Scottish Heart Disease Statistics

Year Ending 31 March 2015

Publication date – 26 January 2016
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Introduction

Although coronary heart disease (CHD) is a preventable disease, there were 6,872 deaths in Scotland in 2014 where CHD was the underlying cause. 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.

Scotland has a high prevalence of the risk factors associated with heart disease such as smoking, poor diet and physical inactivity. Treating and preventing heart disease is a national clinical priority for Scotland.¹

It is estimated that around 7.8% of men and 4.7% of women are living with CHD (Scottish Health Survey 2014).

This ‘Heart Disease Statistics Update’ is produced annually to provide information on a range of different heart conditions in Scotland including:

- All heart disease
- Acute myocardial infarction (a medical term for a heart attack)
- Angina
- Heart failure
- Coronary heart disease (also referred to as ischaemic heart disease, a collective term that includes angina, heart attack and heart failure)

and the different types of procedures used to diagnose and treat heart disease, including:

- Angiography: a procedure to examine the coronary arteries
- Angioplasty: full name percutaneous transluminal coronary angioplasty, a procedure to widen narrowed coronary arteries
- Coronary artery bypass graft: a procedure to replace narrowed coronary arteries with grafts.

This update contains information on hospital activity, incidence, operations, 30 day survival following first emergency admission, GP prescribing and ambulance service activity up to the period 1 April 2014 - 31 March 2015, and mortality up to the period 1st January - 31st December 2014. The update also includes Quality Outcomes Framework (QOF) data from general practices.

Information is presented at NHS Board level with some tables (activity and mortality) also available at Local Council Area level.

¹ Better Heart Disease and Stroke Care Action Plan, June 2009; Heart Disease Improvement Plan, August 2014
Key points

- Coronary heart disease, including heart attacks, is a leading cause of illness and death in Scotland.

- The incidence rate for coronary heart disease decreased over the past decade by nearly 30% (adjusted for age and sex). Incidence rates for coronary heart disease remain consistently higher in males than females.

- There has been a steady downward trend in deaths from coronary heart disease in Scotland, UK and Europe over the last ten years. In Scotland, the mortality fell by over 40% between 2005 and 2014.

- The reduction in death rates for coronary heart disease was seen in both the most and least deprived communities. The percentage reduction in deaths in the most deprived category (36.1%) over the last ten years was smaller than that in the least deprived category (46.5%).

- For an individual admitted to hospital as an emergency with their first heart attack, their chances of surviving at least 30 days has improved over the last ten years from 85.2% to 92.3%.

- The number of prescriptions for drugs to treat diseases of the circulation, including cerebrovascular and coronary heart disease, increased by 10.5% in the last ten years, although the trend has levelled off over the last six years. Despite this increase, the cost of prescriptions dispensed for these drugs has halved over the last ten years to £109.5 million in 2014/15.
Results and Commentary

Hospital Activity

Discharges

This section of the report examines the number of discharges from hospital with a specific heart disease condition. Note that a patient can have more than one discharge from hospital within a given time period.

Figures on discharges provide an indication of hospital usage for the diagnosis and treatment of heart disease in either an inpatient or day case setting but excludes activity relating to outpatients. Age and sex standardised discharge rates are presented here. Further information is available in Appendix A2.

Coronary Heart Disease (CHD)

In the last decade, there was a decreasing trend in the number of discharges from hospital with CHD. Between 2005/06 and 2014/15, the age and sex standardised discharge rate fell by 16.7% from 1,167 to 972 per 100,000 population.

![Figure 1: Discharges from hospital with coronary heart disease; Age and sex standardised discharge rates per 100,000 population](image_url)

Notes: 1. Analysis includes ICD-10 codes I20-I25.
2. Rates are directly standardised to the 2013 European standard population.
3. Data are provisional for 2014/15 and are subject to change in future analyses.

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2 See Appendix A2 for details of completeness of hospital activity figures derived from SMR01 records.
The standardised discharge rate for females was less than half that for males in 2014/15 and there was a larger percentage decrease for women over the last decade (22.5% for women compared to 13.9% for men).

The percentage decrease in the rate was larger in the under-75 age group (18.7%) than in the over-75 group (12.7%).

Comparing mainland NHS Boards, in 2014/15 the standardised discharge rate was lowest in NHS Grampian (697 per 100,000 population) and highest in NHS Lanarkshire (1,367 per 100,000 population).

Tables AC1 and AC4 provide more detail at NHS Board and Council level.

**Heart Attacks**

The age and sex standardised rate for a diagnosis of heart attack (myocardial infarction) increased from 400 per 100,000 population in 2005/06 to 510 per 100,000 population in 2014/15, an increase of 27.7%.

There was a decrease in the number of discharges from hospital with a diagnosis of heart attack up to 2007/08. There was then a large increase in the number of discharges with a diagnosis of heart attack between 2007/08 and 2010/11. Since 2010/11, the number of discharges remained relatively stable (Table AC1 and Figure 2).

![Figure 2: Discharges from hospital with a diagnosis of heart attack; Age and sex standardised discharge rates per 100,000 population](image)

**Notes:**
1. Analysis includes ICD-10 codes I21-I22.
2. Rates are directly standardised to the 2013 European standard population.
3. Data are provisional for 2014/15 and are subject to change in future analyses.

The increase in the number of discharges from hospital with a diagnosis of heart attack since 2007/08 was likely to be due to a change in the way that heart attacks are diagnosed.
The more sensitive troponin blood test is now routinely used to diagnose heart attacks. This means that some cases that might previously have been diagnosed as angina or another similar condition may now be classified as a heart attack. It is not possible to calculate the number of additional cases diagnosed because of the use of the troponin test. More information on this test is provided in the background information in Appendix A2.

**Angina**

Angina is chest pain on exertion as a result of CHD. In the period 2007/08 to 2011/12, there was a general downward trend in the standardised discharge rate for angina. Since 2011/12 the rate has remained fairly stable. The age and sex standardised discharge rate was 298 per 100,000 population in 2005/06 compared to 144 in 2014/15, a decrease of 51.7% (Figure 3).

**Figure 3: Discharges from hospital with a diagnosis of angina**¹; **Age and sex standardised discharge rates per 100,000 population**²

Notes: 1. Analysis includes ICD-10 codes I20 and I24.9.
2. Rates are directly standardised to the 2013 European standard population.
3. Data are provisional for 2014/15 and are subject to change in future analyses.
Data Source: ISD SMR01 - discharges; National Records Scotland – population estimates.

The percentage decrease in the standardised rate was larger in the under 75 age group (55.8%) compared to the over 75 age group (43.9%) - Table AC1 and Table AC4.
Heart Failure

Heart failure occurs when the heart cannot provide sufficient pump action to meet demand. Although the number of discharges with diagnosis of heart failure increased by 24.0% over the last ten years, the age and sex standardised discharge rate increased by only 5.7%, from 272 per 100,000 population in 2005/06 to 287 in 2014/15. (Figure 4 and Table AC1).

Figure 4: Discharges from hospital with a diagnosis of heart failure; Age and sex standardised discharge rates per 100,000 population

Notes: 1. Analysis includes ICD-10 codes I50.
2. Rates are directly standardised to the 2013 European standard population.

Data Source: ISD SMR01 - discharges; National Records Scotland – population estimates.

Chest Pain

Chest pain can be symptomatic of other heart conditions. In the last ten years, the age and sex standardised discharge rate for chest pain rose from 700 per 100,000 population in 2005/06 to 749 in 2014/15, an increase of 6.9%. However the rate remained fairly stable between 2007/08 and 2011/12 (Figure 5 and Table AC1).

The increase in discharge rate over the last decade was larger in women (10.8%) than in men (3.7%). It was also larger in the over-75 age group (19.1%) than in the under-75 age group (3.6%).
Figure 5: Discharges from hospital with a diagnosis of chest pain\(^1\); Age and sex standardised discharge rates per 100,000 population\(^2\)

Notes:  
1. Analysis includes ICD-10 codes R07.  
2. Rates are directly standardised to the 2013 European standard population.  
P data are provisional for 2013/14 and are subject to change in future analyses.  
Data Source: ISD SMR01 - discharges; National Records Scotland – population estimates.

Details of hospital activity for all heart disease, angina, chest pain, CHD, heart attacks and heart failure by age, gender, type of admission and NHS board area are given in Table AC1. Corresponding information by council area can be found in Table AC4.
Incidence

Incidence is the number of new cases of a specific condition in a population during a defined time-period. It is presented here as the number of people with a first hospital admission for CHD (or death from CHD without a prior admission to hospital). Information has been provided for CHD and heart attacks as it is likely that people with these conditions would be admitted to hospital. Further information is available in the glossary.

Coronary Heart Disease (CHD)

The number of new cases of CHD decreased over the past decade. The age and sex standardised incidence rate decreased by 29.7% from 533 per 100,000 population in 2005/06 to 375 in 2014/15 (Figure 6).

![Figure 6: Coronary Heart Disease](image)

**Figure 6: Coronary Heart Disease**

Age and sex standardised incidence rates per 100,000 population

Notes: 1. Analysis includes ICD-10 codes I20-I25
2. Rates are directly standardised to the 2013 European standard population.
Data Source: ISD SMR01 - discharges; National Records Scotland – Population

The incidence of CHD increases sharply with age. The age and sex standardised incidence rate for the under 75 age group in 2014/15 was 236 per 100,000 population but for the over-75 age group, it was 1,781 per 100,000 population (see Table IC1).

Across all age groups presented in this publication, males were more likely than females to have a new diagnosis of CHD. The standardised incidence rate has fallen more steeply for females (34.7%) over the last ten years than for males (26.9%) (Table IC1).

Comparing mainland NHS Boards, in 2014/15 the standardised incidence rate was lowest in NHS Fife (330 per 100,000 population) and highest in NHS Greater Glasgow & Clyde (417 per 100,000 population) (Table IC1).
Heart Attacks

The age and sex standardised incidence rate of heart attack decreased by 13.8% from 281 per 100,000 population in 2005/06 to 242 in 2007/08. The incidence rate increased between 2007/08 and 2010/11. As previously noted, this was likely to be due to the introduction of more sensitive tests for diagnosis (see Appendix A2 for more information). The incidence rate decreased to 225 per 100,000 population in 2014/15, a decrease of 15.2% since 2010/11 (see Table IC2 and figure 7).

Figure 7: Heart attack1
Age and sex standardised incidence rates per 100,000 population2

[Graph showing heart attack incidence rates by gender and year]

Notes: 1. Analysis includes ICD-10 codes I21-I22
2. Rates are directly standardised to the 2013 European standard population.
   Data are provisional for 2014/15 and are subject to change in future analyses.

Details of incidence of CHD and heart attacks for Scotland by age and gender are given in Table IC1 and Table IC2.
Operations

In CHD, the blood supply to the heart is reduced or blocked. Two types of operation are used to improve the flow of blood to the heart. These are Coronary Artery Bypass Grafts (CABG) and angioplasties (Percutaneous Transluminal Coronary Angioplasty - PTCA).

A CABG is 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. This involves a general anaesthetic and major open surgery.

An angioplasty involves passing a thin, hollow tube into the coronary arteries from an artery in the groin or arm. A device on the tube is then used to unblock the artery, and stretch the artery walls so that blood and oxygen can flow to the heart muscle. A small tube (or stent) may be left inside the vessel to ensure that it stays open. An angioplasty has the advantage that it is generally regarded as a less major procedure than a CABG.

Details of hospital activity for CABG, angioplasty, angiography and valve surgery by age, gender, type of admission and NHS board are given in Table OC1.

Coronary Artery Bypass Grafts

Over the last decade there was a decrease in the number of CABG operations. The age and sex standardised hospital discharge rate decreased from 55 per 100,000 population in 2005/06 to 33 per 100,000 population in 2014/15, a reduction of 40.0% (Table OC1 and figure 8).

Figure 8: Coronary Artery Bypass Grafts
Age and sex standardised discharge rates per 100,000 population

Notes: 1. Analysis includes OPCS codes K40-K46 (main A position only)
2. Rates are directly standardised to the 2013 European standard population
Data Source: ISD SMR01 - discharges; National Records Scotland – Population
p = Provisional
**Angioplasties**

The general downward trend in the number of CABG operations reflects the increasing use of angioplasties in the treatment of CHD. The age and sex standardised hospital discharge rate for angioplasties increased from 130 per 100,000 population in 2005/06 to 155 in 2014/15, an increase of 19.8% (Table OC1 and figure 9).

![Figure 9: Angioplasty](image)

**Age and sex standardised discharge rates per 100,000 population**

Notes: 1. Analysis includes OPCS codes K49, K50, K75 (any A position)
2. Rates are directly standardised to the 2013 European standard population

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

CABG and angioplasty are collectively known as revascularisation procedures. The age and sex standardised hospital discharge rate for revascularisation procedures increased slightly over the last 10 years from 184 per 100,000 population in 2005/06 to 188 in 2014/15, an increase of 2.0% (Table OC1 and figure 10). However, this slight increase should be set in the context of the marked fall in CHD incidence shown in figure 6.
Coronary Angiography

Coronary angiography is carried out to diagnose coronary artery disease and also as part of its treatment, for example when angioplasty is carried out.

For diagnostic angiographies (angiography with no associated angioplasty), there was a general downward trend in the last decade. The age and sex standardised hospital discharge rate dropped from 293 per 100,000 population in 2005/06 to 212 in 2014/15, a reduction of 27.8% (Table OC1 and figure 11).

For diagnostic angiographies used to assist in treatment (angiographies done in association with angioplasty), the standardised hospital discharge rate increased from 87 per 100,000 population in 2005/06 to 132 in 2014/15, an increase of 51.2%. This reflects the increased use of angioplasties in the treatment of CHD (Table OC1 and figure 12).
Figure 11: Diagnostic angiography with no associated angioplasty¹
Age and sex standardised discharge rates per 100,000 population²

Notes: 1. Analysis includes OPCS codes K63, K65, U10.2, U10.5 (any A position)  
2. Rates are directly standardised to the 2013 European standard population  
Data Source: ISD SMR01 - discharges; National Records Scotland – Population  
p = Provisional

Figure 12: Diagnostic angiography in association with angioplasty¹
Age and sex standardised discharge rates per 100,000 population²

Notes: 1. Analysis includes OPCS codes K49, K50.1, K75, K63, K65, U10.2, U10.5 (any A position)  
2. Rates are directly standardised to the 2013 European standard population  
Data Source: ISD SMR01 - discharges; National Records Scotland – Population  
p = Provisional
Survival

Thirty day survival is widely used as a measure of the outcome of hospital admission and reflects the severity of disease as well as the quality of care.

Heart Attacks

The percentage of people who survived 30 days or more following their first emergency admission to hospital with a heart attack improved over the period 2005/06 to 2014/15 (Figure 13). The percentage who survived 30 days for both sexes combined increased from 85.2% in 2005/06 to 92.3% in 2014/15 (Table S1 and Figure 13). Over the same period, there was a narrowing of the gap in the survival between males and females from 7.2 to 4.4 percentage points.

For those aged 75 and over, 30 day survival increased from 74.0% in 2005/06 to 84.1% in 2014/15.

Figure 13: Heart attack\(^1\);
Percentage of patients surviving 30 days or more after first emergency admission\(^2\)

Notes: 1. Analysis includes ICD-10 codes I21-I22
2. y-axis (percentage surviving 30 days) starts at 70% to enable clear comparison between sexes.
Data Source: ISD SMR01 - discharges; National Records Scotland – Population
**Heart Failure**

For heart failure, there was a general increase in the number of people surviving 30 days following a first emergency admission to hospital. In the period 2005/06 to 2014/15, the percentage surviving 30 days increased from 83.6% to 85.8% (Table S3 and figure 14). For those aged 75 and over, the percentage surviving 30 days increased from 80.4% to 82.9% over the same period.

**Figure 14: Heart failure**

**Percentage of patients surviving 30 days or more after first emergency admission**

![Graph showing percentage of patients surviving 30 days or more after first emergency admission]

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**Notes:**
1. Analysis includes ICD-10 codes I50
2. y-axis (percentage surviving 30 days) starts at 78% to enable clearer comparison between sexes.
Data Source: ISD SMR01 - discharges; National Records Scotland – Population
Mortality

All Heart Disease

This section provides information for all heart diseases combined. As well as CHD, this includes disease of the heart valves and high blood pressure as well as other less common conditions like infections of the heart.

As in the rest of UK, there was a continuing downward trend in mortality from heart disease (including CHD). In Scotland, the age and sex standardised mortality rate for all heart disease fell from 328 per 100,000 population in 2005 to 212 per 100,000 population in 2014. This was a reduction of 35.6% in the last ten years and a reduction of 4.6% in the last year (Table MC1 and Figure 15).

Figure 15: All heart disease¹: all ages by sex 2005-2014
Age and sex standardised mortality rates per 100,000 population²

Notes: 1. Analysis includes ICD-10 codes I00-I52
2. Rates are directly standardised to the 2013 European standard population
Data Source: National Records Scotland - Deaths and Population

The reduction in mortality for all types of heart disease was slightly larger for people under the age of 75 (38.8%) than for people aged 75 and over (34.0%) (Table MC1).

³ The figures included in this section refer to calendar years.
Coronary Heart Disease (CHD)

Over the last 20 years, CHD mortality rates in Scotland have been higher than those in the United Kingdom as a whole and much higher than those for the European Union. However the absolute gap in rates has narrowed considerably (see figure 16 below). 4

Figure 16: Coronary heart disease\(^1\) mortality in Scotland, United Kingdom and European Union
1976 European age and sex standardised mortality rates per 100,000 population\(^2\)

![Graph showing CHD mortality rates in Scotland, UK, and EU from 1980 to 2010.](image)

Notes: 1. Analysis includes ICD-10 codes I20-I25
2. Rates are directly standardised to the 1976 European standard population
Data Source: WHO/Europe and ScotPHO, Scotland and European HfA Database 2012

The British Heart Foundation also publish comparisons of CHD mortality rates within the UK (figure 17). The mortality rates in Scotland have been higher than England, Wales and Northern Ireland over the last 30 years. However, as in figure 16, the absolute gap in mortality rates has narrowed over this time.

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Figure 17: Coronary heart disease mortality in United Kingdom, England, Wales, Scotland and Northern Ireland
Age-standardised mortality rates per 100,000 population¹

Notes:  1. Rates are directly standardised to the 2013 European standard population
Data Source: British Heart Foundation Cardiovascular Disease Statistics 2015, accessed 11/01/2016
The age and sex standardised mortality rate for CHD fell from 262 per 100,000 population in 2005 to 149 in 2014, a reduction of 43.3% over the last 10 years and 6.7% in the last year (Table MC1 and figure 18).

**Figure 18: Coronary heart disease\(^1\): all ages by sex 2005-2014**

*Age and sex standardised mortality rates per 100,000 population\(^2\)*

Notes: 1. Analysis includes ICD-10 codes I20-I25
2. Rates are directly standardised to the 2013 European standard population

Data Source: National Records Scotland - Deaths and Population

Between 2005 and 2014 the reduction in age and sex standardised mortality rates for CHD was slightly higher for females (45.9%) than males (41.8%). The difference in rates between men and women narrowed from 156 deaths per 100,000 population in 2005 to 98 deaths per 100,000 population in 2014.

Of the mainland NHS Health Boards, NHS Ayrshire & Arran had the highest age and sex standardised mortality rate in 2014 (162 per 100,000 population) while NHS Highland had the lowest rate (129 per 100,000 population). NHS Forth Valley had the highest percentage reduction in the mortality rate among the mainland Health Boards between 2005 and 2014 (47.3%), while NHS Dumfries & Galloway had the lowest percentage reduction in the mortality rate between 2005 and 2014 (26.9%).
Heart Attacks

The age and sex standardised mortality rate for heart attacks decreased substantially over the last ten years, falling by 50.9% from 154 per 100,000 population in 2005 to 76 in 2014 (Table MC1 and figure 19).

Figure 19: Heart attacks¹: all ages by sex 2005-2014
Age and sex standardised mortality rates per 100,000 population²

Notes: 1. Analysis includes ICD-10 codes I21-I22
2. Rates are directly standardised to the 2013 European standard population
Data Source: National Records Scotland - Deaths and Population

Details of mortality from all heart disease, CHD, heart attacks and heart failure by age, gender and health board area are given in Table MC1. Corresponding information by council area can be found in Table MC4.
Deprivation

Heart disease varies greatly between areas of greater or less material deprivation. In Scotland the Scottish Index of Multiple Deprivation (SIMD) is used to measure area deprivation. It is a measurement of multiple deprivation which combines information on income, employment, education, housing, health, crime and geographical access. More information is provided in the glossary and on the Scottish Government website. For this publication, areas in Scotland were divided into five equal groups (quintiles) with decreasing levels of deprivation.

Age and sex standardised mortality rates for CHD are presented here, along with standardised discharge rates for revascularisation.

Coronary Heart Disease Mortality by Deprivation Quintiles

There was a reduction in mortality in all the deprivation quintiles over the decade 2005-2014. The reduction in the age and sex standardised CHD mortality rate among the most deprived quintile (quintile 1) was 36.1% compared with 46.5% in the least deprived quintile (quintile 5) - see Table DC7 and Figure 20. This implies a slight widening of relative inequalities.

Figure 20: Coronary Heart Disease\(^1\) Deaths by Deprivation (SIMD) Quintile\(^2\)
Age and sex standardised mortality rates per 100,000 population\(^3\)

![Graph showing mortality rates by quintile and year](image)

Notes:  
1. Analysis includes ICD-10 codes I20-I25  
2. Uses 2012 version of SIMD  
3. Rates are directly standardised to the 2013 European standard population.  
Data Source: National Records Scotland - Deaths and Population

However, the absolute difference in the age and sex standardised mortality rate between the most deprived (quintile 1) and least deprived (quintile 5) quintiles decreased over the last decade from 136 to 107 per 100,000 population.
**Coronary Heart Disease Mortality by Deprivation Deciles**

For this section, areas in Scotland were divided into 10 equal groups (deciles) where decile 1 is most deprived and decile 10 is least deprived. The information is presented using age standardised mortality ratios (SMRs). SMRs are the ratio of actual deaths to expected deaths (calculated using the average Scottish mortality rate). It adjusts for the age and sex of the population being examined. If the actual mortality rate was the same as the expected mortality rate, the SMR would have a value of 100.

Figure 21 shows that the association between mortality and deprivation was stronger in the under 65 age category than in the over 65 category. In the under 65s there was a clear pattern between SMR and deprivation decile. The SMR in the under-65 age group was more than twice that of the Scottish average in the most deprived 10% of the population, whereas the SMR in the under-65 age group in the least deprived 10% of the population was more than 60% below the Scottish average (see Table DC1 and Figure 21).

**Figure 21: Coronary Heart Disease Standardised Mortality Ratios**
by broad age grouping and SIMD decile; 2010-2014

Notes: 1. Scotland is used as the ‘standard population’.

Data Source: National Records Scotland (NRS) deaths data 2010-2014
Revascularisation by Deprivation Quintiles

Over the last ten years, there was an increase in the age and sex standardised discharge rate for revascularisation in all deprivation quintiles, with the exception of the least deprived quintile, in which the rate has decreased by 5%. The rate in the most deprived quintile increased by 5% over the same period.

The absolute difference in the rate between the most deprived and least deprived quintiles increased from 41 to 61 per 100,000 population (Table DC3 and figure 22).

Figure 22: Revascularisation\(^1\) by Deprivation (SIMD) Quintile\(^2\)
Age and sex standardised discharge rates per 100,000 population\(^3\)

![Graph showing revascularisation rates by deprivation quintile over years.]

Notes:  
1. Analysis includes OPCS codes K40-K46 (main A position only); K49, K50, K75 (any A position)  
2. Uses 2012 version of SIMD  
3. Rates are directly standardised to the 2013 European standard population  
Data Source: ISD SMR01 - discharges; National Records Scotland – Population  
p = Provisional

Coronary Heart Disease Hospital Activity by Deprivation Quintiles

There was a reduction in the age and sex standardised discharge rate for CHD for all deprivation quintiles over the last ten years. The rate in the most deprived quintile decreased by 7.7% compared to 21.5% in the least deprived quintile.

The absolute difference in the rate between the most deprived and least deprived quintiles increased from 538 to 626 per 100,000 population (Table DC4 and figure 23).
Figure 23: Coronary Heart Disease Hospital Activity\textsuperscript{1} by Deprivation (SIMD) Quintile\textsuperscript{2} Age and sex standardised discharge rates per 100,000 population\textsuperscript{3}

Notes: 1. Analysis includes ICD10 codes I20-I25  
2. Uses 2012 version of SIMD  
3. Rates are directly standardised to the 2013 European standard population  

Data Source: ISD SMR01 - discharges; National Records Scotland – Population  
p = Provisional

The Deprivation topic area of the Heart Disease web pages provides links to detailed data tables relating to deprivation.
Cardiovascular Prescribing

Cardiovascular disease covers a range of conditions including heart disease, strokes and diseases of the arteries and veins. This section describes statistics on drugs prescribed for the treatment of cardiovascular disease.

Of the prescriptions dispensed in the community, GPs write the vast majority. The remainder are written by nurses, dentists or are written in hospital to be dispensed in the community. Information on those NHS prescriptions is compiled by ISD’s Prescribing Team from data provided by Practitioner Services Division (PSD) of NHS National Services Scotland. PSD is responsible for the processing and pricing of all prescriptions dispensed in the community in Scotland. Note that these data exclude drugs dispensed within hospitals.

The overall cost of cardiovascular drugs reduced over the last ten years, whilst the number of prescriptions gradually increased up to 2009/10 before levelling off. The changing price of statin drugs (used to prevent heart disease) partly explains this. Simvastatin, pravastatin and atorvastatin, three of the most widely used drugs, have come out of patent during this time, allowing equivalent lower cost non-branded (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 the total volume prescribed. The increase in cost in 2014/15 is mainly due to the increased use of direct oral anti-coagulant drugs (DOACs).

In addition, lower prices have now been set for the non-branded 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.

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 2005/06 - 2014/15, the numbers of prescriptions dispensed for cardiovascular related drugs rose from 22,401,103 items to 24,760,695 items prescribed, an increase of 10.5%. However since 2009/10 the numbers have remained fairly constant (Table G1 and figure 24).
Gross ingredient cost indicates the total cost of a prescription drug. The overall cost of prescriptions dispensed for cardiovascular-related drugs increased by 6.4% between 2013/14 and 2014/15, the first increase in cost over the last ten years. As mentioned above, this increase in cost is mainly due to the increased use of direct oral anti-coagulant drugs (DOACs). Over the last ten years, the gross ingredient cost has halved (reduction of 50.3%).

Cardiovascular related drugs form approximately 10.8% of the total gross ingredient cost in Scotland (see Prescription Cost Analysis 2014/15).

The GP Prescribing topic area of the Heart Disease web pages provides links to detailed tables relating to cardiovascular prescribing.
Primary Care Activity

At present, there is one main source of data relating to primary care activity for heart disease. This is an estimate of the prevalence of heart-related conditions taken from Quality & Outcomes Framework (QOF) data recorded by practices in the form of disease registers.

The QOF measures a general practice’s achievement against a set of evidence-based indicators designed to promote good practice. Payments are made to each general practice on the basis of their level of achievement against those indicators. One of the features of QOF is the collection of prevalence data in the form of practice “registers”. A QOF register may count patients with one specific disease or condition, or it may include multiple conditions. There may also be other criteria for inclusion on a QOF register, such as age or date of diagnosis. More details are available on the ISD website.

Prevalence data is recorded as part of QOF for CHD, heart failure and atrial fibrillation. The prevalence estimates are available for Scotland, NHS Board, CHP and practice. Table 1 shows the number of patients on each register for Scotland and the raw prevalence rate per 100 patients in 2014/15. There were 231,820 patients on the CHD QOF register in 2014/15 (4.1% of the patients registered with a practice in Scotland). There were smaller numbers of patients on the atrial fibrillation and heart failure QOF registers (92,042 and 45,975 patients respectively). A more detailed table can be found on the ISD website.

Table 1. Estimated Scottish prevalence of heart-related conditions reported from QOF registers\(^1\); 2014/15.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Patients on QOF register</th>
<th>Raw prevalence rate (per 100 patients)(^2,3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHD</td>
<td>231,820</td>
<td>4.1</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>92,042</td>
<td>1.6</td>
</tr>
<tr>
<td>Heart failure</td>
<td>45,975</td>
<td>0.8</td>
</tr>
</tbody>
</table>

\(^1\) Although the QOF is part of the new General Medical Services (GMS), practices with other contract types (17C or 2C) may also choose to use the QOF. These figures include data from practices of any contract type, and are therefore based on larger numbers of practices than tables based on GMS practices alone.

\(^2\) Prevalence = number of patients on the specified QOF register, divided by list size, multiplied by 100.

\(^3\) List size is the total number of patients registered to the practice. This information is as at 1st January in the given financial year.

A further table in the QOF webpages of the ISD website provides trends in the raw prevalence rates. The prevalence of CHD has fallen slightly over the last ten years from 4.5% in 2005/06 to 4.1% in 2014/15.

Prevalence information on atrial fibrillation and heart failure is available for 2006/07 onwards. The prevalence of atrial fibrillation has risen slightly from 1.3% in 2006/07 to 1.6% in 2014/15. The prevalence of heart failure has remained relatively unchanged over this period. In 2006/07, it was 0.9% compared to 0.8% in 2014/15.
In future, it is anticipated that further detailed information on heart disease will be available from the Scottish Primary Care Information Resource (SPIRE). This will supersede the Practice Team Information programme which collected data on CHD and angina from a sample of practices on number of consultations with GP or practice nurse up to 2012/13. SPIRE is presently in development and will build on the data collected for PTI by including richer data from a greater number of practices and will help to inform public health surveillance, research and data linkage.
Ambulance Service Activity

Information on Scottish Ambulance Service (SAS) activity is collected for (a) incidents where a SAS resource attended and (b) conveyances where a patient was conveyed to hospital. More details are included in the glossary and in the definitions for tables SC1 and SC2. The SAS activity data gives an indication of demand on unscheduled care services (also including NHS24 and A&E) for people with suspected heart disease problems.

SAS records two main groupings of conditions which could indicate heart disease – heart problems and chest pain. The data presented in tables SC1 and SC2 are for the last six years and by health board of the location of the incident. As the numbers for each age group were too small to be published, the information is presented for all ages.

SAS Diagnosis - Heart Problems

The full list of conditions included in the heart problems diagnosis group is given in Table SC1. They include cardiac history, abnormal breathing, chest pains, severe respiratory distress, firing of AICD and abnormal heart rate. Note that the final diagnosis codes used here are not compatible with ICD10 diagnosis codes used elsewhere in this publication.

In the last six years, the number of incidents increased by 78.6% from 3,273 to 5,845. The rate of increase in the number of conveyances was smaller – 66.5% from 3,024 to 5,034. However the rate of increase slowed down in the last year for both incidents (up 2.3%) and conveyances (up 0.8%) (Table SC1 and Figure 25).

Figure 25: Scottish Ambulance Service incidents and conveyances with heart problem diagnosis

Data Source: SAS Data Warehouse
**SAS Diagnosis - Chest Pains**

The full list of conditions included in the chest pain diagnosis group is given in [Table SC2](#). They include cardiac history, abnormal breathing, changing colour, nausea/vomiting, difficulty speaking between breaths and history of heart attack/angina. Note that the final diagnosis codes used here are not compatible with ICD10 diagnosis codes used elsewhere in this publication.

In the last six years, the numbers of incidents and conveyances increased from 2009/10 to 2012/13 but then decreased slightly in the last 2 years. The overall rate of increase in the number of incidents was 28.7% from 34,304 in 2009/10 to 44,151 in 2014/15. The rate of increase in the number of conveyances for the same period was slightly less – 23.7% from 31,230 to 38,639. The rate of decrease in numbers in the last 3 years was 2.2% for incidents and 3.3% for conveyances. ([Table SC2](#) and Figure 26).

![Figure 26: Scottish Ambulance Service incidents and conveyances with chest pain diagnosis](image)

Data Source: SAS Data Warehouse

The increase in numbers reflects the increased overall demand experienced by the Scottish Ambulance Service. However, it should be noted that better recording of the diagnosis over time may also be responsible for some of the increase.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACS</td>
<td>Acute Coronary Syndrome - an inclusive term referring to AMI (see below) and unstable angina.</td>
</tr>
<tr>
<td>Acute Hospital</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 and psychiatric services.</td>
</tr>
<tr>
<td>AICD</td>
<td>Automatic implantable cardioverter defibrillator, a device that monitors a person’s heart rate. It is generally implanted into heart failure patients to speed or slow down their heart rate.</td>
</tr>
<tr>
<td>AMI (also referred to as Heart Attack)</td>
<td>Acute myocardial infarction (heart attack): the result of sudden complete blockage of the blood supply to part of the heart.</td>
</tr>
<tr>
<td>Angina pectoris</td>
<td>Chest pain on exertion as a result of coronary heart disease.</td>
</tr>
<tr>
<td>Angiography</td>
<td>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.</td>
</tr>
<tr>
<td>Angioplasty</td>
<td>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. The full name of the procedure is percutaneous transluminal coronary angioplasty (PTCA).</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>A heart condition where the upper chambers of the heart (atria) contract randomly, causing an irregular and abnormally fast heart rate.</td>
</tr>
<tr>
<td>CABG</td>
<td>Coronary artery bypass graft. 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.</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Cardiovascular disease describes disease of the heart or blood</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>disease (CVD)</td>
<td>vessels, including strokes and other related conditions.</td>
</tr>
<tr>
<td>CHD (also referred to as Ischaemic Heart Disease)</td>
<td>Coronary heart disease. Disease of the coronary arteries that supply the heart. This includes acute myocardial infarction, angina and most cases of heart failure.</td>
</tr>
<tr>
<td>Conveyance</td>
<td>A SAS resource has recorded an at hospital time, indicating the patient was conveyed to hospital.</td>
</tr>
<tr>
<td>Datazone</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>Day case</td>
<td>This is when a patient makes a planned attendance to a specialty for clinical care, and requires the use of a bed or trolley in lieu of a bed.</td>
</tr>
<tr>
<td>Discharge</td>
<td>Discharges include transfers to other specialties/significant facilities and hospitals as well as routine discharges home or deaths in hospital. A patient could have more than one discharge in a year.</td>
</tr>
<tr>
<td>Emergency</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>ePRF</td>
<td>Electronic patient record form used by ambulance crews to record important patient information, including diagnostic data and treatment provided. This information can be accessed electronically by hospital staff.</td>
</tr>
<tr>
<td>European age-standardised rate</td>
<td>The rate that would have been found if the population in Scotland had the same age-composition as the hypothetical standard European population. The 2013 European Standard Population (ESP2013) has been used to calculate EASRs within this publication. The European Standard Population (ESP), which was first used in 1976, was revised in 2013. Reports published before 2015 used ESP1976 to calculate EASRs. Figures using ESP1976 and ESP2013 are not comparable.</td>
</tr>
<tr>
<td>Final diagnostic code (SAS)</td>
<td>Diagnosis codes recorded by SAS resource after treating the patient.</td>
</tr>
</tbody>
</table>
| Generic drugs | When the patent expires on a branded drug, the manufacturer loses exclusive rights to produce it. Generic drugs are non-branded versions produced by different manufacturers that produce equivalent clinical effects. Normally, the differences in formulation,
and the small variation in the amount of drugs absorbed, make no
difference clinically. Generic drugs are generally cheaper than their
branded equivalents.

| Gross Ingredient Cost (GIC) | Cost of drugs and appliances reimbursed before deduction of any
dispenser discount (note: this definition differs from other parts of
the UK). |
|-----------------------------|---------------------------------------------------------------|
| Heart attack                | The result of sudden complete blockage of the blood supply to part
                             of the heart. Also known as acute myocardial infarction (AMI). |
| Heart failure               | Failure of the heart as a pump, the commonest cause being
coronary heart disease. |
| Heart problems/AICD         | A final diagnostic code group used by SAS. This includes abnormal
                             breathing, cardiac history, changing colour, chest pain, clammy,
cocaine taken, difficulty speaking between breaths, firing of AICD,
low/high heart rate, just resuscitated or defibrillated, not alert, severe
respiratory distress. |
| Ischaemic Heart Disease (IHD) – also referred to as CHD | Disease that involves inadequate blood supply to the heart and in
practice is synonymous with coronary heart disease. |
| Incidence                   | 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 admission in
2004 would be counted. The 2005 admission would not be counted
because the previous admission occurred less than 10 years
previously. First hospital admission is a reasonable measure of
incidence for AMI and most forms of acute CHD since most cases
are treated in hospital. |
| Incident                    | An incident where a SAS resource attends and record an at scene
time. |
| Inpatient                   | This is when a patient occupies an available staffed bed in a
hospital and either remains overnight whatever the original intention |
or is expected to remain overnight but is discharged earlier.

**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)

**Mortality rate**

The number of deaths as a rate per 100,000 population per year.

**Outpatient**

A patient who attends (outpatient attendance) a consultant or other medical clinic or has an arranged meeting with a consultant or a senior member of their team out with a clinic session.

**Prevalence rate**

The proportion of people with a given condition over a period of time (e.g. a year).

**PTCA**

Percutaneous Transluminal Coronary Angioplasty. The full name for an 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.

**PTI**

Practice Team Information (PTI) collects information from a 6% sample of Scottish general practices (60 practices in 2012/13). The population in the sample is a reasonable reflection of the Scottish population with regard to age, gender and deprivation. The information collected is on face-to-face consultations between patients and a GP or practice nurse. 2012/13 was the last year PTI data was collected since it is being superseded by SPIRE (see below).

**QOF**

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
Information Services Division

according to the level of achievement.

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

Revascularisation
An inclusive term referring to CABG and angioplasty procedures.

SAS
The Scottish Ambulance Service.

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 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. See notes in tables as to which version of SIMD is used.

SMR01
An SMR01 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.

SPIRE
Scottish Primary Care Information Resource (SPIRE) is a national GP information service being developed. It is open to all consenting GP practices in Scotland and will create a dataset to provide a national analysis.

Standardisation
See European age standardised rates.

30 day survival
Percentage of people who survive 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>
</thead>
<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 2005/06-2014/15; numbers, crude rates, age and sex standardised rates (direct to Europe).</td>
<td>2005/06 - 2014/15</td>
<td>Excel [3,096kb]</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), council authority, admission type, age group and sex for financial years 2005/06-2014/15; numbers, crude rates, age and sex standardised rates (direct to Europe).</td>
<td>2005/06 - 2014/15</td>
<td>Excel [9,565kb]</td>
</tr>
<tr>
<td>IC1</td>
<td>Coronary heart disease (CHD) incidence by year, health board, age group and sex for financial years 2005/06 – 2014/15; numbers, crude rates and age and sex standardised rates (direct to Europe)</td>
<td>2005/06 - 2014/15</td>
<td>Excel [165kb]</td>
</tr>
<tr>
<td>IC2</td>
<td>Acute myocardial infarction incidence by year, health board, age group and sex for financial years 2005/06 – 2015/16; numbers, crude rates and age and sex standardised rates (direct to Europe)</td>
<td>2005/06 - 2014/15</td>
<td>Excel [168kb]</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 2005/06-2014/15; numbers, crude rates, age and sex standardised rates (direct to Europe). Information at Scotland and Health Board level</td>
<td>2005/06 - 2014/15</td>
<td>Excel [7,635kb]</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 2005/06-2014/15.</td>
<td>2005/06 - 2014/15</td>
<td>Excel [62kb]</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 2005/06-2014/15.</td>
<td>2005/06 - 2014/15</td>
<td>Excel [56kb]</td>
</tr>
<tr>
<td>MC1</td>
<td>Number of deaths, with crude and age and</td>
<td>2005-2014</td>
<td>Excel</td>
</tr>
<tr>
<td>Table Code</td>
<td>Description</td>
<td>Time Period</td>
<td>File Size</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-----------</td>
</tr>
<tr>
<td>MC4</td>
<td>Number of deaths, with crude and age and sex standardised mortality rates, by age, council area of residence and year of death registration, 2005-2014.</td>
<td>2005-2014</td>
<td>Excel [1,109kb]</td>
</tr>
<tr>
<td>DC1</td>
<td>Coronary heart disease – Number of deaths, crude rates and standardised mortality ratios by Scottish Index of Multiple Deprivation deciles (2010-2014 combined)</td>
<td>2010-2014 Combined</td>
<td>Excel [74kb]</td>
</tr>
<tr>
<td>DC3</td>
<td>Trends in revascularisation activity by SIMD quintile; 2005/06 to 2014/15</td>
<td>2005/06 - 2014/15</td>
<td>Excel [kb]</td>
</tr>
<tr>
<td>DC4</td>
<td>Trends in heart disease hospital activity by SIMD quintile; 2005/06 to 2014/15</td>
<td>2005/06 - 2014/15</td>
<td>Excel [kb]</td>
</tr>
<tr>
<td>G1</td>
<td>Cardiovascular prescribing (costs and number of prescriptions) for financial years ending 2005/06-2014/15.</td>
<td>2005/06-2014/15</td>
<td>Excel [78kb]</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 2014/15.</td>
<td>2014/15</td>
<td>Excel [146kb]</td>
</tr>
<tr>
<td>SC1</td>
<td>Heart Problems – number of SAS incidents and conveyances by health board and sex for financial years 2009/10 to 2014/15.</td>
<td>2009/10-2014/15</td>
<td>Excel [497kb]</td>
</tr>
</tbody>
</table>
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Further Information
The Information Services Division publishes a range of heart disease-related information. You can find all our information on heart disease area of the website.

Corresponding information on stroke can be found on the stroke area of the ISD website.

The Scottish Public Health Observatory also provides further information on heart disease on their website.

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Appendix

A1.1 – Impact of Health Board boundary changes

On 1\(^{st}\) April 2014, Scottish NHS Board boundaries were changed to align with those of local authorities. The purpose of this change was to help NHS Boards and local authorities to work closer together in the provision of care in the community. More information on the background to this change can be found on the Scottish Government website. The Boards most affected were NHS Greater Glasgow and Clyde and NHS Lanarkshire. Over 72,000 people were transferred from NHS Greater Glasgow and Clyde to NHS Lanarkshire. There were also over 16,000 people transferred from NHS Lanarkshire to NHS Greater Glasgow and Clyde. The new boundaries are used within this publication for the first time.

As expected, due to the changes in the populations of NHS Greater Glasgow and Clyde and NHS Lanarkshire, there are also some changes in the heart disease statistics. Tables A1.1 and A1.2 show how the number of hospital discharges for all heart disease and EASRs differ between the 2006 NHS Board boundaries (which were used in previous editions of this publication) and the new 2014 NHS Board boundaries.

Table A1.1. NHS Greater Glasgow & Clyde. Comparison of the number of hospital discharges for all heart disease and European Age-Sex Standardised Rates (EASRs) 2009-2013.

<table>
<thead>
<tr>
<th></th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of discharges</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006 configuration</td>
<td>21,054</td>
<td>22,649</td>
<td>22,186</td>
<td>22,548</td>
<td>27,046</td>
</tr>
<tr>
<td>2014 configuration</td>
<td>19,617</td>
<td>21,305</td>
<td>20,844</td>
<td>21,076</td>
<td>25,454</td>
</tr>
</tbody>
</table>

EASR per 100,000 population

<table>
<thead>
<tr>
<th></th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 configuration</td>
<td>2,107.7</td>
<td>2,247.5</td>
<td>2,172.7</td>
<td>2,185.7</td>
<td>2,604.8</td>
</tr>
<tr>
<td>2014 configuration</td>
<td>2,099.4</td>
<td>2,258.2</td>
<td>2,183.5</td>
<td>2,186.3</td>
<td>2,626.3</td>
</tr>
</tbody>
</table>

Source: National Records of Scotland

Table A1.2. NHS Lanarkshire. Comparison of the number of hospital discharges for all heart disease and European Age-Sex Standardised Rates (EASRs) 2009-2013.

<table>
<thead>
<tr>
<th></th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of discharges</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006 configuration</td>
<td>11,852</td>
<td>12,022</td>
<td>12,594</td>
<td>12,928</td>
<td>13,839</td>
</tr>
<tr>
<td>2014 configuration</td>
<td>13,269</td>
<td>13,329</td>
<td>13,923</td>
<td>14,623</td>
<td>15,481</td>
</tr>
</tbody>
</table>

EASR per 100,000 population

<table>
<thead>
<tr>
<th></th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 configuration</td>
<td>2,505.8</td>
<td>2,508.9</td>
<td>2,578.3</td>
<td>2,603.3</td>
<td>2,742.7</td>
</tr>
<tr>
<td>2014 configuration</td>
<td>2,472.2</td>
<td>2,457.0</td>
<td>2,510.7</td>
<td>2,594.0</td>
<td>2,699.2</td>
</tr>
</tbody>
</table>

Source: National Records of Scotland

For NHS Greater and Glasgow and Clyde (Table A1.1), the number of discharges for all heart disease is smaller for the 2014 NHS Board configuration in comparison to the 2006 NHS Board configuration. The EASRs are generally similar between the two configurations. For NHS Lanarkshire (Table A1.2), the number of discharges for all heart disease is larger for the 2014 NHS Board configuration and the EASRs are generally smaller.
A1.2 – Community Health Partnerships

Community Health Partnerships (CHPs) ceased to exist on 1 April 2015, following recommendations in the Public Bodies (Joint Working) (Scotland) Act 2014. CHPs have been replaced by Health and Social Care Partnerships (HSCPs), which share the same boundaries as local authorities. Information that was previously available by CHP in the accompanying data tables has now been replaced by local authority information, where available.
A2 – Background Information

Clarification of Terminology

Different terms can be used when talking about heart disease conditions and operations and sometimes these are interchangeable. For consistency the following terms are used throughout this report.

<table>
<thead>
<tr>
<th>Term used in report</th>
<th>Also known as</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angioplasty</td>
<td>Percutaneous transluminal coronary angioplasty (PTCA)</td>
<td>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.</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>Ischaemic heart disease</td>
<td>Disease of the coronary arteries that supply the heart. This includes acute myocardial infarction, angina and most cases of heart failure.</td>
</tr>
<tr>
<td>Heart attack</td>
<td>Acute myocardial infarction</td>
<td>The result of sudden complete blockage of the blood supply to part of the heart.</td>
</tr>
<tr>
<td>Heart failure</td>
<td>Cardiac failure</td>
<td>The failure of the heart to function properly as a pump.</td>
</tr>
</tbody>
</table>

Standardisation

Apparent differences in disease rates between areas or deprivation groups may be partially or entirely due to the fact that one population is different from the other in age structure. For example, areas with a larger proportion of younger people are unlikely to have as high levels of mortality as areas with larger proportions of older people. Therefore, if we don’t adjust for these differences, we may draw the wrong conclusion about the health of an area simply because of the age-structure of the population.

Information in this publication has been ‘standardised’ using the 2013 European standard population to calculate the European Age Standardised Rates (EASRs). EASRs make allowances for differences in the age and sex structure of the population between areas or time periods and allow fairer comparisons to be made.

Risk factors associated with CHD

The main preventable risk factors for CHD are smoking, high blood pressure, low levels of physical activity and a poor diet. There is also 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 published report being from 2013. The 2003 survey included a specific report on Cardiovascular Disease. The Scottish Health Survey is now operating as a rolling survey running continuously from 2008-2015.

The results of the Scottish Health survey can be found on the Scottish Government website.

**Policy Context**

NHS Scotland service provision for patients with CHD operates within the framework of Scottish Government policy. A chronology of policy documents that steer service provision for CHD and 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)**
- **Heart disease improvement plan (2014)**

**Data Collection**

**Hospital Activity data**

Hospital activity data are collected across NHS Scotland 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.

**Tests for Heart Attacks (AMI)**

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

Troponin is a protein that is produced by the body when heart muscle is damaged. During a heart attack, the levels of certain types of troponin increase in the bloodstream. Troponin levels in the blood can therefore be used to determine whether a heart attack has taken place. Prior to the introduction of troponin testing, less severe heart attacks may have been diagnosed as unstable angina.

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 in this publication are sourced from SMR01 records and the levels of completeness of the SMR01 data are deemed to be fit for publication (98% 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.

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 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 CHD.
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)).


For an extract of OPCS4 codes related to the heart see the file [OPCS4 Classification of Surgical Operations and Procedures (Heart)](http://systems.hscic.gov.uk/data/clinicalcoding/codingstandards/opcs4) [91kb] for details of the heart operations and procedures in its Chapter K. This document should be read in conjunction with the Information Standards Board document [Summary of Changes from OPCS-4.6 to OPCS-4.7](http://systems.hscic.gov.uk/data/clinicalcoding/codingstandards/opcs4) for details of the latest updates to the coding classification.

**Supporting information from ISD Scotland**

Further information relating to heart disease and stroke is published by ISD Scotland:

1. ScotPHO – the [Health and Well Being Profiles](http://www.isdscotland.org/healthprofiles) produce charts at NHS Board and Local Authority on premature mortality from CHD and CVD and patients hospitalised with CHD and CVD.

2. The [Hospital Standardised Mortality Ratios](http://www.isdscotland.org/statistical-tools/hospital-standardised-mortality-ratios) updated quarterly produce information on deaths in hospitals participating in the Scottish Patient Safety Programme. Deaths will include those dying from heart disease and stroke.

3. Detailed tables on [number/incidence of hospital episodes by diagnosis](http://www.isdscotland.org/significant-findings/cardiovascular-disease/hospital-care), including diseases of the circulatory system and [number of procedures in main hospitals](http://www.isdscotland.org/significant-findings/cardiovascular-disease/hospital-care), including those associated with heart disease. This is available as part of the Hospital Care topic on the ISD website.

**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/](http://www.bhf.org.uk/) and [http://www.chss.org.uk/](http://www.chss.org.uk/)

**Comparisons**

**UK comparisons**

Hospital activity data relating to CHD 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)](http://www.hes.nhs.uk/)

Wales: [Health and care statistics](http://www.wales.nhs.uk/healthcare/statistics/comparisons/heart-disease/to-compare)
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 coronary 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.
### A3 – Publication Metadata (including revisions details)

<table>
<thead>
<tr>
<th>Metadata Indicator</th>
<th>Description</th>
</tr>
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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, prescribing, primary care and ambulance service activity.</td>
</tr>
<tr>
<td>Theme</td>
<td>Health and Social Care</td>
</tr>
<tr>
<td>Topic</td>
<td>Conditions and Diseases</td>
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<tr>
<td>Format</td>
<td>Excel workbooks</td>
</tr>
<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 (Scottish Government), SAS Data Warehouse, Quality Outcomes Framework (QOF).</td>
</tr>
<tr>
<td>Date that data are acquired</td>
<td>September 2015</td>
</tr>
<tr>
<td>Release date</td>
<td>26 January 2016</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-2015 (hospital activity, operations, prescribing, incidence, survival), 31-Dec-2014 (mortality). 6 years annual data up to 31-Mar-2015 (ambulance service).</td>
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</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 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.  
Hospital admissions: The introduction of more sensitive tests for the diagnosis of acute coronary ischaemia - e.g. |
Information Services Division

<table>
<thead>
<tr>
<th>Revisions statement</th>
<th>This publication contains planned revisions. More details below.</th>
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</thead>
<tbody>
<tr>
<td>Revisions relevant to this publication</td>
<td>On 1 April 2014, NHS board boundaries were changed to align with those of local authorities. More details are available in Appendix A1. These new boundaries are used within this publication for the first time. New tables on deprivation have also been added to the publication. These are Table DC3 (operations by SIMD quintile) and Table DC4 (hospital activity by SIMD quintile).</td>
</tr>
<tr>
<td>Concepts and definitions</td>
<td>See Glossary and Appendix A2 contained within this report.</td>
</tr>
<tr>
<td>Relevance and key uses of the statistics</td>
<td>Uses of the data include:</td>
</tr>
<tr>
<td></td>
<td>To allow NHS Boards and the Scottish Government to compare activity levels nationally;</td>
</tr>
<tr>
<td></td>
<td>To provide health intelligence and performance information for NHS Boards and the Scottish Government;</td>
</tr>
<tr>
<td></td>
<td>To provide information to support answers to Parliamentary Questions;</td>
</tr>
<tr>
<td></td>
<td>To support the information requirements of voluntary sector organisations such as British Heart Foundation (BHF), including research and media activity;</td>
</tr>
<tr>
<td></td>
<td>To allow members of the public to readily access information on heart disease;</td>
</tr>
<tr>
<td></td>
<td>To respond to information requests for a variety of customers e.g. researchers, charities, public companies, Freedom of Information requests;</td>
</tr>
<tr>
<td></td>
<td>To assist students and universities conducting studies on topics such as heart disease;</td>
</tr>
<tr>
<td></td>
<td>To assist private companies interested in heart disease information in Scotland, such as pharmaceutical companies and consultancy companies.</td>
</tr>
<tr>
<td>Accuracy</td>
<td>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.</td>
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<tr>
<td></td>
<td>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</td>
</tr>
</tbody>
</table>
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 Appendix A2.

| 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 98% 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 is 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.
<table>
<thead>
<tr>
<th>Disclosure</th>
<th>The ISD protocol on Statistical Disclosure Protocol is followed.</th>
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<tbody>
<tr>
<td>Official Statistics designation</td>
<td>National Statistics</td>
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<tr>
<td>UK Statistics Authority Assessment</td>
<td>April 2013</td>
</tr>
<tr>
<td>Last published</td>
<td>27 January 2015</td>
</tr>
<tr>
<td>Next published</td>
<td>January 2017</td>
</tr>
<tr>
<td>Date of first publication</td>
<td>22 February 2011 (in current format)</td>
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<tr>
<td>Help email</td>
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<tr>
<td>Date form completed</td>
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</table>
A4 – 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.

Standard Pre-Release Access:
- Scottish Government Health Department
- NHS Board Chief Executives
- NHS Board Communication leads
A5 – 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 (i.e. assessed by the UK Statistics Authority as complying with the Code of Practice)
- National Statistics (i.e. legacy, still to be assessed by the UK Statistics Authority)
- Official Statistics (i.e. 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.