

Publication Report



Prescribing & Medicines: Drugs indicated for the treatment of obesity

Financial Years 2001/02 – 2010/11

Publication date – 27 September 2011



Contents

Contents.....	1
About ISD.....	2
Official Statistics.....	2
Introduction	3
Body Mass Index.....	3
Treatment.....	4
Rimonabant	4
Sibutramine.....	4
Key points	5
Results and Commentary.....	6
NHS Scotland.....	6
NHS Board	8
References	10
Glossary.....	11
List of Tables.....	12
Contact.....	13
Further Information.....	13
Appendix.....	14
A1 – Background Information	14
How the data is obtained	14
Defined daily doses	14
A2 – Publication Metadata (including revisions details).....	15
A3 – Early Access details (including Pre-Release Access)	18

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](#).

Introduction

Obesity is not just a cosmetic issue. It increases the risk of many health problems such as; type 2 diabetes, heart disease, stroke, back and joint pain, high blood pressure, infertility, depression and other problems. The main treatment of the obese individual is a suitable diet, carefully explained and fully supported, coupled with a change of lifestyle, including increased physical activity.

The Department of Health and the Medical Research Council first raised it as a public health problem in a joint report in 1974 ¹. Further evidence of health problems associated with obesity was produced in 1983 in a report from the Royal College of Physicians (London) ². The Scottish Office, Department of Health issued a report in 1996 ³, which identified obesity as a contributory factor in coronary heart disease. Another report on the Scottish diet ⁴, highlighted obesity as a growing problem of relevance to the high rates of non-insulin-dependant diabetes mellitus (NIDDM), hypertension and hypercholesterolemia in Scotland

Body Mass Index

An accepted measure of obesity is the Body Mass Index (BMI), calculated as:

$$BMI = \frac{weight \text{ (kg)}}{height^2 \text{ (m}^2\text{)}}$$

For example, an adult of 70 kg with a height of 1.75 m has a BMI of:

$$70/1.75^2 = 22.9$$

The internationally accepted ranges ⁵ of BMIs are given in the following table:

Category	Body Mass Index (BMI)
Underweight	Under 18.5
Normal	18.5 – 24.9
Overweight	25.0 – 29.9
Obesity	30.0 – 39.9
Extreme Obesity	=>40

The National Institute for Health and Clinical Excellence (NICE) in England and SIGN, The Scottish Intercollegiate Guidelines Network, have both issued guidelines on weight control and obesity in adults and children:

- SIGN - [Management of obesity in children and young people](#) (February 2010)
- NICE - [Obesity Guidance on the prevention, identification and management of overweight and obesity in adults and children](#). (December 2006)

Further information on the prevalence and treatment of obesity can be found on the following internet sites:

- [National Obesity Forum](#)
- [Association for the Study of Obesity](#)
- [Health Education Board for Scotland Healthy Eating](#)

- [Scottish Health Survey](#)

ISD is not responsible for the contents of external internet sites.

Treatment

Three drugs are indicated for the treatment of obesity, as described in the [British National Formulary \(BNF\)](#) section 4.5;

- Orlistat (Xenical®), introduced in October 1998, is an anti-obesity drug that acts on the gastro-intestinal tract, inhibiting the absorption of dietary fat.
- Rimonabant (Acomplia®), introduced in February 2007, is also a centrally acting appetite suppressant. More specifically it is a cannabinoid receptor antagonist for the adjunctive management of obesity.
- Sibutramine (Reductil®), introduced in June 2001, is a centrally acting appetite suppressant that inhibits the re-uptake of noradrenaline and serotonin and is used in the adjunctive management of obesity.

Rimonabant

The [European Medicines Agency \(EMA\)](#) is a decentralised agency of the European Union, which is responsible for the scientific evaluation of medicines developed by pharmaceutical companies for use in the European Union. In October 2008 the EMA recommended the suspension of the marketing authorisation for Rimonabant (Acomplia®). It was then [withdrawn](#) by the European Commission on 16th January 2009.

Sibutramine

The [Medicines and Healthcare products Regulatory Agency \(MHRA\)](#), a government agency which is responsible for ensuring that medicines and medical devices work and are acceptably safe, on 21st January 2010 announced the suspension of the marketing authorisation for Sibutramine (Reductil®) across the European Union. This follows a [review](#) by the EMA which found that the cardiovascular risks of Sibutramine outweigh its benefits.

Key points

- A total of 95,108 items were prescribed in Scotland during 2010/11, a decrease of 29.3% on the previous year.
- Sibutramine was withdrawn from the market in 2010/11. Similarly Rimonabant was withdrawn from the market in 2009/10.
- Expenditure on obesity drugs decreased from £4.64 million to £3.39 million between 2009/10 and 2010/11.
- Prescribing of Orlistat fell by 11.1%, down from 106,927 items in 2009/10 to 95,084 in 2010/11.

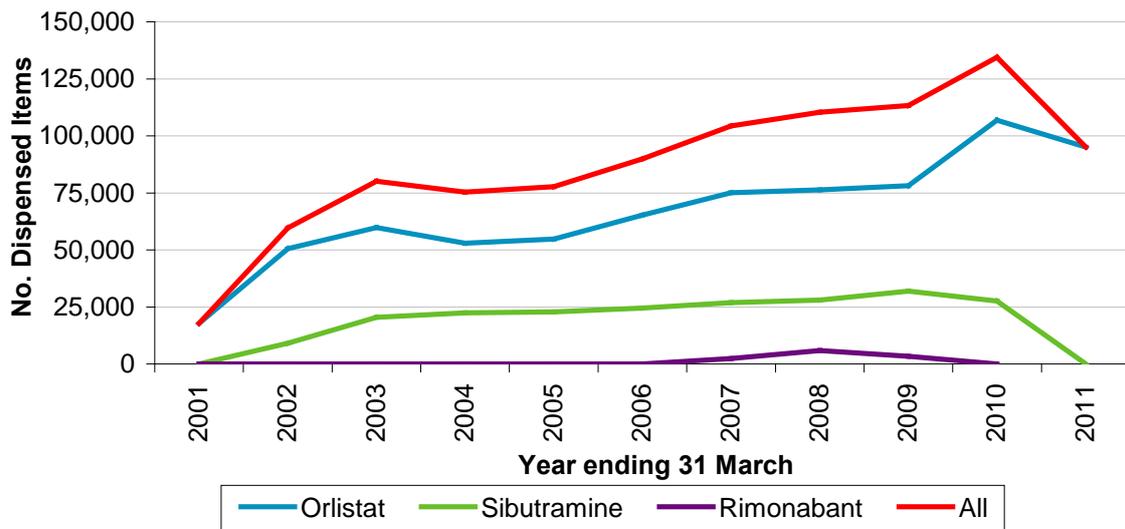
Results and Commentary

The prescribing of drugs used in the treatment of obesity in Scotland between 2001/02 and 2010/11 has been reviewed.

NHS Scotland

Figure 1 shows the number of dispensed items in Scotland, in total and for each drug by financial year from 2001/02 to 2010/11.

Figure 1 – Number of Dispensed Items – Scotland 2001/02 to 2010/11



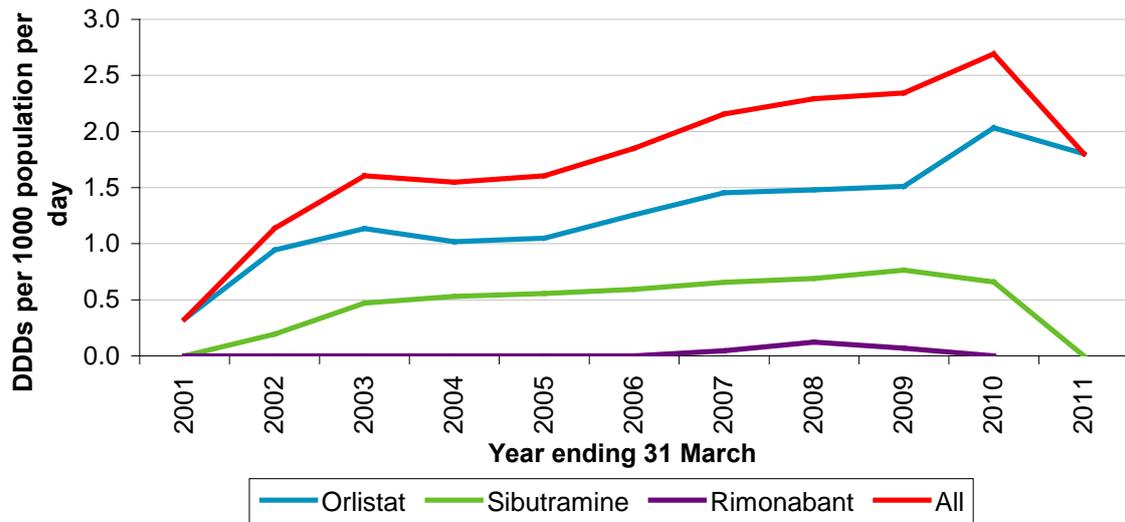
Source: Prescribing Information System, ISD Scotland

The total number of dispensed items fell from 134,491 in 2009/10 to 95,108 in 2010/11. The decrease is largely attributed to the suspension of the marketing authorisation for Rimonabant in January 2009 and for Sibutramine a year after. At the same time the number of Orlistat items dispensed in 2010/11 fell from 106,927 to 95,084. The drop can be attributed to Alli, a new weight loss drug sold over-the-counter. However we can not verify how Alli affected the total number of dispensed items because we do not have data related to over the counter drugs.

The best indicator of what proportion of the population may receive a certain drug treatment is the defined daily doses. Defined Daily Doses (DDD) are a statistical measure derived from the international use of the substance in question. They were developed by [the World Health Organisation \(WHO\)](#) and are defined at “the assumed average maintenance dose per day used on its main indication in adult”. To look at the number of DDDs per 1,000 population per day corresponds to the daily use of the drugs by the population. For example, 10 DDDs per 1,000 population per day correspond to a daily use of the drug by 1% of the population.

Figure 2 shows the DDDs per 1,000 population per day, in total and for each drug by financial year from 2001/02 to 2010/11.

Figure 2 – Defined Daily Doses per 1,000 Population per Day – 2001/02 to 2010/11

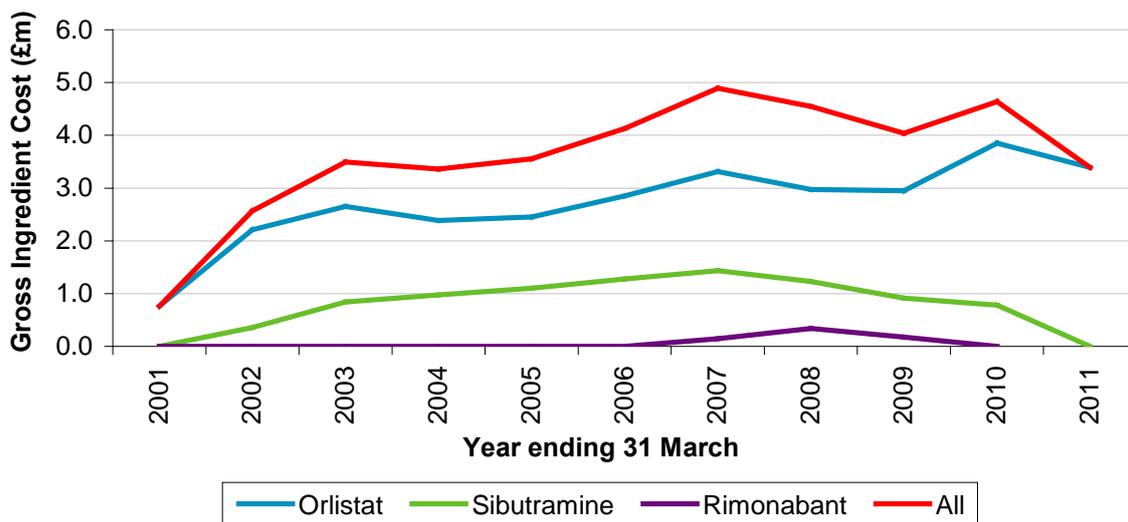


Source: Prescribing Information System, ISD Scotland

The prescribing pattern exhibited in Figure 2 is similar to that of Figure 1, with Orlistat being the only prescribed drug available on the market after January 2010. The graph indicates that the percentage of the 'target' population who make daily use of a drug indicated in the treatment of obesity is 0.18%, which is around 8,198 people, aged 12 and over. It must be emphasised that these figures are estimates.

Figure 3 show the gross ingredient cost, in total and by individual drug for the financial years 2001/02 to 2010/11.

Figure 3 – Gross Ingredient Cost (£) – 2001/02 to 2010/11



Source: Prescribing Information System, ISD Scotland

The total gross ingredient cost for drugs indicated for the treatment of obesity decreased from £4.64 million to £3.39 million between 2009/10 and 2010/11. As previously stated the decrease is largely attributable to the suspension of the marketing authorisation of Sibutramine and Rimonabant and to the presence of over-the-counter weight loss drug Alli. The cost per DDD for 2010/11 is £1.13 that equates to an annual cost of £414.

NHS Board

Information on the NHS Board that prescribed the obesity drugs has also been analysed. Figures 4 and 5 show prescribing of drugs used in the treatment of obesity by NHS Board in terms of the number of DDDs per 1,000 population per day and the gross ingredient cost per head of population, respectively.

NHS Board ciphers are displayed on the Figures 4 and 5 for reason of clarity. Table 1 provides a translation between the cipher and the NHS Board name. Please note that NHS Argyll and Clyde ceased to exist as a single entity from April 2006. Argyll and Bute was absorbed into NHS Highland and the remainder into NHS Greater Glasgow to become NHS Greater Glasgow and Clyde.

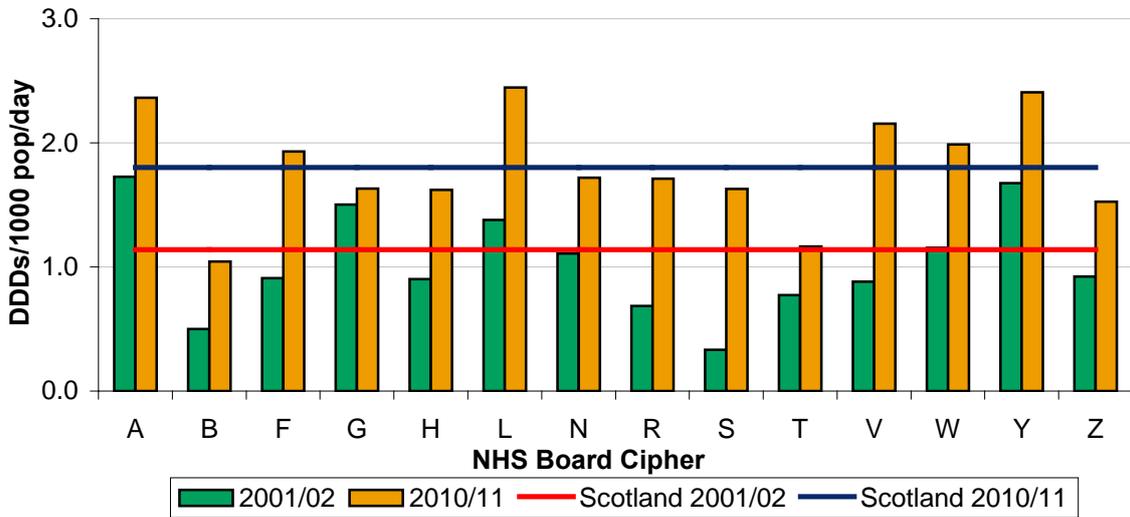
Table 1 – NHS Board Cipher - Translation

NHS Board Cipher	Name
A	Ayrshire & Arran
B	Borders
F	Fife
G	Greater Glasgow and Clyde
H	Highland
L	Lanarkshire
N	Grampian
R	Orkney
S	Lothian
T	Tayside
V	Forth Valley
W	Western Isles
Y	Dumfries & Galloway
Z	Shetland

Source: Prescribing Information System, ISD Scotland

The number of DDDs per 1,000 population per day has been used to permit comparison in the prescribing of drugs indicated for the treatment of obesity between NHS Boards, as shown in Figure 4.

Figure 4 – Defined Daily Doses per 1,000 Population (aged 12+) per Day



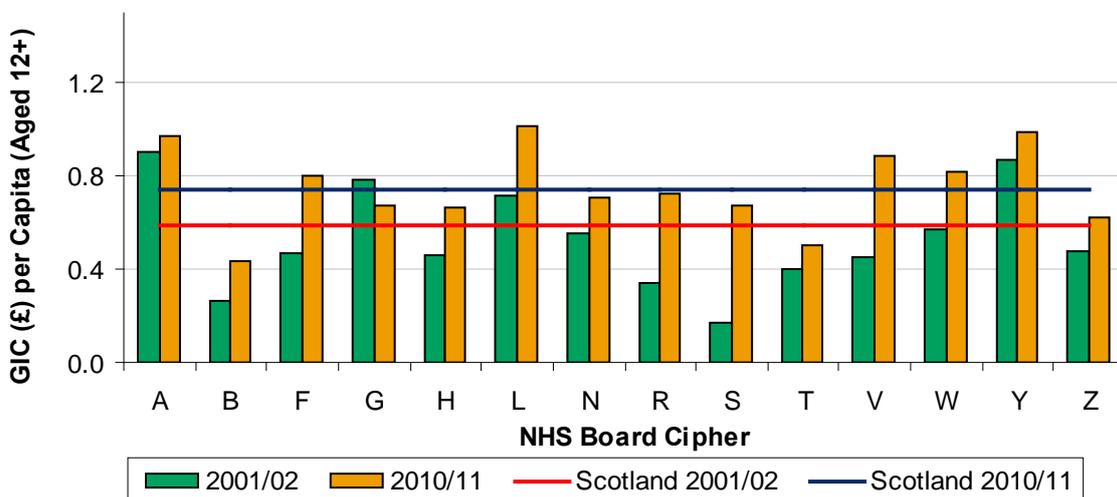
Source: Prescribing Information System, ISD Scotland

Three NHS Boards, NHS Lanarkshire (L), NHS Dumfries & Galloway (Y) and NHS Ayrshire & Arran (A) make the greatest use of drugs indicated for obesity. It is estimated that around 0.24% of the target population in NHS Lanarkshire, NHS Dumfries & Galloway and in NHS Ayrshire & Arran (that is around 1,184, 314 and 757 people respectively) make daily use of such drugs.

This contrasts with NHS Borders (B) and NHS Tayside (T) where only 0.10% and 0.12% of their respective target populations (103 and 410 people) use Orlistat, Sibutramine or both. It must be emphasised that this is an estimate.

Figure 5 shows the gross ingredient cost of drugs indication for obesity per head of population (aged 12 and over) by NHS Board has increased from an average of £0.59 in 2001/02 to £0.75 by 2010/11.

Figure 5 – Gross Ingredient Cost (£) per Head of Population (aged 12+)



Source: Prescribing Information System, ISD Scotland

NHS Dumfries & Galloway (Y) and NHS Lanarkshire (L) have the highest cost per head for drugs indicated for obesity, at £0.99 and £1.01 respectively. This contrasts with NHS Borders (B) and NHS Tayside (T) where the cost per head is £0.43 and £0.50 respectively. In total six NHS Boards spend more than the Scottish average of £0.75 per head of population aged 12 and over.

References

1. DHSS/MRC Research on Obesity, London, HMSO 1974.
2. Royal College of Physicians Obesity. A Report by the Royal College of Physicians. Journal of Royal College of Physicians, London 1983; 17 pp 58,
3. Scottish Office Department of Health. Coronary heart disease in Scotland. Report of policy review. Edinburgh: The Department of Health 1996.
4. Scottish Office Home and Health Department. The Scottish Diet. Scotland's health: a challenge to us all. Report of a Working Party to the Chief Medical Officer for Scotland. Edinburgh: The Department of Health, 1993.
5. Obesity in Scotland, Integrating Prevention with Weight Management. Scottish Intercollegiate Guidelines Network (SIGN), Pilot Edition, November 1996, p3.

Glossary

Gross Ingredient Cost (GIC)	Cost of drugs and appliances reimbursed before deduction of any dispenser discount (nb this definition differs from other parts of the UK).
Prescription item	An item is an individual product prescribed e.g. 100 aspirin tablets of 300mg.
Prescription form	A prescription form that can contain up to three items.
Quantity	Quantity dispensed of an individual item e.g. 100 tablets
Defined Daily Dose (DDD)	Assumed average maintenance dose per day for a drug when used for its main indication in adults, as defined by World Health Organisation.
Approved Drug Name	As listed in BNF, being the recognised official non-proprietary title (recommended International Non-Proprietary Name - rINN).
Prescribable Item Name	The drug name written on the prescription - can be by approved name or a brand name.
British National Formulary (BNF)	A standard classification of drugs into conditions of primary therapeutic use, the aim is to provide prescribers, pharmacists and other healthcare professionals with sound up-to-date information about the use of medicines.
Prescribed Health Board	The NHS Board with which the prescriber holds a contract to prescribe, i.e. GP, Dentist, Non-medical prescriber.

List of Tables

Table No.	Name	Time period	File & size
1	Drugs used in the treatment of obesity	Financial years 1998/99 to 2010/11	Excel [439kb]

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Further Information

Further information can be found on the [Prescribing and Medicines](#) area of the ISD website.

Further information on other ISD publications and datasets can be found the on the [ISD website](#).

Appendix

A1 – Background Information

How the data is obtained

[Practitioner Services](#), a division of NHS National Services Scotland, processes all NHS prescriptions for payment of pharmacists, dispensing doctors and appliance suppliers. This gives a full record from which trends in prescribing can be investigated at a detailed level. The data includes prescribing by GPs, nurses, dentists, pharmacists and hospitals, where the latter was dispensed in the community. Hospital dispensed prescriptions are NOT included in the figures. The Information Services Division (ISD) cannot say what proportion of the drug dispensed is actually consumed. These data do NOT include products purchased "over the counter". Prescriptions processed internally by Boards for payment purposes are NOT included in these data.

Defined daily doses

A method of examining prescribing levels using different formulations of products (for example chewing gum, patches and tablets) are [Defined Daily Dose \(DDD\)](#) as developed by [the World Health Organisation \(WHO\)](#).

A Defined daily dose is defined as “the assumed average maintenance dose per day for a drug used on its main indication in adults”. DDD’s are a statistical measure derived from the international use of the substance in question. As British prescribing patterns may differ from the accepted international value, each DDD should be regarded as a technical value, a close approximation of an average of the actually used doses. The DDD’s are therefore not necessarily the most frequently prescribed or used doses. Each drug is assigned a DDD value, based on its active ingredient. It should be noted, however, that it is an arbitrary unit for measurement purposes and makes no pretence to be a therapeutic recommendation. The value is derived from literature, manufacturer’s recommendations and experience gained in the field. An international committee from twelve countries, including Britain, consider the evidence and assign a DDD value for a drug in its main indication. All new DDDs are reviewed after three years; existing DDDs after five years.

A2 – Publication Metadata (including revisions details)

Metadata Indicator	Description
Publication title	NHS Scotland Prescribing - Drugs indicated for the treatment of obesity
Description	Summary and detailed statistics on prescribing and dispensing in the community in Scotland including: Drugs used in the treatment of obesity (based on BNF section 4.5) presented for NHS Scotland and by NHS board. The number of items, gross ingredient cost and defined daily doses are shown.
Theme	Health and Social Care
Topic	Health Care Personnel, Finance and Performance
Format	Excel workbooks
Data source(s)	Prescribing Information System (PIS). All data held in PIS is sourced from Practitioner Services Division (PSD) within NHS National Services Scotland who are responsible for the remuneration and reimbursement of dispensing contractors within Scotland.
Date that data is acquired	Data is acquired on a monthly basis from PSD following payment approximately 2 calendar months after the end of the month being claimed for payment by contactors
Release date	27 September 2011
Frequency	Annual
Timeframe of data and timeliness	Data covering year to 31 March 2011
Continuity of data	Data is held in PIS for the most recent 10 years and is stored in archive files back to 1993/94. 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.
Revisions statement	Data are sourced from monthly pharmacy payments data on an ongoing basis therefore once published there is no routine requirement to revise historical data. However occasionally adjustments are made to pharmacy payments retrospectively by PSD for example due to an administrative error. Retrospective revisions can also occur the classification of drugs in the British National Formulary (BNF). Where either of these occur and are deemed to be significant in line with ISD's Revisions policy, a revision will be made to published data. This will be notified on the website.

<p>Concepts and definitions</p>	<p>The data published in all these releases correspond to prescriptions that have been dispensed in the community in Scotland, i.e. dispensed by a pharmacy, dispensing doctor or appliance supplier. This includes prescriptions which were issued in another UK country but dispensed in Scotland. These data do not include prescription drugs that were supplied and administered to patients in a hospital setting. Prescriptions issued in hospital to patients on discharge and dispensed in the community are included. Each excel workbook contains further detailed definitions of the main measures and links to a glossary.</p>
<p>Relevance and key uses of the statistics</p>	<p>These statistics are the primary source of data used to monitor the national community drugs bill within Scotland and the pharmacy contract agreed with dispensing contractors. They are also used to monitor national and local prescribing indicators covering both the quality and efficiency of prescribing in general practice.</p>
<p>Accuracy</p>	<p>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.</p>
<p>Completeness</p>	<p>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. Of course 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.</p>
<p>Comparability</p>	<p>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</p>

	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.
Accessibility	It is policy of ISD Scotland to make its websites and products accessible according to published guidelines .
Coherence and clarity	All prescribing tables are accessible via the ISD website . Prescribing statistics are presented within excel spreadsheets for NHS Scotland and where appropriate broken down by NHS Board.
Value type and unit of measure	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). Further details and definitions can be found in the glossary.
Official Statistics designation	National Statistics (Legacy designation, awaiting final designation by UK statistics Authority).
UK Statistics Authority Assessment	Assessment by UK Statistics Authority completed and assessment report issued.
Help email	NSS.isdprescribing@nhs.net
Date form completed	31-August-11

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)