This chapter examines the prevalence of, trends in, and factors associated with cardiovascular disease (CVD), including ischaemic heart disease (IHD), stroke, and other heart conditions. The use of drugs for primary and secondary prevention is also explored, as well as findings on total and HDL cholesterol which were measured in a non-fasting blood sample collected during the nurse visit.

13.9% of men and 13.4% of women reported having been diagnosed with a cardiovascular condition. Significantly more men than women suffered from IHD (5.7% and 3.5% respectively) and from IHD and/or stroke (7.5% and 5.0% respectively).

The prevalence of any CVD condition increased with age, ranging from 3.3% of men and 4.8% of women aged 16-24 to 53.8% and 31.1% respectively aged 85 and over. The increase with age was much steeper in men than in women.

For men and women aged 35 and over, the prevalence of CVD varied by two measures of deprivation: equivalised household income and the Index of Multiple Deprivation. CVD was more prevalent in the lower income and more deprived groups. Prevalence of IHD was lowest in the highest income quintile (5% in men, 2% in women) compared with 11% and 5% respectively in each of the lowest two quintiles. Similarly, IHD prevalence increased from 6% of men and 3% of women in the least deprived quintile to 11% and 7% respectively in the most deprived.

In both men and women there was an increase in prevalence of IHD between 1994 and 1998, but levels have generally fallen since then to 5.7% in men and 3.5% in women in 2011. Prevalence of stroke in women increased between 1994 and 1998 (from 1.6% to 2.1%), and remained fairly constant since then, while in men the prevalence of stroke continued to increase over the period to 2.7% in 2011.

79% of men and 72% of women over 35 with self-reported doctor-diagnosed IHD or stroke were using lipid-lowering drugs, and 64% of men and 60% of women in this category were using anti-platelet medication.

The prevalence of IHD and stroke in those with diagnosed diabetes was more than twice as high as in the population without this diagnosis. Prevalence of IHD was 13% in both men and women with diabetes, compared with 5% and 3% respectively in those without. For stroke the equivalent proportions were 4% in men and 7% in women with diabetes, and 2% in both men and women without.

Those with CVD scored less well than those without CVD on a mental well-being scale (WEMWBS). Mean scores were 49.4 among men and 49.9 among women with any CVD, and 52.1 for men, 51.8 for women among those without CVD. Those with IHD or stroke scored on average more than 5 points lower than those with no CVD.

Mean levels of total serum cholesterol were lower in men than women (5.1mmol/L and 5.2mmol/L respectively). Since 1998 there has been a significant fall in mean total cholesterol levels of 0.5mmol/L in both men and women.
• Mean total cholesterol levels varied significantly with age in men and women. In men, total cholesterol levels were higher than for women in the younger age groups, but among adults aged 55 and over, women had higher total cholesterol levels than men.

• 44% of men and 43% of women had total cholesterol levels below 5mmol/L (the ‘audit level’ for those with CVD, diabetes or hypertension who are on drug treatment), while only 14% and 12% respectively had levels below 4mmol/L (the current target for the same group).

• The mean level of beneficial HDL cholesterol was significantly lower in men than women (1.3mmol/L and 1.6mmol/L respectively), and the proportion with low levels was much greater in men than women (13% and 4% respectively). HDL cholesterol increased with age among women, and those in the highest income groups were more likely to have higher (beneficial) HDL cholesterol levels.

• The impact of lipid-lowering drugs (LLD) was clearly apparent among those with CVD, where mean total cholesterol levels were considerably lower in the group including people on LLD treatment than among those who were not on LLD (4.7mmol/L and 5.4mmol/L respectively in men, 5.4mmol/L and 5.8mmol/L in women). There was a similar effect for men with hypertension or diabetes but no CVD (5.2mmol/L and 5.6mmol/L respectively).
2.1 Introduction

2.1.1 Cardiovascular disease

This chapter examines cardiovascular diseases (CVD), also called circulatory disease, providing information on the disease burden in England. Sex-specific prevalence of self-reported doctor-diagnosed CVD conditions is provided by age, region and socio-economic factors. There are also data on levels of total and high density lipoprotein (HDL) cholesterol, measured from a non-fasting blood sample collected during the nurse visit. Trends over time in the prevalence of CVD conditions and levels of cholesterol are presented, and there are analyses of the use of medication for primary and secondary prevention of CVD. Comparisons with information from other sources are presented in the discussion.

CVD is one of the leading contributors to the global disease burden. The single most common cardiovascular disease is ischaemic heart disease (IHD, also called coronary heart disease (CHD) or coronary artery disease (CAD)). IHD includes myocardial infarction (MI, heart attacks) and angina (chest pain on exertion due to inadequate blood flow to the heart muscle). Most CVD in England is caused by atherosclerosis (‘furring’ of the arteries). This is not only the case for IHD and for stroke, the two main diseases, but also for most aortic aneurysms and peripheral vascular disease (impaired blood flow to the limbs).

Over the second half of the 20th century, there was a fairly steady decrease in mortality due to CVD in England and Wales. In 1999, CHD was made a government priority, with the introduction of the National Service Framework for CHD following in 2000. The goal was to reduce death from CHD and related illnesses in the under 75s by 40% by the year 2010. This target was reached ahead of schedule. Between 2000 and 2010, age-standardised CVD mortality rates in England and Wales for males and females fell by 40% and 38% respectively. Despite a reduction in deaths from CVD, these diseases remain the most common cause of death and still cause a large proportion of morbidity in this country. In England and Wales in 2011, CVD accounted for 29% of all deaths. This includes the 16% of male deaths and 11% of female deaths which were due to IHD, the leading cause of death in both sexes. Stroke was the second leading cause of death for both males and females in England and Wales in 2011, accounting for 6% of male and 9% of female deaths. 25,122 men and 11,456 women under 75 died from CVD, 26% and 18% of deaths respectively in men and women under 75 in 2011.

The main reasons for a decrease in mortality from CVD are reductions in the prevalence of some risk factors for CVD in the population and in treatment of CVD. Decreased cigarette smoking, lower systolic blood pressure and lower total cholesterol in the general population all contribute to a better cardiovascular profile, although increases in obesity and diabetes counteract some of the benefits. A study examining the decrease in IHD mortality to 2007 found the main reason for this was the substantial fall in systolic blood pressure in the population not on hypertension medication, while decreases in total cholesterol and smoking prevalence and increases in physical activity also contributed. Drug therapies (secondary prevention, including lipid-lowering, anti-anginal, anti-hypertensive, and diabetic medication) and interventions for heart attack (reperfusion therapies) made the largest medical contributions to the decline in IHD mortality. Another study found that some of the decreased CVD mortality achieved through better treatment of CVD conditions can be attributed to the National Service Framework for CHD, while some is due to the continuation of existing trends. Initiatives such as the smokefree legislation, implemented in England in July 2007, that made it illegal to smoke inside public and workplaces, also contributed to improved cardiovascular health. The legislation resulted in a 2.4% reduction in emergency hospital admissions for acute MI in the first year after the law came into force.

In the UK, between 70,000 and 111,000 people each year have a first stroke. A third of acute stroke patients are left dependent or moderately disabled after their stroke. A National Audit Office report on stroke in 2005 concluded that stroke had suffered from being low priority within the NHS in the past, and that medical and technological...
developments which could improve patient outcomes were not being implemented widely. The National Stroke Strategy was created in response to this and NICE guidance followed. Since 2006, improvements in stroke services have resulted in a reduction in a stroke patient’s chances of dying within ten years, from 71% to 67%. NICE Guidance states that thrombolysis (breaking down blood clots) for stroke should be offered within three hours of the onset of symptoms for those who are clinically suitable; thrombolysis is probably effective up to 4.5 hours. A reorganisation of health services provision has been introduced to maximise the use of thrombolysis where appropriate: improvements in London, for example, have been considerable.

In 2006, prevalence of any CVD in adults over 16 was found by the Health Survey for England to be 14% in men and 13% in women - around one in seven adults. In 2010/11 there were 281,754 hospital admissions (405,095 hospital episodes) for IHD and 106,829 admissions for stroke (198,335 episodes); these resulted in more than 3.3 million bed days in hospital in England. It is estimated that in 2008/09, the direct care cost of stroke was at least £3 billion annually, within a wider economic cost of about £8 billion in England.

2.1.2 Cholesterol

Total cholesterol comprises three components: LDL cholesterol (low density lipoprotein); VLDL cholesterol (very low density lipoprotein), and HDL cholesterol. The majority of the cholesterol in the blood is carried as LDL cholesterol. It is this that contributes to atherosclerosis. VLDL cholesterol is involved in clearing fat from the bowel after eating. HDL cholesterol is beneficial, as it carries cholesterol away from the arteries back to the liver where it can be excreted. These are some of the principal fats in the blood, which are also referred to as lipids.

High levels of total and LDL cholesterol as well as low HDL cholesterol are widely documented as risk factors for cardiovascular disease (CVD). Treatment with lipid-lowering drugs (particularly statins) enables effective reduction in LDL, and therefore total cholesterol levels, with resulting reductions in CVD incidence and deaths, and overall mortality. Cholesterol reduction is of benefit in both primary and secondary prevention of ischaemic heart disease (IHD) and stroke, and is currently recommended for all people with existing IHD or stroke, as well as those with a 10 year CVD risk of 20% or more. Treatment with a statin results in a relative risk reduction of major coronary events (including coronary revascularisation such as coronary artery bypass) and stroke of about one fifth per mmol/L reduction in LDL cholesterol, largely irrespective of the initial lipid profile or other characteristics. Previously, statin treatment was generally prescribed based on specific thresholds for secondary, and later primary, prevention; these thresholds have fallen over time. For those with CVD, diabetes or hypertension who are on drug treatment, an ‘audit level’ of 5 mmol/L is suggested, with a target of below 4 mmol/L. NICE guidance states that it should be recognised that fewer than half of patients will achieve a total cholesterol level less than 4 mmol/L. For primary prevention, currently no specific levels are indicated as thresholds for initiating treatment nor as targets. Analyses presented in this chapter explore cholesterol levels in relation to both the ‘audit level’ and target level for those with CVD.

2.2 Methods and definitions

2.2.1 Self-reported doctor-diagnosed disease

Participants were asked whether they suffered from any of the following conditions: angina, heart attack, stroke, heart murmur, abnormal heart rhythm. If they responded affirmatively, they were asked whether they had even been told they had the condition by a doctor. For the purpose of this report, participants were classified as having a particular condition only if they reported that the diagnosis was confirmed by a doctor. Those participants who reported having a particular condition were also asked if symptoms of the condition had occurred within the past 12 months.
It is important to note that no attempt was made to verify these self-reported diagnoses objectively. There is, therefore, the possibility that some misclassification may have occurred because some participants may not have remembered (or not remembered correctly) the diagnosis made by their doctor.

### 2.2.2 Total and HDL cholesterol

Following written consent from eligible participants, two non-fasting blood samples (6 ml plain and 4 ml EDTA\textsuperscript{32} tubes) were collected from adults aged 16 and over by the survey nurses. After collection, the tubes were posted to the Department of Clinical Biochemistry at the Royal Victoria Infirmary (RVI) Newcastle for analysis. In addition to the two analytes discussed in this chapter, glycated haemoglobin (HbA\textsubscript{1c}) results are reported in Chapter 4 of this volume, Diabetes and glycated haemoglobin. Details of laboratory techniques and quality control can be found in Chapter 9, Volume 2 of this report, Methods and documentation. A summary of response rates to the blood sample is provided in this chapter.

The laboratory equipment used to measure cholesterol changed in April 2010. Total cholesterol values are an average of 0.1mmol/L higher with the new equipment than with the old equipment, and HDL cholesterol values are an average of 0.1mmol/L lower. Results presented in tables analysing 2011 data only are those obtained using the new laboratory equipment and may not be directly comparable to results presented in earlier HSE reports. Results shown in trend tables have been adjusted to be more directly comparable with results from previous years. This affects both absolute levels (mean, centiles) and the proportion of participants with levels below a given threshold.

### 2.2.3 Use of medication

During the nurse visit, participants were asked about all the prescribed medications they were currently taking (i.e. taken in the last seven days). Nurses coded medications according to the classification in the British National Formulary (BNF), and from this classification it is possible to identify lipid-lowering and anti-platelet medication. Some analyses in this chapter examine the effect of use of these drugs.

### 2.2.4 Weighting

All data from 2003 onwards have been weighted for non-response. There are different weights for data collected in the interview (for self-reported disease diagnoses), and data obtained in the nurse visit and specifically, for the blood sample data. Full details of the weighting can be found in Chapter 7, Volume 2.

### 2.2.5 Definitions

**Any CVD**

Participants were classified as having ‘any CVD’ if they reported ever having any of the following conditions confirmed by a doctor: angina, heart attack, stroke, heart murmur, or irregular heart rhythm.

**Ischaemic heart disease (IHD)**

Participants were classified as having IHD if they reported having angina or a heart attack confirmed by a doctor.

All tables refer to ever having the condition.

**Cholesterol**

The definition of raised total cholesterol used the NICE Guidance ‘audit level’ of 5mmol/L or above.\textsuperscript{23} For those at high risk of CVD, or those with established CVD, the target of less than 4mmol/L has also been examined.\textsuperscript{31}

A low HDL cholesterol level was defined as below 1mmol/L.
Except where otherwise stated, the results for cholesterol include participants who were taking lipid-lowering drugs. The analysis by disease category shows the cholesterol levels both for all participants and also excluding those currently taking lipid-lowering drugs.

## 2.3 Prevalence of doctor-diagnosed cardiovascular disease

### 2.3.1 Prevalence of doctor-diagnosed CVD by age and sex

Table 2.1 displays the prevalence of doctor-diagnosed CVD conditions by age and sex. Among adults aged 16 and over, 13.9% of men and 13.4% of women had a cardiovascular condition. While the prevalence of any CVD was similar for both sexes, the prevalence of each individual condition was higher in men than women, with men therefore more likely than women to report more than one condition. The most common CVD was IHD (5.7% of men and 3.5% of women). More than half of men who had a cardiovascular condition (7.5%) had either IHD or stroke, compared with less than half of women (5%). More men than women reported having either or both IHD and stroke.

The prevalence of all the CVD conditions increased with age in both men and women; for instance for any CVD, prevalence ranged from 3.3% of men and 4.8% of women aged 16-24 to 53.8% and 31.1% respectively aged 85 and over. As Figure 2A shows, the increase with age in prevalence of any CVD, and of IHD or stroke, was much steeper in men than in women. For adults under the age of 45, the vast majority of self-reported CVD was a heart murmur or abnormal heart rhythm; stroke and IHD were very rare in young adults, reported by only 0.2% of men under 35. No women under 25 reported IHD or stroke in this sample.
Because prevalence of CVD is very low among younger adults, analysis of prevalence by region and socio-economic factors (Tables 2.2, 2.3 and 2.4) are based on those aged 35 and over. Table 2A below shows the age-standardised prevalence of any CVD, IHD and stroke in men and women aged 35 and over, for comparison.

### Table 2A

| Age-standardised prevalence of CVD among adults aged 35 and over |
| --- | --- |
| **Men** | **Women** |
| Any CVD | 19 | 17 |
| IHD | 8 | 5 |
| Stroke | 4 | 3 |

#### 2.3.2 Prevalence of CVD by strategic health authority

Table 2.2 presents the prevalence of any CVD, IHD, and stroke by strategic health authority among those aged 35 and over. There was significant variation for all three, with highest prevalence of CVD for both men and women in Yorkshire and the Humber and the North East.

#### 2.3.3 Prevalence of CVD by socio-economic factors

There were clear patterns in prevalence of CVD among those aged 35 and over, both by equivalised household income and Index of Multiple Deprivation (IMD). The prevalence of CVD conditions was generally lower in the higher income groups than in the lower income households. Similarly, IHD varied across quintiles of equivalised household income, with lowest rates in the highest quintile (5% in men, 2% in women in the highest quintile, 11% and 5% respectively in both the lowest two quintiles).

In the same way, prevalence of doctor-diagnosed CVD was greater in those aged 35 and over who lived in the most deprived areas than in the least deprived. Figure 2B shows the pattern for IHD by IMD; prevalence increased from 6% of men and 3% of women in the least deprived quintile to 11% and 7% respectively in the most deprived.

### Figure 2B

**Prevalence of IHD, by Index of Multiple Deprivation and sex**

*Base: Aged 16 and over*
2.3.4 Trends in IHD, stroke, IHD or stroke, 1994-2011

Figure 2C and Table 2.5 show trends in IHD and stroke since 1994 in men and women. In both men and women there was an increase in prevalence of IHD between 1994 and 1998, when the highest prevalence of IHD was recorded in both men and women (7.1% and 4.6% respectively). Prevalence of IHD has generally fallen since then to 5.7% in men and 3.5% in women in 2011. Prevalence of stroke in women followed a similar pattern, with an increase between 1994 and 1998 (from 1.6% to 2.1%); however prevalence has been fairly constant since then. In contrast the prevalence of stroke in men has increase over time rising by nearly one percentage point to 2.7%, a 50% increase since 1994.

Table 2.5, Figure 2C

2.3.5 Use of lipid-lowering and anti-platelet drugs

This section looks at the use of lipid-lowering and anti-platelet drugs; there is a strong evidence base that these drugs should be used in secondary prevention of CVD and considered for primary prevention of CVD in certain groups of the population (see Section 2.1.2). The use of prescribed lipid-lowering and anti-platelet drugs was examined in three groups of participants aged 35 and over:

- Those reporting IHD or stroke;
- Those reporting doctor-diagnosed hypertension or diabetes but not reporting IHD or stroke; and
- Those with none of these conditions.

A similarly high proportion of men and women with IHD or stroke were taking lipid-lowering drugs (79% and 72% respectively), and slightly fewer in this category were taking anti-platelet drugs (64% and 60% respectively).

Among those aged 35 and over with diabetes or hypertension but no IHD/stroke, significantly more men than women were prescribed lipid-lowering drugs (37% and 28% respectively). There was a significant increase in use of lipid-lowering drugs with age in those with diabetes or hypertension. Use of anti-platelet medication was lower in this group (12% in men and 11% in women); it also increased with age.

In those with no doctor-diagnosed IHD, stroke, hypertension or diabetes, there was low use of prescribed lipid-lowering drugs (6% in men, 5% in women) or anti-platelet drugs (3% and 2% respectively). There was increased use of both these categories of drug with age, with 27% of men and 23% of women over 75 with none of these diseases using prescribed lipid-lowering drugs, and 15% of men and 19% of women over 75 in this group using anti-platelet drugs.

Tables 2.6, 2.7
2.3.6 Prevalence of CVD in those with diagnosed diabetes

Age-standardised prevalence of CVD was higher among people with doctor-diagnosed diabetes than those without a diabetes diagnosis. This was particularly marked for IHD (13% in men with and 5% in men without diabetes, 13% and 3% respectively in women) and for stroke (4% in men with and 2% in men without diabetes, 7% and 2% respectively in women).

2.3.7 Mental well-being in those with CVD

Mean age-standardised scores on the Warwick-Edinburgh Mental Well-being Scale (WEBWMS) varied substantially by disease category. Those without CVD had higher mean scores (52.1 for men, 51.8 for women) than those with cardiovascular disease (49.4 and 49.9 respectively among participants with any CVD). Those with IHD or stroke scored more than 5 points less than those with no CVD.

2.4 Cholesterol levels

2.4.1 Response to non-fasting blood samples

During the nurse visit all adults aged 16 and over were asked to provide a blood sample for analysis. 80% of both men and women agreed to give a blood sample, 15% refused, and 5% were not eligible to give a blood sample (for example because they were on anticoagulant drugs, had a history of recent fits, or were pregnant). Blood samples were not obtained from some participants who had agreed to provide a sample; overall 74% of men and 73% of women visited by a nurse successfully gave a blood sample.

Valid total and HDL cholesterol results were obtained from 70% of men and 68% of women who had a nurse visit, a total of 3940 samples for each analyte (1739 from men and 2201 from women).

2.4.2 Cholesterol levels by age and sex

Table 2.12 shows the relationship between total cholesterol level and age and sex. The mean level was lower in men than women (5.1mmol/L and 5.2mmol/L respectively). There was also significant variation by age, and the pattern was different in men and women, as shown in Figure 2D. In men, total cholesterol levels were higher than for women in the younger age groups, but among adults aged 55 and over, women had higher total cholesterol levels than men. In men, total cholesterol rose with age up to 45-54, and then declined. In women, the total cholesterol increased up to the 55-64 year old age group with a smaller decrease to age 75 and over.

![Mean total cholesterol levels, by age and sex](Image)

**Figure 2D**

<table>
<thead>
<tr>
<th>Mean total cholesterol levels, by age and sex</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base: Aged 16 and over with valid cholesterol sample, including those taking lipid-lowering drugs</strong></td>
</tr>
<tr>
<td><strong>Age group</strong></td>
</tr>
<tr>
<td>16-24</td>
</tr>
<tr>
<td>25-34</td>
</tr>
<tr>
<td>35-44</td>
</tr>
<tr>
<td>45-54</td>
</tr>
<tr>
<td>55-64</td>
</tr>
<tr>
<td>65-74</td>
</tr>
<tr>
<td>75+</td>
</tr>
</tbody>
</table>

**Men**

**Women**
Table 2.12 also shows the proportion of adults with total cholesterol levels below 5mmol/L (the ‘audit level’ for those with CVD, diabetes or hypertension who are on drug treatment, and the level monitored in previous reports) as well as the current target of below 4mmol/L (see Section 2.1.2). 44% of men and 43% of women had total cholesterol levels below 5mmol/L, while only 14% and 12% respectively had levels below 4mmol/L.

Figure 2E shows the pattern by age for those achieving a total cholesterol level below 4mmol/L or 5mmol/L. In both sexes, the proportions of adults within target ranges for total cholesterol levels initially decreased with age, and then increased again among the older age groups. In men, this increase started at a younger age than in women. While there was generally little difference between the sexes up to the age group 45-54, more men than women aged 55 and over achieved the recommended levels. This gap widened in the older age groups, particularly for the 4mmol/L threshold. In those aged 75 and over, 64% of men but 38% of women had a total cholesterol level below 5mmol/L; and 30% of men compared with only 8% of women had a total cholesterol level below 4mmol/L.

Table 2.17 shows mean levels of the beneficial HDL cholesterol, and the proportions with low levels of HDL cholesterol (below 1mmol/L). The mean level of HDL cholesterol was significantly lower in men than women (1.3mmol/L and 1.6mmol/L respectively, and the proportion with low levels was much greater in men than women (13% and 4% respectively). This difference between the sexes was apparent at all ages. However, the relationship between HDL cholesterol and age was different for men and women. For women, HDL cholesterol levels generally increased with age, while for men there was no consistent pattern.

### 2.4.3 Cholesterol levels by socio-economic factors

Tables 2.13 and 2.14 show the relationship between mean total cholesterol and equivalised household income and IMD, respectively. There was no significant relationship between either measure and mean total cholesterol level, nor with the proportion of men or women achieving a total cholesterol level below 5mmol/L or 4mmol/L.

Table 2.18 shows that there was a significant relationship between HDL cholesterol and equivalised household income. In both men and women, there was a decrease in HDL cholesterol with decreasing equivalised household income; the decrease was greater in women than in men. As Figure 2F shows, both men and women from lower income households were more likely to have HDL cholesterol levels below 1mmol/L than those from higher income households (19% of men and 6% of women in the lowest income quintile, 8% and 2% respectively in the highest quintile).

Tables 2.12, 2.17, Figures 2D, 2E

Tables 2.13, 2.14, 2.18, Figure 2F
2.4.4 Trends in total and HDL cholesterol levels, 1998-2011

The laboratory equipment used to measure cholesterol changed in April 2010 (see Section 2.2.2). For the trend tables, cholesterol results were adjusted to make results directly comparable with those presented in earlier HSE reports. Table 2.15 and Figure 2G show the trend in total cholesterol levels between 1998 and 2011.

There has been a significant decrease in mean total cholesterol levels in both sexes. The mean total cholesterol level in adults (including people taking lipid-lowering drugs), remained at the same level between 1998 and 2003, and has since fallen by 0.5mmol/L in both men and women. There has been a similar improvement in the proportion with cholesterol levels below the audit threshold of 5mmol/L, increasing from 34% in both men and women in 2003 to 48% in men and 47% in women in 2011.

HDL cholesterol levels have fluctuated but with no clear pattern over time, apart from an unexplained particularly high prevalence of low HDL cholesterol levels in 1998. The adjustment mentioned above resulted in a marked difference in the proportion of people with HDL levels less than 1mmol/L between Table 2.17 and the trend Table 2.19.

Tables 2.15, 2.19, Figure 2G
2.4.5 Total cholesterol levels by disease status

Table 2.16 shows, among adults aged 35 and over, how mean total cholesterol levels varied according to whether people were taking lipid-lowering drugs (LLD), by disease status, age and sex. Results are shown for all those with CVD, those with hypertension or diabetes but not CVD, and those without any of these diseases; in each case results are shown separately for all who meet the definition including those taking LLD, and also for those who were not taking LLD.33

Looking first at mean cholesterol levels among those with different disease status including those treated with LLD, summarised in Table 2B, men with CVD had significantly lower mean levels than men with hypertension or diabetes but not CVD, or those without any of these diseases. This was not the case for women.

<table>
<thead>
<tr>
<th>Disease Status</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>With CVD</td>
<td>4.7</td>
<td>5.4</td>
</tr>
<tr>
<td>Hypertension or diabetes but no CVD</td>
<td>5.2</td>
<td>5.5</td>
</tr>
<tr>
<td>None of the above</td>
<td>5.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Table 2B

Among those not taking LLD, there was less variation in mean total cholesterol levels according to disease status, as summarised in Table 2C. The impact of LLD can be seen among those with CVD, where mean total cholesterol levels were considerably lower in the group including people on LLD treatment than among those who were not on LLD (4.7mmol/L and 5.4mmol/L respectively in men, 5.4mmol/L and 5.8mmol/L in women). There was a similar effect for men with hypertension or diabetes but no CVD (5.2mmol/L and 5.6mmol/L respectively), but no comparable effect from LLD was apparent for women in this disease group, nor for those with none of these diseases.

<table>
<thead>
<tr>
<th>Disease Status</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>With CVD</td>
<td>5.4</td>
<td>5.8</td>
</tr>
<tr>
<td>Hypertension or diabetes but no CVD</td>
<td>5.6</td>
<td>5.7</td>
</tr>
<tr>
<td>None of the above</td>
<td>5.6</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Table 2C

Table 2.16 also shows the impact of LLD on the proportions of those aged 35 and over who were below the 5mmol/L audit level or 4mmol/L target level for total cholesterol. Results are summarised in Figure 2H. The impact is particularly clear among men with CVD (60% below 5mmol/L among the group including those on LLD, 35% among those not on LLD), and men with hypertension or diabetes but not CVD (41% and 24% respectively). There was a similar though less marked pattern for women in these disease groups. However, there was little difference among those with no CVD, hypertension or diabetes according to whether they were taking LLD or not.

In all disease groups, the relationship between age and mean total cholesterol level differed by sex. In men with CVD and men with hypertension and/or diabetes the highest mean total cholesterol was found in the youngest age group. This was not the case for women.

Tables 2.16, 2B, 2C, Figure 2H
2.5 Discussion

2.5.1 Methodological issues

When analysing use of lipid-lowering drugs in this chapter, use of prescribed lipid-lowering drugs has been examined specifically. Low-dose statins, available over-the-counter since 2003, have not been taken into account in the analyses. There were only 14 participants in the dataset who reported using over-the-counter, low dose statins and did not use prescribed lipid-lowering drugs, so any inaccuracy is likely to be small.

It should also be borne in mind that the HSE is restricted to the free-living population able to give informed consent and to respond to questions. For this reason, the stated prevalence of some diseases, particularly stroke, may be an underestimate of prevalence in the total population, as stroke often results in disability and may lead to an increased likelihood of residential care or of communication difficulties preventing survey participation.

Additionally, risk factors for CVD also increase the risk of dementia, which also precludes participation in the HSE.

The effect of changes in the laboratory equipment during 2010 were more noticeable for HDL cholesterol than for total cholesterol. Since HDL levels (mean 1.3mmol/L in men
and 1.6 mmol/L in women) are lower than total cholesterol levels (mean 5.1 mmol/L and 5.2 mmol/L respectively), the adjustment of values by 0.1 mmol/L had a greater percentage effect on HDL cholesterol than on total cholesterol. In particular there was a marked effect on the proportion of participants who fell below the 1 mmol/L threshold for HDL cholesterol (13% of men and 4% of women with unadjusted figures, 7% and 2% respectively with adjustment).

### 2.5.2 Sex differences in cardiovascular disease

CVD is more prevalent in men than in women; this is particularly true in older age-groups. Male sex is well-documented as a risk-factor for cardiovascular disease. This may be due to non-modifiable differences between the sexes, such as hormonal influence. However, given that the degree of the sex difference varies over time and between countries, the sex difference is unlikely to be due to physiology alone, and lifestyle or the environment must play a part. Examination of the US population has shown that just 1.8% of adults aged 20 and over meet all seven defined ideal health behaviours/risk factors with evidence of improving cardiovascular health and reducing CVD mortality i.e.:

- Not smoking
- Being physically active
- Having normal blood pressure, blood glucose, total cholesterol levels and weight
- Eating a healthy diet.

Of those meeting these recommendations, 74% were female. Of those achieving five or six of these positive factors, 55% and 64% respectively were women. If patterns are similar in the UK, improving the lifestyle of the male population would decrease the gap between men and women’s experience of cardiovascular disease.

### 2.5.3 Sex differences in cholesterol levels

The HSE 2011 data showed lower total cholesterol levels in men than in women aged 55 and over, and this is probably partly due to greater use of lipid-lowering drugs in men. Men with diabetes and hypertension were significantly more likely to use lipid-lowering drugs than women with these diseases, and while both men and women with CVD were equally likely to use lipid-lowering drugs, CVD is far more prevalent in men in the older age-groups. It may also be due in part to the likelihood of men with the highest cholesterol levels dying at younger ages, with a ‘survivor’ effect seen among HSE participants.

Although men aged 55 and over achieved lower total cholesterol levels than women of that age, HDL cholesterol was higher in women of all ages. This high HDL cholesterol is likely to have contributed to the higher total cholesterol found in women. There is scope for further analysis of these HSE 2011 data, particularly the total:HDL cholesterol ratios in men and women in England in 2011.

Mean cholesterol levels among those with different disease status including those treated with LLD, showed that men with CVD had significantly lower mean levels than men with hypertension or diabetes but not CVD, or those without any of these diseases. This was not the case for women. This probably reflects both the fact that men were more likely than women in high risk groups to be prescribed lipid-lowering medication and the efficacy of these drugs.

### 2.5.4 Inequalities

Doctor-diagnosed CVD was more prevalent in those with socio-economic disadvantage, whether this is measured by equivalised household income or by the deprivation level of the area in which people live. There is no significant difference in the pattern of CVD prevalence with equivalised household income between 2006 and 2011. This suggests that progress in shrinking inequalities in the burden of CVD is slow to manifest.

While mean total cholesterol level was not associated with either measure of deprivation, HDL cholesterol was significantly lower in men and women in lower income households. This suggests that, similar to the sex difference described in Section 2.5.3, use of lipid-
lowering drugs may affect the relationship between socio-economic status and total cholesterol levels. Low HDL cholesterol levels in deprived groups may be due to poor diet and lifestyle, and a poor total: HDL cholesterol ratio may contribute to the greater CVD risk carried by those in lower income households. The persistence of inequalities in CVD burden and in cholesterol is also reported in the literature.36

2.5.5 CVD and well-being

It is well documented that there is an association between CVD and mental health. This may be bidirectional, as some studies demonstrate the development of depression after stroke37,38 or MI,39 but there is also literature which shows that presence of depressive symptoms are associated with increased risk of a CVD event.40

The existence of an association between CVD and well-being, shown in this chapter, is of concern because poor mental health can adversely affect the course of long-term illness.41 NICE guidance was released in October 2009 stating best practice for identifying clinical and subclinical depression in patients with a chronic physical illness; increasing awareness of this issue may lead to improvements in the well-being of those who have suffered a CVD event.42

2.5.6 Trends in cardiovascular disease

Data show that CVD mortality is falling in England and Wales.2 If this were due to increased survival of CVD events, with no effect on incidence, we would expect the prevalence of CVD conditions to increase. Given that there is no apparent increase in CVD conditions since 1998, other than stroke prevalence in men, this therefore suggests that incidence is falling. Evidence exists that incidence of IHD is falling in Scotland.43 There is a suggestion that prevalence of IHD peaked in 1998 and the subsequent decrease in the prevalence of IHD in men and women from 1998 to 2011 may be evidence that incidence of IHD is falling in England too. Future surveys will be required to be certain of any trend.

In the future, a continuing downward trend in CVD mortality will depend on further improvements in population health and CVD treatment. In 2008, as part of a strategy to shift the focus of the NHS towards empowering patients and preventing illness, the NHS Health Check programme was introduced. This is a systematic programme of vascular risk assessment for primary prevention designed to give people information about their health, support lifestyle changes and offer early intervention when appropriate.44 In 2010, NICE published guidance on population prevention of CVD, which made a number of recommendations to improve national diet and physical activity.45 Large population gains result from population level changes in risk factors.46 The most cost-effective approaches for this may occur from changing the environment in which individuals make their decisions.47 Preventative action will decrease not only CVD mortality but also CVD incidence. It is notable that very few men/women/adults with CVD were not taking prescribed lipid-lowering drugs, apart from younger women, but very few adults with no CVD, diabetes or hypertension were taking such drugs, suggesting that drug use is generally being targeted appropriately.

Improved treatments, for example primary angioplasty (widening narrowed or blocked arteries) replacing thrombolysis for early intervention for MI,48 will also continue to reduce CVD mortality in the future. Similarly, reorganisation of stroke care across the country with provision of hyperacute stroke units and increasing awareness of the importance of seeking treatment urgently for stroke should reduce mortality. Increased survival of CVD may lead to a greater prevalence of people living with the consequences of CVD in the population. However, improved treatments should also reduce residual disability for CVD survivors.

2.5.7 Comparison with data from other sources

Primary care (GP) practices have been submitting data to the Quality Management Analysis System (QMAS) since April 2004. These data are used to calculate individual practices’ Quality and Outcomes Framework (QOF) achievement to support practice payment
processes.\textsuperscript{49,50} For 2011/2012 QOF figures suggest prevalence of IHD was 4.3% and prevalence of stroke was 2.1% (QOF figures are for the entire population at all ages, therefore to make the number comparable with our prevalence data, we have assumed none of the CVD recorded in the QOF is in those under 16, and multiplied the denominator by 0.8 ie: assumed 20% of the population is under 16). The QOF prevalence figures are lower than the figures shown in this report (4.6% for IHD, 2.4% for stroke); however the data are much closer than those reported in 2006.\textsuperscript{18} There are several possible reasons for the lower QOF figures. Firstly, it is known that GP registers overstate the true number of patients, for example because of the time lag in updating lists when patients move to a different practice or die (known as GP list inflation).\textsuperscript{51} This increases the denominator which will decrease the apparent prevalence. Secondly, there may be some people living in England who are not registered with any GP and if these people had a CVD diagnosis they would be missing from the numerator. Thirdly, there may be under-recording by GP practices of diagnosis in their patients due to time constraints or IT failure. One or more of these factors has improved since 2006, as GP registers now more closely match these survey results.

### 2.5.8 Comparison with other countries

In Scotland, 15.6% of men and 13.8% of women reported doctor-diagnosed CVD.\textsuperscript{52} This is higher than the equivalent figures of 13.9% and 13.4% in England. Prevalence of stroke and/or IHD was 9.4% in men and 6.7% in women in Scotland compared with 7.5% and 5.0% respectively in England. Mean total cholesterol levels and HDL cholesterol levels were comparable north and south of the border.\textsuperscript{52}

In the Welsh Health Survey 2010, 5% of men and 3% of women reported ever having been treated for a heart attack, and 3% of men and 2% of women reported ever having been treated for a stroke.\textsuperscript{53} The prevalence of self-reported doctor-diagnosed heart attack in the HSE data was 3.7% in men, 1.6% in women, which suggests that prevalence may be greater in Wales.\textsuperscript{54} HSE data showed stroke prevalence of 2.7% in men and 2.1% in women, very similar to the Welsh data.

Understanding the reasons for differing experience of CVD in the three countries of Great Britain is complicated but may be partly attributable to differences in the main CVD risk factors of smoking, diet (including alcohol consumption) and physical activity, with differing socio-economic factors such as ethnic mix and deprivation also contributing. Health and healthcare policies have also been quite different in these three countries since devolution, which may affect trends.

The NHANES 2009-2010, a health examination survey conducted in the USA, found that more women than men had a high total cholesterol level (14.3% and 12.2% respectively). It is difficult to compare these figures with HSE data as high total cholesterol was defined by NHANES as 6.2mmol/L, which is considerably higher than the thresholds used in England. However the association of total cholesterol level and sex is in the same direction as found in the HSE. The direction of the association between low HDL cholesterol and sex is also the same, and in this case the threshold for low HDL cholesterol is comparable between the surveys. The population in England had a significantly lower prevalence of low HDL cholesterol than the population in the USA: NHANES found more men over 20 had low HDL cholesterol defined as below 1.03mmol/L than did women (31% and 12% respectively),\textsuperscript{55} HSE figures for men and women aged over 16 with HDL cholesterol below 1mmol/L were 13% and 4% respectively. This suggests some relative success for health policy in England compared with the USA.

### References and notes

1. We thank Professor Huon Gray for advice on the Introduction to this chapter.
7 www.ic.nhs.uk/pubs/hse11trends


32 Ethylenediaminetetraacetic acid, a preservative which prevents blood from clotting.

33 Base sizes in some categories, especially those with CVD who were not taking LLD, are relatively small, and results in these cases should be interpreted with caution.


37 Hachinsky V. Post-stroke depression, not to be underestimated. Lancet. 1999;353:1728.


50 Figures published by the Health and Social Care Information Centre are derived from the Quality Management Analysis System (QMAS), a national system developed by NHS Connecting for Health. QMAS uses data from general practices to calculate individual practices’ QOF achievement. Users of data derived from QMAS should recognise that QMAS was established as a mechanism to support the calculation of practice QOF payments. It is not a comprehensive source of data on quality of care in general practice, but it is potentially a rich and valuable source of such information, providing that the limitations of the data are acknowledged. The 2011/12 disease prevalence tables were based on prevalence submissions to QMAS at the end of the 2011/12 financial year. The all-age disease prevalence figures are based on 8,123 general practices. The sum of the practice list sizes for the practices included in the QOF publication are estimated to represent over 99% of registered patients in England (based on registration data from the Prescription Services Division of the NHS Business Services Authority).

The Welsh Health Survey differs from the HSE in data collection methods. Random sampling is similar but in Wales, an interviewer leaves self-completion questionnaires for the participants rather than interviewing them in person. It is possible but unlikely that this affects the responses for cardiovascular disease. A comparison of this difference in mode for various HSE questions found no difference in limiting or non-limiting longstanding illness. See Tipping S, Hope S, Pickering K, Roth MA, Erens B, Mindell JS. *The effect of mode and context on survey results: analysis of data from the Health Survey for England 2006 and the Boost survey for London.* BMC Med Res Methodol. 2010;10:84.

### Tables

2.1 Prevalence of any doctor-diagnosed CVD, IHD, MI, angina, stroke, and IHD or stroke, by age and sex

2.2 Prevalence of any doctor-diagnosed CVD, IHD or stroke (observed and age-standardised), by strategic health authority and sex

2.3 Prevalence of any doctor-diagnosed CVD, IHD or stroke (age-standardised), by equivalised household income and sex

2.4 Prevalence of any doctor-diagnosed CVD, IHD or stroke (age-standardised), by Index of Multiple deprivation and sex

2.5 Trends in doctor-diagnosed IHD, stroke, and IHD or stroke, 1994-2011, by age and sex

2.6 Use of prescribed lipid-lowering drugs, by disease category, age and sex

2.7 Use of antiplatelet medication, by disease category, age and sex

2.8 Prevalence of CVD, IHD or stroke (age-standardised), by doctor-diagnosed diabetes status and sex

2.9 WEMWBS mean scores (age-standardised), by prevalence of CVD, IHD or stroke and sex

2.10 Response to blood sample, by age and sex

2.11 Proportion with valid blood samples for each analyte, by age and sex

2.12 Total cholesterol levels, by age and sex

2.13 Total cholesterol levels (age-standardised), by equivalised household income and sex

2.14 Total cholesterol levels (age-standardised), by Index of Multiple Deprivation and sex

2.15 Trends in total cholesterol levels, 1998-2011, by sex

2.16 Total cholesterol levels and effect of lipid-lowering drugs, by disease status, age and sex

2.17 HDL cholesterol levels, by age and sex

2.18 HDL cholesterol levels (age-standardised), by equivalised household income and sex

2.19 Trends in HDL cholesterol levels, 1998-2011, by sex

### Notes on the tables

1. The group on which the figures in the table are based is stated at the upper left corner of the table.

2. The data in most tables have been weighted. See Chapter 7, Volume 2 of this report for more detail. Both unweighted and weighted sample sizes are shown at the foot of each table.

3. Apart from tables showing age breakdowns, data have been age-standardised to allow comparisons between groups after adjusting for the effects of any differences in their age distributions. See Chapter 8.3.3, Volume 2 of this report for more detail.

4. The following conventions have been used in tables:
   - no observations (zero value)
   - non-zero values of less than 0.5% and thus rounded to zero
   - used to warn of small sample bases, if the unweighted base is less than 50. If a group’s unweighted base is less than 30, data are normally not shown for that group.

5. Because of rounding, row or column percentages may not add exactly to 100%.

6. ‘Missing values’ occur for several reasons, including refusal or inability to answer a particular question; refusal to co-operate in an entire section of the survey (such as the nurse visit or a self-completion questionnaire); and cases where the question is not applicable to the participant. In general, missing values have been omitted from all tables and analyses.
### Table 2.1

**Prevalence of any doctor-diagnosed CVD, IHD, MI, angina, stroke, and IHD or stroke, by age and sex**

**Aged 16 and over**

<table>
<thead>
<tr>
<th>Age group</th>
<th>Any CVD</th>
<th>IHD</th>
<th>MI</th>
<th>Angina</th>
<th>Stroke</th>
<th>IHD or stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-24</td>
<td>3.3</td>
<td>0.2</td>
<td>-</td>
<td>-</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>25-34</td>
<td>3.8</td>
<td>1.3</td>
<td>0.6</td>
<td>0.7</td>
<td>0.7</td>
<td>0.2</td>
</tr>
<tr>
<td>35-44</td>
<td>6.1</td>
<td>3.6</td>
<td>2.8</td>
<td>2.0</td>
<td>4.5</td>
<td>1.9</td>
</tr>
<tr>
<td>45-54</td>
<td>11.9</td>
<td>8.6</td>
<td>5.9</td>
<td>5.9</td>
<td>11.2</td>
<td>4.5</td>
</tr>
<tr>
<td>55-64</td>
<td>17.8</td>
<td>15.1</td>
<td>9.3</td>
<td>10.1</td>
<td>21.0</td>
<td>11.2</td>
</tr>
<tr>
<td>65-74</td>
<td>33.3</td>
<td>15.4</td>
<td>9.3</td>
<td>10.1</td>
<td>30.4</td>
<td>21.0</td>
</tr>
<tr>
<td>75-84</td>
<td>43.6</td>
<td>21.9</td>
<td>15.4</td>
<td>21.0</td>
<td>42.5</td>
<td>30.4</td>
</tr>
<tr>
<td>85+</td>
<td>53.8</td>
<td>21.9</td>
<td>15.4</td>
<td>21.0</td>
<td>7.5</td>
<td>21.0</td>
</tr>
</tbody>
</table>

**Total**

<table>
<thead>
<tr>
<th>Any CVD</th>
<th>IHD</th>
<th>MI</th>
<th>Angina</th>
<th>Stroke</th>
<th>IHD or stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3</td>
<td>0.2</td>
<td>-</td>
<td>-</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>1.3</td>
<td>1.3</td>
<td>0.6</td>
<td>0.7</td>
<td>0.7</td>
<td>0.2</td>
</tr>
<tr>
<td>2.8</td>
<td>3.6</td>
<td>2.8</td>
<td>2.0</td>
<td>4.5</td>
<td>1.9</td>
</tr>
<tr>
<td>11.2</td>
<td>8.6</td>
<td>5.9</td>
<td>5.9</td>
<td>11.2</td>
<td>4.5</td>
</tr>
<tr>
<td>15.4</td>
<td>15.4</td>
<td>9.3</td>
<td>10.1</td>
<td>21.0</td>
<td>11.2</td>
</tr>
<tr>
<td>21.9</td>
<td>21.9</td>
<td>15.4</td>
<td>21.0</td>
<td>42.5</td>
<td>30.4</td>
</tr>
<tr>
<td>31.1</td>
<td>31.1</td>
<td>31.1</td>
<td>31.1</td>
<td>7.5</td>
<td>7.5</td>
</tr>
</tbody>
</table>

#### Bases (unweighted)

<table>
<thead>
<tr>
<th>Men</th>
<th>372</th>
<th>547</th>
<th>680</th>
<th>666</th>
<th>630</th>
<th>505</th>
<th>328</th>
<th>92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>483</td>
<td>727</td>
<td>836</td>
<td>824</td>
<td>770</td>
<td>610</td>
<td>403</td>
<td>134</td>
</tr>
</tbody>
</table>

#### Bases (weighted)

<table>
<thead>
<tr>
<th>Men</th>
<th>639</th>
<th>713</th>
<th>764</th>
<th>730</th>
<th>616</th>
<th>435</th>
<th>250</th>
<th>73</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>620</td>
<td>692</td>
<td>770</td>
<td>741</td>
<td>640</td>
<td>476</td>
<td>335</td>
<td>112</td>
</tr>
</tbody>
</table>

---

*a* Estimates are shown to one decimal place because of low prevalence rates in the younger age groups.

*b* CVD: Cardiovascular disease, i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.

*c* IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.

*d* MI: Myocardial infarction (heart attack).

*e* Bases shown are for IHD. Bases for individual conditions vary but are of a similar magnitude.
## Table 2.2

Prevalence of any doctor-diagnosed CVD, IHD or stroke (observed and age-standardised), by strategic health authority* and sex

### Any CVD/IHD/stroke

<table>
<thead>
<tr>
<th>Strategic health authority</th>
<th>North East</th>
<th>North West</th>
<th>Yorkshire &amp; the Humber</th>
<th>East Midlands</th>
<th>West Midlands</th>
<th>East of England</th>
<th>London</th>
<th>South East Coast</th>
<th>South Central</th>
<th>South West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any CVD</td>
<td>25</td>
<td>20</td>
<td>24</td>
<td>14</td>
<td>18</td>
<td>20</td>
<td>13</td>
<td>18</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>IHD</td>
<td>10</td>
<td>11</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>10</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Stroke</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Standardised %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any CVD</td>
<td>24</td>
<td>21</td>
<td>24</td>
<td>15</td>
<td>18</td>
<td>19</td>
<td>15</td>
<td>17</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>IHD</td>
<td>9</td>
<td>12</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>9</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Stroke</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

### Men

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th>Standardised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any CVD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Women

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th>Standardised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any CVD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Bases (unweighted)*

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any CVD</td>
<td>242</td>
<td>310</td>
</tr>
<tr>
<td>IHD</td>
<td>446</td>
<td>385</td>
</tr>
<tr>
<td>Stroke</td>
<td>392</td>
<td>297</td>
</tr>
</tbody>
</table>

### Bases (weighted)*

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any CVD</td>
<td>148</td>
<td>161</td>
</tr>
<tr>
<td>IHD</td>
<td>389</td>
<td>392</td>
</tr>
<tr>
<td>Stroke</td>
<td>347</td>
<td>308</td>
</tr>
</tbody>
</table>

---

* This table provides data for regional analysis by the configuration of strategic health authorities (SHAs) in place from July 2006.

** CVD: Cardiovascular disease, i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.

*** IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.

**** Bases shown are for IHD. Bases for other conditions vary but are of a similar magnitude.
Table 2.3

Prevalence of any doctor-diagnosed CVD, IHD or stroke (age-standardised), by equivalised household income and sex

<table>
<thead>
<tr>
<th>Aged 35 and over</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any CVD/IHD/stroke</td>
<td>Equivalised household income quintile</td>
</tr>
<tr>
<td></td>
<td>Highest</td>
</tr>
<tr>
<td>Men</td>
<td></td>
</tr>
<tr>
<td>Any CVD</td>
<td>15</td>
</tr>
<tr>
<td>IHD</td>
<td>5</td>
</tr>
<tr>
<td>Stroke</td>
<td>2</td>
</tr>
</tbody>
</table>

| Women            |         |     |     |     |        |
| Any CVD          | 16      | 19  | 14  | 20  | 19     |
| IHD              | 2       | 6   | 5   | 5   | 5      |
| Stroke           | 2       | 1   | 3   | 3   | 5      |

| Bases (unweighted) |       |     |     |     |        |
| Men               | 525    | 490 | 488 | 482 | 352    |
| Women             | 538    | 549 | 574 | 631 | 516    |

| Bases (weighted)  |       |     |     |     |        |
| Men               | 525    | 494 | 465 | 454 | 355    |
| Women             | 468    | 477 | 486 | 527 | 441    |

a CVD: Cardiovascular disease, i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.
b IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.
c Bases shown are for IHD. Bases for individual conditions vary but are of a similar magnitude.
Table 2.4
Prevalence of any doctor-diagnosed CVD, IHD or stroke (age-standardised), by Index of Multiple Deprivation\(^a\) and sex

<table>
<thead>
<tr>
<th>IMD quintile</th>
<th>Least deprived</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Most deprived</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aged 35 and over 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Men

| Any CVD\(^b\) | 15 | 17 | 19 | 22 | 22 |
| IHD\(^c\) | 6 | 8 | 9 | 9 | 11 |
| Stroke | 2 | 3 | 4 | 5 | 7 |

### Women

| Any CVD | 13 | 15 | 18 | 18 | 21 |
| IHD | 3 | 4 | 5 | 6 | 7 |
| Stroke | 2 | 2 | 4 | 3 | 5 |

<table>
<thead>
<tr>
<th>Bases (unweighted)(^d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
</tr>
<tr>
<td>Women</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bases (weighted)(^d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
</tr>
<tr>
<td>Women</td>
</tr>
</tbody>
</table>

\(^a\) The Index of Multiple Deprivation 2010 (IMD) combines a number of indicators, chosen to cover a range of economic, social and housing issues, into a single deprivation score at the small area level in England.

\(^b\) CVD: Cardiovascular disease, i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.

\(^c\) IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.

\(^d\) Bases shown are for IHD. Bases for individual conditions vary but are of a similar magnitude.
Table 2.5
Trends in doctor-diagnosed IHD, stroke, and IHD or stroke, 1994-2011, by age and sex

<table>
<thead>
<tr>
<th>IHD/Stroke/IHD or stroke</th>
<th>Age group</th>
<th>1994-2011a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-24</td>
<td>25-34</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

**Men**

<table>
<thead>
<tr>
<th>IHDc</th>
<th>1994a</th>
<th>0.3</th>
<th>0.5</th>
<th>3.0</th>
<th>10.3</th>
<th>21.0</th>
<th>22.7</th>
<th>6.0</th>
<th>6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998a</td>
<td>0.1</td>
<td>0.4</td>
<td>0.9</td>
<td>4.3</td>
<td>13.6</td>
<td>20.2</td>
<td>23.4</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>-</td>
<td>-</td>
<td>1.0</td>
<td>3.4</td>
<td>11.1</td>
<td>21.2</td>
<td>26.5</td>
<td>6.4</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>0.1</td>
<td>0.2</td>
<td>0.6</td>
<td>3.6</td>
<td>10.6</td>
<td>20.8</td>
<td>28.6</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>-</td>
<td>0.2</td>
<td>1.3</td>
<td>3.6</td>
<td>8.6</td>
<td>15.1</td>
<td>26.7</td>
<td>5.7</td>
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</table>

**Stroke**

<table>
<thead>
<tr>
<th>1994a</th>
<th>0.1</th>
<th>0.1</th>
<th>0.3</th>
<th>2.9</th>
<th>6.5</th>
<th>8.6</th>
<th>1.8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998a</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
<td>2.9</td>
<td>6.5</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
<td>2.9</td>
<td>6.5</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
<td>2.9</td>
<td>6.5</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
<td>2.9</td>
<td>6.5</td>
<td>8.6</td>
</tr>
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</table>

**IHD or stroke**

<table>
<thead>
<tr>
<th>1994a</th>
<th>0.3</th>
<th>0.6</th>
<th>3.2</th>
<th>12.3</th>
<th>25.0</th>
<th>27.7</th>
<th>7.1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998a</td>
<td>0.2</td>
<td>0.1</td>
<td>0.3</td>
<td>1.8</td>
<td>4.6</td>
<td>8.5</td>
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<tr>
<td></td>
<td>2003</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
<td>1.8</td>
<td>4.6</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
<td>1.8</td>
<td>4.6</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
<td>1.8</td>
<td>4.6</td>
<td>8.5</td>
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</tbody>
</table>

**Women**

<table>
<thead>
<tr>
<th>IHD</th>
<th>1994</th>
<th>0.2</th>
<th>0.1</th>
<th>0.3</th>
<th>2.3</th>
<th>5.9</th>
<th>10.5</th>
<th>15.9</th>
<th>4.1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
<td>2.3</td>
<td>5.9</td>
<td>10.5</td>
<td>15.9</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>0.3</td>
<td>0.5</td>
<td>1.9</td>
<td>5.8</td>
<td>9.7</td>
<td>18.1</td>
<td>4.1</td>
<td></td>
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<tr>
<td></td>
<td>2006</td>
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<td>0.1</td>
<td>0.3</td>
<td>1.3</td>
<td>5.9</td>
<td>10.5</td>
<td>15.9</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>2011</td>
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<td>0.1</td>
<td>1.6</td>
<td>4.1</td>
<td>7.5</td>
<td>16.5</td>
<td>3.5</td>
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**Stroke**

<table>
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<tr>
<th>1994</th>
<th>0.2</th>
<th>0.3</th>
<th>0.6</th>
<th>1.8</th>
<th>3.5</th>
<th>7.5</th>
<th>1.6</th>
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<tbody>
<tr>
<td></td>
<td>1998</td>
<td>0.4</td>
<td>0.6</td>
<td>0.7</td>
<td>2.2</td>
<td>5.0</td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>0.2</td>
<td>0.3</td>
<td>0.6</td>
<td>1.0</td>
<td>3.5</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>0.2</td>
<td>0.3</td>
<td>0.6</td>
<td>1.0</td>
<td>3.5</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>0.4</td>
<td>0.1</td>
<td>1.3</td>
<td>2.4</td>
<td>4.4</td>
<td>9.4</td>
</tr>
</tbody>
</table>

**IHD or stroke**

<table>
<thead>
<tr>
<th>1994</th>
<th>0.2</th>
<th>0.3</th>
<th>0.5</th>
<th>2.8</th>
<th>7.5</th>
<th>13.4</th>
<th>20.2</th>
<th>5.2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998</td>
<td>0.4</td>
<td>0.7</td>
<td>1.2</td>
<td>2.6</td>
<td>8.1</td>
<td>15.6</td>
<td>24.7</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>0.5</td>
<td>0.3</td>
<td>0.9</td>
<td>2.7</td>
<td>7.7</td>
<td>13.8</td>
<td>24.7</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>0.3</td>
<td>0.3</td>
<td>0.6</td>
<td>2.1</td>
<td>5.0</td>
<td>12.6</td>
<td>27.9</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>0.8</td>
<td>0.2</td>
<td>2.6</td>
<td>5.9</td>
<td>10.9</td>
<td>23.4</td>
<td>5.0</td>
</tr>
</tbody>
</table>

---

a Data from before 2003 were not weighted for non-response.

b Estimates are shown to one decimal place because of low prevalence rates in the younger age groups.

c IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.

d Bases shown are for IHD. Bases for other conditions vary but are of a similar magnitude.

Continued…
### Table 2.5 continued

**Aged 16 and over 1994-2011**

<table>
<thead>
<tr>
<th>IHD/Stroke/IHD or stroke&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Age group</th>
<th>1994-2011&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-24</td>
<td>25-34</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Bases (unweighted)&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>968</td>
<td>1434</td>
</tr>
<tr>
<td>1998</td>
<td>875</td>
<td>1338</td>
</tr>
<tr>
<td>2003</td>
<td>746</td>
<td>1025</td>
</tr>
<tr>
<td>2006</td>
<td>650</td>
<td>862</td>
</tr>
<tr>
<td>2011</td>
<td>372</td>
<td>547</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>1080</td>
<td>1723</td>
</tr>
<tr>
<td>1998</td>
<td>1006</td>
<td>1630</td>
</tr>
<tr>
<td>2003</td>
<td>890</td>
<td>1285</td>
</tr>
<tr>
<td>2006</td>
<td>794</td>
<td>1148</td>
</tr>
<tr>
<td>2011</td>
<td>483</td>
<td>727</td>
</tr>
<tr>
<td>Bases (weighted)&lt;sup&gt;a,d&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>1047</td>
<td>1274</td>
</tr>
<tr>
<td>2006</td>
<td>1041</td>
<td>1129</td>
</tr>
<tr>
<td>2011</td>
<td>639</td>
<td>713</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>1034</td>
<td>1285</td>
</tr>
<tr>
<td>2006</td>
<td>1014</td>
<td>1160</td>
</tr>
<tr>
<td>2011</td>
<td>620</td>
<td>692</td>
</tr>
</tbody>
</table>

<sup>a</sup> Data from before 2003 were not weighted for non-response.  
<sup>b</sup> Estimates are shown to one decimal place because of low prevalence rates in the younger age groups.  
<sup>c</sup> IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.  
<sup>d</sup> Bases shown are for IHD. Bases for other conditions vary but are of a similar magnitude.
### Table 2.6

**Use of prescribed lipid-lowering drugs, by disease category, age and sex**

_Aged 35 and over with a nurse visit 2011_

<table>
<thead>
<tr>
<th>Use of lipid-lowering drugs</th>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35-54</td>
<td>55-64</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD(^a) or stroke</td>
<td>c</td>
<td>83</td>
</tr>
<tr>
<td>Diabetes or hypertension</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>but no IHD/stroke(^b)</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>None of these</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD or stroke</td>
<td>c</td>
<td>[67]</td>
</tr>
<tr>
<td>Diabetes or hypertension</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>but no IHD/stroke(^b)</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>None of these</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Bases (unweighted)**

<table>
<thead>
<tr>
<th>Use of lipid-lowering drugs</th>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35-54</td>
<td>55-64</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD or stroke</td>
<td>27</td>
<td>51</td>
</tr>
<tr>
<td>Diabetes or hypertension</td>
<td>204</td>
<td>187</td>
</tr>
<tr>
<td>but no IHD/stroke(^b)</td>
<td>633</td>
<td>214</td>
</tr>
<tr>
<td>None of these</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD or stroke</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Diabetes or hypertension</td>
<td>203</td>
<td>186</td>
</tr>
<tr>
<td>but no IHD/stroke(^b)</td>
<td>916</td>
<td>349</td>
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<td>None of these</td>
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<td></td>
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</tbody>
</table>

**Bases (weighted)**

<table>
<thead>
<tr>
<th>Use of lipid-lowering drugs</th>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35-54</td>
<td>55-64</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD or stroke</td>
<td>34</td>
<td>46</td>
</tr>
<tr>
<td>Diabetes or hypertension</td>
<td>233</td>
<td>167</td>
</tr>
<tr>
<td>but no IHD/stroke(^b)</td>
<td>714</td>
<td>192</td>
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<tr>
<td>None of these</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD or stroke</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Diabetes or hypertension</td>
<td>182</td>
<td>140</td>
</tr>
<tr>
<td>but no IHD/stroke(^b)</td>
<td>803</td>
<td>259</td>
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<td>None of these</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.

\(^b\) Based on self-reported doctor-diagnosed disease.

\(c\) Results not shown due to small base.

[ ] Results in brackets should be treated with caution because of the small base size.
### Table 2.7

Use of antiplatelet medication,\(^a\) by disease category, age and sex

<table>
<thead>
<tr>
<th>Aged 35 and over with a nurse visit 2011</th>
<th>Use of antiplatelet medication</th>
<th>Age group</th>
<th>Total</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>35-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75+</td>
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<td><strong>Men</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD(^b) or stroke</td>
<td>d</td>
<td>61</td>
<td>67</td>
<td>70</td>
<td>64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes or hypertension but no IHD/stroke(^c)</td>
<td>5</td>
<td>11</td>
<td>19</td>
<td>20</td>
<td>12</td>
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<td>None of these</td>
<td>0</td>
<td>3</td>
<td>11</td>
<td>15</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHD or stroke</td>
<td>d</td>
<td>[54]</td>
<td>[57]</td>
<td>67</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes or hypertension but no IHD/stroke</td>
<td>2</td>
<td>4</td>
<td>17</td>
<td>25</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None of these</td>
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<td>4</td>
<td>19</td>
<td>2</td>
<td></td>
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<tr>
<td><strong>Bases (unweighted)</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>IHD or stroke</td>
<td>27</td>
<td>51</td>
<td>72</td>
<td>91</td>
<td>241</td>
<td></td>
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<tr>
<td>Diabetes or hypertension but no IHD/stroke</td>
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<td>187</td>
<td>152</td>
<td>91</td>
<td>634</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>214</td>
<td>142</td>
<td>91</td>
<td>1080</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>IHD or stroke</td>
<td>14</td>
<td>32</td>
<td>46</td>
<td>79</td>
<td>171</td>
<td></td>
</tr>
<tr>
<td>Diabetes or hypertension but no IHD/stroke</td>
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<td>186</td>
<td>180</td>
<td>145</td>
<td>714</td>
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</tr>
<tr>
<td>None of these</td>
<td>916</td>
<td>349</td>
<td>207</td>
<td>102</td>
<td>1574</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bases (weighted)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>IHD or stroke</td>
<td>34</td>
<td>46</td>
<td>56</td>
<td>71</td>
<td>208</td>
<td></td>
</tr>
<tr>
<td>Diabetes or hypertension but no IHD/stroke</td>
<td>233</td>
<td>167</td>
<td>117</td>
<td>72</td>
<td>590</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None of these</td>
<td>714</td>
<td>192</td>
<td>111</td>
<td>69</td>
<td>1085</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>IHD or stroke</td>
<td>11</td>
<td>23</td>
<td>34</td>
<td>67</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>Diabetes or hypertension but no IHD/stroke</td>
<td>182</td>
<td>140</td>
<td>127</td>
<td>135</td>
<td>584</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None of these</td>
<td>803</td>
<td>259</td>
<td>150</td>
<td>91</td>
<td>1303</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Antiplatelet medication includes low-dose aspirin and drugs such as clopidogrel and dipyridamole.

\(^b\) IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.

\(^c\) Based on self-reported doctor-diagnosed disease.

\(^d\) Results not shown due to small base.

[] Results in brackets should be treated with caution because of the small base size.

### Table 2.8

Prevalence of CVD, IHD or stroke (age-standardised), by doctor-diagnosed diabetes status and sex

<table>
<thead>
<tr>
<th>Aged 16 and over 2011</th>
<th>Any CVD/IHD/stroke</th>
<th>Diagnosed diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Any CVD</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>IHD(^a)</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Stroke</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Bases (unweighted)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any CVD</td>
<td>3494</td>
<td>316</td>
</tr>
<tr>
<td>IHD</td>
<td>3497</td>
<td>316</td>
</tr>
<tr>
<td>Stroke</td>
<td>3499</td>
<td>316</td>
</tr>
<tr>
<td><strong>Bases (weighted)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any CVD</td>
<td>3914</td>
<td>294</td>
</tr>
<tr>
<td>IHD</td>
<td>3918</td>
<td>294</td>
</tr>
<tr>
<td>Stroke</td>
<td>3919</td>
<td>294</td>
</tr>
</tbody>
</table>

\(^a\) CVD: Cardiovascular disease, i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.

\(^b\) IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.
Table 2.9

<table>
<thead>
<tr>
<th>Disease category</th>
<th>CVD(^b)</th>
<th>IHD(^c)</th>
<th>Stroke</th>
<th>IHD or stroke</th>
<th>No CVD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>49.4</td>
<td>46.6</td>
<td>46.5</td>
<td>46.8</td>
<td>52.1</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.63</td>
<td>1.16</td>
<td>1.51</td>
<td>0.95</td>
<td>0.21</td>
</tr>
<tr>
<td>Median</td>
<td>50.0</td>
<td>47.0</td>
<td>48.0</td>
<td>48.0</td>
<td>53.0</td>
</tr>
<tr>
<td>90th percentile</td>
<td>60.7</td>
<td>58.0</td>
<td>57.8</td>
<td>58.0</td>
<td>63.0</td>
</tr>
<tr>
<td>10th percentile</td>
<td>36.0</td>
<td>33.7</td>
<td>32.0</td>
<td>32.8</td>
<td>41.0</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>49.9</td>
<td>45.6</td>
<td>46.2</td>
<td>46.4</td>
<td>51.8</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.52</td>
<td>2.80</td>
<td>1.07</td>
<td>1.44</td>
<td>0.17</td>
</tr>
<tr>
<td>Median</td>
<td>51.0</td>
<td>45.0</td>
<td>47.0</td>
<td>47.0</td>
<td>53.0</td>
</tr>
<tr>
<td>90th percentile</td>
<td>61.0</td>
<td>60.0</td>
<td>55.3</td>
<td>59.0</td>
<td>63.0</td>
</tr>
<tr>
<td>10th percentile</td>
<td>38.0</td>
<td>35.0</td>
<td>32.9</td>
<td>35.0</td>
<td>41.0</td>
</tr>
</tbody>
</table>

| Bases (unweighted) | | | | | |
|-------------------|-----------------|-----------------|-----------------|-----------------|
| **Men**           | 447             | 200             | 88              | 255             | 1857            |
| **Women**         | 480             | 121             | 74              | 180             | 2421            |

| Bases (weighted)  | | | | | |
|-------------------|-----------------|-----------------|-----------------|-----------------|
| **Men**           | 402             | 172             | 77              | 223             | 1871            |
| **Women**         | 392             | 96              | 59              | 143             | 2091            |

\(^a\) The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

\(^b\) CVD: Cardiovascular disease, i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.

\(^c\) IHD: Ischaemic heart disease, reported as doctor-diagnosed heart attack or angina.

\(^d\) Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.
### Table 2.10

**Response to blood sample, by age and sex**

Aged 16 and over with a nurse visit 2011

<table>
<thead>
<tr>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-24</td>
</tr>
<tr>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

**Men**

<table>
<thead>
<tr>
<th>Response</th>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Valid blood sample taken</td>
<td>62</td>
<td>74</td>
</tr>
<tr>
<td>Unsuccessful attempt</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Refused</td>
<td>32</td>
<td>19</td>
</tr>
<tr>
<td>Not applicable</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Women**

<table>
<thead>
<tr>
<th>Response</th>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Valid blood sample taken</td>
<td>55</td>
<td>66</td>
</tr>
<tr>
<td>Unsuccessful attempt</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Refused</td>
<td>32</td>
<td>19</td>
</tr>
<tr>
<td>Not applicable</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

**Bases (unweighted)**

| Men | 199 | 327 | 433 | 431 | 452 | 367 | 273 | 2482 |
| Women | 291 | 481 | 576 | 557 | 567 | 433 | 328 | 3233 |

*On anticoagulants or had fits in the past five years, or among women, pregnant.*

### Table 2.11

**Proportion with valid blood samples for each analyte, by age and sex**

Aged 16 and over with a nurse visit 2011

<table>
<thead>
<tr>
<th>Valid sample</th>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-24</td>
<td>25-34</td>
</tr>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

**Men**

| Total cholesterol | 59 | 69 | 73 | 73 | 76 | 70 | 60 | 70 |
| HDL cholesterol   | 59 | 69 | 73 | 73 | 76 | 70 | 60 | 70 |

**Women**

| Total cholesterol | 50 | 62 | 70 | 76 | 73 | 73 | 61 | 68 |
| HDL cholesterol   | 50 | 62 | 70 | 76 | 73 | 73 | 61 | 68 |

**Bases (unweighted)**

| Men | 199 | 327 | 433 | 431 | 452 | 367 | 273 | 2482 |
| Women | 291 | 481 | 576 | 557 | 567 | 433 | 328 | 3233 |
### Table 2.12

**Total cholesterol levels, by age and sex**

**Aged 16 and over with a valid total cholesterol measurement**

<table>
<thead>
<tr>
<th>Total cholesterol (mmol/l)</th>
<th>Age group</th>
<th>16-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65-74</th>
<th>75+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td></td>
<td>4.5</td>
<td>5.0</td>
<td>5.5</td>
<td>5.6</td>
<td>5.3</td>
<td>4.9</td>
<td>4.6</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td></td>
<td>0.10</td>
<td>0.06</td>
<td>0.07</td>
<td>0.07</td>
<td>0.06</td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td></td>
<td>3.4</td>
<td>3.7</td>
<td>4.2</td>
<td>4.3</td>
<td>3.9</td>
<td>3.4</td>
<td>3.1</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td></td>
<td>5.7</td>
<td>6.4</td>
<td>6.8</td>
<td>7.0</td>
<td>6.7</td>
<td>6.3</td>
<td>6.1</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td></td>
<td>28</td>
<td>14</td>
<td>3</td>
<td>4</td>
<td>11</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td></td>
<td>70</td>
<td>49</td>
<td>31</td>
<td>24</td>
<td>38</td>
<td>51</td>
<td>64</td>
</tr>
</tbody>
</table>

| Women                     |           |       |       |       |       |       |       |     |
| Mean (mmol/l)             |           | 4.4   | 4.8   | 5.1   | 5.4   | 6.0   | 5.7   | 5.4 | 5.2 |
| Standard error of the mean|           | 0.07  | 0.05  | 0.06  | 0.05  | 0.06  | 0.08  | 0.08| 0.03|
| 10th percentile (mmol/l)  |           | 3.4   | 3.8   | 3.9   | 4.3   | 4.5   | 4.2   | 4.0 | 3.9 |
| 90th percentile (mmol/l)  |           | 5.4   | 6.0   | 6.5   | 6.7   | 7.4   | 7.1   | 6.8 | 6.7 |
| % <4.0 mmol/l             |           | 32    | 13    | 12    | 6     | 3     | 7     | 8   | 12  |
| % <5.0 mmol/l             |           | 78    | 61    | 45    | 30    | 20    | 25    | 38  | 43  |

| Bases (unweighted)        |           |       |       |       |       |       |       |     |
| Men                       |           | 118   | 227   | 316   | 315   | 343   | 256   | 164 | 1739|
| Women                     |           | 146   | 300   | 404   | 424   | 413   | 315   | 199 | 2201|

| Bases (weighted)          |           |       |       |       |       |       |       |     |
| Men                       |           | 296   | 321   | 352   | 330   | 290   | 199   | 145 | 1932|
| Women                     |           | 278   | 319   | 356   | 346   | 297   | 216   | 200 | 2012|

**a** Including those taking lipid-lowering drugs.

**b** The laboratory equipment used to measure cholesterol changed in April 2010. Total cholesterol values are an average of 0.1 mmol/l higher with the new equipment compared with the old equipment. Results presented in this table are those reported using the new laboratory equipment and may not be directly comparable with results presented in earlier HSE reports. Results shown in this table may differ from the results presented in trend tables in this report, which have been adjusted to be more directly comparable with results from previous years.

**c** Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.
### Table 2.13
Total cholesterol levels (age-standardised), by equivalised household income and sex

**Aged 16 and over with a valid total cholesterol measurement**

<table>
<thead>
<tr>
<th>Total cholesterol</th>
<th>Equivalised household income quintile</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Highest</td>
<td>2nd</td>
<td>3rd</td>
<td>4th</td>
<td>Lowest</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>5.2</td>
<td>5.2</td>
<td>5.1</td>
<td>5.0</td>
<td>5.1</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.07</td>
<td>0.06</td>
<td>0.09</td>
<td>0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td>3.9</td>
<td>3.9</td>
<td>3.7</td>
<td>3.6</td>
<td>3.5</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td>6.5</td>
<td>6.5</td>
<td>6.6</td>
<td>6.6</td>
<td>6.8</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>11</td>
<td>11</td>
<td>16</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td>41</td>
<td>42</td>
<td>46</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>5.3</td>
<td>5.1</td>
<td>5.4</td>
<td>5.2</td>
<td>5.3</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.10</td>
<td>0.07</td>
<td>0.07</td>
<td>0.06</td>
<td>0.09</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td>3.8</td>
<td>3.8</td>
<td>4.0</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td>6.9</td>
<td>6.6</td>
<td>6.8</td>
<td>6.7</td>
<td>6.8</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>14</td>
<td>13</td>
<td>9</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td>42</td>
<td>46</td>
<td>39</td>
<td>42</td>
<td>48</td>
</tr>
</tbody>
</table>

**Bases (unweighted)**

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>371</td>
<td>335</td>
</tr>
<tr>
<td>Women</td>
<td>314</td>
<td>317</td>
</tr>
</tbody>
</table>

**Bases (weighted)**

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>366</td>
<td>357</td>
</tr>
<tr>
<td>Women</td>
<td>326</td>
<td>354</td>
</tr>
</tbody>
</table>

---

*Including those taking lipid-lowering drugs.*

*The laboratory equipment used to measure cholesterol changed in April 2010. Total cholesterol values are an average of 0.1mmol/l higher with the new equipment compared with the old equipment. Results presented in this table are those reported using the new laboratory equipment and may not be directly comparable with results presented in earlier HSE reports. Results shown in this table may differ from the results presented in trend tables in this report, which have been adjusted to be more directly comparable with results from previous years.*

*Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.*
### Table 2.14

Total cholesterol levels (age-standardised), by Index of Multiple Deprivation and sex

**Aged 16 and over with a valid total cholesterol measurement**

<table>
<thead>
<tr>
<th>Total cholesterol</th>
<th>IMD quintile</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Most</th>
<th>5th</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td></td>
<td>5.2</td>
<td>5.1</td>
<td>5.1</td>
<td>5.2</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td></td>
<td>0.07</td>
<td>0.06</td>
<td>0.08</td>
<td>0.08</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td></td>
<td>3.8</td>
<td>4.0</td>
<td>3.7</td>
<td>3.7</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td></td>
<td>6.6</td>
<td>6.5</td>
<td>6.6</td>
<td>6.6</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>% &lt; 4.0 mmol/l</td>
<td></td>
<td>14</td>
<td>8</td>
<td>16</td>
<td>14</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>% &lt; 5.0 mmol/l</td>
<td></td>
<td>40</td>
<td>44</td>
<td>46</td>
<td>42</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td></td>
<td>5.3</td>
<td>5.1</td>
<td>5.3</td>
<td>5.3</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td></td>
<td>0.06</td>
<td>0.06</td>
<td>0.06</td>
<td>0.06</td>
<td>0.08</td>
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<tr>
<td>10th percentile (mmol/l)</td>
<td></td>
<td>3.9</td>
<td>3.9</td>
<td>3.8</td>
<td>4.0</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td></td>
<td>6.7</td>
<td>6.5</td>
<td>7.0</td>
<td>6.6</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td>% &lt; 4.0 mmol/l</td>
<td></td>
<td>11</td>
<td>13</td>
<td>12</td>
<td>9</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>% &lt; 5.0 mmol/l</td>
<td></td>
<td>39</td>
<td>48</td>
<td>44</td>
<td>42</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td><strong>Bases (unweighted)</strong></td>
<td></td>
<td>390</td>
<td>387</td>
<td>389</td>
<td>301</td>
<td>272</td>
<td></td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bases (weighted)</strong></td>
<td></td>
<td>385</td>
<td>426</td>
<td>428</td>
<td>347</td>
<td>345</td>
<td></td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

- **a** The Index of Multiple Deprivation 2010 (IMD) combines a number of indicators, chosen to cover a range of economic, social and housing issues, into a single deprivation score at the small area level in England.
- **b** Including those taking lipid-lowering drugs.
- **c** The laboratory equipment used to measure cholesterol changed in April 2010. Total cholesterol values are an average of 0.1mmol/l higher with the new equipment compared with the old equipment. Results presented in this table are those reported using the new laboratory equipment and may not be directly comparable with results presented in earlier HSE reports. Results shown in this table may differ from the results presented in trend tables in this report, which have been adjusted to be more directly comparable with results from previous years.
- **d** Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.
### Table 2.15

**Trends in total cholesterol levels, 1998-2011, by sex**

Aged 16 and over with a valid total cholesterol measurement

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td></td>
<td>5.5</td>
<td>5.5</td>
<td>5.3</td>
<td>5.2</td>
<td>5.2</td>
<td>5.1</td>
<td>5.0</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td></td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td></td>
<td>4.1</td>
<td>4.0</td>
<td>3.9</td>
<td>3.8</td>
<td>3.8</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td></td>
<td>6.9</td>
<td>7.0</td>
<td>6.8</td>
<td>6.7</td>
<td>6.7</td>
<td>6.6</td>
<td>6.5</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td></td>
<td>34</td>
<td>34</td>
<td>43</td>
<td>42</td>
<td>43</td>
<td>47</td>
<td>48</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td></td>
<td>5.6</td>
<td>5.6</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.2</td>
<td>5.1</td>
</tr>
<tr>
<td>Standard error of the mean</td>
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<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
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<td>0.03</td>
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<tr>
<td>10th percentile (mmol/l)</td>
<td></td>
<td>4.1</td>
<td>4.1</td>
<td>4.0</td>
<td>4.0</td>
<td>3.9</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td></td>
<td>7.2</td>
<td>7.2</td>
<td>6.9</td>
<td>6.9</td>
<td>7.0</td>
<td>6.7</td>
<td>6.6</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td></td>
<td>33</td>
<td>34</td>
<td>39</td>
<td>39</td>
<td>40</td>
<td>45</td>
<td>47</td>
</tr>
</tbody>
</table>

**Bases (unweighted)**

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>5001</td>
<td>3814</td>
<td>3410</td>
<td>3349</td>
<td>1075</td>
<td>1720</td>
<td>1739</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>5568</td>
<td>4460</td>
<td>3618</td>
<td>3925</td>
<td>1227</td>
<td>2158</td>
<td>2201</td>
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</tbody>
</table>

**Bases (weighted)**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>-</td>
<td>4020</td>
<td>4061</td>
<td>3555</td>
<td>1126</td>
<td>1907</td>
<td>1932</td>
</tr>
<tr>
<td>Women</td>
<td>-</td>
<td>4249</td>
<td>3850</td>
<td>3725</td>
<td>1162</td>
<td>1979</td>
<td>2012</td>
</tr>
</tbody>
</table>

---

*a* Including those taking lipid-lowering drugs.

*b* The laboratory equipment used to measure cholesterol changed in April 2010. Total cholesterol values are an average of 0.1mmol/l higher with the new equipment compared with the old equipment. Results presented here have been adjusted by 0.1mmol/l from the date of the new equipment, in order that they are directly comparable with results presented in earlier HSE reports. Results shown in this trend table may differ from the results presented in other tables in this report, as tables which do not show trends present data as reported by the new laboratory equipment.

*c* 1998 data are not weighted for non-response.

*d* Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.
### Table 2.16

**Total cholesterol levels and effect of lipid-lowering drugs, by disease status, age and sex**

*Aged 35 and over with a valid total cholesterol measurement 2011*

<table>
<thead>
<tr>
<th>Total cholesterol*</th>
<th>Age group</th>
<th>Men</th>
<th>CVD* including those taking LLDc</th>
<th>CVD and not taking LLD</th>
<th>HT* and/or diabetesf but not CVD, including those taking LLD</th>
<th>HT* and/or diabetesf but not CVD and not taking LLD</th>
<th>None of these, including those taking LLD</th>
<th>None of these and not taking LLD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75+</td>
<td>35-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75+</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVD* including those taking LLDc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>5.4</td>
<td>4.9</td>
<td>4.6</td>
<td>4.1</td>
<td>4.7</td>
<td>[5.7]</td>
<td>g</td>
<td>[5.3]</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.16</td>
<td>0.15</td>
<td>0.15</td>
<td>0.13</td>
<td>0.08</td>
<td>0.17</td>
<td>g</td>
<td>0.23</td>
</tr>
<tr>
<td>10th percentile (mmol/l)d</td>
<td>4.1</td>
<td>3.7</td>
<td>3.2</td>
<td>2.7</td>
<td>3.3</td>
<td>4.5</td>
<td>g</td>
<td>3.5</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td>7.1</td>
<td>6.5</td>
<td>6.3</td>
<td>5.2</td>
<td>6.3</td>
<td>7.6</td>
<td>g</td>
<td>7.1</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>10</td>
<td>20</td>
<td>35</td>
<td>45</td>
<td>27</td>
<td>5</td>
<td>17</td>
<td>23</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td>35</td>
<td>62</td>
<td>67</td>
<td>80</td>
<td>60</td>
<td>35</td>
<td>62</td>
<td>67</td>
</tr>
<tr>
<td>CVD and not taking LLD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>[5.7]</td>
<td>g</td>
<td>[5.3]</td>
<td>g</td>
<td>5.4</td>
<td>[5.7]</td>
<td>g</td>
<td>[5.3]</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.17</td>
<td>g</td>
<td>0.23</td>
<td>g</td>
<td>0.12</td>
<td>0.11</td>
<td>g</td>
<td>0.23</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td>4.5</td>
<td>g</td>
<td>3.5</td>
<td>g</td>
<td>4.1</td>
<td>4.5</td>
<td>g</td>
<td>3.5</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td>7.6</td>
<td>g</td>
<td>7.1</td>
<td>g</td>
<td>6.7</td>
<td>7.6</td>
<td>g</td>
<td>7.1</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>[-]</td>
<td>g</td>
<td>[12]</td>
<td>g</td>
<td>7</td>
<td>[24]</td>
<td>g</td>
<td>[39]</td>
</tr>
</tbody>
</table>

* The laboratory equipment used to measure cholesterol changed in April 2010. Total cholesterol values are an average of 0.1mmol/l higher with the new equipment compared with the old equipment. Results presented in this table are those reported using the new laboratory equipment and may not be directly comparable with results presented in earlier HSE reports. Results shown in this table may differ from the results presented in trend tables in this report, which have been adjusted to be more directly comparable with results from previous years.

b CVD: Cardiovascular disease i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.

c LLD: Lipid-lowering drugs.

d Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

e HT: Self-reported doctor-diagnosed hypertension.

f Self-reported doctor-diagnosed diabetes.

g Result not shown because of small base.

[ ] Results in brackets should be treated with caution because of the small base size.

Continued…
Table 2.16 continued

Aged 16 and over with a valid total cholesterol measurement 2011

<table>
<thead>
<tr>
<th>Total cholesterola</th>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35-54</td>
<td>55-64</td>
</tr>
<tr>
<td>Bases: Men (unweighted)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVD including those taking LLD</td>
<td>55</td>
<td>50</td>
</tr>
<tr>
<td>CVD and not taking LLD</td>
<td>38</td>
<td>19</td>
</tr>
<tr>
<td>Hypertension and/or diabetes but not CVD, including taking LLD</td>
<td>125</td>
<td>136</td>
</tr>
<tr>
<td>Hypertension and/or diabetes but not CVD, and not taking LLD</td>
<td>98</td>
<td>82</td>
</tr>
<tr>
<td>None of these including taking LLD</td>
<td>450</td>
<td>157</td>
</tr>
<tr>
<td>None of these and not taking LLD</td>
<td>441</td>
<td>148</td>
</tr>
<tr>
<td>Bases: Men (weighted)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVD including those taking LLD</td>
<td>63</td>
<td>47</td>
</tr>
<tr>
<td>CVD and not taking LLD</td>
<td>43</td>
<td>16</td>
</tr>
<tr>
<td>Hypertension and/or diabetes but not CVD, including taking LLD</td>
<td>138</td>
<td>114</td>
</tr>
<tr>
<td>Hypertension and/or diabetes but not CVD, and not taking LLD</td>
<td>108</td>
<td>70</td>
</tr>
<tr>
<td>None of these including taking LLD</td>
<td>479</td>
<td>128</td>
</tr>
<tr>
<td>None of these and not taking LLD</td>
<td>470</td>
<td>121</td>
</tr>
</tbody>
</table>

a The laboratory equipment used to measure cholesterol changed in April 2010. Total cholesterol values are an average of 0.1 mmol/l higher with the new equipment compared with the old equipment. Results presented in this table are those reported using the new laboratory equipment and may not be directly comparable with results presented in earlier HSE reports. Results shown in this table may differ from the results presented in trend tables in this report, which have been adjusted to be more directly comparable with results from previous years.

b CVD: Cardiovascular disease i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.

c LLD: Lipid-lowering drugs.

d Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

e HT: Self-reported doctor-diagnosed hypertension.

f Self-reported doctor-diagnosed diabetes.

g Result not shown because of small base.

[ ] Results in brackets should be treated with caution because of the small base size.

Continued…
### Table 2.16 continued

Aged 35 and over with a valid total cholesterol measurement 2011

<table>
<thead>
<tr>
<th>Total cholesterol</th>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35-54</td>
<td>55-64</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVD(^b) including those taking LLD(^c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>5.2</td>
<td>6.3</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.13</td>
<td>0.22</td>
</tr>
<tr>
<td>10th percentile (mmol/l)(^d)</td>
<td>4.3</td>
<td>4.5</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td>6.2</td>
<td>8.5</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td>38</td>
<td>15</td>
</tr>
<tr>
<td><strong>CVD and not taking LLD</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>[5.3]</td>
<td>[6.5]</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>[0.14]</td>
<td>[0.20]</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td>[4.3]</td>
<td>[5.1]</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td>[6.2]</td>
<td>[8.5]</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>[7]</td>
<td>[-]</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td>[33]</td>
<td>[7]</td>
</tr>
<tr>
<td><strong>HT(^e) and/or diabetes(^f) but not CVD, including those taking LLD</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>5.3</td>
<td>5.7</td>
</tr>
<tr>
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<td>0.10</td>
<td>0.11</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td>4.2</td>
<td>4.7</td>
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<tr>
<td>90th percentile (mmol/l)</td>
<td>6.7</td>
<td>7.5</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td>43</td>
<td>30</td>
</tr>
<tr>
<td><strong>HT(^e) and/or diabetes(^f) but not CVD and not taking LLD</strong></td>
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<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>5.4</td>
<td>6.1</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.10</td>
<td>0.11</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td>4.1</td>
<td>4.7</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td>6.7</td>
<td>7.2</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td><strong>None of these, including those taking LLD</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>5.3</td>
<td>6.0</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.04</td>
<td>0.08</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td>4.1</td>
<td>4.6</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td>6.6</td>
<td>7.4</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td>36</td>
<td>17</td>
</tr>
<tr>
<td><strong>None of these and not taking LLD</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td>5.3</td>
<td>6.1</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td>4.1</td>
<td>4.7</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td>6.6</td>
<td>7.4</td>
</tr>
<tr>
<td>% &lt;4.0 mmol/l</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>% &lt;5.0 mmol/l</td>
<td>36</td>
<td>15</td>
</tr>
</tbody>
</table>

\(^{a}\) The laboratory equipment used to measure cholesterol changed in April 2010. Total cholesterol values are an average of 0.1mmol/l higher with the new equipment compared with the old equipment. Results presented in this table are those reported using the new laboratory equipment and may not be directly comparable with results presented in earlier HSE reports. Results shown in this table may differ from the results presented in trend tables in this report, which have been adjusted to be more directly comparable with results from previous years.

\(^{b}\) CVD: Cardiovascular disease i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.

\(^{c}\) LLD: Lipid-lowering drugs.

\(^{d}\) Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score isexpressed as the 90th percentile.

\(^{e}\) HT: Self-reported doctor-diagnosed hypertension.

\(^{f}\) Self-reported doctor-diagnosed diabetes.

\([\]\) Result not shown because of small base.

Results in brackets should be treated with caution because of the small base size.
Table 2.16 continued

Aged 16 and over with a valid total cholesterol measurement 2011

<table>
<thead>
<tr>
<th>Total cholesterol(^a)</th>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35-54</td>
<td>55-64</td>
</tr>
<tr>
<td>Bases: Women (unweighted)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVD including those taking LLD</td>
<td>59</td>
<td>60</td>
</tr>
<tr>
<td>CVD and not taking LLD</td>
<td>49</td>
<td>46</td>
</tr>
<tr>
<td>Hypertension and/or diabetes but not CVD, including taking LLD</td>
<td>124</td>
<td>111</td>
</tr>
<tr>
<td>Hypertension and/or diabetes but not CVD, and not taking LLD</td>
<td>104</td>
<td>81</td>
</tr>
<tr>
<td>None of these including taking LLD</td>
<td>645</td>
<td>242</td>
</tr>
<tr>
<td>None of these and not taking LLD</td>
<td>642</td>
<td>222</td>
</tr>
<tr>
<td>Bases: Women (weighted)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVD including those taking LLD</td>
<td>49</td>
<td>46</td>
</tr>
<tr>
<td>CVD and not taking LLD</td>
<td>41</td>
<td>35</td>
</tr>
<tr>
<td>Hypertension and/or diabetes but not CVD, including taking LLD</td>
<td>111</td>
<td>79</td>
</tr>
<tr>
<td>Hypertension and/or diabetes but not CVD, and not taking LLD</td>
<td>91</td>
<td>58</td>
</tr>
<tr>
<td>None of these including taking LLD</td>
<td>541</td>
<td>171</td>
</tr>
<tr>
<td>None of these and not taking LLD</td>
<td>539</td>
<td>156</td>
</tr>
</tbody>
</table>

\(^a\) The laboratory equipment used to measure cholesterol changed in April 2010. Total cholesterol values are an average of 0.1mmol/l higher with the new equipment compared with the old equipment. Results presented in this table are those reported using the new laboratory equipment and may not be directly comparable with results presented in earlier HSE reports. Results shown in this table may differ from the results presented in trend tables in this report, which have been adjusted to be more directly comparable with results from previous years.

\(^b\) CVD: Cardiovascular disease i.e. doctor-diagnosed heart attack, angina, heart murmur, abnormal heart rhythm or stroke.

\(^c\) LLD: Lipid-lowering drugs.

\(^d\) Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

\(^e\) HT: Self-reported doctor-diagnosed hypertension.

\(^f\) Self-reported doctor-diagnosed diabetes.

\(^g\) Result not shown because of small base.

[] Results in brackets should be treated with caution because of the small base size.
### Table 2.17

**HDL cholesterol levels, by age and sex**

Aged 16 and over with a valid HDL-cholesterol measurement\(^a\) 2011

<table>
<thead>
<tr>
<th>Age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (mmol/l)</td>
</tr>
<tr>
<td>Men</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>1.3</td>
</tr>
<tr>
<td>Women</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>1.6</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>118</td>
</tr>
<tr>
<td>Women</td>
<td>146</td>
</tr>
<tr>
<td>Bases (weighted)</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>296</td>
</tr>
<tr>
<td>Women</td>
<td>278</td>
</tr>
</tbody>
</table>

\(^a\) Including those taking lipid-lowering drugs.

\(^b\) The laboratory equipment used to measure cholesterol changed in April 2010. HDL cholesterol values are an average of 0.1 mmol/l lower with the new equipment compared with the old equipment. Results presented in this table are those reported using the new laboratory equipment and may not be directly comparable with results presented in earlier HSE reports. Results shown in this table may differ from the results presented in the trend table in this report (Table 2.19), which have been adjusted to be more directly comparable with results from previous years.

\(^c\) Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.
### Table 2.18

**HDL cholesterol levels (age-standardised), by equivalised household income and sex**

*Aged 16 and over with a valid HDL cholesterol measurement*<sup>a</sup> 2011

<table>
<thead>
<tr>
<th>HDL cholesterol&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Equivalised household income quintile</th>
<th>Highest</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Lowest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td></td>
<td>1.4</td>
<td>1.4</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td></td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>10th percentile (mmol/l)&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td>1.0</td>
<td>1.0</td>
<td>0.9</td>
<td>0.9</td>
<td>0.8</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td></td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>% &lt;1.0 mmol/l</td>
<td></td>
<td>8</td>
<td>9</td>
<td>15</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td></td>
<td>1.7</td>
<td>1.6</td>
<td>1.6</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td></td>
<td>0.04</td>
<td>0.03</td>
<td>0.03</td>
<td>0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td></td>
<td>1.2</td>
<td>1.1</td>
<td>1.1</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td></td>
<td>2.4</td>
<td>2.2</td>
<td>2.1</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>% &lt;1.0 mmol/l</td>
<td></td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

**Bases (unweighted)**

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>371</td>
<td>335</td>
<td>314</td>
<td>277</td>
<td>178</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>384</td>
<td>383</td>
<td>369</td>
<td>395</td>
<td>287</td>
<td></td>
</tr>
</tbody>
</table>

**Bases (weighted)**

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>755</td>
<td>718</td>
<td>683</td>
<td>672</td>
<td>465</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>366</td>
<td>357</td>
<td>326</td>
<td>315</td>
<td>224</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Including those taking lipid-lowering drugs.

<sup>b</sup> The laboratory equipment used to measure cholesterol changed in April 2010. HDL cholesterol values are an average of 0.1mmol/l lower with the new equipment compared with the old equipment. Results presented in this table are those reported using the new laboratory equipment and may not be directly comparable to results presented in earlier HSE reports. Results shown in this table may differ from the results presented in the trend table (Table 2.19) in this report, which have been adjusted to be more directly comparable with results from previous years.

<sup>c</sup> Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.
Table 2.19

Trends in HDL cholesterol levels, 1998-2011, by sex


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td></td>
<td>1.3</td>
<td>1.4</td>
<td>1.3</td>
<td>1.3</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td></td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>10th percentile (mmol/l)d</td>
<td></td>
<td>0.9</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td></td>
<td>1.8</td>
<td>1.8</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>% &lt; 1.0 mmol/l</td>
<td></td>
<td>17</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (mmol/l)</td>
<td></td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
<td>1.5</td>
<td>1.6</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td></td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>10th percentile (mmol/l)</td>
<td></td>
<td>1.1</td>
<td>1.2</td>
<td>1.1</td>
<td>1.0</td>
<td>1.1</td>
<td>1.1</td>
<td>1.2</td>
</tr>
<tr>
<td>90th percentile (mmol/l)</td>
<td></td>
<td>2.1</td>
<td>2.2</td>
<td>2.1</td>
<td>2.0</td>
<td>2.1</td>
<td>2.3</td>
<td>2.3</td>
</tr>
<tr>
<td>% &lt; 1.0 mmol/l</td>
<td></td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Bases (unweighted)</strong></td>
<td></td>
<td>4989</td>
<td>3814</td>
<td>3410</td>
<td>3349</td>
<td>1075</td>
<td>1720</td>
<td>1739</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td>5552</td>
<td>4460</td>
<td>4061</td>
<td>3924</td>
<td>1227</td>
<td>2158</td>
<td>2201</td>
</tr>
<tr>
<td><strong>Bases (weighted)</strong></td>
<td></td>
<td>-4020</td>
<td>3618</td>
<td>3555</td>
<td>1126</td>
<td>1907</td>
<td>1932</td>
<td></td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td>-4249</td>
<td>3850</td>
<td>3724</td>
<td>1162</td>
<td>1979</td>
<td>2012</td>
<td></td>
</tr>
</tbody>
</table>

a Including those taking lipid-lowering drugs.
b The laboratory equipment used to measure cholesterol changed in April 2010. HDL cholesterol values are an average of 0.1mmol/l lower with the new equipment compared with the old equipment. Results presented here have been adjusted by 0.1mmol/l from the date of the new equipment, in order that they are directly comparable with results presented in earlier HSE reports. Results shown in this trend table therefore differ from the results presented in other tables in this report, as tables which do not show trends present data as reported by the new laboratory equipment.
c Data from 1998 are not weighted for non-response.
d Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.