

# Publication Report



## Prescribing of Smoking Cessation Interventions in Scotland

Financial Years 2003/04 – 2012/13

Publication date – 24 September 2013



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## Introduction

Smoking causes or exacerbates many different health conditions. Due to the overall cost of the impact of smoking on the National Health Service, a ban on smoking in public places was introduced on the 26th March 2006 as part of the [Smoking, Health and Social Care \(Scotland\) Bill](#) to improve public health.

To help smokers to stop smoking, the Public Health Service (PHS) element of the new [Community Pharmacy Contract](#) was introduced in Scotland on the 29th August 2008. The Smoking Cessation element of the Public Health Service aims to provide extended access through the NHS to a smoking cessation support service, including the provision of advice and smoking cessation products, in order to help smokers successfully stop smoking. This involves a period of up to twelve weeks in which people can visit their local pharmacist and be supported in their attempt to stop smoking, which may include prescribing of Nicotine Replacement Therapy (NRT). The patient receives any advice and prescribed items free of charge (as with all prescriptions since 1<sup>st</sup> April 2011), instead of paying for the products over the counter.

The [Smoking Cessation Guide for Scotland](#) recommends that smoking cessation products should be available on prescription to smokers who have made a commitment to stop on or before a target stop date. Prescriptions subsequent to the initial commencement of treatment should only be issued to the person if they can demonstrate that they are still trying to stop smoking.

Information on drugs which are indicated for the treatment of smoking cessation, are obtained from NHS prescriptions prescribed in Scotland that are dispensed in Scotland or elsewhere in the United Kingdom. All these prescriptions are dispensed by community pharmacies, dispensing doctors, a small number of speciality appliance suppliers and stoma providers. GPs write the vast majority of these prescriptions with the remainder written by authorised prescribers such as nurses and dentists. Also included are prescriptions written in hospitals that were dispensed in the community, but prescriptions dispensed within hospitals and items purchased over the counter are excluded.

Information on prescribing for cigarette smoking can be found on the following Internet sites:

- [Action on Smoking and Health in Scotland \(ASH\)](#)
- [Clearing The Air, the Scottish Executive's site detailing the ban on smoking in public places](#)
- [You Can Stop Smoking, NHS Health Scotland's web site](#)
- [The Scottish Public Health Observatory's Tobacco Use Site](#)
- [Scottish Medicines Consortium \(SMC\)](#)
- [The National Institute of Clinical Excellence \(NICE\)](#)

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

## Treatment

Drugs licensed for smoking cessation are given in the [British National Formulary \(BNF\)](#) sub section 4.10.2;

- Bupropion Hydrochloride (also known as Amfebutamone Hydrochloride), (Zyban<sup>®</sup>)
- Nicotine Replacement Therapy (Nicopass<sup>®</sup>, Nicopatch<sup>®</sup>, Nicorette<sup>®</sup>, Nicotinell<sup>®</sup>, NiQuitin CQ)
- Varenicline (Champix<sup>®</sup>)

Bupropion Hydrochloride became available on prescription in June 2000, and is restricted to adults aged 18 and over. Nicotine Replacement Therapy (NRT) became available on prescription in April 2001 and Varenicline in January 2007. Both NRT and Varenicline are licensed to people aged 12 and over. NRT has been licensed to be prescribed by nurses since May 2001, making it more accessible to patients.

## Key points

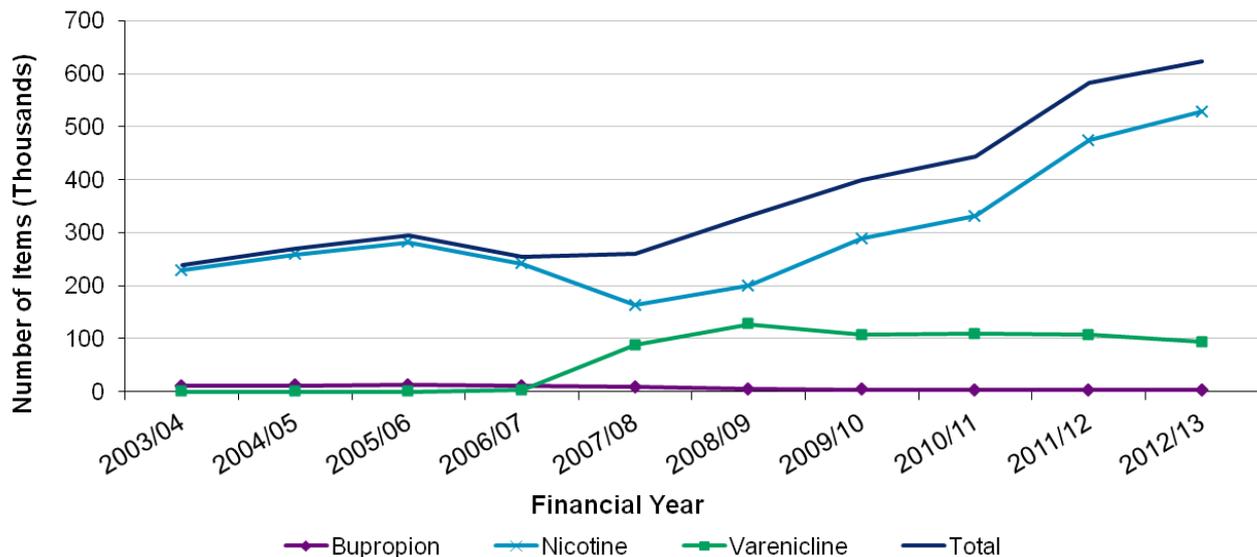
- Prescribing of smoking cessation products shows seasonal variation, with sharp peaks which start rising from January into February, culminating in March.
- Prescribing of smoking cessation products increased sharply just before the ban on smoking in public places was introduced in Scotland in March 2006.
- Of the prescribable treatments for smoking cessation, NRT is the most prevalent.
- Between the ban being introduced in 2006/07 and 2012/13 the number of dispensed items for Smoking Cessation increased from 254,095 to 624,107, an increase of 145.6%. Between 2011/12 and 2012/13 the increase was 40,391 items (up 6.9%).
- Between the ban being introduced in 2006/07 and 2012/13 the gross ingredient cost of Smoking Cessation items increased from £6,624,165 to £14,380,031 (up 117.1%). Between 2011/12 and 2012/13 it decreased by £573,349 (down 3.8%).
- This decrease in gross ingredient cost in 2012/13 in spite of the rise in number of items dispensed is a result of the decrease in average cost per item.

## Results and Commentary

### NHS Scotland

Figure 1 below shows the overall number of items dispensed for Smoking Cessation in Scotland, in total and for each drug by financial year, from 2003/04 to 2012/13.

**Figure 1 – Number of Dispensed Items, by Product, for NHS Scotland - 2003/04 to 2012/13**



The introduction of Nicotine Replacement Therapy (NRT) in 2001, and the restrictions around Bupropion, which can be found on the [Scottish Medicines Consortium \(SMC\)](#) website, could account for the drop in the prescribing of Bupropion of 78.8% between 2003/04 and 2012/13.

Nicotine is the most commonly prescribed smoking cessation drug between 2003/04 and 2012/13; however the quantity prescribed varies year on year. The smoking ban and the introduction of Varenicline could account for these variations. The total prescribing of smoking cessation interventions increased by 6.9% between 2011/12 and 2012/13.

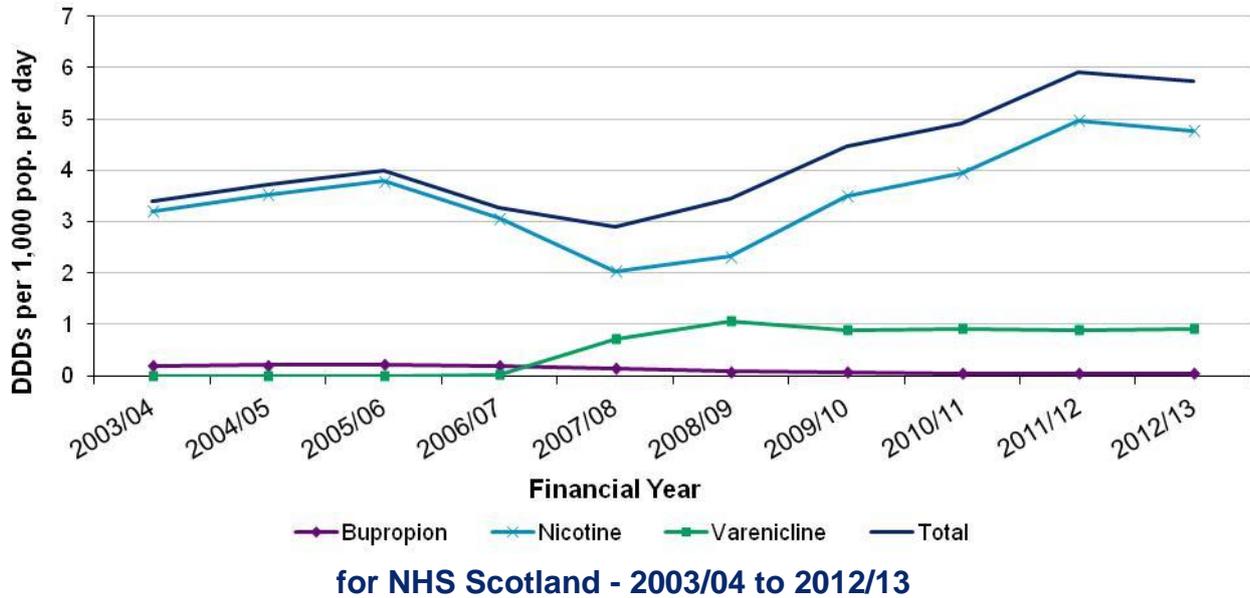
To see what proportion of the population may receive a certain drug treatment, the best way is to look at the Defined Daily Doses (DDD). DDDs are a statistical measure derived from the international use of the substance in question. They were developed by [the World Health Organisation \(WHO\)](#) and are defined as “the assumed average maintenance dose per day used for its main indication in adults”. 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 corresponds to a daily use of the drug by 1% of the population.

In this publication, the population data used is for ages 12 and over, as smoking cessation products are not licensed for use for patients under the age of 12. It should also be noted that the population estimates for mid-2011 and mid-2012 are based on the 2011 census. Estimates prior to this are currently only available based on the 2001 census. Consequently caution should be taken when comparing data from 2003 to 2010 with data for 2011 and

2012 or when comparing revised 2011 figures with those published prior to the release of the 2011 census population.

Figure 2 below shows the DDDs per 1,000 population per day, in total and for each drug by financial year from 2003/04 to 2012/13.

**Figure 2 – Defined Daily Doses per 1,000 Population (aged 12+) per Day, by Product,**



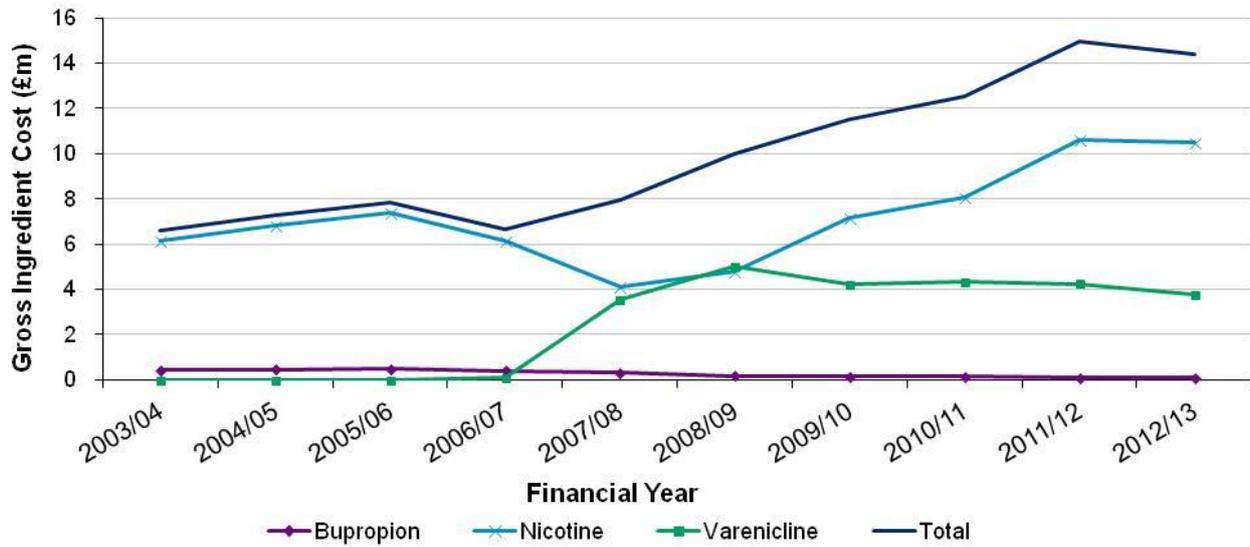
The data presented in Figure 2 indicates that the percentage of the 'target' population (12+ years) making daily use of Nicotine, Varenicline and Bupropion has risen from 0.34% (14,865 people) in 2003/04 to 0.57% (26,557 people) by 2012/13. It must be emphasised that these figures are estimates, the actual patient base is not known.

In 2012/13 the data shows a slight drop in defined daily doses for the first time since 2007/08. This could be caused by a number of factors, such as an increase in prescribing of shorter courses of treatment, or an increase in the prescribing of lower-strength items.

In some cases it is possible to provide patient-based analysis using unique Community Health Index (CHI) numbers which makes it possible to identify which prescription items have been dispensed for individual patients. Patient-based analysis is a far more accurate method of examining patient numbers than estimating using DDDs. However, prescriptions dispensed through PHS do not currently log patients' CHI numbers. As a high proportion of Nicotine prescriptions are through PHS, the CHI-capture rate for this drug is not high enough to perform accurate patient-based analysis. For example, in 2012/13 the CHI-capture rate for Nicotine was only 25.8%. As Nicotine is the most commonly prescribed smoking cessation drug, it is therefore not possible to include patient-based analysis in this publication.

Figures 3 and 4 below show the gross ingredient cost and the cost per item, in total and by individual drug by financial year from 2003/04 to 2012/13.

**Figure 3 – Gross Ingredient Cost (GIC), by Product, for NHS Scotland - 2003/04 to 2012/13**



The prescribing patterns exhibited in Figures 1, 2 and 3 are similar. These graphs show a peak in 2005/06, immediately prior to the smoking ban being introduced. In 2007, Varenicline was introduced which could account for the drop in Nicotine Replacement Therapy. In August 2008 national specifications for smoking cessation were introduced to Community Pharmacies through the Public Health Service. This could account for the rise in Nicotine prescribing from 2008/09 onwards. The cost per item for the drugs involved in smoking cessation gives a better view of the costing implications on these drugs.

**Figure 4 – Cost per Item (£), by Product, for NHS Scotland - 2003/04 to 2012/13**

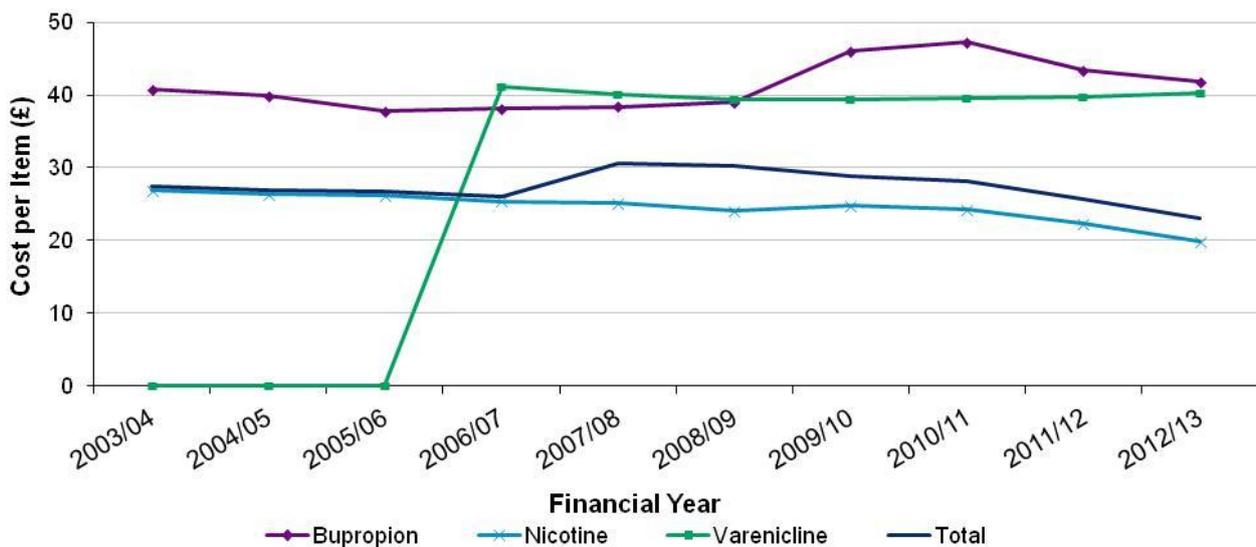


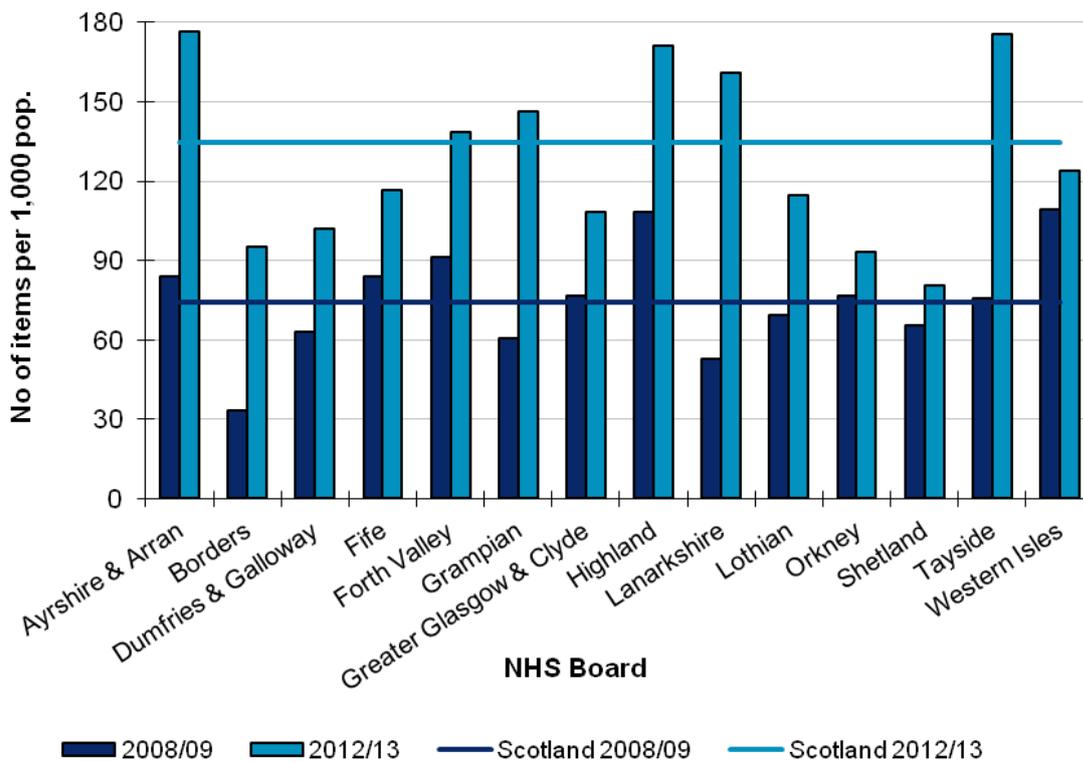
Figure 4 above shows that Bupropion was the most costly item from 2003/04 to 2012/13, averaging £41.27 per item and Nicotine was the least expensive at an average of £24.53 per item. The volume of Nicotine dispensing compared to Bupropion or Varenicline means that the Scotland average for total Smoking Cessation drugs is currently about £18 per item

less than the cost of Varenicline or Bupropion and has been decreasing year on year from 2007/08.

### NHS Board

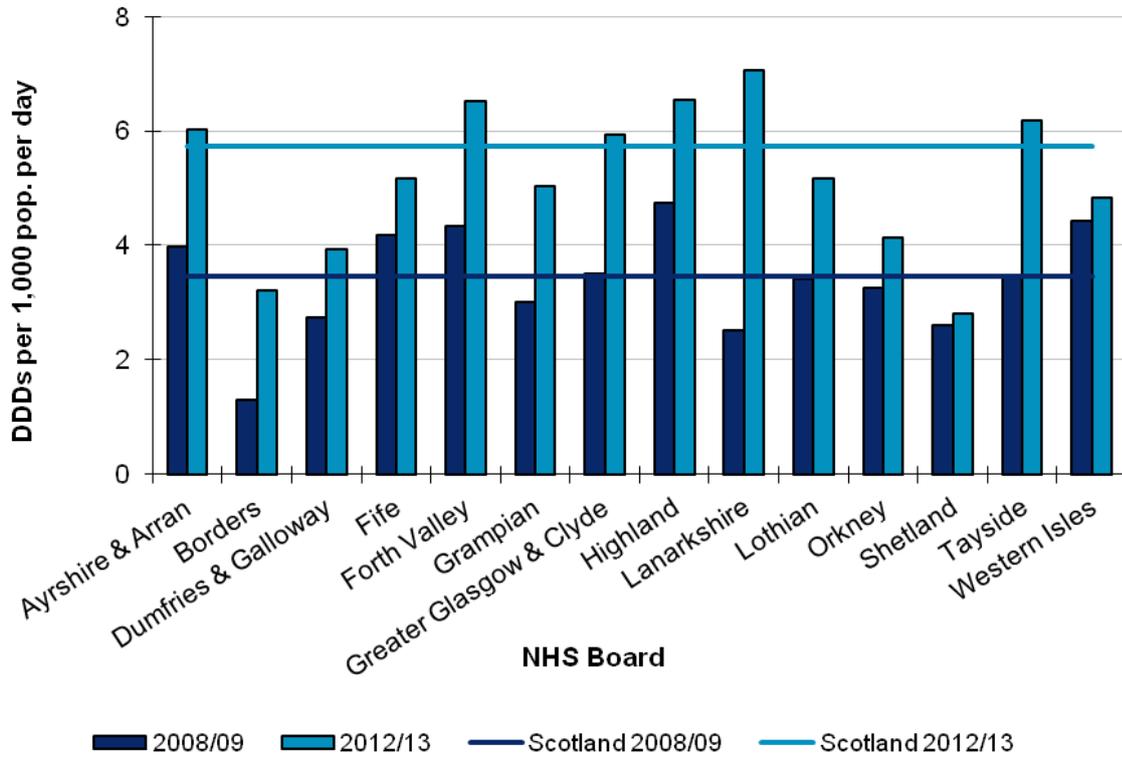
Information on the NHS Board that prescribed the smoking cessation products has also been analysed. Figures 5 and 6 show prescribing of smoking cessation interventions by NHS board in terms of the number of dispensed items per 1,000 population and by the number of defined daily doses per 1,000 population per day, respectively.

**Figure 5 – Number of Dispensed Items per 1,000 Population (aged 12+), by NHS Board – 2008/09 and 2012/13**



Considerable variation exists among the fourteen NHS Boards in 2012/13, shown in Figure 5. All NHS Boards show an increase from 2008/09 to 2012/13, but NHS Grampian and NHS Lanarkshire have both gone from prescribing below the Scotland average in 2008/09 to now prescribing above the Scotland average number of items in 2012/13.

**Figure 6 – Defined Daily Doses per 1,000 Population (aged 12+) per Day, by NHS Board - 2008/09 and 2012/13**

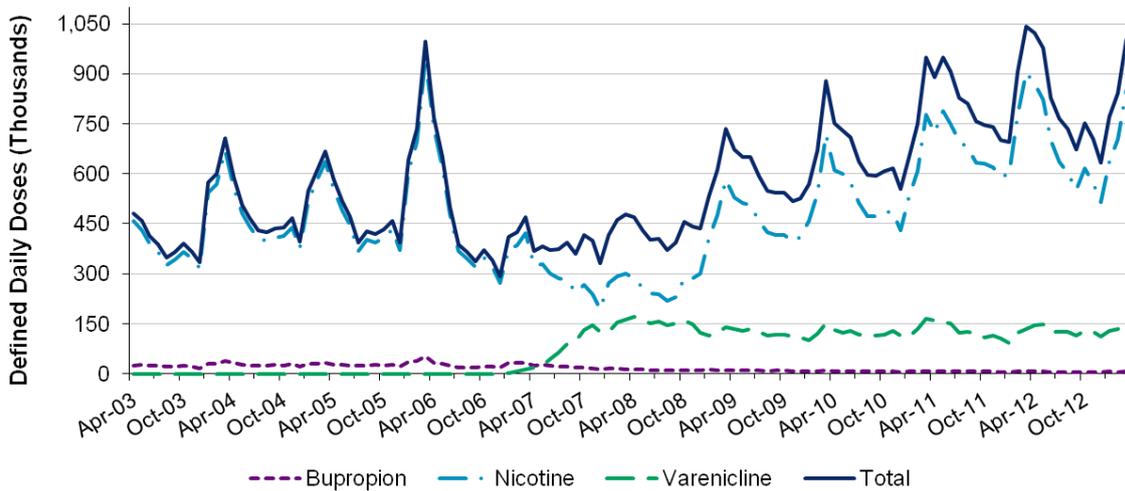


Expressing the prescribing data in terms of the number of DDDs per 1,000 population aged 12 and over per day (Figure 6) produces a similar pattern to that shown in Figure 5. In 2012/13 the highest recorded rate was in NHS Lanarkshire at 7.07 DDDs per 1,000 population per day (equivalent to 0.71% of the 'target' population) and NHS Shetland the lowest at 2.81 DDDs per 1,000 population per day (equivalent to 0.28% of the 'target' population).

### Seasonal Variation

Figure 7 below shows the seasonal effect on total DDDs of smoking cessation products by month, between April 2003 and March 2013.

**Figure 7 – Total Defined Daily Doses by Month for all Smoking Cessation Products - April 2003 to March 2013**



The total for all products in figure 7 above shows a sharp peak which rises from January into February, culminating in March; this could be due to people opting to stop smoking for a New Year’s resolution. The high peak at March 2006 coincided with the introduction of the smoking ban.

When looking at product level, the trend for Nicotine closely follows the total trend pattern, indicating that it is Nicotine prescribing that drives the seasonal trend. For all drugs, the peaks start to rise in January, culminating in March, with a high peak in March 2006 coinciding with the introduction of the smoking ban. NRT declined in December 2007 when Varenicline prescribing started to grow. Varenicline has remained relatively constant over the last five years during which NRT has been increasing. This increase could be attributed to the introduction of the Public Health Service in September 2008. The dispensing figures for Bupropion are too small to show up well in this chart, however they have been decreasing since the introduction of Varenicline in 2007.

## Glossary

Approved Drug Name	As listed in BNF, being the recognised official non-proprietary title (recommended International Non-Proprietary Name - rINN).
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.
CHI	Community Health Index Number. This is a 10-digit number which is a unique identifier of individual patients.
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.
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).
NRT	Nicotine replacement therapy, works by releasing nicotine steadily into the bloodstream at much lower levels than in a cigarette, without the tar, carbon monoxide and other poisonous chemicals present in tobacco smoke.
Prescribable Item Name	The drug name written on the prescription - can be by approved name or a brand name.
Prescribed Health Board	The NHS Board with which the prescriber holds a contract to prescribe, i.e. GP, Dentist, Non-medical prescriber.
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.
Public Health Service (PHS)	The PHS aims to support the community pharmacist's contribution to health protection, health improvement and medicine safety, by encouraging a more pro-active involvement of pharmacists and their staff in supporting self care, providing a health promoting environment across the network of community pharmacies, offering opportunistic opportunities to promote healthy lifestyles and contributing to national and local campaigns.
Quantity	Quantity dispensed of an individual item e.g. 100 tablets
Target Population	The population which are eligible to receive the medication, i.e. aged 12 and over.

## List of Tables

Table No.	Name	Time period	File & size
1	<a href="#">Prescribing of Smoking Cessation Interventions in Scotland</a>	Financial years 2003/04 to 2012/13	376 [kb]

## Contact

### Elizabeth Nicholson

Information Analyst

[lizzie.nicholson1@nhs.net](mailto:lizzie.nicholson1@nhs.net)

0131 275 6122

### Catriona Young

Senior Information Analyst

[catriona.young@nhs.net](mailto:catriona.young@nhs.net)

0131 275 6599

## Further Information

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

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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 - Prescribing of Smoking Cessation interventions
Description	Summary and detailed statistics on prescribing and dispensing in the community in Scotland including: Smoking Cessation Interventions, presented by financial years for NHS Scotland. Data presented shows number of items, defined daily dose and gross ingredient cost.
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 are 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	24 September 2013
Frequency	Annual
Timeframe of data and timeliness	Data covering financial year to 31 March 2013
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 <a href="#">Primary Care circulars</a> 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 <a href="#">Scottish Drug Tariff</a> 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 <a href="#">British National Formulary</a> (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.
Revisions relevant to this	New 2011 mid-year population estimates were released by

publication	NRS in August 2013. The Items and GIC per 1,000 population calculations for financial year 2011/12 were adjusted accordingly.
Concepts and definitions	The data published in all these releases correspond to prescriptions that have been prescribed in Scotland and dispensed in the community in Scotland, or elsewhere in the UK i.e. dispensed by a pharmacy, dispensing doctor or appliance supplier. 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.
Relevance and key uses of the statistics	These statistics are the primary source of data on prescribing for Smoking Cessation within Scotland. They are also used to compare prescribing patterns across Health Boards and over time
Accuracy	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.
Completeness	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.
Comparability	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 <a href="#">British National Formulary (BNF)</a> is used to classify drugs based on therapeutic use.
Accessibility	It is the policy of ISD Scotland to make its web sites and products accessible according to <a href="#">published guidelines</a> .
Coherence and clarity	All prescribing tables are accessible via the <a href="#">ISD website</a> . Prescribing statistics are presented within excel spreadsheets for NHS Scotland and where appropriate broken down by NHS Board.
Value type and unit of measurement	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.
Disclosure	The <a href="#">ISD protocol on Statistical Disclosure Protocol</a> is followed.
Official Statistics designation	National Statistics.
UK Statistics Authority Assessment	Assessment by UK Statistics Authority completed and assessment report issued October 2010.
Last published	25-Sep-12
Next published	30-Sep-14
Date of first publication	n/a
Help email	<a href="mailto:NSS.isdprescribing@nhs.net">NSS.isdprescribing@nhs.net</a>
Date form completed	03/09/2013

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

### **Pre-Release Access**

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

#### **Standard Pre-Release Access:**

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

#### **Extended Pre-Release Access**

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

Scottish Government Health Department (Analytical Services Division)

## A4 – ISD and Official Statistics

### About ISD

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

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

**Purpose:** To deliver effective national and specialist intelligence services to improve the health and wellbeing of people in Scotland.

**Mission:** Better Information, Better Decisions, Better Health

**Vision:** To be a valued partner in improving health and wellbeing in Scotland by providing a world class intelligence service.

### Official Statistics

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

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

- National Statistics (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.