Medicines used in Mental Health

Years 2006/07 to 2016/17

Publication date – 10 October 2017
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Introduction

The Government's Mental Health Strategy 2017-27 aims to improve mental health services, promote mental wellbeing and prevent mental illness and to achieve parity between mental and physical health. There are forty key actions grouped under five themes in the strategy:

- Prevention and early intervention
- Access to treatment and joined-up, accessible services
- The physical wellbeing of people with mental health problems
- Rights, information use, and planning
- Data and measurement

Five main categories of medicines for the treatment of mental health problems are covered within this publication; Hypnotics & Anxiolytics, Antipsychotics and related drugs, Antidepressants, Drugs used for Attention Deficit Hyperactivity Disorder (ADHD) and Drugs for Dementia.

Drug therapy is just one way that these conditions are treated. Treatment could also involve social, psychological, behavioural or educational interventions or therapy.

Please note: ISD is not responsible for the contents of external Internet sites referenced in this publication report.
Hypnotics & Anxiolytics

Background

Hypnotics and anxiolytics are used to treat insomnia and anxiety respectively. Insomnia is difficulty getting to sleep or staying asleep for long enough to feel refreshed the next morning, despite there being enough opportunity to sleep. The most common problem with insomnia is difficulty falling asleep (sleep-onset insomnia). An insomniac may also experience:

- waking in the night
- not feeling refreshed after sleep and not being able to function normally during the day
- feeling irritable and tired and finding it difficult to concentrate
- waking when they have been disturbed from sleep by pain or noise
- waking early in the morning

Anxiety is a feeling of unease, such as worry or fear, which can be mild or severe. Everyone experiences feelings of anxiety at some point in their life and feeling anxious is sometimes perfectly normal. However, people with generalised anxiety disorder (GAD) find it hard to control their worries. Their feelings of anxiety are more constant and often affect their daily life. There are several conditions for which anxiety is the main symptom. Panic disorder, phobias and post-traumatic stress disorder can all cause severe anxiety.

Further information about insomnia and anxiety can be found on this website: http://www.nhsinform.co.uk/mentalhealth

Drug Treatment

Hypnotics and anxiolytics are indicated for the treatment of anxiety and insomnia as described by the British National Formulary (BNF) section 4.1.

- BNF 4.1.1 - Hypnotics are indicated for the relief of insomnia but only after the underlying causes have been established and treated. Long-term use of these drugs, especially benzodiazepines, should be avoided.
- BNF 4.1.2 - Anxiolytics are indicated for short-term relief (two to four weeks only) of anxiety that is severe, disabling or causing unacceptable distress to the patient. Using these drugs to treat short-term mild anxiety should be avoided. In those instances where the patient has chronic anxiety, that is lasting more than four weeks, it may be more appropriate to use an antidepressant (BNF section 4.3).
- BNF 4.1.3 - The intermediate-acting barbiturates have a place only in the treatment of severe intractable insomnia in patients already taking barbiturates. Their use should be avoided in the elderly.
Antipsychotics and related drugs

Background

Antipsychotic drugs are used to treat psychoses and related disorders. People experiencing psychoses may report hallucinations or delusional beliefs, and may exhibit personality changes and thought disorder. Depending on its severity, this may be accompanied by unusual or bizarre behaviour, as well as difficulty with social interaction and impairment in carrying out daily life activities.

Information on psychoses and related disorders, including treatment and prevalence, can be found on the following websites:

- Royal College of Psychiatry
- Mind, a mental health charity
- Scottish Association for Mental Health

Drug Treatment

Section 4.2 of the British National Formulary (BNF) lists the drugs licensed for the treatment of psychoses and related disorders. This section contains three sub-sections:

- BNF 4.2.1 - Antipsychotic drugs, also known as neuroleptics. Severe anxiety attacks can also be treated, in the short term, with antipsychotics.
- BNF 4.2.2 - Antipsychotic depot injections. Long-acting injections used for maintenance therapy, especially when compliance with oral treatment is unreliable.
- BNF 4.2.3 - Antimanic drugs - Used to control acute attacks and prevent their recurrence.

Antipsychotic drugs (BNF 4.2.1) can be divided into two classes:

- The older ‘typical’ (or conventional) antipsychotics were developed in the 1950s, principally to treat schizophrenia. These can be further divided into the low and high potency drugs. For example, fluphenazine and haloperidol are examples of high-potency antipsychotics, and chlorpromazine is an example of a low-potency antipsychotic. The high-potency drugs tend to be associated with extrapyramidal (EPS) side effects (tremors, muscle spasms, irregular muscle movements etc.). EPS side effects are less evident with the low potency drugs.

- Atypical antipsychotics are used principally to treat schizophrenia, but can be used to treat other conditions. The first atypicals, (clozapine and risperidone) were introduced in 1994, followed by olanzapine and sertindole in 1996 (the latter was withdrawn in 2001 after concern was expressed about cardiac effects), amisulpride and quetiapine in 1997, zotepine in 1998, with the latest drug, aripiprazole, coming on to the market in 2004. It should be noted that some of these drugs are supplied by hospitals and will therefore not appear in this dataset.
Antidepressants

Background

Antidepressant drugs are used to treat depression. Health professionals use the words depression, depressive illness or clinical depression to refer to depression. It is a serious illness and very different from the common experience of feeling unhappy or fed up for a short period of time. Depressed people may have feelings of extreme sadness that can last for a long time. These feelings are severe enough to interfere with daily life, and can last for weeks or months, rather than days.

Information on depression, its treatment and prevalence, can be found on the Mind website.

Drug Treatment

There are four types of antidepressant drugs, as described in the British National Formulary (BNF) section 4.3, which are used in the treatment of depression:

- **BNF 4.3.1 - Tricyclic antidepressants** are used to treat depression, but also have a role to play in the treatment of migraine, panic disorder, obsessive compulsive disorder, recurrent headaches and in the relief of neuropathic pain.

- **BNF 4.3.2 - MAOIs** - Monoamine-oxidase inhibitors are used less frequently than either the tricyclics or selective serotonin re-uptake inhibitors (SSRIs) and related antidepressants because of the high risk of dietary and drug interactions.

- **BNF 4.3.3 - SSRIs** - Selective serotonin re-uptake inhibitors are a group of drugs used to treat depression and other conditions such as bulimia, panic disorder and obsessive-compulsive disorder.

- **BNF 4.3.4 - Others** - Drugs that do not fit any of the above categories. For example, duloxetine inhibits the re-uptake of both serotonin and noradrenaline and is therefore termed a serotonin and noradrenaline re-uptake inhibitor (SNRI). Other drugs in this group are flupentixol (also used in the treatment of psychoses), mirtazapine, reboxetine, tryptophan and venlafaxine.

It should be noted that antidepressant drugs are used for indications other than depression (e.g. migraine, chronic pain, myalgic encephalomyelitis (ME) and a range of other conditions). It is therefore likely that the statistics on these drugs do not relate solely to prescribing for depression.
Drugs used for Attention Deficit Hyperactivity Disorder (ADHD)

Background

Attention deficit hyperactivity disorder (ADHD) and attention deficit disorder (ADD) refer to a range of problem behaviours associated with poor attention span. These may include impulsiveness, restlessness and hyperactivity, as well as inattentiveness; behaviours that often prevent children from learning and socialising. ADHD is sometimes referred to as hyperkinetic disorder (HD).

The prevalence of ADHD among males is thought to be four times that of females\(^1\), which concurs with the published figures of patients by gender in this report.

NHS Healthcare Improvement Scotland completed a follow-up review of services for children and young people with ADHD, published in 2012.

Drug Treatment

There are five drugs, as described in the British National Formulary (BNF) section 4.4, which are used in the treatment of ADHD or ADD:

- Atomoxetine (Strattera®)
- Amphetamines (Dexamphetamine sulfate (Dexedrine®))
- Guanfacine hydrochloride (Intuniv®)
- Lisdexamfetamine dimesylate (Elvanse®)
- Methylphenidate hydrochloride (Ritalin®, Concerta XL®, Equasym®, Equasym XL®, Medikinet®, Medikinet XL®, Tranquilyn®)

A very small amount of caffeine citrate is also recorded against BNF section 4.4.

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Drugs for Dementia

Background

Dementia is a disease that leads to a progressive loss of brain function typified by memory loss, confusion, speech difficulties and problems in understanding. There are over 100 different types of dementia. The most common forms are:

- Alzheimer's disease
- Vascular dementia
- Dementia with Lewy bodies
- Pick's disease
- Huntington's disease
- Alcohol-related dementia
- HIV / AIDS related dementia

It has been estimated that 75% of people diagnosed with dementia will either have Alzheimer's or vascular dementia or a combination of the two (Alzheimer Scotland - Dementia Factsheet). Dementia mainly affects older people, but can also occur in people as young as thirty due to either alcohol abuse or HIV / AIDS. Roth et al\(^2\) estimated that 30% of people diagnosed with dementia have the mild form of the disease, 42% are at the moderate stage and 28% have severe dementia. Detailed information on the various types of dementia can be found on the Alzheimer Scotland website and also on the website of the Alzheimer's Society.

Drug Treatment

No cure for dementia currently exists. However, drugs may slow the rate of decline or in some patients make a small improvement in symptoms. Despite this, disease progressions is inevitable. The British National Formulary (BNF) lists four drugs that are licensed for the treatment of dementia:

- Donepezil hydrochloride (Aricept\(^\circledR\) & Aricept Evess\(^\circledR\))
- Galantamine (Reminyl\(^\circledR\) & Reminyl XL\(^\circledR\))
- Memantine hydrochloride (Ebixa\(^\circledR\))
- Rivastigmine (Exelon\(^\circledR\))

Memantine is the only drug licensed to treat moderate to severe dementia; all others are for use in the mild to moderate form of the disease.

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\(^2\) Roth et al. (1998) CAMDEX, the Cambridge Examination for Mental Disorders of the Elderly. Cambridge University Press
Patient Based Analysis & Defined Daily Doses (DDDs)

Patient based analysis has been included in this publication at Scotland level since the September 2012 report, which published 2011/12 data. DDD trend data at NHS Board level have been retained to allow comparisons between NHS Boards (and with other countries) and to show longer trends over time. The inclusion of patient information is intended to further inform health decision-making in NHSScotland.

Patient Based Analysis

Patient based analysis is now possible because comprehensive patient identifiable data is available in the prescribing dataset. All NHS patients have a unique Community Health Index (CHI) number; this makes it possible to identify which prescription items have been dispensed for individual patients. Prior to April 2009, the proportion of prescriptions with a valid CHI number recorded was not high enough to make patient based analysis possible. For medicines used in mental health the CHI capture / completeness rates are now high enough to permit accurate patient analyses. The CHI capture rate for each topic contained within this report is as follows:

Table 1: CHI Capture rates for Scotland by drug type 2009/10 to 2016/17

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</tr>
</thead>
<tbody>
<tr>
<td>Hypnotics &amp; Anxiolytics</td>
<td>90.8%</td>
<td>92.7%</td>
<td>93.2%</td>
<td>94.5%</td>
<td>96.0%</td>
<td>96.4%</td>
<td>96.6%</td>
<td>96.6%</td>
</tr>
<tr>
<td>Psychoses &amp; related disorders</td>
<td>91.1%</td>
<td>93.8%</td>
<td>94.3%</td>
<td>95.1%</td>
<td>96.5%</td>
<td>97.0%</td>
<td>97.2%</td>
<td>97.4%</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>93.4%</td>
<td>95.4%</td>
<td>95.9%</td>
<td>97.0%</td>
<td>98.2%</td>
<td>98.6%</td>
<td>98.7%</td>
<td>98.7%</td>
</tr>
<tr>
<td>ADHD</td>
<td>87.6%</td>
<td>91.0%</td>
<td>91.8%</td>
<td>91.4%</td>
<td>93.3%</td>
<td>93.2%</td>
<td>93.6%</td>
<td>92.7%</td>
</tr>
<tr>
<td>Dementia</td>
<td>84.0%</td>
<td>87.4%</td>
<td>87.0%</td>
<td>88.3%</td>
<td>92.1%</td>
<td>93.5%</td>
<td>94.7%</td>
<td>95.4%</td>
</tr>
</tbody>
</table>

Table 1 shows the percentage of dispensed (2009/10 to 2014/15) and paid (2015/16 and 2016/17) items that have a valid CHI number attached and are therefore included in the patient based analysis. This rate should be considered when interpreting any trends in patient data (see comments on this in the Interpretation of Results section below). CHI completeness is highest for GP prescribing. The rate is lower for some types of drugs (such as dementia drugs) because these drugs are often prescribed through specialist hospital clinics rather than GPs, although there are ongoing improvements in capturing CHI across all areas.

The patient count for any given year shows the total number of patients who have been dispensed at least one prescription item during the course of that year.

Defined Daily Doses

Defined Daily Doses (DDDs) are a measure derived from data on international use of the substance in question. DDDs were developed by the World Health Organisation (WHO) and are defined as “the assumed average maintenance dose per day used on its main indication in adults”. The WHO states that “It should be emphasised that the defined daily dose is a unit of measurement and does not necessarily reflect the recommended or Prescribed Daily Dose”. DDDs do not provide an exact picture of drug use, but can be used to give an estimate of levels of drug consumption. By providing a fixed unit of measurement, they allow the trend of drug consumption over time or for other regions or countries to be compared. Occasionally the
WHO recommended DDD for a drug will change. The data in this report are presented by current DDD for all years in order to allow meaningful trend analysis.

Advantages of Patient Analyses

In the past, the number of daily maintenance doses dispensed was used to produce an estimate of the proportion of the population making daily use of these drugs. For example, 10 DDDs per 1,000 population per day correspond to a daily use of the drug by 1% of the population. This is an estimate based on the assumed daily maintenance dose and so does not show the actual proportion of the population being prescribed a particular medicine. Due to the improvement of CHI capture, it is now possible to carry out accurate patient based analyses, thereby making available information on the actual number of patients who have been dispensed a particular drug during a specified period.

Interpretation of Results

When interpreting trends in patient counts over time, the underlying CHI completeness rate must also be considered. It is difficult to identify with certainty how much impact an increasing CHI completeness has on the number of patients identified. However, the evidence available suggests that the impact is small when considering the scale of change in CHI completeness presented in this report. CHI capture is based on the number of items with a valid CHI attached; in reality, a single patient will have some items with a valid CHI and others without. The count of patients looks for ‘at least one’ item dispensed in a given period and analysis shows that most patients will be counted, even if not all items dispensed to them had a valid CHI attached. Variations in CHI capture over time for data presented in this report are not thought to be significantly affecting trends in patient counts.

It should be noted that patient counts and DDDs are measuring different things. The patient based figure counts the number of people who have been prescribed the drug within the specified time period (in this case a year), whereas the DDD is an estimate of the average number of people taking it on any one day during the year. The patient based figure will usually be higher, since some people might only be on the drug/s for a short period or at a low dose.

For example, in the DDD analysis, one person on a maintenance dose for 12 months will count the same as six people taking this drug for 2 months each. The patient based analysis will count all six people.
Changes to the publication

NHS Health Board boundary changes

On the 1st April 2014 a number of changes were made to NHS Health Board boundaries to support the integration of NHS and Local Authority services. These revisions resulted in small changes to the resident populations of the majority of Scottish NHS Health Boards. NHS Greater Glasgow & Clyde and NHS Lanarkshire saw the largest changes to resident populations, with approximately 72,000 residents being reassigned from NHS Greater Glasgow & Clyde to NHS Lanarkshire. A small number of GP Practices and Community Pharmacies that had previously been affiliated to NHS Greater Glasgow and Clyde were also transferred to sit within the revised NHS Lanarkshire boundary. The impact of these changes should be taken into consideration when comparing trends in NHS Board activity over time.

Dispensed to Paid Items

In previous Medicines used in Mental Health publications, information was provided based upon measures from the prescribing dataset that are classed as relating to dispensed items. However, a review of this data has shown that this includes prescriptions that were not dispensed (generally because the patient did not require a particular item on a prescription) or that were not collected by the patient. Normally such prescriptions would not result in a cost to NHSScotland. Such items are recorded as an artefact of the payment process but may not represent all instances where a prescription was written but not dispensed or not collected and so the information provides no reliably meaningful information beyond what is available from paid measures of activity and cost. Paid items are now used rather than dispensed items. This is because paid item information best reflects the activity and costs associated with prescribing and the supply of medicines to patients in NHSScotland. Comparison between Dispensed Items and Paid Items for 2014/15 and 2015/16 has been made and the differences are found to be negligible, therefore comparison between Dispensed Items and Paid Items between 2015/16 and previous years is valid for these data. The table below shows the differences between Paid and Dispensed items in 2014/15 and 2015/16 by drug type.

Table 2: Difference between Paid and Dispensed items 2014/15 and 2015/16

<table>
<thead>
<tr>
<th>Topic</th>
<th>% Difference Paid and Dispensed Items 2014/15</th>
<th>% Difference Paid and Dispensed Items 2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnotics &amp; Anxiolytics</td>
<td>-0.002%</td>
<td>-0.004%</td>
</tr>
<tr>
<td>Psychoses &amp; related disorders</td>
<td>0.001%</td>
<td>-0.003%</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>0.000%</td>
<td>-0.005%</td>
</tr>
<tr>
<td>ADHD</td>
<td>-0.081%</td>
<td>-0.152%</td>
</tr>
<tr>
<td>Dementia</td>
<td>0.003%</td>
<td>-0.001%</td>
</tr>
</tbody>
</table>
Key points

- Dispensing of antipsychotics, antidepressants, drugs for ADHD and drugs for dementia has been steadily increasing over the past ten years. Dispensing of hypnotics and anxiolytics has remained stable in the past ten years although showed a small increase (0.3%) between 2015/16 and 2016/17.

- There is a trend of increasing total cost for antidepressants and ADHD. This reflects increased usage. The cost for hypnotics and anxiolytics has also increased between 2015/16 and 2016/17. There has been a decrease in cost for antipsychotics, and dementia drugs. This is primarily due to reductions in drug prices and drugs coming out of patent.

- All of the mental health drugs considered in this report show a consistent pattern of increasing volume dispensed with increasing patient deprivation. For elderly patients dispensed dementia drugs, this pattern is less pronounced, but still evident.

- For most of these groups of mental health drugs there are substantially more drugs dispensed to females than males. The exception to this is ADHD, where 80% of dispensing is to males.

- There is wide variation in dispensing of mental health drugs between NHS Boards (reflecting different populations and methods of service delivery).
Results and Commentary

Hypnotics and Anxiolytics

NHS Scotland

The total number of hypnotic and anxiolytic prescription items dispensed changed very little between 2015/16 and 2016/17 (only a slight increase of 0.3%). This follows the trend in which the overall number of items dispensed has remained largely stable over the last ten years (Figure 1).

Figure 1: Number of Items† (thousands) – Hypnotics & Anxiolytics – 2006/07 to 2016/17

The Gross Ingredient Cost (GIC) for hypnotics and anxiolytics has shown much more fluctuation (Figure 2) than the number of dispensed items over the last ten years. GIC is the cost of medicines and appliances reimbursed to dispensing contractors at list price and is used to make comparisons at an item level.

The total GIC for hypnotics and anxiolytics increased from £12.3million to £13.3million (an increase of 7.8%) between 2015/16 and 2016/17. Prior to 2013/14, the GIC had been falling since 2007/08. The sharp movement shown between 2005/06 and 2007/08 was due to the process of price re-alignment (Figure 2). The increase from 2012/13 to 2013/14 is due in part to the higher price of temazepam due to it being in short supply during 2012 through to April 2014. The introduction of two unlicensed versions of melatonin into the Part 7S section of the Scottish Drug Tariff also means that more melatonin products, which were previously recorded as unlicensed ‘dummy’ items, are now recorded in the correct BNF Section and so are included in this report. These melatonin products may be used for treatment of insomnia in children with conditions such as ADHD.

† Number of Items is based on Dispensed Items 2005/06 to 2014/15, and on Paid Items in 2015/16 to 2016/17.
The total number of Defined Daily Doses per 1,000 population dispensed hypnotics and anxiolytic drugs has fallen in Scotland over the past ten years: from 34.9 in 2006/07 to 28.1 in 2016/17.

In Scotland, a total of 369,156 patients were dispensed at least one hypnotic or anxiolytic drug in 2016/17. This is slightly more than in 2015/16, an increase of 1.1% (from 365,045 patients in 2015/16) (Table 3). The patient level data demonstrates a similar trend to the data on the total number of items dispensed which has also slightly increased as shown in Figure 1.

Table 3: Patients by Gender – Hypnotics and Anxiolytics – 2009/10 to 2016/17

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009/10</td>
<td>350,357</td>
<td>126,341</td>
<td>224,016</td>
</tr>
<tr>
<td>2010/11</td>
<td>358,588</td>
<td>129,294</td>
<td>229,294</td>
</tr>
<tr>
<td>2011/12</td>
<td>363,823</td>
<td>131,659</td>
<td>232,164</td>
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<tr>
<td>2012/13</td>
<td>358,273</td>
<td>130,326</td>
<td>227,947</td>
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<tr>
<td>2013/14</td>
<td>367,597</td>
<td>135,561</td>
<td>232,036</td>
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<tr>
<td>2014/15</td>
<td>365,242</td>
<td>135,264</td>
<td>229,976</td>
</tr>
<tr>
<td>2015/16</td>
<td>365,045</td>
<td>136,001</td>
<td>229,044</td>
</tr>
<tr>
<td>2016/17</td>
<td>369,156</td>
<td>138,184</td>
<td>230,972</td>
</tr>
</tbody>
</table>

In 2016/17, 62.6% of patients who received treatment with a hypnotic or anxiolytic drug were female while 37.4% were male. This is consistent with previous years for which data are available (Table 3).

Hypnotics and anxiolytics are, in general, licensed for patients aged 15 years and over, however items can be prescribed ‘off label’ based on specialist recommendation. Figure 3 shows that the number of patients dispensed these drugs increases from age group 15-19 years to a peak for patients aged 50-54 years (37,423 patients) and then steadily decreases as patients get older (Figure 3). This pattern by age group is also seen for previous years.
A breakdown by Scottish Index of Multiple Deprivation (SIMD) is included for 2016/17 data. SIMD is a measure of patient deprivation, and in this publication is reported using quintiles; where SIMD 1 is the most deprived and SIMD 5 is the least deprived group. For Hypnotics and Anxiolytics there is a clear gradient, showing increasing patient counts and number of dispensed items with increasing deprivation (Figure 4).
NHS Board

Information on prescribing for hypnotics and anxiolytic drugs at NHS Board level has also been analysed. Figures 5 and 6 show prescribing of drugs by NHS Board in terms of the number of DDDs per 1,000 population per day for drugs used in the treatment of insomnia and anxiety, respectively.

Eight of the fourteen NHS Boards have shown a reduction in the prescribing of hypnotics when comparing the number of DDDs per 1,000 population per day for the periods 2009/10 and 2015/16. The largest reduction was recorded by NHS Western Isles (down from 24.9 DDDs per 1,000 population per day in 2009/10 to 16.6 DDDs in 2016/17). NHS Orkney is the lowest ‘user’ of hypnotics, dispensing 9.4 DDDs per 1,000 population per day in 2016/17 (Figure 5).

Figure 5: Hypnotics – Number of Defined Daily Doses per 1,000 Population (aged 15+) per Day 2009/10 and 2016/17

The majority of NHS Boards have shown a decrease in the prescribing of anxiolytics in the last six years. The largest fall occurred in NHS Greater Glasgow and Clyde, where the number of DDDs dispensed per 1,000 population per day fell from 17.3 daily doses to 11.9 daily doses between 2009/10 and 2016/17. In contrast NHS Orkney’s usage increased from 4.4 to 5.0 DDDs per 1,000 population per day over the same period (Figure 6).
Figure 6: Anxiolytics – Number of Defined Daily Doses per 1,000 Population (aged 15+) per Day 2009/10 and 2016/17

<table>
<thead>
<tr>
<th>NHS Board</th>
<th>2009/10</th>
<th>2016/17</th>
<th>Scotland 2009/10</th>
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<tbody>
<tr>
<td>Ayrshire &amp; Arran</td>
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<td>Borders</td>
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<td>Dumfries &amp; Galloway</td>
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<td>Fife</td>
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</tr>
<tr>
<td>Tayside</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Isles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Antipsychotics and related drugs**

**NHS Scotland**

The total number of prescription items dispensed for psychoses and related disorders increased between 2015/16 and 2016/17 (from 927,875 to 971,340 items; an increase of 4.7%). This follows a gradual increase over the last ten years; the total number of dispensed items has increased by 48.8% between 2006/07 and 2016/17 (from 670,842 items in 2006/07) (Figure 7).

**Figure 7: Number of Items† (thousands) – Psychoses and related disorders – 2006/07 to 2016/17**

Figure 8 shows that the Gross Ingredient Cost (GIC) of drugs for psychoses and related disorders (BNF 4.2) has decreased by 16.4% from £16.6 million in 2015/16 to £13.9 million in 2016/17.

The GIC for depot injections (BNF 4.2.2) marginally increased by 0.5% from £1.79 million in 2015/16 to £1.8 million in 2016/17, while the antimanic drugs (BNF 4.2.3) increased by 22.3% from £874,962 to £1.1 million during the same time period (Figure 8).
The total number of Defined Daily Doses per 1,000 population of drugs dispensed for psychoses and related disorders has increased in Scotland over the past ten years: from 8.9 in 2006/07 to 11.3 in 2016/17.

In Scotland a total of 95,402 patients received medicines for treatment of psychoses and related disorders in 2016/17. This is an increase of 4.6% compared to 2015/16 (91,205 patients) and an increase of 31.0% since 2009/10 (72,811 patients) (Table 4).

**Table 4: Patients by Gender – Psychoses and Related Disorders – 2009/10 to 2016/17**

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009/10</td>
<td>72,811</td>
<td>32,937</td>
<td>39,874</td>
</tr>
<tr>
<td>2010/11</td>
<td>75,770</td>
<td>34,513</td>
<td>41,257</td>
</tr>
<tr>
<td>2011/12</td>
<td>78,471</td>
<td>35,879</td>
<td>42,592</td>
</tr>
<tr>
<td>2012/13</td>
<td>80,479</td>
<td>36,920</td>
<td>43,559</td>
</tr>
<tr>
<td>2013/14</td>
<td>83,687</td>
<td>38,614</td>
<td>45,073</td>
</tr>
<tr>
<td>2014/15</td>
<td>87,609</td>
<td>40,298</td>
<td>47,311</td>
</tr>
<tr>
<td>2015/16</td>
<td>91,205</td>
<td>42,219</td>
<td>48,986</td>
</tr>
<tr>
<td>2016/17</td>
<td>95,402</td>
<td>43,919</td>
<td>51,483</td>
</tr>
</tbody>
</table>

In 2016/17, 54.0% of patients who received treatment with drugs for psychoses and related disorders were female while 46.0% were male. This is consistent with previous years.

The number of patients dispensed drugs for psychoses and related disorders substantially increases from age group 15-19 years to a peak for patients aged 50-54 years (9,251 patients) and then generally decreases as patients get older (Figure 9). This pattern by age group is also seen for previous years.
A breakdown by Scottish Index of Multiple Deprivation (SIMD) is included for 2016/17 data. For antipsychotics and related drugs there is a clear gradient, showing increasing patient counts and number of items with increasing deprivation (Figure 10).

**Figure 10: Number of Items by Patient SIMD – Psychoses & Related Disorders – 2016/17**
As the majority of the drugs used in the treatment of psychoses and related disorders are antipsychotic drugs (BNF section 4.2.1), only these drugs are presented by NHS Boards for 2009/10 and 2016/17 in Figure 11.

All NHS Boards show increased prescribing of antipsychotic drugs since 2009/10. The use of antipsychotic drugs (BNF 4.2.1) has increased from 7.3 to 9.1 DDDs per 1,000 population per day between 2009/10 and 2016/17. Five of the fourteen NHS Boards dispensed above the 2016/17 national average for antipsychotic drugs (BNF 4.2.1); with NHS Tayside being the highest at 11.0 DDDs per 1,000 population per day (for patients aged 15+ years) (Figure 11).

**Figure 11: Antipsychotic Drugs (BNF 4.2.1) – Number of Defined Daily Doses per 1,000 Population (age 15+) per Day – 2009/10 and 2016/17**
Antidepressants

NHS Scotland

The total number of antidepressant prescription items dispensed increased by 4.7% between 2015/16 and 2016/17 (from 6.1 to 6.4 million items). This has increased fairly consistently over the last ten years, rising by 75.1% overall (from 3.6 million items in 2006/07) (Figure 12).

**Figure 12: Number of Items† (millions) – Antidepressants – 2006/07 to 2016/17**

While the total number of prescription items dispensed has increased over the last ten years, the Gross Ingredient Cost (GIC) for antidepressants only marginally increased. Overall it increased by 2.1% between 2006/07 and 2016/17 (from £43.7 million £44.6 million). Over the last year the GIC for antidepressants has slightly increased by 1.2% from £44.1 million in 2015/16 (Figure 13).

**Figure 13: Gross Ingredient Cost (£m) – Antidepressants – 2006/07 to 2016/17**
The total number of DDDs per 1,000 population of antidepressants dispensed has increased in Scotland in the last ten years: from 88.2 in 2006/07 to 157.0 in 2016/17.

Patient level data are available for analysis from April 2009 onwards. Data on the total number of patients dispensed an antidepressant should be interpreted with great caution: it does not equate to people being treated for depression because many drugs classified as antidepressants can also be used for conditions other than depression; including neuropathic pain, post-traumatic stress disorder and anxiety disorders.

In Scotland a total of 877,453 patients were dispensed at least one antidepressant during 2016/17. This is an increase of 3.6% compared to 2015/16 (846,979 patients), and an increase of 38.4% since 2009/10 (633,791 patients) (Table 5).

### Table 5: Patients by Gender – Antidepressants – 2009/10 to 2016/17

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009/10</td>
<td>633,791</td>
<td>204,119</td>
<td>429,672</td>
</tr>
<tr>
<td>2010/11</td>
<td>675,948</td>
<td>219,071</td>
<td>456,877</td>
</tr>
<tr>
<td>2011/12</td>
<td>718,330</td>
<td>234,899</td>
<td>483,431</td>
</tr>
<tr>
<td>2012/13</td>
<td>747,158</td>
<td>246,925</td>
<td>500,233</td>
</tr>
<tr>
<td>2013/14</td>
<td>778,180</td>
<td>259,747</td>
<td>518,433</td>
</tr>
<tr>
<td>2014/15</td>
<td>814,181</td>
<td>273,903</td>
<td>540,278</td>
</tr>
<tr>
<td>2015/16</td>
<td>846,979</td>
<td>286,880</td>
<td>560,099</td>
</tr>
<tr>
<td>2016/17</td>
<td>877,453</td>
<td>298,900</td>
<td>578,553</td>
</tr>
</tbody>
</table>

In 2016/17, 65.9% of patients who received antidepressant treatment were female while 34.1% were male, which is consistent with previous years.

The number of patients dispensed antidepressant drugs substantially increases from age group 15-19 years to a peak for patients aged 50-54 years (96,752 patients) and then steadily decreases as patients get older (Figure 14). This pattern by age group is also seen for previous years.

### Figure 14: Patients by Age Group – Antidepressants – 2016/17
A breakdown by Scottish Index of Multiple Deprivation (SIMD) is included for 2016/17 data. For antidepressants there is a clear gradient, showing increasing patient counts and number of dispensed items with increasing deprivation (Figure 15).

**Figure 15: Number of Items by Patient SIMD – Antidepressants – 2016/17**

![Bar chart showing number of items by SIMD quintile for antidepressants in 2016/17.](image)

### NHS Boards

Information on the NHS Board of prescribing for antidepressants has also been analysed. Figure 16 shows prescribing of drugs by NHS Board in terms of the number of DDDs per 1,000 population per day.

In Scotland an average of 157.0 DDDs were dispensed per 1,000 population per day during 2016/17. Eight NHS Boards prescribed higher than the national average for antidepressants in 2016/17, of which NHS Lanarkshire prescribed the highest with 175.3 DDDs per 1,000 population per day. NHS Ayrshire and Arran had the second highest antidepressant prescribing rate (175.2) whilst NHS Western Isles had the lowest rate, with 128.3 DDDs per 1,000 population per day (Figure 16).

All NHS Boards showed an increase in number of defined daily doses per 1,000 populations between 2009/10 and 2016/17.
Individual Antidepressant Drugs

All of the top 5 antidepressant drugs show an increase in dispensed items when comparing 2006/07 to 2016/17. Sertraline shows the largest increase, up 376.7% (818,623 items) from 2006/07 (Table 6). The top 5 drugs in 2016/17 are the same as the top 5 drugs in 2015/16.

Table 6: Top Five Antidepressants – Number of Dispensed Items – 2006/07 to 2016/17

<table>
<thead>
<tr>
<th>Approved Name</th>
<th>Type</th>
<th>Number of Items 2006/07</th>
<th>Number of Items 2016/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>Tricyclic</td>
<td>681,655</td>
<td>1,248,497</td>
</tr>
<tr>
<td>Citalopram</td>
<td>SSRI</td>
<td>729,064</td>
<td>1,160,624</td>
</tr>
<tr>
<td>Sertraline</td>
<td>Other</td>
<td>217,302</td>
<td>1,035,925</td>
</tr>
<tr>
<td>Fluoxetine</td>
<td>SSRI</td>
<td>636,435</td>
<td>856,844</td>
</tr>
<tr>
<td>Mirtazapine</td>
<td>Other</td>
<td>248,146</td>
<td>780,906</td>
</tr>
</tbody>
</table>

Amitriptyline is used for various indications in addition to the treatment of depression, including to treat neuropathic pain, fibromyalgia, migraine prophylaxis and bed-wetting in children. These are unlicensed indications, i.e. the use of a medicine that is not included in that medicine’s marketing authorisation or product description as recognised by the Medicines and Healthcare Product Regulatory Authority.

Previous Medicines Used In Mental Health publications have reported on the use of different strengths of amitriptyline typically being used for specific indications, i.e. high dosage strengths for depression, low dosage strengths for neuropathic pain, which could be used to infer the proportion of the total dispensed for different indications. However, SIGN 136 – Management of Chronic Pain advises that the dose of amitriptyline to treat chronic pain and fibromyalgia should be 25-125mg/day. As this dosage range overlaps with the treatment of depression, it is not possible to differentiate likely indication. Future publications will explore this issue in greater detail.
Drugs used for Attention Deficit Hyperactivity Disorder (ADHD)

NHS Scotland

The total number of ADHD prescription items dispensed rose by 11.9% between 2015/16 (116,556 items) and 2016/17 (130,370 items). The number of items has been increasing consistently over the last ten years, rising by 119.3% overall (from 59,461 items in 2006/07). Prescribing of methylphenidate hydrochloride is the most commonly prescribed item in BNF section 4.4, accounting for 76.2% of ADHD drug dispensed items in 2016/17 (Figure 17).

Over the last ten years the Gross Ingredient Cost (GIC) for ADHD drugs has shown a similar, though steeper, trend to the number of items dispensed, rising by 157.0% (from £2.5 million in 2006/07 to £6.4 million in 2016/17). Over the last year the GIC for ADHD drugs rose by 11.4% from £5.8 million in 2015/16 (Figure 18).
The total number of Defined Daily Doses per 1,000 population per day of drugs for ADHD has increased in Scotland over the past ten years: from 4.6 in 2006/07 to 10.2 in 2016/17.

In Scotland a total of 12,145 patients received drug treatment for ADHD in 2016/17. This is an increase of 11.6% compared to 2015/16 (10,883 patients) and an increase of 81.0% since 2009/10 (6,711 patients) (Table 7).

Table 7: Patients by Gender – ADHD Drugs – 2009/10 to 2016/17

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009/10</td>
<td>6,711</td>
<td>5,500</td>
<td>1,211</td>
</tr>
<tr>
<td>2010/11</td>
<td>7,138</td>
<td>5,860</td>
<td>1,278</td>
</tr>
<tr>
<td>2011/12</td>
<td>7,511</td>
<td>6,103</td>
<td>1,408</td>
</tr>
<tr>
<td>2012/13</td>
<td>7,918</td>
<td>6,413</td>
<td>1,505</td>
</tr>
<tr>
<td>2013/14</td>
<td>8,924</td>
<td>7,165</td>
<td>1,759</td>
</tr>
<tr>
<td>2014/15</td>
<td>9,810</td>
<td>7,849</td>
<td>1,961</td>
</tr>
<tr>
<td>2015/16</td>
<td>10,883</td>
<td>8,667</td>
<td>2,216</td>
</tr>
<tr>
<td>2016/17</td>
<td>12,145</td>
<td>9,542</td>
<td>2,603</td>
</tr>
</tbody>
</table>

In 2016/17, 78.6% of patients who received drug treatment for ADHD were male while 21.4% were female. This is consistent with previous years (Table 7).

Figure 19 shows that the age grouping with the greatest number of patients who received drug treatment for ADHD was '10-14', with 3,971 patients in that age group in 2016/17. ADHD Drugs are in general licensed for the ages 5–18; however one of the drugs, dexamphetamine sulphate is also licensed for use to treat narcolepsy in the elderly. Initiating treatment of ADHD in adulthood is uncommon, however for those who were initially prescribed ADHD drugs when younger treatment may continue into adulthood (Figure 19).
A breakdown by Scottish Index of Multiple Deprivation (SIMD) is included for 2016/17 data. For ADHD drugs there is also a clear gradient, showing increasing patient counts and number of dispensed items with increasing deprivation (Figure 20).
NHS Boards

Among the NHS Boards, the highest recorded rate of DDDs per 1,000 population per day for 2016/17 was in NHS Borders at 24.3 and Western Isles was the lowest at 1.9 DDDs per 1,000 population per day (Figure 21).

Thirteen of the fourteen NHS Boards showed an increase in dispensing of ADHD drugs between 2009/10 and 2016/17. The largest increase was recorded by NHS Borders who dispensed 10.5 DDDs per 1,000 population per day in 2009/10, increasing to 24.3 in 2016/17. Dispensing in NHS Fife and NHS Tayside was also substantially higher than the national average for 2015/16.

Figure 21: Number of Defined Daily Doses per 1,000 Population (aged 0-19) per Day – ADHD Drugs – 2009/10 and 2016/17
Drugs for Dementia

NHS Scotland

The total number of prescription items dispensed for dementia increased by 5.6% between 2015/16 (249,675 items) and 2016/17 (263,619 items). This has been increasing steadily over the last ten years, rising by 215.2% overall (from 83,643 items in 2006/07) (Figure 22). The number of prescription items for memantine has increased sharply over the last six years (by 1,351% between 2010/11 and 2016/17). This is likely to be due to the change in guidance over its use as mentioned in the introduction.

Figure 22: Number of items† (thousands) – Dementia Drugs – 2006/07 to 2016/17

The Gross Ingredient Cost (GIC) for dementia drugs had grown steadily from £8.8 million in 2006/07 to £15.0 million by 2011/12 (an increase of 70.8%). However, the GIC of dementia drugs is now decreasing; it fell by 18.7% from £10.2 million in 2012/13 to £8.3 million in 2013/14, and a further drop to £3.8 million in 2016/17 (Figure 24); down 74.7% from 2011/12. The main reason for this is likely to be the availability of generic versions of donepezil since the expiration of its UK patent in February 2012, causing a fall in GIC for donepezil by over £8.6 million (95.3%) between 2011/12 and 2016/17, despite an increase in the number of items dispensed (52.1% increase in items). Generic versions of other dementia drugs are now available on the market – leading to the drop in prices illustrated in Figure 23.
The total number of Defined Daily Doses per 1,000 population of drugs for dementia has increased in Scotland over the past ten years: from 8.4 in 2006/07 to 19.0 in 2016/17.

Patient level data can be reported for dementia drugs from April 2009. The CHI capture rate for drugs for dementia in 2016/17 was 95.4%. This is an increase on the previous year (Table 8), however it is still slightly lower for dementia than for some other sections. This is due to differing models of dementia services provision in NHS boards.

In Scotland a total of 27,899 patients were dispensed at least one drug for dementia during 2016/17. This is an increase of 5.3% compared to 2015/16 (26,489 patients) and an increase of 97.6% since 2009/10 (14,122 patients) (Table 8). This is consistent with the increasing number of dementia drugs being dispensed over the last seven years (Figure 22), however the rise in CHI Capture rate should be taken into account when interpreting these figures.

In 2016/17, 64.2% of patients who were dispensed dementia drugs were female while 35.8% were male. This is consistent with previous years.

Table 8: Patients by Gender – dementia drugs – 2009/10 to 2016/17

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009/10</td>
<td>14,122</td>
<td>4,884</td>
<td>9,238</td>
</tr>
<tr>
<td>2010/11</td>
<td>15,886</td>
<td>5,486</td>
<td>10,400</td>
</tr>
<tr>
<td>2011/12</td>
<td>17,546</td>
<td>6,150</td>
<td>11,396</td>
</tr>
<tr>
<td>2012/13</td>
<td>19,763</td>
<td>6,974</td>
<td>12,789</td>
</tr>
<tr>
<td>2013/14</td>
<td>23,063</td>
<td>8,144</td>
<td>14,919</td>
</tr>
<tr>
<td>2014/15</td>
<td>25,244</td>
<td>8,892</td>
<td>16,352</td>
</tr>
<tr>
<td>2015/16</td>
<td>26,489</td>
<td>9,402</td>
<td>17,087</td>
</tr>
<tr>
<td>2016/17</td>
<td>27,899</td>
<td>9,976</td>
<td>17,923</td>
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The majority of patients being prescribed dementia drugs are aged 70 and above. This is due to the late onset of the condition in life. The age group with the greatest number of patients to receive a drug for dementia was ‘80-84’, with 7,412 patients in 2016/17 (Figure 24).
A breakdown by Scottish Index of Multiple Deprivation (SIMD) is included for 2016/17 data. For drugs for dementia there is not such a clear gradient as with the previous sections; SIMD Quintile 1 (the most deprived) shows a lower number of both items (Figure 25) and patients, with Quintile 2 and 3 showing both higher items and patients. Thereafter, both counts tail off as deprivation decreases. As dementia is more likely to present in older age groups, the impact of lower life expectancy in the more deprived SIMD group is likely to affect the number of items received.

**NHS Boards**

In Scotland, an average of 19.0 DDDs were dispensed per 1,000 population per day during 2016/17. Four NHS boards dispensed above the national average for dementia, of which NHS Lothian prescribed the highest with 25.7 DDDs per 1,000 population per day. NHS Borders had the second highest prescribing rate with 25.2 DDDs per 1,000 population per day, while NHS Orkney had the lowest rate, with 9.0 DDDs per 1,000 population per day (Figure 26).
All NHS Boards, with the exception of NHS Orkney, show an increase in dispensing of drugs for dementia between 2009/10 and 2016/17.

**Figure 26: Number of Defined Daily Doses per 1,000 Population (aged 60+) per Day – Dementia Drugs, 2009/10 and 2016/17**
## Glossary

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<th>Term</th>
<th>Definition</th>
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<td>ADHD</td>
<td>Attention deficit hyperactivity disorder</td>
</tr>
<tr>
<td>Approved Drug Name</td>
<td>As listed in BNF, being the recognised official non-proprietary title (recommended International Non-Proprietary Name - rINN).</td>
</tr>
<tr>
<td>British National Formulary (BNF)</td>
<td>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.</td>
</tr>
<tr>
<td>Defined Daily Dose (DDD)</td>
<td>Assumed average maintenance dose per day for a drug when used for its main indication in adults, as defined by World Health Organisation.</td>
</tr>
<tr>
<td>Dispensed Item</td>
<td>An instance of dispensing of a medicine or device. E.g. a packet of 100 paracetamol 500mg tablets is one item if so prescribed.</td>
</tr>
<tr>
<td>Gross Ingredient Cost (GIC)</td>
<td>Cost of drugs and appliances reimbursed before deduction of any dispenser discount (this definition differs from other parts of the UK). This is used to make comparisons at an item level.</td>
</tr>
<tr>
<td>Prescribable Item Name</td>
<td>The drug name written on the prescription - can be by approved name or a brand name.</td>
</tr>
<tr>
<td>Prescribed Health Board</td>
<td>The NHS Board with which the prescriber holds a contract to prescribe, i.e. GP, Dentist, Non-medical prescriber.</td>
</tr>
<tr>
<td>Prescription item</td>
<td>An item is an individual product prescribed e.g.100 aspirin tablets of 300mg.</td>
</tr>
<tr>
<td>Quantity</td>
<td>Quantity dispensed of an individual item e.g. 100 tablets</td>
</tr>
<tr>
<td>SIMD</td>
<td>Scottish Index of Multiple Deprivation - A measure of deprivation for Scotland.</td>
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## List of Tables

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Appendices

A1 – Background Information

How the data are obtained

Practitioner Services process 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 ascertain 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.

Changes to publications – October 2016

NHS Health Board boundary changes

On the 1st April 2014 a number of changes were made to NHS Health Board boundaries to support the integration of NHS and Local Authority services. These revisions resulted in small changes to the resident populations of the majority of Scottish NHS Health Boards. NHS Greater Glasgow & Clyde and NHS Lanarkshire saw the largest changes to resident populations, with approximately 72,000 residents being reassigned from NHS Greater Glasgow & Clyde to NHS Lanarkshire. A small number of GP Practices and Community Pharmacies that had previously been affiliated to NHS Greater Glasgow and Clyde were also transferred to sit within the revised NHS Lanarkshire boundary. The impact of these changes should be taken into consideration when comparing trends in NHS Board activity over time.

Prescribing Dispensed to Paid Items

In previous Medicines used in Mental Health publications, information was provided based upon measures from the prescribing dataset that are classed as relating to dispensed items. However, a review of this data has shown that this includes prescriptions that were not dispensed (generally because the patient did not require a particular item on a prescription) or that were not collected by the patient. Normally such prescriptions would not result in a cost to NHSScotland. Such items are recorded as an artefact of the payment process but may not represent all instances where a prescription was written but not dispensed or not collected and so the information provides no reliably meaningful information beyond what is available from paid measures of activity and cost. Paid items are now used rather than dispensed items. This is because paid item information best reflects the activity and costs associated with prescribing and the supply of medicines to patients in NHSScotland. Comparison between Dispensed Items and Paid Items for 2014/15 and 2015/16 has been made and the differences are found to be negligible, therefore comparison between Dispensed Items and Paid Items between 2015/16 and previous years is valid for these data.
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<tr>
<td>Description</td>
<td>Summary and detailed statistics on prescribing and dispensing in the community in Scotland including: Medicines used in mental health (based on BNF section 4.1, 4.2, 4.3, 4.4 and 4.11) presented for NHS Scotland and by NHS board. The number of patients, number of items, gross ingredient cost and defined daily doses are shown.</td>
</tr>
<tr>
<td>Theme</td>
<td>Health and Social Care</td>
</tr>
<tr>
<td>Topic</td>
<td>Health Care Personnel, Finance and Performance</td>
</tr>
<tr>
<td>Format</td>
<td>Excel workbooks</td>
</tr>
<tr>
<td>Data source(s)</td>
<td>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.</td>
</tr>
<tr>
<td>Date that data are acquired</td>
<td>Data are acquired on a monthly basis from PSD following payment approximately 2 calendar months after the end of the month being claimed for payment by contractors</td>
</tr>
<tr>
<td>Release date</td>
<td>10 October 2017</td>
</tr>
<tr>
<td>Frequency</td>
<td>Annual</td>
</tr>
<tr>
<td>Timeframe of data and timeliness</td>
<td>The publication includes data up to 2016/17.</td>
</tr>
<tr>
<td>Continuity of data</td>
<td>Data are held in PIS for the most recent 12 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, with the exception of the change of the main measurement of Items from Dispensed Items to Paid Items from 2015/16. A review of this data has shown that this includes prescriptions that were not dispensed (generally because the patient did not require a particular item on a prescription) or that were not collected by the patient. Normally such prescriptions would not result in a cost to NHSScotland. Such items are recorded as an artefact of the payment process but may not represent all instances where a prescription was written but not dispensed or not collected and so the information provides no reliably meaningful information beyond what is available from paid measures of activity and cost. Paid items are now used rather than dispensed items. This is because paid item information best reflects the activity and costs associated</td>
</tr>
</tbody>
</table>
Comparison between Dispensed Items and Paid Items for 2014/15 and 2015/16 has been made and the differences are found to be negligible, therefore comparison between Dispensed Items and Paid Items between 2015/16 and previous years is valid for these data. Additionally, 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. Population figures have been updated as explained in the ‘Changes to Data’ section, which affects the trend of DDDs per 1,000 population.

### 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. Retrospective revisions can occur in the classification of drugs in the [British National Formulary (BNF)](#). Where this occurs and is 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 publication
The populations used have been updated to the NRS re-based estimates based on the 2011 census. Changes have been applied to all data in the accompanying tables (showing 2006/07 – 2016/17 data).

### 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.

### Relevance and key uses of the statistics
These statistics are the primary source of patient level data on prescribing for mental health within Scotland. They are also used to compare prescribing patterns across Health Boards and over time.

### Accuracy
The data are 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 fewer than 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 British National Formulary (BNF) 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 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 measurement**
The main unit of measure of drug reimbursement costs presented is Gross Ingredient Cost (GIC) quantity. The main measures of drug volume are items (the number of individual drug items on a prescription form), 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 ISD protocol on Statistical Disclosure Protocol is followed.

**Official Statistics designation**
National Statistics
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<tr>
<th>UK Statistics Authority Assessment</th>
<th>Assessment by UK Statistics Authority completed and assessment report issued.</th>
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<tr>
<td>Last published</td>
<td>04 October 2016</td>
</tr>
<tr>
<td>Next published</td>
<td>09 October 2018</td>
</tr>
<tr>
<td>Date of first publication</td>
<td>December 2006</td>
</tr>
<tr>
<td>Help email</td>
<td><a href="mailto:NSS.isdprescribing@nhs.net">NSS.isdprescribing@nhs.net</a></td>
</tr>
<tr>
<td>Date form completed</td>
<td>19 September 2017</td>
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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.

Standard Pre-Release Access:
- Scottish Government Health Department
- NHS Board Chief Executives
- NHS Board Communication leads

Early Access for Management Information
These statistics will also have been made available to those who needed access to 'management information', ie as part of the delivery of health and care:

Early Access for Quality Assurance
These statistics will also have been made available to those who needed access to help quality assure the publication:
A4 – ISD and Official Statistics

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

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

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

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

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

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

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

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

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

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

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

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