UB	Corby	27	31.3	26	27.2
195	34UC	Daventry	25	18.8	10	7.7
196	34UD	East Northamptonshire	19	13.8	19	13.1
197	34UE	Kettering	18	13.5	15	10.1
198	34UF	Northampton	64	22.5	40	13.5
199	34UG	South Northamptonshire	12	8.0	15	10.3
200	34UH	Wellingborough	8	6.2	22	17.2
201	00FK	Derby UA	51	13.7	56	14.6
202	00FN	Leicester UA	75	20.1	65	16.2
203	00FP	Rutland UA	10	13.4	4	5.7
204	00FY	Nottingham UA	79	22.3	57	14.1
205	17UB	Amber Valley	36	16.8	18	8.0
206	17UC	Bolsover	31	22.7	17	12.8
207	17UD	Chesterfield	37	20.6	22	12.3
208	17UF	Derbyshire Dales	25	17.3	13	7.8
209	17UG	Erewash	33	17.1	33	16.7
210	17UH	High Peak	27	17.1	32	19.5
211	17UJ	North East Derbyshire	25	13.2	30	14.1
212	17UK	South Derbyshire	16	10.7	17	11.2
213	31UB	Blaby	18	11.3	11	6.1
214	31UC	Charnwood	34	13.0	28	10.3
215	31UD	Harborough	17	12.0	13	8.4
216	31UE	Hinckley & Bosworth	24	12.9	17	8.4
217	31UG	Melton	9	10.6	10	11.6
218	31UH	North West Leicestershire	21	14.2	20	11.6
219	31UJ	Oadby & Wigston	11	11.2	12	9.7
220	32UB	Boston	22	18.3	14	11.5
221	32UC	East Lindsey	55	17.2	37	10.7
222	32UD	Lincoln	26	20.7	23	16.6
223	32UE	North Kesteven	26	12.0	28	13.5
224	32UF	South Holland	16	9.2	20	11.7
225	32UG	South Kesteven	37	15.6	23	9.3
226	32UH	West Lindsey	27	15.7	27	15.0
227	37UB	Ashfield	25	12.6	25	12.3
228	37UC	Bassetlaw	26	12.9	30	14.0
229	37UD	Broxtowe	21	11.0	26	12.1
230	37UE	Gedling	18	8.5	21	10.1
231	37UF	Mansfield	29	17.0	28	16.3
232	37UG	Newark & Sherwood	28	13.5	28	12.8
233	37UJ	Rushcliffe	18	10.1	16	7.7
E		**West Midlands**	**1,705**	**19.8**	**1,286**	**14.3**
234	00CN	Birmingham	308	23.0	248	16.8
235	00CQ	Coventry	83	18.8	67	13.9
236	00CR	Dudley	99	18.0	72	11.8
237	00CS	Sandwell	127	28.0	91	18.0
238	00CT	Solihull	48	13.7	46	12.1
239	00CU	Walsall	108	25.0	64	13.3
240	00CW	Wolverhampton	100	25.5	58	14.3
241	00GA	County of Herefordshire UA	43	11.8	33	8.5
242	00GF	Telford & Wrekin UA	56	22.3	35	13.0
243	00GL	Stoke-on-Trent UA	68	17.4	71	17.1
244	39UB	Bridgnorth	20	17.3	11	9.6
245	39UC	North Shropshire	20	17.9	20	16.6
246	39UD	Oswestry	13	17.6	8	10.5
247	39UE	Shrewsbury & Atcham	20	11.7	23	12.5
248	39UF	South Shropshire	9	8.9	12	11.4
249	41UB	Cannock Chase	37	23.5	26	15.6
250	41UC	East Staffordshire	30	16.4	25	13.2
251	41UD	Lichfield	36	19.0	27	13.5
252	41UE	Newcastle-under-Lyme	36	16.2	37	15.4
253	41UF	South Staffordshire	33	15.5	21	9.5
254	41UG	Stafford	49	21.8	29	12.6
255	41UH	Staffordshire Moorlands	21	10.3	28	13.7
256	41UK	Tamworth	17	15.2	23	19.4
257	44UB	North Warwickshire	23	19.6	12	9.9
258	44UC	Nuneaton & Bedworth	42	20.6	31	14.7
259	44UD	Rugby	21	13.0	19	11.7
260	44UE	Stratford-on-Avon	40	17.1	17	7.3
261	44UF	Warwick	27	12.6	19	8.8
262	47UB	Bromsgrove	29	16.9	22	12.0
263	47UC	Malvern Hills	21	14.0	22	15.2
264	47UD	Redditch	16	13.2	14	10.7
265	47UE	Worcester	38	25.9	18	11.0
266	47UF	Wychavon	27	12.1	21	8.5
267	47UG	Wyre Forest	40	20.8	16	7.9
F		**North West**	**2,196**	**19.8**	**1,907**	**16.4**
268	00BL	Bolton	82	19.3	89	20.1
269	00BM	Bury	53	18.3	58	18.0
270	00BN	Manchester	154	29.5	110	19.4
271	00BP	Oldham	94	28.1	80	21.9
272	00BQ	Rochdale	80	25.5	67	20.1
273	00BR	Salford	73	21.5	62	16.8
274	00BS	Stockport	79	16.7	66	12.7
275	00BT	Tameside	80	23.4	59	16.3
276	00BU	Trafford	62	18.1	55	14.1
277	00BW	Wigan	125	23.7	103	18.9
278	00BX	Knowsley	60	25.0	56	20.7
279	00BY	Liverpool	140	21.4	124	16.7
280	00BZ	St Helens	59	18.8	51	15.2
281	00CA	Sefton	96	18.8	72	11.9
282	00CB	Wirral	103	18.6	82	13.8
283	00ET	Halton UA	42	23.0	34	16.2
284	00EU	Warrington UA	59	18.3	69	20.3
285	00EX	Blackburn with Darwen UA	36	18.3	32	14.7
286	00EY	Blackpool UA	60	24.5	56	20.1
287	13UB	Chester	36	16.9	24	10.1
288	13UC	Congleton	20	11.5	25	13.8
289	13UD	Crewe & Nantwich	31	15.0	30	14.6
290	13UE	Ellesmere Port & Neston	20	14.2	15	9.1
291	13UG	Macclesfield	33	11.5	40	13.9
292	13UH	Vale Royal	40	18.3	32	13.4
293	16UB	Allerdale	28	14.9	28	15.0
294	16UC	Barrow-in-Furness	11	8.5	16	12.3
295	16UD	Carlisle	20	11.6	26	12.5
296	16UE	Copeland	26	20.0	16	11.6
297	16UF	Eden	21	18.4	13	11.4
298	16UG	South Lakeland	21	9.6	26	10.4
299	30UD	Burnley	38	27.0	30	19.9
300	30UE	Chorley	29	16.5	24	13.2
301	30UF	Fylde	18	11.2	12	7.2
302	30UG	Hyndburn	26	20.0	25	17.6
303	30UH	Lancaster	40	17.4	33	13.0
304	30UJ	Pendle	26	18.2	24	16.3
305	30UK	Preston	43	21.7	34	16.9
306	30UL	Ribble Valley	20	18.4	13	11.0
307	30UM	Rossendale	15	14.5	17	15.4
308	30UN	South Ribble	30	16.0	21	10.9
309	30UP	West Lancashire	31	15.3	24	10.5
310	30UQ	Wyre	36	14.4	34	12.2
G		**Yorkshire and the Humber**	**1,472**	**17.9**	**1,226**	**13.9**
311	00CC	Barnsley	81	20.8	62	15.8
312	00CE	Doncaster	76	15.4	72	13.1
313	00CF	Rotherham	77	17.9	58	12.4
314	00CG	Sheffield	142	17.1	119	13.4
315	00CX	Bradford	120	17.4	110	14.0
316	00CY	Calderdale	61	19.7	51	15.2
317	00CZ	Kirklees	123	20.2	107	16.1
318	00DA	Leeds	184	16.5	143	11.8
319	00DB	Wakefield	108	20.0	89	15.4
320	00FA	Kingston upon Hull UA	81	20.8	83	20.4
321	00FB	East Riding of Yorkshire UA	104	15.7	94	13.6
322	00FC	North East Lincolnshire UA	49	17.9	40	13.6
323	00FD	North Lincolnshire UA	46	15.6	34	10.8
324	00FF	York UA	42	14.2	31	9.2
325	36UB	Craven	9	8.8	21	16.7
326	36UC	Hambleton	23	12.7	14	7.2
327	36UD	Harrogate	44	16.1	25	7.9
328	36UE	Richmondshire	16	18.5	16	17.3
329	36UF	Ryedale	18	16.1	9	6.8
330	36UG	Scarborough	40	18.0	34	14.5
331	36UH	Selby	28	20.7	14	9.2
H		**North East**	**834**	**20.5**	**700**	**15.5**
332	00CH	Gateshead	55	16.0	61	16.4
334	00CJ	Newcastle upon Tyne	67	16.6	55	12.7
335	00CK	North Tyneside	49	15.0	57	15.1
336	00CL	South Tyneside	52	20.1	40	13.1
337	00CM	Sunderland	88	18.5	71	13.6
338	00EB	Hartlepool UA	47	32.1	33	19.8
339	00EC	Middlesbrough UA	58	27.3	35	14.3
340	00EE	Redcar and Cleveland UA	47	18.2	47	17.6
341	00EF	Stockton-on-Tees UA	67	22.1	54	16.2
342	00EH	Darlington UA	37	21.6	31	16.8
343	20UB	Chester-le-Street	16	16.1	12	11.0
344	20UD	Derwentside	43	27.6	22	12.2
345	20UE	Durham	22	14.7	26	16.0
346	20UF	Easington	30	17.5	28	16.5
347	20UG	Sedgefield	25	15.2	26	14.7
348	20UH	Teesdale	7	12.7	7	13.1
349	20UJ	Wear Valley	31	25.6	22	18.3
350	35UB	Alnwick	11	16.8	6	7.9
351	35UC	Berwick-upon-Tweed	9	16.2	4	6.1
352	35UD	Blyth Valley	28	19.8	20	13.6
353	35UE	Castle Morpeth	13	12.4	7	6.9
354	35UF	Tynedale	17	14.7	14	11.0
355	35UG	Wansbeck	15	13.2	22	17.6
SCOTLAND			**1,890**	**24.6**	**1,602**	**18.1**
356	00QA	Aberdeen City	71	22.1	57	15.5
357	00QB	Aberdeenshire	61	14.6	59	13.9
358	00QC	Angus	27	12.5	32	14.1
359	00QD	Argyll & Bute	28	15.7	33	15.2
360	00QF	Clackmannanshire	24	28.7	12	13.6
361	00QH	Dumfries & Galloway	60	20.2	55	17.0
362	00QJ	Dundee City	68	29.6	47	17.8
363	00QK	East Ayrshire	47	22.0	37	16.3
364	00QL	East Dunbartonshire	32	16.3	27	12.6
365	00QM	East Lothian	30	19.0	24	12.6
366	00QN	East Renfrewshire	20	13.7	12	6.3
367	00QP	Edinburgh, City of	124	19.0	106	14.0

Map reference	Local authority code	Local authority name	Men: Number of stroke deaths 2005-2007	Men: Age-standardised under 75 death rate per 100,000	Women: Number of stroke deaths 2005-2007	Women: Age-standardised under 75 death rate per 100,000
368	00RJ	Eilean Siar	14	26.6	9	17.7
369	00QQ	Falkirk	54	21.6	46	16.6
370	00QR	Fife	111	17.9	105	15.1
371	00QS	Glasgow City	280	34.9	234	23.5
372	00QT	Highland	61	15.1	63	14.1
373	00QU	Inverclyde	38	27.7	37	21.7
374	00QW	Midlothian	24	19.0	21	13.1
375	00QX	Moray	37	22.9	26	14.7
376	00QY	North Ayrshire	49	19.7	42	14.7
377	00QZ	North Lanarkshire	160	31.7	112	18.7
378	00RA	Orkney Islands	3	7.1	4	9.6
379	00RB	Perth & Kinross	42	15.6	40	13.8
380	00RC	Renfrewshire	88	31.3	71	20.8
381	00QE	Scottish Borders	35	16.3	36	15.0
382	00RD	Shetland Islands	3	8.3	3	8.3
383	00RE	South Ayrshire	57	24.8	45	18.3
384	00RF	South Lanarkshire	134	26.1	102	17.3
385	00RG	Stirling	27	18.1	26	14.8
386	00QG	West Dunbartonshire	33	22.6	35	19.9
387	00RH	West Lothian	48	19.1	44	15.5
WALES			**954**	**19.0**	**793**	**15.4**
388	00PL	Blaenau Gwent UA	22	17.8	20	15.1
389	00PB	Bridgend UA	45	19.4	35	13.9
390	00PK	Caerphilly UA	63	22.4	50	16.0
391	00PT	Cardiff UA	104	24.8	74	15.6
392	00NU	Carmarthenshire UA	81	23.4	44	11.6
393	00NQ	Ceredigion UA	14	9.3	23	15.6
394	00NE	Conwy UA	36	15.6	36	13.7
395	00NG	Denbighshire UA	28	15.2	29	14.8
396	00NJ	Flintshire UA	44	16.5	35	12.4
397	00NC	Gwynedd UA	29	12.1	30	13.0
398	00NA	Isle of Anglesey UA	24	16.7	20	14.2
399	00PH	Merthyr Tydfil UA	18	19.2	15	14.4
400	00PP	Monmouthshire UA	27	16.6	21	12.6
401	00NZ	Neath Port Talbot UA	50	20.1	38	13.9
402	00PR	Newport UA	31	13.7	37	15.1
403	00NS	Pembrokeshire UA	43	18.3	29	10.6
404	00NN	Powys UA	39	14.1	37	14.0
405	00PF	Rhondda, Cynon, Taff UA	79	20.1	64	15.4
406	00NX	Swansea UA	80	20.7	61	14.1
407	00PD	The Vale of Glamorgan UA	28	13.2	38	16.0
408	00PM	Torfaen UA	30	19.7	22	11.8
409	00NL	Wrexham UA	39	17.4	35	14.9
NORTHERN IRELAND			**417**	**16.4**	**360**	**12.5**
410	95BB	Ards	18	14.3	11	8.4
411	95GG	Belfast	88	23.8	70	15.5
412	95II	Castlereagh	12	11.0	13	9.2
413	95NN	Down	14	14.2	17	16.5
414	95SS	Lisburn	25	15.6	23	12.4
415	95XX	North Down	18	14.0	16	11.4
416	95AA	Antrim	13	18.2	8	10.7
417	95DD	Ballymena	19	19.3	10	9.0
418	95EE	Ballymoney	8	19.6	5	10.2
419	95HH	Carrickfergus	7	11.4	8	12.2
420	95JJ	Coleraine	11	11.8	18	18.1
421	95KK	Cookstown	4	8.8	6	11.7
422	95QQ	Larne	10	18.2	5	8.2
423	95TT	Magherafelt	8	13.5	10	15.7
424	95UU	Moyle	1	3.3	5	19.2
425	95WW	Newtownabbey	24	18.8	18	12.4
426	95CC	Armagh	13	15.9	8	8.9
427	95FF	Banbridge	7	11.6	8	10.0
428	95LL	Craigavon	10	7.9	18	11.8
429	95OO	Dungannon	17	23.1	15	18.3
430	95VV	Newry and Mourne	23	18.0	13	9.3
431	95PP	Fermanagh	13	13.7	8	7.9
432	95RR	Limavady	5	11.5	5	11.5
433	95MM	Derry	27	20.3	26	16.9
434	95YY	Omagh	13	18.5	7	9.4
435	95ZZ	Strabane	9	16.1	9	14.3

Notes: *ICD (10th revision) codes I60-69. Rates are directly standardised to the European Standard Population. The reported rates are average annual rates calculated using data from 2005 to 2007 inclusive.*

Source: *England and Wales: data provided by Office for National Statistics.*
Scotland: data provided by General Register Office for Scotland.
Northern Ireland: data provided by Northern Ireland Statistics and Research Agency.

Key to local authorities

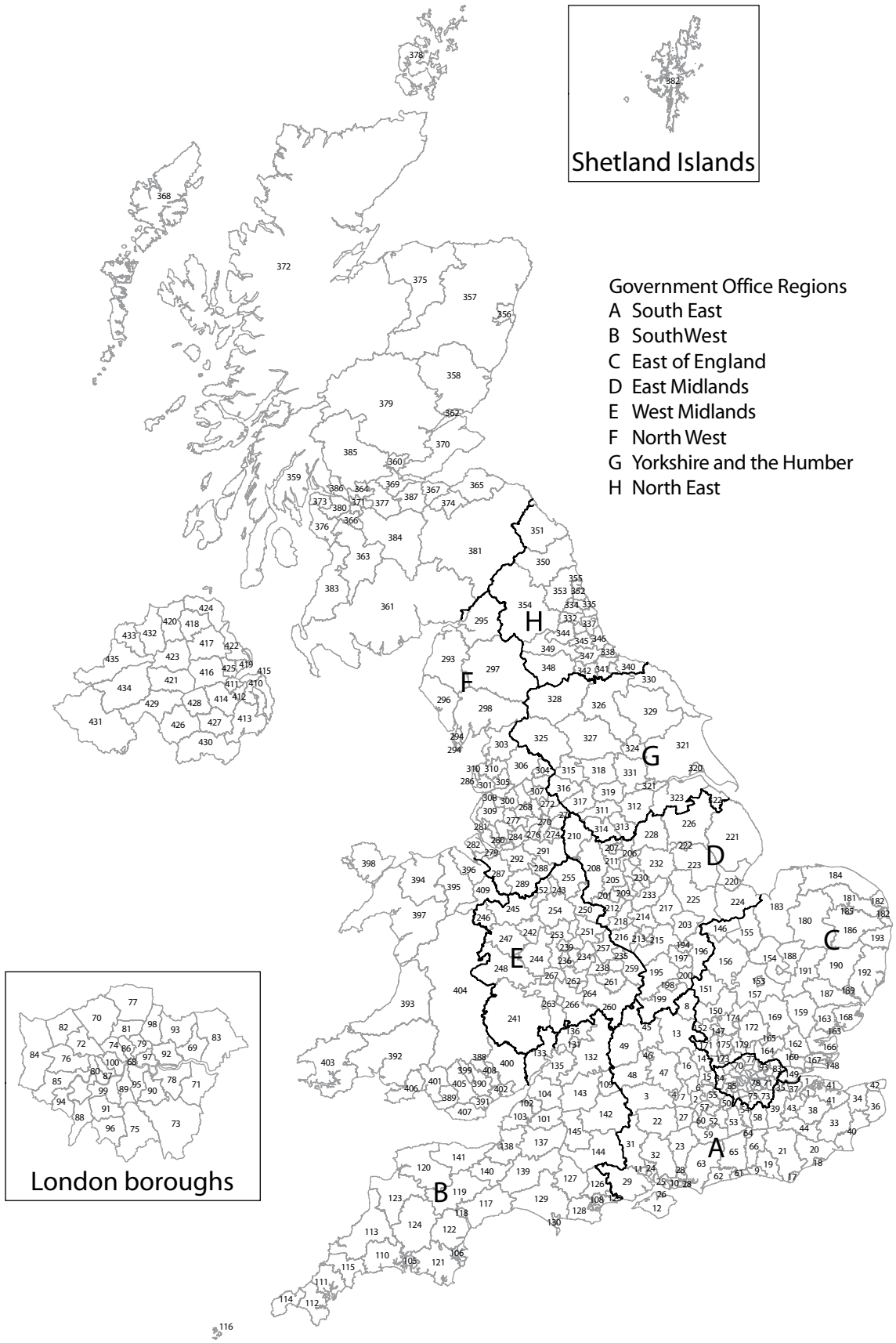


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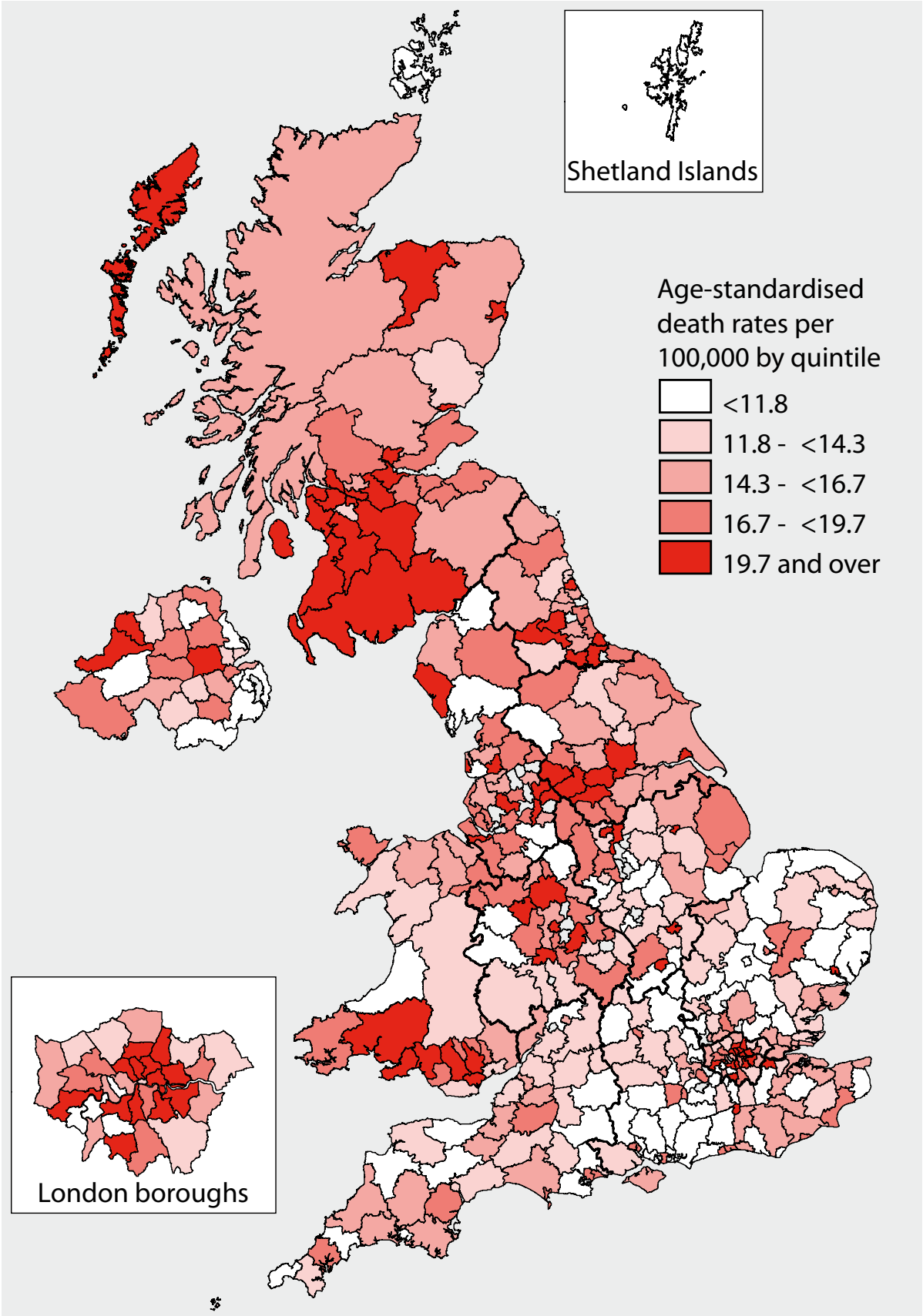
Figure 1.7a Age-standardised death rates per 100,000 population from stroke for men under 75 by local authority, 2005/07, United Kingdom



Notes: Groups are not of equal size due to rounding.

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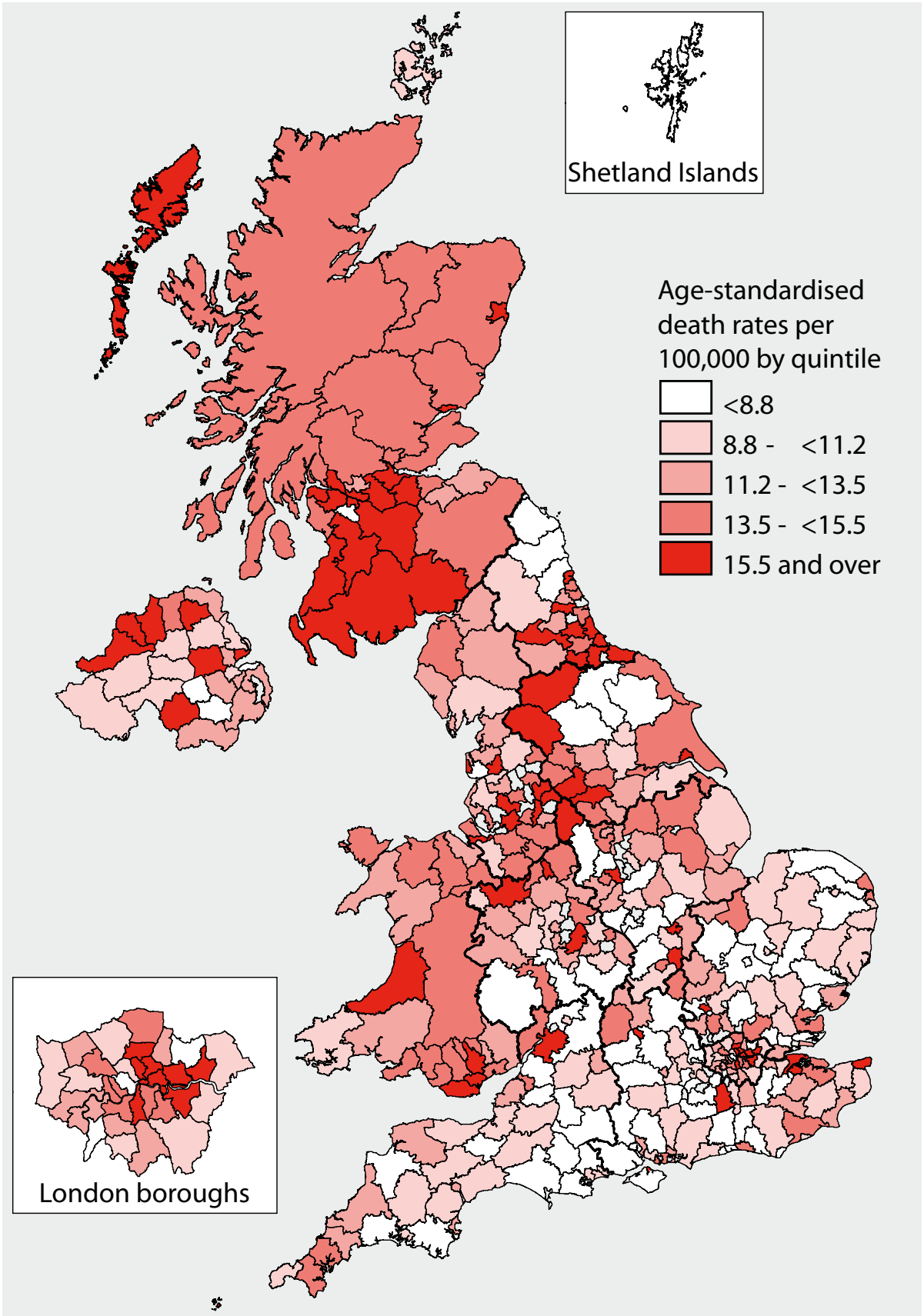
Figure 1.7b Age-standardised death rates per 100,000 population from stroke for women under 75 by local authority, 2005/07, United Kingdom



Notes: Groups are not of equal size due to rounding.

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Table 1.8 Age-standardised death rates from stroke by sex and social class, adults aged 35 to 64, 1976/81 to 1997/99, England and Wales

MEN		1976/81	1981/85	1986/92	1993/96	1997/99
I/II	Professional/intermediate	45	28	29	22	12
IIIN	Skilled non-manual	38	46	27	17	13
IIIM	Skilled manual	41	45	33	30	24
IV/V	Partly skilled/unskilled	54	59	40	45	32
Total non-manual		42	34	28	20	12
Total manual		50	54	38	35	27
Ratio manual:non-manual		***1.19***	***1.59***	***1.36***	***1.75***	***2.25***
WOMEN						
I/II	Professional/intermediate	26	19	14	8	18
IIIN	Skilled non-manual	36	29	22	14	9
IIIM	Skilled manual	36	32	18	24	22
IV/V	Partly skilled/unskilled	42	41	34	22	19
Total non-manual		29	23	17	11	14
Total manual		40	38	29	22	21
Ratio manual:non-manual		***1.38***	***1.65***	***1.71***	***2.00***	***1.50***

Notes: *Data from 1993/96 refer to directly age-standardised rates per 100,000 person years.*
Data before 1993/96 refers to age-standardised death rates per 100,000 population.

Source: *Data from 1993/96 from Office for National Statistics (2003) Trends in social class differences in mortality by cause, 1986 to 2000. The Stationery Office: London.*
Data before 1993/96 from Office for National Statistics (1997) Health Inequalities. The Stationery Office: London.

Figure 1.8 Death rates from stroke by sex and social class, adults aged 35 to 64, 1978 to 1998, England and Wales

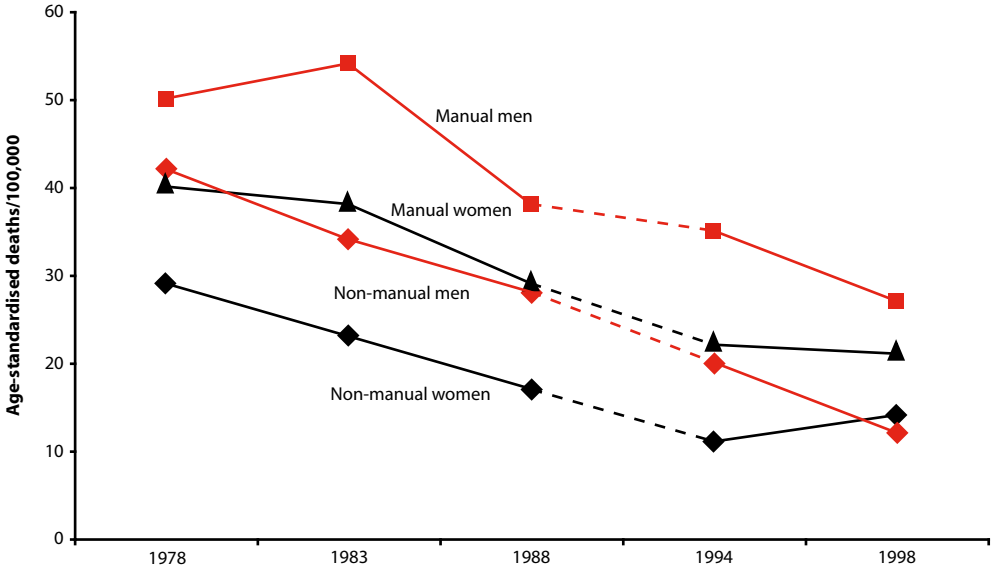


Table 1.9 Age-standardised death rates for stroke by deprivation twentieth and sex, 1999 to 2003, England and Wales

	Deprivation twentieth: Least deprived 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Most deprived 20	Total	*Ratio*
Stroke, all ages																						
MEN	63	62	61	64	63	65	66	66	67	69	72	71	72	72	75	76	77	78	84	91	70	*1.5*
WOMEN	61	58	60	60	60	60	57	62	61	63	63	64	64	65	67	67	65	65	70	69	63	*1.1*
Stroke, ages 15–64																						
MEN	8	9	9	9	10	11	11	12	11	13	13	14	14	15	16	19	19	19	23	29	14	*3.6*
WOMEN	6	6	7	8	7	8	9	10	10	10	10	10	11	12	14	14	14	15	17	17	11	*2.6*

Notes: *Ratio is ratio between most deprived and least deprived twentieths.*
Death rate is calculated for deaths per 100,000 population.
Deprivation is measured using the Carstairs Deprivation Index.

Source: *Office for National Statistics (2006) Health Statistics Quarterly (32) Winter.*
http://www.statistics.gov.uk/downloads/theme_health/HSQ32.pdf

Figure 1.9 Age-standardised death rates for stroke by deprivation twentieth and sex, adults aged 15 to 64, 1999 to 2003, England and Wales

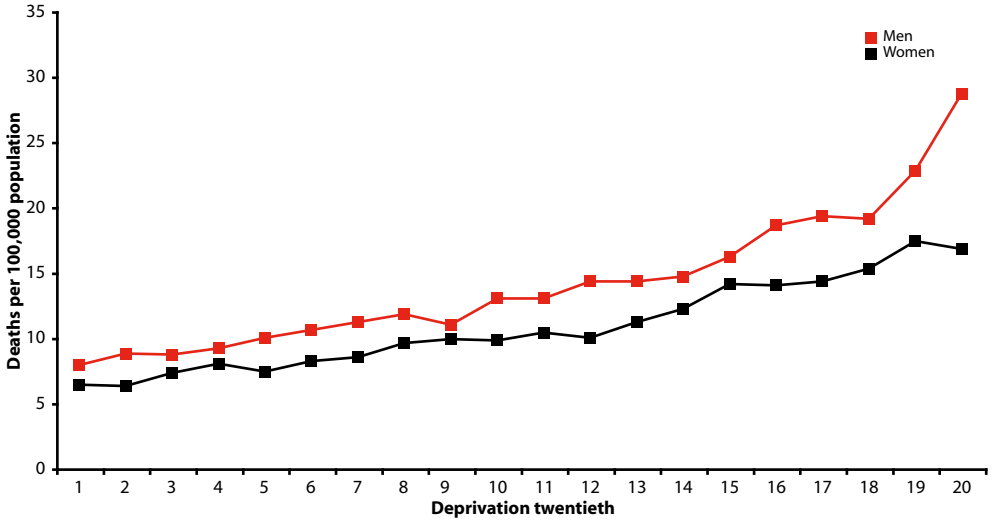


Table 1.10 Age-standardised stroke death rates by sex and country of birth, adults aged 30 to 69, 1979/83 to 1999/2003, England and Wales

	1979-83 Deaths	1979-83 Age-standardised rate per 100,000	1989-93 Deaths	1989-93 Age-standardised rate per 100,000	1999-2003 Deaths	1999-2003 Age-standardised rate per 100,000
MEN						
England and Wales	32,465	59	21,772	39	15,256	27
Jamaica	280	113	286	76	204	51
Other Carribean	112	93	155	71	115	41
West Africa	43	131	80	112	123	71
East Africa			68	45	119	36
India	491	97	395	55	328	35
Pakistan	80	59	173	64	170	42
Bangladesh	62	117	130	124	147	84
Scotland	850	66	640	49	501	35
Northern Ireland	267	76	189	49	137	35
Republic of Ireland	910	75	700	56	501	45
Italy	43	40	54	32	48	22
WOMEN						
England and Wales	28,405	46	18,120	30	12,186	21
Jamaica	221	109	193	60	153	37
Other Carribean	78	79	74	40	90	31
East Africa			47	34	79	27
India	304	64	269	39	236	26
Pakistan			93	47	124	35
Scotland	661	54	479	36	379	28
Northern Ireland	178	50	138	36	105	26
Republic of Ireland	750	57	523	38	349	26
Italy	56	36	70	26	40	19

Notes: *Rates are age-adjusted to the European population in 2000. Blank cells indicate there were less than 40 deaths in this category.*

Source: *Harding S, Rosato M, Teyhan A (2008) Trends for coronary heart disease and stroke mortality among migrants in England and Wales, 1979-2003: slow declines notable for some groups. Heart; 94(4): 463-470.*

Figure 1.10 Standardised mortality ratios for stroke by sex and country of birth, adults aged 30 to 69 years, 1999/2003, England and Wales

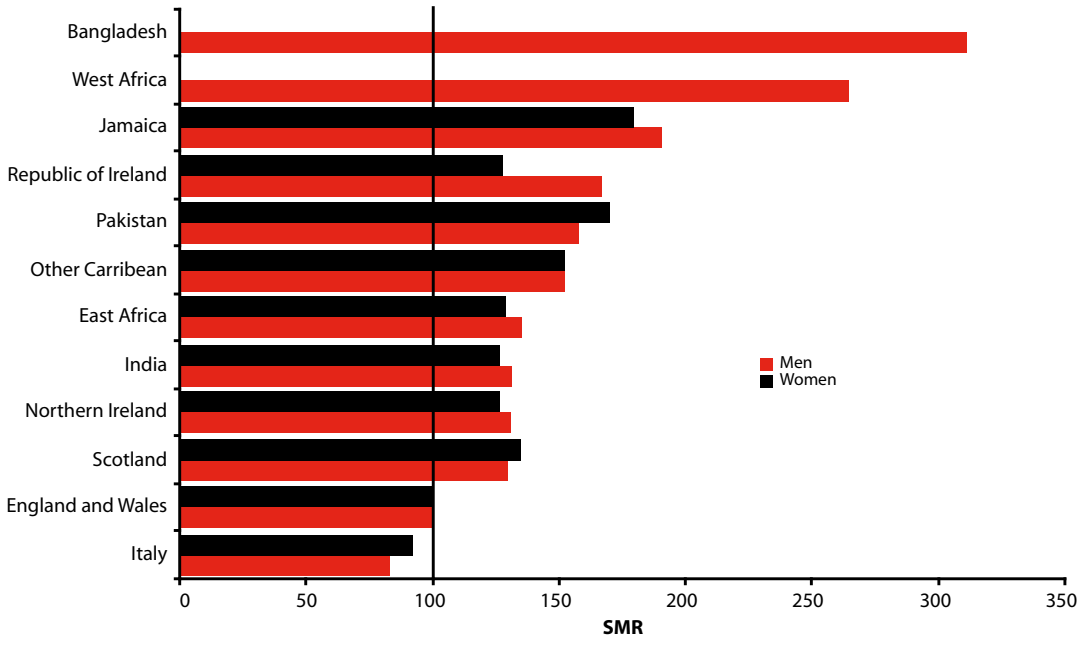


Table 1.11 Age-standardised death rates from stroke by sex, adults aged under 65, 1970 to 2006, Europe

Deaths per 100,000	1970	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000	2002	2004	2006
MEN																			
Albania										31		32	21	24	26	22	22	20	
Armenia							24		28	30	33	37	45	42	36	35	36		
Austria	34	32	29	28	29	27	25	26	21	20	18	16	15	15	13	10	9	7	6
Azerbaijan							58		53	53	45	50	50	53	41	41	36	39	
Belarus							55		52	52	56	62	73	77	79	74	82	74	
Belgium	26	27	25	24	20	19	18	17	15	13	13	12	11	11					
Bosnia and Herzegovina									31	34	35								
Bulgaria	46	48	51	53	62	61	62	65	64	66	68	75	78	66	69	63	60	55	
Croatia									50	47	46	43	42	46	38	38	34	29	29
Cyprus																		10	6
Czech Republic	46	49	49	44	45	49	47	46	46	42	44	36	31	27	24	23	20	17	
Denmark	18	15	16	16	16	15	17	14	14	13	15	15	13	15	12	11			
Estonia							49		54	59	63	68	68	60	53	55	45	41	
Finland	43	42	40	37	35	27	27	26	27	23	26	21	18	18	16	13	14	14	12
France	29	29	27	25	22	20	19	18	17	14	13	11	10	10	9	8	8	7	
Georgia							77		73	69	69	81	92	85	65	67			
Germany											14	14	14	13	11	10	9	8	8
Greece	23	24	21	23	24	22	20	21	18	18	17	17	17	18	16	17	15	15	14
Hungary	38	36	38	44	50	61	62	68	63	59	62	61	58	55	51	48	45	39	
Iceland		32	19	22	13	12	12	10	15	9	6	7	7	8	6	4	8	6	6
Ireland	33	33	31	29	27	24	22	21	17	15	15	11	12	11	11	10	8	7	6
Israel	27	26	27	25	21	23	18	16	16	12	12	13	12	13	10	9	7	8	
Italy	30	29	28	28	29	25	23	22	20	17	15	15	13	11	10	9	8		
Kazakhstan							67		61	58	66	65	82	88	91	94	83	88	84
Kyrgyzstan							80		70	67	75	84	114	106	104	110	110	110	107
Latvia						66	61	62	55	55	70	67	86	72	62	56	62	55	53
Lithuania							39		38	33	41	42	45	37	34	30	33	36	38
Luxembourg		34	31	27	21	25	20	31	25	21	21	15	18	17	12	10	13	9	
Macedonia, TFYR												44	45	51	43	40	44		
Malta	31	41	39	38	42	32	32	19	29	16	10	16	10	14	8	7	12	6	
Moldova							52		58	54	65	63	81	83	74	83	77	78	71
Netherlands	19	19	17	16	15	15	14	14	12	11	11	10	11	10	9	9	9	7	6
Norway	22	22	17	18	16	16	13	15	12	12	13	11	10	11	9	8	7	7	
Poland	17	19	20	24	27	28	24	27	30	30	31	32	31	29		32	30	30	27
Portugal		59	57	59	50	53	45	43	41	37	35	35	30	29	26	25	22	19	
Romania	41	42	40	40	45	44	44	47	47	49	50	54	73	77	73	62	65	57	53
Russian Federation						72	71	75	65	64	66	71	103	90	82	98	103	101	87
San Marino														0	0	6			
Serbia																		42	36
Slovakia		41	44	40	43	42	39	48	41	42	45	35	32	28	31	24	24	19	
Slovenia									28	37	32	33	34	27	25	22	18	18	16
Spain	28	28	30	30	26	24	22	21	19	18	15	14	13	12	11	10	10	9	
Sweden	17	18	20	18	17	15	14	12	12	12	12	12	11	11	10	9	8	8	
Switzerland	16	15	14	14	14	11	11	10	8	8	8	6	6	6	6	6	5	5	
Tajikistan							48		39	40	39	46	39	28	16	20	30	26	
Turkmenistan							94		90	90	56	66	66	49	30				
Ukraine							59		53	54	59	69	77	82	71	74	68	67	66
United Kingdom	29	28	27	25	24	23	20	19	19	16	15	14	13	13	12	10	10	9	8
Uzbekistan							68		62	62	64	62	75	73	58	55	58	48	
European Region						*41*	*40*	*41*	*37*	*36*	*37*	*38*	*46*	*43*	*39*	*40*	*40*	*38*	*32*
EU						*26*	*24*	*25*	*24*	*22*	*22*	*21*	*21*	*20*	*19*	*17*	*16*	*15*	*14*

Table 1.11 continued

Deaths per 100,000	1970	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000	2002	2004	2006
Albania										22		21	14	15	17	19	14	16	
Armenia							23		23	22	27	32	30	34	27	24	22		
Austria	20	18	16	17	16	14	13	14	12	10	9	8	8	9	9	7	6	5	5
Azerbaijan							40		43	39	29	35	35	36	33	30	27	26	
Belarus							34		35	32	33	36	42	45	42	39	42	36	
Belgium	19	17	17	16	15	12	13	11	11	9	8	8	7	8					
Bosnia and Herzegovina									24	27	26								
Bulgaria	40	41	42	43	45	38	42	39	37	35	36	39	36	33	35	30	28	26	
Croatia									26	25	25	24	23	25	19	19	16	14	12
Cyprus																		5	4
Czech Republic	28	29	29	27	27	27	26		25	22	22	18	15	14	13	11	10	9	
Denmark	13	13	13	12	11	12	11	10	11	10	12	11	10	8	8	8			
Estonia							32		32	30	27	40	38	30	25	23	19	15	
Finland	31	27	25	24	20	18	16	14	16	13	12	11	10	9	9	10	8	8	8
France	16	16	15	13	11	10	9	9	8	7	6	6	5	5	5	5	4	4	
Georgia							40		44	40	40	49	51	38	34	31			
Germany											8	8	8	7	7	6	6	5	5
Greece	18	18	20	17	17	16	15	14	13	12	11	12	10	9	10	8	8	7	7
Hungary	26	26	26	28	30	36	34	36	34	30	30	28	26	25	24	21	20	18	
Iceland		24	20	14	15	21	13	9	8	8	11	5	5	11	4	10	3	3	5
Ireland	32	29	31	26	22	22	18	16	15	11	11	10	10	10	8	10	6	6	5
Israel	28	24	25	22	21	18	15	15	11	9	9	9	8	7	5	5	4	4	
Italy	21	20	19	18	17	15	14	13	12	10	9	8	8	7	6	6	5		
Kazakhstan							41		43	38	41	40	53	55	58	55	48	49	45
Kyrgyzstan							55		55	51	48	60	79	78	72	69	73	70	68
Latvia						33	34	37	33	28	32	38	42	40	34	31	31	27	24
Lithuania							23		22	22	23	23	25	22	21	16	19	15	18
Luxembourg		13	17	11	6	20	9	16	18	12	13	13	9	8	13	13	12	8	
Macedonia, TFYR												33	34	32	32	34	34		
Malta	28	27	28	33	34	16	19	13	7	12	15	12	6	6	3	7	7	5	
Moldova							40		52	47	48	47	56	58	55	60	56	55	52
Netherlands	15	13	14	12	12	11	10	9	9	7	8	8	7	7	8	7	8	6	5
Norway	15	15	14	13	12	9	9	8	9	9	7	7	8	6	6	5	5	5	
Poland	13	14	15	17	18	17	17	17	17	17	17	17	16	16		17	15	14	12
Portugal		37	39	33	30	30	26	25	22	20	20	18	16	16	14	12	11	9	
Romania	35	34	31	32	34	33	32	34	34	35	33	33	42	44	42	36	36	33	28
Russian Federation						41	42	45	41	39	38	41	54	48	45	50	50	47	40
San Marino														9	0	15			
Serbia																		27	25
Slovakia		28	28	27	27	24	21	25	23	21	22	17	16	15	14	8	7	9	
Slovenia									15	15	15	16	15	11	11	9	9	8	7
Spain	20	21	20	19	17	15	13	13	11	9	8	7	7	6	5	5	5	4	
Sweden	14	14	13	14	10	11	10	9	8	8	7	7	7	7	6	6	6	5	
Switzerland	10	11	11	10	7	8	7	7	6	5	5	5	4	4	4	4	3	3	
Tajikistan							40		33	33	33	37	39	23	16	21	30	26	
Turkmenistan							64		76	69	43	46	46	34	21				
Ukraine							36		35	34	34	39	45	46	39	39	35	33	31
United Kingdom	25	23	22	21	20	18	17	15	14	13	11	11	10	10	9	8	8	7	6
Uzbekistan							44		45	43	45	45	51	50	41	37	37	30	
European Region						*25*	*25*	*26*	*24*	*23*	*22*	*23*	*26*	*25*	*23*	*23*	*22*	*20*	*17*
EU						*16*	*16*	*15*	*14*	*13*	*13*	*12*	*12*	*11*	*11*	*10*	*9*	*8*	*8*

Notes: *Age standardised using the European Standard Population.*

Source: *World Health Organization (2004) http://www3.who.int/whosis/menu.cfm. European Health for all database http://www.euro.who.int/hfadb. Accessed October 2008.*

Table 1.12 Age-standardised death rates from stroke by sex, adults of all ages, 1970 to 2006, Europe

Deaths per 100,000	1970	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000	2002	2004	2006
MEN																			
Albania										167		144	132	203	207	222	170	166	
Armenia							126		143	156	166	166	183	171	152	144	202		
Austria	202	195	186	182	176	173	158	157	153	130	114	107	94	94	86	74	70	47	44
Azerbaijan							208		204	194	137	148	143	152	138	141	130	160	
Belarus							161		172	176	169	172	192	198	219	208	220	214	
Belgium	171	164	155	151	135	114	111	109	92	83	79	77	72	72					
Bosnia and Herzegovina									101	124	135								
Bulgaria	227	244	243	247	263	308	259	267	261	251	258	264	268	243	253	231	231	215	
Croatia									207	195	197	180	183	216	220	202	173	147	146
Cyprus																		56	56
Czech Republic	229	241	248	243	235	253	265	256	259	241	237	205	187	163	150	156	145	127	
Denmark	111	102	97	97	88	91	89	81	80	78	82	81	75	77	68	65			
Estonia							228		255	250	252	256	252	226	208	198	175	152	
Finland	195	170	155	145	142	126	122	119	120	113	112	104	99	84	83	74	67	64	59
France	158	153	150	139	123	115	104	96	96	75	65	61	55	53	50	46	44	38	
Georgia							279		289	270	263	306	311	241	222	221			
Germany											100	99	94	87	78	67	62	52	47
Greece	118	128	130	139	142	147	142	143	136	132	130	126	126	120	121	118	112	102	91
Hungary	202	185	186	199	205	251	237	232	216	203	211	205	194	191	183	176	169	153	
Iceland		136	135	83	86	73	69	59	79	65	78	59	69	63	68	52	47	48	49
Ireland	170	167	171	154	148	136	129	115	118	98	91	86	80	79	67	70	59	47	42
Israel	153	147	149	128	120	115	104	83	84	74	70	79	68	77	52	49	47	44	
Italy	164	159	153	153	147	137	137	130	127	118	105	100	95	82	82	74	68		
Kazakhstan							208		223	222	235	226	284	280	291	290	251	262	242
Kyrgyzstan							239		227	257	245	266	309	295	277	282	298	301	301
Latvia						256	263	271	267	268	267	260	315	273	256	244	251	217	205
Lithuania							123		128	126	138	138	149	138	135	127	137	135	146
Luxembourg		192	150	162	147	209	182	185	192	170	137	112	99	100	86	78	79	60	
Macedonia, TFYR												189	190	206	203	207	212		
Malta	127	127	158	188	225	176	146	97	144	104	102	88	82	92	103	77	80	68	
Moldova							214		237	217	203	191	225	250	232	254	261	262	257
Netherlands	116	117	106	103	98	92	87	85	80	76	75	74	71	67	63	61	60	51	44
Norway	156	151	138	129	116	108	103	103	97	93	95	89	80	82	75	67	61	53	
Poland	58	63	64	82	84	85	73	77	84	83	85	92	92	92		119	114	107	98
Portugal		313	338	345	329	310	278	280	268	262	239	227	206	198	172	156	138	115	
Romania	187	183	176	182	185	187	184	193	202	209	195	208	266	282	268	238	253	239	229
Russian Federation						294	294	315	295	300	287	289	360	325	320	349	359	363	324
San Marino														34	34	52			
Serbia																		173	169
Slovakia		180	183	185	200	177	142	143	149	124	163	116	125	115	121	104	109	100	
Slovenia									160	164	160	163	146	129	119	108	99	88	67
Spain	149	165	175	176	164	146	132	128	114	107	97	90	82	75	71	62	58	52	
Sweden	96	95	99	98	91	85	82	77	78	75	75	74	69	68	70	65	61	54	
Switzerland	125	119	119	116	108	100	96	80	73	70	67	58	56	49	48	42	38	35	
Tajikistan							157		136	141	144	164	148	100	72	82	123	114	
Turkmenistan							254		257	241	134	154	183	138	91				
Ukraine							208		219	226	220	234	259	247	228	227	219	215	210
United Kingdom	161	162	150	139	131	123	115	114	110	100	94	92	79	77	73	65	70	61	53
Uzbekistan							192		183	189	185	199	258	217	190	202	183	164	
European Region						*180*	*173*	*178*	*171*	*167*	*161*	*161*	*177*	*164*	*158*	*158*	*156*	*149*	*130*
EU						*137*	*129*	*127*	*125*	*117*	*112*	*109*	*106*	*100*	*97*	*89*	*86*	*78*	*73*

Table 1.12 continued

Deaths per 100,000	1970	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000	2002	2004	2006
WOMEN																			
Albania										122		105	85	137	147	170	131	140	
Armenia							126		136	140	151	152	160	169	138	151	179		
Austria	160	156	145	150	141	136	130	126	123	102	89	82	77	77	70	63	57	39	37
Azerbaijan							156		167	160	108	122	113	123	120	131	117	154	
Belarus							128		143	150	135	137	147	148	158	152	152	142	
Belgium	139	133	129	121	113	92	94	86	76	67	66	60	58	54					
Bosnia and Herzegovina									95	116	124								
Bulgaria	231	240	229	229	239	266	231	217	226	202	199	203	198	187	194	180	174	157	
Croatia									159	155	154	140	145	166	168	158	126	113	111
Cyprus																		41	49
Czech Republic	187	191	199	198	196	204	206	232	203	186	179	154	146	124	123	122	119	101	
Denmark	98	92	79	75	72	71	70	68	66	63	66	65	61	60	55	55			
Estonia							208		199	208	191	202	195	163	160	141	138	111	
Finland	171	147	131	118	112	104	97	93	94	92	89	83	78	70	60	61	57	51	46
France	109	106	104	98	86	81	76	68	67	53	48	44	39	38	37	34	31	28	
Georgia							205		211	213	205	240	241	180	167	203			
Germany											80	79	75	68	61	53	50	44	39
Greece	124	135	140	150	146	155	146	143	146	139	137	131	126	120	124	118	115	107	95
Hungary	172	155	155	168	164	194	181	172	165	151	153	146	134	136	125	118	113	104	
Iceland		108	104	73	78	72	63	52	71	70	59	46	58	64	52	56	43	39	37
Ireland	160	162	172	151	140	132	117	101	108	93	80	77	75	71	61	64	51	44	39
Israel	176	184	182	135	128	114	109	92	86	72	66	72	58	66	43	40	39	36	
Italy	125	122	121	120	113	106	106	102	99	91	82	80	77	65	65	58	53		
Kazakhstan							163		179	185	183	178	221	212	222	210	198	194	177
Kyrgyzstan							190		192	206	196	214	253	229	221	236	247	242	232
Latvia						205	228	233	234	218	212	208	230	206	205	188	189	168	150
Lithuania							109		113	117	116	111	119	115	122	109	112	106	117
Luxembourg		129	127	116	112	163	138	141	138	113	117	102	79	70	69	67	66	55	
Macedonia, TFYR												166	169	176	183	181	190		
Malta	127	100	168	172	232	133	99	69	117	111	96	101	78	83	62	70	64	65	
Moldova							181		208	190	168	157	186	189	191	203	209	203	202
Netherlands	109	105	95	88	83	76	72	69	64	62	62	63	58	55	53	52	50	44	38
Norway	133	128	122	110	104	89	85	83	78	78	77	71	66	63	60	51	49	44	
Poland	54	57	58	72	73	70	63	65	68	66	64	69	69	72		92	87	80	72
Portugal		252	274	252	250	253	215	221	199	193	189	171	158	154	136	123	110	90	
Romania	186	175	167	171	178	177	176	183	184	194	177	175	220	229	215	197	202	193	185
Russian Federation						221	222	240	235	241	224	225	265	251	253	265	270	262	239
San Marino														39	32	33			
Serbia																		153	153
Slovakia		152	157	161	164	138	103	111	121	84	120	84	91	83	85	72	73	71	
Slovenia									127	115	107	103	101	93	81	69	68	61	44
Spain	128	147	155	151	140	124	114	109	100	90	83	75	70	62	57	51	47	42	
Sweden	88	87	86	87	78	72	72	68	66	64	64	61	57	56	55	52	52	45	
Switzerland	107	104	93	93	85	83	73	66	60	54	51	47	44	40	36	34	31	28	
Tajikistan							137		120	122	123	148	139	84	57	65	106	94	
Turkmenistan							208		227	203	114	124	226	115	80				
Ukraine							161		183	189	174	181	204	188	177	176	162	153	147
United Kingdom	143	141	133	124	116	109	103	100	96	90	84	81	72	70	66	60	63	56	49
Uzbekistan							148		148	154	150	169	214	189	168	181	167	139	
European Region						*145*	*140*	*145*	*141*	*139*	*131*	*128*	*138*	*129*	*126*	*124*	*122*	*114*	*100*
EU						*113*	*107*	*105*	*102*	*96*	*91*	*87*	*85*	*80*	78	72	69	*63*	*59*

Notes: *Age-standardised using the European Standard Population.*

Source: *World Health Organization (2004) http://www3.who.int/whosis/menu.cfm. European Health for all database http://www.euro.who.int/hfadb. Accessed October 2008.*

Figure 1.12a Death rates from stroke, men and women of all ages, latest available data, Europe

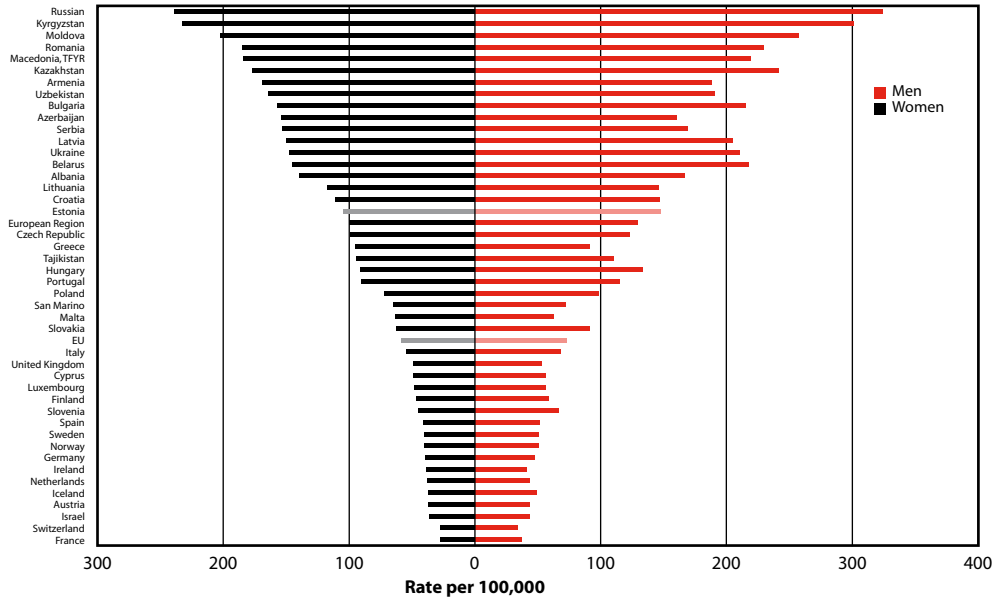
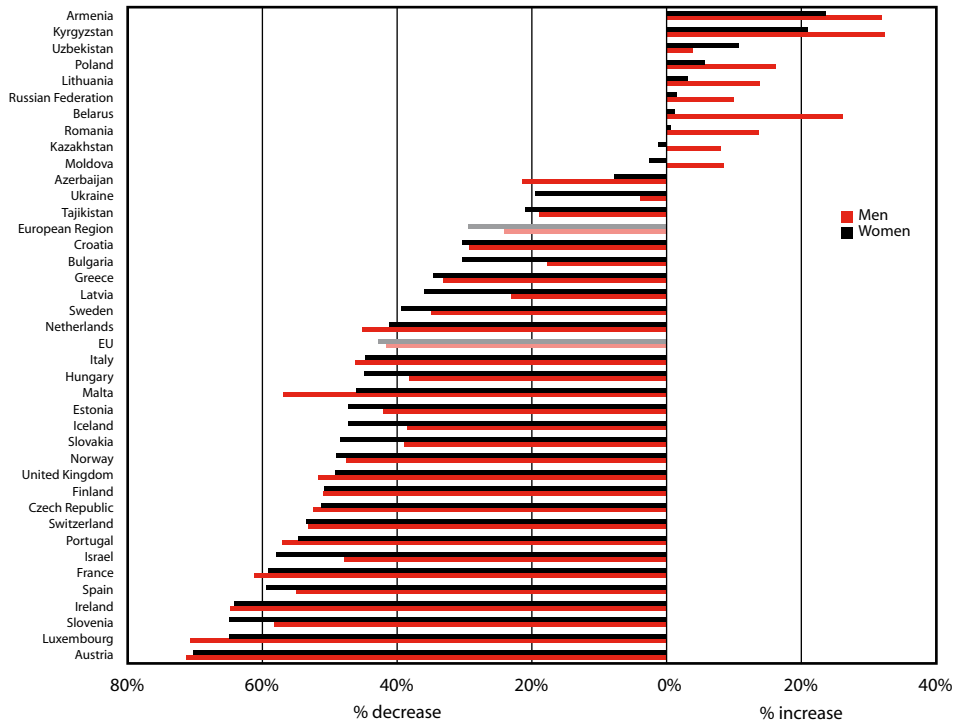


Figure 1.12b Changes in death rates from stroke, men and women of all ages, between 1986 and latest available data, Europe



2. Morbidity

This chapter presents estimates of the *incidence and prevalence* of stroke in the UK. The incidence of stroke is a measure of how many first time strokes occur in the population in a given time period, usually a year. The prevalence of stroke is a measure of how many people in the population have experienced a stroke at some point in the past. These statistics are much harder to collect than mortality statistics for a number of reasons. For example, when someone has a stroke they are usually taken to hospital where their admission is recorded in a national dataset. However, it is not possible to use this dataset to identify whether this was the first stroke that the individual has suffered, and therefore whether it should be included in a measure of incidence of stroke.

The statistics presented in this chapter come from a variety of sources including local stroke registries, national GP databases and national health surveys. Each source has its strengths and weaknesses, and these must be considered when the statistics are interpreted. For example, ideally incidence of haemorrhagic stroke in a population would be collected via identification of all strokes through GP records followed by classification of stroke subtype through CT scan or autopsy. Such studies are expensive to conduct and so are usually restricted to a small area making it difficult to generalise from the specific study setting to larger regional or national populations.

The estimates presented in this chapter are derived from the most appropriate and reliable studies that give the widest coverage in terms of age, sex, geographical location, etc. Because of the difficulties in extrapolating these results these estimates should be treated with caution.

Incidence

a) All stroke

There have been a number of studies of the incidence of stroke conducted in the UK in the last ten years. The National Stroke Audit gathers routinely collected data from over 200 GP practices around the country to identify new cases of stroke, but does not divide these into stroke subtype. The Oxford Vascular Study of stroke incidence in Oxfordshire uses local GP records to identify new cases of stroke and identifies the stroke subtype using autopsies and CT scans (Table 2.1).

Applying the results of the Oxford Vascular Study to the 2006 population, we estimate there are around 51,000 first time strokes per year for men in the UK and around 60,000 for women, giving a total of around 111,000 first time strokes per year. The National Stroke Audit data provide a more conservative estimate of approximately 33,000 first time strokes per year in men and 39,000 in women, giving a total of around 72,000 first time strokes every year[1].

Stroke incidence increases rapidly with increasing age. The data also suggest that the incidence of stroke varies little by sex, but may be slightly higher in women than in men.

b) Ischaemic stroke

Applying population estimates from 2006 to the incidence rates reported by the Oxford Vascular Study suggest that around 46,000 first ischaemic strokes occur in men in the UK every

year and a further 52,000 in women giving a total of approximately 98,000 first ischaemic strokes every year (Table 2.2).

c) Haemorrhagic stroke

Haemorrhagic stroke is rare in younger age groups but the incidence rates for both men and women increases dramatically over the age of 75. Applying population estimates from 2006 to the reported incidence rates in the Oxford Vascular Study gives an estimate of over 4,000 first haemorrhagic strokes in men in the UK every year and a further 4,000 in women giving a total of over 8,500 haemorrhagic strokes every year[2] (Table 2.3).

d) Subarachnoid haemorrhage

The incidence of first ever subarachnoid haemorrhage is much rarer than for intracerebral haemorrhage (described as 'haemorrhagic stroke' in the paragraph above) or ischaemic stroke. Using the Oxford Vascular Study incidence rate we estimate that there are nearly 5,000 cases of first subarachnoid haemorrhage in the UK every year of which nearly 4,000 are in women (Table 2.4).

e) Transient ischaemic attack

Suffering a transient ischaemic attack greatly increases the risk of a major stroke at some point in the future[3]. The incidence of first transient ischaemic attack increases with age and is higher for women than for men. Using incidence rates from the Oxford Vascular Study we estimate there are over 15,000 first transient ischaemic attacks in men in the UK every year and a further 31,000 in women, giving a total of 46,000 every year. The National Stroke Audit suggests higher incidence rates resulting in estimates of more than 29,000 first transient ischaemic attacks in men in the UK every year and a further 36,000 in women giving a total of approximately 65,000 first transient ischaemic attacks every year (Table 2.5 and Figure 2.5)[1].

Prevalence

Estimates of the prevalence of having suffered a stroke are hard to obtain by subtype of stroke (e.g. haemorrhagic or ischaemic stroke) since verification of the stroke subtype is performed by brain imaging equipment, such as CT scanning, which is not performed for all cases of stroke. However, estimates of the prevalence of having suffered any kind of stroke are available, and the results presented in this chapter are from two sources: national health surveys and the National Stroke Audit. Data from national health surveys come from questionnaires applied to representative samples of the population of interest. The National Stroke Audit dataset utilises routinely gathered data from over 200 GP practices around the country, and provides data on the prevalence of both stroke and transient ischaemic attack.

a) All stroke

Data from national surveys suggest that the prevalence of stroke is similar in England, Wales, Scotland and Northern Ireland at between two and three per cent among men and women[4]. The prevalence of stroke increases with age but does not vary greatly by sex (Table 2.6).

The prevalence of stroke among older age groups is increasing in England. The prevalence of stroke was 9% in men over 75 in 1994 compared with 13% in 2006. The prevalence for women over the age of 75 rose from 8% in 1994 to 11% in 2006. Rates in younger women do not appear to be increasing (Figures 2.6a and 2.6b).

Using health survey data we estimate that in 2006 there were nearly 585,000 men living in the UK who have had a stroke and a further 555,000 women, giving a total of over 1.1 million people in the UK[5]. More conservatively, the National Stroke Audit data suggest that around 420,000 people in the UK have had a stroke (Table 2.7).

Quality Outcome Framework data and the Health Survey for England 2006 suggest that the prevalence of having suffered a stroke varies little by region (Table 2.8 and Figure 2.8).

The prevalence of stroke in men is marginally higher in those with the lowest income (5%) compared with highest income (4%)[6]. The 2004 Health Survey for England reported that very few people from the Black African and Chinese ethnic groups have suffered a stroke (prevalence rates of less than 1%), whereas the prevalence rates in Black Caribbean men, and in Irish men and women were much higher (around 3% for Black Caribbean men and Irish women, and over 4% for Irish men)[7].

b) Transient ischaemic attack (TIA)

The National Stroke Audit suggests the prevalence of TIA increases with age and is higher in men than in women. We estimate, that in 2006, around 240,000 men and 270,000 women in the UK had a TIA, giving a total of approximately 510,000 people in the UK.

1. *The Oxford Vascular Study is likely to provide an underestimate of the number of first time strokes in the UK every year. This is because the population of interest in the Oxford Vascular Study – Oxfordshire – is a relatively affluent region and stroke incidence is likely to be higher in more deprived areas. The estimates of stroke incidence rates were based on data collected recently (2004), and there is no evidence that incidence of stroke has fallen substantially since then.*
2. *These estimates do not include subarachnoid haemorrhage.*
3. *Department of Health (2005) Reducing brain damage: faster access to better stroke care. The Stationery Office: London.*
4. *The four national health surveys (Health Survey for England, Scottish Health Survey, Welsh Health Survey and Northern Ireland Health and Social Wellbeing Survey) all collect self reported doctor diagnosed illness. Prevalence estimates derived from these surveys are therefore reasonably comparable.*
5. *This is likely to be an underestimate as the national health surveys collect their samples from residential homes and do not include elderly residential care homes, where many stroke survivors are likely to live.*
6. *Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*
7. *Joint Health Surveys Unit (2006) Health Survey for England 2004. The health of minority ethnic groups. The Information Centre: Leeds.*

Table 2.1 Incidence of stroke by sex and age, latest available year, UK studies compared

Study	Setting	Sex	Age group	Incidence/ 100,000
Oxford Vascular Study (Rothwell et al, 2005)	Oxfordshire, 2004	MEN	0-34	0
			35-44	35
			45-54	76
			55-64	214
			65-74	678
			75-84	1,085
			85+	2,063
			TOTAL	152
		WOMEN	0-34	3
			35-44	26
			45-54	60
			55-64	140
			65-74	464
			75-84	1,109
			85+	1,863
			TOTAL	171
National Stroke Audit 2004 (Hippisley-Cox et al, 2004)	Great Britain, 2003	MEN	0-44	7
			45-64	114
			65-74	393
			75+	794
			TOTAL	116
		WOMEN	0-44	6
			45-64	69
			65-74	275
			75+	879
			TOTAL	135
The Scottish Borders Stroke Study (Syme et al, 2005)	Scottish Borders, 1999	BOTH	0-14	0
			15-24	0
			25-34	18
			35-44	31
			45-54	131
			55-64	255
			65-74	659
			75-84	1,587
			85+	2,400
			TOTAL	280

Notes: *Only estimates from the last ten years are included. Incidence rates are given per 100,000 of population per year. See sources for methods and definitions.*

Source: *Rothwell P, Coull A, Silver L, Fairhead J, Giles M, Lovelock C, Redgrave J, Bull L, Welch S, Cuthbertson F, Binney L, Gutnikov S, Anslow P, Banning A, Mant D, Mehta Z (2005). Population-based study of event-rate, incidence, case fatality, and mortality for all acute vascular events in all arterial territories (Oxford Vascular Study). Lancet: 366; 1773-1783.*

Hippisley-Cox J, Pringle M, Ryan R (2004). Stroke: prevalence, incidence and care in general practices 2002 to 2004. Final report to the National Stroke Audit Team. Royal College of Physicians: London.

Syme P, Byrne A, Chen R, Devenny R, Forbes J (2005). Community-based stroke incidence in a Scottish population. The Scottish Borders Stroke Study. Stroke: 36; 1837-1843.

Table 2.2 Incidence of ischaemic stroke by sex and age, latest available year, UK studies compared

Study	Setting	Sex	Age group	Incidence/ 100,000
Oxford Vascular Study (Rothwell et al, 2005)	Oxfordshire, 2004	MEN	0-34	0
			35-44	35
			45-54	55
			55-64	187
			65-74	649
			75-84	913
			85+	1,984
			TOTAL	136
		WOMEN	0-34	0
			35-44	21
			45-54	24
			55-64	119
			65-74	407
			75-84	982
			85+	1,723
			TOTAL	147
The Scottish Borders Stroke Study (Syme et al, 2005)	Scottish Borders, 1999	BOTH	0-14	0
			15-24	0
			25-34	11
			35-44	25
			45-54	102
			55-64	147
			65-74	503
			75-84	1,198
			85+	1,375
			TOTAL	197

Notes: *Only estimates from the last ten years are included. Incidence rates are given per 100,000 of population per year. See sources for methods and definitions.*

Source: *Rothwell P, Coull A, Silver L, Fairhead J, Giles M, Lovelock C, Redgrave J, Bull L, Welch S, Cuthbertson F, Binney L, Gutnikov S, Anslow P, Banning A, Mant D, Mehta Z (2005). Population-based study of event-rate, incidence, case fatality, and mortality for all acute vascular events in all arterial territories (Oxford Vascular Study). Lancet: 366; 1773-1783.*

Syme P, Byrne A, Chen R, Devenny R, Forbes J (2005). Community-based stroke incidence in a Scottish population. The Scottish Borders Stroke Study. Stroke: 36; 1837-1843.

Table 2.3 Incidence of haemorrhagic stroke by sex and age, latest available year, UK studies compared

Study	Setting	Sex	Age group	Incidence/ 100,000
Oxford Vascular Study (Rothwell et al, 2005)	Oxfordshire, 2004	MEN	0-34	0
			35-44	0
			45-54	5
			55-64	20
			65-74	29
			75-84	172
			85+	79
			TOTAL	13
		WOMEN	0-34	0
			35-44	0
			45-54	6
			55-64	0
			65-74	38
			75-84	102
			85+	105
			TOTAL	12
The Scottish Borders Stroke Study (Syme et al, 2005)	Scottish Borders, 1999	BOTH	0-14	0
			15-24	0
			25-34	0
			35-44	0
			45-54	13
			55-64	28
			65-74	47
			75-84	115
			85+	267
			TOTAL	24

Notes: *Only estimates from the last ten years are included. Incidence rates are given per 100,000 of population per year. See sources for methods and definitions. Rates do not include subarachnoid haemorrhage.*

Source: *Rothwell P, Coull A, Silver L, Fairhead J, Giles M, Lovelock C, Redgrave J, Bull L, Welch S, Cuthbertson F, Binney L, Gutnikov S, Anslow P, Banning A, Mant D, Mehta Z (2005). Population-based study of event-rate, incidence, case fatality, and mortality for all acute vascular events in all arterial territories (Oxford Vascular Study). Lancet: 366; 1773-1783.*

Syme P, Byrne A, Chen R, Devenny R, Forbes J (2005). Community-based stroke incidence in a Scottish population. The Scottish Borders Stroke Study. Stroke: 36; 1837-1843.

Table 2.4 Incidence of subarachnoid haemorrhage by sex and age, latest available year, UK studies compared

Study	Setting	Sex	Age group	Incidence/ 100,000
Oxford Vascular Study (Rothwell et al, 2005)	Oxfordshire, 2004	MEN	0-34	0
			35-44	0
			45-54	16
			55-64	7
			65-74	0
			75-84	0
			85+	0
			TOTAL	3
		WOMEN	0-34	3
			35-44	5
			45-54	30
			55-64	21
			65-74	19
			75-84	25
			85+	35
			TOTAL	12
The Scottish Borders Stroke Study (Syme et al, 2005)	Scottish Borders, 1999	BOTH	0-14	0
			15-24	0
			25-34	4
			35-44	3
			45-54	7
			55-64	40
			65-74	24
			75-84	14
			85+	41
			TOTAL	11

Notes: *Only estimates from the last ten years are included. Incidence rates are given per 100,000 of population per year. See sources for methods and definitions.*

Source: *Rothwell P, Coull A, Silver L, Fairhead J, Giles M, Lovelock C, Redgrave J, Bull L, Welch S, Cuthbertson F, Binney L, Gutnikov S, Anslow P, Banning A, Mant D, Mehta Z (2005). Population-based study of event-rate, incidence, case fatality, and mortality for all acute vascular events in all arterial territories (Oxford Vascular Study). Lancet: 366; 1773-1783.*

Syme P, Byrne A, Chen R, Devenny R, Forbes J (2005). Community-based stroke incidence in a Scottish population. The Scottish Borders Stroke Study. Stroke: 36; 1837-1843.

Table 2.5 Incidence of transient ischaemic attack by sex and age, latest available year, UK studies compared

Study	Setting	Sex	Age group	Incidence/ 100,000
Oxford Vascular Study (Rothwell et al, 2005)	Oxfordshire, 2004	MEN	0-34	3
			35-44	13
			45-54	16
			55-64	74
			65-74	145
			75-84	327
			85+	794
			TOTAL	45
		WOMEN	0-34	7
			35-44	5
			45-54	30
			55-64	105
			65-74	218
			75-84	561
			85+	914
			TOTAL	89
National Stroke Audit 2004 (Hippisley-Cox et al, 2004)	Great Britain, 2003	MEN	0-44	4
			45-64	96
			65-74	373
			75+	688
			TOTAL	101
		WOMEN	0-44	5
			45-64	81
			65-74	318
			75+	730
			TOTAL	125

Notes: *Only estimates from the last ten years are included. Incidence rates are given per 100,000 of population per year. See sources for methods and definitions.*

Source: *Rothwell P, Coull A, Silver L, Fairhead J, Giles M, Lovelock C, Redgrave J, Bull L, Welch S, Cuthbertson F, Binney L, Gutnikov S, Anslow P, Banning A, Mant D, Mehta Z (2005). Population-based study of event-rate, incidence, case fatality, and mortality for all acute vascular events in all arterial territories (Oxford Vascular Study). Lancet: 366; 1773-1783.*

Hippisley-Cox J, Pringle M, Ryan R (2004). Stroke: prevalence, incidence and care in general practices 2002 to 2004. Final report to the National Stroke Audit Team. Royal College of Physicians: London.

Figure 2.5 Age-standardised incidence of all stroke, ischaemic stroke, haemorrhagic stroke, subarachnoid haemorrhage and transient ischaemic attack by sex, 2004, Oxfordshire

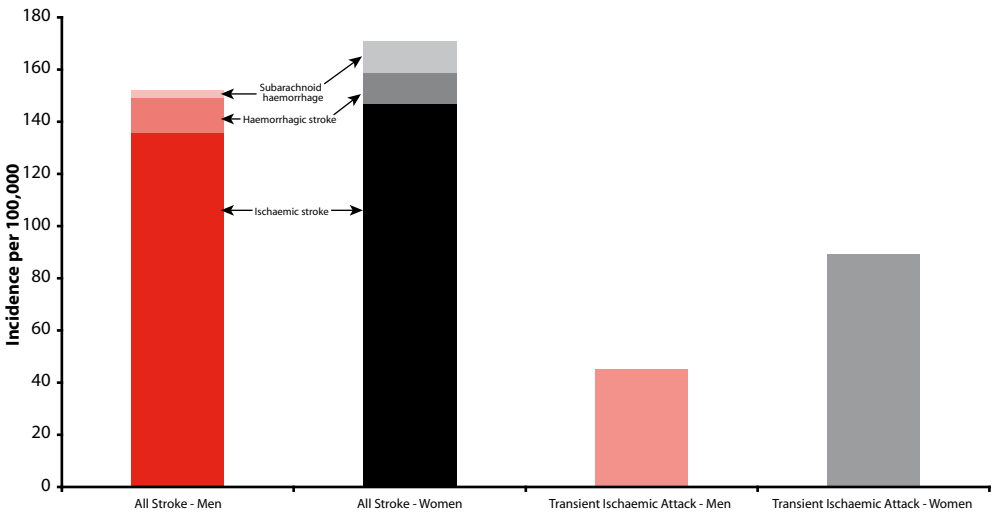


Table 2.6 Prevalence of stroke by sex and age, adults aged 16 and over, 1993 to 2006, England, Scotland, Wales and Northern Ireland

	England					Scotland			Wales			Northern Ireland
MEN	1993	1994	1998	2003	2006	1995	1998	2003	2003/04	2004/05	2005/06	2005/06
All ages	2	2	2	2	2			2	3	3	3	2
16-24	0	0	0	0	0	0	0	0	0	0	0	0
25-34	0	0	0	0	0	0	0	0	0	0	0	1
35-44	0	0	0	0	1	0	0	1	1	0	1	0
45-54	1	0	1	1	1	2	1	1	2	1	2	1
55-64	3	3	3	2	3	4	2	5	2	4	4	2
65-74	7	7	6	8	7		6	6	9	7	9	6
75+	12	9	10	13	13			11	14	14	13	12
Unweighted base	*7,689*	*7,178*	*7,193*	*6,602*	*5,625*	*3,524*	*3,368*	*3,610*	*7,486*	*7,437*	*6,691*	*1,743*

	England					Scotland			Wales			Northern Ireland
WOMEN	1993	1994	1998	2003	2006	1995	1998	2003	2003/04	2004/05	2005/06	2005/06
All ages	1	2	2	2	2			2	3	2	2	1
16-24	0	0	0	0	0	0	0	0	0	1	0	0
25-34	0	0	0	0	0	0	0	0	0	0	1	0
35-44	0	0	1	1	0	0	0	1	1	1	1	0
45-54	1	1	1	1	1	1	1	1	1	1	1	1
55-64	2	2	2	3	2	2	3	2	3	2	2	2
65-74	3	4	5	5	4		6	5	6	6	5	3
75+	7	8	9	9	11			8	11	9	8	6
Unweighted base	*8,880*	*8,631*	*8,715*	*8,234*	*6,925*	*4,408*	*4,215*	*4,538*	*8,812*	*8,598*	*7,614*	*2,497*

Notes: *Data for England 2003 and 2006 are weighted for non-response. All other data are not weighted. Data from Northern Ireland in 2001 suggest that 2% of men and 1% of women aged 16 and over had suffered a stroke, however these data are not presented by age group.*

Sources: *Joint Health Surveys Unit (2008) Health Survey for England. Cardiovascular disease and risk factors. The Information Centre: Leeds, and previous editions.*
Scottish Executive (2005) The Scottish Health Survey 2003. Cardiovascular disease and associated risk factors. Blackwells: Edinburgh, and previous editions.
Welsh Assembly Government (2008) Welsh Health Survey 2005/06. Welsh Assembly Government: Cardiff, and previous editions.
Northern Ireland Statistics and Research Agency (2007). Northern Ireland Health and Social Wellbeing Survey 2005/06. Northern Ireland Statistics and Research Agency: Belfast.

Figure 2.6a Prevalence of stroke by age, men aged 45 and over, 1994 to 2006, England

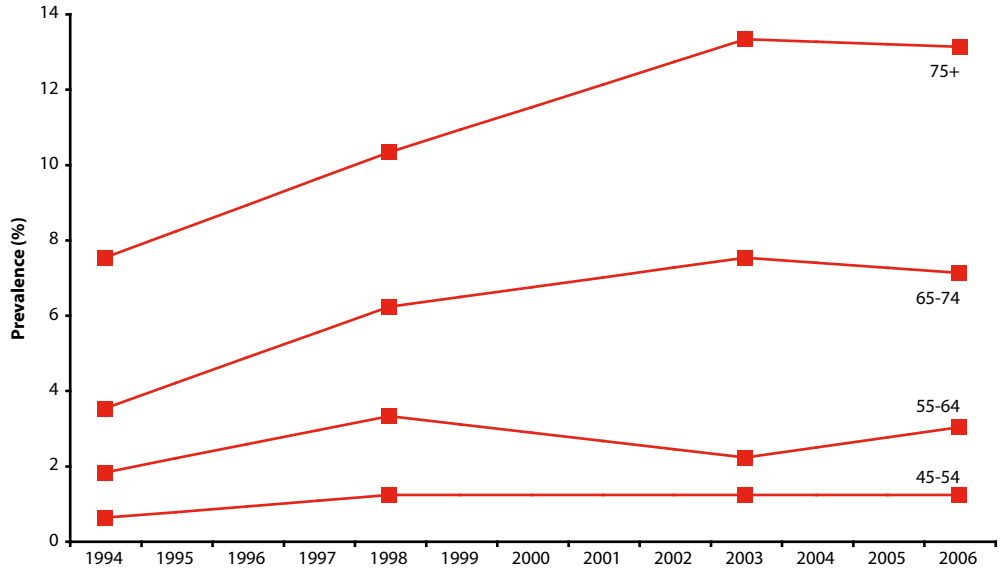


Figure 2.6b Prevalence of stroke by age, women aged 45 and over, 1994 to 2006, England

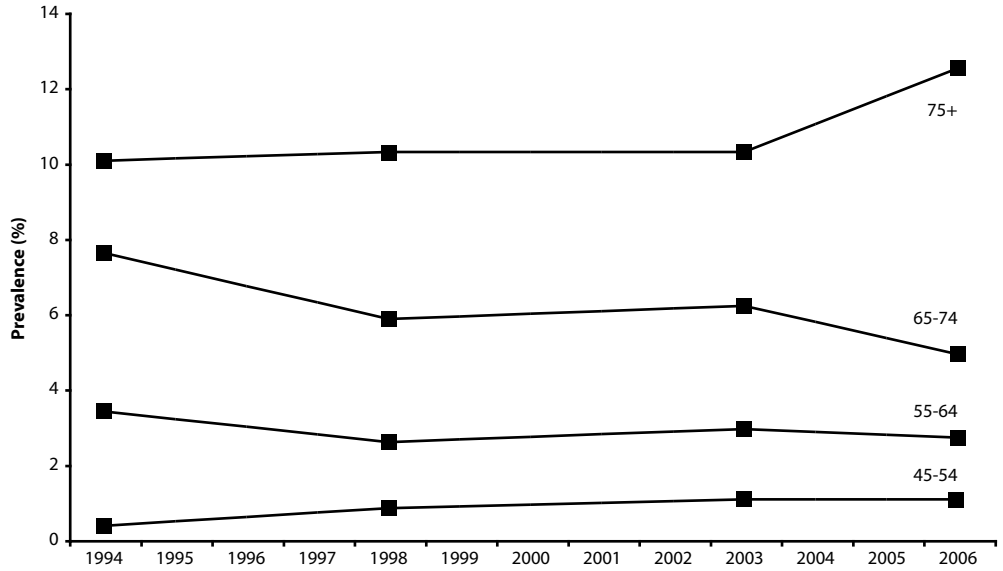


Table 2.7 Prevalence of stroke and transient ischaemic attack by sex and age, 2003, Great Britain

	All ages	Under 45	45-64	65-74	75+
MEN	%	%	%	%	%
Stroke	0.7	0.0	0.6	2.6	5.2
Transient Ischaemic Attack	0.9	0.0	0.6	3.1	6.7
Base	*1,475,890*	*857,749*	*368,310*	*125,948*	*123,883*
WOMEN					
Stroke	0.7	0.0	0.5	1.6	4.4
Transient Ischaemic Attack	0.9	0.0	0.5	2.2	6.0
Base	*737,141*	*416,518*	*179,906*	*65,159*	*75,558*

Notes: *Data are taken from the National Stroke Audit. The databases of 200 GP practices in Great Britain were used, and individuals were counted as suffering a stroke or a transient ischameic attack on the basis of medical records, which included both incidence and mortality.*

Source: *Hippisley-Cox J, Pringle M, Ryan R (2004). Stroke: prevalence, incidence and care in general practices 2002 to 2004. Final report to the National Stroke Audit Team. Royal College of Physicians: London.*

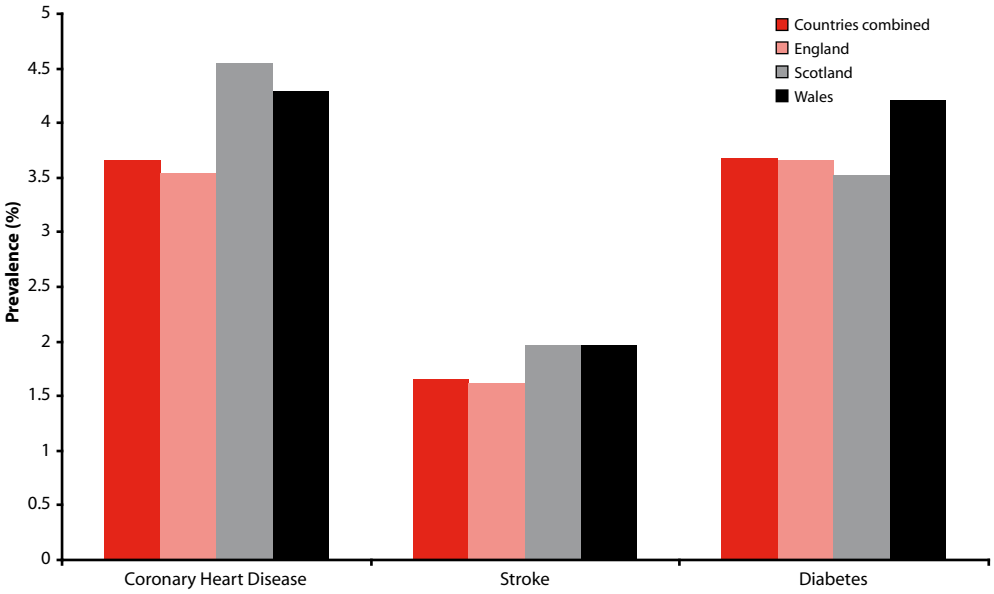
Table 2.8 Prevalence of coronary heart disease, stroke, hypertension and diabetes, 2006/07, England, Scotland and Wales

	Registered GP patients	Stroke		CHD		Hypertension		Diabetes	
		Register count	Prevalence %	Register count	Prevalence %	Register count	Prevalence %	Register count	Prevalence %
England, Scotland and Wales	**61,660,614**	**1,020,280**	**1.7**	**2,253,633**	**3.7**	**7,764,315**	**12.6**	**2,264,552**	**3.7**
England	**53,681,098**	**862,873**	**1.6**	**1,898,565**	**3.5**	**6,705,899**	**12.5**	**1,961,976**	**3.7**
East Midlands	4,472,025	74,563	1.7	167,951	3.8	580,888	13.0	174,117	3.9
East of England	5,819,581	89,178	1.5	194,712	3.3	737,162	12.7	202,796	3.5
London	8,440,321	85,508	1.0	192,730	2.3	870,445	10.3	300,567	3.6
North East	2,654,901	55,828	2.1	129,478	4.9	374,297	14.1	101,690	3.8
North West	7,258,903	130,803	1.8	311,011	4.3	929,658	12.8	279,253	3.8
South Central	4,203,341	61,082	1.5	125,465	3.0	488,814	11.6	134,723	3.2
South East Coast	4,469,810	72,579	1.6	149,759	3.4	570,523	12.8	152,785	3.4
South West	5,318,586	100,348	1.9	195,786	3.7	717,178	13.5	189,694	3.6
West Midlands	5,695,387	94,644	1.7	204,697	3.6	767,046	13.5	226,863	4.0
Yorkshire and the Humber	5,348,243	98,340	1.8	226,976	4.2	669,888	12.5	199,488	3.7
Scotland	**4,861,443**	**95,959**	**2.0**	**221,461**	**4.6**	**613,740**	**12.6**	**171,457**	**3.5**
Ayrshire & Arran	351,692	7,713	2.2	19,220	5.5	47,802	13.6	13,115	3.7
Borders	102,784	2,410	2.3	5,051	4.9	13,874	13.5	3,843	3.7
Dumfries & Galloway	146,991	3,344	2.3	7,863	5.3	20,718	14.1	5,958	4.1
Fife	324,854	6,607	2.0	14,852	4.6	42,843	13.2	12,047	3.7
Forth Valley	278,258	5,121	1.8	13,933	5.0	36,197	13.0	10,561	3.8
Grampian	445,792	7,667	1.7	18,396	4.1	53,797	12.1	14,905	3.3
Greater Glasgow & Clyde	1,255,740	24,806	2.0	56,320	4.5	153,309	12.2	42,717	3.4
Highland	305,366	6,507	2.1	13,741	4.5	41,907	13.7	10,521	3.4
Lanarkshire	548,560	10,312	1.9	25,904	4.7	69,374	12.6	20,404	3.7
Lothian	677,599	12,234	1.8	26,247	3.9	77,345	11.4	21,892	3.2
Orkney	9,054	137	1.5	350	3.9	1,196	13.2	321	3.5
Shetland	1,023	34	3.3	86	8.4	282	27.6	62	6.1
Tayside	408,012	8,949	2.2	19,209	4.7	54,189	13.3	14,914	3.7
Western Isles	5,718	118	2.1	289	5.1	907	15.9	197	3.4
Wales	**3,118,073**	**61,448**	**2.0**	**133,607**	**4.3**	**444,676**	**14.3**	**131,119**	**4.2**
North Wales	694,514	13,710	2.0	31,030	4.5	99,996	14.4	27,279	3.9
Mid and West Wales	1,053,774	22,933	2.2	48,006	4.6	155,334	14.7	47,219	4.5
South East Wales	1,369,785	24,805	1.8	54,571	4.0	189,346	13.8	56,621	4.1

Notes: *England - Copyright © Health and Social Care Information Centre 2008.*
Stroke refers to Stroke and Transient Ischaemic Attack.
*Prevalence (unadjusted) = (number on disease register / registered GP patients) * 100%.*
Prevalence estimates for Shetland are relatively unstable, due to their being based on a smaller number of patients.
www.isdscotland.org/qof for further information and explanation of Scottish figures.

Source: *England - QMAS database - 2006/07 data as at end of March 2007. http://www.ic.nhs.uk/our-services/improving-patient-care/the-quality-and-outcomes-framework-qof-2006/07/qof-2006-07-data-tables*
Wales - QOF database as at end of March 2007. http://www.statswales.wales.gov.uk/TableViewer/tableView.aspx?ReportId=4111
Scotland - Quality & Outcomes Framework (QOF) for April 2006 - March 2007, Scotland. http://www.isdscotland.org/isd/5057.html

Figure 2.8 Prevalence of coronary heart disease, stroke and diabetes, 2006/07, England, Scotland and Wales



3. Treatment

National Stroke Strategy: Ten-point plan for action

The National Stroke Strategy was released by the Department of Health in December 2007. The stated aim of this document was to set a 'framework of quality markers for raising the quality of stroke prevention, treatment, care and support over the next decade'. The document contains a ten-point plan for action, which details how treatment and care for stroke in England are to be improved (Table 3.1).

This chapter presents data on the current state of treatment and care for stroke in England and, where possible, the other constituent countries of the United Kingdom. Data are presented which provide some detail relating to the ten-point plan presented in the National Stroke Strategy.

Prescriptions

Drugs can play a major role in the prevention of stroke in patients identified as being at high-risk. Antihypertensive drugs and lipid-lowering drugs (such as statins) are important as they reduce blood pressure and cholesterol levels, which are major risk factors for stroke. In England, there has been a sharp increase in prescriptions for antihypertensive drugs and lipid-lowering drugs since the early 1990s. Prescriptions for antihypertensive drugs have increased 9-fold and prescriptions for lipid-lowering drugs have increased 63-fold in this time, and there are now over 100,000 prescriptions for these drugs every year (Table 3.2 and Figure 3.2).

The cost of prescriptions for antihypertensive drugs in England rose by 8% between 2005 and 2006 to more than £500 million. Prescriptions for all cardiovascular diseases cost nearly £2 billion in 2006[1].

Operations

There are over 21,000 surgical procedures related to stroke every year in England, with a similar number of procedures conducted on men and women. The majority of procedures involved the cerebral or carotid artery or the removal of a haematoma. The number of procedures has remained reasonably stable since the turn of the century, but there has been a trend towards performing endarterectomies as opposed to angioplasties on the carotid artery (Table 3.3).

Inpatient hospital cases

The treatment of stroke presents a large burden on hospitals. Over 175,000 inpatient cases of stroke were treated in English NHS hospitals in 2006/07, representing over 1% of the total inpatient cases for that year. The number of inpatient cases for stroke has increased by around 25% since the mid 1990s[2] (Table 3.4 and Figure 3.4).

International differences

Rates of hospitalisation for stroke vary considerably for different European countries. For example, in 2006 Azerbaijan had the lowest recorded rate with 62 hospital discharges for stroke per 100,000 population whereas the rate in Belarus, the highest recorded rate in Europe, was

over seventeen times higher. International variations in stroke hospitalisation rates follow similar patterns to mortality with higher rates in Central and Eastern Europe (Table 3.5).

Hospitalisation rates for stroke are increasing in most European countries. For example, the rate of hospital discharges for stroke in Turkey has quadrupled between 1980 and 2006, and the average rate for Europe has increased by 45% since 1990. This is likely to be at least partly due to the ageing of the population in most European countries (Figure 3.5).

Assessing the quality of treatment and care

Prior to the publication of the National Stroke Strategy, an assessment was made of the current quality of treatment and care provided to stroke patients in NHS hospitals in England, Wales and Northern Ireland. The findings of this assessment informed the development of the ten-point plan for action.

One area of the assessment was concerned with the secondary prevention of stroke through encouraging a healthier lifestyle. A survey of stroke patients in English NHS hospitals found that only four in ten felt that they were given enough information about dietary changes that might help prevent a further stroke, whereas seven in ten patients who currently smoked were given advice to cease smoking. Similarly, advice regarding physical activity was only provided to around half of stroke patients[3].

Another area of assessment was concerned with rehabilitation and community support for stroke patients. Around half of stroke patients found that they encountered problems with speech and communication, and also with emotional issues, whilst three quarters encountered problems with mobility. Of those who encountered emotional problems, 25% said that they did not receive enough help whilst they were in hospital and 50% felt they did not receive enough help a year after their hospital discharge. Six in ten stroke patients still encountered problems with mobility one year after they were discharged from hospital, and 28% of these felt they did not receive enough help. (Table 3.6).

The quality of the stroke unit at a hospital is assessed on the basis of five characteristics of the planning of stroke care, which are described in Table 3.7. In 2006, over 90% of hospitals in England and Northern Ireland had dedicated stroke units, and most achieved at least 4 of the quality characteristics. Less than half of Welsh hospitals had a dedicated stroke unit in 2006 (Table 3.7).

The ten-point plan for action outlined in the National Stroke Strategy states that high-risk TIA patients should be assessed by experts and where possible scanned using brain imaging techniques within 24 hours of experiencing symptoms. An assessment of access to services in all stroke units in England, Wales and Northern Ireland found that virtually all stroke units had acute stroke protocols put in place, and could provide access to brain imaging within 24 hours. The National Stroke Strategy states that individuals with a suspected stroke must be transferred to a dedicated stroke unit immediately. Less than half of stroke units had a planned policy for direct admission to the stroke unit from Accident and Emergency, which could lead to delay in specialist stroke care for stroke patients.

1. *Office for National Statistics (2006) Prescriptions dispensed in the community: Statistics for 1995 to 2005, England. The Information Centre: Leeds.*
2. *The number of inpatient cases for stroke in English NHS hospitals in 1994/95 was 139,799. See table 3.2, Petersen S, Mockford C, Rayner M (1999) Coronary Heart Disease Statistics 1999. British Heart Foundation: London.*
3. *The Healthcare Commission (2005) Survey of patients 2005: stroke. Commission for Healthcare Audit and Inspection: London.*

Table 3.1 National Stroke Strategy: ten-point plan for action, 2007, England

Awareness	Improve public and professional awareness of stroke symptoms.
Preventing stroke	Support healthier lifestyles and take action to tackle vascular risk, for example hypertension, atrial fibrillation and high cholesterol.
Involvement	Involve people with stroke in their care planning. Involve those who have had a stroke in planning and evaluating local services.
Acting on the warnings	TIAs are a clear warning sign that a further stroke may occur and the time window for action is very short – in about half of cases, a matter of days. Put in place a system that responds quickly (within 24 hours) to people who have had a TIA.
Stroke as a medical emergency	Get people quickly to the right hospital where there are specialists who can deliver acute treatments including thrombolysis. Ensure that everyone who could benefit from urgent care is transferred to an acute stroke centre that provides 24-hour access to scans and specialist stroke care
Stroke unit quality	Stroke unit care is the single biggest factor that can improve a person's outcomes following a stroke. Successful stroke units are built around a stroke skilled multidisciplinary team that is able to meet the needs of the individuals.
Rehabilitation and community support	Intensive rehabilitation immediately after stroke, operating across the seven-day week, can limit disability and improve recovery. Specialised rehabilitation needs to continue across the transition to home or a care home, ensuring that health, social care and voluntary services together provide the long-term support people need as well as access to advocacy, care navigation, practical and peer support.
Participation	Assistance to overcome physical, communication and psychological barriers to engage and participate in community activities helps people to lead more autonomous lives and move on after stroke. This will be across the range of community services – housing, education, leisure, transport, employment – that can help people to participate in community life again.
Workforce	People with stroke need to be treated by a skilled and competent workforce. Resources to assist services in planning their workforce requirements are signposted in this strategy.
Service improvement	Services working together in networks, looking across all aspects of the care pathway. Regular local and national audit and increased participation in clinical trials will also drive improvements in stroke care.

Source: Department of Health (2007) National Stroke Strategy: Ten-point plan for action. Department of Health: London.

Table 3.2 Prescriptions used in the prevention and treatment of cardiovascular disease, 1981 to 2007, England

Prescriptions (thousands)	1981	1986	1991	1996	2000	2001	2002	2003	2004	2005	2006	2007
Digoxin and other positive inotropic drugs (2.1)	4,243	3,722	3,822	3,871	3,983	4,031	4,029	4,043	4,088	4,103	4,126	4,141
Diuretics (2.2)	20,678	21,996	22,195	23,106	27,738	30,203	32,185	34,432	36,546	37,619	37,582	37,355
Anti-arrhythmic drugs (2.3)	232	334	532	840	1,214	1,292	1,338	1,343	1,325	1,292	1,265	1,247
Beta-adrenoreceptor blocking drugs (2.4)	9,827	12,525	14,282	14,375	18,321	20,439	22,439	24,336	26,361	27,460	27,378	26,810
Antihypertensive therapy (2.5)	4,912	4,424	6,431	12,125	21,075	25,047	29,591	33,788	38,580	42,865	47,742	53,634
Nitrates, calcium blockers and potassium activators (2.6)	5,156	10,314	16,718	21,971	25,394	26,814	27,994	29,156	30,715	32,309	34,707	37,214
Sympathomimetics (2.7)	15	6	19	7	3	2	2	3	4	4	5	6
Anticoagulants and protamine (2.8)	629	900	1,356	2,609	4,152	4,609	4,975	5,389	5,871	6,294	6,790	7,309
Antiplatelet drugs (2.9)	281	1,058	3,619	9,002	16,552	18,891	21,601	24,428	27,356	30,218	32,779	35,382
Anti-fibrinolytic drugs and haemostatics (2.11)					267	282	289	300	310	311	327	352
Lipid regulating drugs (2.12)	295	247	1,066	3,138	10,331	13,523	17,604	22,655	29,444	35,568	42,098	47,412
Local sclerosants (2.13)					1	1	0	0	0	0	0	0
All prescriptions for disease of the circulatory system	**46,267**	**55,526**	**70,041**	**91,044**	**129,030**	**145,134**	**162,046**	**179,872**	**200,598**	**218,043**	**234,798**	**250,862**

Notes: *BNF codes in parentheses.*
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.

Source: *Office for National Statistics (2008). Prescription cost analysis 2007. Leeds: The Information Centre, and previous editions.*

Figure 3.2 Prescriptions used in the prevention and treatment of cardiovascular disease, selected BNF paragraphs, 1981 to 2007, England

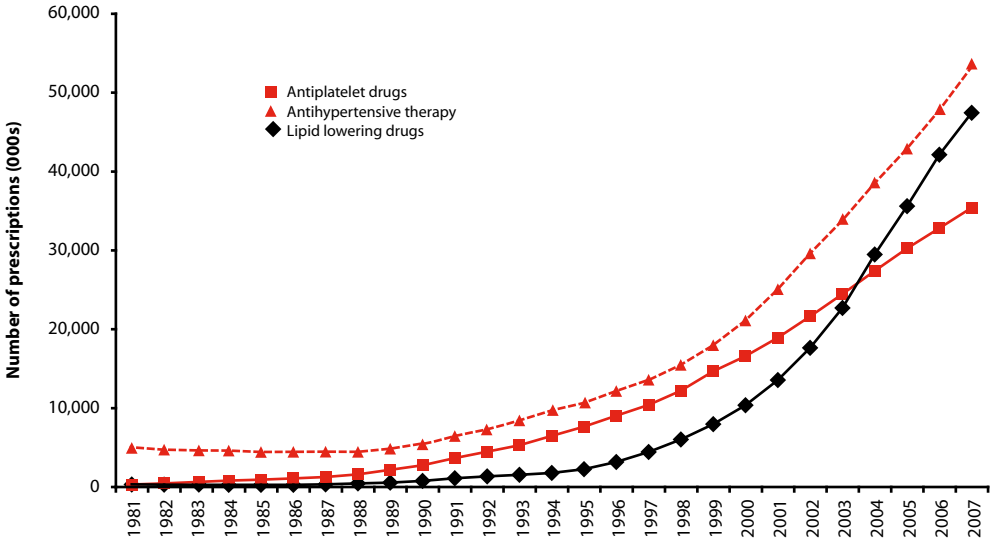


Table 3.3 Surgical procedures for stroke, 2000 to 2007, England

MEN	2000	2001	2002	2003	2004	2005	2006	2007
Carotid artery procedures (L29-L31)	**3,475**	**3,180**	**3,196**	**3,158**	**3,195**	**3,533**	**3,777**	**3,573**
Endarterectomy (L29.4, L29.5)	2,117	2,118	2,187	2,302	2,413	2,822	3,081	2,947
Angioplasty (L31)	1,236	938	894	731	674	606	576	547
Other	122	124	115	125	108	105	120	79
Cerebral artery procedures (L34-L35)	**2,156**	**2,158**	**2,269**	**2,485**	**2,385**	**2,466**	**2,636**	**2,416**
Angioplasty (L34)	2,124	2,142	2,249	2,439	2,354	2,429	2,599	2,390
Other	32	16	20	46	31	37	37	26
Subclavian artery procedures (L37-L39)	**715**	**694**	**663**	**590**	**750**	**712**	**785**	**851**
Angioplasty (L39)	409	395	338	343	430	387	465	479
Other	306	299	325	247	320	325	320	372
Treatment of aneurysm (L33, O01-O04)	**530**	**484**	**535**	**412**	**364**	**440**	**414**	**1,084**
Operations on aneurysm of cerebral artery (L33)	530	484	535	412	364	440	414	298
Transluminal embolisation of aneurysm (O01-O04)								786
Other procedures	**3,464**	**3,517**	**3,725**	**3,561**	**3,661**	**3,634**	**4,167**	**3,735**
Decompressive haemocraniectomy (A01)	226	216	198	208	204	188	193	177
Surgical evacuation of intracerebral haematoma (A05)	318	367	402	392	355	315	361	345
Surgical evacuation of extradural haematoma (A40)	323	310	336	297	334	293	369	347
Surgical evacuation of subdural haematoma (A41)	1,412	1,404	1,421	1,591	1,678	1,628	1,852	1,924
WOMEN								
Carotid artery procedures (L29-L31)	**2,126**	**1,881**	**1,946**	**1,804**	**1,758**	**1,922**	**2,055**	**1,898**
Endarterectomy (L29.4, L29.5)	1,103	1,088	1,164	1,155	1,156	1,375	1,517	1,386
Angioplasty (L31)	881	661	644	514	495	453	415	412
Other	142	132	138	135	107	94	123	100
Cerebral artery procedures (L34-L35)	**2,644**	**2,765**	**2,778**	**3,348**	**3,368**	**3,290**	**3,513**	**3,062**
Angioplasty (L34)	2,614	2,724	2,738	3,309	3,334	3,244	3,482	3,011
Other	30	41	40	39	34	46	31	51
Subclavian artery procedures (L37-L39)	**758**	**805**	**767**	**761**	**758**	**703**	**845**	**710**
Angioplasty (L39)	434	426	413	418	417	391	477	388
Other	324	379	354	343	341	312	368	322
Treatment of aneurysm (L33, O01-O04)	**1,075**	**1,002**	**936**	**793**	**705**	**880**	**841**	**1,457**
Operations on aneurysm of cerebral artery (L33)	1,075	1,002	936	793	705	880	841	583
Transluminal embolisation of aneurysm (O01-O04)								874
Other procedures	**2,767**	**2,673**	**2,793**	**2,879**	**2,900**	**3,103**	**3,251**	**3,001**
Decompressive haemocraniectomy (A01)	156	145	144	129	151	145	132	119
Surgical evacuation of intracerebral haematoma (A05)	233	228	255	269	229	205	217	222
Surgical evacuation of extradural haematoma (A40)	98	88	84	89	101	80	94	112
Surgical evacuation of subdural haematoma (A41)	604	644	605	749	706	804	799	847

Notes: *The coding for treatment of aneurysm was changed in 2007 and data before this year are not comparable. OPCS-4 Intervention Classification codes in parentheses.*

Source: *The NHS Information Centre (2007) Hospital Episode Statistics 2006-07 and earlier editions. Http://www.hesonline.nhs.uk. Accessed October 2008.*

Table 3.4 Inpatient cases by main diagnosis and sex, National Health Service hospitals, 2006/07, England

	ENGLAND	
	MEN	**WOMEN**
All diagnoses	6,483,429	8,301,152
All diseases of the circulatory system (I00-I99)	705,822	549,768
Coronary heart disease (I20-I25)	276,900	151,013
Heart failure (I50)	51,541	48,911
Stroke (I60-I69)	84,271	92,181
Subarachnoid haemorrhage (I60)	3,465	5,582
Heamorrhagic stroke (I61-I62)	14,392	12,046
Ischaemic stroke (I63)	40,342	44,373
Other stroke (I64-I69)	26,072	30,180
Diabetes (E10-E14)	41,182	32,423
Obesity (E66)	1,123	2,959
All cancer (C00-D48)	765,755	796,330
Colo-rectal cancer (C18-C21)	94,730	67,430
Lung cancer (C33-C34)	59,638	41,443
Breast cancer (C50)	793	156,971
Bladder cancer (C67)	63,823	20,573
All diseases of the nervous system (G00-G99)	141,949	162,716
Transient ischaemic attack (G45)	12,853	13,763
All diseases of the respiratory system (J00-J99)	478,460	458,357
All diseases of the digestive system (K00-K92)	794,543	822,623
All diseases of the genitourinary system (N00-N99)	369,424	561,442
Injury and poisoning (V00-Y98)	516,591	479,617
All other diagnoses	2,668,580	4,434,917

Notes: *Finished consultant episodes; ordinary admissions and day cases combined. Pregnancy cases are not included.*
ICD codes (10th revision) in parentheses.
Other stroke includes unspecified stroke.

Source: *Department of Health (2008) Hospital Episode Statistics 2006/07. www.hesonline.nhs.uk. Accessed October 2008.*

Figure 3.4a Inpatient cases by main diagnosis, men, National Health Service hospitals, 2006/07, England

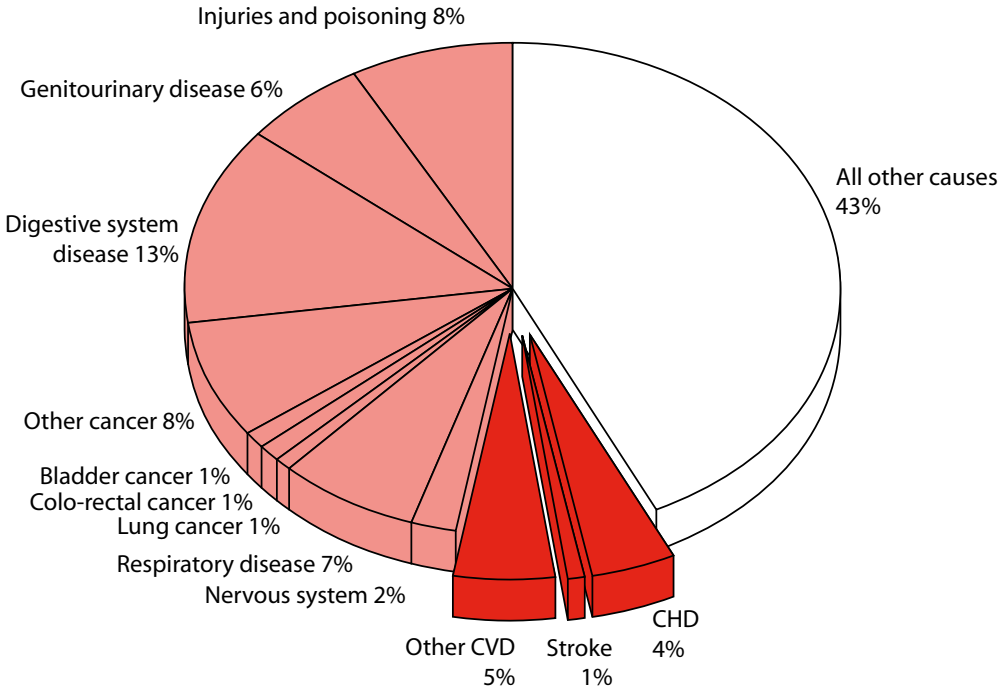


Figure 3.4b Inpatient cases by main diagnosis, women, National Health Service hospitals, 2006/07, England

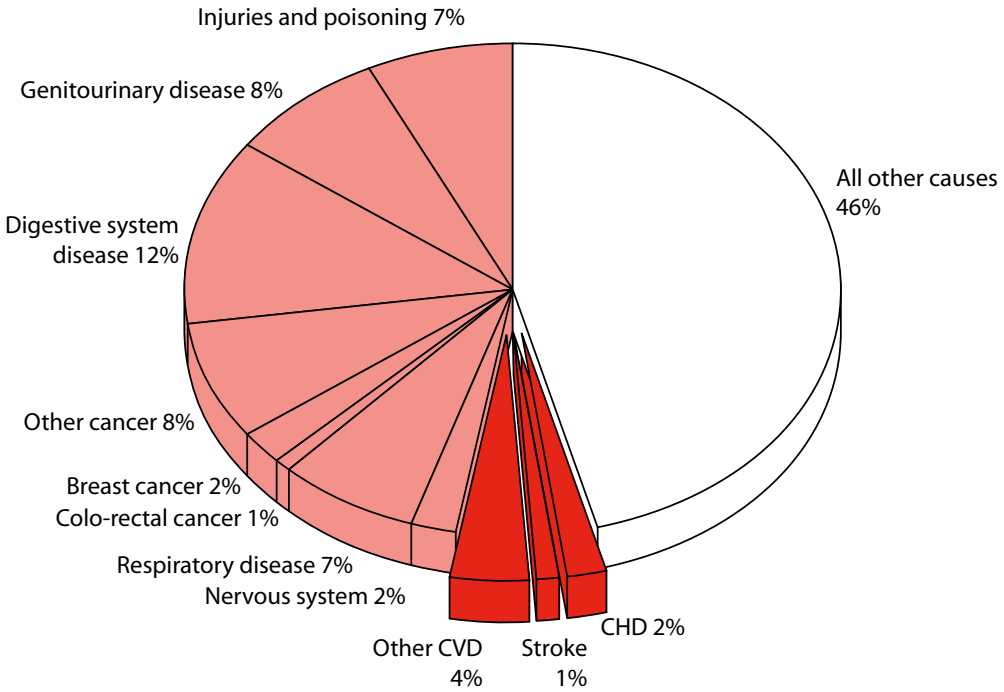


Table 3.5 Rates of hospital discharges for stroke, 1980 to 2006, Europe

Discharges per 100,000

	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006
Albania				45	80	82	80	91	91	94	108
Andorra						107	123	113	101	117	106
Armenia	101	128	194	132	130	129	147	163	161	172	163
Austria			646	680	847	639	654	617	629	629	
Azerbaijan			113	53	45	48	53	48	52	52	62
Belarus				569	896	912	949	1,037	1,083	1,063	1,092
Belgium				362	394	394	391	377	379	371	
Bosnia and Herzegovina	131	119									
Bulgaria	134	268	293	323	426	468	586	666	717	593	618
Croatia		233	297	281	411	394	396	392	383	409	437
Cyprus	116	131	143	89	140	149	137	146	149	120	
Czech Republic				558	619	625	633	631	626	615	611
Denmark			430	394	452	435	424	411	404	384	
Estonia			380	497	502	499	536	570	608	619	613
Finland			681	820	658	661	645	646	633	561	
France					216	214	215	213	218	222	
Georgia			193	58	74	72	79	80	93	98	102
Germany				487	462	464	462	453	422	400	
Greece	230	256	274	330	404	424	438	434	415		
Hungary				598	832	845	969	1,082	1,191	1,260	1,206
Iceland			244		237	228	206	254	206	207	
Ireland				234	250	258	251	247	252	171	167
Israel			203	288	295	293	283	285	288		
Italy			394	436	489	494	503	491	485		
Kazakhstan			176	169	210	234	278	293	321	351	355
Kyrgyzstan	91	107	145	124	153	155	142	142	149	174	188
Latvia	282	383	445	542	638	669	695	713	732	795	838
Lithuania		408	512	671	780	825	912	956	1,013	1,055	1,068
Luxembourg					233	184	164	164	175	170	
Macedonia, TFYR		121		199	218	240	224	237	224	243	
Malta					79	77	65	73	61	54	72
Moldova, Republic of	181	230	293	270	271	247	328	418	429	475	518
Monaco											
Montenegro				163	160	174	195	201	197	197	183
Netherlands			175	194	185	186	193	201	213	225	231
Norway				382	320	321	328	353	345	342	346
Poland	130	159	191	232				370	418		
Portugal				287	336	345	350	338	336	329	310
Romania				280	328	404	442	461	516	523	669
Russian Federation			370	458	595	653	668	684	720	760	769
San Marino											
Serbia					338	360	362	380	400	431	420
Slovakia				491	452	473	475	465	473	518	514
Slovenia	219	268	249	255	230	230	222	225	228	228	
Spain	89	107	112	176	213	221	224	228	227	223	
Sweden			613	617	446	418	422	417	418	418	
Switzerland							214	212	207	211	
Tajikistan			109	31	38	44	52	42	47	56	65
Turkey	27	50	71	106	148	158	166	184	202	145	91
Turkmenistan				82					169		153
Ukraine	244	358	486	467	540	585	629	671	723	770	798
United Kingdom					213	218	227	225			
Uzbekistan				112	79	94	99	102	105	116	
European average			**342**	**378**	**426**	**444**	**457**	**466**	**478**	**487**	**496**
EU			**318**	**350**	**370**	**375**	**385**	**387**	**391**	**386**	

Notes: *Blank cells indicate that insufficient data were available for an estimate.*

Source: *World Health Organization (2008) European Health for all statistical database. Http://www.euro.who.int/HFADB. Accessed October 2008.*

Figure 3.5 Rates of hospital discharges for stroke, 1980 to 2006, selected European countries

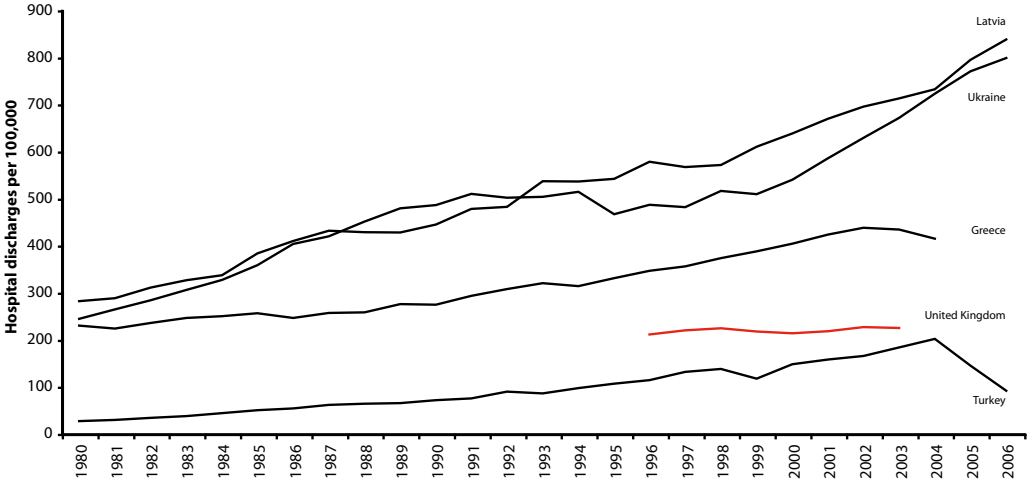


Table 3.6 Patient perspectives of provision of rehabilitation services, in hospital, after discharge and one year after stroke, by aspect of condition, 2005, England

	Encountered problems	If you encountered problems, did you receive enough help?			
		No	Yes, to some extent	Yes, definitely	*Base*
IN HOSPITAL	%	%	%	%	
Speech and communication problems	50	16	34	50	*1,669*
Mobility problems	74	8	30	61	*1,666*
Emotional issues	49	25	36	40	*1,664*
AFTER DISCHARGE					
Speech and communication problems	35	31	26	43	*1,618*
Mobility problems	63	23	30	47	1,612
Emotional issues	44	41	32	27	*1,610*
YEAR AFTER DISCHARGE					
Speech and communication problems	37	26	31	43	*699*
Mobility problems	62	28	37	35	*698*
Emotional issues	40	49	29	23	*770*

Notes: *Excludes people who have suffered another stroke since discharge.*
One in three (51) non-specialist acute hospital trusts in England took part in the 2005 survey.

Source: *The Healthcare Commission (2005) Survey of patients 2005: stroke. Commision for Healthcare Audit and Inspection: London.*
The Healthcare Commission (2006) Survey of patients 2006: caring for people after they have had a stroke; a follow up of survey patients. Commision for Healthcare Audit and Inspection: London.

Table 3.7 Stroke unit provision by country, and quality of stroke unit, 2004 and 2006, England, Wales and Northern Ireland

	Sites with stroke unit 2004 %	Sites with stroke unit 2006 %	Stroke units with 4-5 key characteristics* 2006 %	*Base*
England	82	96	95	*203*
Wales	45	45	100	*20*
Northern Ireland	85	92	82	*12*

Access to services, all hospitals in England, Wales and Northern Ireland, 2006

	Acute stroke unit %	Combined stroke unit %
Continuous physiological monitoring	57	54
Access to scanning within 3 hours of admission	48	41
Access to brain imaging with 24 hours	95	98
Policy for direct admission from A&E	48	44
Specialist ward rounds at least 5 times a week	74	49
Acute stroke protocols/guidelines	97	98
5 or 6 of the above characteristics	*41*	*33*

Notes: *Only hospitals in England, Wales, Northern Ireland, Isle of Man and the Channel Islands were eligible to participate.*

**The 5 key characteristics: Consultant physician with responsibility for stroke, formal links with patient and carer organisations, multi-disciplinary meetings at least weekly to plan patient care, provision of information to patients about stroke and continuing education programmes for staff.*

Source: *Clinical Effectiveness and Evaluation Unit, Royal College of Physicians of London (2007). National sentinal stroke audit, phase 1 (organisational audit) 2006, phase 2 (clinical audit) 2006. Report for England, Wales and Northern Ireland.*

4. Risk Factors for Stroke

Risk factors for stroke can be hereditary, a function of natural processes (such as ageing) or a result of lifestyle choices. Risk factors resulting from lifestyle choices, (smoking, diet, physical activity, alcohol consumption, blood pressure, blood cholesterol levels, obesity and diabetes) are known as the modifiable risk factors. This chapter presents patterns and trends in the modifiable risk factors for stroke and provides information on public health targets and recommendations.

Smoking

A person who smokes 20 cigarettes a day has six times the risk of stroke compared to a non-smoker[1].

Public health targets

In England, new targets for smoking were announced in 1998[2]. These were less ambitious than the Health of the Nation targets which they replaced[3]. The Smoking Kills targets for smoking among adults are to reduce rates to 21% by 2010. The Scottish targets are to reduce the proportion of adults smoking to 22% by 2010. Both England and Scotland also have inequality targets. Recent data for both England and Scotland suggest that some progress towards these targets has been achieved[4] (Table 4.1).

Overall levels and temporal trends

In 2006, 23% of men and 21% of women in Great Britain reported daily smoking of cigarettes. The percentage of adults who smoked was highest in those aged 20 to 34 years. Rates declined steadily with age and were lowest in those aged 60 and above (13% in men and 12% in women). From the age-specific smoking rates, we estimate that there are over 10.5 million adult cigarette smokers in the UK today (Table 4.2).

The 1970s and early 1980s saw a substantial fall in the proportion of adult smokers in Great Britain. This decline in smoking prevalence continued at a slower rate for another decade. In the 1990s the decline in smoking prevalence levelled off, but from 2000 to 2006 the rate in men declined from 29% to 23%, and in women from 25% to 21%. The decline in smoking rates over the last 30 years has been faster in men than in women, resulting in a major narrowing of the gap between the proportions of men and women who smoke cigarettes (Figure 4.2).

Socio-economic differences

There is a strong association between cigarette smoking and socio-economic position. Cigarette smoking is more prevalent among manual social groups than among non-manual groups, and is lowest among higher managerial and professional classes. This class difference has persisted since the 1990s[5] (Table 4.3).

Ethnic differences

Smoking rates vary considerably between ethnic groups in the UK. In 2004, the rates for men were particularly high in the Bangladeshi communities (40% current smokers). Rates among South Asian and Chinese women were particularly low (Table 4.4).

Diet (Saturated Fat and Salt)

A diet high in saturated fat can raise blood cholesterol levels and a diet high in salt can contribute to increased blood pressure. High cholesterol and high blood pressure in turn contribute to the development of atherosclerosis[1]. A more comprehensive overview of the importance of diet to cardiovascular disease[6] is available from www.heartstats.org.

Public health targets

The UK Government's dietary objectives, first formulated in the 1990s[7,8], were reiterated in Choosing a Better Diet: a food and health action plan in 2005. In addition the devolved governments in Scotland and Wales issued their own objectives in 2004 and 2003 respectively. Progress towards the targets for saturated fat has so far been limited, with little change in consumption levels over the last decade (Table 4.5).

Overall levels and temporal trends

Data from the National Food Survey (up to 2000) and the more recent Expenditure and Food Survey allow us to look at general trends in the British diet over time. The proportion of total energy derived from saturated fat fell from around 19% in 1975 to less than 15% in 2006. There has been little change in the consumption of salt over the past 30 years (Table 4.6 and Figure 4.6).

Socio-economic differences

The 2006 Family Food Survey suggests that there was little difference in saturated fat and salt intake for different income quintiles (Table 4.7).

Ethnic differences

Intake of saturated fat in Asian, Black and Chinese people was lower than for White people in 2006 (around 12% of food energy, compared to 15%). Salt consumption was below the target of 6g/day for Asian, Black and Chinese people (Table 4.8).

Physical Activity

Being physically inactive can increase the risk of high blood pressure, high blood cholesterol, diabetes and stroke[1].

Public health targets

The recommended level of physical activity is 30 minutes of at least moderate intensity activity (such as brisk walking, cycling or climbing stairs) on five or more days per week[9]. A target for physical activity in England was proposed in 2002 by the Government's Strategy Unit: to increase the proportion of the adult population who achieve the recommended level of physical activity to 70% by 2020. This is a very ambitious target requiring participation levels in England to more than double in just over 15 years. Similar ambitious targets have been set by the devolved governments in Scotland, Wales and Northern Ireland (Table 4.9).

Overall levels and temporal trends

Physical activity levels are low in the UK. Health Survey for England data show that, in 2006, only 40% of men and 28% of women met the current physical activity guidelines, whereas around one third of English adults were inactive, that is, participated in less than one occasion of 30 minutes activity a week. In 2003 in Scotland, the percentage achieving the recommended level was higher than in England (Table 4.10).

Between 1997 and 2006, the Health Survey for England reported that the overall proportion of adults meeting the recommended level of physical activity increased from 32% to 40% in men and from 21% to 28% in women. Between 1998 and 2003, the Scottish Health Survey reported that the overall proportion of adults meeting the recommended level of physical activity increased from 41% to 44% in men and from 30% to 33% in women (Figure 4.10).

Socio-economic differences

Socio-economic differences in physical activity are complex. Among English men in 2006, 42% of those in the highest income quintile met current recommended levels of physical activity, compared to 35% of those in the lowest income quintile. For English women the pattern was less clear: 28% of those in the highest income quintile met the current recommended levels of physical activity compared 26% of women in the lowest income quintile (Table 4.11).

Ethnic differences

Compared with the general population, South Asian and Chinese people are less likely to meet physical activity recommendations. Irish men and Black Caribbean women were the most likely to be physically active at the recommended level (Table 4.12).

Alcohol

People who regularly consume a large amount of alcohol have a three-fold increased risk of stroke[1], however consuming a small amount of alcohol can be protective[10].

Public health targets

The Government currently advises that 'regular consumption of between three and four units a day by men' and 'between two and three units a day by women of all ages will not lead to any significant health risk'[11]. Consuming in excess of four units on the heaviest drinking day of the week in men, or over three units in women, is not advised, and the Government recommendations on sensible drinking are now based on these daily benchmarks[12]. Currently in the UK only Scotland has targets for limiting alcohol consumption (Table 4.13).

Overall levels and temporal trends

In 2006, the General Household Survey used an updated method for calculating the number of alcoholic units consumed to reflect the trend towards larger measures and stronger alcoholic drinks, especially wine. The alcohol consumption estimates derived using the updated method cannot be compared with previous estimates as any change may be an artefact of the new method. For example, the original method shows 33% of men and 20% of women consumed more alcohol than the recommended daily benchmarks in 2006; that is more than four units on the heaviest drinking day of the week for men and more than three for women. The updated method of calculating units of alcohol consumed gives estimates of 40% for men and 33% for women. The updated method also results in a narrowing of the gap between men and women (Table 4.14).

In the first half of the twentieth century per capita alcohol consumption in the UK fell rapidly, from around 11 litres per year in 1900 to around 4 litres after the Second World War. From the late 1950s to the end of the century alcohol consumption increased steadily, more than doubling overall from around four to ten litres per person per year[13]. Evidence about temporal trends in binge drinking is more short-term. Trend data show that the prevalence of binge drinking remained reasonably stable between 1998 and 2006 for both men and women (Figure 4.14).

Socio-economic differences

For both men and women in 2006, those in managerial and professional households were the most likely to binge drink and the most likely to drink on five or more days a week (Table 4.15).

Ethnic differences

Levels of alcohol consumption vary considerably with ethnicity. With the exception of the Irish, adults from each ethnic minority group in the UK were less likely to drink alcohol than the general population. Very low proportions of Bangladeshi and Pakistani adults ever drink alcohol. Women are more likely than men to be non-drinkers in all ethnic groups (Table 4.16).

Blood Pressure

Hypertension is one of the most important risk factors for stroke because it weakens the artery walls. People with high blood pressure have a four-fold increased risk of incurring a stroke[1]. Both drug treatment and lifestyle changes – particularly weight loss, an increase in physical activity, and a reduction in salt and alcohol intake – can effectively lower blood pressure.

Public health recommendations

The 2004 British Hypertension Society guidelines for hypertension management recommend that drug treatment should be considered for individuals with blood pressures of 140/90mmHg or over, and that optimal blood pressure treatment targets are a systolic blood pressure of less than 140mmHg and a diastolic blood pressure of less than 85mmHg (and lower still, at 130/85mmHg, in people with diabetes). The optimal blood pressure level is now classified as <120/<80mmHg[14] (Table 4.17).

Overall levels and temporal trends

In 2006, 39% of men and 31% of women in England had hypertension (defined here as a systolic blood pressure of 140mmHg or over, or a diastolic blood pressure of 90mmHg or over) or were being treated for hypertension. Around three-fifths of men and nearly half of women with hypertension were not receiving treatment[15] (Table 4.18).

Rates of hypertension have dropped slightly in England since 1998, for both men and women at all ages. The largest decreases have occurred at older ages. For example, 73% of women aged 65 to 74 had hypertension in 1998 compared to 66% in 2006 (Figure 4.18).

Socio-economic differences

The prevalence of hypertension in men does not seem to vary by income quintile. In 2006, the prevalence was around 30% for each quintile. This is not the case for women where the prevalence of high blood pressure in the lowest income quintile is a third higher than in the highest income quintile (Table 4.19).

Ethnic differences

Data from the Health Survey for England show that in 2004 the proportion of Bangladeshi men with high blood pressure was half that of the general population. In Pakistani and Chinese men the proportion was two thirds that of the general population. Pakistani and Chinese women were half as likely to have high blood pressure compared to women in the general population (Table 4.20).

Cholesterol

High cholesterol contributes to the development of atherosclerosis, which may lead to clot formation and disruption of the blood supply to the brain[1].

Public health guidelines

The guidelines for the prevention of cardiovascular disease in clinical practice suggest a cholesterol target of less than 5.0mmol/l for both primary and secondary prevention[16]. More recent guidelines suggest a target for total cholesterol of less than 4.0mmol/l for individuals with established cardiovascular disease, diabetes, or at high risk of developing cardiovascular disease (Table 4.21).

Overall levels and temporal trends

In 2006, 57% of English men and 61% of English women had blood cholesterol levels of 5.0mmol/l and over. In Scotland in 2003, 63% of both men and women aged 16 to 64 had levels of 5.0mmol/l and over (Table 4.22).

Temporal trends in the prevalence of raised cholesterol are difficult to assess. Data are not collected annually and the introduction of weighting in 2003 affects the comparability of temporal data. Generally prevalence of raised cholesterol in both men and women has fallen slightly since 1994 (Figure 4.22).

Socio-economic differences

In England, total blood cholesterol levels show little social class variation in either sex. However, low HDL-cholesterol levels vary with income; those with higher incomes are less likely to have levels of HDL-cholesterol below 1.0mmol/l (Table 4.23).

Ethnic differences

In 2004, the prevalence of blood cholesterol levels of 5.0mmol/l and over was lower in all ethnic minority groups than the general population, with the exception of the Irish. The highest rates of HDL-cholesterol below 1.0mmol/l for both sexes were found in the Indian, Pakistani and Bangladeshi communities. One fifth of Bangladeshi and Pakistani men had an HDL-cholesterol level of less than 1.0mmol/l compared to 6% of men in the general population. In contrast Black African men and Black Caribbean women and Chinese women had a relatively low prevalence of low HDL-cholesterol (Table 4.24).

Obesity

Being obese can increase the risk of high blood pressure, high blood cholesterol, diabetes and stroke[1].

Public health targets

In Northern Ireland, a target has been introduced to stop the increase in the levels of obesity in men and women by 2010. In England and Scotland, targets have been introduced to halt the year-on-year rise in childhood obesity (Table 4.25).

Overall prevalence and temporal trends

In England in 2006 around four in ten people were overweight (a BMI of 25-30 kg/m^2) and a further quarter were obese (a BMI of more than 30 kg/m^2) (Table 4.26).

Obesity levels are increasing rapidly. The prevalence of obesity in 2006 was around 50% higher than in 1994, for both English men and women. The increase in obesity was particularly marked among men aged 55 to 64, doubling from 18% to 36% between 1994 and 2006. In 2008, the Foresight project predicted that nearly 60% of the UK adult population could be obese by 2050[17] (Figure 4.26).

Socio-economic differences

Among women, obesity rates vary considerably by household income. In 2006, 32% of women from the lowest quintile of household income were obese compared to 19% in the highest quintile. This pattern was not observed in men (Table 4.27).

Ethnic differences

Levels of obesity vary with ethnicity in both men and women in England. In 2004, levels of obesity were much lower in Black African, Indian, Pakistani, and, most markedly, Bangladeshi and Chinese men, who were around four times less likely to be obese compared to men in the general population. Black Caribbean and Irish men had similar levels of obesity to the general population. Among women, obesity prevalence was high for Black Caribbean, Black African and Pakistani women and low for Chinese women (Table 4.28).

Diabetes

People with diabetes are at double the risk of experiencing a stroke. Many people with diabetes also have high blood pressure, high blood cholesterol and are overweight. Effective control can delay complications that increase the risk of stroke[1].

Public health targets

The National Services Framework for Diabetes lists 12 standards for diabetes care, but there are no national targets for the reduction of diabetes prevalence (Table 4.29).

Overall levels and temporal trends

The Health Survey for England 2006 suggests that around 6% of men and 4% of women have diagnosed diabetes. Recent Scottish Health Survey data suggest that less Scottish men but more Scottish women have diagnosed diabetes, compared to England[18] (Table 4.30).

Not all diabetes is diagnosed. The Health Survey for England 2003 estimates that around 3.0% of men and 1.5% of women aged 35 and over have undiagnosed diabetes.

The prevalence of diabetes is increasing. Since 1991, the prevalence of diagnosed diabetes has more than doubled in men and women (Figure 4.30).

Socio-economic differences

Data from the 2006 Health Survey for England show that women living in households with the highest incomes had the lowest prevalence of diagnosed diabetes. There was no similar pattern among men (Table 4.31).

Ethnic differences

The prevalence of diabetes in 2004 was much higher among some ethnic minority groups than in the general population. In Black Caribbean and Indian men, the prevalence of diagnosed diabetes was more than twice that found in the general population. The prevalence for Black Caribbean and Pakistani women was two and a half times that of the general population. However, the prevalence for Black African and Irish women was substantially lower than the general population (Table 4.32).

1. *Leatherman S, Sutherland K, and Airoldi M. Bridging the quality gap (2008). The Health Foundation: London.*
2. *Department of Health (1998) Smoking Kills: A White paper on Tobacco. The Stationery Office: London.*
3. *The Health of the Nation outlined four smoking targets: to reduce the prevalence of smoking in adults to 20% by the year 2000 (from a prevalence in 1990 of 31% in men and 28% in women); to reduce the consumption of cigarettes by at least 40% by the year 2000 (from 98 billion manufactured cigarettes per year in 1990 to 59 billion); to reduce smoking prevalence among 11-15 year olds by at least 33% by 1994 (from 8% in 1988 to less than 6%) and for at least a third of women smokers to stop smoking at the start of their pregnancy by the year 2000. Department of Health (1992) The Health of the Nation. HMSO: London.*
4. *Allender S, Peto V, Scarborough P, Kaur A, Rayner M (2008). Coronary Heart Disease Statistics 2008, Chapter 4. British Heart Foundation: London.*
5. *Office for National Statistics (2004) Smoking Related Behaviour and Attitudes, 2003. The Stationery Office: London.*
6. *Allender S, Peto V, Scarborough P, Kaur A, Rayner M (2008). Coronary Heart Disease Statistics 2008, Chapter 5. British Heart Foundation: London.*
7. *Department of Health (1994) Nutritional Aspects of Cardiovascular Disease. Report of the Cardiovascular Review Group of the Committee on Medical Aspects of Food Policy. HMSO: London.*
8. *Scientific Advisory Committee on Nutrition (2003) Salt and Health. The Stationery Office: London. See www.sacn.gov.uk/pdfs/sacn_salt_final.pdf*
9. *Department of Health (2004) At least five a week: evidence on the impact of physical activity and its relationship to health. Department of Health: London. See www.dh.gov.uk/assetRoot/04/08/09/81/04080981.pdf*
10. *Reynolds K, Brian Lewis L, Nolen JDL, Kinney GL, Sathya B, He J (2003) Alcohol Consumption and Risk of Stroke: A Meta-analysis. JAMA; 289 (5): 579-588*
11. *Department of Health (1995) Sensible Drinking. The Report of an Inter-Departmental Working Group. DH: London.*
12. *These guidelines were restated in March 2004 in the Government's alcohol harm reduction strategy for England, published by the Cabinet Office. Prime Minister's Strategy Unit (2004) Alcohol harm reduction strategy for England. Cabinet Office: London. See www.strategy.gov.uk/work_areas/alcohol_misuse/index.asp.*
13. *The Academy of Medical Sciences (2004) Calling time: the nation's drinking as a major health issue. Academy of Medical Sciences: London.*
14. *Williams B, Poulter N, Brown M, Davis M, McInnes G, Potter J, Sever P, Thom S; the BHS guidelines working party, for the British Hypertension Society (2004) British Hypertension Society guidelines for hypertension management 2004 (BHS-IV): summary. BMJ; 328: 634-640.*
15. *Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*
16. *Department of Health (2000) National Service Framework for Coronary Heart Disease. DH: London.*
17. *More information is available from the project web site http://www.foresight.gov.uk/Obesity/Obesity.html*
18. *Scottish Executive (2005) The Scottish Health Survey 2003. The Scottish Executive: Edinburgh.*

Table 4.1 Smoking targets for the United Kingdom

England	
Adults	To reduce adult smoking in all social classes so that the overall rate falls from 28% in 1996 to 21% or less by the year 2010
Pregnant women	To reduce the percentage of women who smoke during pregnancy from 23% in 1995 to 15% by the year 2010
Children	To reduce smoking among children from 13% in 1996 to 9% or less by the year 2010
Inequalities target	To reduce smoking rates among manual groups from 32% in 1998 to 26% by 2010, in order to narrow the health gap
Scotland	
Adults - Target	To reduce the rate of smoking among adults from 26.5% in 2004 to 22.0% in 2010
- Inequalities target	To reduce the rate of smoking among adults for the most deprived areas of Scotland, from 37.3.% in 2004 to 33.2% in 2008
Pregnant women	
- Target	To reduce the proportion of women who smoke during pregnancy from 29% to 20% by 2010
- Inequalities target	To reduce the rate of smoking during pregnancy, for the most deprived communities, from 35.8% in 2003 to 32.2% in 2008
Young people	
- Target	To reduce smoking among young people aged 12-15 years, from 14% to 11% by 2010
Wales	No target set
Northern Ireland	
Adults	To increase the proportion of the adults who do not smoke cigarettes from 73% in 2000/01 to 75% by the year 2006/07
Children	To increase the proportion of the population aged 11-16 who do not smoke cigarettes from 86.5% in 2000 to 89% by the year 2006
Inequalities target	To increase the proportion of non-smokers in manual groups from 65% in 2000/01 to 69% in 2006/07

Notes: *No specific target has been set for Wales. A goal of a 17% prevalence level has been set, however with no specific year to achieve this by. See the Chief Medical Officer for Wales 2006 Annual Report.*

Source: *Department of Health (1998) Smoking Kills: A White Paper on Tobacco. HMSO: London.*
Department of Health (2000) The NHS Cancer Plan. Department of Health: London.
HM Treasury (2007) Pre-Budget Report and Comprehensive Spending Review: Public Service Agreements -Fairness and Opportunity for All. PSA target 18. The Stationery Office: London
Scottish Executive (2004) Building a Better Scotland. Spending Proposals 2005-2008: Enterprise, Opportunity and, Fairness. The Scottish Executive: Edinburgh.
Scottish Executive (2004) A Breath of Fresh Air for Scotland. Improving Scotland's Health: the challenge tobacco control action plan. The Scottish Executive: Edinburgh.
Scottish Executive (2008). Scotland's future is smoke free: a smoking prevention action plan. Scottish Executive: Edinburgh.
Department of Health, Social Services and Public Safety Northern Ireland (2003) A five year tobacco action plan 2003 – 2008. DHSSPSNI: Belfast.

Table 4.2 Cigarette smoking by sex and age, adults aged 16 and over, 1972 to 2006, Great Britain

Cigarette smoking	1972 %	1974 %	1976 %	1978 %	1980 %	1982 %	1984 %	1986 %	1988 %	1990 %	1992 %	1994 %	1996 %	1998 %	2000 %	2001 %	2002 %	2003 %	2004 %	2005 %	2006 %
MEN																					
All ages	52	51	46	45	42	38	36	35	33	31	29	28	29	28	29	28	27	28	26	25	23
16-19	43	42	39	35	32	31	29	30	28	28	29	28	26	30	30	25	22	27	23	23	20
20-24	55	52	47	45	44	41	40	41	37	38	39	40	43	42	35	40	37	38	36	34	33
25-34	56	56	48	48	47	40	40	37	37	36	34	34	38	37	39	38	36	38	35	34	33
35-49	55	55	50	48	45	40	39	37	37	34	32	31	30	32	31	31	29	32	31	29	26
50-59	54	53	49	48	47	42	39	35	33	28	28	27	28	27	27	26	27	26	26	25	23
60+	47	44	40	38	36	33	30	29	26	24	21	18	18	16	16	16	17	16	15	14	13
Unweighted base	*10,351*	*9,852*	*10,888*	*10,480*	*10,454*	*9,199*	*8,417*	*8,874*	*8,673*	*8,106*	*8,417*	*7,642*	*7,172*	*6,579*	*6,593*	*7,055*	*6,837*	*8,097*	*6,868*	*10,038*	*7,677*
WOMEN																					
All ages	41	41	38	37	37	33	32	31	30	29	28	26	28	26	25	26	25	24	23	23	21
16-19	39	38	34	33	32	30	32	30	28	32	25	27	32	31	28	31	29	25	25	26	20
20-24	48	44	45	43	40	40	36	38	37	39	37	38	36	39	35	35	38	34	29	30	29
25-34	49	46	43	42	44	37	36	35	35	34	34	30	34	33	32	31	33	31	28	29	26
35-49	48	49	45	43	43	38	36	34	35	33	30	28	30	28	27	28	27	28	28	26	25
50-59	47	48	46	42	44	40	39	35	34	29	29	26	26	27	28	25	24	23	22	23	22
60+	25	26	24	24	24	23	23	22	21	20	19	17	19	16	15	17	14	14	14	13	12
Unweighted base	*12,143*	*11,480*	*12,554*	*12,156*	*12,100*	*10,641*	*9,788*	*10,304*	*10,122*	*9,445*	*9,764*	*9,108*	*8,501*	*7,830*	*7,496*	*8,299*	*7,951*	*9,327*	*8,029*	*11,627*	*9,005*

Notes: *From 2000 data are weighted for non-response. Pre-2000 data are unweighted. The effect of weighting on smoking data appears slight: it increased the overall prevalence of smoking in 2000 by one percentage point, from 26% to 27%.*
2005 data includes last quarter of 2004/05 data due to survey change from financial year to calendar year.
Results for 2006 include longitudinal data (see Appendix B, GHS 2008).

Source: *Office for National Statistics (2008) Results from the 2006 General Household Survey. The Stationery Office: London, and previous years.*

Figure 4.2 Prevalence of cigarette smoking by sex, adults aged 16 and over, 1972 to 2006, Great Britain

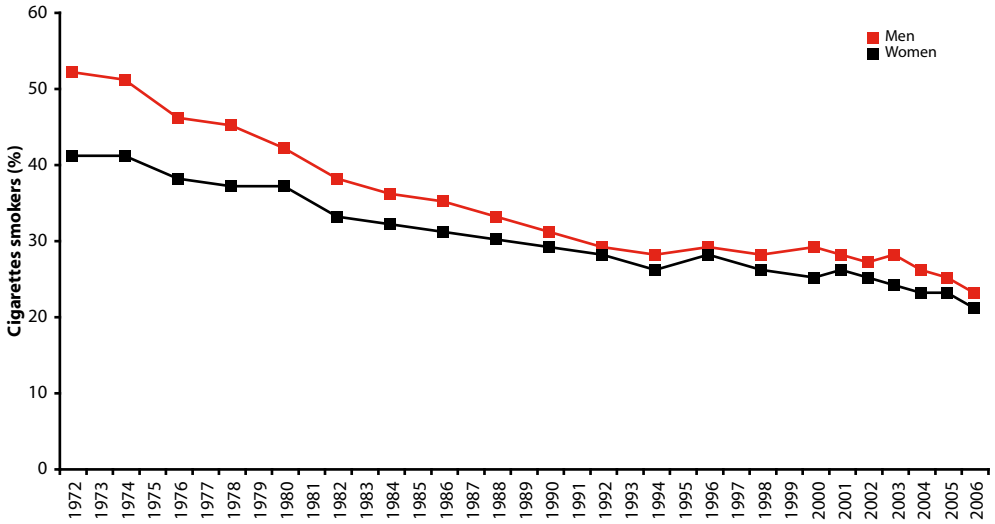


Table 4.3 Cigarette smoking by sex and socio-economic classification, adults aged 16 and over, 2006, Great Britain

Socio-economic classification of the household reference person	MEN %	WOMEN %	BOTH %
Managerial and professional	**17**	**14**	**15**
Large employers and higher managerial	13	14	14
Higher professional	13	9	11
Lower managerial and professional	20	17	18
Intermediate	**21**	**21**	**21**
Intermediate	22	19	20
Small employers and own account	21	22	22
Routine and manual	**31**	**28**	**29**
Lower supervisory and technical	25	25	25
Semi routine	33	29	31
Routine	35	29	32
Total	**23**	**21**	**22**
Unweighted base	*7,677*	*9,005*	*16,682*

Note: Data weighted for non-response.

Source: Office for National Statistics (2008) Results from the 2006 General Household Survey. The Stationery Office: London, and previous years.

Table 4.4 Cigarette smoking by sex and ethnic group, adults aged 16 and over, 2004, England

	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
Current cigarette smokers	%	%	%	%	%	%	%	%
MEN	24	25	21	20	29	40	21	30
Base	*45,652*	*472*	*366*	*899*	*412*	*172*	*150*	*1,773*
WOMEN	23	24	10	5	5	2	8	26
Base	*48,357*	*658*	*464*	*1,061*	*490*	*197*	*162*	*2,362*

Notes: *Data are weighted for non-response.*
General population data from Health Survey for England 2003 as data not available for 2004.

Source: *Department of Health (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. The Stationery Office: London.*

Table 4.5 Dietary targets for the United Kingdom

England	
Saturated fat	To reduce the average total intake of saturated fat to 11% of food energy
Salt	To reduce the average intake of salt to 6 grams per day by 2010
Scotland	
Saturated fat	Average intake of saturated fat to reduce to no more than 11% of food energy
Salt	Average intake to reduce to 100mmol per day
Wales	
Saturated fat	Average intake of saturated fat to reduce to no more than 10% of total energy
Salt	Reduce average intake to 6 grams per day
Northern Ireland	No targets set

Note: *Only targets for saturated fat and salt included.*

Source: *Department of Health (2005) Choosing a Better Diet: a food and health action plan. DH: London.*
Scottish Executive (2004) Eating for Health. Meeting the challenge. Scottish Executive: Edinburgh
Food Standards Agency Wales (2003) Food and well being: reducing inequalities through a nutrition strategy for Wales. FSA Wales: Cardiff.

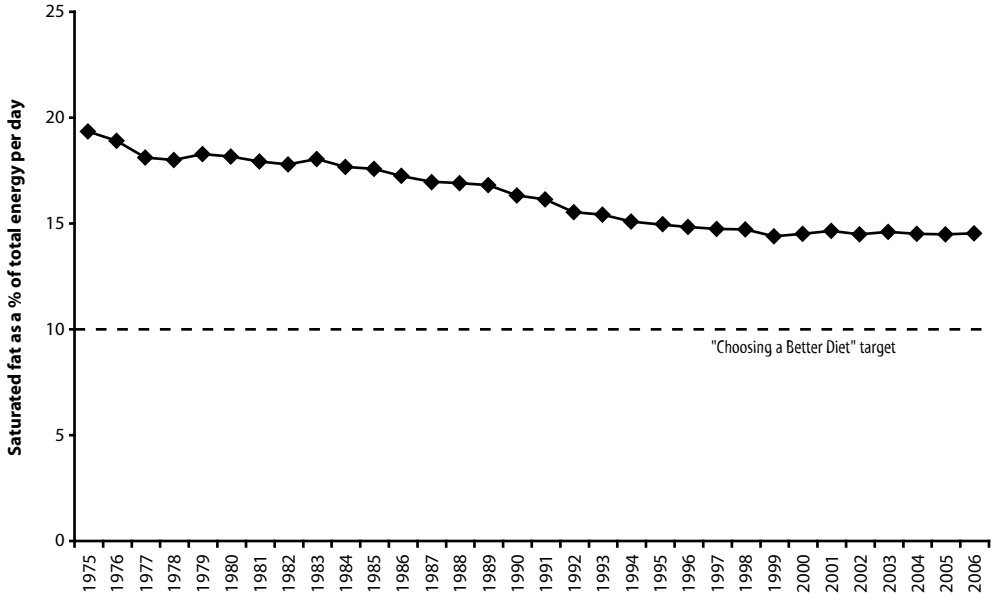
Table 4.6 Consumption of saturated fat and salt, adults aged 16 and over, 1975 to 2006, Great Britain

Consumption per person per day	1975	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Saturated fat (g)	53.4	49.1	43.0	37.2	35.5	36.8	35.4	34.3	32.8	34.6	33.9	33.7	33.6	32.9	33.4	33.4
Saturated fat (% total energy)	19.3	18.1	17.5	16.3	14.9	14.8	14.7	14.7	14.4	14.5	14.6	14.4	14.6	14.5	14.4	14.5
Salt (g)			7.0	6.8	7.0	7.3	7.2	7.0	7.0	7.3	7.2	7.0	6.9	6.8	6.9	6.5

Notes: *Data pre-1996 are unadjusted National Food Survey data. 2001/02 data onwards are Expenditure and Food Survey data. 1996 to 2000 data are adjusted estimates from the National Food Survey. Because of the discontinuity between datasets, these trends need to be interpreted with caution. Consumption assumed from purchase data, and applies to food consumed in the household only.*

Source: *Office for National Statistics (2008) Family Food in 2006. The Stationery Office: London and previous editions.*
Department for Environment, Food and Rural Affairs (2003) National Food Survey 2000. The Stationery Office: London and previous editions.

Figure 4.6 Consumption of saturated fat as a percentage of total energy, adults aged 16 and over, 1975 to 2006, Great Britain, with "Choosing a Better Diet" target



Note: *The target of 'No more than 11% of food energy from saturated fat' equates to 'No more than 10% total enery from saturated fat'.*

Table 4.7 Consumption of saturated fat and salt by income quintile, adults aged 16 and over, 2004/06, United Kingdom

	Income quintile				
Consumption per person per day	**Highest %**	**2nd %**	**3rd %**	**4th %**	**Lowest %**
Saturated fat (g)	36.2	36.2	37.0	38.6	38.4
Saturated fat (% total energy)	14.1	14.1	14.2	14.4	14.5
Salt (g)	7.7	7.6	7.6	7.6	7.5

Notes: Sodium intake does not include sodium from table salt. Salt intake = sodium x 2.52. Consumption assumed from purchase data.

Source: Office for National Statistics (2008) Family Food in 2006. The Stationery Office: London.

Table 4.8 Consumption of saturated fat and salt by ethnic group, adults aged 16 and over, 2004/06, United Kingdom

Consumption per person per day	**Asian/ Asian British**	**Black/ Black British**	**Chinese and others**	**Mixed**	**White**
Saturated fat (g)	30.1	25.9	27.9	33.2	37.9
Saturated fat (% total energy)	12.4	11.5	12.3	13.3	14.4
Salt (g)	4.5	5.1	5.1	7.0	7.9

Notes: Sodium intake does not include sodium from table salt. Salt intake = sodium x 2.52. Consumption assumed from purchase data.

Source: Office for National Statistics (2008) Family Food in 2006. The Stationery Office: London.

Table 4.9 Physical activity targets for the United Kingdom

England	
Adults	By 2020, 70% of individuals to be undertaking 30 minutes of physical activity on at least 5 days a week. An interim target of 50% of individuals by 2011
Children	To increase the proportion of school children in England who spend a minimum of two hours each week on high quality sport from 25% in 2002, to 75% by 2006 and 85% in 2008
Scotland	
Adults	To increase the proportion of all adults aged over 16 years taking the minimum recommended levels of physical activity (30 minutes of moderate activity on 5 or more occasions each week) to 50% by 2022
Children	To increase the proportion of all children aged 16 and under taking the minimum recommended levels of physical activity (1 hour a day of moderate activity on 5 or more days a week) to 80% by 2022
Wales	
Children	For all children of primary school age to participate in sport and physical activity for at least 60 minutes, five times a week For at least 90% of boys and girls of secondary school age to participate in sports and physical activity for 60 minutes, five times a week
Northern Ireland	
Target	To increase the proportion of people who are physically active to 80% by 2010, from a baseline of 75% in 2001
Inequalities	To increase the proportion of people in lower socio-economic groups who are physically active, to 75% by 2010 from a baseline of 69% in 2001
Older people	To increase the proportion of people aged over 65 who are physically active to 55% in 2010, from a baseline of 49% in 2001

Source: *Strategy Unit (2002). Game Plan: a strategy for delivering Government's sport and physical activity objectives. A joint Department of Culture, Media and Sport and Strategy Unit Report. HMSO: London.*
HM Treasury (2004) Spending review. Department for Culture, Media and Sport. HMSO: London.
Scottish Executive (2003) Let's Make Scotland More Active: A strategy for physical activity. Scottish Executive: Edinburgh.
Welsh Assembly Government (2005) Climbing Higher. Welsh Assembly: Cardiff.
Department of Health, Social Services and Public Safety (2004) A Five Year Physical Activity Strategy and Action Plan. DHSSPSNI: Belfast.

Table 4.10 Physical activity by sex and age, adults aged 16 and over, 1997 to 2006, England, and 1998 to 2003, Scotland

Meeting physical activity guideline	1997 %	1998 %	2003 %	2004 %	2006 %
ENGLAND					
MEN					
All men 16 and over	**32**	**34**	**36**	**37**	**40**
16–24	49	53	52	56	53
25–34	41	45	44	46	52
35–44	37	41	41	41	46
45–54	32	34	38	37	38
55–64	23	30	32	32	35
65–74	12	14	17	18	21
75+	7	6	8	8	9
Unweighted base	*3,898*	*7,193*	*6,581*	*2,873*	*5,561*
WOMEN					
All women 16 and over	**21**	**21**	**24**	**25**	**28**
16–24	26	28	30	32	33
25–34	26	28	29	30	36
35–44	29	28	30	32	35
45–54	24	25	31	30	34
55–64	19	18	23	20	27
65–74	8	9	13	14	16
75+	5	3	3	4	4
Unweighted base	*4,684*	*8,715*	*8,210*	*3,818*	*6,869*

SCOTLAND	**1998**	**2003**
MEN	**%**	**%**
All men 16 to 74	**41**	**44**
16–24	59	59
25–34	52	57
35–44	42	45
45–54	36	40
55–64	28	35
65–74	17	23
Unweighted base	*3,941*	*3,283*
WOMEN		
All women 16 to 74	**30**	**33**
16–24	36	36
25–34	35	40
35–44	37	39
45–54	33	35
55–64	22	28
65–74	10	16
Unweighted base	*5,106*	*4,045*

Notes: *England data for 2003, 2004 and 2006 are weighted for non response, and activity sessions lasting for less than 30 minutes in 1997 and 1998 were excluded so that data were comparable with 2003 and 2004.*

Source: *Department of Health (2008) Health Survey for England 2006. The Stationery Office: London.*
Scottish Health Executive (2005) Scottish Health Survey 2003. The Stationery Office: Edinburgh.

Figure 4.10 Physical activity levels by sex, adults aged 16 and over, 1997 to 2006, England

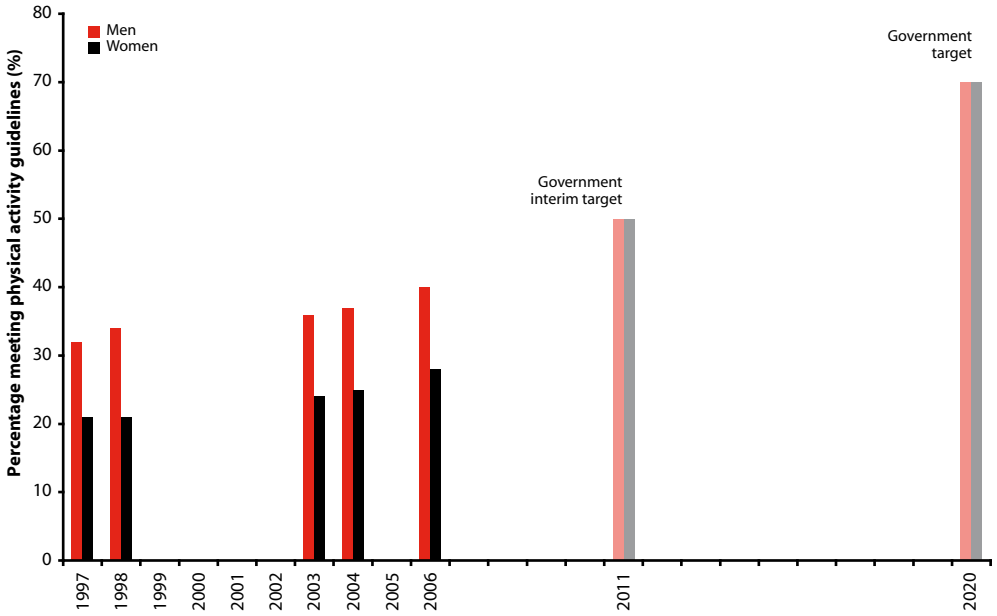


Table 4.11 Physical activity by sex and income quintile, adults aged 16 and over, 2006, England

	Equivalised household income quintile				
	Highest	**2nd**	**3rd**	**4th**	**Lowest**
Summary physical activity level	**%**	**%**	**%**	**%**	**%**
MEN					
High	42	45	44	38	35
Medium	35	33	29	24	26
Low	23	22	27	38	39
Unweighted base	*1,143*	*1,083*	*908*	*718*	*666*
WOMEN					
High	28	31	31	28	26
Medium	38	37	33	31	30
Low	33	32	36	41	44
Unweighted base	*1,175*	*1,216*	*1,160*	*1,066*	*942*

Notes: *Data are weighted for non-response.*
High = 30 minutes or more on at least 5 days a week (above recommended level).
Medium = 30 minutes or more on 1 to 4 days a week.
Low = lower level of activity.

Source: *Joint Health Survey Unit (2008) Health Survey for England 2006. The Information Centre: Leeds.*

Table 4.12 Physical activity by sex and ethnic group, adults aged 16 and over, 2004, England

Summary physical activity level	**General population**	**Black Caribbean**	**Black African**	**Indian**	**Pakistani**	**Bangladeshi**	**Chinese**	**Irish**
	%	%	%	%	%	%	%	%
MEN								
High	37	37	35	30	28	26	30	39
Medium	31	29	30	26	21	23	32	28
Low	32	34	35	44	51	51	38	33
Unweighted base	*2,873*	*409*	*386*	*549*	*429*	*408*	*348*	*497*
WOMEN								
High	25	31	29	23	14	11	17	29
Medium	36	30	28	32	34	21	36	38
Low	39	39	43	45	52	68	47	33
Unweighted base	*3,818*	*648*	*467*	*634*	*508*	*477*	*375*	*656*

Notes: *High = 30 minutes or more physical activity on at least 5 days a week (recommended level).*
Medium = 30 minutes or more on 1 to 4 days a week.
Low = lower level of activity.
Data are weighted for non-response.
General population data from Health Survey for England 2003 as data not available for 2004.

Source: *Department of Health (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. The Stationery Office: London.*

Table 4.13 Alcohol recommendations and targets for the United Kingdom

United Kingdom: Recommendations	
Safe level – men	No more than 4 units per day / 21 units per week
Safe level – women	No more than 3 units per day / 14 units per week
Benchmark for heavy drinking – men	8 units per day
Benchmark for heavy drinking – women	6 units per day
England	No target set
Scotland	
Alcohol related hospital admissions	Reduce alcohol-related hospital admissions by 2011
Wales	No target set
Northern Ireland	No target set

Notes: *The Government's Strategy Unit has recently published an alcohol strategy for England. This did not recommend the introduction of public health targets for alcohol consumption. Strategy Unit (2004) Alcohol Harm Reduction Strategy for England. Cabinet Office: London. See www.strategy.gov.uk*

Welsh Assembly Government is currently developing new determinants of health indicators. The first stage of this work is underway and includes a focus on CHD. See the Chief Medical Officer Wales website, www.wales.gov.uk/

The Department of Health, Social Services and Public Safety in Northern Ireland is currently developing a target for the next 6 years aimed at reducing the number of people who binge drink.

Source: *Scottish Executive (2008) Spending Review 2007, Scottish Executive: Edinburgh.*

Table 4.14 Alcohol consumption by sex and age, adults aged 16 and over, 1998 to 2006, Great Britain

Maximum daily alcohol consumption	1998 %	2000 %	2001 %	2002 %	2003 %	2004 %	2005 %	Original method 2006 %	Updated method 2006 %
ENGLAND									
MEN									
More than 4 units									
16-24	52	50	50	49	51	47	42	39	42
25-44	48	45	49	46	47	48	42	42	48
45-64	37	38	37	38	41	37	35	33	42
65+	16	16	18	16	19	20	16	14	21
% exceeding recommended daily maximum	*39*	*39*	*40*	*38*	*40*	*39*	*35*	*33*	*40*
More than 8 units									
16-24	39	37	37	35	37	32	30	27	30
25-44	29	27	30	28	30	31	25	25	31
45-64	17	17	17	18	20	18	16	15	21
65+	4	5	5	5	6	7	4	4	7
% exceeding daily benchmark for heavy drinking	*22*	*21*	*22*	*21*	*23*	*22*	*19*	*18*	*23*
Unweighted base	*6,561*	*6,598*	*7,054*	*6,828*	*8,087*	*6,862*	*10,028*	*7,674*	*7,674*
WOMEN									
More than 3 units									
16-24	42	42	40	42	40	39	36	34	39
25-44	28	31	31	31	30	28	26	27	40
45-64	17	19	19	19	20	20	18	17	35
65+	4	4	5	5	4	5	4	4	14
% exceeding recommended daily maximum	*21*	*23*	*23*	*23*	*23*	*22*	*20*	*20*	*33*
More than 6 units									
16-24	24	27	27	28	23	24	22	20	25
25-44	11	13	14	13	13	13	11	12	21
45-64	5	5	5	5	5	6	4	4	12
65+	1	1	1	1	1	1	1	0	2
% exceeding daily benchmark for heavy drinking	*8*	*10*	*10*	*10*	*9*	*9*	*8*	*8*	*15*
Unweighted base	*7,821*	*7,491*	*8,299*	*7,942*	*9,304*	*8,012*	*11,617*	*9,013*	*9,013*

Notes: *Alcohol consumption levels are based on the number of units of alcohol consumed on the heaviest day during the previous week, the "maximum daily" amount. Estimates for 2006 are given using original and updated General Household Survey methods; see chapter text for details.*

Source: *Office for National Statistics (2008) Smoking and drinking among adults.General Household Survey 2006. Office for National Statistics: London, and previous years. See www.ons.gov.uk/ghs*

Figure 4.14 Alcohol consumption by sex, adults aged 16 and over, 1998 to 2006, Great Britain

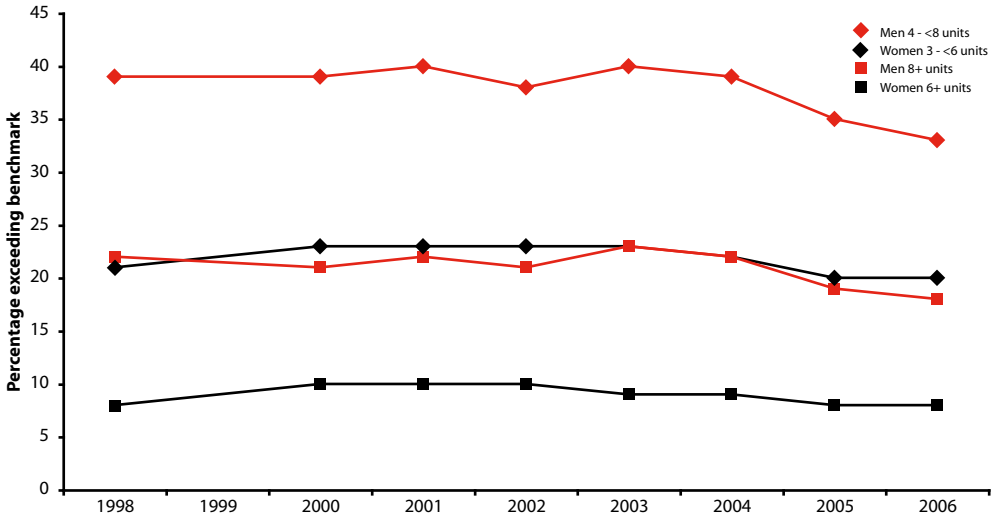


Table 4.15 Alcohol consumption by sex and socio-economic classification, adults aged 16 and over, 2006, Great Britain

	Drinking last week		*Units consumed*		
	Drank last week	**Drank on 5 or more days last week**	**Drank more than 4 units on at least one day**	**Drank more than 8 units on at least one day**	*Unweighted base*
	%	**%**	**%**	**%**	
MEN					
Managerial and professional	**79**	**25**	**44**	**24**	
Large employers and higher managerial	84	30	47	27	*731*
Higher professional	79	24	42	21	*830*
Lower managerial and professional	76	23	44	24	*1,828*
Intermediate	**71**	**23**	**41**	**23**	
Intermediate	73	21	41	22	*526*
Small employers and own account	71	24	41	23	*814*
Routine and manual	**64**	**15**	**35**	**21**	
Lower supervisory and technical	70	16	38	24	*900*
Semi routine	62	14	33	18	*836*
Routine	61	16	35	22	*930*
Total	***71***	***21***	***40***	***23***	***7,674***

	Drank last week	**Drank on 5 or more days last week**	**Drank more than 3 units on at least one day**	**Drank more than 6 units on at least one day**	*Unweighted base*
	%	**%**	**%**	**%**	
WOMEN					
Managerial and professional	**66**	**15**	**40**	**17**	
Large employers and higher managerial	72	18	47	19	*770*
Higher professional	67	16	41	16	*805*
Lower managerial and professional	63	14	37	17	*2,153*
Intermediate	**55**	**12**	**32**	**13**	
Intermediate	55	11	30	13	*877*
Small employers and own account	56	13	34	14	*810*
Routine and manual	**47**	**8**	**26**	**12**	
Lower supervisory and technical	53	9	30	13	*866*
Semi routine	46	8	26	13	*1,247*
Routine	42	6	23	11	*1,072*
Total	***56***	***11***	***33***	***15***	***9,013***

Notes: *Alcohol consumption levels are based on the number of units of alcohol consumed on the heaviest drinking day during the previous week, the "maximum daily amount".*
Data are weighted for non-response.

Source: *Office for National Statistics (2008). Smoking and drinking among adults, 2006. General Household Survey 2006. Office for National Statistics: London. See www.ons.gov.uk/ghs*

Table 4.16 Alcohol consumption by sex and ethnic group, adults aged 16 and over, 2004, England

Alcohol consumed on the heaviest drinking day	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
	%	%	%	%	%	%	%	%
MEN								
None	24	40	62	53	93	99	52	20
Up to 4 units	55	72	83	77	96	99	81	44
More than 4, up to 8 units	20	16	10	13	1	0	9	25
More than 8 units	25	12	7	9	3	0	10	32
% exceeding 4 units	***45***	***28***	***17***	***22***	***4***	***1***	***19***	***56***
Unweighted base	*2,829*	*397*	*369*	*531*	*416*	*395*	*337*	*490*
WOMEN								
None	39	53	74	79	97	99	68	33
Up to 3 units	70	81	92	92	98	99	88	64
More than 3, up to 6 units	16	12	5	4	0	0	8	20
More than 6 units	14	6	2	4	1	0	4	16
% exceeding 3 units	***30***	***18***	***7***	***8***	***1***	***1***	***12***	***36***
Unweighted base	*3,745*	*618*	*446*	*618*	*495*	*448*	*364*	*642*

Notes: *Data weighted for non-response.*
General population data from Health Survey for England 2003 as data not available for 2004.

Source: *Department of Health (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. The Stationery Office: London.*

Table 4.17 Blood pressure recommendations and hypertension definitions for the United Kingdom

Blood pressure – recommendations	
Systolic blood pressure	
– general population	No greater than 140mmHg
– diabetes or chronic renal failure sufferers	No greater than 130mmHg
Diastolic blood pressure	No greater than 85mmHg
– general population	
– diabetes or chronic renal failure sufferers	No greater than 80mmHg
Definitions	
Hypertension	Systolic blood pressure greater than or equal to 140mmHg, and / or diastolic blood pressure greater than or equal to 90mmHg
Threshold for drug treatment	Sustained levels of systolic blood pressure greater than or equal to 160mmHg, and / or diastolic blood pressure greater than or equal to 100mmHg

Source: Williams B, Poulter NR, Brown MJ et al (2004). Guidelines for management of hypertension: report of the fourth working party of the British Hypertension Society 2004-BHS IV. Journal of Human Hypertension. 18; 139-185.

Table 4.18 Prevalence of high blood pressure by sex and age, adults aged 16 and over, 1998 to 2006, England

High blood pressure	1998 %	2000 %	2001 %	2002 %	2003 %	2005 %	2006 %
MEN							
All men	**41**	**40**	**41**	**37**	**38**	**39**	**39**
16-24	16	12	20	14	1	9	10
25-34	21	21	18	17	13	17	18
35-44	26	27	23	24	21	26	18
45-54	42	41	41	36	37	33	35
55-64	60	54	58	53	53	53	51
65-74	70	70	68	62	65	64	63
75+	73	65	70	71	67	69	68
Unweighted base	*5,401*	*2,552*	*4,840*	*2,161*	*4,108*	*1,916*	*3,924*
WOMEN							
All women	**33**	**33**	**35**	**34**	**32**	**29**	**31**
16-24	4	4	5	4	2	1	1
25-34	7	6	7	6	5	4	3
35-44	13	10	12	12	10	10	10
45-54	31	31	34	33	24	23	26
55-64	52	52	54	52	47	42	42
65-74	73	75	74	70	68	62	66
75+	78	81	79	79	77	73	73
Unweighted base	*6,483*	*3,046*	*5,813*	*2,668*	*5,075*	*2,392*	*4,838*

Notes: *Respondents were classified as having high blood pressure if their systolic blood pressure was 140mmHg or over or their diastolic blood pressure was 90mmHg or over, or they were taking medicine prescribed for blood pressure.*
All data are presented unweighted for analysis of trends. The measurement of blood pressure in the Health Survey for England series changed in 2003; the results presented here for 2003, 2005 and 2006 have been adapted for comparison with the earlier measurement methods.

Source: *Joint Health Surveys Unit (2008) Health Survey for England 2006. Adult trend tables. The Information Centre: Leeds.*

Figure 4.18 Prevalence of high blood pressure by sex, adults 16 and over, 1998 to 2006, England

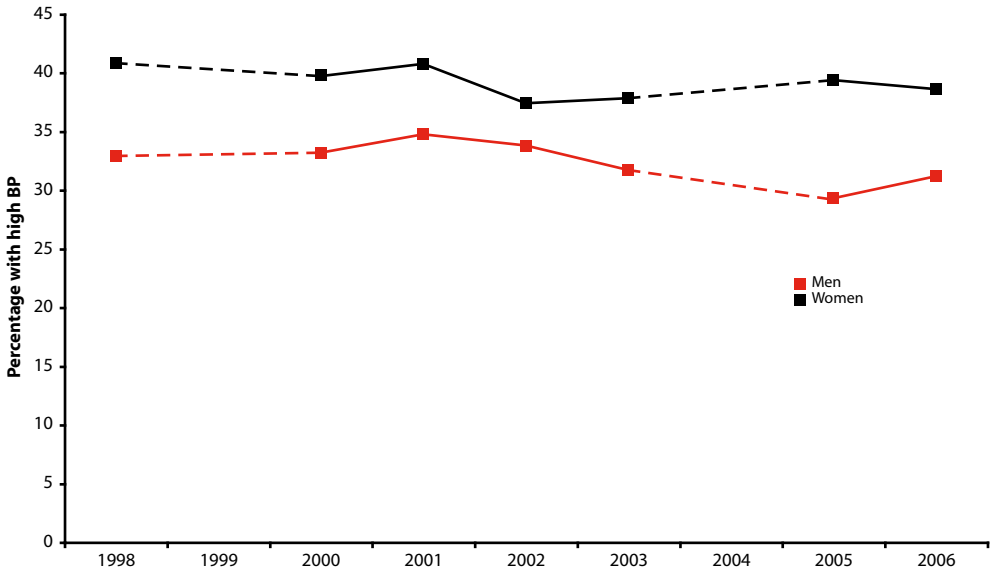


Table 4.19 Blood pressure levels by sex and equivalised household income, adults aged 16 and over, 2006, England

	Equivalised household income				
	Highest	**2nd**	**3rd**	**4th**	**Lowest**
Blood pressure level	**%**	**%**	**%**	**%**	**%**
MEN					
Normotensive untreated	70	72	68	70	69
Normotensive treated	6	4	7	6	8
Hypertensive treated	5	7	6	6	6
Hypertensive untreated	18	17	18	17	17
All with high blood pressure	***30***	***28***	***32***	***30***	***31***
Unweighted base	*801*	*742*	*694*	*582*	*461*
WOMEN					
Normotensive untreated	77	75	73	71	70
Normotensive treated	8	6	7	9	9
Hypertensive treated	5	6	7	8	6
Hypertensive untreated	10	13	13	12	15
All with high blood pressure	***23***	***25***	***27***	***29***	***30***
Unweighted base	*791*	*854*	*873*	*855*	*650*

Notes: *Data are weighted for non response.*

Source: *Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*

Table 4.20 Prevalence of high blood pressure by sex and ethnic group, adults aged 16 and over, 2004, England

High blood pressure	**General population**	**Black Caribbean**	**Black African**	**Indian**	**Pakistani**	**Bangladeshi**	**Chinese**	**Irish**
	%	**%**	**%**	**%**	**%**	**%**	**%**	**%**
MEN	32	38	25	33	20	16	20	36
Unweighted base	*4,108*	*155*	*123*	*265*	*162*	*99*	*153*	*240*
WOMEN	29	32	19	18	15	19	16	29
Unweighted base	*5,075*	*243*	*154*	*320*	*207*	*144*	*166*	*328*

Notes: *Respondents were classified as having high blood pressure if their systolic blood pressure was 140mmHg or over or their diastolic blood pressure was 90mmHg or over, or they were taking medication for high blood pressure.*
Data are weighted for non-response.
General population data from Health Survey for England 2003 as data not available for 2004.

Source: *Department of Health (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. The Stationery Office: London.*

Table 4.21 Cholesterol recommendations for the United Kingdom

Recommendations	
Total cholesterol	< 4.0 mmol/l in individuals with established cardiovascular disease, diabetes, or at high risk of developing cardiovascular disease
LDL cholesterol	< 2.0 mmol/l in individuals with established cardiovascular disease, diabetes, or at high risk of developing cardiovascular disease
HDL cholesterol	≥ 1.0 mmol/l in individuals with established cardiovascular disease, and those at high risk of the disease

Notes: *The original recommendation for total cholesterol levels of less than 5mmol/l for individuals with cardiovascular disease, diabetes, or at high risk of developing cardiovascular disease, originally set in 1998 by the Joint British Societies is retained for audit purposes.*

Source: *British Cardiac Society, British Hypertension Society, Diabetes UK, HEART UK, Primary Care Cardiovascular Society, The Stroke Association (2005). JBS2: Joint British Societies' guidelines on prevention of cardiovascular diseases in clinical practices. Heart. 91 (suppl V): v1-v52.*

Sacks FM, for the expert group on HDL-cholesterol (2002). The role of high density lipoprotein (HDL) cholesterol on the prevention of coronary heart disease; Expert group recommendations. American Journal of Cardiology. 90: 139-143.

Table 4.22 Total cholesterol levels by sex and age, adults aged 16 and over, 1994 to 2006 England and 1995 to 2003, Scotland

≥5.0mmol/l total cholesterol	All ages %	16–24 %	25–34 %	35–44 %	45–54 %	55–64 %	65–74 %	75+ %	*Unweighted base*
ENGLAND, 2006									
MEN									
1994	75	32	61	82	88	90	87	79	*5,345*
1998	66	23	50	70	78	81	76	72	*5,001*
2003 unweighted	70	28	60	77	82	81	69	63	*3,814*
2003 weighted	66	26	60	77	81	80	67	64	*3,814*
2006	57	20	53	68	74	73	54	47	*3,410*
WOMEN									
1994	77	44	57	70	82	95	97	93	*5,817*
1998	67	27	44	59	74	88	91	89	*5,568*
2003 unweighted	71	34	50	62	78	88	87	82	*4,460*
2003 weighted	66	31	55	69	79	84	77	75	*4,460*
2006	61	31	42	58	78	84	76	67	*4,061*
SCOTLAND, 2003									
MEN									
1995	70*	26	65	81	87	86			*2,831*
1998	62*	22	53	70	82	76	72		*2,362*
2003	63*	22	59	72	83	75	67	56	*1,426*
WOMEN									
1995	68*	34	54	68	87	92			*3,300*
1998	60*	23	44	58	79	89	92		*2,741*
2003	63*	26	46	65	83	88	84	79	*1,696*

Notes: *Data from 1994 to 1998 are unweighted data, for 2003 weighted and unweighted data is shown, for 2006 only weighted data are presented. Scottish data are all weighted for non-response.*
The Scottish Health Survey for 1995 only covered 16-64 year olds. The survey for 1998 only covered 16-74 year olds. For comparability, all of the Scottish all age estimates (marked with asterisks) are for 16-64 year olds only.

Source: *Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*
The Scottish Executive (2005) The Scottish Health Survey 2003. Scottish Executive: Edinburgh.

Figure 4.22 Blood cholesterol levels by sex, adults aged 16 and over, 1994 to 2006, England

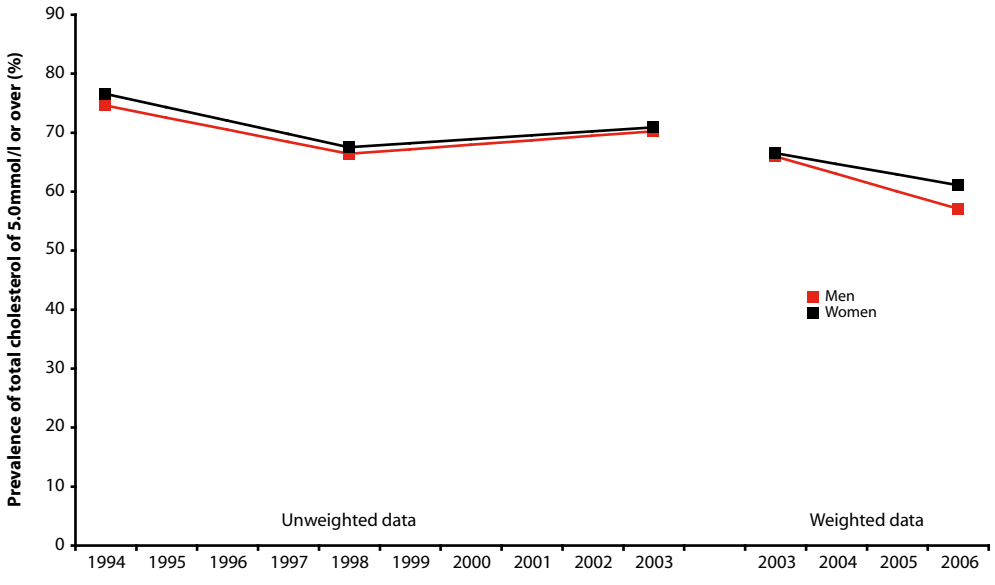


Table 4.23 Total cholesterol levels and low HDL cholesterol by sex and equivalised household income, adults aged 16 and over, 2006, England

	Equivalised household income quintile				
	Highest	**2nd**	**3rd**	**4th**	**Lowest**
	%	**%**	**%**	**%**	**%**
MEN					
< 1.0 mmol/l HDL cholesterol	8	6	11	11	14
≥ 5.0 mmol/l total cholesterol	59	60	57	58	53
Unweighted base	*720*	*697*	*605*	*488*	*376*
WOMEN					
< 1.0 mmol/l HDL cholesterol	1	1	2	2	4
≥ 5.0 mmol/l total cholesterol	64	60	64	58	64
Unweighted base	*708*	*724*	*732*	*731*	*515*

Notes: *Data are weighted for non response.*

Source: *Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*

Table 4.24 Total cholesterol and low HDL cholesterol by sex and ethnic group, adults aged 16 and over, 2004, England

	General population	**Black Caribbean**	**Black African**	**Indian**	**Pakistani**	**Bangladeshi**	**Chinese**	**Irish**
	%	**%**	**%**	**%**	**%**	**%**	**%**	**%**
MEN								
≥ 5.0mmol/l total cholesterol	66	51	55	60	55	60	60	67
≤ 1.0mmol/l HDL cholesterol	6	4	2	11	20	20	8	5
Unweighted base	*3,814*	*137*	*103*	*234*	*137*	*87*	*101*	*244*
WOMEN								
≥ 5.0mmol/l total cholesterol	67	56	44	53	53	55	52	67
≤ 1.0mmol/l HDL cholesterol	2	1	3	4	6	8	1	2
Unweighted base	*4,460*	*195*	*118*	*256*	*143*	*98*	*108*	*300*

Notes: *Data are weighted for non-response.*
General population data from Health Survey for England 2003 as data not available for 2004.

Source: *Department of Health (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. The Stationery Office: London.*

Table 4.25 Obesity targets for the United Kingdom

England	
Children	To halt the year-on-year rise in obesity among children under 11 by 2010 in the context of a broader strategy to tackle obesity in the population as a whole
	Reduce the weight of overweight and obese children to 2000 levels by 2020 in the context of promoting healthy weight across the population
Scotland	
Children	Reduce the rate of increase in the proportion of children with their Body Mass Index outside a healthy range by 2018
Wales	No target set
Northern Ireland	
Adults	To stop the increase in the levels of obesity in men and women so that by 2010, the proportion of men who are obese is less than 17%, and of women is less than 20%

Source: *Department of Health (2004) National Standards, Local Action: Health and Social Care Standards and Planning Framework 2005/06 and 2007/08. PSA target 3. DH: London.*

HM Treasury (2007) Pre-Budget Report and Comprehensive Spending Review: Public Service Agreements -Fairness and Opportunity for All. PSA target 12. The Stationery Office: London.

Scottish Executive (2007). Scottish Budget Spending Review 2007. Scottish Executive: Edinburgh.

Jordan A, McCall J, Moore W, Reid H, Stewart D (2006). Health Systems in Transition: Northern Ireland. WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies: Copenhagen.

Table 4.26 Obesity by sex and age, adults aged 16 and over, 1994 to 2006, England, and 1995 to 2003, Scotland

BMI = 30 and over	1994 %	1998 %	2003 %	2003 %	2006 %
ENGLAND		*Unweighted data*		*Weighted data*	
MEN					
All men 16+	14	18	24	23	25
16-24	6	5	9	9	10
25-34	10	17	19	19	22
35-44	16	18	26	26	27
45-54	18	22	29	29	30
55-64	18	24	28	28	36
65-74	18	22	30	30	34
75+	15	16	21	22	18
Unweighted base	*6,795*	*6,600*	*5,966*	*5,966*	*5,523*
WOMEN					
All women 16+	19	22	26	26	29
16-24	9	12	15	15	13
25-34	14	18	22	21	20
35-44	19	23	26	26	27
45-54	19	26	31	31	30
55-64	28	31	30	31	33
65-74	27	31	33	33	39
75+	17	22	27	27	29
Unweighted base	*7,884*	*7,730*	*7,090*	*7,090*	*6,504*

	1995 %	1998 %	2003 %
SCOTLAND			
MEN			
All men 16-64	16	20	24
16-24	5	8	8
25-34	15	16	17
35-44	19	21	27
45-54	23	31	31
55-64	21	24	35
65-74		27	28
75+			19
Unweighted base	*3,303*	*3,110*	*2,368*
WOMEN			
All women 16-64	19	23	27
16-24	9	8	15
25-34	15	21	23
35-44	18	23	30
45-54	23	29	31
55-64	30	34	37
65-74		33	44
75+			30
Unweighted base	*4,005*	*3,783*	*2,908*

Notes: *From 2003 data has been weighted for non-response.*

Source: *Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*
Scottish Health Executive (2005) Scottish Health Survey 2003. The Stationery Office: Edinburgh.

Figure 4.26 Obesity by sex, adults aged 16 and over, 1994 to 2006, England

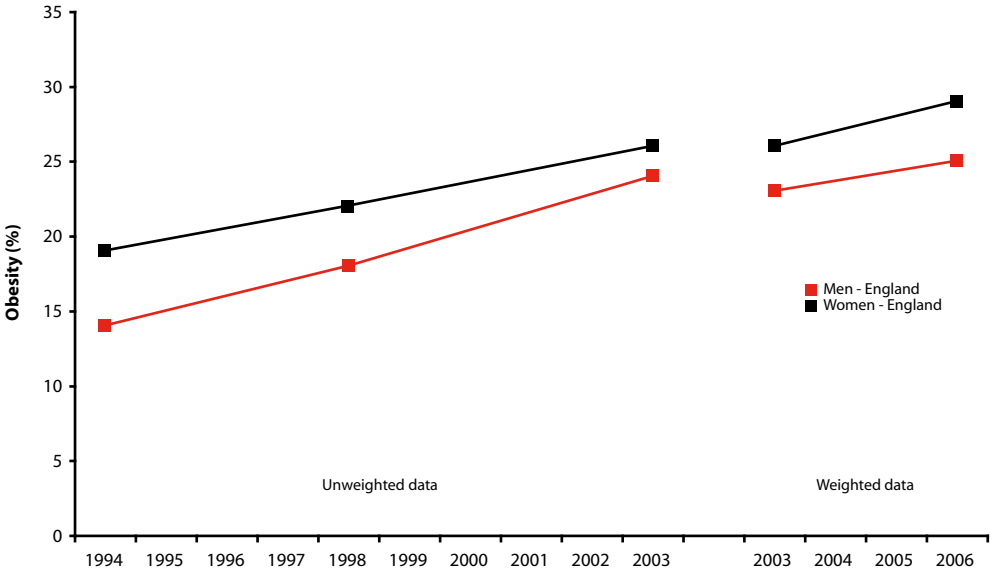


Table 4.27 Body mass index by sex and equivalised household income quintile, adults aged 16 and over, 2006, England

	Equivalised household income quintile				
	Highest	2nd	3rd	4th	Lowest
Body mass index (kg/m²)	%	%	%	%	%
MEN					
BMI < 25: Normal	32	32	32	34	34
BMI ≥ 25 < 30: Overweight	47	45	44	39	41
BMI ≥ 30: Obese	21	24	23	27	24
BMI ≥ 25: Overweight including obese	68	68	68	66	65
Unweighted bases	*1,079*	*1,052*	*949*	*806*	*655*
WOMEN					
BMI < 25: Normal	50	44	43	39	36
BMI ≥ 25 < 30: Overweight	31	34	33	31	32
BMI ≥ 30: Obese	19	23	24	29	32
BMI ≥ 25: Overweight including obese	50	57	57	60	64
Unweighted bases	*1,036*	*1,117*	*1,135*	*1,152*	*886*

Notes: *Data are weighted by non-response.*

Source: *Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*

Table 4.28 Obesity by sex and ethnic group, adults aged 16 and over, 2004, England

	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
	%	%	%	%	%	%	%	%
MEN	23	25	17	14	15	6	6	25
Unweighted base	*2,444*	*317*	*297*	*482*	*346*	*330*	*307*	*420*
WOMEN	23	32	39	20	28	17	8	21
Unweighted base	*3,135*	*459*	*332*	*546*	*391*	*353*	*308*	*555*

Notes: Obesity is defined as a BMI of over 30; data are weighted for non-response.
Data are weighted for non-response.
General population data from Health Survey for England 2003 as data not available for 2004.

Source: Department of Health (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. The Stationery Office: London.

Table 4.29 National Service Framework for Diabetes: Standards, England

Standard 1. Prevention of Type 2 diabetes	The NHS will develop, implement and monitor strategies to reduce the risk of developing Type 2 diabetes in the population as a whole and to reduce the inequalities in the risk of developing Type 2 diabetes.

Notes: *The National Services Framework for Diabetes: Standards, lists 12 Standards. Standards 2-12 refer to the identification of people who do not know they have diabetes, and to the services and management of people who have been diagnosed with diabetes.*

Source: *Department of Health (2001). The National Services Framework for Diabetes: Standards. The Stationery Office: London.*

Table 4.30 Diabetes by sex and age, adults aged 16 and over, 1991 to 2006, England

Prevalence of diabetes	1991 %	1993 %	1994 %	1998 %	2003 %	2006 %
MEN						
All men	**2**	**3**	**3**	**3**	**4**	**6**
16–24	0	0	1	0	0	1
25–34	0	1	1	1	0	1
35–44	0	1	1	2	3	2
45–54	1	3	3	3	4	6
55–64	4	6	6	6	8	9
65–74	6	7	6	7	12	16
75+	7	8	8	9	10	14
Unweighted base	*1,492*	*7,689*	*7,177*	*7,193*	*6,602*	*5,625*
WOMEN						
All women	**2**	**2**	**2**	**3**	**3**	**4**
16–24	0	0	1	1	1	1
25–34	1	1	0	1	1	1
35–44	1	1	1	1	2	1
45–54	2	2	2	2	3	4
55–64	4	4	3	3	5	6
65–74	6	5	5	7	8	10
75+	5	5	5	7	9	11
Unweighted base	*1,750*	*8,880*	*8,627*	*8,715*	*8,234*	*6,923*

Notes: *Self-reported diagnosis of either Type 1 or Type 2 diabetes.*
From 2003, data are weighted for non-response.

Source: *Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*

Figure 4.30 Diabetes by sex, adults aged 16 and over, 1991 to 2006, England

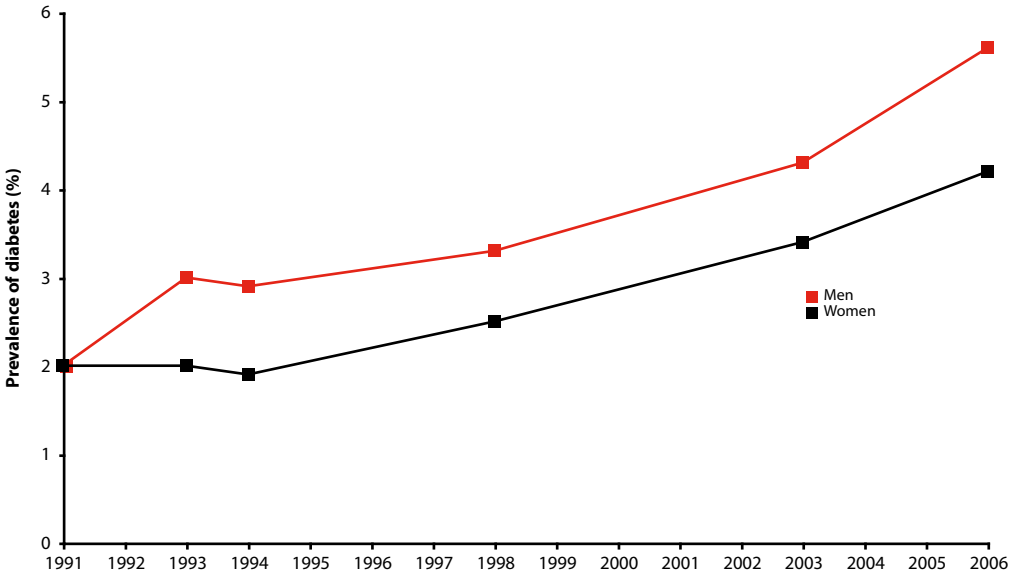


Table 4.31 Diabetes by sex and household income, adults aged 16 and over, 2006, England

	Equivalised household income quintile				
	Highest	**2nd**	**3rd**	**4th**	**Lowest**
Prevalence of diabetes	**%**	**%**	**%**	**%**	**%**
MEN	6.8	4.2	5.6	6.1	7.0
Unweighted base	*1,151*	*1,084*	*912*	*758*	*672*
WOMEN	1.3	3.3	3.0	5.8	6.3
Unweighted base	*1,179*	*1,210*	*1,148*	*1,124*	*965*

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 4.32 Diabetes by sex and ethnic group, adults aged 16 and over, 2004, England

Prevalence of diabetes	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
	%	%	%	%	%	%	%	%
MEN								
Type 1	0.6	0.5	0.7	0.9		0.2	0.3	
Type 2	3.8	9.5	4.3	9.2	7.3	8.0	3.4	3.6
Types 1 and 2 combined	4.3	10.0	5.0	10.1	7.3	8.2	3.8	3.6
Unweighted base	*6,602*	*414*	*390*	*550*	*433*	*411*	*348*	*497*
WOMEN								
Type 1	0.3	0.8	0.1		0.2	0.6		0.3
Type 2	3.1	7.6	2.0	5.9	8.4	4.5	3.3	2.0
Types 1 and 2 combined	3.4	8.4	2.1	5.9	8.6	5.2	3.3	2.3
Unweighted base	*8,234*	*653*	*469*	*634*	*508*	*478*	*375*	*656*

Notes: *Type 1 diabetes defined as doctor-diagnosed diabetes with diagnosis age <35 and currently on insulin.*
Data are weighted for non-response.
General population data from Health Survey for England 2003 as data not available for 2004.

Source: *Department of Health (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. The Stationery Office: London.*

5. Economic Costs

Stroke[1] and transient ischaemic attacks (TIA) have major economic costs as well as human costs for the UK.

Health and social care costs

The cost of stroke to the health and social care system of the UK[2] in 2006/07 was just over £2.5 billion. Over 80% of these costs were for inpatient hospital care (£1.1 billion) and residential care (nearly £900 million). This reflects the debilitating impact of stroke on individuals and the long process of rehabilitation (Table 5.1 and Figure 5.1).

There is some geographic variation in the cost of stroke to the health and social care system in different countries and regions of the UK. The average cost to the health and social care system in the UK was £42 per capita, but this ranged from £32 per capita in London to £62 per capita in Wales. These variations are similar to the regional differences in stroke mortality reported in chapter 1 (Table 5.1).

The cost of TIA to the health and social care system of the UK was nearly £370 million in 2006/07, far smaller than that of stroke but still a substantial cost. In contrast to stroke, the cost of outpatient care for TIA is greater than that of inpatient care, demonstrating the difference in management of stroke and TIA. The largest element of TIA costs to the health and social care system is for residential care, at nearly £110 million (Table 5.2 and Figure 5.2).

As with stroke, there is considerable geographic variation in the costs of TIA to the health and social care system. The costs range from £4 per capita in London to £8 per capita in Wales (Table 5.2).

Non-health care costs

Looking only at the cost of stroke and TIA to the health and social care systems of the UK grossly underestimates the true cost of these conditions. Production losses from death and ill-health in those of working age and from the informal care of people with the conditions contribute greatly to the total financial burden.

In 2006/07, production losses due to mortality and morbidity from stroke cost the UK over £970 million. Most of this cost was due to morbidity in those of working age groups (over £510 million). A further £20 million of production losses were due to morbidity caused by TIA. The largest non-health care cost to the UK for both stroke and TIA was due to production losses from informal care of people with the conditions. This resulted in over £1 billion of production losses for stroke and a further £60 million for TIA (Table 5.3).

Total costs

The total economic costs of stroke to the UK in 2006/07 were £4.5 billion, and the total costs for TIA were over £440 million. Over half (56%) of the total costs of stroke in the UK were due to health and social care costs, whereas health and social care costs accounted for 83% of the total costs of TIA. Production losses due to mortality and morbidity accounted for 21% of the total costs of stroke, and the remaining 22% of the total costs were due to informal care of people with stroke. Production losses due to morbidity accounted for 5% of the total costs of TIA, and 13% of the total costs were due to informal care of people with TIA (Table 5.4).

1. *In this chapter, stroke is defined as all cerebrovascular diseases (ICD-10 coding I60-69). Estimates of the costs of stroke do not include costs for transient ischaemic attacks, which are not included in the definition of cerebrovascular diseases.*
2. *Estimates of costs to the health and social care system in the United Kingdom include private health care expenditure.*

Table 5.1 Health and social care costs of stroke by country and Government Office Region, 2006/07, United Kingdom

	Primary care	Outpatient care	Accident and emergency care	Inpatient care	Day cases	Medications	Residential care	Total health and social care costs	Cost per capita
				£ (thousands)					£
UK	101,766	168,551	21,767	1,139,891	789	191,044	895,809	2,519,617	42
England	85,054	136,119	18,113	831,812	347	156,168	752,414	1,980,026	39
North East	5,262	9,914	1,165	46,865	45	10,114	46,553	119,918	47
Yorkshire and the Humber	9,270	15,935	2,037	85,037	55	17,818	82,001	212,152	41
North West	12,345	20,804	2,640	125,396	23	23,345	109,206	293,758	43
East Midlands	7,212	11,744	1,668	57,301	55	13,771	63,798	155,549	36
West Midlands	8,954	15,093	1,849	91,693	7	16,832	79,211	213,638	40
East of England	9,022	14,522	1,904	83,848	28	16,363	79,811	205,498	37
South East	14,410	21,450	3,153	124,040	51	25,431	127,477	316,012	38
London	8,974	12,154	1,452	125,916	76	14,327	79,384	242,284	32
South West	9,606	14,503	2,244	91,717	6	18,165	84,973	221,215	43
Wales	5,428	8,170	1,001	113,924	12	10,539	46,282	185,355	62
Scotland	8,640	19,868	2,095	131,545	19	19,020	73,586	254,773	50
Northern Ireland	2,644	4,394	559	62,611	411	5,317	23,527	94,145	57

Notes: *Health and social care costs include private health care expenditure.*
Stroke is defined as all cerebrovascular disease (ICD-10: I60-69).

Source: *For details of methods and sources used see www.heartstats.org/strokecosts*

Figure 5.1 Health and social care costs of stroke, 2006/7, United Kingdom

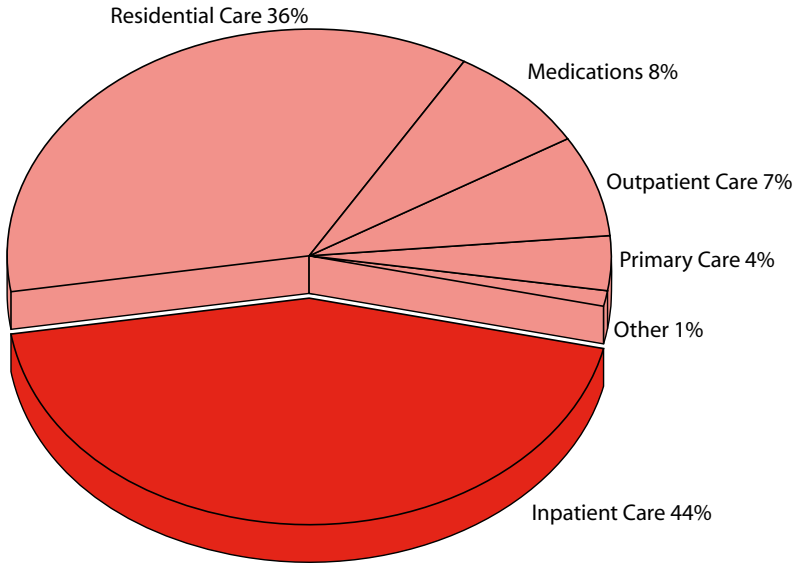


Table 5.2 Health and social care costs of transient ischaemic attack by country and Government Office Region, 2006/07, United Kingdom

	Primary care	Outpatient care	Accident and emergency care	Inpatient care	Day cases	Medications	Residential care	Total health and social care costs	Cost per capita
				£ (thousands)					£
UK	42,530	82,947	4,370	49,406	478	79,749	108,042	367,523	6
England	35,546	66,852	3,636	32,928	132	65,190	90,236	294,521	6
North East	2,199	4,869	234	1,562	7	4,222	5,583	18,677	7
Yorkshire and the Humber	3,874	7,826	409	4,140	6	7,438	9,834	33,527	7
North West	5,159	10,217	530	5,357	15	9,745	13,097	44,121	6
East Midlands	3,014	5,768	335	2,447	11	5,749	7,651	24,975	6
West Midlands	3,742	7,412	371	4,939	4	7,026	9,500	32,994	6
East of England	3,771	7,132	382	2,941	5	6,830	9,572	30,633	5
South East	6,022	10,535	633	5,032	68	10,616	15,288	48,195	6
London	3,750	5,969	292	4,652	15	5,981	9,520	30,179	4
South West	4,014	7,123	451	1,857	0	7,583	10,191	31,219	6
Wales	2,269	4,012	201	6,074	7	4,399	5,550	22,512	8
Scotland	3,611	9,758	421	6,939	336	7,940	9,228	38,232	7
Northern Ireland	1,105	2,324	112	3,466	3	2,220	3,027	12,257	7

Notes: *Health and social care includes private health care expenditure.*
Transient ischaemic attack is defined using ICD-10 code G45.9

Source: *For details of methods and sources used see www.heartstats.org/strokecosts*

Figure 5.2 Health and social care costs of transient ischaemic attack, 2006/7, United Kingdom

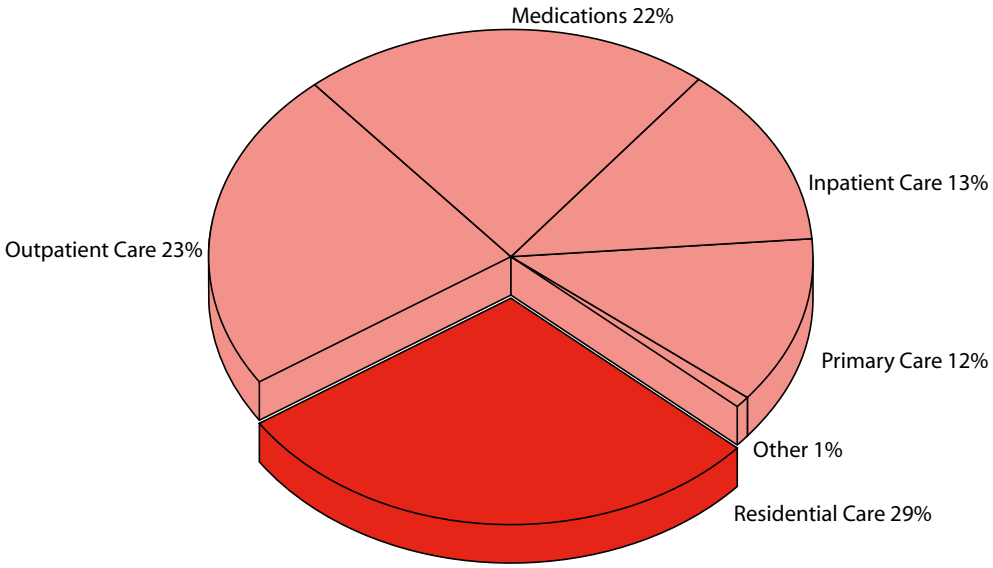


Table 5.3 Non-health care costs of stroke and transient ischaemic attack by country and Government Office Region, 2006/07, United Kingdom

	Stroke			Transient ischaemic attack	
	Production losses due to mortality	Production losses due to morbidity	Informal care	Production losses due to morbidity	Informal care
			£ (thousands)		
UK	461,593	511,957	1,010,300	20,540	56,923
England	387,726	396,718	802,849	15,887	45,234
North East	14,911	31,506	51,842	1,278	2,921
Yorkshire and the Humber	33,096	42,234	88,179	1,701	4,968
North West	54,915	76,921	121,857	3,103	6,866
East Midlands	31,394	31,342	66,396	1,251	3,741
West Midlands	41,946	41,881	83,954	1,677	4,730
East of England	35,419	33,909	80,052	1,341	4,510
South East	60,075	48,947	131,274	1,941	7,396
London	85,490	53,107	91,305	2,116	5,144
South West	30,479	36,870	87,990	1,478	4,958
Wales	18,375	35,625	56,253	1,442	3,169
Scotland	50,075	61,432	117,849	2,478	6,640
Northern Ireland	5,417	18,183	33,350	732	1,879

Notes: Stroke is defined as all cerebrovascular disease (ICD-10: I60-69) and transient ischaemic attack is defined using ICD-10 code G45.9. By definiton there is no mortality from transient ischaemic attack.

Source: For details of methods and sources used see www.heartstats.org/strokecosts

Table 5.4 Total cost of stroke and transient ischaemic attack, 2006/07, United Kingdom

	Stroke		Transient ischaemic attack	
	£ (thousands)	% of total	£ (thousands)	% of total
Direct health & social care	2,519,617	56	367,523	83
Productivity loss due to mortality	461,593	10	0	0
Productivity loss due to morbidity	511,957	11	20,540	5
Informal care	1,010,300	22	56,923	13
Total costs	**4,503,467**		**444,985**	

Note: Stroke is defined as all cerebrovascular disease (ICD-10: I60-69) and transient ischaemic attack is defined using ICD-10 code G45.9.

Source: For details of methods and sources used see www.heartstats.org/strokecosts