

Ethnic Differences in Cardiovascular Disease

2010 edition

Peter Scarborough, Prachi Bhatnagar, Asha Kaur, Kate Smolina, Kremlin Wickramasinghe and Mike Rayner

British Heart Foundation Health Promotion Research Group

Department of Public Health, University of Oxford

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Foreword

The British Heart Foundation (BHF) is committed to reducing inequalities in the levels of cardiovascular disease across the UK. Our work to meet this objective includes dedicated investment in communities that have a high incidence of cardiovascular disease and heart health roadshows across the country that take lifestyle advice directly to the community. Ethnicity is a vital part of our work on tackling inequalities because we know that people from some ethnic backgrounds are more likely to suffer premature cardiovascular disease than others. We have produced dedicated resources and targeted campaigns at people from these ethnic groups. This latest publication helps us to understand some of the differences in propensity to cardiovascular disease between different ethnic groups and to identify future priorities for action.

Describing the factors that influence the development of cardiovascular disease in different ethnic groups within the United Kingdom is a complicated task. There are differences in genetic makeup as well as differences in cultural and social practices between ethnic groups that might influence their risk of developing cardiovascular disease. Known risk factors, such as raised cholesterol, hypertension, obesity and diabetes differ between ethnic groups and the ways in which they combine to increase the probability of cardiovascular disease also differ. Furthermore, statistics on obesity are generally based on the body mass index (BMI) system of measurement which may not be the most appropriate measure of obesity in non-white populations, and standards for body weight in school-aged children in England are based on reference charts derived from entirely white populations. Large communities of minority ethnic groups are often found in deprived neighbourhoods, which makes it difficult to distinguish between influences that are due to ethnicity from those due to socioeconomic status. Also, there are significant differences in the ways that ethnicity data are collected within and across the four nations, making comparisons difficult.

Despite these limitations, the data in this publication confirm much of what is generally known about ethnic differences in cardiovascular disease: that coronary heart disease rates are highest in the South Asian population, that stroke rates are highest in people of African Caribbean descent, and that the prevalence of diabetes in these two ethnic groups is much higher than in the White population. *Ethnic Differences in Cardiovascular Disease* also reveals evidence of ethnic inequalities in access to hospital-based treatment and rehabilitation.

This new publication is timely as the Government and political parties in England consider the next steps for tackling health inequalities in the coming decade. The current targets on life expectancy and infant mortality have proved useful catalysts for cross-government action but there may be scope for a specific focus on ethnicity in the coming decade. Policymakers should ensure that data collection is consistent and comprehensive across the United Kingdom to help expose and address ethnic inequalities in cardiovascular disease. The BHF has identified health inequalities as a key challenge in the battle against cardiovascular disease over the next ten years, and all new services and policies should be subject to a health equality impact assessment before they are adopted.

Introduction

Ethnic Differences in Cardiovascular Disease is a supplement to the *Coronary Heart Disease Statistics* series, published regularly by the British Heart Foundation. This is the first supplement to the series to focus on describing ethnic inequalities in the experience of cardiovascular disease in the United Kingdom. As with all publications from the *Coronary Heart Disease Statistics* series, this publication aims to describe the burden of cardiovascular disease in the United Kingdom, using the most recent statistics available, and is designed for use by policy makers, health professionals, medical researchers and anyone with an interest in cardiovascular disease.

Ethnic Differences in Cardiovascular Disease is split into three broad chapters covering the following areas: burden of disease; treatment and rehabilitation; and cardiovascular disease risk factors. The first chapter provides an overview of incidence, prevalence, case-fatality and mortality rates by ethnic group. The second chapter reports on access to treatment and rehabilitation by ethnic group, focusing on the experience of different ethnic groups in National Health Service hospitals. The third chapter focuses on estimates of the prevalence of smoking, poor diet, physical inactivity, alcohol consumption, raised blood pressure, raised cholesterol, obesity and diabetes by ethnic group. A final appendix provides some data on population levels of different ethnic groups.

Wherever possible, the statistics that are presented in this publication report on the situation for the entire of the United Kingdom. However, comparable data on England, Wales, Scotland and Northern Ireland are the exception, rather than the rule, so much of the tables and figures included in this report are restricted to regions or countries within the United Kingdom. In most instances, the data that are reported have either been routinely collected for a large population (such as data from death certificates, or hospital episode statistics) or are taken from a survey of a representative sample of a large population. In some instances, individual studies on small populations have been included, where national-level data are not available.

Ethnicity is a complex concept and when measured in epidemiological studies is usually a self defined category. When a person identifies with a particular ethnic group, it may imply shared origins, social background, culture and traditions which are distinctive and maintained between generations¹. In every table and figure reported in this publication, the terminology used to describe ethnic groups has been taken from the original data source. In many cases, this is synonymous with the classification used for the 2001 census². In some cases, results for the ‘general population’ have been provided – this refers to the entire population including all ethnic groups. Sometimes the term ‘ethnic minority group’ has been used – this refers to all non-White ethnic groups in the population. Where data sources do not allow for comparisons of ethnic group, ‘country of birth’ has been used as a proxy of ethnicity. This proxy is clearly limited, as it does not distinguish between people of different ethnic groups that have been born within the United Kingdom. Such results should therefore be treated with caution.

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

1. Bhopal R (2007) *Ethnicity, race, and health in multicultural societies*. Oxford University Press: Oxford.
2. Sixteen ethnic groups are combined into six broad categories: White (consisting of White British, White Irish, and any other White background); Mixed (consisting of White and Black Caribbean, White and Black African, White and Asian, and any other Mixed background); Asian or Asian British (consisting of Indian, Pakistani, Bangladeshi, and any other Asian background); Black or Black British (consisting of Caribbean, African, and any other Black background); Chinese; and any other ethnic group.

Summary

- The incidence rate of myocardial infarction is higher in South Asians than in non-South Asians for both sexes.
- Stroke incidence rates in the Black ethnic group are higher than in the White ethnic group for both sexes.
- The prevalence of CHD is highest in Indian (6%) and Pakistani (8%) men.
- Cardiovascular diseases (CVD) are the main cause of death in the UK, causing almost 170,000 deaths (around a third of all deaths) in England and Wales in a year.
- For those who are dying in England and Wales but born in South Asia coronary heart disease (CHD) accounts for about a quarter of all deaths.
- Revascularisation rates are higher in the White ethnic group than in both the Black and Asian ethnic groups.
- At present, very few people from ethnic minority groups attend cardiac rehabilitation programmes.
- Around a quarter of adults in England are current smokers and the prevalence of smoking ranges from 20% in Indian men to 40% in Bangladeshi men, and from 2% in Bangladeshi women to 26% in Irish women.
- The prevalence of binge drinking is much lower in ethnic minority groups than in the general population.
- Individuals from different ethnic groups tend to store fat in different places of the body and have different body shapes. Therefore estimates of obesity taken from simple measurements cannot adequately explain ethnic differences in the prevalence of obesity.
- According to the body mass index (BMI) method prevalence of obesity is substantially lower in the South Asian community and in Chinese men than in the general population, and prevalence of overweight and obesity in young children is highest in the Black ethnic group.
- Black Caribbean, Indian, Pakistani and Bangladeshi men have a considerably higher prevalence of diabetes than the general population.

Glossary

This section provides a definition for some of the terms used throughout *Ethnic Differences in Cardiovascular Disease*.

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

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

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

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

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

Cardiovascular disease (CVD) – the collective term for all diseases affecting the circulatory system (heart, arteries, blood vessels).

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

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

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

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

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

Heart attack – the condition caused by a blockage of one of the coronary arteries when the heart is starved of oxygen. A heart attack usually causes severe pain in the centre of the chest. The pain lasts for more than fifteen minutes, and may last for many hours. The pain usually feels like a heaviness or tightness which may also spread to the arms, neck, jaw, face, back or stomach. There may also be sweating, light-headedness, nausea or shortness of breath. Sometimes a heart attack can be ‘silent’ and produce little discomfort.

Heart failure – a clinical syndrome which occurs when the heart is unable to pump enough blood to meet the demands of the body. It occurs because the heart is damaged or overworked. Some people with moderate heart failure may have very few symptoms. People with moderate or severe heart failure suffer from a number of problems, including shortness of breath, general tiredness and swelling of the feet and ankles.

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

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

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

Myocardial infarction (MI) – see heart attack.

Office of Population, Censuses and Surveys Classification of Surgical Operations and Procedures 4th Revision (OPCS-4) – a classification system for surgical operations and procedures conducted in the National Health Service.

Percutaneous Coronary Intervention (PCI) – see angioplasty.

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

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

Secondary prevention – interventions aimed at reducing the risk of disease recurrence after the disease has initially presented. Secondary prevention interventions are therefore targeted at individuals already at high-risk of disease.

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

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

Waist to Hip Ratio (WHR) – a measure of central obesity, where fat is concentrated mainly in the abdomen. For men, central obesity is defined as a WHR of 0.95 or over. For women, central obesity is defined as a WHR of 0.85 or over.

For a more comprehensive glossary, please visit www.heartstats.org

1. Burden of disease

Cardiovascular disease (CVD) affects different ethnic groups in different ways. This chapter explores differences in mortality, incidence, prevalence and case fatality for CVD experienced by different ethnic groups in the UK.

There are no specific government targets to reduce ethnic inequalities in the burden of cardiovascular disease in the UK. The Department of Health has recommended that local authorities set their own targets according to local demography. Nearly 45% of people from ethnic minority groups in England live in local authorities that have been defined as Spearhead areas by the Government – the most deprived fifth of local authorities in England. As Spearhead areas have been targeted to help narrow health inequalities, it is expected that ethnic groups living in these areas will benefit¹. Non-White ethnic groups in the UK tend to be more deprived than the White population (see appendix) and it is unclear to what extent ethnic inequalities in cardiovascular disease are due to socioeconomic inequalities.

Mortality

Cardiovascular diseases are the main cause of death in the UK, causing almost 170,000 deaths in England and Wales in 2008 (around a third of all deaths). The main forms of CVD are coronary heart disease (CHD) and stroke. Around half (46%) of all deaths from CVD are from CHD and more than a quarter from stroke (28%). CHD alone is the most common cause of death in England and Wales (15% of all deaths).

Routinely collected mortality statistics are not available by ethnic group, as death certificates only record the country of birth of the deceased. For those born in South Asia but dying in England and Wales, CHD accounts for about a quarter of all deaths, whereas for those born in the UK, CHD is responsible for 15% of all deaths. Higher CHD deaths are not found in all migrant groups, with CHD accounting for only 9% of deaths for people born in China. There is also a strong gender difference, with men born in Pakistan, Bangladesh and East Africa far more likely to die from CHD than women born in the same countries. These patterns are similar for premature mortality (under 75 years of age) (Tables 1.1 and 1.2).

In general, mortality levels for CHD were higher than for stroke, with the exception of people born in China. People born in West Africa and the Caribbean had similar mortality levels for both conditions.

Mortality data by ethnic group, rather than country of birth, is available from the ONS Longitudinal Study, which uses a 1% sample of the England population taken from the 1991 and 2001 censuses. This sample has been followed up for major events including mortality. To date, this is the best source of CVD mortality data by ethnic group that is representative of the entire of England, however mortality rates calculated for some ethnic groups are based on small numbers. The results of this study present a different pattern to that shown by the country of birth data. Of the White, Black and South Asian groups, the highest CHD mortality rate is found amongst White people, and the lowest rate amongst Black people.

South Asian and Black people died more commonly of stroke than CHD, however this was much more

pronounced in the Black ethnic group. Under the age of 75, this pattern remains for the Black group, but is reversed for the other ethnic groups (Table 1.3).

Trends in mortality rates

Mortality rates from CHD for those aged between 30 and 69 years have been falling since 1979. The decline has been reasonably steady in men for most countries of birth, but for women progress has been more variable. There has only been a small decrease for Pakistani women (14%), compared to a sharp decrease for Indian (53%) and East African (55%) women (Table 1.4 and Figure 1.4). Stroke has also declined since the late 1970s and has done so fairly steadily across both sexes and by country of birth (Table 1.5 and Figure 1.5)

Incidence

Incidence rates of cardiovascular diseases are difficult to measure. Whereas survey data can allow for estimates of prevalence rates, there are currently no national-level routinely collected datasets that allow for an estimate of the incidence of all cardiovascular diseases. It is possible to estimate incidence rates of acute cardiovascular conditions that are likely to result in either hospitalisation or death, such as myocardial infarction, using datasets that link hospital episode and mortality statistics². Using such a dataset, it is estimated that the incidence rate of myocardial infarction in Scotland is higher in South Asians than in non-South Asians for both sexes (Table 1.7).

An individual stroke register study focusing on South London found that stroke incidence rates in the Black ethnic group were higher than in the White ethnic group. Incidence rates in both groups declined between the mid 1990s and 2003/04 by around a quarter in the White group and 52% in Black women and 17% in Black men (Table 1.9).

Case fatality

Estimates of case fatality rates for cardiovascular diseases can also be generated using linked hospital episode and mortality statistics datasets. Using such a dataset, it is estimated that in-hospital case fatality rates for myocardial infarction and stroke in England in 2004/05 were lower in the South Asian and Black ethnic groups than in the White ethnic groups (Table 1.6). These data do not include deaths that occurred before hospitalisation, which may differ between ethnic groups, and have not been age-standardised to account for differences in the age structure of the different ethnic groups. However, the results are partially corroborated by Scottish data comparing myocardial infarction case-fatality rates in South Asians and Non-South Asians, which suggest that South Asians had lower case fatality for myocardial infarction compared to non-South Asians, after one month, three months and six months (Table 1.8 and Figure 1.8).

Prevalence

In 2004, the prevalence of CVD was highest in the Irish ethnic group and the general population (around 15%). Indian and Pakistani men (11% and 12% respectively) have the next highest rates, with Black African men (2%) having the lowest. The prevalence of CHD was highest in Indian (6%), Pakistani (8%) and Irish (6%) men. A similar pattern is apparent in women, although all had lower levels than men (Table 1.10).

1. Parliamentary Office of Science and Technology (2007). *Ethnicity and Health*. Postnote, number 276. Parliamentary Office of Science and Technology: London
2. Using these datasets, incidence of myocardial infarction is assumed to equal all first hospital admissions for myocardial infarction plus all outside-of-hospital from myocardial infarction where no previous hospital admission has occurred. This method does not record the small number of myocardial infarctions that do not result in either death or hospitalisation.

Table 1.1 All deaths by cause, sex and country or region of birth, 2008, England and Wales

		Country or Region of Birth									
		Great Britain	Ireland	East Africa	West Africa	Caribbean	India	Pakistan	Bangladesh	China	Rest of world
All causes	Men	218,753	4,780	964	412	2,041	2,759	1,125	463	157	10,769
	Women	243,504	5,252	756	294	1,393	2,446	827	215	154	10,765
	Total	462,257	10,032	1,720	706	3,434	5,205	1,952	678	311	21,534
All diseases of the circulatory system (I00-I99)	Men	72,263	1,555	320	145	723	1,152	514	201	42	3,625
	Women	79,746	1,614	198	86	515	958	318	72	43	3,668
	Total	152,009	3,169	518	231	1,238	2,110	832	273	85	7,293
Stroke (I60-I69)	Men	15,800	363	62	42	207	277	123	50	16	833
	Women	26,166	516	63	24	178	306	111	22	21	1,190
	Total	41,966	879	125	66	385	583	234	72	37	2,023
Coronary heart disease (I20-I25)	Men	38,733	836	212	54	298	696	326	131	14	1,957
	Women	30,449	644	80	22	159	449	155	39	13	1,444
	Total	69,182	1,480	292	76	457	1,145	481	170	27	3,401
Other diseases of the circulatory system (I00-I19, I26-I59, I70-I99)	Men	17,730	356	46	49	218	179	65	20	12	835
	Women	23,131	454	55	40	178	203	52	11	9	1,034
	Total	40,861	810	101	89	396	382	117	31	21	1,869
Diabetes (E10-E14)	Men	2,250	36	18	7	76	85	30	22	0	117
	Women	2,533	34	12	2	70	68	28	12	1	127
	Total	4,783	70	30	9	146	153	58	34	1	244
Cancer (C00-D48)	Men	66,928	1,498	246	149	706	571	237	114	52	3,010
	Women	61,374	1,393	253	127	435	504	192	57	49	2,903
	Total	128,302	2,891	499	276	1,141	1,075	429	171	101	5,913
Colo-rectal cancer (C18-C21)	Men	7,019	165	39	10	75	48	17	8	5	291
	Women	5,956	160	20	8	39	52	13	1	5	302
	Total	12,975	325	59	18	114	100	30	9	10	593
Lung cancer (C33,C34)	Men	15,617	433	35	19	123	115	50	35	11	751
	Women	12,054	366	25	13	35	65	16	11	10	470
	Total	27,671	799	60	32	158	180	66	46	21	1,221
Breast cancer (C50)	Men	59	1	0	0	1	1	0	0	0	0
	Women	9,694	170	50	42	87	93	38	3	7	508
	Total	9,753	171	50	42	88	94	38	3	7	508
Other cancers (C00-C17, C22-C32, C35-C49, C51-D48)	Men	44,233	899	172	120	507	407	170	71	36	1,968
	Women	33,670	697	158	64	274	294	125	42	27	1,623
	Total	77,903	1,596	330	184	781	701	295	113	63	3,591
Respiratory disease (J00-J99)	Men	29,930	763	88	17	172	356	115	53	25	1,263
	Women	36,022	920	75	19	90	332	98	18	16	1,336
	Total	65,952	1,683	163	36	262	688	213	71	41	2,599
Injuries and poisoning (S00-T98)	Men	9,517	150	92	27	53	99	62	21	11	865
	Women	6,299	131	39	7	24	54	19	5	6	412
	Total	15,816	281	131	34	77	153	81	26	17	1,277
All other causes	Men	36,566	778	200	67	311	496	167	52	27	1,889
	Women	56,544	1,160	179	53	259	530	172	51	39	2,319
	Total	93,110	1,938	379	117	570	1,026	339	103	66	4,211

Notes: Regions are grouped according to the United Nations Statistics Division 2009. For details, see <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Source: Office for National Statistics (2009) Personal communication.

Figure 1.1a Proportion of deaths by cause and country or region of birth, men, 2008, England and Wales

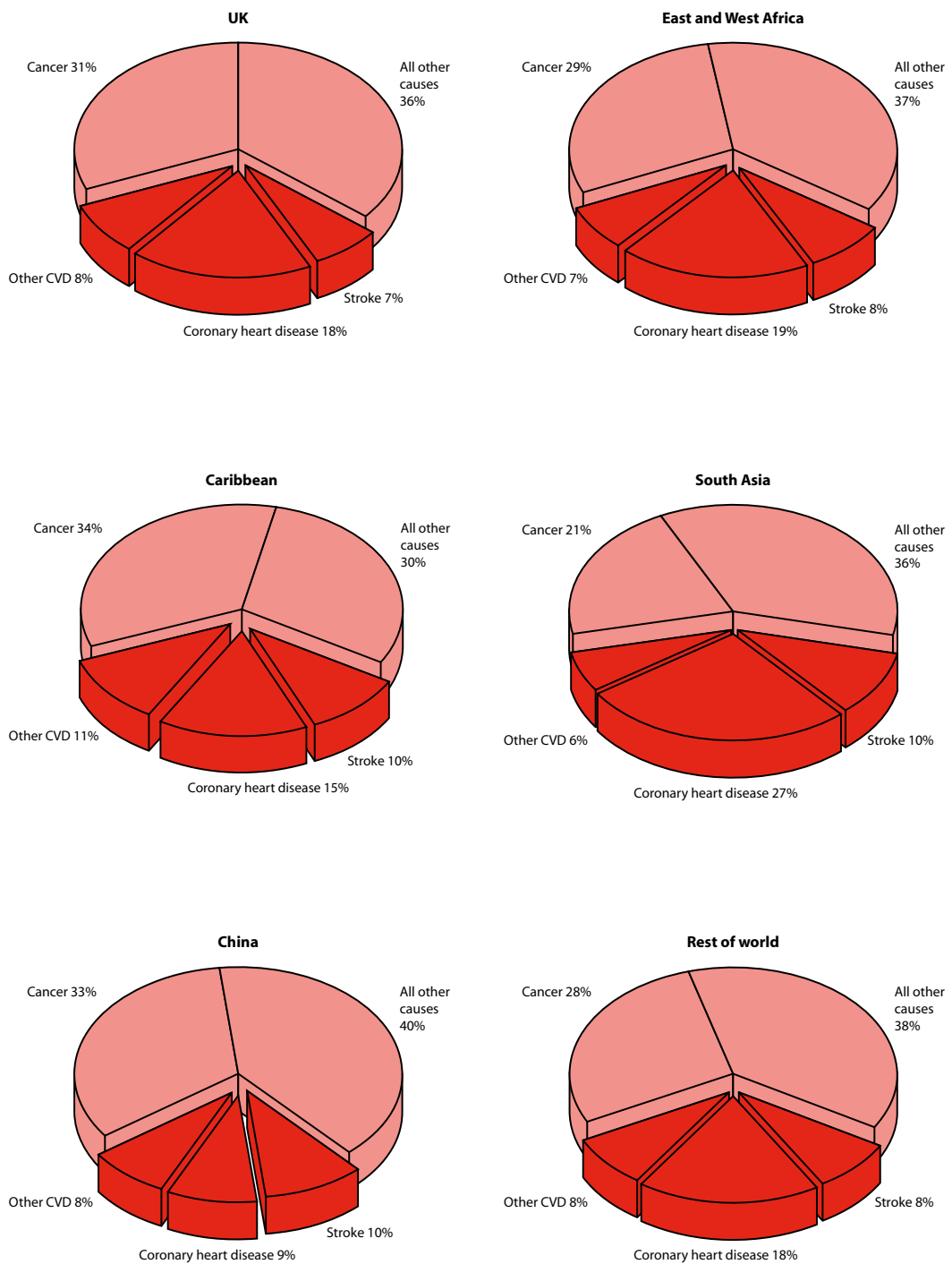


Figure 1.1b Proportion of deaths by cause and country or region of birth, women, 2008, England and Wales

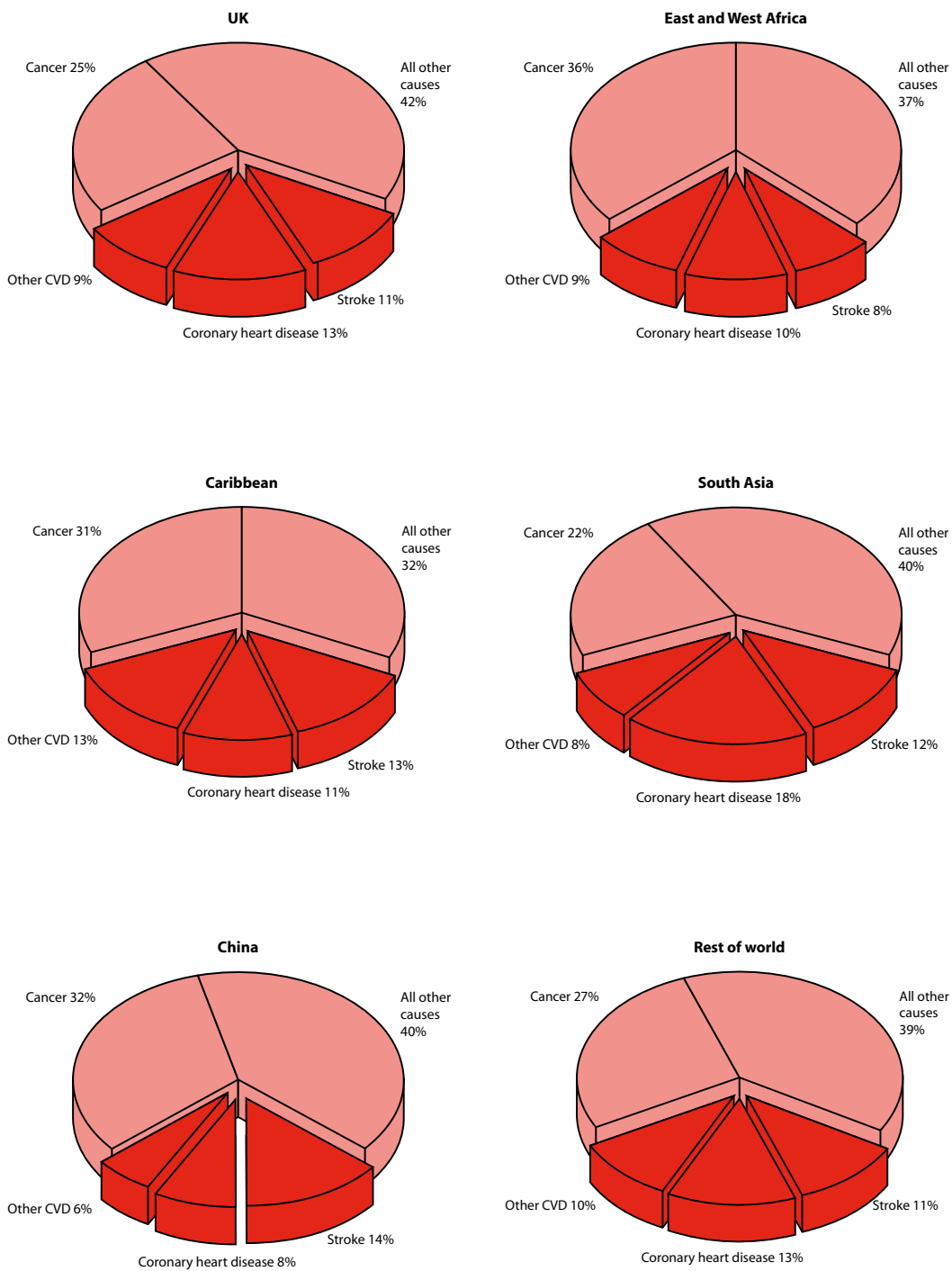


Table 1.2 Deaths under 75 by cause, sex and country or region of birth, 2008, England and Wales

		<i>Country or Region of Birth</i>									
		Great Britain	Ireland	East Africa	West Africa	Caribbean	India	Pakistan	Bangladesh	China	Rest of world
All causes	Men	89,614	2,080	728	375	934	1,255	668	319	63	4,680
	Women	61,009	1,385	496	293	602	765	433	144	32	2,954
	Total	150,623	3,465	1,224	668	1,536	2,020	1,101	463	95	7,634
All diseases of the circulatory system (I00-I99)	Men	25,153	611	228	145	309	490	299	136	12	1,272
	Women	12,070	295	88	75	170	248	142	47	2	632
	Total	37,223	906	316	220	479	738	441	183	14	1,904
Stroke (I60-I69)	Men	3,702	94	44	36	62	92	56	30	4	216
	Women	2,964	67	25	21	54	56	38	18	0	189
	Total	6,666	161	69	57	116	148	94	48	4	405
Coronary heart disease (I20-I25)	Men	15,598	387	155	64	146	335	209	97	4	757
	Women	5,408	162	37	19	54	140	83	23	2	271
	Total	21,006	549	192	83	200	475	292	120	6	1,028
Other diseases of the circulatory system (I00-I19, I26-I59, I70-I99)	Men	5,853	130	29	45	101	63	34	9	4	299
	Women	3,698	66	26	35	62	52	21	6	0	172
	Total	9,551	196	55	80	163	115	55	15	4	471
Diabetes (E10-E14)	Men	814	13	11	6	26	33	17	11	0	40
	Women	531	5	6	2	18	22	13	7	0	34
	Total	1,345	18	17	8	44	55	30	18	0	74
Cancer (C00-D48)	Men	32,834	789	188	126	362	303	157	87	26	1,453
	Women	28,040	624	204	141	282	266	141	39	19	1,322
	Total	60,874	1,413	392	267	644	569	298	126	45	2,775
Colo-rectal cancer (C18-C21)	Men	3,420	88	26	10	46	22	11	6	3	142
	Women	2,246	63	13	11	20	23	10	1	3	107
	Total	5,423	151	39	21	66	45	21	7	6	492
Lung cancer (C33,C34)	Men	8,240	251	29	13	78	66	28	28	5	393
	Women	6,054	184	20	18	30	27	10	8	6	209
	Total	14,294	435	49	31	108	93	38	36	11	602
Breast cancer (C50)	Men	26	0	0	0	1	0	0	0	0	0
	Women	5,163	89	46	32	62	65	34	3	1	311
	Total	5,189	89	46	32	63	65	34	3	1	311
Other cancers (C00-C17, C22-C32, C35-C49, C51-D48)	Men	21,148	450	133	103	237	215	118	53	18	918
	Women	14,577	288	125	80	170	151	87	27	9	695
	Total	35,968	738	258	183	407	366	205	80	27	1,370
Respiratory disease (J00-J99)	Men	7,880	222	52	10	68	108	53	26	5	322
	Women	6,098	190	27	16	25	64	39	9	1	214
	Total	13,978	412	79	26	93	172	92	35	6	536
Injuries and poisoning (S00-T98)	Men	7,206	112	88	32	38	80	51	20	10	721
	Women	2,574	43	33	7	15	28	10	5	5	221
	Total	9,780	155	121	39	53	108	61	25	15	942
All other causes	Men	14,428	333	161	56	131	241	91	39	10	872
	Women	10,710	228	138	52	91	137	88	37	5	532
	Total	25,138	561	299	108	222	378	179	76	15	1,404

Notes: Regions are grouped according to the United Nations Statistics Division 2009. For details, see <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Source: Office for National Statistics (2009) Personal communication.

Table 1.3 *Age standardised death rates per 100,000 from CHD, stroke and other CVD by ethnic group and sex, all ages and under 75, 2002/07, England and Wales*

	All ages			Under 75		
	CHD	Stroke	Other CVD	CHD	Stroke	Other CVD
White						
Men	149	105	165	73	34	68
Women	71	111	126	26	31	46
South Asian						
Men	107	128	111	71	41	37
Women	85	109	61	43	40	47
Black						
Men	49	163	106	20	65	59
Women	35	139	75	12	37	50
Other Ethnic Group						
Men	103	137	101	62	65	54
Women	66	94	82	19	27	25

Notes: Rates are based on a 1% sample of the population of England and Wales identified at the 1991 and 2001 censuses. The sample were followed up for mortality between 2002 and 2007. Rates for non-White ethnic groups are based on a small number of events and should be treated with caution. Ethnicity as defined in the 1991 and/or 2001 census.

Source: ONS Longitudinal Study (2009). Analysis of the ONS Longitudinal Study undertaken by Christopher Marshall, Centre for Longitudinal Study Information and User Support, December 2009.

The permission of the Office for National Statistics to use the Longitudinal Study is gratefully acknowledged, as is the help provided by staff at the Centre for Longitudinal Study Information & User Support (CeLSIUS). CeLSIUS is supported by the ESRC Census of Population Programme (Award Ref: RES-348-25-0004).

The authors alone are responsible for the interpretation of the data.

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Table 1.4 Trends in CHD mortality rates per 100,000 by sex and country of birth, 30 to 69 years, 1979 to 2003, England and Wales

	1979-1983	1989-1993	1999-2003
MEN			
England and Wales	342	240	133
Jamaica	154	130	107
Other Carribean	168	121	86
West Africa	260	155	83
East Africa	455	312	176
India	478	338	191
Pakistan	391	364	255
Bangladesh	466	404	579
Scotland	413	285	166
Northern Ireland	399	289	160
Republic of Ireland	405	303	192
Italy	231	160	106
Spain	210	160	98
France	289	192	140
Poland	400	301	261
Hungary	335	339	199
WOMEN			
England and Wales	98	75	39
Jamaica	62	66	48
Other Carribean	68	50	41
East Africa	123	56	56
India	154	129	72
Pakistan	111	101	96
Scotland	128	97	55
Northern Ireland	132	96	54
Republic of Ireland	117	91	52
Italy	84	57	37

Notes: Rates are adjusted to the Europe 2000 population. Countries included where numbers of deaths were sufficient for accurate rate estimation. See source for details.

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; 463-470.

Figure 1.4a Trends in CHD mortality in men, selected countries of birth, 1979 to 2003, England and Wales

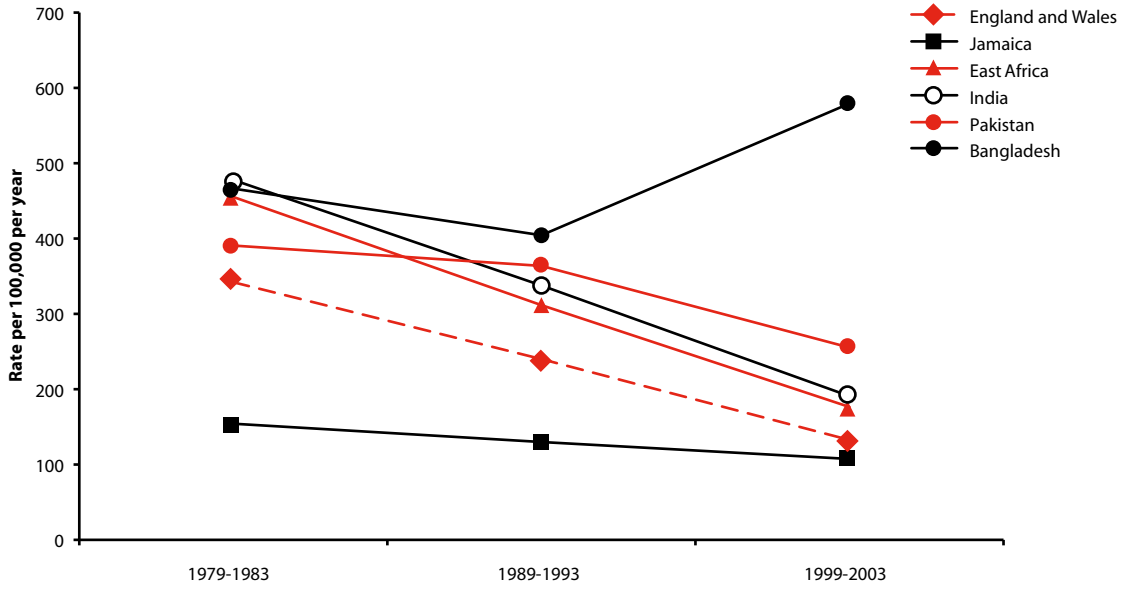


Figure 1.4b Trends in CHD mortality in women, selected countries of birth, 1979 to 2003, England and Wales

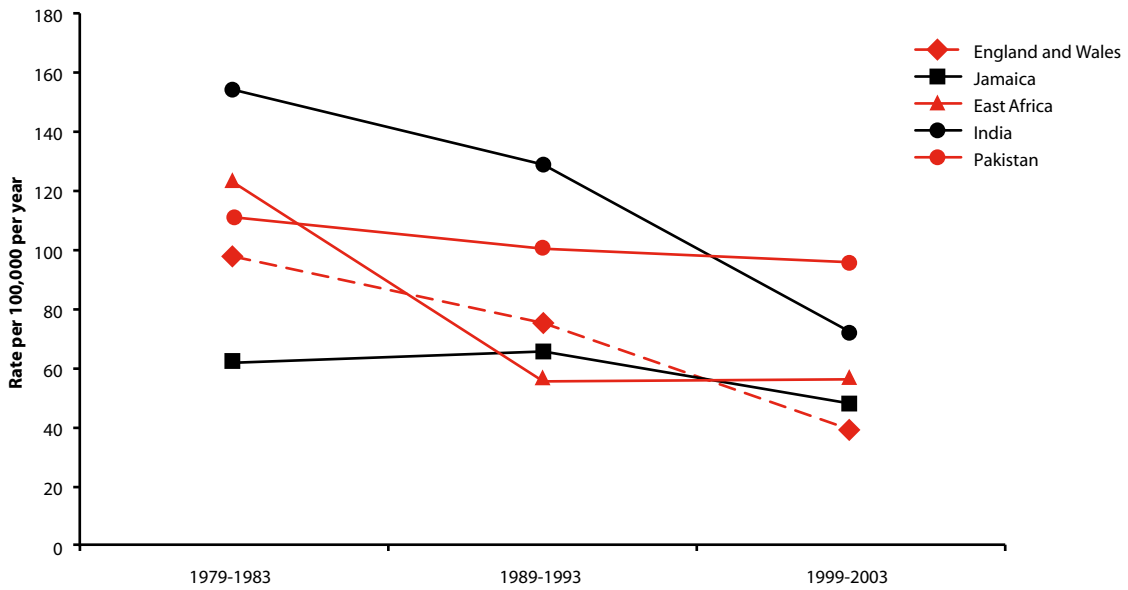


Table 1.5 Trends in stroke mortality rates per 100,000 by sex and country of birth, 30 to 69 years, 1979 to 2003, England and Wales

	1979-1983	1989-1993	1999-2003
MEN			
England and Wales	59	39	27
Jamaica	113	76	51
Other Carribean	93	71	41
West Africa	131	112	71
East Africa		45	36
India	97	55	35
Pakistan	59	64	42
Bangladesh	117	124	84
Scotland	66	49	35
Northern Ireland	76	49	35
Republic of Ireland	75	56	45
Italy	40	32	22
WOMEN			
England and Wales	46	30	21
Jamaica	109	60	37
Other Carribean	79	40	31
East Africa		34	27
India	64	39	26
Pakistan		47	35
Scotland	54	36	28
Northern Ireland	50	36	26
Republic of Ireland	57	38	26
Italy	36	26	19

Notes: Rates are adjusted to the Europe 2000 population. Countries included where numbers of deaths were sufficient for accurate rate estimation. See source for details.

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; 463-470.

Table 1.6 *Percentage of hospital admissions for myocardial infarction and stroke that resulted in fatality within 30 days and within a year by ethnic group, 2003/05, England*

Days	White		Asian		Black		Other		Not stated	
	MI %	Stroke %	MI %	Stroke %	MI %	Stroke %	MI %	Stroke %	MI %	Stroke %
0 to 30	14	20	8	14	8	11	10	14	15	23
0 to 365	24	33	13	23	16	21	15	24	22	35
<i>Number of events</i>										
0 to 30	6,732	12,187	157	220	25	117	50	96	3,113	6,290
0 to 365	11,293	20,738	243	365	51	218	74	161	4,681	9,428

Notes: Results only include patients who were admitted to an NHS hospital in England with either myocardial infarction or stroke (i.e. mortality before hospitalisation is not included). Results for both sexes have been combined due to low number of events in some ethnic groups. Results are not age-standardised. 'Total' refers to mortality at any time during the first year after hospital admission.

Source: Unit of Healthcare Epidemiology (2010). Analysis of linked hospital episode statistics and mortality dataset. Personal communication.

Table 1.7 Incidence rate per 1,000 for acute myocardial infarction by sex and age, South Asians compared to non-South Asians, 2001/03, Scotland

	25-34	35-44	45-54	55-64	65-74	75-84	85+	Age-standardised rate
South Asians								
Men	0.0	1.6	2.6	6.4	15.3	42.6	26.8	7.7
Women	0.0	0.3	1.4	3.5	8.4	24.2	42.9	4.9
<i>Number of events</i>								
Men	0	11	12	20	27	16	2	88
Women	0	2	6	8	10	8	4	38
Non-South Asians								
Men	0.1	0.7	2.4	5.4	10.3	18.8	31.1	5.0
Women	0.0	0.2	0.7	2.0	5.1	11.3	21.9	2.6
<i>Number of events</i>								
Men	86	609	1,948	3,525	5,091	4,726	1,710	17,696
Women	29	199	584	1,408	3,043	4,605	3,406	13,276

Notes: New cases of AMI were identified from the hospital discharge diagnosis and the underlying cause of death on a death certificate (ICD-10 codes I21 or I22 and ICD-9 code 410). With regards to discharge diagnoses, a first AMI was defined as the first admission for AMI based on no hospital admission for AMI in the preceding 10 years. "Non-South Asians" refers to everyone in the general population who does not identify with the South Asian ethnic group.

Source: Fischbacher CM, Bhopal R, Povey C, Steiner M, Chalmers J, Mueller G, Jamieson J, Knowles D (2007). Record linked retrospective cohort study of 4.6 million people exploring ethnic variations in disease: myocardial infarction in South Asians. *BMC Public Health*, 7:142.

Table 1.8 *Percentage alive at 30 days, 90 days and 180 days after acute myocardial infarction admission, by sex, South Asians compared to non-South Asians, 2001/03, Scotland*

		Non-South Asians	South Asians
		%	%
30 days	Men	56	73
	Women	47	71
90 days	Men	53	71
	Women	43	70
180 days	Men	50	70
	Women	39	68
<i>Bases</i>			
30 days	Men	17,257	88
	Women	12,974	34
90 days	Men	16,473	85
	Women	12,415	33
180 days	Men	15,476	83
	Women	1,773	31

Source: Fischbacher CM, Bhopal R, Povey C, Steiner M, Chalmers J, Mueller G, Jamieson J, Knowles D (2007). Record linked retrospective cohort study of 4.6 million people exploring ethnic variations in disease: myocardial infarction in South Asians. *BMC Public Health*, 7:142.

Figure 1.8 *Percentage alive at 30 days after acute myocardial infarction admission, by sex, South Asians compared to non-South Asians, 2001/03, Scotland*

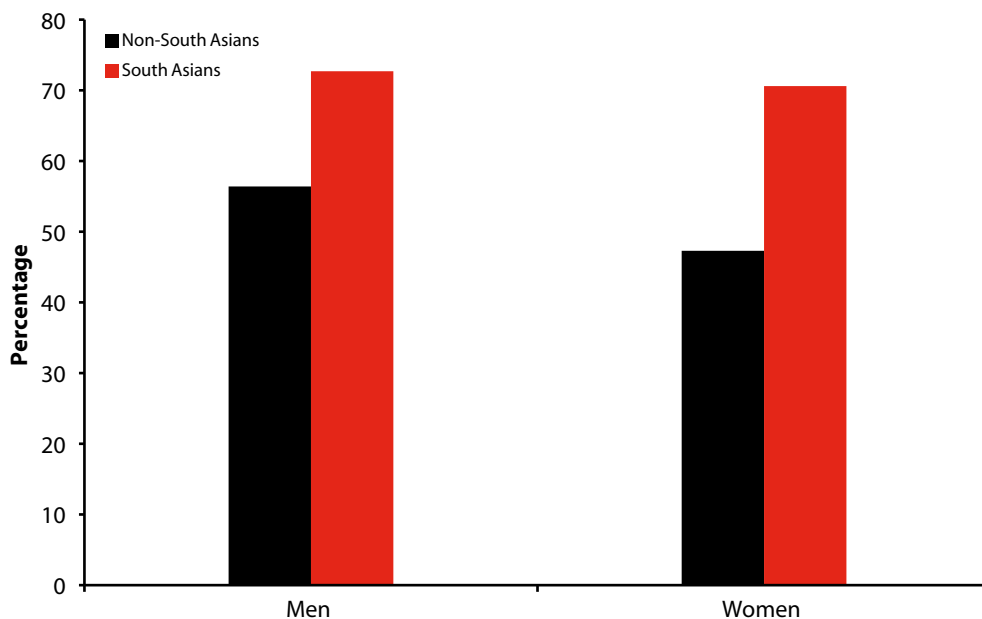


Table 1.9 Incidence rate per 100,000 of stroke by sex and ethnic group, 1995 to 2004, South London

	1995-1996	1997-1998	1999-2000	2001-2002	2003-2004
MEN					
White	148	160	126	137	112
Black	186	221	169	147	154
Other	177	174	187	158	199
WOMEN					
White	114	105	81	98	83
Black	178	132	124	128	85
Other	74	180	179	84	112

Notes: Rates are adjusted to the European Standard Population.

Source: Heuschman P U , Grieve A P , Toshke A M , Rudd A G , Wolfe C D A (2008) . Ethnic group disparities in 10-year stroke trends in stroke incidence and vascular risk factors: The South London Stroke Register (SLSR). Stroke, 39; 2204-2210.

Figure 1.9a Incidence of stroke in men by ethnic group, 1995 to 2004, South London

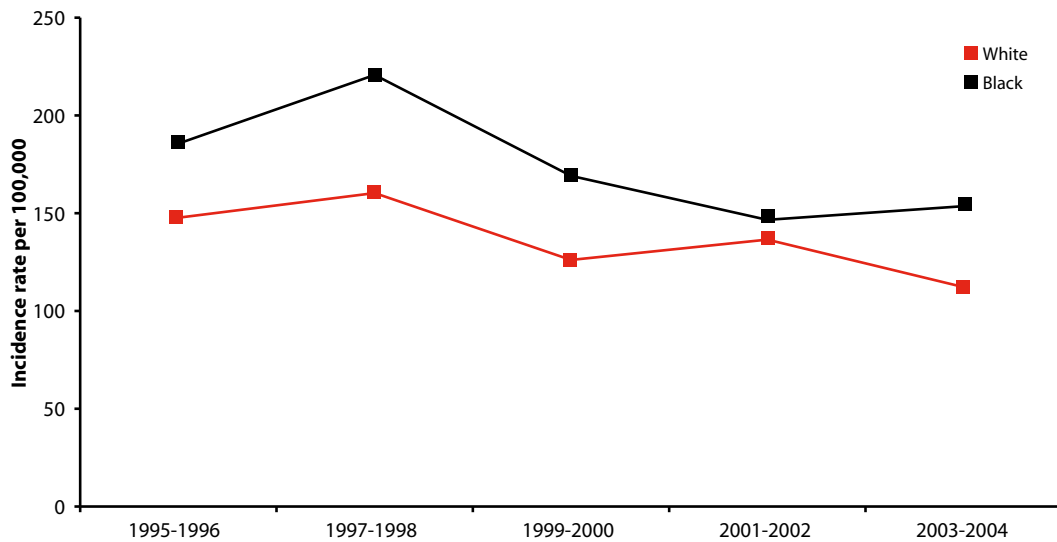


Figure 1.9b Incidence of stroke in women by ethnic group, 1995 to 2004, South London

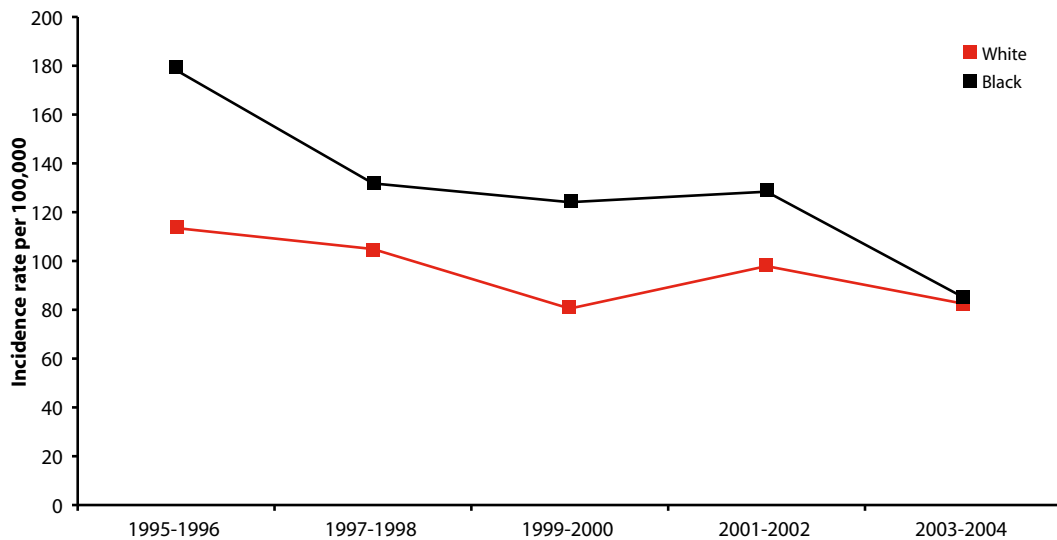


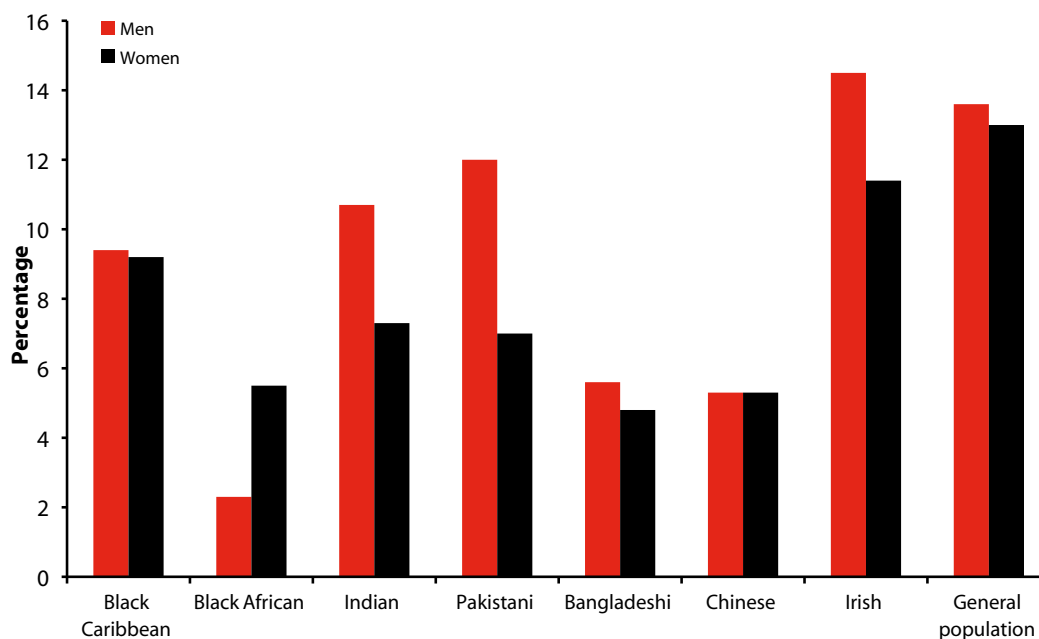
Table 1.10 Prevalence of CVD and CHD by sex, age and ethnic group, 2004, England

	MEN				WOMEN			
	16-34 %	35-54 %	55+ %	All ages %	16-34 %	35-54 %	55+ %	All ages %
CVD								
Black Caribbean	3	4	23	9	4	9	17	9
Black African	2	1	5	2	3	6	21	6
Indian	4	7	31	11	2	5	24	7
Pakistani	3	11	42	12	3	8	22	7
Bangladeshi		8	24	6	1	8	21	5
Chinese	1	4	20	5	2	6	15	5
Irish	9	8	24	15	5	8	20	11
General population	5	8	29	14	5	9	24	13
CHD								
Black Caribbean		2	13	4	0	2	6	2
Black African	0		5	1	0	1		1
Indian		3	24	6		2	15	3
Pakistani		8	35	8	1	2	14	3
Bangladeshi		6	18	4		3	13	2
Chinese		1	7	2		0	8	1
Irish	0	3	12	6		1	7	3
General population		2	18	6	0	1	11	4
<i>Bases (unweighted)</i>								
Black Caribbean	122	167	125	414	200	291	162	653
Black African	179	172	39	390	235	190	44	469
Indian	201	231	118	550	240	275	119	634
Pakistani	222	146	65	433	279	164	65	508
Bangladeshi	212	150	49	411	310	118	50	478
Chinese	172	118	58	348	148	176	51	375
Irish	114	194	189	497	149	275	232	656
General population	1,771	2,364	2,467	6,602	2,175	2,897	3,162	8,234

Notes: General population data is from 2003. Blank cells indicate too few respondents for accurate estimate.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Figure 1.10 Prevalence of CVD by sex and ethnic group, 2004, England



2. Treatment and rehabilitation

This chapter reports on treatment and rehabilitation for cardiovascular disease (CVD) experienced by different ethnic groups. There are no specific government targets regarding ethnic inequalities in access to treatment, but since the introduction of the Race Relations (Amendment) Act in 2000, public bodies – including the National Health Service and the Department of Health – have had a statutory duty to actively promote race equality, including within service delivery¹.

Until recently, regular recording of ethnic data in the National Health Service (NHS) was either inconsistent or not practiced. Since 2001, it has been a requirement to ethnically code all admissions to NHS hospitals using the same coding system that was applied in the 2001 census – however, compliance with this requirement has not been uniform. In 2002/03, over 30% of all hospital admissions in England were not coded for ethnicity, but by 2007/08 this had dropped to less than 15%². This difficulty means that good quality national-level trend data in ethnic inequalities in access to treatment and rehabilitation for CVD are not available. All of the national-level data presented in this chapter are from the most recent available data, when the quality of ethnic coding was at its highest. Other data presented in this chapter come from individual studies conducted on sub-national populations, where ethnic coding could be regulated.

Hospital inpatient cases

Comparing the number of inpatient cases for CVD between ethnic groups in England is complicated as the size of the population of each ethnic group varies. Because of the large number of inpatient cases where ethnic group was not verified, applying the number of cases to the total population to produce comparable rates is not straight forward³. It is possible to calculate the proportion of all inpatient cases that were due to CVD, and compare these proportions between ethnic groups, but again these comparisons must be made with caution. Differences between ethnic groups may be due to genuine differences between the level of service required for CVD (the numerator of the proportion), differences in the level of service required for other diseases (part of the denominator of the proportion), or both. This approach shows that CVD makes up a greater percentage of inpatient cases for the White ethnic group than for any other ethnic group. In 2007/08, 11% of all inpatient cases for White men were for CVD, and 7% of inpatient cases for White women were for CVD. In comparison, CVD made up only 7% of inpatient cases for Black and Chinese men, 3% for Black women and 4% for Chinese women. Similarly, the proportion of inpatient cases for coronary heart disease (CHD) was highest in the White ethnic group, with the exception of Asian men where 6% of all inpatient cases were for CHD compared to 4% in White men (Tables 2.1a and 2.1b).

Revascularisations

Calculation of revascularisation rates by ethnic group is not straight forward, for similar reasons to the difficulties in calculating inpatient case rates for CVD by ethnic group. The rates reported in this chapter have been age-standardised against the number of inpatient cases for CHD by ethnic group, thus

enabling calculation of revascularisation rates for the cases where ethnicity was not recorded. In English NHS hospitals in 2007/08, the rate of both coronary artery bypass grafts (CABGs) and percutaneous coronary interventions (PCIs) was higher in the White ethnic group than in both the Black and Asian ethnic groups (Table 2.2 and Figure 2.2). A similar comparison restricted to London NHS hospitals in 2002/03 suggested similar results – that revascularisation rates were generally lower in the Black and Asian ethnic groups than in White ethnic groups (Table 2.3). In each of these instances, the number of events in the non-White ethnic groups was often low, so the result should be treated with caution.

The revascularisation rates reported in tables 2.2 and 2.3 have been age-standardised to take account of the differing age structure of the different ethnic groups. However, they have not taken account of differences in cardiovascular risk factor status of the patients or severity of the condition when the patients presented to hospital. A comparison between revascularisation rates in South Asian and White men and women conducted in the mid 1990s in Leicestershire was standardised by the need for revascularisation, assessed in each case by a panel of nine experts with access to medical records and data on risk factor status of the patients but blind to the ethnicity of the patients. The results suggested that, after adjustment for need, angioplasty rates were about 30% lower in South Asians than in White people, and CABG rates were around 25% lower (although the difference in angioplasty rates was not statistically significant) (Table 2.5).

Rehabilitation

Rehabilitation programmes for individuals with CVD are monitored by the National Audit of Cardiac Rehabilitation. In 2007 there were 374 cardiac rehabilitation programmes running in the UK. The large majority of individuals referred to these programmes had either had a heart attack or revascularisation. One of the aims of the British Heart Foundation's National Campaign for Cardiac Rehabilitation is to ensure that rehabilitation programmes meet the needs of under-represented groups, including ethnic minorities. At present, it seems that very few people from ethnic minority groups are currently attending cardiac rehabilitation programmes – studies will be conducted in the coming years to explore the reasons for these ethnic differences⁴.

National data are currently available on ethnic differences in the prescription of aspirin, beta blockers and lipid-regulating drugs (statins) at hospital discharge after a heart attack. These data show that in English and Welsh NHS hospitals in 2008, the rate of prescriptions of each of these drugs was well above the target of 80% (set by the National Service Framework for Coronary Heart Disease in 2001⁵) for each ethnic group. There were no ethnic differences in prescribing of either statins or aspirin. However, there were some small differences in prescribing rates for beta blockers, with highest rates prescribed in Asian patients (97%) and lowest in patients with mixed ethnicity (90%). These differences should be treated with caution as they are based on a low number of patients (Table 2.4).

Two studies from Leicestershire have explored differences in outcome after revascularisation procedures for White and South Asian patients. Both studies found that there was a small raised risk (about 10%) of cardiovascular mortality following revascularisation in South Asian patients, however these differences were not statistically significant. Both studies did find a significantly higher risk (about 25%) in South Asians for complications after revascularisation and for readmission to hospital after 30 days (Tables 2.6 and 2.7).

1. Fox C (2004) *Heart Disease and South Asians*. NHS and British Heart Foundation: London.
2. HESonline (2009) *How good is HES ethnic coding and where do the problems lie? The Information Centre: Leeds*. Available at www.hesonline.nhs.uk
3. *The actual number of inpatient cases for each condition by ethnic group is unknown, since the ethnic group is not recorded in all cases. Therefore, using the recorded number of cases as the numerator in a calculation of rates would result in an underestimate of the actual underlying rate for each ethnic group. It is unlikely that this bias will affect all ethnic groups equally, and it is not possible to adequately adjust for this bias.*
4. National Audit of Cardiac Rehabilitation team, University of York (2008) *The National Audit of Cardiac Rehabilitation Annual Statistical Report 2008*. British Heart Foundation: London.
5. Department of Health (2001) *National Service Framework for Coronary Heart Disease*. Department of Health: London.

Table 2.1a Inpatient cases by main diagnosis and ethnic group, men, National Health Service hospitals, 2007/08, England

	White	Mixed	Asian	Black	Chinese	Other	Unknown
All diagnoses	5,196,239	51,288	280,929	144,156	13,424	83,562	956,042
All diseases of the circulatory system (I00-I99)	575,774	2,588	28,604	9,628	1,002	6,524	91,080
Coronary heart disease (I20-I25)	216,061	933	15,992	2,323	278	2,744	36,738
Angina (I20)	55,147	231	4,250	784	59	776	6,830
Acute myocardial infarction (I21)	54,386	186	3,118	461	64	603	8,580
Heart failure (I50)	45,283	152	2,059	973	49	394	4,418
Stroke (I60-I69)	70,188	273	2,681	1,631	133	804	10,662
Diabetes (E10-E14)	32,540	277	1,896	1,617	59	485	5,270
Obesity (E66)	1,031	11	79	29	*	31	336
All cancer (C00-D48)	640,163	2,634	14,774	10,203	1,373	6,256	97,381
Colo-rectal cancer (C18-C21)	77,400	137	1,077	897	153	382	10,217
Lung cancer (C33-C34)	49,302	127	774	501	125	410	7,602
Breast cancer (C50)	1,526	12	46	20	*	68	233
Bladder cancer (C67)	57,404	134	734	329	67	311	6,363
All diseases of the nervous system (G00-G99)	118,548	1,056	5,432	3,014	200	1,533	19,916
All diseases of the respiratory system (J00-J99)	387,676	4,309	24,850	9,726	873	6,069	57,471
All diseases of the digestive system (K00-K93)	653,231	5,097	33,782	15,623	1,941	9,843	129,368
All diseases of the genitourinary system (N00-N99)	291,418	2,544	16,409	8,420	808	4,539	51,061
Injury and poisoning (V00-Y98)	408,601	4,427	17,435	10,001	873	8,057	77,945
All other diagnoses	2,087,257	28,345	137,668	75,895	6,295	40,225	426,214

Notes: Ordinary admissions and day cases combined. ICD codes (10th revision) in parentheses. Ethnicity data on HES should be used with care and may not yet be robust enough to support analysis of ethnic differences. Patients are asked to select their category from a standard list, and some decline to do this. The counts are of finished consultant episodes (FCEs), defined as a continuous period of admitted patient care under one consultant within one healthcare provider. Please note that the figures do not represent the number of different patients, as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year. Patients where data on sex are not available have been excluded. Low counts have been replaced by an asterisk, and are not included in 'all diagnoses'.

Source: Hospital Episode Statistics (2009). Information Centre for Health and Social Care. Personal Communication. Copyright © 2009, Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Table 2.1b Inpatient cases by main diagnosis and ethnic group, women, National Health Service hospitals, 2007/08, England

	White	Mixed	Asian	Black	Chinese	Other	Unknown
All diagnoses	6,600,276	71,877	417,839	246,725	22,682	113,915	1,157,061
All diseases of the circulatory system (I00-I99)	459,116	1,861	17,173	8,280	906	4,499	67,557
Coronary heart disease (I20-I25)	121,364	468	6,974	1,510	159	1,348	17,324
Angina (I20)	41,722	139	2,575	621	51	485	4,699
Acute myocardial infarction (I21)	34,621	84	1,327	266	32	323	4,752
Heart failure (I50)	43,270	107	1,743	928	38	328	4,632
Stroke (I60-I69)	77,522	301	1,808	1,307	173	628	11,876
Diabetes (E10-E14)	26,799	307	1,470	1,304	52	341	3,674
Obesity (E66)	2,486	56	79	152	*	69	973
All cancer (C00-D48)	658,979	3,428	17,088	15,314	1,783	7,442	110,045
Colo-rectal cancer (C18-C21)	54,917	122	712	841	118	458	7,633
Lung cancer (C33-C34)	35,409	72	329	185	81	238	5,252
Breast cancer (C50)	133,615	577	3,953	2,766	330	1,347	24,020
Bladder cancer (C67)	17,855	44	131	102	11	85	2,014
All diseases of the nervous system (G00-G99)	134,588	1,040	5,117	3,601	227	1,593	22,708
All diseases of the respiratory system (J00-J99)	376,457	3,440	19,287	8,773	703	4,700	51,125
All diseases of the digestive system (K00-K93)	693,849	5,220	29,836	17,617	1,875	8,486	118,726
All diseases of the genitourinary system (N00-N99)	444,111	3,653	23,741	14,003	1,510	7,723	77,955
Injury and poisoning (V00-Y98)	413,135	3,000	11,531	6,916	711	4,904	63,077
All other diagnoses	3,390,756	49,872	292,517	170,765	14,915	74,158	641,221

Notes: Ordinary admissions and day cases combined. ICD codes (10th revision) in parentheses. Ethnicity data on HES should be used with care and may not yet be robust enough to support analysis of ethnic differences. Patients are asked to select their category from a standard list, and some decline to do this. The counts are of finished consultant episodes (FCEs), defined as a continuous period of admitted patient care under one consultant within one healthcare provider. Please note that the figures do not represent the number of different patients, as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year. Patients where data on sex are not available have been excluded. Low counts have been replaced by an asterisk, and are not included in 'all diagnoses'.

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Table 2.2 CABG, PCI and all revascularisations age-standardised procedure rate per 100,000 inpatient cases for CHD by ethnic group, National Health Service hospitals, 2007/08, England

	White	Asian	Black	Other	Unknown
Coronary Artery Bypass Graft (K40-46)	7,543	3,455	2,134	3,521	3,910
Percutaneous Coronary Intervention (K49-50)	2,749	896	675	9,228	2,077
All revascularisations (CABGs & PCIs)	10,292	4,351	2,809	12,749	5,986
<i>Number of events:</i>					
CABGs	18,425	1,237	149	366	3,311
PCIs	3,448	246	38	80	1,302
All revascularisations	21,873	1,483	187	446	4,613

Notes: OPCS-4 codes in brackets. Data are based on main procedures, which is the first recorded procedure or intervention in the Hospital Episode Statistics (HES) data set and is usually the most resource intensive procedure or intervention performed during the episode. Procedures where the age of the patient was not known have not been included. 'Other' includes Chinese and Mixed ethnic groups, as numbers in these groups were too low for individual analyses.

Source: Hospital Episode Statistics (2009). Information Centre for Health and Social Care. Personal Communication. Copyright © 2009, Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Figure 2.2 CABG, PCI and all revascularisations age-standardised procedure rate per 100,000 inpatient cases for CHD by ethnic group, National Health Service hospitals, 2007/08, England

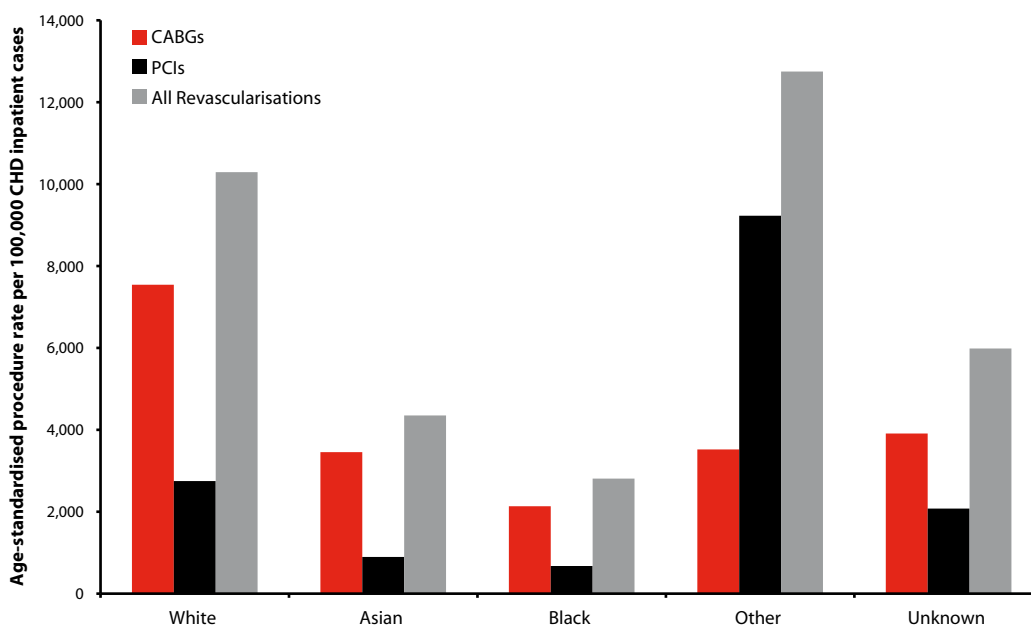


Table 2.3 *Revascularisation age-standardised rate per 100,000 after adjustment for CHD admissions by ethnic group, National Health Service hospitals, 2002/03, London*

	Observed Events	Age-standardised Rate
White British	3,724	103
White Irish	281	120
Other White	689	108
White & Black Caribbean	22	111
White & Black African	14	115
White & Asian	20	101
Other Mixed	46	146
Indian	690	106
Pakistani	232	94
Bangladeshi	185	63
Other Asian	203	108
Black Caribbean	134	81
Black African	71	93
Other Black	42	96
Chinese	12	105
Other Ethnic Group	302	112
Not Stated	1,830	105
TOTAL	9,176	100

Notes: Rate is directly standardised by age and sex to the London population. Rate is adjusted for CHD admissions by calculating proportional admissions ratios for revascularisations as compared to all CHD admissions. Figures greater than 100 indicate that revascularisation is more likely than the general population after accounting for number of CHD admissions within that ethnic group, and vice versa. See source for details. Revascularisations are defined as PCI operations (OPCS-4 codes K49-K50) and CABG operations (OPCS-4 codes K40-K46).

Source: Mindell J, Klodowski E, Fitzpatrick J (2005). Using routine data to measure ethnic differentials in access to revascularisation in London. A technical report. London Health Observatory: London.

Table 2.4 *Prescription of aspirins, beta blockers and statins after hospital admission for heart attack by ethnic group, 2008, England and Wales*

	Discharged with secondary prevention medication of aspirin	Discharged with secondary prevention medication of beta blockers	Discharged with secondary prevention medication of statins	Number of patients
<i>Percentage of patients:</i>				
White	98	94	97	38,703
Mixed	98	90	96	83
Asian	99	97	98	747
Black	97	93	96	223
Other	98	95	98	394
Not known/Stated	98	91	96	4,000
<i>Target:</i>	80	80	80	

Notes: Ethnic groups are combined as follows: WHITE – British (White), Irish (White), Any other White background; MIXED – White and Black Caribbean, White and Black African, White and Asian; ASIAN – Indian, Pakistani, Bangladeshi, Any other Asian background; BLACK – Caribbean, African, Any other Black background; OTHER – Chinese, any other ethnic group; NOT KNOWN / NOT STATED – Ethnic group not recorded in hospital entry.

Source: Royal College of Physicians (2007) Myocardial Infarction National Audit Project. How the NHS manages heart attacks. Personal communication.

Table 2.5 Comparison of revascularisations between South Asian and White adults after adjustment for need, 1996/97, London

	Standardised rate of angioplasty in those deemed appropriate for angioplasty	Standardised rate of CABG in those deemed appropriate for CABG
Bangladeshi	23	56
Pakistani	34	78 *
Indian	122 *	89 *
South Asians combined	69 *	74
White	100	100

Notes: Prospective study of 502 South Asian and 2,974 White patients after coronary angiography, followed up for five years. Appropriateness for revascularisation procedures was independently assessed by a nine-member expert panel with access to medical notes and questionnaire responses, but without access to ethnicity data. Rate is directly age and sex standardised to the rate observed in the White patients. Results marked with an asterisk indicate that the rate was not statistically different from rate in White patients ($p < 0.05$). Data collected in single tertiary cardiac centre in London. See source for details.

Source: Feder G, Crook A, Magee P, Banerjee S, Timmis A, Hemingway H (2002) Ethnic differences in invasive management of coronary disease: prospective cohort study of patients undergoing angiography. *BMJ*, 324: 511-516.

Table 2.6 Comparison of short-term fatality, long-term fatality and complications after CABG between South Asian and White adults, 1999/2004, Leicester

	Odds ratio for 30-day mortality after CABG	Odds ratio for 6-month mortality after CABG	Odds ratio for 30-day complications after CABG	Base
South Asian	1.07 *	1.10 *	1.28	650
White	1.00	1.00	1.00	7,226

Notes: Retrospective analysis of White and South Asian patients undergoing first CABG over five years. Complications include reoperative bleeding, pulmonary oedema, pulmonary effusion, pneumothorax, renal failure, renal impairment, dialysis, urinary retention, neuropraxia, temporary / permanent stroke, delirium, limb ischaemia, arrhythmias, postoperative myocardial infarction, sternal wound infection, leg wound infection, pyrexia and pneumonia. Odds ratio indicates the chance of outcome in comparison with White adults – odds ratio of 1.28 indicates a 28% greater chance. Results are adjusted for baseline measures of risk – see source for details. Results marked with an asterisk indicate that the difference between South Asian and White adults was not statistically significant ($p < 0.05$).

Source: Elabi M, Chetty G, Matata B (2006) Ethnic differences in the management of coronary heart disease patients: lessons to be learned in Indo-Asians. *Medical Principles and Practice*, 15: 69-73.

Table 2.7 *Comparison of all cause mortality, cardiovascular mortality, repeat procedure, readmission and major cardiovascular events after revascularisation between South Asian and White adults, 1995/2004, Leicestershire*

	Rate ratio for all cause mortality	Rate ratio for cardiovascular mortality	Rate ratio for readmission to hospital after 30-day postoperative period	Rate ratio for repeat revascularisation	Rate ratio for major cardiovascular events	Base
South Asian	0.95 *	1.09 *	1.23	1.22 *	1.13 *	660
White	1.00	1.00	1.00	1.00	1.00	5,207

Notes: Retrospective cohort analysis of all patients resident in Leicestershire undergoing first-time CABG or PCI between 1995/96 and 2003/04. Results are adjusted for age, sex, year of revascularisation, co-morbidities, deprivation and type of admission. Rate ratio indicates the outcome rate in comparison with White adults – rate ratio of 1.23 indicates a 23% higher rate. Results marked with an asterisk indicate that the difference between South Asian adults and White adults was not statistically significant ($p < 0.05$).

Source: Blackledge H, Squire I (2009) Improving long-term outcomes following coronary artery bypass graft or percutaneous coronary revascularisation: results from a large, population-based cohort with first intervention 1995–2004. *Heart*, 95; 304–311.

3. Risk Factors

Modifiable risk factors for cardiovascular disease (CVD) – those resulting from lifestyle choices – include smoking, diet, physical activity, alcohol consumption, blood pressure, blood cholesterol levels, obesity and diabetes. This chapter reports on ethnic differences in the experience of these risk factors. Risk factors for CVD vary between different ethnic groups. However, these differences in risk factors fail to fully account for the ethnic variations in the burden of CVD – it is currently being debated whether socioeconomic factors also play a part¹. Much of the evidence on ethnic differences in risk factors comes from the most recent Health Survey for England with a focus on minority ethnic groups, which was conducted in 2004².

Smoking

In 2004, around a quarter of both men and women (24% of men and 23% of women) aged over 16 in England reported regular consumption of cigarettes. The prevalence of smoking ranged from 20% in Indian men to 40% in Bangladeshi men. There was much more ethnic variation in smoking levels for women, where smoking is very uncommon in the South Asian ethnic groups (5% or less for Indian, Pakistani and Bangladeshi women), but smoking levels in Irish and Black Caribbean women were similar to levels in men (Table 3.1 and Figure 3.1). There does not appear to be much ethnic variation in the ability to give up smoking – in 2007/08 around a half of people attending NHS stop smoking services had successfully quit smoking after four weeks, ranging from 45% in the Black ethnic group to 52% in the Mixed ethnic group (Table 3.3).

Focusing only on cigarettes can underestimate the tobacco consumption of different ethnic groups, sometimes dramatically. For example, whilst only 2% of Bangladeshi women smoked cigarettes in 2004, 17% consumed tobacco (mainly via chewing tobacco) (Table 3.2).

Diet

Data on ethnic variations in diet in the UK are collected by the Health Survey for England² and the Family Food Survey³ conducted annually by the Department for the Environment, Food and Rural Affairs. The Health Survey for England suggests that all ethnic groups in England (with the exception of the Irish) consume more fruit and vegetables than the general population. For example, around 40% of Chinese men and women regularly consume five portions of fruit and vegetables a day (the recommended level of consumption), compared to only about one in four people in the general population (Table 3.4). However, these findings are not supported by the Family Food Survey, which uses a different methodology based on purchase of foods to estimate consumption levels. According to this survey, between 2005 and 2007, consumption of fruit and vegetables was lower in the Asian than in the White ethnic group (primarily because of lower consumption of fruit). However, this survey suggests that in many other nutritional aspects the diet of non-White ethnic groups in Great Britain is healthier than that of the White population – for example, saturated fat and salt consumption are both highest in the White population (Table 3.5).

Physical Activity

In 2004, nearly 80% of men and 75% of women took part in some form of physical activity, and nearly 70% of men and over 60% of women did so at least once a week. In general, non-White ethnic groups showed slightly lower participation rates than the general population, but were particularly lower for

the Bangladeshi ethnic group, where only half of Bangladeshi men and a third of Bangladeshi women participated in physical activity at least once a week (Table 3.7). This is reflected in the achievement of physical activity recommendations (30 minutes or more of at least moderate activity on at least five days a week), where only a quarter of Bangladeshi men and one in ten Bangladeshi women achieve the recommendation – far lower than the general population. Among ethnic groups, Irish (39% of men, 29% of women) and Black Caribbean (37% of men, 31% of women) people were most likely to meet the recommendations for physical activity. In general, rates were higher in the youngest age group (16-34) and decreased steadily with age for all ethnic groups for both genders (Table 3.6).

Ethnic groups exhibit differences with regards to type of physical activity performed. Pakistani and Bangladeshi men engaged less frequently in any physical activities, heavy housework, walking, sports or exercise compared to the general population. Pakistani and Bangladeshi women were similarly less likely to participate in heavy gardening, walking, sports or exercise than the general population. Among all ethnic groups, the most common form of specific physical activity was sports and exercise for men and heavy housework for women (Table 3.7).

Alcohol

The amount of alcohol consumed on a regular basis varies dramatically by ethnic group. Drinking any alcohol at all is rare in the Pakistani and Bangladeshi ethnic groups, and abstention from alcohol is far more common in the Indian, Black and Chinese ethnic groups than in the general population. In England, a quarter of men and around 15% of women in the general population regularly consume greater than 8 units (for men) or 6 units (for women) on the heaviest drinking day of the week – the government definition of ‘binge drinking’. These levels are far lower in all ethnic groups with the exception of the Irish. Only around one in ten Black, Indian or Chinese men regularly binge drink, and only around 5% of women from these ethnic groups (Table 3.8).

Blood pressure

The British Hypertension Society uses the definition of hypertension as the presence of raised systolic or diastolic blood pressure (above 140mmHg or above 90mmHg, respectively). The optimal blood pressure level is now classified as less than 120mmHg for systolic and less than 80mmHg for diastolic blood pressure⁴. Data on ethnic differences in blood pressure levels are found in the 2004 Health Survey for England, where respondents were considered hypertensive if either systolic or diastolic blood pressure was elevated or they were taking medication to control their blood pressure. In the general population, around a third of men and women were hypertensive. The prevalence of hypertension was highest in Black Caribbean men (38%) and women (32%) and lowest in Bangladeshi men (16%) and Pakistani women (15%). In general, prevalence of hypertension was slightly higher in men than in women for each ethnic group (Table 3.9).

Cholesterol

For both men and women, mean total cholesterol was lower in all ethnic groups than in the general population in 2004, except for the Irish group. In general, mean levels of total cholesterol were similar for men and women for all ethnic groups. The prevalence of raised cholesterol (greater than or equal to 5mmol/l) was higher in the general population than in any ethnic group with the exception of the Irish. In some cases this difference was substantial – less than half of Black African women aged 16 and over had raised cholesterol compared to two thirds of women in the general population. Ethnic patterns in levels of HDL-cholesterol (the fraction that removes cholesterol from the blood) were very different, with

a higher prevalence of low-HDL cholesterol in most ethnic groups compared to the general population. For example, 8% of Bangladeshi women had low HDL-cholesterol compared to only 2% of the general population (Table 3.10).

Obesity

There are a number of different methods used for defining overweight and obesity based on easy to perform anthropometric measurements. These include body mass index (BMI), waist-to-hip ratio (WHR) and waist circumference (WC). Because individuals from different ethnic groups tend to store fat in different places of the body and therefore have different body shapes, it is useful to compare measurements generated by the different techniques when considering ethnic differences in obesity.

Using the BMI method, in 2004 the prevalence of obesity in men was substantially lower in the South Asian community, and also in Chinese men than in the general population. Using this definition as few as 6% of Chinese and Bangladeshi men were defined as obese, compared to 23% of men in the general population aged 16 and over. Similarly, the prevalence of obesity in Bangladeshi and Chinese women was lower than the general population when measured by BMI, although the difference was not as substantial. However, this difference is entirely removed when the WHR method is used – using this technique the prevalence of obesity in Bangladeshi men is similar to that of men in the general population (around one in three men), and the prevalence of obesity in Bangladeshi women is higher than that of women in the general population. Ethnic differences in obesity measured using WC are similar to those found using the WHR method, with a few exceptions. For example, using WHR the prevalence of obesity in Indian men (38%) is more than double the prevalence in Black African men (16%) – however, the prevalence of obesity in these ethnic groups using the WC method is very similar (around one in five men in both ethnic groups) (Table 3.11 and Figures 3.11a and 3.11b).

The National Childhood Measurement Programme has begun to collect data on the height and weight of all children in reception class and year six of state primary schools in England. These data have been used to calculate the BMI of children and compare them to national growth charts in order to make age-specific definitions of overweight and obesity. According to these data, in 2007/08 the prevalence of overweight and obesity in young children is highest in the Black ethnic group – around three in ten children in reception class (aged four or five) and around four in ten children in year six (aged ten or eleven). In contrast the prevalence of overweight and obesity in other ethnic groups was around 20% in the reception class and 30-35% in year six. For both age groups, the prevalence of overweight and obesity was lowest in the Chinese population (Table 3.12). These results should be treated with caution as they are only based on the BMI method, and the definitions of overweight and obesity are taken from growth charts compiled using data from White children only.

Diabetes

In 2004, the prevalence of doctor-diagnosed diabetes in the general population was 4% for men and 3% for women, with the majority being attributed to type II diabetes. Black Caribbean, Indian, Bangladeshi and Pakistani men had a considerably higher prevalence of any type of diabetes (10%, 10%, 8% and 7% respectively). Among women, Black Caribbean and Pakistani women had a considerably higher prevalence of any type of diabetes (8% and 9%). In contrast, the prevalence of diabetes in Black African and Irish women was considerably lower than in the general population (Table 3.13 and Figure 3.13).

1. *Parliamentary Office of Science and Technology (2007). Ethnicity and Health. Postnote, number 276. Parliamentary Office of Science and Technology: London.*
2. *Joint Health Surveys Unit (2006). Health Survey for England 2004. The health of minority ethnic groups. The Stationery Office: London.*
3. *Department for the Environment, Food and Rural Affairs (2008). Family Food in 2007. The Stationery Office: London.*
4. *Williams B, Poulter NR, Brown MJ, Davis M, McInnes GT, Potter JP, Sever PS and Thom S; The BHS Guidelines Working Party (2004). British Hypertension Society Guidelines for Hypertension Management, 2004 – BHS IV: Summary. BMJ; 328: 634-640.*

Table 3.1 Cigarette smoking by sex, age and ethnic group, 2004, England

	MEN				WOMEN			
	16-34	35-54	55+	All ages	16-34	35-54	55+	All ages
	%	%	%	%	%	%	%	%
Black Caribbean	27	34	12	25	44	21	5	24
Black African	21	20	25	21	15	6	2	10
Indian	18	22	19	20	8	4	3	5
Pakistani	28	34	18	29	5	7		5
Bangladeshi	35	49	29	40	1	4	3	2
Chinese	25	21	9	21	12	5	4	8
Irish	46	26	25	30	35	26	21	26
General population	32	26	14	24	28	26	15	23
<i>Bases (unweighted):</i>								
Black Caribbean	114	165	124	403	186	289	162	637
Black African	172	169	38	379	224	189	44	457
Indian	199	230	118	547	237	274	119	630
Pakistani	213	145	65	423	268	164	65	497
Bangladeshi	198	149	49	396	287	117	49	453
Chinese	170	117	58	345	145	176	51	372
Irish	114	194	188	496	147	275	231	653
General population	721	973	1,161	2,855	895	1,374	1,536	3,805

Notes: General population data is from 2003. Blank cells indicate too few respondents for accurate estimate.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Fig 3.1 Cigarette smoking by sex and ethnic group, 2004, England

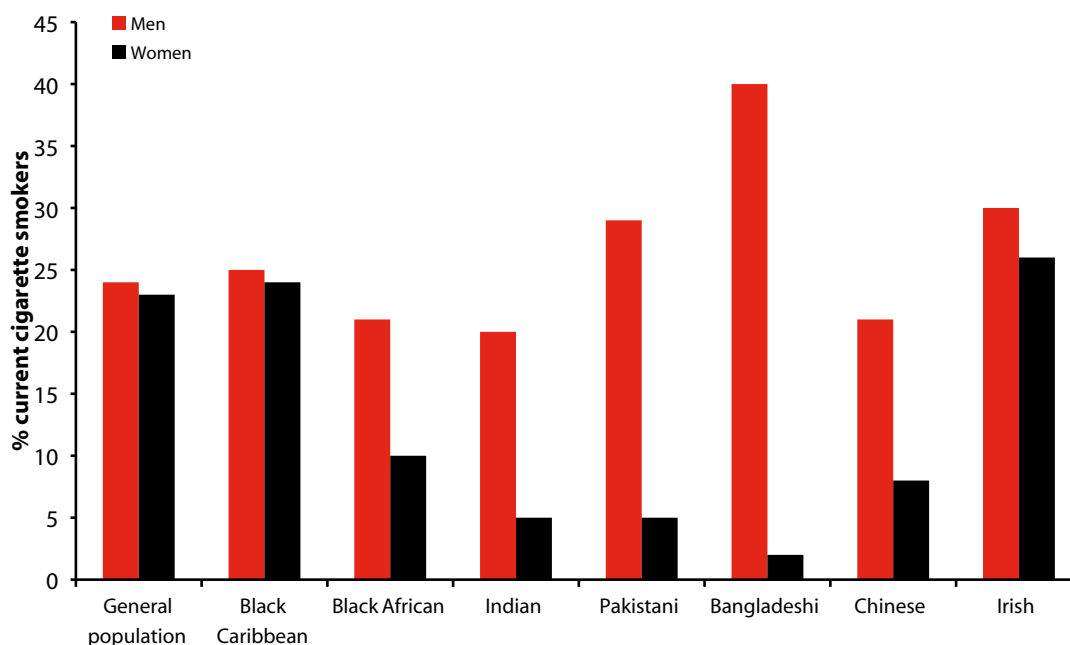


Table 3.2 Self reported use of tobacco products by ethnic group and sex, 2004, England

	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish	General Population
MEN								
Percentage consuming:								
Cigarettes	25	21	20	29	40	21	30	24
Cigars	7	11	7	5	4	10	11	12
Pipes	0	1	0	1	0	2	2	2
Chewing tobacco			4	2	9			
Any tobacco product	28	22	24	30	44	23	36	28
WOMEN								
Percentage consuming:								
Cigarettes	24	10	5	5	2	8	26	23
Cigars	0	1	0	0	0	1	0	1
Chewing tobacco			1	1	16			
Any tobacco product	24	10	6	7	17	8	26	23
<i>Bases (unweighted)</i>								
MEN	403	379	546	423	396	345	496	2,853
WOMEN	637	457	628	497	451	372	653	3,803

Notes: Adults aged 16 and over. Use of cigars and pipes was only asked of men and women who answered the questions about smoking. Use of chewing tobacco products was only asked of South Asian informants.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.3 *People setting a smoking cessation date and successful quitters, by ethnic group, 2007/08, England*

	Number setting a quit date	Number who had successfully quit at 4 week follow-up	Percentage who had successfully quit at 4 week follow-up
White	577,720	296,120	51
British	555,193	284,538	51
Irish	6,484	3,288	51
Any other White background	16,043	8,294	52
Mixed	8,169	4,215	52
White and Black Caribbean	2,862	1,281	45
White and Black African	1,041	441	42
White and Asian	1,228	542	44
Any other mixed background	3,038	1,951	64
Asian or Asian British	15,210	7,673	50
Indian	4,730	2,436	52
Pakistani	4,987	2,382	48
Bangladeshi	2,879	1,544	54
Any other Asian background	2,614	1,311	50
Black or Black British	8,869	4,013	45
Caribbean	4,446	2,000	45
African	2,849	1,337	47
Any other Black background	1,574	676	43
Other ethnic groups	5,486	2,677	49
Chinese	605	302	50
Any other ethnic group	4,881	2,375	49
Not stated	64,835	36,102	56
Total	680,289	350,800	52

Notes: A client is counted as having successfully quit smoking at the 4 week follow-up if he/she reports not smoking at all since two weeks after the quit date.

Source: Department of Health (2008) Statistics on NHS stop smoking services: England, April 2007 to March 2008. The Information Centre: Leeds.

Table 3.4 Consumption of fruit and vegetables by sex and ethnic group, 2004, England

	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish	General Population
MEN								
Percentage consuming per day:								
None	8	8	4	4	6	3	11	8
Less than 1 portion	2	3	2	3	2	3	3	4
Between 1 and <2 portions	16	16	13	13	14	9	18	16
Between 2 and <3 portions	16	16	15	14	17	15	14	19
Between 3 and <4 portions	14	13	15	15	14	19	15	16
Between 4 and <5 portions	12	14	14	17	17	13	14	14
5 portions or more	32	31	37	33	32	36	26	23
Mean portions consumed	3.9	3.7	4.2	4.3	3.8	4.4	3.6	3.3
WOMEN								
Percentage consuming per day:								
None	7	5	3	4	5	1	5	6
Less than 1 portion	1	2	1	4	5	1	3	3
Between 1 and <2 portions	17	18	9	13	14	10	15	16
Between 2 and <3 portions	18	14	19	17	18	13	17	18
Between 3 and <4 portions	13	14	17	14	17	15	17	16
Between 4 and <5 portions	13	15	15	16	13	17	11	14
5 portions or more	31	32	36	32	28	42	32	27
Mean portions consumed	3.9	3.8	4.4	4.0	3.6	4.9	3.9	3.6
<i>Bases (unweighted)</i>								
Men	412	390	550	432	411	348	497	2,978
Women	652	469	634	508	478	375	656	3,825

Notes: Adults aged 16 and over.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.5 Consumption of energy, fat, saturated fat, sugar, salt, fibre and fruit and vegetables, by ethnic group, 2005 to 2007, United Kingdom

<i>Consumption per person per day, total diet (i.e. including alcohol)</i>	Asian/ Asian British	Black/ Black British	Chinese and others	Mixed	White
Energy (kcal)	2,203	2,086	2,036	2,097	2,368
Fat (g)	91	83	89	90	98
Fat (% total energy)	37.0	35.9	39.4	38.7	37.1
Saturated fat (g)	30	27	29	31	38
Saturated fat (% total energy)	12.2	11.5	12.8	13.4	14.4
Total sugars (g)	107	118	103	108	135
Non-milk extrinsic sugars (g)	66	79	63	72	88
Non-milk extrinsic sugars (% total energy)	11.2	14.2	11.6	12.8	13.9
Non-starch polysaccharide fibre (g)	14	14	14	14	16
Sodium (g)	1.8	2.0	2.1	2.6	3.1
Salt (g)	4.5	5.1	5.2	6.6	7.7
<i>Purchase per person per week</i>					
Fruit (g)	1,184	1,587	1,446	1,232	1,322
Vegetables (g)	1,188	1,122	1,288	1,046	1,185

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

Source: Department for the Environment, Food and Rural Affairs (2008) Family Food in 2007. The Stationery Office: London.

Table 3.6 Summary physical activity levels by age, sex and ethnic group, 2004, England

	MEN				WOMEN			
	16-34	35-54	55+	All Men	16-34	35-54	55+	All Women
	%	%	%	%	%	%	%	%
Black Caribbean								
Low levels	17	22	66	34	28	37	57	39
High levels	49	39	22	37	37	36	17	31
Black African								
Low levels	33	35	45	35	43	38	69	43
High levels	36	34	33	35	33	26	21	29
Indian								
Low levels	35	40	68	44	35	40	79	45
High levels	34	33	18	30	26	26	11	23
Pakistani								
Low levels	39	50	88	51	44	56	74	52
High levels	37	26	5	28	15	13	10	14
Bangladeshi								
Low levels	42	57	78	51	62	71	92	68
High levels	29	27	9	26	15	7	2	11
Chinese								
Low levels	30	43	50	38	45	42	67	47
High levels	31	28	31	30	16	19	15	17
Irish								
Low levels	11	27	53	33	21	28	46	33
High levels	54	41	27	39	30	36	19	29
General population								
Low levels	20	26	51	32	28	29	57	39
High levels	51	39	22	37	31	31	14	25
<i>Bases (unweighted)</i>								
<i>Black Caribbean</i>	120	164	125	409	198	289	161	648
<i>Black African</i>	177	170	39	386	234	190	43	467
<i>Indian</i>	200	231	118	549	240	275	119	634
<i>Pakistani</i>	222	142	65	429	279	164	65	508
<i>Bangladeshi</i>	210	150	48	408	309	118	50	477
<i>Chinese</i>	172	118	58	348	148	176	51	375
<i>Irish</i>	114	194	189	497	149	275	232	656
<i>General population</i>	737	974	1,162	2,873	914	1,372	1,532	3,818

Notes: High levels indicate adherence to the physical activity recommendations (30 minutes or more at least moderate activity on at least 5 days a week). Low levels indicate inactivity defined as less than one 30 minute moderate or vigorous activity session a week.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.7 *Prevalence of different types of physical activity by sex and ethnic group, 2004, England*

	Black Caribbean %	Black African %	Indian %	Pakistani %	Bangladeshi %	Chinese %	Irish %	General Population %
MEN								
Heavy housework								
Any	42	34	35	20	19	34	38	38
At least once a week	22	18	14	7	10	16	20	17
Heavy gardening/DIY/building								
Any	18	9	15	10	5	10	24	29
At least once a week	11	3	7	5	3	4	15	16
Walking								
Any	24	27	19	14	17	21	32	32
At least once a week	18	25	15	11	16	17	23	25
Sports and exercise								
Any	46	43	32	31	26	49	39	41
At least once a week	39	35	26	25	22	39	33	33
Any physical activities								
Any	74	75	68	58	54	76	78	79
At least once a week	66	65	56	49	49	62	67	68
<i>Bases (unweighted)</i>	409	386	549	429	408	348	497	2,873
WOMEN								
Heavy housework								
Any	50	47	48	49	32	42	63	55
At least once a week	29	27	29	31	19	26	36	31
Heavy gardening/DIY/building								
Any	10	4	6	4	4	4	9	11
At least once a week	4	1	2	1	2	1	2	4
Walking								
Any	24	22	18	12	8	17	33	27
At least once a week	18	17	16	9	7	14	28	22
Sports and exercise								
Any	36	28	27	16	12	34	38	34
At least once a week	27	20	21	13	11	27	29	25
Any physical activities								
Any	73	70	68	60	41	67	81	75
At least once a week	61	57	55	48	32	53	67	61
<i>Bases (unweighted)</i>	648	467	634	508	477	375	656	3,818

Notes: 'Any' is defined as participation for at least 30 minutes in moderate or vigorous intensity activity in the four weeks prior to interview.
At least once a week' refers to participation for at least 30 minutes a week on average in moderate or vigorous intensity, i.e. at least four sessions in the four weeks prior to interview.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.8 Amount consumed on the heaviest drinking day in the past week, by ethnic group and sex, 2004, England

	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish	General population
MEN								
Percentage who consumed:								
None	40	62	53	93	99	52	20	24
4 or more units	28	17	22	4	1	19	56	45
8 or more units	12	7	9	3	0	10	32	25
Mean units consumed	3.0	1.5	2.1	0.4	0.1	2.1	6.4	5.2
WOMEN								
Percentage who consumed:								
None	53	74	79	97	99	68	33	39
3 or more units	18	7	8	1	1	12	36	30
6 or more units	6	2	4	1	0	4	16	14
Mean units consumed	1.4	0.6	0.7	0.1	0.0	0.9	2.6	2.2
<i>Bases (unweighted)</i>								
Men	397	369	531	416	395	337	490	2,829
Women	618	446	618	495	448	364	642	3,745

Notes: Adults aged 16 and over. Not all percentages add to 100 as not all categories are included.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.9 Prevalence of hypertension by ethnic group and sex, 2004, England

	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish	General population
MEN								
Percentage within each group								
Normotensive untreated	62	75	67	80	84	80	64	68
Normotensive treated	10	4	11	6	3	4	7	5
Hypertensive treated	10	5	6	2	6	5	7	6
Hypertensive untreated	19	16	16	11	7	11	23	20
All with high blood pressure	38	25	33	20	16	20	36	32
WOMEN								
Percentage within each group								
Normotensive untreated	68	81	82	85	81	84	71	71
Normotensive treated	9	5	4	4	6	6	4	6
Hypertensive treated	10	2	6	5	5	3	9	8
Hypertensive untreated	13	12	7	5	7	7	15	16
All with high blood pressure	32	19	18	15	19	16	29	29
<i>Bases (unweighted)</i>								
Men	155	123	265	162	99	153	240	4,108
Women	243	154	320	207	144	166	328	5,075

Notes: Adults aged 16 and over with a valid blood pressure reading and data on medication. 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 affecting blood pressure. 'Treated' means taking medication prescribed for high blood pressure.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.10 Total cholesterol and HDL-cholesterol, by ethnic group and sex, 2004, England

	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish	General population
MEN								
Total Cholesterol								
Mean (mmol/l)	5.1	5.1	5.3	5.3	5.3	5.1	5.4	5.5
Prevalence of raised total cholesterol (%)	51	55	60	55	60	60	67	66
HDL-cholesterol								
Mean (mmol/l)	1.4	1.4	1.3	1.2	1.1	1.3	1.4	1.4
Prevalence of low HDL-cholesterol (%)	4	2	11	20	20	8	5	6
WOMEN								
Total Cholesterol								
Mean (mmol/l)	5.2	4.8	5.1	5.1	5.1	5.1	5.6	5.6
Prevalence of raised total cholesterol (%)	56	44	53	53	55	52	67	67
HDL-cholesterol								
Mean (mmol/l)	1.6	1.4	1.4	1.4	1.2	1.7	1.6	1.6
Prevalence of low HDL-cholesterol (%)	1	3	4	6	8	1	2	2
<i>Bases (unweighted)</i>								
Men	137	103	234	137	87	101	244	3,814
Women	195	118	256	143	98	108	300	4,460

Notes: Raised total cholesterol defined as greater than or equal to 5.0mmol/l. Low HDL-cholesterol defined as less than 1.0mmol/l.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.11 Body mass index, waist-hip ratio and waist circumference by ethnic group and sex, 2004, England

	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish	General population
MEN								
Mean Body Mass Index (BMI)	27.1	26.4	25.8	25.9	24.7	24.1	27.2	27.1
Percentage with BMI of 30 kg/m ² and over	25	17	14	15	6	6	25	23
Mean waist-hip ratio	0.90	0.87	0.92	0.92	0.91	0.87	0.93	0.92
Percentage with waist-hip ratio 0.95 and over	25	16	38	36	32	17	36	33
Mean waist circumference	92.5	90.6	93.0	95.0	88.7	86.8	97.3	96.5
Percentage with waist circumference 102cm and over	22	19	20	30	12	8	33	31
WOMEN								
Mean Body Mass Index (BMI)	28.0	28.8	26.2	27.1	25.7	23.2	26.7	26.8
Percentage with BMI of 30 kg/m ² and over	32	38	20	28	17	8	21	23
Mean waist-hip ratio	0.83	0.81	0.82	0.84	0.85	0.81	0.83	0.82
Percentage with waist-hip ratio 0.85 and over	37	32	30	39	50	22	37	30
Mean waist circumference	88.4	90.2	83.9	87.7	85.7	77.6	87.4	86.4
Percentage with waist circumference 88cm and over	47	53	38	48	43	16	43	41
<i>Bases (unweighted)</i>								
Men	209	156	310	197	138	182	311	5,397
Women	314	200	345	224	171	185	405	5,554

Notes: Adults aged 16 and over

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Figure 3.11a Body mass index, waist-hip ratio and waist circumference by ethnic group, men, 2004, England

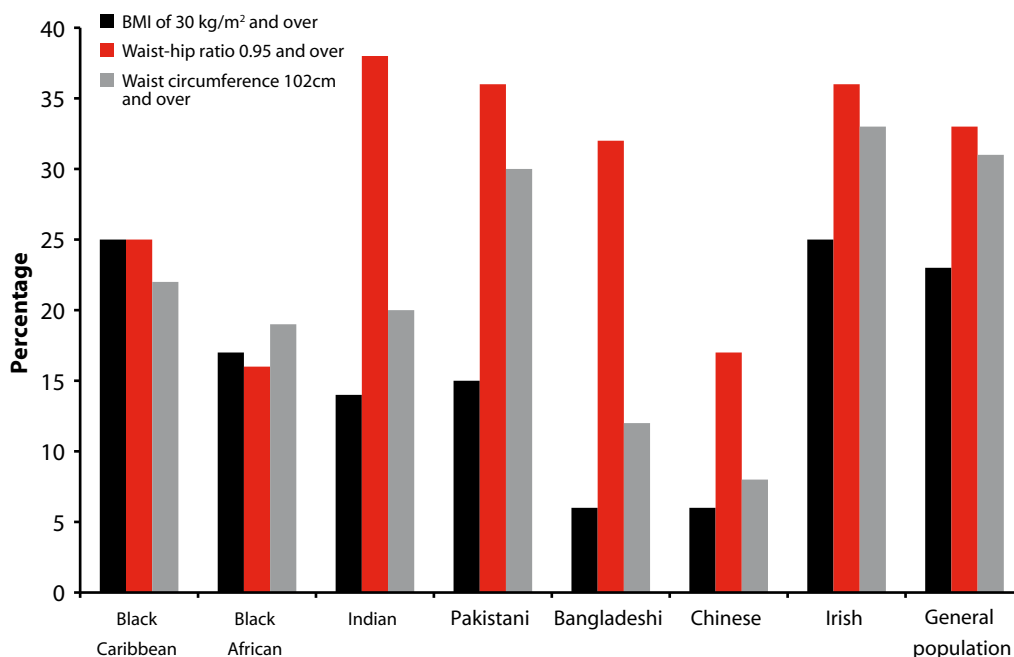


Figure 3.11b Body mass index, waist-hip ratio and waist circumference by ethnic group, women, 2004, England

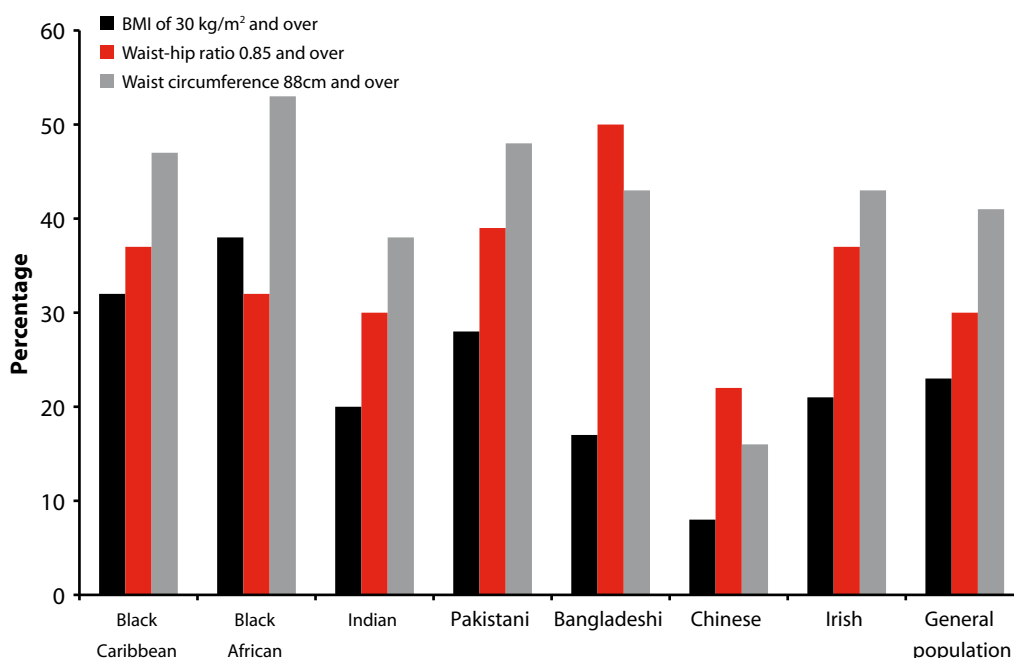


Table 3.12 Prevalence of underweight, overweight and obese by ethnic group, children in reception class and year six, 2007/08, England

	White	Mixed	Asian or Asian British	Black or Black British	Chinese	Any Other Ethnic Group	Unknown	All children
RECEPTION CLASS								
Percentage of children:								
Underweight	1	1	4	1	1	1	1	1
Healthy weight	77	77	77	70	84	73	76	76
Overweight	14	12	9	14	9	13	13	13
Obese	9	10	10	15	6	13	10	10
Overweight or obese	23	22	19	29	14	26	23	23
<i>Base</i>	245,087	14,134	35,600	19,791	1,094	5,519	156,427	477,652
YEAR SIX								
Percentage of children:								
Underweight	1	1	4	1	3	2	1	1
Healthy weight	67	64	61	57	71	61	66	66
Overweight	14	14	14	15	12	15	14	14
Obese	17	20	22	26	14	22	18	18
Overweight or obese	31	35	36	42	26	37	32	33
<i>Bases</i>	265,418	12,160	30,782	19,521	1,158	5,414	160,968	495,421

Notes: Children are four years old at the start of reception class and ten years old at the start of year six. Definitions of underweight, healthy weight, overweight and obesity are based on percentiles of United Kingdom growth charts.

Source: National Obesity Observatory (2009). National Child Measurement Programme: 2007/08 school year, headline results. National Obesity Observatory: Oxford. <http://www.ncmp.ic.nhs.uk/>

Figure 3.12 Percentage of overweight or obese children in reception class and year six by ethnic group, 2007/08, England

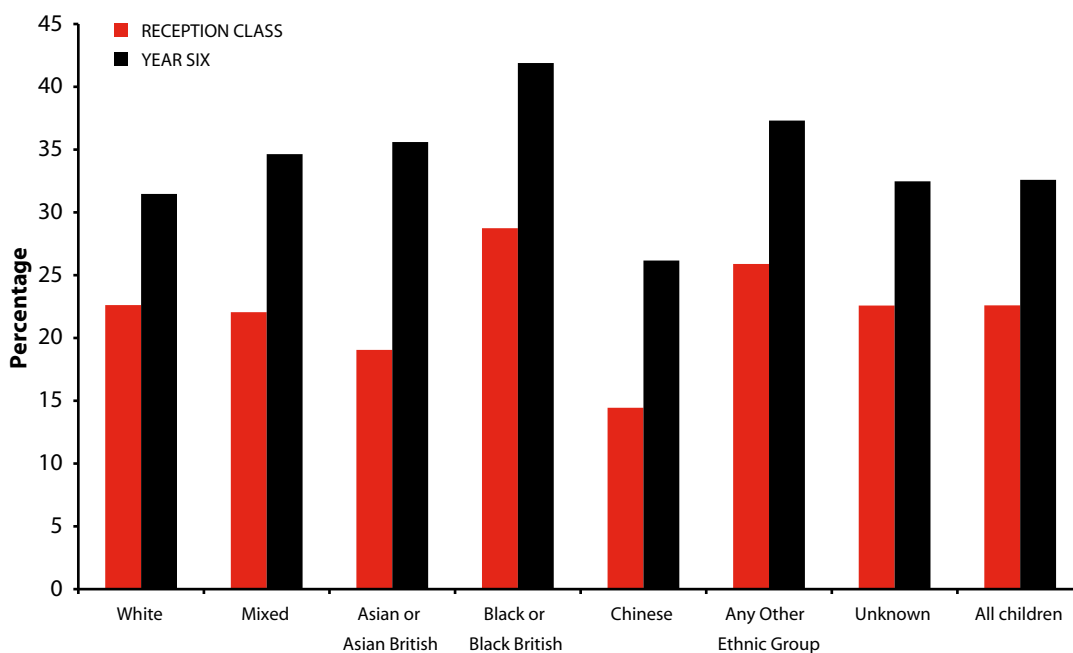


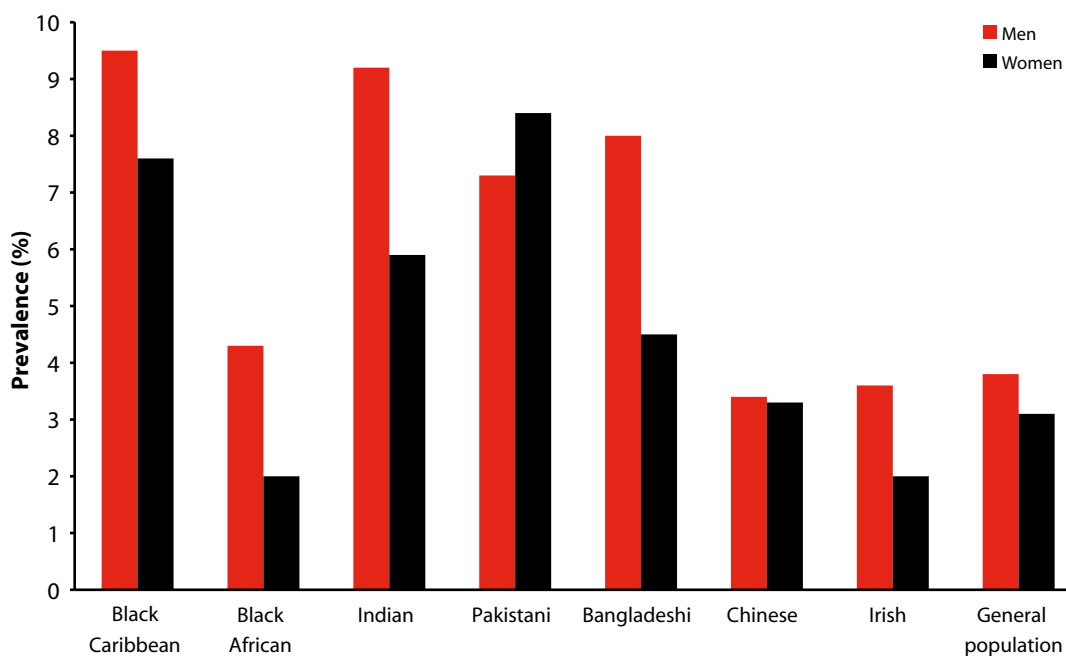
Table 3.13 *Prevalence of doctor-diagnosed diabetes by sex and ethnic group, 2004, England*

	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish	General population
MEN								
Prevalence of diabetes (%)								
Type 1	0.5	0.7	0.9	0.0	0.2	0.3	0.0	0.6
Type 2	9.5	4.3	9.2	7.3	8.0	3.4	3.6	3.8
Any	10.0	5.0	10.1	7.3	8.2	3.8	3.6	4.3
WOMEN								
Prevalence of diabetes (%)								
Type 1	0.8	0.1	0.0	0.2	0.6	0.0	0.3	0.3
Type 2	7.6	2.0	5.9	8.4	4.5	3.3	2.0	3.1
Any	8.4	2.1	5.9	8.6	5.2	3.3	2.3	3.4
<i>Bases (unweighted)</i>								
Men	414	390	550	433	411	348	497	6,602
Women	653	469	634	508	478	375	656	8,234

Notes: Adults aged 16 and over.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. *The Health of Minority Ethnic Groups*. Department of Health: London.

Figure 3.13 *Prevalence of doctor-diagnosed diabetes (Type II) by sex and ethnic group, 2004, England*



Appendix

Population by ethnic group, 2007, England

	Number of people resident in England	Percentage of total population of England
White	45,082,800	88%
Mixed	870,100	2%
Asian	2,914,800	6%
Black	1,447,900	3%
Chinese and other	776,400	2%
Total	51,092,000	100%

Notes: These estimates are based on extrapolations of data from the 2001 census, using estimates of births, deaths and migration. They are described by the Office for National Statistics as experimental. Similar estimates are not available for Scotland, Wales and Northern Ireland. Population estimates are rounded to the nearest hundred.

Source: Office for National Statistics (2009) *Population estimates by ethnic group (experimental)*. Available from www.statistics.gov.uk

Population by ethnic group and socio-economic classification, 2001, United Kingdom

	Managerial and professional		Intermediate		Routine and manual		Never worked and long term unemployed		Not classified	
	Population	%	Population	%	Population	%	Population	%	Population	%
White	10,644,800	27	6,501,400	17	11,364,700	29	1,237,200	3	9,606,600	24
Mixed	86,600	26	45,300	14	78,000	24	28,400	9	92,400	28
Asian	340,800	21	240,900	15	377,900	23	256,300	16	411,500	25
Black	207,000	25	115,600	14	211,800	25	79,300	10	217,000	26
Chinese and other	95,400	25	55,900	15	71,200	19	37,000	10	122,700	32
Total	11,374,500	27	6,959,100	16	12,103,600	28	1,638,200	4	10,450,200	25

Notes: Population estimates are rounded to the nearest hundred.

Source: MIMAS (2010) *Casweb – 2001 census data for England, Wales, Scotland and Northern Ireland*. University of Manchester: Manchester. <http://casweb.mimas.ac.uk/>. Accessed January 2010.