

Prescription Pricing Authority

**Growth in Prescription Volume
and Cost Report**



Growth in Prescription Volume and Cost Report

Executive Summary

1. There has been unexpectedly high growth in prescription volume to 5.0% per annum in 2000/01 compared to previous years. For example the growth in prescription volume was 3.4% per annum in 1999/00.
2. Growth in total prescribing cost has fallen in 2000/01 following the introduction of the Maximum Generic Prices Scheme in August 2000. Cost increased by 3.8% in 2000/01 compared to the previous year.
3. Changes in volume and cost are not consistent over time or for different therapeutic areas.
4. There were large increases in the number of prescription items in May, August and October 2000 and in January 2001. There appears to have been a shift in prescriptions being issued in April, July and December to the following month for which there is no obvious explanation.
5. The therapeutic areas showing the largest percentage increases in items are immunological products and vaccines (15%), cardiovascular (12%), endocrine (9%) and malignant disease and immunosuppression (7%). Growth in these areas is being driven by NHS policies with the exception of endocrine. These policies include the National Service Framework for Coronary Heart Disease, the Cancer Plan and the influenza vaccination campaign. Analysis of the prescribing of specific drugs supports the implementation of these policies as important factors behind volume growth.
6. Within the endocrine area, prescribing of drugs used for diabetes, thyroid disease and osteoporosis drives growth. The largest increase in items has been for drugs used for diabetes. The National Service Framework for Diabetes is due for publication in 2002 and there have already been local initiatives around improving services for patients with diabetes. However there are no NHS policies that would increase prescribing for thyroid disease or osteoporosis.
7. Items for drugs for central nervous system disorders have grown by 4%. The introduction of bupropion as an adjunct in smoking cessation has resulted in a 56% increase in items for drugs used for substance dependence. Smoking cessation is an important part of the Cancer Plan and the National Service Framework for Coronary Heart Disease. Antidepressant items have increased by 10%. Implementation of the National Service Framework for Mental Health could be a driver for prescribing of antidepressants.

8. The only therapeutic area to show a fall in items is infections (1% decrease). This again could be the result of NHS policy to reduce resistance to antimicrobial agents by decreasing unnecessary prescribing of antibiotics in accordance with the SMAC guidance. There is also some evidence for a reduction in incidence of respiratory infections.
9. The therapeutic areas showing the largest percentage increases in cost are obstetrics, gynaecology and urinary tract disorders (15%) and immunological products and vaccines (12%). These are relatively small areas of prescribing and the largest absolute rises in cost in 2000/01 occurred in the cardiovascular (8%) and central nervous system (6%) therapeutic areas.
10. Cost has fallen for three therapeutic areas: gastrointestinal disorders (9% decrease), infections (6% decrease) and musculoskeletal and joint diseases (4% decrease).
11. The impact of the Maximum Generic Prices Scheme is not uniform across all therapeutic areas because the proportion of drugs available as generics varies between therapeutic areas. Cost has increased for therapeutic areas where a lot of new proprietary products are prescribed or where prescription volume is growing rapidly and most of the available drugs are proprietary products, for example lipid-regulating drugs. Where the majority of products prescribed are generic, cost has either fallen or shown a slight increase in areas where there have been large increases in volume for example diuretics, beta-adrenoceptor blocking drugs, thyroid hormones and sulphonylurea drugs.
12. Another factor driving the growth in prescription volume is a change to prescribing quantities that are multiples of 28 rather than multiples of 30. This trend has been investigated for some of the commonly prescribed older generic drugs such as aspirin dispersible tablets 75mg, frusemide tablets 40mg and bendrofluazide tablets 2.5mg. Changing the quantity prescribed per item from 30 to 28 generates an extra prescription per year per patient. This change in quantity prescribed may contribute to the shifts in volume seen for some months.
13. NHS policy such as the National Service Frameworks are likely to drive growth in prescription volume for the next few years and a rate of growth of more than 5% per annum can be expected.

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1. Introduction

This report has been prepared for the Management Board of the Prescription Pricing Authority. It explores the trends in prescription volume and cost for the financial year 2000/01 compared to the previous financial year 1999/00 to identify the main drivers for growth in volume and cost.

All data are from PACT (Prescribing Analysis and Cost) and therefore only include prescribing by general practitioners and nurse prescribers in England. Volumes and cost from PACT data differ slightly from Prescription Cost Analysis statistics since the latter also include prescriptions from dentists (FP10D) and hospitals (FP10HP) and they are based on prescriptions dispensed in England.

Prescription volumes have been analysed using the item as the measure. Since trends in prescribing have been analysed, net ingredient cost has been used to express cost. The net ingredient cost is the basic price of a drug or appliance and it does not take into account discounts received by dispensing contractors nor any dispensing costs e.g. professional fees or container allowance.

2. Headline Trends

Annual prescription volumes have been rising gradually for the last few years at about 3% pa. In 2000/01 the number of items began to grow more rapidly and reached a rate of 5.0% pa by the end of the year (figure 1). This compares to a growth rate of 3.4% pa for the year ending March 2000.

In 1999/00 prescribing cost was rising rapidly because of the shortage of generics that lead to dispensing contractors being reimbursed at non-Drug Tariff prices for many drugs. The growth in cost continued to accelerate until a peak was reached in the year to February 2000 of 13.5% pa. The growth in costs has since slowed dramatically and has fallen to 3.8% pa for the year to

March 2001 (figure 2). This is largely due to the introduction of the Maximum Generic Prices Scheme.

Figure 1: Change in Rate of Growth of Prescription Numbers

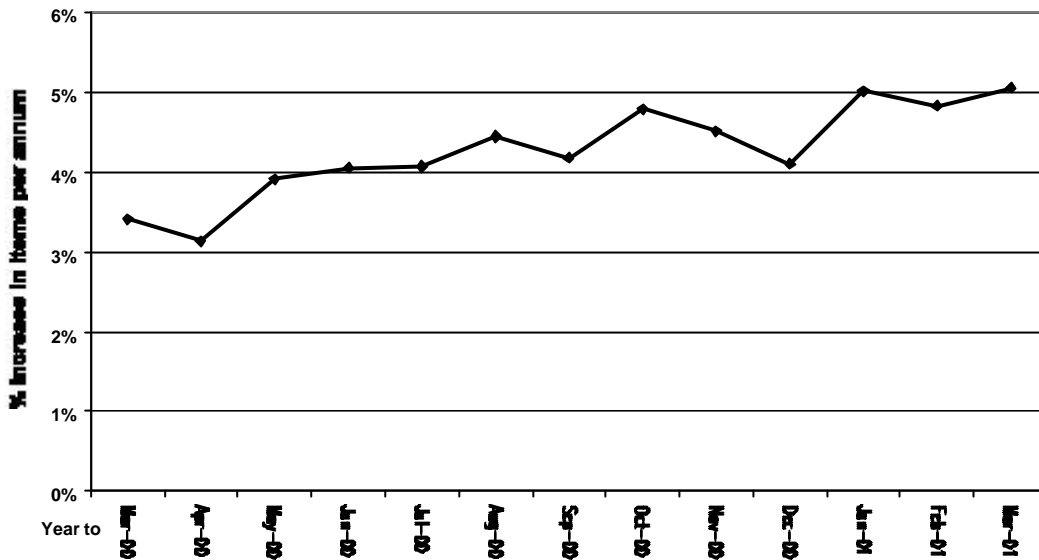
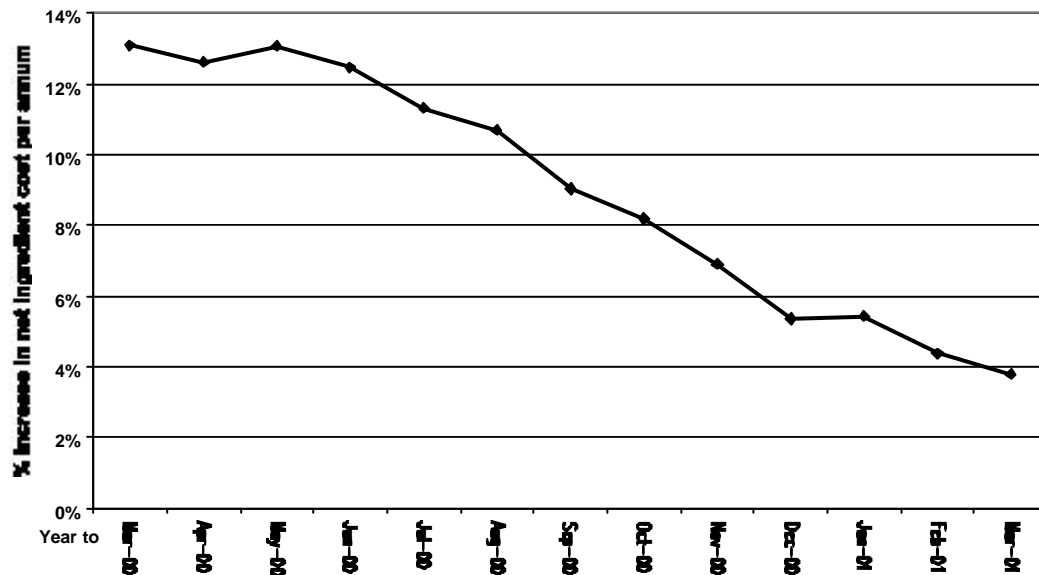


Figure 2: Change in Rate of Growth of Prescription Costs



The growth in items has not been consistent over the last year (figure 3). Volumes increased particularly in May, August, October and January

compared to previous years. In April 2000 and December 2000 there were fewer items than for April 1999 and December 1999 respectively. It is difficult to explain why items have increased more in some months than in others except that the increase in October was probably due to greater uptake of influenza vaccination than in previous years.

Figure 3: Monthly Prescription Items for the Last Three Years

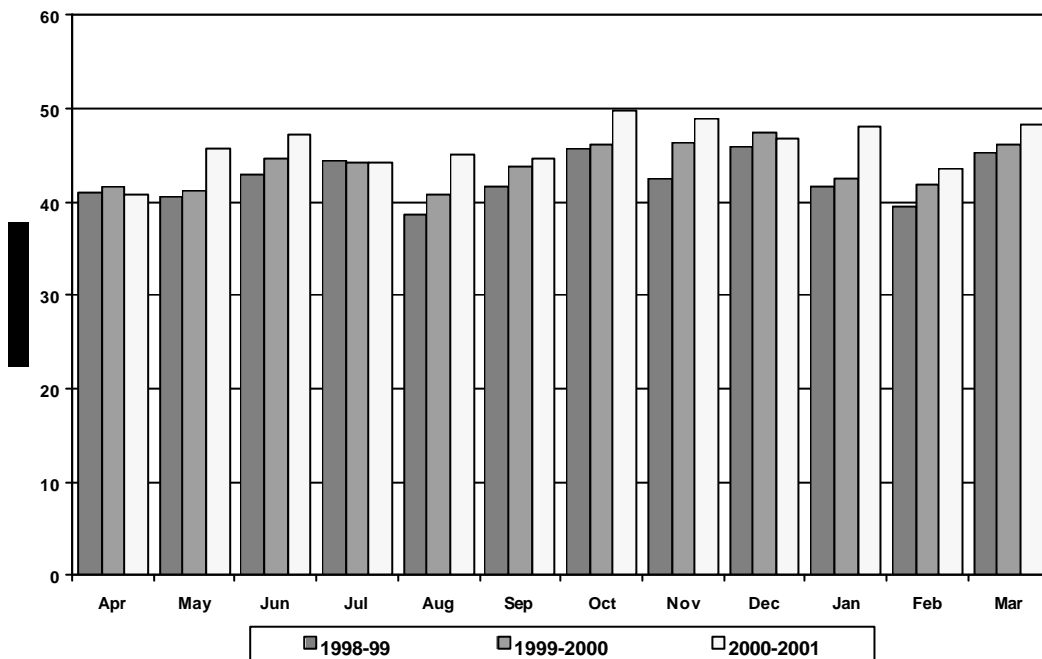
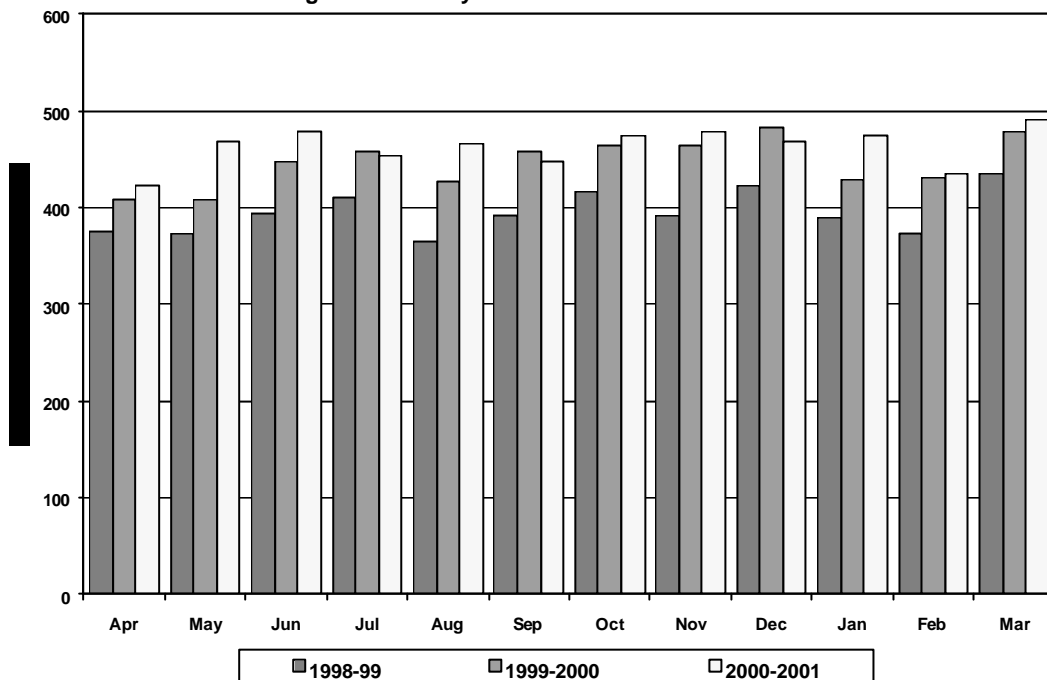


Figure 4 shows that cost has been considerably higher for 1999/00 and 2000/01 than for 1998/99, which was prior to the shortages of generic products. For 2000/01 cost rose most in May, June, August and January, which parallels the increase in items in these months. Cost has been similar for the other 8 months of 2000/01 compared to 1999/00. Cost increased less than items in October 2000 compared to October 2001 despite the increase in items for two reasons (a) the introduction of the Maximum Generic Prices Scheme and (b) although the number of influenza vaccinations prescribed increased, they are relatively cheap.

Figure 4: Monthly Costs for the Last Three Years



3. Trends in Different Therapeutic Areas

To explore some of the major drivers for the increase in prescription volume, prescribing in different therapeutic areas has been analysed using the PPA's extended British National Formulary (BNF) classification. The top 5 BNF chapters for both items and cost are: cardiovascular system (CVS), central nervous system (CNS), respiratory system, gastro-intestinal system (GIS) and endocrine system (table 1). Infections is the sixth highest chapter for items but it is only seventh for cost whereas musculoskeletal and joint diseases (MJD) are eighth highest for items and sixth highest for cost.

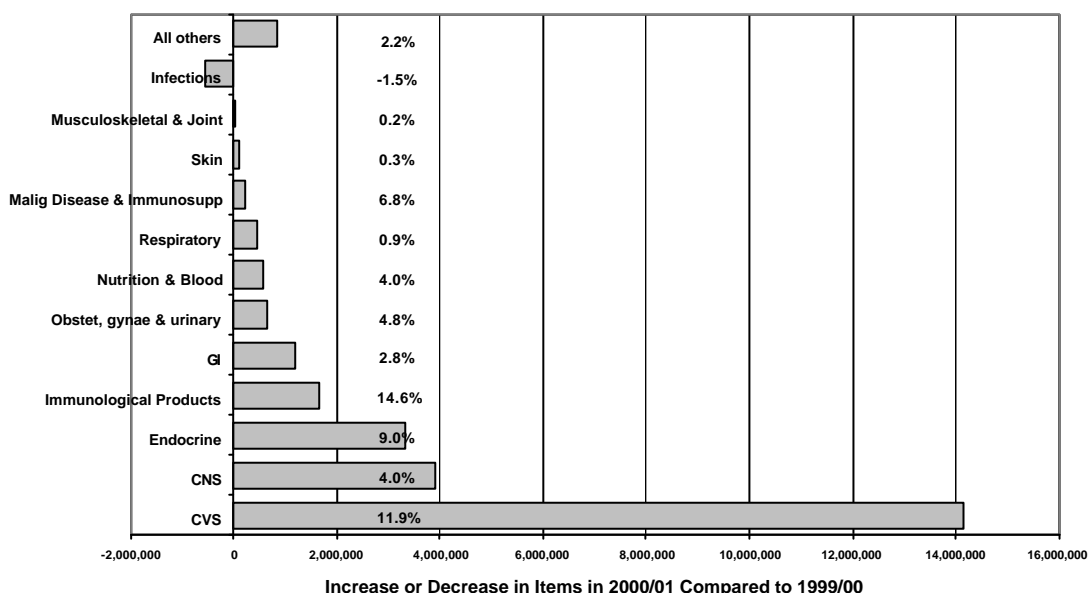
Table 1: Items and Cost by British National Formulary Chapter for 2000/01

	Items	% Items	NIC (£)	% NIC
Cardiovascular System	132,957,670	24.0	1,314,351,397	23.6
Central Nervous System	103,292,252	18.7	892,075,957	16.0
Respiratory System	48,839,596	8.8	607,976,010	10.9
Gastro-intestinal System	43,875,962	7.9	567,627,891	10.2
Endocrine System	40,447,789	7.3	521,065,219	9.4
Infections	37,906,190	6.9	212,303,379	3.8
Skin	34,002,454	6.1	177,102,646	3.2
Musculoskeletal & Joint Diseases	26,894,974	4.9	225,605,731	4.1
Nutrition & Blood	15,044,041	2.7	179,443,353	3.2
Obstetrics, Gynaecology and Urinary Tract Disorders	13,802,521	2.5	141,360,953	2.5
Eye	13,377,826	2.4	81,765,891	1.5
Immunological Products & Vaccines	13,024,632	2.4	110,885,613	2.0
Dressings	9,089,424	1.6	103,789,804	1.9
Ear, Nose And Oropharynx	8,875,223	1.6	47,708,120	0.9
Appliances	4,462,034	0.8	53,636,673	1.0
Malignant Disease & Immunosuppression	3,231,776	0.6	184,559,640	3.3
Stoma Appliances	1,446,933	0.3	99,526,479	1.8
Incontinence Appliances	1,137,444	0.2	31,826,610	0.6
Anaesthesia	794,639	0.1	2,568,062	0.0
Other Drugs And Preparations	712,996	0.1	8,119,274	0.1
Preparations used in Diagnosis	15	0.0	1,264	0.0

Growth in prescription volume is uneven across different therapeutic areas: there are four of the major chapters where the growth in items for 2000/01 is higher than the growth in total prescribing of 5.0% pa. Figure 5 shows both how the number of items has changed and the percentage change for each of

the major chapters. The main contributor to growth is CVS, 11.9% increase (14.1 million extra items) in 2000/01 compared to 1999/00. This increase in CVS prescribing is likely to be due to the implementation of the National Service Framework for Coronary Heart Disease (NSF for CHD). Other areas of high prescription growth are immunological products and vaccines (14.6%, 1.7 million extra items), endocrine (9.0%, 3.3 million extra items), and malignant disease and immunosuppression (6.8%, 0.2 million extra items). Growth has not been as high for CNS (4.0%) but because it is a high volume area of prescribing this therapeutic area has contributed 3.9 million additional items. The only major chapter where items have fallen is infections (-1.5%, 0.6 million fewer items).

Figure 5: Growth in Prescription Volumes for 2000/01

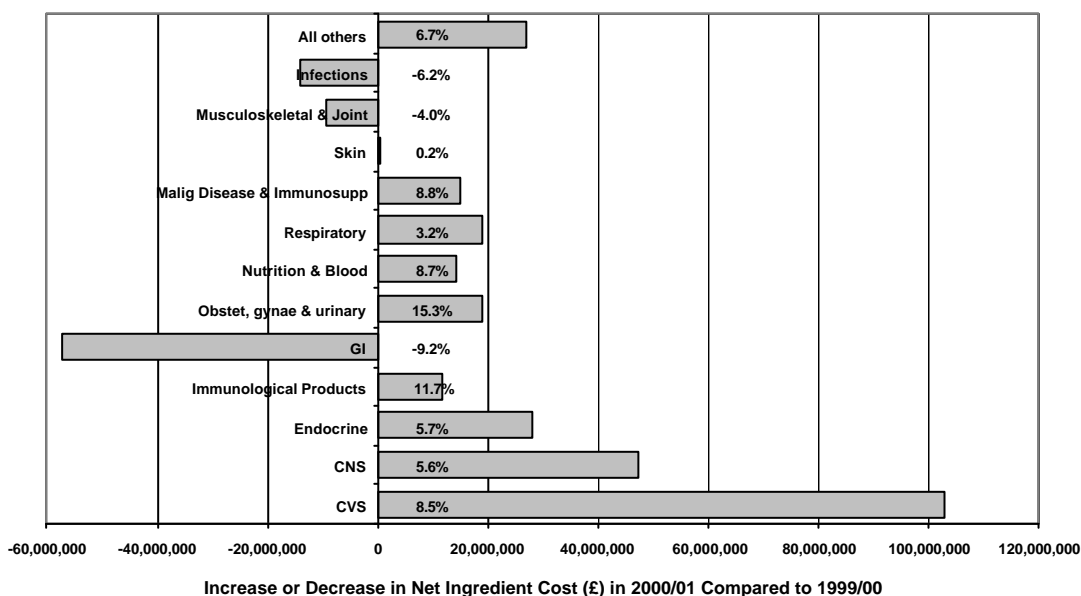


The drivers for these changes in items probably stem from NHS policies including the NSF for CHD, the NSF for Mental Health and the national Cancer Plan. The Department of Health (DH) organised a major campaign to promote influenza vaccination in autumn 2000. The reason for the growth in endocrine prescribing is harder to relate to NHS policy although the NSF for Diabetes is in preparation.

Even though the growth in total cost has slowed in 2000/01, cost for many chapters grew more than the average of 3.8% pa (figure 6). Particularly high

growth in cost was seen for obstetrics, gynaecology and urinary tract disorders (15.3%, £18.8 million more in 2000/01 compared to 1999/00) and for immunological products and vaccines (11.7%, £11.6 million more). Cost for CVS rose by 8.5% and since this is the highest chapter for items, CVS spending rose by £102.7 million over the preceding year. CNS cost rose by £47.2 million (5.6%). In three chapters cost fell in 2000/01: GIS (-9.2%, £-57.4 million), infections (-6.2%, £-14.0 million) and MJD (-4.0%, -£9.5 million). Growth in cost has not paralleled growth in volume for most chapters. This is probably because the Maximum Generic Prices Scheme has most effect in reducing cost for chapters where a large number of generic products are available. In therapeutic areas where there is a relatively low use of generics, marked savings will not have resulted and in areas where new products are being introduced, costs are rising rapidly.

Figure 6: Growth in Cost for 2000/01



To examine the evidence for NHS policy driving the growth in prescribing, the chapters contributing the most to growth have been analysed in more detail.

3.1 Cardiovascular System Prescribing

See Appendix 1 for figures

The BNF sections with the highest growth for the CVS chapter (figure 1.1) are lipid-regulating drugs (31.2%, 2.6 million more items in 2000/01 compared to 1999/00), renin-angiotensin system and some other antihypertensive drugs (18.5%, 3.4 million more items) and antiplatelet drugs (13.3%, 2.0 million more items). Simvastatin and atorvastatin are the most commonly prescribed lipid-regulating drugs, increasing to 4.3 million items (16.9%) and 3.2 million items (62.6%) respectively in 2000/01 (figure 1.3). For the renin-angiotensin system drugs, lisinopril and enalapril are most commonly prescribed, 5.4 and 3.6 million items respectively, whilst prescribing of ramipril has increased by 63.6% to 2.8 million items (figure 1.5). Aspirin prescribing is also increasing (up 11.6% to 15.9 million items) (figure 1.7). The prescribing of each of these groups of drugs to appropriate patients is advocated in the NSF for CHD and many patients who would benefit are now being identified for treatment since CHD is very prevalent.

The NSF for CHD also recommends that patients with high blood pressure receive advice and treatment to maintain blood pressure below 140/85 mmHg. Prescribing of antihypertensive drugs is increasing; for example bendrofluazide items have increased by 19.1% to 11.9 million (figure 1.9). Prescribing of frusemide has increased by 8.8% to 8.3 million items (figure 1.11) although this drug is less often prescribed for hypertension than bendrofluazide. Atenolol, which is the most commonly prescribed beta-blocker, accounts for 12.0 million items in 2000/01, up by 15.3% (figure 1.13). The NSF for CHD encourages the prescribing of beta-blockers for two reasons: firstly they are antihypertensive drugs and secondly they are prescribed for secondary prevention in patients who have had a myocardial infarction. Growth has not been as marked for the BNF section nitrates, calcium channel blockers and potassium channel activators, which are up by 5.2% (figure 1.15). Only the calcium channel blockers are prescribed for hypertension and there is a question mark over whether these drugs produce

the same outcomes in reducing mortality from CHD as for other antihypertensive drugs.

When the changes in prescribing cost of these cardiovascular drugs are analysed (figure 1.2), they illustrate very clearly the differences between generic and proprietary drugs. Cost has risen the most in 2000/01 for antiplatelet drugs (up by 52.2%, £12.9 million more) and for lipid-regulating drugs (up by 29.5%, £79.9 million more). None of the statins are yet available off patent and the rise in their cost parallels the rise in prescribing (figure 1.4). £151.4 million and £110.8 million were spent on simvastatin and atorvastatin respectively. More is now spent on other antiplatelet drugs than on aspirin. Clopidogrel cost and items have both risen by around 160% to £13.3 million, 0.3 million items. Clopidogrel is a relatively new antiplatelet drug that is only available as a proprietary product. Figure 1.8 shows that the cost of aspirin has fallen since the summer of 2000, although its cost was still 20.5% higher in 2000/01 than 1999/00. Cost has risen for the most commonly prescribed renin-angiotensin system drugs apart from enalapril (figure 1.6). Enalapril cost has fallen since the expiry of its patent and the introduction of generic versions.

Bendrofluazide, frusemide and atenolol (figures 1.10, 1.12 and 1.14) illustrate what has happened to the cost of common generic drugs over the last two years. Cost rose as the drugs went into short supply and then reached a plateau before dropping steeply in September 2000 with the introduction of the Maximum Generic Prices Scheme. Cost has subsequently remained at a lower level and it is only likely to increase if there are increases in the quantities prescribed of these drugs. Figure 1.16 illustrates how cost has changed for the BNF section nitrates, calcium channel blockers and potassium channel activators.

3.2 Endocrine System Prescribing

See Appendix 2 for figures

The BNF sections with the highest growth for the Endocrine chapter (figure 2.1) are drugs affecting bone metabolism (18.7%, 0.2 million more items in 2000/01 compared to 1999/00), drugs used in diabetes (12.9%, 1.9 million more items) and thyroid and antithyroid drugs (12.3%, 1.1 million more items). Cost has also risen most rapidly for drugs used in diabetes (14.2%, £29.6 million more) and for drugs affecting bone metabolism (13.6%, £5.4 million more) (figure 2.2). Thyroid and antithyroid drugs has shown a fall in cost by 16.7% (£4.4 million less than in 1999/00).

Although the NSF for Diabetes is not due for publication until 2002, this area of prescribing has received considerable attention in the last few years. The United Kingdom Prospective Diabetes Study showed the importance of controlling blood glucose in type 2 diabetes and found that metformin was the first choice drug for overweight diabetics. The Audit Commission has also published a report "Testing Times" that examines services for patients with diabetes. Table 2 shows how prescription volume and cost have changed for the main products in the section drugs used for diabetes. Volume and cost have increased the most for other antidiabetic drugs and for metformin, whilst cost has fallen for sulphonylureas despite an 8.3% increase in volume. The group "other antidiabetic drugs" includes several new drugs such as rosiglitazone and pioglitazone that were first marketed in 2000. The National Institute for Clinical Excellence has suggested that rosiglitazone or pioglitazone could be prescribed as an alternative to injected insulin for patients who are unable to take metformin and sulphonylurea combination therapy, and for patients whose blood glucose remains high despite adequate trial of this treatment.

Table 2: Volume and Cost in 2000/01 for Main Groups of Products Used for Diabetes

	Items	% Growth in Items	NIC (£)	% Growth in NIC
Insulins	3,021,156	9.4	105,211,572	13.3
Sulphonylureas	4,682,448	8.3	35,478,086	-1.9
Metformin	3,789,395	23.4	10,941,894	29.0
Other antidiabetic drugs	377,386	37.1	7,359,402	67.7
Diagnostic & monitoring agents	4,443,366	10.7	77,823,022	19.1

Insulins are mainly available as proprietary products and spending on insulins has increased at a similar rate to the rise in prescription volume (figure 2.3). Metformin and the sulphonylurea drugs are available as both generic and proprietary products. Although the cost of the sulphonylureas, gliclazide and glibenclamide, has decreased since the introduction of the Maximum Generic Prices Scheme, spending on metformin has continued to increase (figure 2.5). This is probably because the growth in prescribing of metformin has counteracted the decrease in price (figure 2.4). The average cost/item for metformin has fallen from a peak of £3.13 in May 2000 to £2.79 in March 2001.

The rise in prescription volume and cost for drugs affecting bone metabolism is probably the result of increased demand for drugs to prevent osteoporosis. The main group of drugs from this section is the bisphosphonates. These drugs are marketed as proprietary products only and are therefore unaffected by the Maximum Generic Prices Scheme.

In the thyroid and antithyroid drugs section, 96% of items are for thyroxine sodium. Prescribing of this drug has increased by 12.6% to 9.5 million items in 2000/01 compared to 1999/00 (figure 2.6). There is no obvious explanation why prescribing of thyroxine should increase. Thyroxine is another drug where cost fell steeply after the introduction of the Maximum Generic Prices Scheme.

3.3 Central Nervous System Prescribing

See Appendix 3 for figures

The section showing the greatest percentage increase in prescription volume for the Central Nervous System chapter (figure 3.1) is drugs used in substance dependence (up by 55.7% to 1.2 million items in 2000/01). Prescribing of bupropion (amfebutamone), marketed in June 2000 as an adjunct to smoking cessation, has contributed just under 0.4 million items. Cost has also risen markedly for this section (232.1%) to £23.0 million (figure 3.2). The removal of many nicotine replacement therapy products from Schedule 10 (the “black list”) in April 2001 is likely to lead to greater increases in prescribing of drugs used in substance dependence for 2001/02. Smoking cessation is an important part of both the NSF for CHD and the Cancer Plan.

The antidepressants section grew at 10.0% in 2000/01 generating an extra 2.0 million items. Selective serotonin reuptake inhibitors (SSRIs) are now the most commonly prescribed at 10.8 million items (17.1% increase) (figure 3.3). The four most commonly prescribed SSRIs all increased in 2000/01 (figure 3.5) with citalopram showing the highest growth (56.9%). Prescribing of tricyclic antidepressants has changed very little from 1999/00 (up 1.0% to 9.6 million items). Prescribing of the group “other antidepressant drugs” has increased the most (by 26.2% to 1.9 million items). This group includes newer antidepressants such as venlafaxine and mirtazepine, which are increasing their market share.

Antidepressants is the only CNS section to show a fall in cost in 2000/01 (figure 3.2). This is mainly due to a reduction in spending on SSRIs, down by 10.7% to £207.1 million (figure 3.4). Spending on fluoxetine fell by £42.8 million in 2000/01 (46.9%) (figure 3.6). This marked reduction in cost despite an increase in prescribing is due to expiry of fluoxetine’s patent. The only group of antidepressants showing a rise in cost is other antidepressant drugs up by 34.1% to £51.5 million.

One of the drivers for the increased prescribing of antidepressants may be the NSF for Mental Health. Another factor is that the range of indications for SSRIs has widened to include other mental health disorders such as panic disorder and obsessive-compulsive disorder and this will increase their use. Prescribing has not increased markedly in other CNS sections that are covered by the NSF for Mental Health such as the hypnotics and anxiolytics and the drugs used in psychoses and related disorders (antipsychotics) (figure 3.1). Prescribing of benzodiazepine hypnotics and anxiolytics should be limited to severe or disabling anxiety or insomnia and their prescribing should be decreasing. Antipsychotics are most often initiated in hospital and debate has focussed more on which type of antipsychotic to prescribe rather than on increasing their use. Cost of antipsychotics increased by 24.3% to £100.3 million, whilst prescribing only increased by 2.9% to 5.7 million items. Newer “atypical” antipsychotics that are more expensive than the older “typical” drugs are being prescribed more often.

Other CNS sections where cost is growing more than the average are antiepileptics (up by 14.8% to £102.3 million) and drugs used in Parkinsonism and related disorders (up by 8.2% to £55.8 million). Cost has risen more than prescription volume for both these sections.

3.4 Immunological Products and Vaccines

Influenza vaccine is the most commonly prescribed vaccine. Last autumn’s campaign by the DH to increase uptake of influenza vaccine in people aged over 65 years was clearly successful. Prescribing increased by 29.7% to 7.9 million items whilst cost rose by 33.8% to £42.8 million (figure 7). Influenza vaccine is one of the high volume vaccines where claims for payment are submitted by General Practitioners in bulk on form FP34D and therefore the rise in items does not create a lot of additional work for Operations staff. There was very little change in prescribing of other products in this chapter in 2000/01 (figure 8).

Figure 7: Prescribing of and Spending on Influenza Vaccine

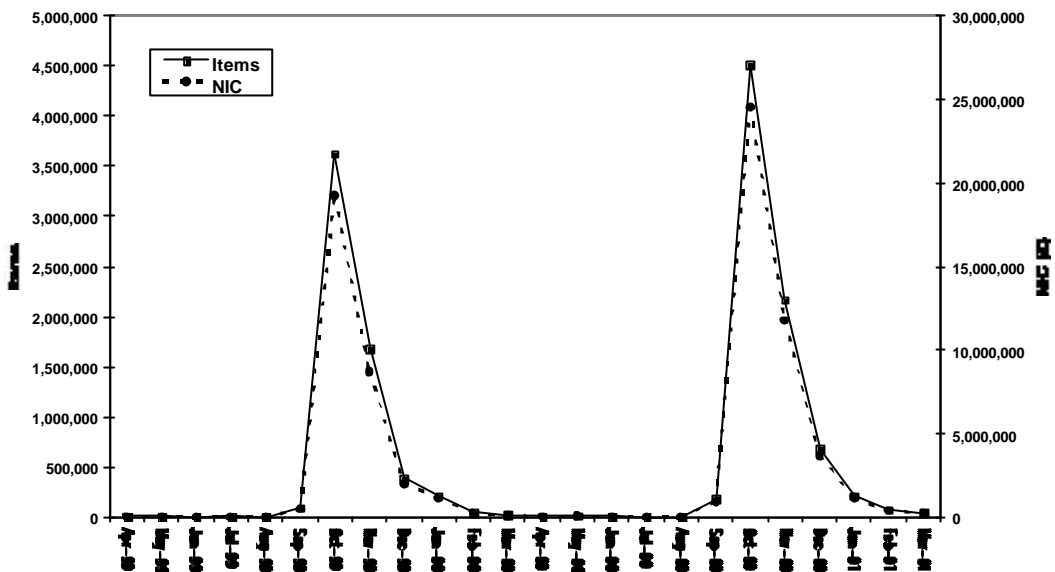
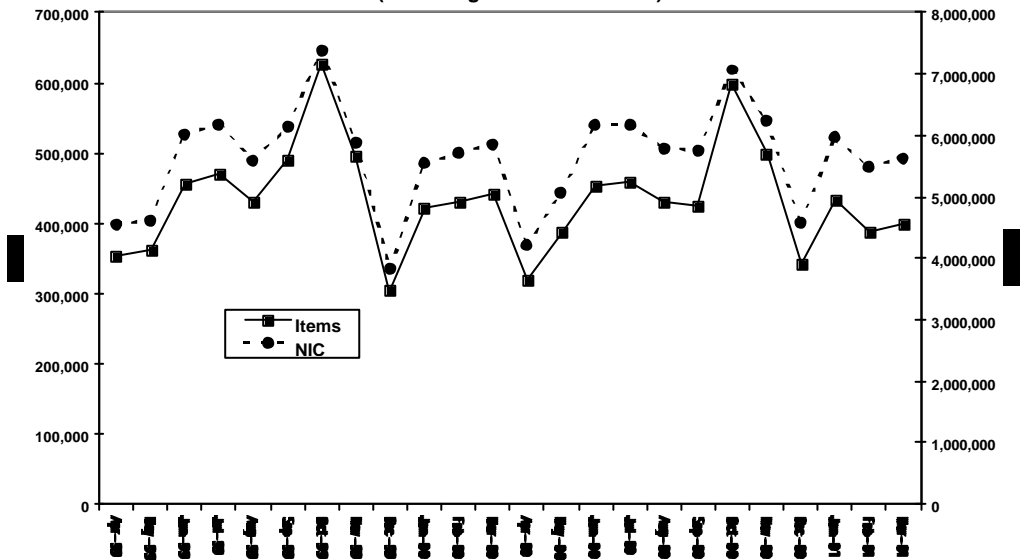


Figure 8: Prescribing of and Spending on Immunological Products & Vaccines (excluding influenza vaccine)



4. Trends in Quantity on Prescription

See Appendix 4 for figures

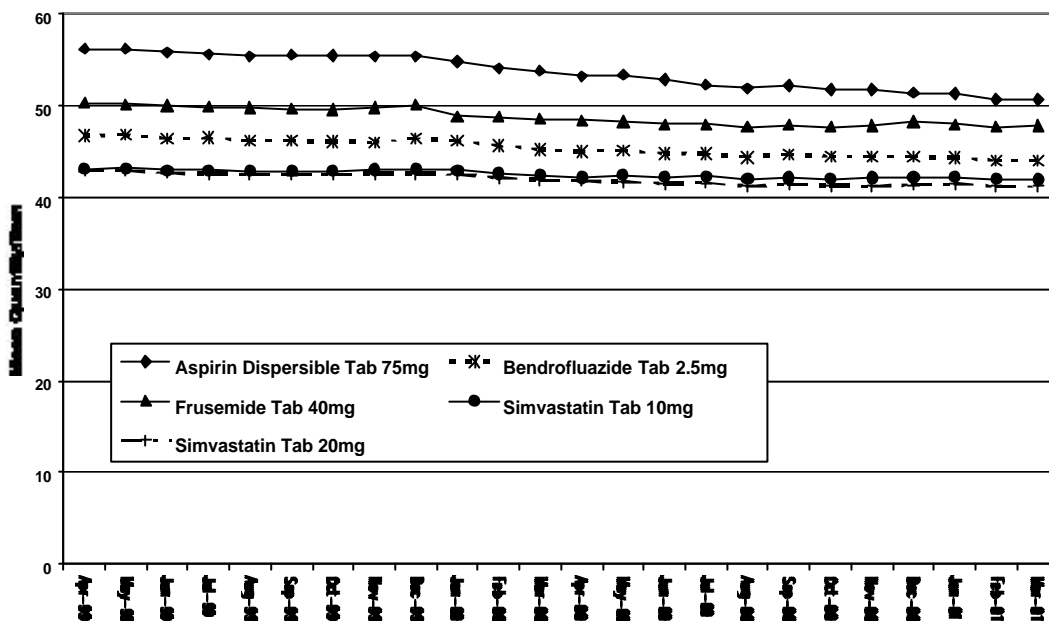
Another possible reason why prescription volume is growing could be a move to prescribing smaller quantities since this results in patients receiving repeat prescriptions for maintenance treatment more frequently. To find evidence for a change in the quantity per item, prescribing data have been analysed at presentation level (i.e. for a specific form and strength of a drug) because quantity is not aggregated higher than this level. Twelve presentations were selected for this analysis from the CVS, CNS and endocrine chapters. These include the top 5 most commonly prescribed presentations plus two presentations for simvastatin, thyroxine and metformin and one presentation of gliclazide (table 3). These drugs are all commonly prescribed as repeat prescriptions (maintenance treatment). Together the 12 presentations account for 63.1 million items (11.4% of all items) in 2000/01. For each drug the most commonly prescribed presentation or presentations have been chosen.

Table 3: 2000/01 Data for Presentations Included in Analysis of Quantity on Prescriptions

	Items	NIC (£)	Quantity (million tablets)
Aspirin Dispersible Tab 75mg	12,768,276	7,465,547	663.6
Bendrofluazide Tab 2.5mg	10,440,076	15,579,288	465.1
Co-Proxamol Tab 32.5mg/325mg	9,035,825	13,429,505	1022.5
Paracetamol Tab 500mg	6,541,241	4,892,928	689.6
Frusemide Tab 40mg	6,513,422	14,406,077	312.5
Thyroxine Sodium Tab 100mcg	3,729,615	8,110,977	207.9
Thyroxine Sodium Tab 50mcg	3,395,088	5,713,682	231.5
Gliclazide Tab 80mg	3,038,751	24,837,600	232.7
Metformin Tab 500mg	2,631,758	7,167,603	265.1
Metformin Tab 850mg	1,024,670	3,423,799	90.3
Simvastatin Tab 10mg	2,310,525	62,746,594	97.4
Simvastatin Tab 20mg	1,683,127	73,935,697	69.7

The mean quantity/item has decreased over the last two years for each of the CVS presentations (figure 9); the largest change has occurred in the mean quantity/item of aspirin dispersible tablets 75mg with only a small decrease in the simvastatin presentations. Mean quantity/item has also decreased for the two thyroxine presentations, however there has been little change in the mean quantity/item of the metformin and gliclazide presentations (figure 4.1). The mean quantity/item for paracetamol tablets 500mg and co-proxamol tablets 32.5mg/325mg has also shown little variation in the last two years (figure 4.2).

Figure 9: Trend in Mean Quantity per Item for Selected Cardiovascular Presentations



To determine how quantities prescribed are varying over time, the number of items for the most common quantities have been analysed for the four quarters to March for 1998, 1999, 2000 and 2001 for each presentation (figures 4.3 to 4.14). Note needs to be taken of the usual dosage regimen of each drug when assessing the quantity prescribed. Aspirin, bendrofluazide, frusemide and simvastatin are usually taken once daily and for each of these drugs the mode for quantity prescribed is 28. The usual dosage regimen for thyroxine is 100 to 200 micrograms daily and therefore patients often take more than one tablet daily. However the mode for quantity prescribed is also 28 for the two thyroxine presentations. Gliclazide is usually taken once or twice daily and the mode has changed from 60 tablets in the quarter to March 1998 to 28 tablets for the same quarter in subsequent years. Metformin can

be taken twice or three times a day. The mode for both metformin presentations is 56 tablets. Paracetamol and co-proxamol tablets are most often taken when required for pain up to four times a day rather than in a set dosage regimen. Just over 60% of paracetamol and co-proxamol items are for 100 tablets and there has been very little change in the percentage of items for 100 tablets in the four quarters analysed.

The percentage of items that are for multiples of 28 (quantities of 28, 56, 84 and 112) has increased over the four quarters analysed for the 10 presentations that are taken in a regular dosage regimen (table 4). At the same time there has been a decrease in the percentage of items that are for multiples of 30 (quantities of 30, 60, 90 and 120). This suggests that prescribers are standardising their prescribing to one months supply being 28 days rather than 30 days. The percentage of items prescribed as multiples of 28 has been over 90% for all four quarters for the two simvastatin presentations and only a small increase is evident. Simvastatin is only available as the proprietary Zocor® in a pack size of 28 and it is therefore logical to prescribe it in multiples of 28.

Table 4: Percentage of Items Where Quantity Prescribed is a Multiple of 28 or 30

Presentation	% of items for quantities 28, 56, 84 and 112				% of items for quantities 30, 60, 90 and 120			
	Jan – Mar 98	Jan – Mar 99	Jan – Mar 00	Jan – Mar 01	Jan – Mar 98	Jan – Mar 99	Jan – Mar 00	Jan - Mar 01
Aspirin dispersible tabs 75mg	53.6	56.4	63.0	69.0	26.4	23.3	17.8	12.9
Bendrofluazide tabs 2.5mg	62.6	66.5	76.0	83.8	28.7	25.6	17.3	10.8
Fruzemide tabs 40mg	58.6	62.0	75.3	83.4	30.1	26.1	13.2	7.9
Simvastatin tabs 10mg	90.7	91.4	93.1	95.1	7.3	6.5	4.4	2.7
Simvastatin tabs 20mg	91.6	92.6	93.8	96.0	6.5	5.3	3.7	2.0
Thyroxine sodium tabs 50mcg	40.4	43.7	51.0	60.4	28.1	25.9	21.0	14.5
Thyroxine sodium tabs 100mcg	45.2	48.3	55.0	63.8	31.4	28.8	23.3	16.4
Gliclazide tabs 80mg	42.0	44.7	48.4	52.4	38.9	36.2	32.2	27.7
Metformin tabs 500mg	40.2	43.1	50.0	59.2	30.5	27.5	21.0	13.3
Metformin tabs 850mg	47.0	50.1	57.1	65.0	31.9	28.6	21.8	14.4

The other eight presentations in table 4 are all available from a number of manufacturers in a variety of pack sizes. Patient packs of 28 tablets have been introduced for these presentations in the last two years, apart from gliclazide tablets 80mg where a pack of 28 has been available for more than four years. Internal Prescription Pricing Authority data show that the 28 pack is now the most commonly used pack size for aspirin dispersible tablets 75mg, bendrofluazide tablets 2.5mg, frusemide tablets 40mg, metformin tablets 500mg, and thyroxine sodium tablets 50mcg and 100mcg. The most common pack size for gliclazide tablets 80mg is 60 and for metformin tablets 850mg it is 56. Quantities that are multiples of 28 have been increasing over the four quarters examined often before a pack of 28 became available to dispensing contractors. It is likely that a prescriber would move to prescribing in multiples of 28 for all repeat medications that are taken regularly each day without taking the availability of patient packs into account.

For a tablet that is taken once daily a change from prescribing a quantity of 30 to 28 would generate 13.0 prescriptions per year instead of 12.2 prescriptions per year. That is nearly one extra prescription per patient per year where this change is made. Although that may not seem a large change it can be important where there are high volumes of prescribing. For example nearly 12,000 additional items for aspirin dispersible tablets 75mg would be generated in one year if the 40,766 fewer prescriptions for a quantity of 30 tablets in the quarter to March 2001 compared to the quarter to March 2000 had all been changed to a quantity of 28. Similarly 10,500 extra items per year would be generated from the reduction in items for 60 aspirin dispersible tablets 75mg in the same period if these were substituted with a quantity of 56. In 2000/01 there were 1.6 million more items for aspirin dispersible tablets 75mg than in 1999/00 and most of this increase results from prescribing aspirin to more patients rather than from a change in quantities prescribed.

Two other trends in the quantity prescribed are worth noting. The first is that the percentage of items for a quantity of 100 has decreased for all the presentations except for paracetamol tablets 500mg and co-proxamol tablets 32.5mg/325mg (figures 4.3 to 4.14). This again suggests that prescribers are

rationalising their repeat prescribing to achieve quantities that relate to months of 28 days. The second trend is that the percentage of items for a quantity of 7 is increasing for all the presentations except for paracetamol tablets 500mg and co-proxamol tablets 32.5mg/325mg. This is most noticeable for aspirin dispersible tablets 75mg (4.7% of items in the quarter to March 2001 were for 7 tablets, figure 4.3). This trend may relate to the increased use of monitored dosage systems where pharmacists pack medication into containers that provide one weeks supply of the patient's medication.

Although reducing the quantity prescribed per item does not increase the annual net ingredient cost for a drug, more professional fees and container allowances would be paid. These increased payments to dispensing contractors would be taken into account in the global sum paid for pharmaceutical services and ultimately costs to the NHS would not increase. Costs to the NHS are increased for the extra work involved in processing additional prescriptions but this is not reflected in the NHS drugs budget.

5. Conclusion

The most important factors driving the growth in prescription volume arise from NHS policies. Primary care organisations are actively implementing the National Service Framework for Coronary Heart Disease and this has led to a large increase in cardiovascular prescribing. This NSF is likely to remain an important driver for growth over the next few years particularly as coronary heart disease is an area targeted in the new medicines management services that are being piloted.

Other policy initiatives such as the NSF for Diabetes and the removal of nicotine replacement products from Schedule 10 are likely to further increase prescription volume. The impact of guidance from the National Institute for Clinical Excellence has yet to be felt since the first technology appraisal guidance was only issued in March 2000 and the first NICE clinical guideline in April 2001. The output of guidance from NICE is gradually increasing in accordance with its plan of work.

Changes in the quantity prescribed have had some impact on the growth in prescription volume. “Medicines and Older People: Implementing Medicine-Related Aspects of the NSF for Older People” raises the issues of wastage due to inequivalence in repeat prescription quantities and the need for improvement in repeat prescribing systems. This document is part of the NSF for Older People and it recommends greater involvement of pharmacists in repeat prescribing and medicines management systems building on the policies outlined in Pharmacy in the Future. The effect of implementing such policies on prescription volume will need to be monitored.

One of the main drivers for future growth in cost is likely to be the growth in prescription volume since the prices paid for both generic and branded medicines will be controlled through statutory schemes. Wide uptake of new classes of therapeutic agents has always been an important factor in increasing cost and the introduction of expensive products that are less widely used may also play a role, for example biotechnology products. Guidance from NICE will be needed to ensure that new products likely to have a major impact on the drugs budget are used appropriately.

Abbreviations

BNF	British National Formulary
CHD	Coronary heart disease
CNS	Central nervous system
GIS	Gastrointestinal system
MJD	Musculoskeletal and joint diseases
NSF	National Service Framework
SMAC	Standing Medical Advisory Committee
SSRI	Selective serotonin reuptake inhibitor

Appendix 1
Figures for Cardiovascular System Prescribing

Appendix 2
Figures for Endocrine System Prescribing

Appendix 3

Figures for Central Nervous System Prescribing

Appendix 4

Figures for Trends in Quantity on Prescription