Publication Report

Heart Disease Statistics Update
Year Ending 31 March 2012
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## Contents

Contents................................................................................................................................................. 1  
Introduction ................................................................................................................................................ 2  
Key points .................................................................................................................................................. 3  
Results and Commentary........................................................................................................................... 4  

### Hospital Activity ................................................................................................................................ 4  
### Incidence ............................................................................................................................................... 5  
### Operations .......................................................................................................................................... 6  
### Survival ............................................................................................................................................... 7  
### Mortality ............................................................................................................................................. 8  
#### All Heart Disease ......................................................................................................................... 8  
#### Coronary Heart Disease ............................................................................................................. 8  
### Deprivation ....................................................................................................................................... 9  
#### Coronary Heart Disease Mortality in Under 75s in Deprived Areas ......................................... 9  
#### Coronary Heart Disease Mortality by Deprivation (SIMD 2009) Quintile ................................ 10  
### Cardiovascular Prescribing ............................................................................................................ 11  
#### Prescriptions Dispensed ........................................................................................................... 12  
#### Gross Ingredient Costs ............................................................................................................. 12  

### Glossary ............................................................................................................................................ 14  

### List of Tables ...................................................................................................................................... 17  

### Contact ............................................................................................................................................. 19  

### Further Information ........................................................................................................................ 19  

### Rate this publication ....................................................................................................................... 19  

### Appendix .......................................................................................................................................... 20  

#### A1 – Background Information ..................................................................................................... 20  
##### Heart Disease .......................................................................................................................... 20  
##### Risk factors associated with CHD .......................................................................................... 20  
##### Policy Context ......................................................................................................................... 20  
##### Data Collection ....................................................................................................................... 21  
##### Data Completeness .................................................................................................................. 21  
##### Data Quality ............................................................................................................................. 21  
##### Independent and voluntary sector .......................................................................................... 22  
##### Comparisons ............................................................................................................................ 22  
##### Further Information ................................................................................................................ 23  

#### A2 – Publication Metadata (including revisions details)............................................................... 24  

#### A3 – Early Access details (including Pre-Release Access).......................................................... 28  

#### A4 – ISD and Official Statistics ..................................................................................................... 29
**Introduction**

This publication relates to the annual update of Heart Disease statistics (related to both Coronary Heart Disease (CHD) and other types of heart disease). Information on hospital activity, operations, incidence, 30 day survival following first emergency admission, GP prescribing and mortality are included in this release.

Coronary Heart Disease (or Ischaemic Heart Disease) is a preventable disease which kills around 8,000 people in Scotland each year (7,636 people died of CHD in 2011). The disease is caused when the heart's blood vessels, the coronary arteries, become narrowed or blocked and cannot supply enough blood to the heart. This can cause a heart attack, chest pain or angina.

CHD is a priority in Scotland where prevalence of the associated risk factors such as smoking, poor diet and physical inactivity is high and around 7.5% of men and 4.9% of women are living with CHD (*Scottish Health Survey 2011*).

The Scottish Government published their strategy document *Better Heart Disease and Stroke Care Action Plan* in June 2009. This confirmed that heart disease would continue to be a national clinical priority for NHS Scotland.

In September 2012 ISD undertook a consultation on the content of the heart disease and stroke areas of the website. The information published in the heart disease publication is in line with what was proposed in this [consultation](#) as there were no major objections received.
Key points

- The standardised hospital discharge rate for acute myocardial infarction (AMI or heart attack) increased by 51.1% from 230.7 per 100,000 population in 2007/08 to 348.5 in 2011/12. This increase is likely to be due to changes in the definition of AMI, which is now based on more sensitive troponin tests.

- The incidence rate for coronary heart disease (CHD) decreased by 28.9% over the past decade, from 379.7 per 100,000 in 2002/03 to 270.0 in 2011/12.

- As in the rest of the UK and Europe, the trend in mortality from AMI, and for coronary heart disease as a whole, remains downward. The age-sex standardised mortality rate for coronary heart disease (CHD) has been decreasing steadily over the last 10 years, falling from 162.3 per 100,000 population in 2002 to 92.2 in 2011, a reduction of 43.2% since 2002 and 8.1% between 2010 and 2011.

- There has been a reduction in absolute and relative inequality in CHD mortality rates over the decade 2002-2011. Mortality rates fell among all deprivation quintiles. The reduction in the age-sex standardised mortality rate for CHD among the most deprived category was 38.7% compared with 25.1% in the least deprived category.

- 30-day survival for those admitted as an emergency with their first AMI improved over the last ten years from 84.1% to 91.0%.

- The overall costs of prescriptions dispensed for cardiovascular related drugs fell in 2011/12 to £157.8 million, a reduction of 5.8% on the previous year. This is the lowest gross ingredient cost for cardiovascular drugs observed for any year over the last decade 2002/03 to 2011/12. Costs may reduce as medicines become available in generic form.
Results and Commentary

The introduction of more sensitive tests for the diagnosis of acute coronary ischaemia - e.g. troponin - and the incorporation of troponin (and other biomarker) levels in definitions of acute myocardial infarction (AMI), may have affected the recording of AMI over recent years. Since it is likely that cases previously undiagnosed would now be correctly determined as AMI, variations in the definition, recording and coding of AMI may affect inter-Health Board comparisons of AMI incidence, and post-AMI survival. ISD issued coding guidance in June 2007 covering the recording of troponin levels in acute coronary syndromes- see Coding Guidelines Number 20.

Hospital Activity

The standardised hospital discharge rate for acute myocardial infarction (AMI or heart attack) increased by 51.1% from 230.7 per 100,000 population in 2007/08 to 348.5 in 2011/12 (see Table AC1 and Figure 1). This increase is likely to be due to changes in the definition of AMI, which is now based on more sensitive troponin tests. Prior to 2007/08, there was a downward trend in the discharge rate. The trend in mortality from AMI, and for coronary heart disease as a whole, remains downward (see Table MC1 and mortality section of report). As with other figures in this publication, the rates in Figure 1 have been standardised using the European standard population. This adjustment makes allowances for differences in the age and sex structure of the population between areas or time periods.

Figure 1: Acute myocardial infarction discharges;
European Age-Sex Standardised Discharge Rates per 100,000 Population

Data Source: ISD SMR01 - discharges; National Records Scotland – Population
Note: Analysis includes ICD-10 codes I21-I22

The standardised hospital discharge rate for emergency angina discharges decreased from 170.0 per 100,000 in 2002/03 to 64.6 in 2011/12, a fall of 62% (see Tables AC1 and AC4).

1 See Appendix A1 for details of completeness of hospital activity figures derived from SMR01 records.
The standardised hospital discharge rate for angina (all types of admission) decreased in all ages and both sexes between 2002/03 and 2011/12, from 270.4 per 100,000 to 103.5, a fall of 61.7% (see Tables AC1 and AC4).

**Incidence**

Incidence is the number of new cases of a condition. It is presented here as the number of people with a first hospital admission for heart disease (or death from heart disease without a prior admission) per 100,000 population, standardised by age and sex.

The incidence rate for coronary heart disease (CHD) decreased by 28.9% over the past decade, from 379.7 per 100,000 in 2002/03 to 270.0 in 2011/12. The incidence rate for acute myocardial infarctions (AMI or heart attacks) decreased by 27.0% from 202.3 per 100,000 in 2002/03 to 147.7 in 2007/08. However, the rate then increased to 164.7 per 100,000 between 2007/08 and 2011/12. The recent increase is likely to be due to the change in the clinical definition of AMI, which is now diagnosed using more sensitive troponin tests (see Table IC2).

**Figure 2: Coronary Heart Disease**

*European Age Standardised Incidence Rates per 100,000 Population*

Incidence increases sharply with age. The rate for CHD for under 75s in 2011/12 was 202.6 per 100,000 population but for over 75s was 1,887.4 per 100,000 population (see Table IC1).

Heart disease incidence rates are consistently higher for males than females across all age groups (see Table IC1).
Information Services Division

Operations

The standardised hospital discharge rate for Coronary Artery Bypass Graft (CABG) operations decreased from 49.0 per 100,000 in 2002/03 to 24.7 in 2011/12, a reduction of 49.6%. There is a general downward trend in the numbers of CABG operations reflecting the increased use of percutaneous coronary interventions (angioplasties) in the treatment of coronary artery disease (see Table OC1). The standardised hospital discharge rate for coronary angioplasties increased from 68.5 per 100,000 in 2002/03 to 118.5 in 2011/12, an increase of 73.1% (see Table OC1 and figure 3).

Figure 3: Angioplasty

European Age Standardised Discharge Rates per 100,000 Population

![Graph showing European Age Standardised Discharge Rates per 100,000 Population for males, females, and both sexes.]

Data Source: ISD SMR01 - discharges; National Records Scotland - Population

P = Provisional

The number of revascularisation procedures (Coronary Artery Bypass Grafts and Coronary Angioplasties) performed by NHS Scotland increased between 2009/10 and 2011/12. After remaining fairly stable for 4 years, the standardised rate increased from 136.5 per 100,000 population in 2009/10 to 143.2 in 2011/12. Reductions in coronary artery bypass operations were offset by increases in the number of coronary angioplasties being performed (see Table OC1).

Coronary angiography may be carried out to diagnose coronary artery disease and to assist in its treatment. This publication splits angiographies into these two categories. For diagnostic angiographies with no associated angioplasty, there was a downward trend in recent years, with the standardised hospital discharge rate dropping from 221.1 per 100,000 population in 2002/03 to 179.3 in 2011/12, a reduction of 18.9%. For diagnostic angiographies done in association with angioplasty (i.e. as part of a "follow-on procedure"), the standardised hospital discharge rate increased annually to the current peak of 95.3 per 100,000 in 2011/12. This, again, reflects the increased use of percutaneous coronary interventions (PCI) in the treatment of coronary artery disease (see Table OC1).
Survival

Figure 4 shows the 30 day survival for those who were admitted as emergencies with their first AMI. Survival improved over the period 2002/03 – 2011/12 from 84.1% to 91.0% (see Table S1 and Figure 4). For those aged 75 and over the figures were 71.5% in 2002/03 rising to 82.2% in 2011/12.

Data Source: ISD SMR01 - discharges; National Records Scotland – Population
Note: Analysis includes ICD-10 codes I21-I22

In relation to heart failure, 30 day survival for patients admitted as emergencies improved over the period 2002/03 – 2011/12, from 82.7% to 86.9% (see Table S3). For those aged 75 and over, the figures were 78.8% in 2002/03 rising to 84.9% in 2011/12.
Mortality

All Heart Disease

The figures included in this section refer to calendar years.

The age-sex standardised mortality rate for all forms of heart disease (including Coronary Heart Disease) has been decreasing steadily over the last 10 years, falling from 198.4 per 100,000 population in 2002 to 121.3 per 100,000 population in 2011, a reduction of 38.9% in the last 10 years and 6.0% in the last year (see Table 3 and Figure 5).

Figure 5: All Heart Disease: All Ages by Sex 2002-2011

European Age-Sex Standardised Mortality Rates per 100,000 Population

Data Source: National Records Scotland - Deaths and Population
Note: Analysis includes ICD-10 codes I00-I52

During the years 2002-2011, the relative reduction in age-sex standardised mortality rates for all types of heart disease was slightly larger for females (40.3%) compared to males (38.1%). The difference in rates between men and women narrowed between 2002 and 2011 from 111 deaths to 72 per 100,000 population. The reduction in mortality for all types of heart disease was larger for people under the age of 75 (40.7%) compared to people aged 75 and over (37.2%) (see Table 3).

Coronary Heart Disease

The age-sex standardised mortality rate for coronary heart disease (CHD) has also been decreasing steadily over the last 10 years, falling from 162.3 per 100,000 population in
2002 to 92.2 per 100,000 population in 2011. This is an overall reduction of 43.2% and a fall of 8.1% in the last year (see Table MC1).

There was variability between NHS Board areas. Of the mainland Health Boards, NHS Greater Glasgow and Clyde had the highest age standardised mortality rate in 2011 (101.6 per 100,000 population) and NHS Dumfries & Galloway the lowest rate (67.7 per 100,000 population). NHS Dumfries & Galloway also had the highest percentage reduction in the age standardised mortality rate between 2002 and 2011 (52.6%). NHS Lothian had the lowest percentage reduction in the mortality rate among the mainland Health Boards between 2002 and 2011 (34.9%).

For details of mortality caused by all heart disease, coronary (ischaemic) heart disease, heart attacks (acute myocardial infarction) and heart failure by age, gender and health board area, see Table MC1 on the Heart Disease web pages. Corresponding information by council area can be found in Table MC4.

The target to reduce the CHD mortality rate by 60% in under 75s between 1995 and 2010 was achieved in 2010. See Table MC2 for specific NHS Boards.

**Deprivation**

The figures included in this section refer to calendar years.

The Scottish Index of Multiple Deprivation (SIMD) is an area measurement of multiple deprivation which combines seven domains (income, employment, education, housing, health, crime and geographical access) into an overall index available at datazone level. Further information on the SIMD 2009 can be found on the Scottish Government website at http://www.scotland.gov.uk/Topics/Statistics/SIMD/Overview.

CHD is one of the most significant causes of premature mortality in deprived communities. Reducing mortality from coronary heart disease among the under 75s in deprived areas is a national target, forming part of the Scottish Budget Spending Review 2007. Deprived areas are defined as the 15% most deprived datazones based on the SIMD.

This indicator informs progress in relation to the Scottish Government's Healthier Strategic Objective and has been previously published as Indicator 26 in the Technical Notes for the 2007 Spending Review.

**Coronary Heart Disease Mortality in Under 75s in the 15% Most Deprived Areas**

In the 15% most deprived areas in Scotland, the age-standardised under 75 mortality rate from CHD for both sexes combined decreased by 9.6% from 95.5 per 100,000 in 2010 to 86.3 per 100,000 in 2011. However the rate for females increased by 1.7% from 48.5 per 100,000 in 2010 to 49.3 per 100,000 in 2011 (see Table DC3 and Figure 6). Further information and data are available from the Scottish Government's "Scotland Performs" website.
Coronary Heart Disease Mortality by Deprivation (SIMD 2009) Quintile.

There has been a reduction in absolute and relative inequality in mortality rates by deprivation over the decade 2002-2011; in other words the gap between least and most deprived has narrowed both in absolute terms and relative to the least deprived rate. Mortality rates fell across all quintiles of the SIMD. The relative reduction in the age-sex standardised CHD mortality rate among the most deprived quintile (quintile 1) was 38.7% compared with 25.1% in the least deprived quintile (quintile 5 - see Table DC7 and Figure 7).
Cardiovascular Prescribing

Information on NHS prescriptions dispensed in the community in Scotland is compiled by ISD's Prescribing Team from data provided by Practitioner Services Division (PSD). PSD is responsible for the processing and pricing of all prescriptions dispensed in Scotland.

GPs write the vast majority of these prescriptions, with the remainder written mainly by nurses and dentists. They also include prescriptions written in hospitals that are dispensed in the community, but exclude drugs dispensed within hospitals themselves.

The overall cost of cardiovascular drugs reduced year on year for the last eight years, whilst the number of prescriptions rose. The changing price of statin drugs partly explains this, as simvastatin and pravastatin have come out of patent during this time, allowing equivalent lower cost (generic) drugs to be made available. Since then, the prices of these drugs have continued to decline, resulting in reduced overall costs, despite growth in volume.

In addition, lower prices have now been set for the generic drugs, resulting in further reduction in costs. The introduction of targets for quality improvement in General Practice as part of the Quality and Outcomes Framework (QOF) is likely to have added to the growth in prescribing volume of statins by providing incentives to identify and treat those at high risk of cardiovascular disease.
Atorvastatin is amongst the Top 10 Drugs by Cost as detailed in the Prescribing area of ISD Scotland's website.

The data presented here are identical to those in the prescribing section of the Stroke Statistics publication. This is because many drugs can be used for the treatment of both stroke and heart disease and it is not possible from available data to distinguish whether a drug was used to treat stroke or heart disease.

**Prescriptions Dispensed**

Over the decade 2002/03 - 2011/12, the numbers of prescriptions dispensed for cardiovascular related drugs rose from 18,154,715 to 24,644,794 items prescribed, an increase of 35.7%. The increase was not as great in recent years, with no appreciable change between 2010/11 and 2011/12 (see Table G1 and figure 8).

**Figure 8: Volume and cost of cardiovascular prescribing, financial years ending 31 March 2003-2012**

![Graph showing volume and cost of cardiovascular prescribing](image)

Data Source: Prescribing Information System

**Gross Ingredient Costs**

The overall cost of prescriptions dispensed for cardiovascular related drugs fell in 2011/12 to £157.8 million, a reduction of 5.8% on the previous year (see table 1). This is the lowest gross ingredient cost for cardiovascular drugs observed for any year over the last decade 2002/03 to 2011/12 and may reflect the changes in costs discussed in the introduction to this section.

Cardiovascular related drugs form approximately 16% of the total gross ingredient cost in Scotland (see Prescription Cost Analysis 2011/12).
Table 1: Cardiovascular Prescribing: Number of prescribed items and gross ingredient cost; 2002/03 – 2011/12

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Prescribed Items</th>
<th>Gross Ingredient Cost (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002/03</td>
<td>18,154,715</td>
<td>206,469,113</td>
</tr>
<tr>
<td>2003/04</td>
<td>19,582,138</td>
<td>231,830,148</td>
</tr>
<tr>
<td>2004/05</td>
<td>21,108,333</td>
<td>230,138,113</td>
</tr>
<tr>
<td>2005/06</td>
<td>22,401,103</td>
<td>220,275,980</td>
</tr>
<tr>
<td>2006/07</td>
<td>23,207,970</td>
<td>210,988,576</td>
</tr>
<tr>
<td>2007/08</td>
<td>23,789,657</td>
<td>199,153,011</td>
</tr>
<tr>
<td>2008/09</td>
<td>24,296,435</td>
<td>186,959,710</td>
</tr>
<tr>
<td>2009/10</td>
<td>24,699,250</td>
<td>186,625,908</td>
</tr>
<tr>
<td>2010/11</td>
<td>24,633,819</td>
<td>167,419,390</td>
</tr>
<tr>
<td>2011/12</td>
<td>24,644,794</td>
<td>157,756,476</td>
</tr>
</tbody>
</table>

1 Number of items prescribed and dispensed in the community
2 Cost of drugs and appliances before deduction of any discount

The [GP Prescribing](#) topic area of the Heart Disease web pages provides links to detailed data tables relating to cardiovascular prescribing.
Glossary

ACS  
Acute Coronary Syndrome - an inclusive term referring to AMI (see below) and unstable angina.

Acute Hospital  
Acute Hospital Care/Activity includes services such as: consultation with specialist clinicians; emergency treatment; routine, complex and life saving surgery; specialist diagnostic procedures; close observation and short-term care of patients. 'Acute' hospital care includes activity occurring in major teaching hospitals, district general hospitals and community hospitals but excludes obstetric and psychiatric services.

AMI  
Acute Myocardial Infarction (heart attack): the result of sudden complete blockage of the blood supply to part of the heart.

Angina pectoris  
Chest pain on exertion as a result of coronary heart disease.

Angiography  
A procedure in which under X-ray guidance a long, thin tube is threaded into the coronary arteries via a blood vessel in the groin or arm. A dye, which can be seen on the X-ray screen, is injected, showing the pattern of the coronary arteries, and demonstrating where the artery is narrowed.

Angioplasty  
A procedure performed to treat coronary heart disease that involves passing a thin, hollow tube into the coronary arteries under X-ray guidance, from an artery in the groin or arm (under local anaesthetic). A device on the tube is then used to unblock the artery, and stretch the artery walls so that more blood and oxygen can flow to the heart muscle.

CABG  
An operation in which a blood vessel from another part of the body is grafted to the coronary artery or arteries, to bypass narrowed sections and restore blood flow to the heart muscle.

Cardiovascular disease (CVD)  
Cardiovascular disease describes disease of the heart or blood vessels.

CHD  
Coronary Heart Disease. Disease of the coronary arteries that supply the heart. This includes acute myocardial infarction, angina and most cases of heart failure.

Datazone  
A small geographical area with a population between 500-1,000 household residents. They are based on groups of 2001 Census output areas.

Discharge  
A discharge marks the end of an episode of care. Discharges include deaths and transfers to other specialties/significant facilities and hospitals as well as routine discharges home.

Emergency  
An emergency admission occurs when, for clinical reasons, a patient is admitted at the earliest possible time after seeing a doctor.
<table>
<thead>
<tr>
<th><strong>Episode</strong></th>
<th>an SMR01 episode is generated when a patient is discharged from hospital but also when a patient is transferred between hospitals, significant facilities, specialties or to the care of a different consultant.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>European age-standardised rate</strong></td>
<td>Apparent differences in disease rates in populations may be partly or entirely due to the fact that one population is older than the other. Standardised rates adjust for differences in age and sex structures between different populations or in the same population over time and allow fair comparisons to be made.</td>
</tr>
<tr>
<td><strong>Heart Attack</strong></td>
<td>The result of sudden complete blockage of the blood supply to part of the heart.</td>
</tr>
<tr>
<td><strong>Heart failure</strong></td>
<td>Failure of the heart as a pump, the commonest cause being coronary heart disease.</td>
</tr>
<tr>
<td><strong>Ischaemic Heart Disease (IHD)</strong></td>
<td>Disease that involves inadequate blood supply to the heart, and in practice is synonymous with coronary heart disease.</td>
</tr>
<tr>
<td><strong>Incidence</strong></td>
<td>Incidence refers to the number of new cases of a condition in a defined population during a defined period and is typically expressed as the number of new cases per 100,000 population per year (or other suitable units). In this publication, an incident case is defined as the first admission to hospital (or death without a hospital admission). A first admission is defined as an admission where there has been no admission for the same condition in the previous 10 years. For example, a patient might be admitted with coronary heart disease in 2004 and again in 2005 for the same diagnosis. For the purpose of counting incidence, only the hospital episode in 2004 would be counted. The 2005 episode would not be counted because the previous episode occurred less than 10 years previously.</td>
</tr>
<tr>
<td><strong>Items prescribed</strong></td>
<td>Prescription items are prescribed and dispensed in the community. GPs write the vast majority of these prescriptions, with the remainder written mainly by nurses and dentists. The totals for items prescribed include prescriptions written in hospitals and dispensed in the community, but exclude drugs dispensed within hospitals themselves.</td>
</tr>
<tr>
<td><strong>Mainland Health Boards</strong></td>
<td>Health Boards in Scotland excluding the three Island Health Boards (Orkney, Shetland and Western Isles)</td>
</tr>
<tr>
<td><strong>Mortality rate</strong></td>
<td>The number of deaths as a rate per 100,000 population.</td>
</tr>
<tr>
<td><strong>PCI</strong></td>
<td>Percutaneous Coronary Intervention; any intervention targeted at the coronary arteries and gaining access through arteries in the groin or arm. The term is usually used as an alternative for PTCA.</td>
</tr>
<tr>
<td><strong>PTCA</strong></td>
<td>Percutaneous Transluminal Coronary Angioplasty. The full name for an angioplasty.</td>
</tr>
</tbody>
</table>
QOF targets

The Quality & Outcomes Framework (QOF) represents one of the main sources of potential income for general practices (GP surgeries) across the UK. It is a major part of the new General Medical Services (GMS) contract, introduced on 1st April 2004. Participation by general practices in the QOF is voluntary. For those that do participate, the QOF measures achievement against a range of evidence-based indicators, with points and payments awarded according to the level of achievement.

Quintiles

Deprivation quintiles each contain 20% of the total population in Scotland. Deprivation quintile 1 contains the most deprived 20% of the population, while quintile 5 contains the least deprived 20%.

Revascularisation

An inclusive term referring to CABG and angioplasty procedures.

SIMD

Deprivation for individuals is estimated from aggregate data derived from the census and other routine sources. These are used to estimate the deprivation of individuals in small geographical areas. The Scottish Index of Multiple Deprivation (SIMD) has seven domains (income, employment, education, housing, health, crime, and geographical access) at datazone level, which have been combined into an overall index to pick out area concentrations of multiple deprivation.

SMR01

An SMR01 episode is generated when a patient is discharged from hospital but also when a patient is transferred between hospitals, significant facilities, specialties or to the care of a different consultant.

30 day survival

Number of people who survived 30 days following a first emergency admission to hospital for a specific condition.

Unstable angina

Unstable angina is a form of acute coronary syndrome (ACS).
# List of Tables

<table>
<thead>
<tr>
<th>Table No.</th>
<th>Name</th>
<th>Time period</th>
<th>File &amp; size</th>
</tr>
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<tbody>
<tr>
<td>AC1</td>
<td>Heart Disease discharges - by diagnosis (all heart disease, ischaemic heart disease, acute myocardial infarction, cardiac failure, angina, chest pain), health board, admission type, age group and sex for financial years 2002/03-2011/12; numbers, crude rates, age-sex standardised rates (direct to Europe).</td>
<td>2002/03-2011/12</td>
<td>Excel [3,001kb]</td>
</tr>
<tr>
<td>AC4</td>
<td>Heart Disease discharges - by diagnosis (all heart disease, ischaemic heart disease, acute myocardial infarction, cardiac failure, angina, chest pain), Community Health Partnership, admission type, age group and sex for financial years 2002/03-2011/12; numbers, crude rates, age-sex standardised rates (direct to Europe).</td>
<td>2002/03-2011/12</td>
<td>Excel [6,805kb]</td>
</tr>
<tr>
<td>IC1</td>
<td>Coronary Heart Disease (CHD) incidence by year, health board, age group and sex for financial years 2002/03 – 2011/12; numbers, crude rates and age-sex standardised rates (direct to Europe).</td>
<td>2002/03-2011/12</td>
<td>Excel [155kb]</td>
</tr>
<tr>
<td>IC2</td>
<td>Acute myocardial infarction incidence by year, health board, age group and sex for financial years 2002/03 – 2011/12; numbers, crude rates and age-sex standardised rates (direct to Europe).</td>
<td>2002/03-2011/12</td>
<td>Excel [157kb]</td>
</tr>
<tr>
<td>OC1</td>
<td>Operations by type (Coronary Artery Bypass Graft, Angioplasty, Angiography, Revascularisation, Valve Surgery) by year, health board, admission type, age group and sex for financial years 2002/03-2011/12; numbers, crude rates, age-sex standardised rates (direct to Europe). Information at Scotland and Health Board level.</td>
<td>2002/03-2011/12</td>
<td>Excel [5,090kb]</td>
</tr>
<tr>
<td>S1</td>
<td>Survival after first emergency admission for acute myocardial infarction and unstable Angina; numbers of patients treated and % surviving 30 days for financial years 2002/03-2011/12.</td>
<td>2002/03-2011/12</td>
<td>Excel [42kb]</td>
</tr>
<tr>
<td>S3</td>
<td>Survival after first emergency admission for heart failure; numbers of patients treated and % surviving 30 days for financial years 2002/03-2011/12</td>
<td>2002/03-2011/12</td>
<td>Excel [35kb]</td>
</tr>
<tr>
<td>MC1</td>
<td>Number of deaths, with crude and age-sex standardised mortality rates, by age, health board of residence and year of death registration, 2002-2011.</td>
<td>2002-2011</td>
<td>Excel [618kb]</td>
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<td>MC2</td>
<td>Coronary Heart Disease Premature</td>
<td>1995-2011</td>
<td>Excel [57kb]</td>
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<td>MC4</td>
<td>Number of deaths, with crude and age-sex standardised mortality rates, by age, council area of residence and year of death registration, 2002-2011.</td>
<td>2001-2011</td>
<td>Excel [1,316kb]</td>
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<td>DC1</td>
<td>Coronary Heart Disease – Number of deaths, crude rates and standardised mortality ratios by Scottish Index of Multiple Deprivation decile (2007-2011 combined)</td>
<td>2007-2011 combined</td>
<td>Excel [126kb]</td>
</tr>
<tr>
<td>DC3</td>
<td>Trends (2002-2011) in mortality rate from coronary heart disease among the under 75s in the 15% most deprived SIMD areas.</td>
<td>2002-2011</td>
<td>Excel [68kb]</td>
</tr>
<tr>
<td>DC4</td>
<td>Number of deaths and European age-standardised rates by NHS board; ages under 75; 15% most deprived SIMD areas.</td>
<td>3 year rolling averages 2000-2002 to 2009-2011</td>
<td>Excel [92kb]</td>
</tr>
<tr>
<td>DC5</td>
<td>Number of deaths and European age-standardised rates by community health partnership (CHP); ages under 75; 15% most deprived SIMD areas.</td>
<td>5 year rolling averages 2000-2004 to 2007-2011</td>
<td>Excel [75kb]</td>
</tr>
<tr>
<td>DC6</td>
<td>Number of deaths and European age-standardised rates by local authority / council area; ages under 75; 15% most deprived SIMD areas.</td>
<td>5 year rolling averages 2000-2004 to 2007-2011</td>
<td>Excel [74kb]</td>
</tr>
<tr>
<td>DC7</td>
<td>Trend in coronary heart disease mortality, crude mortality rates and standardised mortality rates by SIMD deprivation quintile; 2002-2011.</td>
<td>2002-2011</td>
<td>Excel [38kb]</td>
</tr>
<tr>
<td>G1</td>
<td>Cardiovascular prescribing (costs and number of prescriptions) for financial years ending 2002/03-2011/12.</td>
<td>2002/03 - 2011/12</td>
<td>Excel [68kb]</td>
</tr>
<tr>
<td>G2</td>
<td>Cardiovascular prescribing (costs, defined daily doses and numbers per 1000 population) by drug group and Health Board for year 2011/12.</td>
<td>2011/12</td>
<td>Excel [606kb]</td>
</tr>
<tr>
<td>G3</td>
<td>Cardiovascular prescribing (costs, defined daily doses and numbers per 1000 population) by drug group and Community Health Partnership for year 2011/12.</td>
<td>2011/12</td>
<td>Excel [1,145kb]</td>
</tr>
</tbody>
</table>
Contact
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Further Information
Further information on heart disease can be found on the Heart Disease area of the ISD website.

Corresponding information on stroke and cerebrovascular disease can be found on the Stroke area of the ISD website.

Further information on other ISD publications and datasets can be found on the ISD website.

Rate this publication
It is important that we understand the range of users and uses of the statistics and gain feedback on our publications so that we can make the data more useful to users.

Click here to provide feedback and rate this publication.
Appendix

A1 – Background Information

Heart Disease

Coronary heart disease (CHD) is a disease caused by the build up of fatty materials in the wall of the arteries blood vessels that supply the heart with oxygen. Obstruction of these arteries can cause a heart attack, chest pain or angina.

Heart disease is more common in older people.

Risk factors associated with CHD

The main preventable risk factors for coronary heart disease are smoking, high blood pressure, lack of exercise and a poor diet. Research also indicates a strong relationship between social deprivation and these risk factors.

Detailed information on the prevalence of these risk factors is available from the Scottish Health Survey, the latest available survey being from 2011. The 2003 survey included a specific report on Cardiovascular Disease. Previous Scottish Health Survey reports are available for 1995 and 1998. The Scottish Health Survey is now operating as a rolling survey running continuously from 2008-2015.

Scottish Health Survey 2011
Scottish Health Survey 2010
Scottish Health Survey 2009
Scottish Health Survey 2008
Scottish Health Survey 2003
Scottish Health Survey 2003 Cardiovascular Disease Report
Scottish Health Survey 1998
Scottish Health Survey 1995

Policy Context

NHSScotland service provision for patients with coronary heart disease operates within the framework of Scottish Government policy. A chronology of policy documents that steer service provision for CHD & stroke patients is outlined below.

Coronary Heart Disease & Stroke Task Force (2001)
Coronary Heart Disease & Stroke Strategy for Scotland (2002)
Delivering for Health (2005) (Scottish Government response to the "Kerr" report "Building a health service fit for the future")
Better health, better care - action plan. (2007)
Better heart disease & stroke care action plan (2009)

The 2009 action plan reiterated the target of reducing premature mortality from coronary heart disease by 60% between 1995 and 2010. Table MC2 shows the trend in CHD mortality among under 75s and indicates that the mortality rate fell from 124.6 per 100,000 in 1995 to 49.0 per 100,000 in 2010, a reduction of 60.7%, meeting this target.
Data Collection

Hospital Activity data
Hospital activity data are collected across NHSScotland and are based on nationally available information routinely drawn from hospital administrative systems across the country. Hospital activity data includes inpatient and day case activity occurring in major teaching hospitals, district general hospitals and community hospitals but excludes obstetric and psychiatric services. This data collection is known as SMR01.

Prescribing data
Practitioner Services (PSD), a division of NHS National Services Scotland, processes all NHS prescriptions for payment of pharmacists, dispensing doctors and appliance suppliers. Hospital dispensed prescriptions are NOT included in the figures.

Information on NHS prescriptions dispensed in the community in Scotland is compiled by ISD's Prescribing Team from data provided by Practitioner Services Division (PSD). PSD are responsible for the processing and pricing of all prescriptions dispensed in Scotland.

Deaths data
Information on the quality of National Records of Data on Deaths can be found on the National Records of Scotland website;


Data Completeness

The hospital activity figures are sourced from SMR01 records and the levels of completeness of the SMR01 data are deemed to be fit for publication (99% of the expected figure at the time of extraction).

Information on SMR01 data completeness can be found on the Hospital Records Data Monitoring SMR Completeness web page, while information on the timeliness of SMR01 data submissions can be found on the SMR Timeliness web page. Details on completeness can also be found within the excel data files.

ISD are working with NHS Boards to resolve ongoing data submission issues. The majority of these issues have resulted from implementation of the new PMS TrakCare system and other existing system issues.

Data Quality

The ISD Data Quality Assurance (DQA) team is responsible for evaluating and ensuring SMR datasets are accurate, consistent and comparable across time and between sources. Details of the quality assurance process for SMRs can be found are published on the DQA methodology web page.
The DQA team’s previous projects web page contains details of past Data Quality Assurance Assessments, including final reports and findings.

The most recent report “Assessment of SMR01 Data 2010-2011” [350kb] was published in May 2012. This report includes feedback on clinical coding accuracy, sensitivity and completeness within defined groups and includes commonly encountered conditions including Ischaemic Heart Disease, Cerebrovascular Disease and Myocardial Infarction.

An earlier report, “Towards Better Data from Scottish Hospitals: An Assessment of SMR01 and Associated Data 2004-2006” [1.77Mb], contains sub-sections on specific conditions and interventions, including some related to coronary heart disease.

In hospital discharge data, clinical information for diagnoses and operations/interventions is currently recorded using ICD10 (the International Classification of Diseases 10th Revision maintained by the World Health Organization) and OPCS4 (the Office of Population Censuses & Surveys 4th Revision Classification of Surgical Operations and Procedures maintained by NHS Connecting for Health (CfH)).

Lists of ICD10 codes are available at http://www.who.int/classifications/icd/en/. OPCS4 codes are available from http://www.connectingforhealth.nhs.uk/systemsandservices/data/clinicalcoding/codingstandards/opcs4 (CfH). For an extract of OPCS4 codes related to the heart see the file below.

See the Extract from OPCS4 Classification of Surgical Operations and Procedures (Heart) [91kb] for details of the heart operations and procedures in its Chapter K. This document should be read in conjunction with the NHS Connecting for Health document Summary of Changes from OPCS-4.4 to OPCS-4.5 [118kb] for details of the latest updates to the coding classification.

Independent and voluntary sector

Although there are a number of independent and voluntary sector organisations involved in the provision of information and services to CHD patients, two of the main ones, with links to NHSScotland, are the British Heart Foundation (BHF) and Chest, Heart & Stroke Scotland (CHSS). Both organisations are involved in the funding of research and provide extensive information for patients and carers on their respective web sites at http://www.bhf.org.uk/ and http://www.chss.org.uk/

Comparisons

UK comparisons

Hospital activity data relating to Coronary Heart disease in England, Wales and Northern Ireland are available separately. Please note that these figures are sometimes not directly comparable with published data from Scotland due to differences in recording and definitions. Prior to making comparisons, please check the definitions carefully for each of the sources.

England: NHS Hospital Episode Statistics (HES)
Wales: Health and care statistics
Northern Ireland: Hospital Statistics & Research
Mortality from specific causes, including heart disease, in England and Wales is available from the Office for National Statistics.

**International comparisons**

The Scotland and European Health for All database allows users to make comparisons of trends in CHD mortality in Scotland with countries in the rest of Europe. These include standardised death rates and hospital discharges for ischaemic heart disease and cerebrovascular disease. European comparisons indicate that while CHD mortality rates have fallen Scotland still compares unfavourably with most other European countries.

**Further Information**

Our "Links to other sources" section offers a few examples of other information sources.
# A2 – Publication Metadata (including revisions details)

<table>
<thead>
<tr>
<th>Metadata Indicator</th>
<th>Description</th>
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<tbody>
<tr>
<td>Publication title</td>
<td>Heart Disease Statistics</td>
</tr>
<tr>
<td>Description</td>
<td>Annual update of heart disease statistics. Update including hospital activity, incidence, operations, 30 days survival, mortality, deprivation and prescribing.</td>
</tr>
<tr>
<td>Theme</td>
<td>Health and Social Care</td>
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<td>Topic</td>
<td>Conditions and Diseases</td>
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<td>Format</td>
<td>Excel workbooks</td>
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<tr>
<td>Data source(s)</td>
<td>Scottish Morbidity Record 01 (SMR01), National Records of Scotland (NRS) Death Registrations, Prescribing Information System (PIS), Scottish Index of Multiple Deprivation 2009 (Scottish Government)</td>
</tr>
<tr>
<td>Date that data are acquired</td>
<td>September 2012</td>
</tr>
<tr>
<td>Release date</td>
<td>18th December 2012</td>
</tr>
<tr>
<td>Frequency</td>
<td>Annual</td>
</tr>
<tr>
<td>Timeframe of data and timeliness</td>
<td>10 years annual data up to 31-Mar-2012 (hospital activity, operations, prescribing, incidence, survival), 31-Dec-2011 (mortality) or 31-Mar-2012 (prescribing).</td>
</tr>
</tbody>
</table>
Prescribing data: The definition of the main measures such as gross ingredient cost and number of items are unchanged over this period. Types and value of dispensing fees are agreed the Scottish Government and set annually. Details can be found in the Scottish Drug Tariff and in [Primary Care circulars](http://www.gov.scot) issued by the Government. Drug products are first licensed as proprietary medicines but generic versions often appear once the original patent expires. This can affect the price and uptake of these drugs. The Scottish Government sets the reimbursement price of generic drug products via the [Scottish Drug Tariff](http://www.gov.scot) which is updated and issued quarterly.  
Hospital admissions: The introduction of more sensitive tests for the diagnosis of acute coronary ischaemia - e.g. troponin - and the incorporation of troponin (and other biomarker) levels in definitions of acute myocardial infarction (AMI), may have affected the recording of AMI over recent years. Variations in the definition, recording and coding of AMI may affect inter-hospital and inter-Health Board comparisons of AMI incidence, prevalence and post-AMI survival. ISD issued coding guidance in June 2007 |
covering the recording of troponin levels in acute coronary syndromes - see Coding Guidelines Number 20.

<table>
<thead>
<tr>
<th>Revisions statement</th>
<th>No revisions have occurred and there are no revisions planned.</th>
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</thead>
<tbody>
<tr>
<td>Revisions relevant to this publication</td>
<td>None.</td>
</tr>
<tr>
<td>Concepts and definitions</td>
<td>See Glossary and A1 (Appendix 1) contained within this report.</td>
</tr>
</tbody>
</table>
| Relevance and key uses of the statistics | Uses of the data include:  
To allow NHS Boards and the Scottish Government to compare activity levels nationally;  
To provide health intelligence and performance information for NHS Boards and the Scottish Government;  
To provide information to support answers to Parliamentary Questions;  
To support the information requirements of voluntary sector organisations such as British Heart Foundation (BHF), including research and media activity;  
To allow members of the public to readily access information on heart disease;  
To respond to information requests for a variety of customers e.g. researchers, charities, public companies, Freedom of Information requests;  
To assist students and universities conducting studies on topics such as heart disease;  
To assist private companies interested in heart disease information in Scotland, such as pharmaceutical companies and consultancy companies. |
| Accuracy                     | Mortality: For coding of deaths see the website of the National Records of Scotland. Reported data are compared to previous years’ figures and to expected trends.  
Prescribing: The data is sourced from a payment system and routine monthly checks are carried out by PSD on a random sample of approximately 5% of prescription payments. These check all data captured for payment and the accuracy of the payment calculation and have a target accuracy of 98% which is routinely met. Data that is captured but is not mandatory for payment purposes can be of lower quality; principally this includes the prescriber code which links a prescription back to the individual prescriber e.g. GP and their organisation including NHS Board.  
Routine monitoring of unallocated prescriptions is carried out and correct codes are applied before publication. This ensures that unallocated prescriptions account for under 2% of all prescriptions. For remaining unallocated prescriptions, the prescribing NHS Board is assumed to be the same as the dispensing NHS Board.  
Hospital Activity: SMR01 data are subjected to validation on submission. The figures are compared to previous years’ figures and to expected trends. The SMR01 data are also assessed for accuracy by ISD’s Data Quality Assurance |
| **Completeness** | Mortality: Death registrations are deemed to be complete and finalised.  
Prescribing: The Prescribing Information System holds information on 100% of NHS Scotland prescriptions dispensed within the community and claimed for payment by a pharmacy contractor (i.e. pharmacy, dispensing doctor or appliance supplier). It does not include data on prescriptions dispensed but not claimed (likely to be very small) or prescriptions prescribed but not submitted for dispensing by a patient. Some research has estimated these latter prescriptions to account for around 6% of all prescriptions issued to patients. It is not possible to determine from payment data how much of the medicine dispensed to patients is actually taken in accordance with dosage instructions.  
Hospital Activity: Levels of SMR01 submission are deemed to be 99% complete compared to expected levels of submission at time of extraction. |
| **Comparability** | Prescribing: The main measures of drug ingredient cost and volumes of items dispensed in the community are comparable across the UK countries. However it should be noted that the Gross Ingredient Cost (GIC) within Scotland is equivalent to the Net Ingredient Cost (NIC) in England, i.e. the reimbursement cost of drugs before any pharmacy discounts are applied. Also each country determines its own dispensing fees based on separate contractual arrangements with dispensing contractors in each country. A common formulary called the British National Formulary (BNF) is used to classify drugs based on therapeutic use.  
Hospital activity data relating to Coronary Heart disease in England, Wales and Northern Ireland are available separately. Please note that these figures are sometimes not directly comparable with published data from Scotland due to differences in recording and definitions. Prior to making comparisons, please check the definitions carefully for each of the sources.  
England: NHS Hospital Episode Statistics (HES)  
Wales: Health and care statistics  
Northern Ireland: Hospital Statistics & Research  
Mortality: Deaths from specific causes, including heart disease, in England and Wales is available from the Office for National Statistics. |
| **Accessibility** | It is the policy of ISD Scotland to make its web sites and products accessible according to published guidelines. |
| **Coherence and clarity** | Relevant key statistics are presented on each Topic Area page. Statistics are presented within Excel spreadsheets. |
Geographical areas and national figures are presented using drop down menus. Further features to aid clarity: 1. Tables use drop down menus to display data by Age Band, Diagnostic and other Groupings. 2. Key data presented graphically. 3. Each Excel workbook contains a notes page.

| Value type and unit of measurement | The number of deaths in a given year are based on the date of registration. Rates are expressed as both a crude rate per 100,000 population and directly standardised for age only or both age and sex as detailed on the notes pages of the relevant Excel table. The main units of measure of drug reimbursement costs are Gross Ingredient Cost (GIC) and Net ingredient cost (NIC) quantity. The latter takes account of pharmacy discounts, the rates for which are set by the Scottish Government in the Scottish Drug Tariff. There are a large number of individual dispensing remuneration fees paid to dispensing contractors details of which can be found in the Scottish Drug Tariff. The main measures of drug volume are items (the number of individual drug items on a prescription form), quantity (the total number of tablets, capsules etc), and defined daily doses (DDDs - estimated average daily maintenance doses for a total quantity of prescribed). Hospital activity is based on hospital episodes, which if based on the date of discharge. Rates are expressed as both a crude rate per 100,000 population and directly standardised for age only or both age and sex as detailed on the notes page of the relevant Excel tables. |

Disclosure

| The ISD protocol on Statistical Disclosure Protocol is followed. |

Official Statistics designation

| National Statistics |

UK Statistics Authority Assessment

| Undergoing assessment by UK Statistics Authority – link to report |

Last published

| 29th November 2011 |

Next published

| 17th December 2013 |

Date of first publication

| 22nd February 2011 (in current format) |

Help email

| andrew.deas@nhs.net |

Date form completed

| 4th December 2012 |
A3 – Early Access details (including Pre-Release Access)

Pre-Release Access

Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", ISD are obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days. Shown below are details of those receiving standard Pre-Release Access and, separately, those receiving extended Pre-Release Access.

Standard Pre-Release Access:

Scottish Government Health Department
NHS Board Chief Executives
NHS Board Communication leads

Extended Pre-Release Access

Extended Pre-Release Access of 8 working days is given to a small number of named individuals in the Scottish Government Health Department (Analytical Services Division). This Pre-Release Access is for the sole purpose of enabling that department to gain an understanding of the statistics prior to briefing others in Scottish Government (during the period of standard Pre-Release Access).

Scottish Government Health Department (Analytical Services Division)
A4 – ISD and Official Statistics

About ISD

Scotland has some of the best health service data in the world combining high quality, consistency, national coverage and the ability to link data to allow patient based analysis and follow up.

Information Services Division (ISD) is a business operating unit of NHS National Services Scotland and has been in existence for over 40 years. We are an essential support service to NHSScotland and the Scottish Government and others, responsive to the needs of NHSScotland as the delivery of health and social care evolves.

Purpose: To deliver effective national and specialist intelligence services to improve the health and wellbeing of people in Scotland.
Mission: Better Information, Better Decisions, Better Health
Vision: To be a valued partner in improving health and wellbeing in Scotland by providing a world class intelligence service.

Official Statistics

Information Services Division (ISD) is the principal and authoritative source of statistics on health and care services in Scotland. ISD is designated by legislation as a producer of ‘Official Statistics’. Our official statistics publications are produced to a high professional standard and comply with the Code of Practice for Official Statistics. The Code of Practice is produced and monitored by the UK Statistics Authority which is independent of Government. Under the Code of Practice, the format, content and timing of statistics publications are the responsibility of professional staff working within ISD.

ISD’s statistical publications are currently classified as one of the following:

- National Statistics (ie assessed by the UK Statistics Authority as complying with the Code of Practice)
- National Statistics (ie legacy, still to be assessed by the UK Statistics Authority)
- Official Statistics (ie still to be assessed by the UK Statistics Authority)
- other (not Official Statistics)

Further information on ISD’s statistics, including compliance with the Code of Practice for Official Statistics, and on the UK Statistics Authority, is available on the ISD website.

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics. Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.