Contents

Contents............................................................................................................................1
Introduction.......................................................................................................................2
Key points .........................................................................................................................3
Results and Commentary.................................................................................................4
Hospital Activity .............................................................................................................4
Incidence .......................................................................................................................5
Operations ......................................................................................................................6
Survival ..........................................................................................................................6
Mortality ..........................................................................................................................7
Deprivation ....................................................................................................................8
Cardiovascular Prescribing ............................................................................................9
Prescriptions Dispensed ..............................................................................................10
Gross Ingredient Costs ...............................................................................................10
Glossary..........................................................................................................................12
List of Tables ...................................................................................................................15
Contact ............................................................................................................................17
Further Information ........................................................................................................17
Rate this publication......................................................................................................17
Appendix .........................................................................................................................18
A1 – Background Information ......................................................................................18
Stroke .............................................................................................................................18
Risk factors associated with CHD & stroke ..................................................................18
Policy Context .................................................................................................................18
Data Collection ..............................................................................................................19
Data Completeness ........................................................................................................19
Data Quality ..................................................................................................................19
Independent & voluntary sector ..................................................................................20
Comparisons ..................................................................................................................20
Further Information ......................................................................................................21
A2 – Publication Metadata (including revisions details) ..................................................22
A3 – Early Access details (including Pre-Release Access) ..............................................26
A4 – ISD and Official Statistics ......................................................................................27
Introduction

This publication relates to the annual update of stroke statistics, including information on cerebrovascular disease, stroke, subarachnoid haemorrhage and transient ischaemic attacks. Information is presented for hospital activity, incidence, operations, 30 day survival following first admission, mortality and prescribing. All data is presented for the period up to the year ending 31 March 2012 except for mortality data which is up to the year ending 31st December 2011.

Information is presented at NHS Board level with some tables also available at Community Health Partnership (hospital activity) or Local Council Area level (mortality).

Cerebrovascular Disease (CVD), which includes cerebrovascular accident/stroke and transient ischaemic attack (TIA), was responsible for the deaths of 4,600 people in Scotland in 2011. A stroke or TIA happens when the blood supply to part of the brain is interrupted and the brain cells are starved of oxygen. This usually occurs because a blood vessel becomes blocked by fatty deposits or a blood clot. The problem is temporary in the case of a TIA but longer lasting in the case of a stroke. Stroke is more common in people over the age of 65. Subarachnoid haemorrhage occurs when a blood vessel supplying the brain bursts.

CVD is largely preventable. Reducing CVD is a priority in Scotland where prevalence of risk factors, such as smoking, high blood pressure, and alcohol consumption above recommended limits is high. Around 2.9% of men and 2.7% of women are living with stroke (Scottish Health Survey 2011, table 8.1).

The Scottish Government published their strategy document Better Heart Disease and Stroke Care Action Plan in June 2009 and this confirmed that stroke 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 no major objections were received.
Key points

- The standardised hospital discharge rate for stroke decreased by 5.7% for men over the last ten years, from 267.2 per 100,000 in 2002/03 to 251.8 in 2011/12. For women, it decreased by 4.2% from 194.2 per 100,000 in 2002/03 to 185.9 per 100,000 in 2011/12.

- The standardised hospital discharge rate for cerebrovascular disease (CVD) in men decreased by 6.0% between 2002/03 and 2011/12 (from 395.2 to 371.6). For women, the decrease was 1.7% (from 297.8 to 292.6) over the same period.

- In the past decade, the incidence rate (the number of new cases) of CVD, decreased by 21.7% (from 199.3 cases per 100,000 population in 2002/03 to 156.0 cases per 100,000 population in 2011/12).

- Age-standardised mortality rates for CVD have fallen steadily over the last 10 years, from 81.9 per 100,000 population in 2002 to 47.7 in 2011, an overall reduction of 41.8% and a fall of 5.7% from the previous year.

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

Hospital Activity\(^1\)

**Stroke**

The standardised hospital discharge rate for stroke decreased by 5.7% in men in the last ten years, from 267.2 per 100,000 in 2002/03 to 251.8 in 2011/12. For women, it decreased by 4.2% from 194.2 per 100,000 in 2002/03 to 185.9 per 100,000 in 2011/12. (see Tables AS1 and AS4 and Figure 1). 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: Hospital discharges for stroke;

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 I61, I63 and I64.

**Cerebrovascular Disease**

Although there were more cerebrovascular disease (CVD) discharges for women than men (13,581 compared to 12,358 in 2011/12), the age-sex standardised discharge rates for men were higher. This is because CVD is more common in older people and there are more women in the older population. At any given age, men had a higher risk of stroke or CVD (see Table AS1).

The standardised discharge rate for CVD in males decreased by 6.0% between 2002/03 and 2011/12 (from 395.2 to 371.6). For females, the decrease was 1.7% (from 297.8 to 292.6) in the same period (see Tables AS1 and AS4).

\(^1\) See Appendix A1 for details of completeness of hospital activity figures derived from SMR01 records.
**Subarachnoid Haemorrhage**

The standardised discharge rate for subarachnoid haemorrhage among females continued to be higher than for males (26.4 compared to 16.4 - see Tables AS1 and AS4).

**Transient Ischaemic Attacks**

The standardised discharge rate for transient ischaemic attacks (TIAs) in males increased from 48.0 per 100,000 in 2002/03 to 48.6 per 100,000 in 2011/12, an increase of 1.3%. For females, the discharge rate increased from 35.6 per 100,000 in 2002/03 to 42.4 in 2011/12, an increase of 18.9%.

**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 CVD (or deaths from CVD without a prior admission) per 100,000 population, standardised by age and sex. In the past decade, the incidence of CVD decreased by 21.7% (from 199.3 cases per 100,000 population in 2002/03 to 156.0 in 2011/12) (see Table IS1 and Figure 2).

![Figure 2: Cerebrovascular Disease](image)

**European Age Standardised Incidence Rates per 100,000 Population, based on first hospital admissions**

Data Source: ISD SMR01 - discharges; National Records Scotland – Population
Note: Analysis includes ICD-10 codes I60-I69 and G45.

Incidence is closely related to age. The rate for under 75s in 2011/12 was 96.7 per 100,000 population and for over 75s for the same period was 1,579.2 per 100,000 population. Incidence rates are consistently higher for males than females across all age groups (see Table IS1).
Operations

Carotid endarterectomy is an operation to remove blockages from one of the main arteries that supplies the brain. The number of carotid endarterectomy operations rose from 466 to 482 between 2010/11 to 2011/12. The standardised rate for Scotland remained stable at 6.8 per 100,000 population between financial years 2010/11 and 2011/12. This is the lowest rate since 2003/04 (see Table OS1 and Figure 3).

Figure 3: Carotid Endarterectomies

European Age Standardised Discharge Rates per 100,000 Population

Data Source: ISD SMR01 - discharges; National Records Scotland – Population
Note: Analysis includes OPCS4 codes L294 or L295 (in any position)

Survival

Figure 4 shows the percentage of patients surviving 30 days following their first emergency admission for stroke. The 30 day survival rate has increased by 4.6% over the period 2002/03 – 2011/12 from 79.4% to 83.1% (see Table S2 and figure 4). For those aged 75 and over there was a 4.0% increase over the same period from 73.4% in 2002/03 to 76.3% in 2011/12.
Figure 4: Stroke;
Percentage of patients surviving 30 days or more after first emergency admission

Please note the interrupted Y axis – the percentage starts at 70% rather than from 0%.
Data Source: ISD SMR01 - discharges; National Records Scotland – Population
Note: Analysis includes ICD-10 codes I61, I63 and I64.

Mortality

Standardised mortality rates for CVD have fallen steadily over the last 10 years from 81.9 per 100,000 population in 2002 to 47.7 in 2011, a reduction of 41.8% over that period and 5.7% in the last year (see Table MS1 and Figure 5).

Figure 5: Cerebrovascular Disease:
European Age Standardised Mortality Rates per 100,000 Population by sex, 2002-2011

Data Source: National Records Scotland - Deaths and Population
Note: Analysis includes ICD-10 codes I60-I69 and G45.
There was variability between NHS Board areas. Of the mainland NHS Boards, NHS Lothian had the lowest age standardised mortality rate in 2011 (38.4 per 100,000 population) and NHS Greater Glasgow and Clyde had the highest (56.1). NHS Lothian also had the highest percentage reduction in the age standardised mortality rate between 2002 and 2011 (50.6%). NHS Borders had the lowest percentage reduction in the mortality rate among the mainland health boards between 2002 and 2011 (22.2%).

For details of mortality from CVD, stroke and subarachnoid haemorrhage by age, gender and health board area see Table MS1. Corresponding information by council area can be found in Table MS4.

The target to reduce the CVD mortality rate by 50% in under 75s between 1995 and 2010 was achieved in 2009. See Table MS2 for specific NHS Boards.

Deprivation

The Scottish Index of Multiple Deprivation (SIMD) is an area-based 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.

Deprivation, as measured by the Scottish Index of Multiple Deprivation (SIMD), is associated with higher rates of CVD mortality. Data shown in Table DS1 is based on National Records of Scotland (NRS) deaths data for the years 2007-2011.

There was a positive relationship between deprivation and mortality rates for CVD. The standardised mortality ratio (SMR) shows mortality rates in comparison to a reference population, adjusted for age and sex, where the reference category takes the value of 100. Figure 6 shows that the relationship between mortality and deprivation was stronger in the under 65s where the Standardised Mortality Ratio (SMR) was over 4 times higher for the most deprived 10% of the population compared to the least deprived 10% (see Table DS1 and figure 6).
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 Heart Disease 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 7).

**Figure 7: Volume and cost of cardiovascular prescribing, financial years ending 31 March 2003-2012**

![Figure 7: Volume and cost of cardiovascular prescribing, financial years ending 31 March 2003-2012](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 Items¹</th>
<th>Gross Ingredient Cost² (£)</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>231,830,146</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>

Source: Prescribing Information System
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 Stroke web pages provides links to detailed data tables relating to cardiovascular prescribing.
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute Hospital</strong></td>
<td>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, psychiatric and long stay care services.</td>
</tr>
<tr>
<td><strong>Carotid Endarterectomy</strong></td>
<td>An operation to remove a blockage in the carotid artery in the neck; in addition, a stent (a short stainless steel mesh tube) may be inserted to keep the artery open.</td>
</tr>
<tr>
<td><strong>Cerebrovascular disease (CVD)</strong></td>
<td>Cerebrovascular Disease includes subarachnoid haemorrhage, stroke (non-traumatic intracerebral haemorrhage and cerebral infarction) and transient ischaemic attacks (TIAs).</td>
</tr>
<tr>
<td><strong>Cardiovascular disease</strong></td>
<td>Includes diseases which affect the heart and the blood vessels, including coronary heart disease, stroke and other cerebrovascular diseases.</td>
</tr>
<tr>
<td><strong>Datazone</strong></td>
<td>A small geographical area with a population between 500-1,000 household residents. They are based on groups of 2001 Census output areas.</td>
</tr>
<tr>
<td><strong>Deciles</strong></td>
<td>Deprivation deciles each contain 10% of the total population in Scotland. Deprivation decile 1 contains the most deprived 10% of population, while decile 10 contains the least deprived 10%.</td>
</tr>
<tr>
<td><strong>Discharge</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Emergency</strong></td>
<td>An emergency admission occurs when, for clinical reasons, a patient is admitted at the earliest possible time after seeing a doctor.</td>
</tr>
<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>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 a stroke in...</td>
</tr>
</tbody>
</table>
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.

**Items prescribed**
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.

**Mainland Health Boards**
Health Boards in Scotland excluding the three Island Health Boards (Orkney, Shetland and Western Isles)

**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.

**SIMD**
Deprivation for individuals is estimated from aggregate data derived from the census and other routine sources. These are used to estimate the level of material deprivation 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.

**Standardised Mortality Ratio**
The ratio of actual deaths to expected deaths based on indirect standardisation. Expected deaths are the number of deaths that would be expected in each deprivation decile given the age-sex distribution of the underlying populations and the Scottish average death rates.

**Stroke**
A stroke occurs when an area of the brain is deprived of its blood supply because of a blockage of a blood vessel supplying the brain.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subarachnoid haemorrhage</td>
<td>A leak of blood as a result of the rupture of one of the blood vessels beneath one of the layers of membrane that covers the brain.</td>
</tr>
<tr>
<td>30 day survival</td>
<td>Number of people who survived 30 days following a first emergency admission to hospital for a specific condition.</td>
</tr>
<tr>
<td>TIA</td>
<td>Transient ischaemic attack. A transient ischemic attack is a temporary disruption to the blood supply to the brain as a result of a blockage of a blood vessel supplying the brain.</td>
</tr>
</tbody>
</table>
### List of Tables

<table>
<thead>
<tr>
<th>Table No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS1</td>
<td>Cerebrovascular Disease discharges – by diagnosis (Cerebrovascular Disease, Stroke, Subarachnoid Haemorrhage, Transient Ischaemic Attack and related syndromes), health board, admission type, age group and sex for financial years 2002/03-2011/12; numbers, crude rates and age standardised rates (direct to Europe)</td>
</tr>
<tr>
<td>AS4</td>
<td>Cerebrovascular Disease discharges – by diagnosis (Cerebrovascular Disease, Stroke, Subarachnoid Haemorrhage, Transient Ischaemic Attack and related syndromes), Community Health Partnership, admission type, age group and sex for financial years 2002/03-2011/12; numbers, crude rates and age standardised rates (direct to Europe)</td>
</tr>
<tr>
<td>IS1</td>
<td>Cerebrovascular Disease (CVD) incidence by 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>
</tr>
<tr>
<td>OS1</td>
<td>Numbers of Carotid Endarterectomies, with crude and age-sex standardised discharge rates, by health board, age, sex and year, 2000/01 - 2009/10.</td>
</tr>
<tr>
<td>S2</td>
<td>Survival after first emergency admission for stroke; numbers of patients treated and % surviving 30 days for financial years 2002/03-2011/12</td>
</tr>
<tr>
<td>MS1</td>
<td>Cerebrovascular Disease mortality - by cause (Cerebrovascular Disease, Stroke, Subarachnoid Haemorrhage), health board, age group and sex for calendar years of death registration 2002-2011; numbers, crude rates and age-sex standardised rates (direct to Europe)</td>
</tr>
<tr>
<td>MS2</td>
<td>Cerebrovascular Disease Premature Mortality (ages under 75) - European age standardised rate of mortality by year from 1995.</td>
</tr>
<tr>
<td>MS4</td>
<td>Cerebrovascular Disease mortality - by cause (Cerebrovascular Disease, Stroke, Subarachnoid Haemorrhage), year of death registration, council area, age group and sex for calendar years 2002-2011; numbers, crude rates and age-sex standardised rates (direct to Europe)</td>
</tr>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DS1</td>
<td>Cerebrovascular Disease and Deprivation; mortality crude rates and standardised mortality ratios (SMR) by age group and SIMD decile; 2007-2011.</td>
</tr>
<tr>
<td>G1</td>
<td>Cardiovascular prescribing (costs and number of prescriptions) for years 2002/03 - 2011/12.</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>
</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>
</tr>
</tbody>
</table>
Contact
Andrew Deas
Principal Information Analyst
andrew.deas@nhs.net
0131 275 7030

Steven Hecht
Information Analyst
stevenhecht@nhs.net
0141 282 2114

Charles Guthrie
Information Analyst
charles.guthrie@nhs.net
0131 275 6340

Further Information
Further information on stroke can be found on the Stroke area of the ISD website.

Corresponding information on heart disease can be found on the Heart Disease 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

Stroke

Cerebrovascular Disease, which includes cerebrovascular accident (stroke) and transient ischaemic attack (TIA), was responsible for the deaths of 4,600 people in Scotland in 2011. A stroke or TIA happens when narrowing of the arteries that supply the brain interrupts the blood supply to part of the brain and brain cells are starved of oxygen. Stroke is more common in older people.

Risk factors associated with CHD & stroke

The main preventable risk factors for stroke 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 stroke operates within the framework of policy devised by the Scottish Government. A chronology of policy documents that steer service provision for 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 Scottish Government, in their 2009 action plan, reiterated their target of reducing premature mortality from CVD by 50% between 1995 and 2010. Table MS2 shows the trend in CVD mortality among under 75s and indicates that the mortality rate fell from 37.5
per 100,000 in 1995 to 15.3 per 100,000 in 2010, achieving a 59% reduction and exceeding the 50% 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.

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)).

Independent & voluntary sector

Although there are a number of independent & voluntary sector organisations involved in the provision of information and services to CHD & stroke 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 cerebrovascular 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. In particular, the ICD-10 codes used to define cerebrovascular disease may vary between sources. Scotland includes code G45 (Transient Ischaemic Attack and related syndromes) while other areas may not include this code.

England: NHS Hospital Episode Statistics (HES)  
Wales: Health and care statistics  
Northern Ireland: Hospital Statistics & Research

Mortality from specific causes, including cerebrovascular 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 mortality in Scotland with countries in the rest of Europe. These include standardised death rates and hospital discharges for cerebrovascular disease.
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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Publication title</strong></td>
<td>Stroke Statistics</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Annual update of stroke statistics. Update including hospital activity, incidence, operations, 30 days survival, mortality, deprivation and prescribing.</td>
</tr>
<tr>
<td><strong>Theme</strong></td>
<td>Health and Social Care</td>
</tr>
<tr>
<td><strong>Topic</strong></td>
<td>Conditions and Diseases</td>
</tr>
<tr>
<td><strong>Format</strong></td>
<td>Excel workbooks</td>
</tr>
<tr>
<td><strong>Data source(s)</strong></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><strong>Date that data are acquired</strong></td>
<td>September 2012</td>
</tr>
<tr>
<td><strong>Release date</strong></td>
<td>18th December 2012</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>Annual</td>
</tr>
<tr>
<td><strong>Timeframe of data and timeliness</strong></td>
<td>10 years annual data up to 31-Mar-2012 (hospital activity, operations, prescribing, incidence, survival), 31-Dec-2011 (mortality).</td>
</tr>
<tr>
<td><strong>Continuity of data</strong></td>
<td>Mortality data: Reports data since 1995. Mortality coding moved from ICD-9 to ICD-10 in 2000. ICD codes have been back-mapped to 1995 as accurately as possible for continuity of reporting. There was a change to the coding of causes of death by National Records of Scotland between 2010 and 2011. The overall scale of change was small. For full details, please consult the NRS website: <a href="http://www.gro-scotland.gov.uk/files2/stats/vital-events/changes-to-coding-of-causes-of-death-between-2010-2011.pdf">http://www.gro-scotland.gov.uk/files2/stats/vital-events/changes-to-coding-of-causes-of-death-between-2010-2011.pdf</a>. 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 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 which is updated and issued quarterly.</td>
</tr>
<tr>
<td><strong>Revisions statement</strong></td>
<td>No revisions have occurred and there are no revisions planned.</td>
</tr>
<tr>
<td><strong>Revisions relevant to this publication</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Concepts and definitions</strong></td>
<td>See Glossary and A1 (Appendix 1) contained within this report.</td>
</tr>
<tr>
<td><strong>Relevance and key uses of the statistics</strong></td>
<td>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</td>
</tr>
</tbody>
</table>
| **Information Services Division 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 Chest, Heart and Stroke Scotland (CHSS), including research and media activity;**  
| **To allow members of the public to readily access information on cerebrovascular 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 cerebrovascular disease;**  
| **To assist private companies interested in cerebrovascular 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 team – see [http://www.isdscotland.org/Products-and-Services/Data-Quality/Previous-Projects/](http://www.isdscotland.org/Products-and-Services/Data-Quality/Previous-Projects/) |

### 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 cerebrovascular 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. In particular, the ICD-10 codes used to define cerebrovascular disease may vary between sources. Scotland includes code G45 (Transient Ischaemic Attack and related syndromes) while other areas may not include this code.

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. The ICD-10 codes used to define cerebrovascular disease may vary between sources. Scotland includes code G45 (Transient Ischaemic Attack and related syndromes) while other areas may not include this code.

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,
| 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](mailto: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.