

Supporting prescribing in general practice - a progress report

Main report / Prepared for the Auditor General for Scotland

June 2003



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GLOSSARY OF TERMS

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- A2 2.5mg bendrofluazide as a percentage of 2.5mg and 5mg
- A3 Single diuretics as a percentage of single and combined diuretics
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1. Introduction

1.1 *The importance of prescribing*

The quality of prescribing has a direct impact on the quality of patient care. Getting the most appropriate medicine at the right time is important both for treating existing conditions and preventing ill health.

In 2001/2002, community pharmacists, dispensing doctors and appliance suppliers in Scotland dispensed over 66 million prescriptions. The total prescribing expenditure was just over £760 million, or 12.4% of total NHS expenditure.

1.2 *The baseline report 'Supporting prescribing in general practice'*

In September 1999, the Accounts Commission published a baseline report '*Supporting prescribing in general practice*'. This report provided some broad comparative information about prescribing patterns with the aim of improving both the quality and cost effectiveness of GP prescribing.

The report highlighted variations in prescribing behaviour among GP practices, which could not be fully explained by differences in practice populations. This suggested it was possible to improve the quality of prescribing further.

The report also found that cost savings could be made without compromising prescribing quality. Potential savings included:

- using more generic medicines
- using more therapeutically equivalent, less expensive substitutes
- using fewer expensive premium-priced preparations
- using fewer medicines with little or no therapeutic value
- reducing over prescribing.

The report also examined areas where better management of the systems and structures involved in prescribing could improve quality and cost effectiveness. These included repeat prescribing and prescribing support.

The report included a large number of recommendations for further action and improvement.

1.3 *Changes and developments since 1999*

There have been major changes since the baseline report in 1999. These include:

- More emphasis on clinical governance. This has led to new guidelines on treating specific diseases such as coronary heart disease. This often results in the identification of large numbers of patients who were previously untreated but who would benefit from receiving medicines on a long-term basis. This improves the quality of patient care and may prevent serious illness in the future. It therefore potentially avoids extra spending elsewhere in the health service in

future years. But it also means significantly higher year-on-year costs for primary care medicine.

- New medicines being developed and marketed by the pharmaceutical industry. These may improve the quality of patient care if they are more specific, more effective or have fewer side-effects than their predecessors. However they are often more expensive and may result in wasteful prescribing if used outwith the population associated with proven benefit. Additionally, more patients are aware of, and are now demanding, new 'lifestyle' medicines such as treatment for obesity.
- Medicines that used to be considered new becoming established and used more widely; or new indications for established medicines. Again this may raise the quality of prescribing but will tend to increase medicine costs.
- Medicines coming off patent and generic alternatives becoming available. This should make these medicines cheaper. However, pharmaceutical companies may develop new products to retain their market share. Patients may be transferred to the new product, preventing savings being realised that would have been made from moving to a generic alternative.
- Changes in the price of medicines. Examples include fluctuations in generic prices and market forces.

1.4 The follow-up report

Section 2 of this follow-up report discusses in greater detail some of the forces that influence prescribing quality and cost.

In Section 3 we:

- examine how prescribing quality and efficiency may be measured
- show how the quality and efficiency of prescribing in Scotland have changed since the last report
- look at the potential for further efficiency savings.

Section 3 also gives examples of what trusts have done to improve their prescribing performance. Section 4 discusses how further improvements may be achieved.

The report concludes with recommendations, in Section 5.

Throughout the report, the term 'trusts' encompasses primary care trusts (PCTs) and island health boards. Recommendations for PCTs also apply to island health boards and Local Health Care Co-operatives (LHCCs). The term 'health board' refers to the current unified health boards.

The Health White Paper '*Partnership for Care*' published in February 2003 proposes that NHS trusts be abolished. Overall control will transfer to unified NHS boards, which will have decentralised 'operational' units. LHCCs will extend into community health partnerships. Since these changes will not come into effect until April 2004, this report uses the existing organisational structure and names. Our

recommendations will continue to apply to the successor bodies: that is, the future unified NHS boards, their operating units, community health partnerships and island health boards. However primary care prescribing is expected increasingly to become part of a whole systems approach to medicines management.

2. Factors that influence prescribing quality and cost

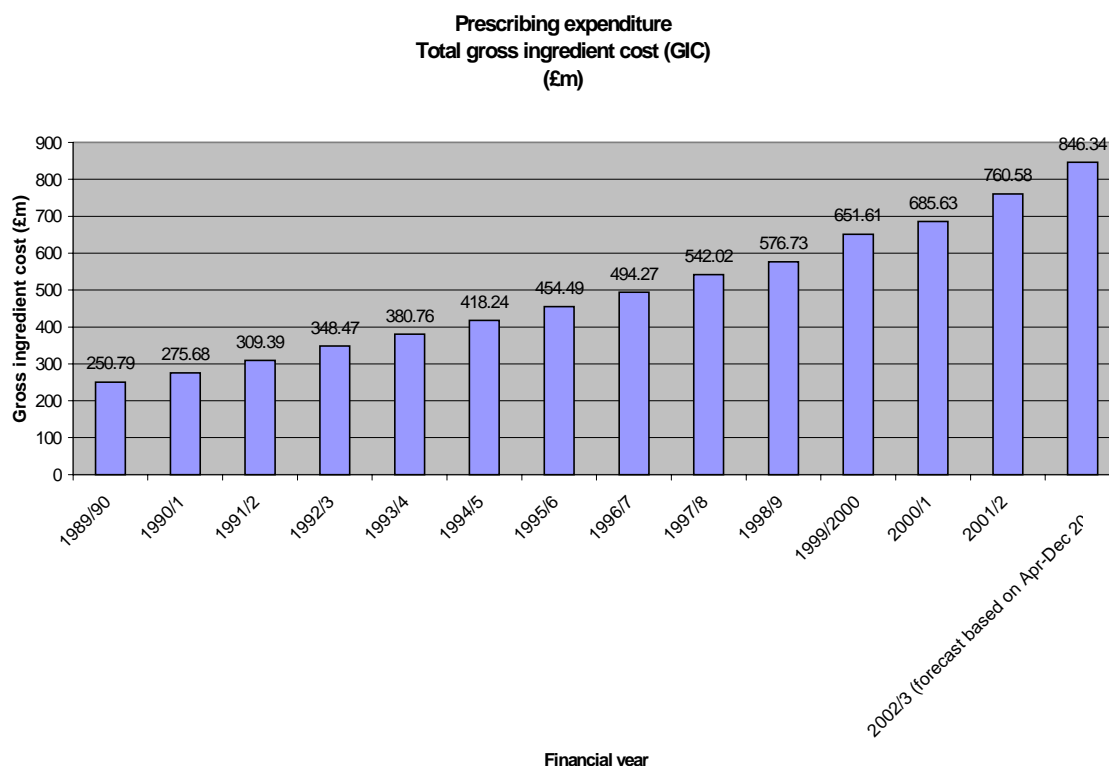
In this section we examine how prescribing quality and cost are inter-linked. We also discuss in more detail the forces that influence prescribing quality.

2.1 The inter-relationship between prescribing quality and cost

Expenditure on prescribing has been growing year on year and the rate of increase is rising. When we compared data from April to September 2002 with the same period in 2001, we found prescribing expenditure had risen by 13.6% (£49.9 million). This happened because 6% more medicines were prescribed and the cost per item rose by nearly 7%. Much of this increase is due to the implementation of evidence-based guidelines that improve patient care. For example, medicines for treating the cardiovascular system accounted for £15.7 million, or nearly 32% of the higher cost of prescribing between April to September 2001 and April to September 2002.

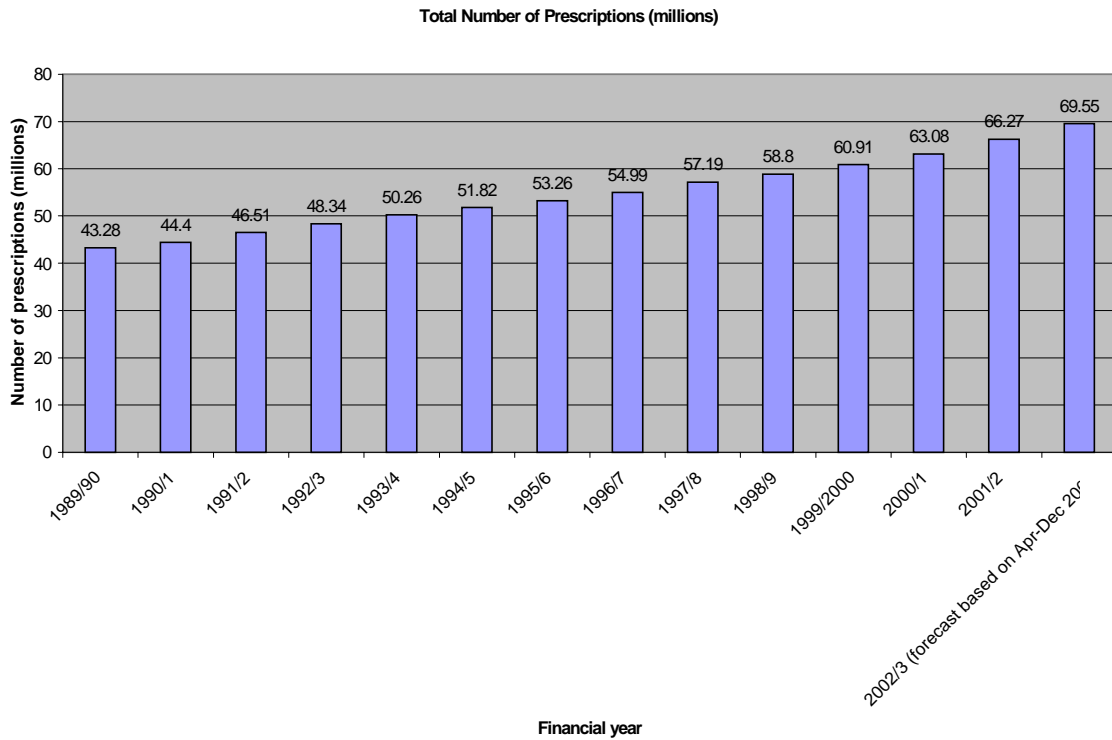
Exhibit 1 shows how prescribing expenditure has risen since 1989/90, while exhibit 2 shows the rise in the number of prescriptions over the same period. Exhibit 3 shows the rise in cost per prescription. In all exhibits we have used data for the first nine months of 2002/03 to forecast the 2002/03 totals.

Exhibit 1 Total cost of prescribing 1989/90 to 2002/03



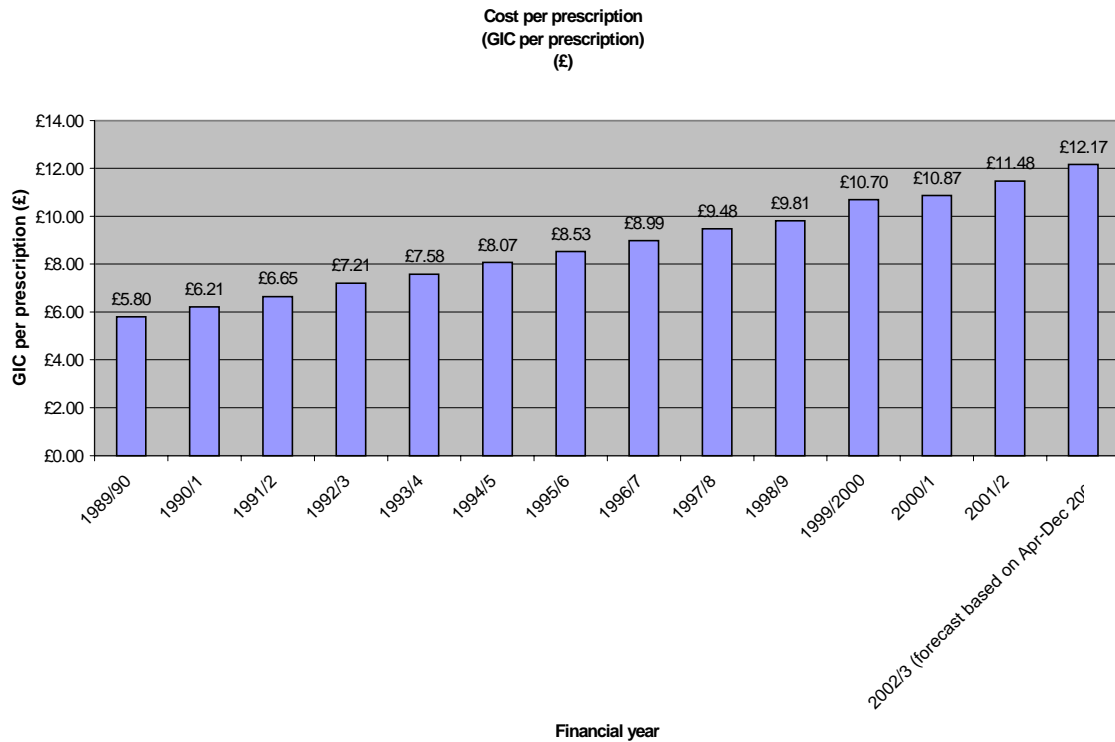
Source: Information and Statistics Division, NHSScotland (ISD).

Exhibit 2 Number of prescriptions 1989/90 to 2002/03



Source: ISD

Exhibit 3 Cost per prescription 1989/90 to 2002/03



Source: ISD

These exhibits show that prescribing expenditure is rising; more medicines are being prescribed; and the cost per prescription is increasing.

By themselves, rising costs do not indicate good or bad prescribing practice. High quality prescribing should ensure each patient gets the most appropriate medicine, at the right time and in appropriate quantities. The medicine does not necessarily need to be the most expensive or the most recently licensed. High quality prescribing has a cost effectiveness element, based on a balance between the costs and benefits associated with a particular medicine or treatment strategy.

Improving prescribing quality can increase or reduce prescribing costs.

- Costs may be increased by using new, more effective but more expensive medicines; or targeting patients who were previously untreated but who should benefit from treatment.

Increasingly, evidence-based guidelines recommend particular medicines for specific conditions or groups of patients. These guidelines often identify previously unmet need and medicines are prescribed over long periods. If implemented, these guidelines improve the quality of prescribing. Due to the nature of medication prescribed, they also result in a sustained increase in the cost of medicines for PCTs. An example of this is the increasing use of statins to lower cholesterol and prevent cardiovascular events in patients with high cardiovascular risk.

- Improving quality may also reduce costs. For example using the lowest effective dose of proton pump inhibitor (PPI) for symptoms of gastro-oesophageal reflux disease (GORD) can ensure patients do not take unnecessary and expensive medication.

Changes that cut inefficiencies or wasteful prescribing, but that do not affect quality, can also lead to savings. Examples include using generic formulations instead of expensive branded preparations or standard preparations in place of certain premium priced preparations.

Improving quality and removing inefficiencies in prescribing practice require a change in prescribing behaviour. They also require time and resources from those who prescribe and those who provide guidance and advice on prescribing. The time and resource needed to change prescribing behaviour in a particular area have to be balanced against the improvements in quality and savings that result.

The following sections describe in more detail some of the main factors that influence prescribing quality and cost.

2.2 National advice

The Health Technology Assessment (HTA) Directorate of NHS Quality Improvement Scotland (NHSQIS), formerly known as the Health Technology Board for Scotland

(HTBS), issues guidance to NHSScotland on the use of technologies, including medicines, procedures and equipment. HTA also provides commentary on guidance issues by the National Institute for Clinical Excellence (NICE) in England and Wales. Such guidance is issued for implementation across NHSScotland.

National evidence based guidelines for clinical conditions are produced for NHSScotland by the Scottish Intercollegiate Guidelines Network (SIGN). Guidelines are statements of best clinical practice but health boards are responsible for implementing them, subject to boards' local priorities.

Implementing these guidelines may lead to significant benefits including:

- Targeting those patients who would benefit most.
- Improving the quality of patient care, often through preventative measures. These may avoid future treatments and associated costs in other parts of the health service.

However implementing the guidelines may also significantly affect the cost of prescribing in primary care.

Exhibit 4 highlights some guidance and guidelines that have had particular impact on prescribing.

Exhibit 4 Guidelines that have had particular impact on prescribing

Cardiovascular disease

- SIGN 40 and 41; primary and secondary prevention of coronary heart disease, promote increased use of statins, anti-platelet agents, ACE inhibitors, beta blockers and lifestyle factors such as smoking cessation and obesity reduction.
- SIGN 35; promotes the use of ACE inhibitors in heart failure.

Central nervous system

- NICE 43 (with HTA comment); recommends the consideration of atypical antipsychotics as a first-line option for the treatment of newly presenting schizophrenia.
- NICE 19 (with HTA comment); promotes dementia medicines for Alzheimer's disease.

Endocrine system – Diabetes

- SIGN 55; promotes the use of the cardiovascular therapies in the management of diabetes.

Musculo-skeletal and joint diseases

- NICE 27 (with HTA comment); recommends the use of COX-2 selective inhibitors in patients who require an NSAID and are at high risk of serious gastro-intestinal adverse events.

Exhibit 5 shows examples of specific medicines, associated with implementing national guidance or guidelines, that are contributing significantly to the growth in prescribing costs.

Exhibit 5 Examples of significant growth medicines associated with national guidelines

BNF Chapter ¹	Significant Growth Medicines	Total Cost (GIC) (April to Sept 2002)	Growth in cost (GIC) (April to Sept 2002 compared with April to Sept 2001)	% Growth in cost (GIC) (April to Sept 2002 compared with April to Sept 2001)
BNF Chapter 2 Cardiovascular System	Lipid regulating medicines e.g. statins	£35,370, 000	£7,221, 000	+26%
	Antihypertensive therapy e.g. ACE Inhibitors	£23,453, 000	£4,694, 000	+25%
BNF Chapter 4 Central Nervous System	Psychoses and related disorders e.g. atypical antipsychotics	£9,130,000	£1,844,000	+25%
	Dementia e.g. cholinesterase inhibitors	£1,443,000	£590,000	+69%
	Substance dependence e.g. nicotine replacement therapy	£5,924,000	£1,551,000	+35%

Source: ISD

With the exception of nicotine replacement therapy, patients usually receive the above medicines on a long-term, repeat basis. In the areas where national guidelines apply, the costs associated with prescribing are likely to rise further as more patients are identified who will benefit from treatment. For example £35.4 million was spent on lipid regulating medicines (mainly statins) in the first six months of 2002/03. This was 8.4% of the total prescribing expenditure.

Exhibit 6 shows that, unless the price of statins fall, their estimated total annual cost in Scotland is expected to grow to at least £95.4 million after SIGN 40 and 41 are fully implemented. That compares with around £65 million now. It is worth noting that the most frequently prescribed statin, simvastatin, has recently come off patent, which may lower costs.

Exhibit 6 Scottish estimate of statin costs for primary and secondary prevention of coronary heart disease

Age group	% population eligible		Total Annual Cost* (£ million)	
	Secondary Prevention	Primary Prevention	Secondary Prevention	Primary Prevention
35-64	7.80% ²	1.50% ²	£59.7	£11.5
65-69	12.92% ³	13.71% ³	£11.8	£12.5
Total			£71.4	£24.0

* Based on the current average simvastatin cost of £387 per patient per year

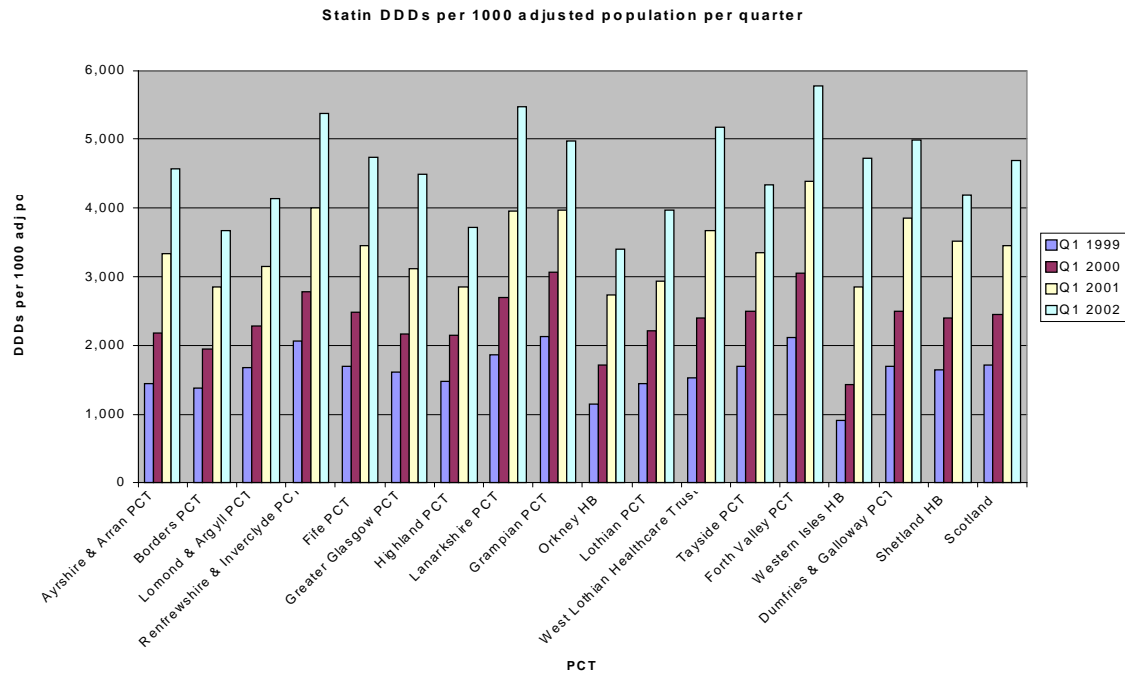
¹ British National Formulary (BNF) is a joint publication of the British Medical Association and Royal Pharmaceutical Society of Great Britain. It aims to provide doctors, pharmacists and other healthcare professionals with sound up-to-date information about the use of medicines. It is published on a six-monthly basis.

² Haq et al. Heart 2001, 86:289-95

³ Haq et al. Clin Sci 1996;91:399-414

Exhibit 7 compares the volume of statins prescribed by Scottish trusts between 1999 and 2002.

Exhibit 7 Statin Defined Daily Doses⁴ (DDDs) per 1000 adjusted population per quarter⁵



Source: ISD

Implementing national guidance and guidelines improves the quality of patient care and is to be encouraged. But it does significantly increase prescribing costs. So it is important that prescribing is targeted accurately in line with the evidence, or advice, so the extra spending delivers the greatest patient benefit. Exhibit 8 has details of an audit of primary and secondary coronary prevention that Lomond and Argyll Primary Care Trust is doing with the aim of encouraging statin prescribing in line with guidelines.

⁴ Defined Daily Doses (DDDs) are the assumed average amount of a medicine needed each day to give optimum therapeutic effect to adults suffering from the conditions for which it is most usually prescribed, based on DURG of the World Health Organisation recommendations

⁵ Actual GP practice list size populations were adjusted to take account of account of differences in prescribing expenditure due to age and sex, and in the level of morbidity and life circumstances. For example, deprivation as measured by the Arbutnott index. The Arbutnott index is derived from data on mortality rates, unemployment rates among the under 65s, income support rates for the over 65s, and other measures of deprivation. Thus the adjusted populations are higher for practices with older populations or populations with a greater need for prescribing due to, for example, higher levels of deprivation.

Exhibit 8 Primary and secondary coronary prevention audit

Lomond and Argyll Primary Care Trust is undertaking an audit to look at statin prescribing in primary and secondary coronary prevention. The aims are:

- for all practices to develop an ischaemic heart disease (IHD) register
- to determine the percentage of patients with existing IHD with a cholesterol level <5mmol/L
- to develop a plan for improving this if necessary
- to look at 10 secondary prevention patients with a cholesterol >5mmol/L to consider reasons for not reaching the target of <5mmol/L
- to monitor and improve the monitoring of liver function tests in patients on statins
- to look at 10 patients on primary prevention with a statin to assess the relevance of statin prescribing and type of patient receiving primary prevention
- to look at a wider range of risk management in relation to IHD

Each practice will receive payment of £500 per full time equivalent principal GP for completing this audit before 31 March 2003 and a second instalment for a repeat audit before March 2004.

The growth in prescribing expenditure associated with implementing national guidance and guidelines suggests that the associated prescribing costs should be seen as service developments and considered alongside developments in other parts of the health service. An assessment of the resource implications of the guidance and guidelines from HTA and SIGN would help health boards to set priorities for service developments. However, the Scottish Executive Health Department (SEHD) would need to consider the prioritisation process against the increased risk of 'postcode prescribing' where different health boards may adopt different priorities.

2.3 General cost and volume inflation

All these service developments, together with increasing use of newer, more effective but more expensive medicines, contribute to the rise in the volume of medicines dispensed, and to rising expenditure. However other factors that are outside the control of prescribers also contribute and lead to higher costs, for example the generics crisis in 1999/2000.

2.3.1 The generics crisis

Unbranded (generic) medicines listed on the Scottish Drug Tariff are generally cheaper than branded equivalents, and are therefore more cost effective. Until August 2000 the generics market was unregulated and market forces operated. This system failed in spring 1999 after one generic manufacturer lost its licence to manufacture. At the same time, many other manufacturers were moving from bulk packs to individual patient packs in accordance with European Union regulations. The combination of these factors resulted in shortages and higher prices for a number of generic medicines – some prices increased by as much as 700% (for example, thyroxine and frusemide). Many of the medicines involved were commonly prescribed items, so the crisis had a major impact on prescribing costs. Analysis by ISD indicates that the increased prices pushed costs up by around £27 million across Scotland in the financial year 1999/2000.

In August 2000 the UK Health Departments introduced a statutory price control scheme. This was designed to recover some of the extra costs. The scheme set a ceiling price, based on market prices in the period November 1998 to January 1999, for most generic medicines. The scheme is still in place while the Government considers longer-term arrangements. While the scheme works well for generic

medicines that have a ceiling price, patents for a number of medicines have expired since January 1999 and are not covered by the scheme. For example, the scheme does not cover enalapril, fluoxetine, lisinopril or omeprazole and these therefore still pose a risk.

The generics crisis had a major impact on the newly formed LHCCs, many of which had taken measures on prescribing in the hope that they could release money to provide new services. Budget overspends in 1999/2000, caused by factors outwith GP or LHCC control, may have subsequently been a disincentive for GPs to make further prescribing changes.

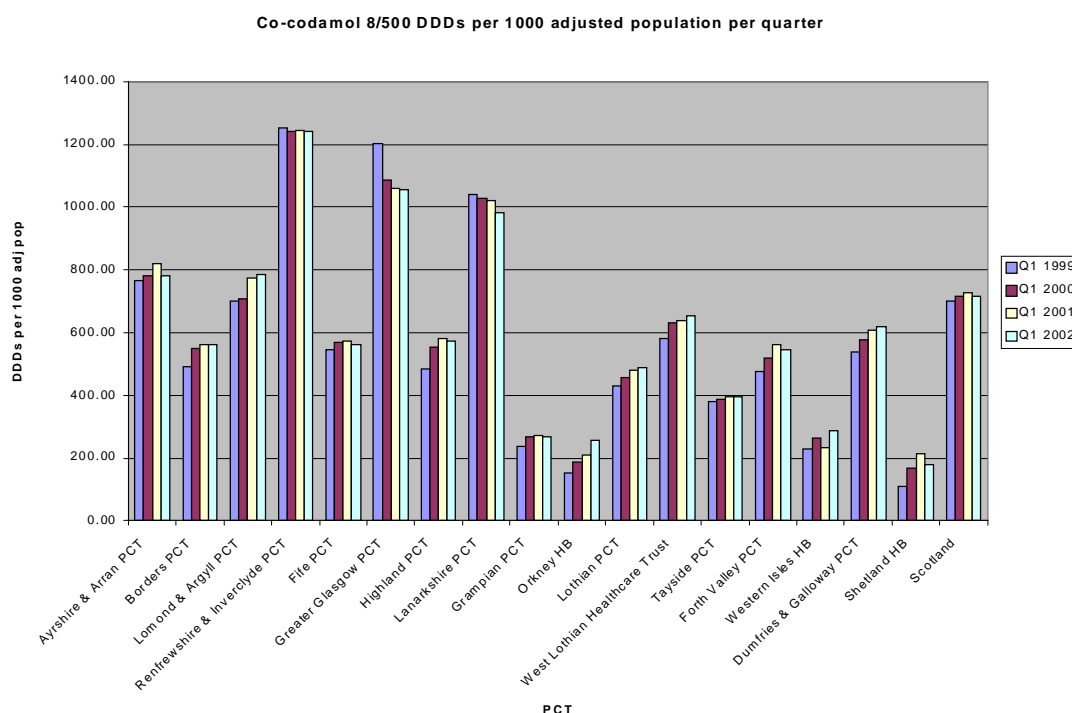
2.3.2 Other cost and volume inflation

There are other factors that contribute to general cost and volume inflation. These include:

- An ageing population. In general, older people use more medicines than younger people. The Health Survey for England⁶ found that about two in five men (39%) and half of all women (49%) were taking prescribed medicines. From age 45, use of prescribed medicines rose steeply with age. From age 75, 81% of men and 86% of women received prescribed medication, with more than two in five of those on medication taking four or more medicines.
- Increasing patient awareness, and expectations, of what medicines are available and what treatment they can expect to receive. This has increased pressure on prescribers. An example is the use of co-codamol 8/500 (8mg codeine and 500 mg paracetamol). The British National Formulary (BNF) classifies this medicine as less suitable for prescribing because it has no proven advantage over the less expensive paracetamol but includes 8mg of the opioid analgesic, codeine phosphate. The BNF states that “the low dose of the opioid analgesic may be enough to cause opioid side-effects (in particular, constipation) and can complicate the treatment of overdose, yet may not provide significant additional relief of pain”. Despite this, there are reports of patients not being satisfied with paracetamol. Exhibit 9 shows the variation in use of co-codamol 8/500 throughout Scotland. Although a number of trusts have reduced the amount of co-codamol 8/500 prescribed since 1999, there is still a significant amount prescribed in Scotland.

⁶ Health Survey of England 1998

Exhibit 9 Use of co-codamol 8/500 in Scotland



Source: ISD

- Increasing demand for medicines to counteract certain lifestyle and quality of life factors. Examples include bupropion for smoking, orlistat and sibutramine for obesity and sildenafil for impotence. Several new products have recently been launched to treat impotence and it is likely that more medicines aimed at many 'lifestyle illnesses' will follow. These medicines can have a place in treatment plans for patients but prescribing them should be reserved for cases with clear clinical benefit. Patient demand and expectation can be powerful influences in prescribing these medicines. Other medicines in this category include acid suppressant medicines such as PPIs and H₂ receptor antagonists.
- Increasing numbers of prescribers. Examples are nurse prescribers and supplementary prescribers. The number of items that nurses prescribe rose from 55,487 in 1999 to 247,931 in 2002 (+347%). Nurses now prescribe medicines to the value of over £3 million. No-one has done a formal evaluation of nurse prescribing. So it is not clear if nurses are prescribing because they have identified an unmet need, or if they are providing a substitute service – that is, patients would otherwise have gone to their GP for a prescription. Nurse prescribing could grow significantly as a result of the extended Nurse Prescribing Scheme and introduction of supplementary prescribing. Nurses will also be able to prescribe a wider range of medicines for a broader range of medical conditions. Pharmacists will also have the option to become prescribers in the future.

2.4 Prescribing behaviour and choice of medicines

Prescribing behaviour and the choice of particular medicines or formulations affect both the quality and cost of prescribing. Most medicines are prescribed by GPs whose terms of service state that a GP “shall prescribe” to patients on their list, based on clinical need. A trust’s ability to contain GP prescribing is limited as there is potential conflict between a GP’s right to prescribe and a PCT’s responsibility to contain prescribing expenditure and remain within budget. Trusts therefore need to work with GPs to deliver the most cost effective – in terms of quality and cost - prescribing. However, PCTs can influence prescribing behaviour by providing prescribers with adequate information, advice and support.

One issue affecting the motivation of prescribers to change their prescribing behaviour has been the ability of GPs to manage their prescribing budgets and keep some of the savings to fund other services. Unrealistically low budget setting can result in automatic overspends, despite best prescribing intentions. When this happens there is less incentive for GPs to continually adapt prescribing.

There are currently some inefficiencies in prescribing practice, such as prescribing more expensive formulations, or medicines of limited value. There are also inefficiencies in repeat prescribing systems. Correcting these inefficiencies can reduce waste and, therefore, cost. This will improve the overall cost effectiveness of prescribing, but will take time and resources to achieve.

2.5 The impact of secondary care

Prescribing decisions taken in secondary care can have a significant impact on prescribing in primary care.

A great deal of work is under way to establish systems that span primary and secondary care. Examples are:

- The operation of effective area-wide drug and therapeutics committees.
- GPs/LHCCs working with consultant colleagues in secondary care to develop joint formularies.
- The use of patients’ own medicines in hospital. Many health boards are committed to the use of patients’ own medicines and several are introducing this at selected hospitals as a first step to full introduction.
- Reviewing admission and discharge procedures with specific focus on the continuity of medicines prescribed.
- Developing health board-wide prescribing strategies and action plans that span primary and secondary care, under the guidance of health board-wide medicines management units or drug and therapeutics committees.

3 Prescribing quality and efficiency

It is difficult to measure the quality of clinical prescribing without a link between prescription and diagnosis. Information from practices about morbidity, coupled with prescribing information, would provide the best indication of the quality of prescribing. However information about prescribing is based on medicines dispensed and is not correlated to the diagnosis. Information about practice morbidity is limited and depends on how accurately GP practices collect and code data. The new GP contract will require practices to collect this type of information for chronic diseases. GPASS and Clinical Support (CS) could be powerful tools for GPs and valuable in supporting the new contract.

This section outlines progress that PCTs in Scotland have made against indicators of prescribing quality and efficiency. In the absence of morbidity-related information in Scotland, we have used generally accepted prescribing indicators and routine data on medicines dispensed to examine the quality of prescribing. However, these indicators have not been validated with clinical data and there may be justifiable reasons for outlying prescribing patterns which can only really be determined through clinical audit.

The quality of prescribing, as measured by the indicators in this report, has risen significantly since we issued the baseline report in 1999. Indicators of prescribing efficiency show that considerable savings have also been realised.

Section 3.1 highlights the change in the quality of prescribing in the last few years and section 3.2 summarises changes in prescribing efficiency over the same period. Section 3.3 identifies potential savings that may still arise from further improvements in prescribing efficiency.

3.1 *The quality of prescribing in Scotland*

The indicators of prescribing quality that this report uses include:

- Proton pump inhibitor (PPI) maintenance doses as a proportion of maintenance and treatment doses.
- Bendrofluazide 2.5mg doses as a proportion of 2.5mg and 5mg doses.
- Single diuretics as a proportion of single and combination diuretics prescribed.
- ACE Inhibitors per 1000 adjusted population.
- Low dose aspirin per 1000 adjusted population.
- Statins per 1000 adjusted population.
- Total prescribing of hypnotics and anxiolytics.
- Established antibiotics as a percentage of all oral antibiotics.
- Amoxicillin as a percentage of amoxicillin and co-amoxiclav.

Appendix A explains these indicators of prescribing quality and the clinical evidence we have used to support them.

Exhibit 10 summarises changes in indicators of prescribing quality over the last three years. Apart from one indicator, an increase in percentage or defined daily doses (DDDs) is an improvement. Based on these indicators, prescribing quality has improved significantly.

Exhibit 10 Indicators of prescribing quality – summary of changes between 1999 and 2002 (based on Scottish average, Quarter 1 for each year)

Indicator	Q1 1999	Q1 2000	Q1 2001	Q1 2002
A1. Proton Pump Inhibitor (PPI) maintenance doses as a percentage of maintenance and treatment doses	33%	37%	40%	40%
A2. 2.5mg bendrofluazide as a percentage of 2.5mg and 5mg	80%	85%	90%	93%
A3. Single diuretics as a percentage of single and combined diuretics	82%	85%	88%	90%
A4. ACE inhibitor DDDs per 1000 adjusted population per quarter	3,035	3,313	4,598	5,720
A5. Low dose aspirin DDDs per 1000 adjusted population per quarter	4,712	5,116	5,396	5,637
A6. Statin DDDs per 1000 adjusted population per quarter	1708	2455	3460	4689
A7. Hypnotic and anxiolytics DDDs per 1000 adjusted population per quarter*	2,708	2,689	2,688	2,641
A8. Established antibiotics as a percentage of all oral antibiotics	92%	93%	93%	92%
A9. Amoxicillin as a percentage of amoxicillin and co-amoxiclav	81%	81%	82%	82%

* For this indicator, unlike other indicators in this table, a lower value shows increased compliance with good practice. Source: ISD

Appendix A (A1 to A9) presents prescribing information for each primary care trust and for Scotland, in a range of quality indicators. We provide an explanation and commentary for each indicator, and have highlighted changes by PCT and island health board between 1999 and 2002.

Every PCT and island health board has improved prescribing in indicators that relate to treating cardiovascular disease; for example statins, ACE inhibitors, aspirin and diuretics. However improvements in prescribing antibiotics, hypnotics and anxiolytics, and PPIs are more variable.

Improvements in some indicators of prescribing quality can also generate savings; for example, using maintenance dose PPIs as a percentage of maintenance and treatment doses. Section 3.3 considers further the potential savings generated by increasing the proportion of maintenance dose PPIs.

Recommendation:

- *PCTs should evaluate where prescribing quality can be improved. Resource implications and benefits of improving quality should be part of the evaluation. The evaluations should contribute to trusts' prescribing strategies and plans.*

3.2 Prescribing efficiency in Scotland

Just as prescribing indicators can help measure the quality of prescribing, other indicators can also help measure prescribing efficiency and potentially wasteful prescribing. The indicators of prescribing efficiency that this report uses include:

- The use of established therapies as a percentage of established and newer medicines; for example established antidepressants.
- The proportion of generic alternatives rather than branded medicines.
- The use of medicines marked by the BNF as less suitable for prescribing.
- The use of medicines of limited therapeutic value; for example, topical NSAIDs, peripheral vasodilators.
- The use of standard formulations in preference to premium-priced products; for example standard rather than effervescent or modified release versions of medicines.
- The use of less expensive but therapeutically equivalent medicines in preference to more expensive alternatives; such as oxytetracycline instead of minocycline.

Appendix B (B1 to B6) provides an explanation and commentary for each indicator and highlights changes by primary care trust and island health board between 1999 and 2002.

Most indicators of prescribing efficiency estimate how much savings might follow if a more cost effective alternative medicine or formulation were prescribed. However, simply measuring the difference in total potential savings over time does not give a true indication of savings achieved by trusts or their prescribing efficiency. This is because changes in market prices and the relative prices of the different medicines and formulations affect the potential savings. It is better to measure changes in how much a certain medicine has been prescribed over time, rather than the potential saving. This shows how much trusts have altered prescribing practice in an attempt to achieve efficiency gains. This section therefore uses either percentages, or number of DDDs prescribed, to illustrate efficiency changes.

Exhibits 11 to 15 summarise the changes in indicators of prescribing efficiency over the last three years (based on data for quarter one of each year).

Exhibit 11 Established therapies as a percentage of established and newer medicines

Indicator	Q1 1999	Q1 2000	Q1 2001	Q1 2002
B1. Established therapies as a percentage of established and new medicines (a higher value is better)				
B1.1 ACE inhibitors as a percentage of angiotensin II receptor antagonists and ACE inhibitors	92%	90%	89%	88%
B1.2 Established antidepressants as a percentage of all antidepressants	93%	91%	90%	87%
B1.3 Traditional NSAIDs as a percentage of all oral NSAIDs (2000 to 2002 data only)		96%	87%	76%

Source: ISD

All three indicators show a reduction in the proportion of established agents and, therefore, increased use of the more expensive, newer agents across Scotland. This is perhaps not surprising as prescribers become more familiar with the newer agents, which clearly do have a place in treatment for certain patients.

The optimum percentage use of established and newer treatments is unknown. But the large variation among practices shown in Appendix B1 suggests some prescribers may routinely be using newer treatments instead of more cost effective, established therapies that are generally associated with more extensive evidence of efficacy and safety.

Exhibit 12 Generic medicines as a proportion of all medicines prescribed

Indicator	Q1 1999	Q1 2000	Q1 2001	Q1 2002
B2. Generic medicines as a proportion of all medicines prescribed (a higher value is better)				
B2.1 Generic prescribing rates	68%	71%	75%	76%

Source: ISD

The generic prescribing rate in Scotland has increased from 68% in 1999 to 76% in 2002. The optimum rate for generic prescribing is considered to be around 80%. There is still variation among trusts in Scotland, as Appendix B2 shows.

Exhibit 13 Medicines considered to be of limited value

Indicator	Q1 1999	Q1 2000	Q1 2001	Q1 2002
B4. Medicines considered to be of limited value (a lower value is better)				
B4.1 Number of prescription items of peripheral and cerebral vasodilators per quarter	11,976	10,302	8,563	7,558
B4.2 Number of prescription items of topical NSAIDs per quarter	107,492	98,799	89,732	91,340

Source: ISD

In most areas of Scotland there have been fewer prescription items for medicines considered to be of limited value. This table of 'limited value' medicines is made up of drugs which are generally considered to have little or no lasting therapeutic value for the majority of patients.

Exhibit 14 Substitution of premium-priced products with cheaper standard formulations

Indicator	Q1 1999	Q1 2000	Q1 2001	Q1 2002
B5. Substitution of premium priced products with cheaper standard alternatives (a lower value is better)				
B5.1 DDDs of effervescent co-codamol 8/500 per 1000 adjusted population per quarter	327	322	279	281
B5.2 DDDs of isosorbide mononitrate (ISMN) MR per 1000 adjusted population per quarter	1232	1282	1300	1294
B5.3 DDDs of diclofenac MR per 1000 adjusted population per quarter	490	454	391	352
B5.4 Number of 28 days supply of transdermal oestrogen only HRT patches per quarter	78,355	77,216	74,121	71,213
B5.5 DDDs of salbutamol dry powder and automated inhaler devices per 1000 adjusted population per quarter	556	605	627	677

Source: ISD

The use of expensive premium-priced preparations has fallen in three of the above indicators: effervescent co-codamol, diclofenac MR and transdermal oestrogen only HRT patches.

The use of ISMN MR has risen by 5%. Some trusts, notably Tayside, have significantly reduced the use of ISMN MR by moving to the standard formulation in selected patients. However others have decided not to switch due to fears of reducing the level of patient compliance. A number of these trusts have switched to the cheapest MR preparation to maximise the saving they can make while still prescribing the MR formulation. However this approach carries a risk that future price changes may alter the difference in price between the various MR products.

Exhibit 15 Substitution of expensive medicines with therapeutically equivalent but cheaper products

Indicator	Q1 1999	Q1 2000	Q1 2001	Q1 2002
B6. Substitution of expensive medicines with therapeutically equivalent but cheaper products (a lower value is better)				
B6.1 DDDs of non-fluoxetine SSRIs per 1000 adjusted population per quarter (2001 and 2002 data only)			2002	2304
B6.2 DDDs of co-codamol 8/500 per 1000 adjusted population per quarter	701	715	726	718
B6.3 DDDs of minocycline per 1000 adjusted population per quarter	97	97	92	97

Source: ISD

These indicators show a small rise in the DDDs of the more expensive products of co-codamol 8/500, minocycline and non-fluoxetine SSRIs.

Recommendations:

- *PCTs should have policies and protocols in place to ensure the most cost effective treatment is considered as a first-line option for new patients.*

3.3 Achieving further efficiency savings

We have calculated potential savings using medicines prescribed in the first quarter of 2002 and assuming prescribing patterns will remain the same for the rest of the year. These savings are therefore best estimates, and reflect specific prescribing changes associated with greatest savings for Scotland as a whole.

We estimate that efficiency savings could amount to around £27.8 million a year provided that:

- all the potential savings that this report identifies can be achieved and maintained; and
- achieving the savings does not generate extra costs.

This includes some element of double counting, since some medicines are included in more than one indicator. It also assumes that it is appropriate to make the suggested prescribing changes for all patients.

For these reasons, we estimate that a more realistic figure for the savings available is 50% of this - around £13.9 million. This figure is about 53% of the value given in the previous report. There are a number of reasons for this decrease but the two main ones are:

- pricing of medicines has changed, reducing the potential for savings
- trusts have taken action to achieve savings.

We have calculated the savings using current prices. Fluctuations in prices will influence future savings. It might only be possible to achieve these savings over a number of years. This is because it may be more appropriate to change premium-priced, or therapeutically equivalent, products for new patients rather than for patients already stabilised on particular treatment regimes. Also the appropriateness of any proposed switch of medicine has to be considered on an individual patient basis and this takes time.

£13.9 million is a significant and worthwhile saving in its own right, but the implementation of the national guidelines will far outstrip these possible savings. For example, the recent rise of £28.7 million in six months in two BNF Chapters alone – Cardiovascular and Central Nervous Systems – exceeds the possible savings to be made from inefficiencies over a year.

Exhibits 16 to 19 and exhibit 21 show that achieving 50% of the total potential savings could generate a further £13.9 million a year in the following areas:

- generic substitution

- medicines of limited value
- premium priced product substitution
- therapeutic substitution
- moving appropriate patients to maintenance dose PPIs.

Exhibit 16 Generic substitution

B2.2* GENERIC SUBSTITUTION	
50% potential generic savings for Scotland per annum	£1.5 m

* Refers to relevant appendix

Source: ISD

All PCTs review generic prescribing. Many trusts have targets for overall generic prescribing rates and particular medicine groups where they feel generic prescribing rates can be improved. Although this is an area trusts have targeted successfully for several years, there is still scope for savings. This is partly due to medicines coming off patent. If prescribers stopped prescribing half of the branded medicines that have an appropriate generic alternative in favour of the cheaper generic preparation, the potential saving for Scotland would be £1.5 million a year.

Exhibit 17 Medicines considered to be of limited value

B4. MEDICINES CONSIDERED TO BE OF LIMITED VALUE	
B4.1 Potential savings resulting from the discontinuation of peripheral and cerebral vasodilators	
50% potential savings for Scotland a year	£285,000
B4.2 Potential savings resulting from the discontinuation of topical NSAIDs	
50% potential savings for Scotland a year	£1.2 m

Source: ISD

Exhibit 18 Premium-priced product substitution

B5. PREMIUM-PRICED PRODUCT SUBSTITUTION (A lower value is better)	
B5.1 Potential savings resulting from the substitution of effervescent co-codamol 8/500 with standard co-codamol 8/500	
50% potential savings for Scotland a year	£514,000
B5.2 Potential savings resulting from the substitution of isosorbide mononitrate (ISMN) MR with ISMN standard	
50% potential savings for Scotland a year	£2.7 m
B5.3 Potential savings resulting from the substitution of diclofenac MR with diclofenac standard	
50% potential savings for Scotland a year	£932,000
B5.4 Potential savings resulting from the substitution of transdermal oestrogen only HRT with an oral preparation	
50% potential savings for Scotland a year	£569,000
B5.5 Potential savings resulting from the substitution of salbutamol dry powder and automated inhaler devices with Metered Dose Inhalers (MDIs)	
50% potential savings for Scotland a year	£1.1 m

Source: ISD

Exhibit 19 Therapeutic substitution

B6. THERAPEUTIC SUBSTITUTION	
B6.1 Potential savings resulting from the substitution of non-fluoxetine SSRIs with fluoxetine	
50% potential savings for Scotland a year	£8.5 m*
B6.2 Potential savings resulting from the substitution of co-codamol 8/500 with paracetamol 500mg	
50% potential savings for Scotland a year	£794,000
B6.3 Potential savings resulting from the substitution of minocycline with oxytetracycline	
50% potential savings for Scotland a year	£1.1 m

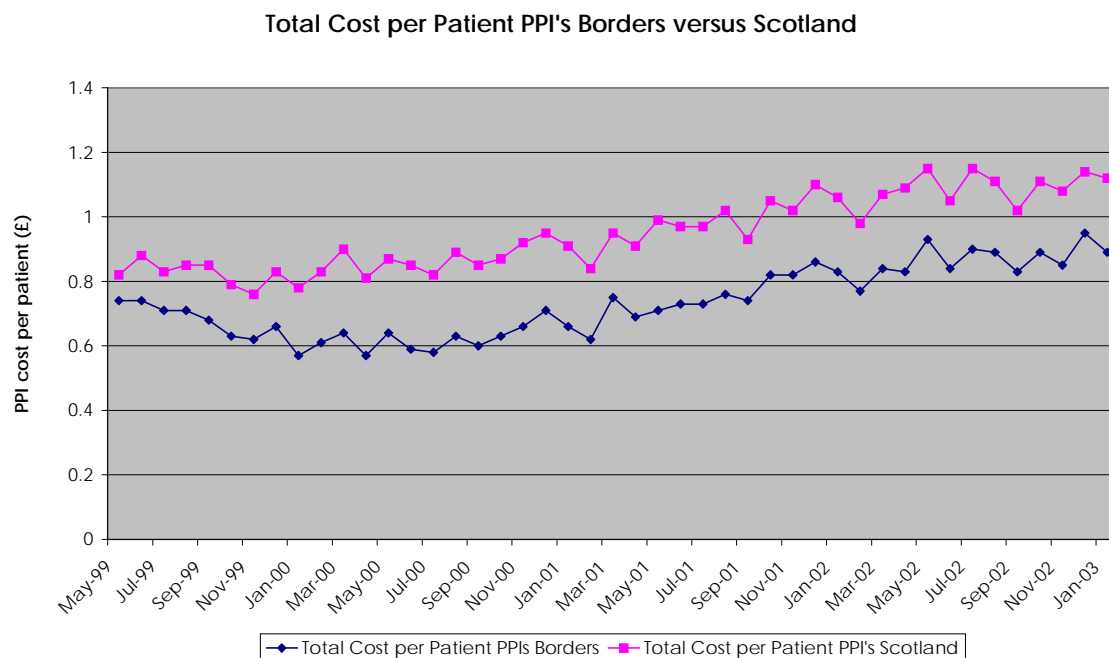
Source: ISD

* The potential saving on non-fluoxetine SSRIs cannot be fully realised as existing patients should not normally switch medicine in mid-treatment. This potential saving will also be affected by the impending reduction in price differential between fluoxetine and other SSRIs as paroxetine and citalopram enter the Scottish Drug Tariff. This potential saving is therefore only for illustration and is not included in the total savings figures in this report. However, generic fluoxetine should be considered for new patients requiring an SSRI antidepressant.

In addition to the above potential savings, further savings may come from areas more associated with improving prescribing quality. Two examples are moving appropriate patients to maintenance dose PPIs, and using fewer medicines marked by the BNF as less suitable for prescribing. Currently, PPI maintenance doses account for 40% of maintenance and treatment doses across Scotland (Exhibit 10 Section 3.1). However the proportion of maintenance doses varies from 26% in one island health board to 56% in Borders Primary Care Trust (Appendix A1).

Prescribing support pharmacists in Borders Primary Care Trust have been monitoring PPI use for several years, encouraging GPs to reduce to maintenance dose where appropriate. From October 2002, the Borders prescribing action plan recommended to practices that pharmacists should carry out a detailed review, working to an agreed signed protocol, of all patients on PPI treatment doses with a change to maintenance dose where appropriate. The continued focus on PPI maintenance doses in the Borders has resulted in a consistently lower cost per patient than for Scotland, as Exhibit 20 shows.

Exhibit 20 Cost per patient for PPIs in Borders Primary Care Trust compared to the Scottish average.



Source: Borders Primary Care Trust

Exhibit 21 provides estimates of the potential annual savings that could follow if trusts that are currently below the Scottish average moved up to 40%, 45% and 50% PPI maintenance doses. If all trusts could move up to 50% maintenance doses the potential saving would be £3.2 million.

Exhibit 21 Potential savings from increasing the proportion of PPI maintenance doses

% PPI maintenance doses	Potential annual savings for Scotland**
40%*	£490,000
45%	£1.68 million
50%	£3.22 million

Source: ISD

* Increasing trusts currently below 40% to the Scottish average
 ** These estimates are based on PPI prices for the first quarter of 2002. Since then the most frequently prescribed PPI, omeprazole, has entered the Scottish Drug Tariff and is now available in a cheaper generic form. The price differential between maintenance and treatment doses has decreased, resulting in a slight reduction in the value of the potential savings we quote.

Over £20 million is spent each year on medicines marked by the BNF as less suitable for prescribing. They are not considered medicines of first choice, but their use may be justifiable in certain circumstances. Unlike limited value medicines, discontinuing a medicine marked as less suitable may require an alternative medicine to be prescribed. For this reason, we have not shown any potential savings figure against this type of medicine. However, trusts should review how medicines marked less suitable for prescribing are prescribed.

Section 3.4 provides some examples of savings achieved by trusts and includes examples of savings in the area of PPIs.

Recommendation:

- *PCTs should examine where further prescribing efficiency savings can be made. The resource implications of achieving these savings should be considered as part of the evaluation. These evaluations should contribute to trusts' prescribing strategies and plans to ensure these savings are maintained.*

3.4 Examples of prescribing support

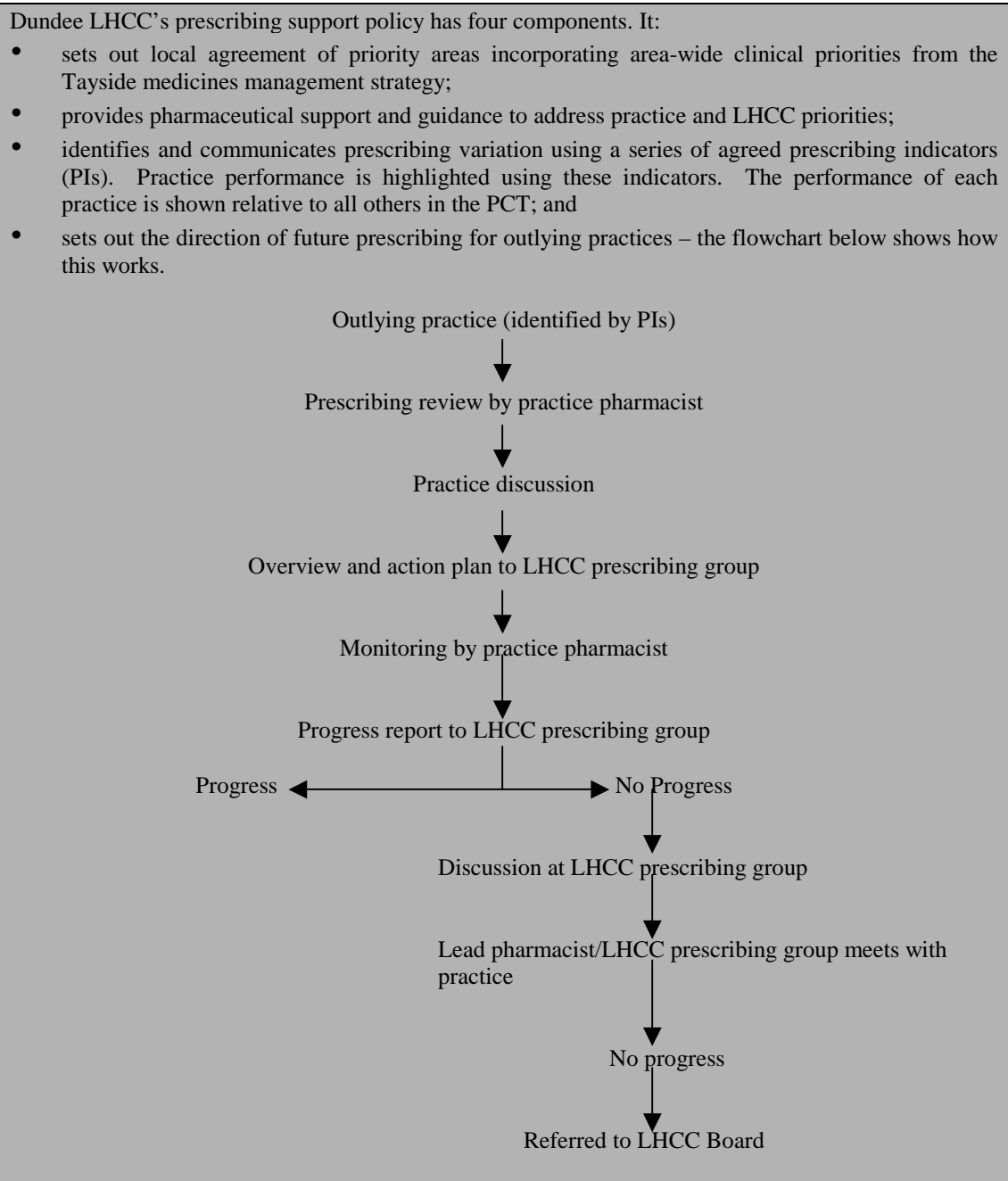
3.4.1 The nature of prescribing support

In Scotland, prescribing support is recognised as improving the quality and efficiency of prescribing. As a result local support structures have developed. The particular nature of prescribing input varies but, in general, prescribing support focuses on three main levels:

- Support at individual GP practice level by practice or community pharmacists. Examples include developing or improving repeat prescribing systems; undertaking medication reviews for individual patients; encouraging dose optimisation and reducing waste; examining prescribing systems in nursing or residential homes; and doing reviews or audits of the prescribing of specific medicines such as statins.
- Support across LHCCs and PCTs. Examples include analysing national or health board prescribing information to produce prescribing indicators by practice and locality, and using these to develop area-wide prescribing strategies and action plans; developing evidence-based prescribing policy in the form of guidelines and formularies; and developing templates or good practice guides to help practices develop their own systems, such as repeat prescribing. There are many levels of support within this. For example the PCT may send letters to all practices, or specific action plans may be drawn up for practices across an LHCC. Specific medicines, for example, reviewing PPI use, may also be targeted across the whole PCT or within particular LHCCs. Some LHCCs share practice specific data to highlight variations. In other LHCCs, practice data is anonymised.
- Support that spans primary and secondary care. Examples include developing joint prescribing policies across primary and secondary care. This might take the form of joint prescribing formularies; using patients' own medicines in hospital; and reviewing admission and discharge procedures to take into account prescribing issues and how medicines are managed.

It is important to target prescribing support to where it will give most benefit. Exhibit 22 provides the prescribing support policy for Dundee LHCC, showing how it addresses outlying prescribing patterns, agrees prescribing priorities and targets prescribing support.

Exhibit 22 Dundee LHCC prescribing support policy



Island health boards have specific constraints on the resources available for prescribing support. Dispensing GP practices and funding arrangements for rural GPs can also affect prescribing decisions.

Since the baseline report in 1999, there has been a noticeable change in GP attitudes towards pharmacist support. GPs have, in many cases, had help from practice, community, LHCC or PCT pharmacists and would welcome more prescribing support than is available. However, a balance needs to be struck between – on the one hand - prescribers prescribing cost effectively first time, within local prescribing policy and evidence-based guidelines; and on the other hand, prescribing support being used to correct existing prescribing practice and systems - in other words, a mix of prospective and retrospective approaches.

There is also a lack of analysis and evaluation by PCTs and LHCCs of specific prescribing support initiatives. This makes it difficult to report on effectiveness, other than anecdotally and by using prescribing indicators⁷.

Recommendations:

- *PCTs and LHCCs should consider how to make their prescribing advice more prospective to encourage prescribers to prescribe effectively first time.*
- *PCTs and LHCCs should encourage evaluation of prescribing initiatives and ensure results are shared across Scotland.*

3.4.2 Examples of improvements in prescribing quality and efficiency

Sections 3.1 and 3.2 highlighted that there has been good progress in improving quality and increasing efficiency since the first report. This section gives examples of what has been done to improve quality and efficiency. It should be noted that these are simply a selection of examples and do not reflect the volume or quality of work in each trust. However this selection alone describes savings of over £2 million a year, as well as details of quality improvements.

Every trust has several initiatives to improve prescribing quality. These include regular newsletters, targets and indicators, incentive schemes and reviews of specific medicines. In addition, projects to improve repeat prescribing systems and medication reviews will also improve the overall quality of prescribing that patients receive.

There is considerable work being undertaken to maintain and improve the quality of prescribing in all the areas covered by quality indicators in this report. The quality indicator that measures the PPI maintenance doses as a percentage of maintenance and treatment doses is a good example of work done by trusts. Exhibit 23 shows three approaches.

Exhibit 23 Review of the use of Proton Pump Inhibitors

Lanarkshire Primary Care Trust

GPs, LHCC pharmacists and pharmacists from an independent company (Pharmaforce Ltd.) worked together to undertake an audit in 60% of GP practices in Lanarkshire. Pharmacists reviewed the prescription and medical records of patients and provided the GP with specific recommendations. In total, 5792 patients were reviewed and medication was changed to maintenance dose in 3848 (66%) of these patients. In the majority of cases (74%), the change was to lansoprazole 15mg. A further 10% of the patients reviewed had their medication discontinued. For 23% of patients reviewed, the review did not result in any change in medication.

⁷ Fish A, Watson M and Bond C, *Practice-based pharmaceutical services: a systematic review*, International Journal of Pharmacy Practice, December 2002

Kirkcaldy and Levenmouth LHCC

Kirkcaldy and Levenmouth LHCC in Fife has reviewed PPIs as part of its wider Prescribing Strategy. This PPI initiative has resulted in the proportion of maintenance doses of PPIs rising from 35% to 50%.

GP practices in Renfrewshire and Inverclyde

Reviews of PPIs at three GP practices in Renfrewshire and Inverclyde have resulted in between 30% and 50% of patients reviewed being transferred to maintenance dose, and about 10% having their medication discontinued

These examples of PPI reviews were chosen because they demonstrate three levels of approach: PCT, LHCC and individual practice. The level of approach taken will depend on a trust's management and prescribing support arrangements, and on resources available for individual reviews.

There are different views on which level of prescribing review or support has most impact on longer-term prescribing behaviour. Some believe that a specific trust-wide exercise helps change prescribing behaviour in the longer term by establishing local prescribing policy. The counter view is that it is better to concentrate on issues specific to practices because this encourages ownership by GPs and has more influence over their prescribing habits.

Exhibit 24 shows the savings that the above three reviews of PPIs made. Exhibits 25–27 provide examples of other cost saving initiatives based on the efficiency indicators already discussed in section 3.2.

Exhibit 24 Examples of savings made from PPI reviews

Although included as a quality indicator, the appropriate switch of patient medication to maintenance dose PPIs is not only beneficial for the patient but can also save significant amounts of money. The annual savings associated with the examples highlighted in exhibit 23 are:

Lanarkshire Primary Care Trust: £622,000 (a 9% reduction on the previous year's spending on PPIs).

Renfrewshire and Inverclyde Primary Care Trust: £24,000 from a review of three practices.

Kirkcaldy and Levenmouth LHCC, Fife: £68,500.

Exhibit 25 Reducing annual spend on medicines considered to be of limited value

Tayside Primary Care Trust: Tayside reduced prescribing of topical NSAIDs by 47% between 1999 and 2002, resulting in annual savings of £70,000. During the same time period, Tayside reduced prescribing of peripheral vasodilators by 39%, saving £23,000 annually. It did this through an incentive scheme, a community pharmacist scheme and the work of practice pharmacists.

Exhibit 26 Premium-priced substitution commonly used MR NSAIDs for standard formulations

Kirkcaldy and Levenmouth LHCC, Fife made annual savings of £62,667 by establishing an incentive scheme for reducing the amount of diclofenac MR prescribed.

Tayside Primary Care Trust reduced the DDDs of MR preparations of diclofenac by 66% between 1999 and 2002, resulting in a reduction in the overall cost of diclofenac prescribing of 37%, and annual savings of £149,000.

Exhibit 27 Substitution of isosorbide mononitrate MR with isosorbide mononitrate standard formulation or cheaper MR product

Tayside Primary Care Trust reduced DDDs of ISMN MR prescribing by 31% between the first quarter in 1999 and the first quarter in 2002. The overall cost of ISMN prescribing fell by 25% during the same time period, resulting in annual savings of £190,000.

Forth Valley Primary Care Trust had a high volume of ISMN MR prescribing; two acute hospitals discharge patients on different MR formulations and local GPs consider it clinically unacceptable to move from the once-daily MR products to a twice-daily standard formulation. In light of this, the joint LHCC prescribing group supported a proposal to switch to a single MR brand (Isotard XL®), rather than continue to use several MR products or standard formulation. Work was carried out over a three month period in most GP practices. Some practices switched all patients while others started new patients only on the agreed product. Six months later, an analysis of prescribing cost trends showed that these actions had realised £120,000 (67%) of the potential £180,000 savings identified.

Each trust has many prescribing initiatives running at once. To illustrate the range of these, Exhibits 28 and 29 give examples undertaken at Ayrshire and Arran Primary Care Trust and Renfrewshire and Inverclyde Primary Care Trust over a year. Other PCTs also have their own range of prescribing support initiatives.

Exhibit 28 Range of prescribing support initiatives provided by Ayrshire and Arran Primary Care Trust

Ayrshire and Arran Primary Care Trust targeted eight key areas and offered repeat prescribing review to practices as a separate topic, both as a means of updating prescribing systems and medication review. Projects to improve these eight key areas took place at several levels: LHCC, GP practice, community pharmacists working in GP practices, and also as area-wide initiatives encouraged and supported by both trust and LHCC prescribing advisors.

These projects and other work to address unmet need have been the focus of work over the past two years. In 2000/01, 57 of 61 GP practices took part in one or more prescribing projects. In 2001/02, 59 of the 61 practices took part. The specific projects were:

Generic prescribing:

The generic rate in Ayrshire and Arran was 60.4% in 1998 compared with a 65.9% rate for Scotland. By 2001, the rate had increased to 72.9% for Ayrshire compared to 73.5% for Scotland. The generic rate is now used as an indicator in the budget setting process.

Medicines of limited clinical value:

Ayrshire and Arran reduced its annual spend by £177,437 (£90,603 for peripheral vasodilators and £86,834 for topical NSAIDs). It now uses these indicators in the budget-setting process.

Premium-priced analgesics:

Ayrshire and Arran reduced spending on modified release preparations of diclofenac, ibuprofen and indomethacin by £171,327, which equates to a saving of £61,387 a year. There are three NSAIDs in the formulary, Diclofenac, ibuprofen and naproxen with mefenamic acid for dysmenorrhoea. Ayrshire and Arran's analysis shows that formulary compliance continues to improve.

Bendrofluazide:

A switch of patients from 5mg to 2.5mg was offered to GP practices as an area-wide project and the percentage of 2.5mg increased from 66.4% in 1998 to 93% in 2001. This indicator is now used in the budget setting process.

Combination diuretics:

The PCT and the acute trust agreed to use single agent diuretics rather than combination, with a particular emphasis on co-amilofruse. The joint area formulary indicates that combination preparations should not be used unless a potassium-sparing agent is specifically required and compliance is an issue. Single agent diuretics compared with combination agents have increased from 66.9% in 1998 to 83.5% in 2001, with a total saving of £67,038 a year. This indicator is now used in budget setting.

Effervescent preparations:

Various projects at LHCC level have attempted to address the use of effervescent co-codamol and paracetamol preparations. However the use of effervescent analgesics has risen by 875,767 tablets since 1998 – an increase in cost of £68,714 between 1998 and 2001. This has been a difficult indicator to address as many patients are unwilling to change from effervescent preparations. Ayrshire and Arran is attempting to tackle this by asking GPs to point out to patients the effervescent salt content and encourage them to switch to the standard form. There are plans to evaluate LHCC projects to see if the change has succeeded.

Proton Pump Inhibitors:

Although Ayrshire and Arran has a significantly higher cost per patient than the Scottish average, the maintenance rate of PPI doses has risen from 29.4% in 1998 to 41.6% in 2001. Costs have fallen by £190,536 a year as a result. The PPI maintenance dose as a proportion of all PPI doses is used as a budget setting indicator and an Ayrshire-wide strategy to tackle this area of high spending is being developed in line with the expected SIGN guideline on dyspepsia.

Nitrates:

A joint agreement was reached between primary and secondary care that new patients in secondary care would be started either on a particular MR form of isosorbide mononitrate or standard isosorbide mononitrate asymmetric dosing. In primary care, an area-wide initiative was conducted for GP practices to switch to the same version of MR isosorbide mononitrate or asymmetric dosing of the standard form, but very few GPs supported the switch to asymmetric dosing. It is estimated that for the 41 out of 61 GP practices that participated, £87,000 was saved. The other 20 GP practices are being encouraged to participate in this initiative.

Repeat prescribing management:

In 1999/2000, a project began across the area with the aim of allowing GPs to use basic housekeeping and management systems for repeat prescribing within their practices. Two sample protocols offered GP practices examples of models for managing repeat prescribing. The first looked at medication review in terms of housekeeping issues such as prescribing intervals and quantities, and the second looked at repeat prescribing systems such as compliance checks and setting review dates. Of 61 GP practices 41 participated and completed both parts.

In 2000/2001, practices were offered projects in repeat prescribing management. These could be specific to the practice and cover housekeeping, but could also cover polypharmacy review or any other issues, such as protocols for HRT and oral contraceptive prescribing. A total of 18 practices took part, covering 24 topics. After evaluation, all these projects will continue to be supported.

In conclusion, Ayrshire and Arran achieved recurrent savings of £583,398 a year through this work. The cost of undertaking the projects was £106,610 in 2000/2001 and £57,619 in 2001/2002.

Exhibit 29 Range of prescribing support initiatives provided by Renfrewshire and Inverclyde Primary Care Trust

Renfrewshire and Inverclyde Primary Care Trust has established a database to record clinical interventions by primary care pharmacists. From April to November 2002, the initiative has reviewed 1252 patients and made 2668 interventions. These included:

- New medicine treatment recommended 308 (12%)
- Medicine therapy choice altered 183 (7%)
- Medicine discontinued 500 (19%)
- Dosage adjustment 326 (12%)
- Monitoring (e.g. BP, bloods) 588 (22%)
- Patient education 289 (11%)

42% of the interventions were for patients seen face-to-face.

830 (31%) resulted in a saving (£7,026 per 28 days) and 318 (12%) in a higher cost (£1,773 per 28 days), giving a projected cost saving each year of £55 for each patient reviewed.

820 (31%) were considered to be a potential or actual improvement in therapy and 924 (35%) a potential or actual reduction in adverse events.

19% of the reviews were for nursing home patients; a further 27% were for other elderly patients and 11% on proton pump inhibitors. This last was the largest area of cost savings.

2437 (91%) of the proposed interventions were agreed by the GPs, and 2363 (89%) were actioned.

4 Achieving further improvements in prescribing quality and efficiency

This section looks at ways to achieve further improvements in prescribing quality and efficiency.

4.1 Availability of consistent national information, prescribing indicators and targets

In 1999 there was no single set of prescribing indicators used by all PCTs and this is still true in 2003. There are five exceptions, which are included in the Performance Assessment Framework (PAF) and Clinical Resource and Audit Group (CRAG) indicators for health boards (antibiotics, statins, hypnotic and anxiolytics, diuretics and generic medicines). The lack of national indicators leads to duplication of effort without the advantage of being able to automatically compare performance.

Each PCT has its own prescribing indicators. Some are the same across Scotland and similar to those in the baseline report. Some trusts have developed a large number of indicators. Forth Valley, for example, uses 25 indicators in seven categories. They assess the overall performance of GP practices against these indicators and offer practices financial incentives based on this assessment. Exhibit 30 shows examples of indicators that trusts use.

Exhibit 30 Prescribing indicators used by Primary Care Trusts

Forth Valley Primary Care Trust:

Forth Valley Primary Care Trust developed 'rational prescribing indicators' (RPI) based on data from the Prescribing Information System for Scotland (PRISMS). Initially the trust used 35 indicators in 12 categories, adding the scores from each indicator to produce a single RPI score for each practice.

Forth Valley has used the RPI system since 1995. However over time some indicators became less meaningful and the trust revised the RPI model to include the following indicators:

Overall generic prescribing

Specific generic prescribing

- Ulcer-healing medicines
- ACE inhibitors
- Newer generation antidepressants
- Antibiotics
- NSAIDs

Inappropriate generic prescribing

Volume of prescribing

- Hypnotics and anxiolytics

Cost per patient

- Diuretics
- Beta-blockers
- Antibiotics
- NSAIDs

Medicines of limited clinical value

- Peripheral vasodilators
- Antidiarrhoeals
- Topical NSAIDs
- Potassium containing diuretics
- Potassium supplements

Formulary compliance

- Laxatives
- Diuretics
- Beta-blockers
- ACE inhibitors

- Antidepressants
- Hypnotics and anxiolytics
- Antibiotics
- NSAIDs

Greater Glasgow Primary Care Trust:

As well as monitoring PAF indicators, Greater Glasgow Primary Care Trust provides comparative practice data within each LHCC for specific medicines within each section of the BNF using PRISMS and Scottish Prescribing Analysis (SPA) data:

- | | |
|---|--|
| BNF Chapter 1- Gastro-intestinal system | - Ulcer healing medicines |
| | - Laxatives |
| BNF Chapter 2 – Cardiovascular system | - Diuretics |
| | - Beta-blockers |
| | - Anti-hypertensives |
| | - Nitrates |
| | - Anti-platelet medicines |
| | - Lipid lowering medicines |
| BNF Chapter 3 – Respiratory system | - Asthma/COPD treatment |
| | - Cough preparations and decongestants |
| BNF Chapter 4 – Central Nervous system | - Hypnotics and anxiolytics |
| | - Antidepressants |
| | - Analgesics |
| BNF Chapter 5 – Infections | - Antibiotics |
| BNF Chapter 10 – Musculoskeletal diseases | - NSAIDs |
| | - Topical NSAIDs |

Renfrewshire and Inverclyde Primary Care Trust:

Renfrewshire and Inverclyde Primary Care Trust uses 36 indicators to provide practices with prescribing information. These include:

- | | |
|--------------------------|---|
| H2 antagonists | Angiotensin II receptor antagonists |
| PPIs | Isosorbide mononitrate |
| A range of statins | Peripheral cerebral vasodilators |
| Diuretics | Inhaled beta 2 agonists |
| Bendrofluazide 2.5 mg | Inhaled respiratory corticosteroids and cromoglycates |
| Indapamide | Choice of inhaler devices |
| Betablockers | Premium price inhaler devices |
| ACE inhibitors | Oral hypnotic and anxiolytic medicines and choices |
| Range of oral analgesics | Established antibiotics |
| Amoxycillin | Premium-priced NSAIDs |
| Topical NSAIDs | Cox 2 inhibitors and NSAIDs |
| Sip feeds | Biphosphonates |
| HRT | Quinolones |
| Medicines for influenza | Medicines used in the treatment of obesity |
| Nicotine replacement | Methadone |
| Dihydrocodeine | Potassium sparing diuretics and combination diuretics |
| Potassium supplements | Ratio of bronchodilators to inhaled corticosteroids |

ISD, prescribing advisers and others from PCTs and the Scottish Executive have formed the Prescribing Information Group (PIG). PIG is working on a number of initiatives, including a set of indicators, to:

- compare information about prescribing performance within and among trusts
- ensure that information is consistent
- avoid duplicated effort.

We strongly support the development of these indicators, which will provide comparisons of quality and cost indicators. It would be helpful if these indicators

included annual targets for prescribing performance, so that these could become part of the Performance Assessment Framework (PAF). “New PRISMS” is also being developed. As well as providing the indicators outlined above, it will be a more user-friendly replacement for the existing Prescribing Information System for Scotland (PRISMS) and also provide data in DDDs.

The lack of consistent reliable data in recent years has made it harder to manage prescribing. New, more accurate and specific information will significantly improve this, particularly if the information can be provided at GP practice and LHCC level, where it will be most useful.

As new medicines, formulations and indications for established medicines come into use, indicators will change. So it is important that PIG continues to review indicators and the types of information most useful to prescribers, prescribing advisers and trust and health board managers. PIG is also a good forum to discuss whether the five prescribing indicators in the PAF are enough to measure prescribing performance or whether they need to change or increase.

Although we strongly support the early availability of New PRISMS, it is extremely difficult to confidently measure the quality of clinical prescribing in a valid or meaningful way without a link between prescription and diagnosis. Quality indicators need to link patient characteristics, diagnosis, morbidity and prescribing, but this information is only available from computer systems in individual GP practices.

In England, initiatives such as PRODIGY, national service frameworks and the response of health professionals have highlighted the limitations of indicators based solely on data on medicine use. The Prescribing Support Unit based in Leeds is hosting a Prescribing Indicator National Group (PING) which aims to produce – directly from GP systems - prescribing quality indicators linked to diagnosis. These could help measure whether prescribing is appropriate, as well as the direction and rate of change. Exhibit 31 shows PING’S first recommendations for indicators that use data from GP systems.

Exhibit 31 The first quality prescribing related indicators, Prescribing Indicator National Group, Prescribing Support Unit, Leeds

1. Proportion of patients with coronary heart disease (CHD) with a recorded use of an antiplatelet medicine within the last 12 months
2. Proportion of patients with CHD prescribed a statin within the last 12 months
3. Proportion of patients prescribed a lipid lowering medicine, within the last two years who have had documented monitoring of cholesterol levels within the last two years
4. Proportion of patients with a diagnosis of hypertension, who have a recorded BP check within the last 15 months
5. Proportion of patients prescribed an ACE inhibitor or an angiotensin II receptor antagonist within the last 12 months who have a recorded U+ E check within the last 15 months
6. Proportion of diabetic patients with microalbuminuria prescribed an ACE inhibitor in the last 12 months
7. Proportion of patients with a diagnosis of diabetes who have a HbA1/HbA1C/fructosamine test within the last 15 months
8. Proportion of patients prescribed a thyroid hormone within the last two years who have a documented thyroid monitoring test within the last two years
9. Proportion of patients with a diagnosis of asthma and prescribed four or more short acting beta-2 agonists within the last 12 months who also have been prescribed inhaled corticosteroids within the last 12 months

10. Proportion of patients prescribed an inhaled long acting beta-2 agonist within the last 12 months who have also been prescribed inhaled corticosteroids within the last 12 months
11. Proportion of patients who have a history of duodenal ulcer and who have been prescribed ulcer healing medicines within the last 12 months who have either had eradication therapy or investigation for helicobacter pylori
12. Proportion of patients aged over 65 who received an influenza vaccination between September and March
13. Proportion of patients with a diagnosis of heart failure prescribed an ACE inhibitor within the last 12 months

Recommendations:

- *ISD and PCTs should develop a common set of prescribing indicators for all trusts. The indicators should include targets for prescribing performance. These targets should be produced centrally as part of 'New PRISMS' to minimise duplicated effort across Scotland, and may then be incorporated into the Performance Assessment Framework (PAF).*
- *The Scottish Executive Health Department (SEHD), ISD and PCTs should examine how to develop prescribing indicators related to morbidity and diagnosis. They should also look at how to collect the necessary data in Scotland, initially in national priority clinical areas.*

4.2 National guidance and advice

4.2.1 SIGN, NICE and HTA guidelines

We have already shown that implementing guidelines has major cost implications for prescribing. But the way these cost implications are assessed varies widely across health boards and trusts.

Currently, NICE includes a budget impact statement within its guidance, and the Health Technology Assessment (HTA) Directorate of NHS Quality Improvement Scotland (NHSQIS) highlights this when it endorses NICE guidance in Scotland. However, SIGN does not currently indicate what impact their guidelines may have on costs, although we understand that it may do so in the future.

When forecasting likely spending increases on prescribing, the SEHD considers the impact of any expected guidelines, amongst other information. This information is used when considering annual budget uplifts for unified health boards but is not made explicit within the total budget uplift. The health service does not have access to the analysis.

Individual health boards and PCTs also assess the likely impact of guidance and guidelines on their local budgets and try to allocate appropriate funds by planning annual uplifts in prescribing budgets. These assessments are based on targeting medicine use for patients who will benefit most. This is in line with the guidelines but assessments vary widely among health boards and trusts. For example, Lanarkshire Primary Care Trust and Health Board have set up a Health Improvement Strategy Advisory Group to advise the board on the potential impact of:

- SIGN guidelines, and NICE and HTA guidance
- Scottish Medicines Consortium (SMC) decisions and new medicines likely to be launched.

All health boards and trusts carry out this work in various ways and take into account their local starting point. For example, in assessing the uptake of statins, the local incidence of cardiovascular disease and current use of statins helps predict how much extra money is likely to be needed. However, because the assumptions that trusts use vary widely this can lead to inaccurate estimates of the likely impact on costs and, therefore, to inaccurate budget-setting.

Exhibit 32 shows the factors that Lanarkshire PCT uses to estimate prescribing costs for the next financial year.

Exhibit 32 Forecasting prescribing costs

Estimate of GP prescribing costs and the likely financial implications for primary care prescribing - Lanarkshire Primary Care Trust

Lanarkshire estimates future primary care prescribing costs based on:

- recent trends and analysis of the main reasons for the trends
- comparing with increases in costs in other Trusts and for Scotland as a whole
- reviewing where costs are decreasing, static and increasing
- considering the impact of SIGN guidelines and endorsement of products by HTA/NICE
- considering the impact of medicines that may lose their patent in the coming year
- areas of prescribing likely to grow significantly in the coming year (specific medicines or medicines for specific conditions)
- scanning the horizon for products likely to be launched in the coming year.

Implementing guidelines can be treated similarly to undertaking major service developments, with clear budgets and information that monitors progress and spending. The costs of implementing guidelines should be considered alongside other health developments. Assessments of resource implications from HTA and SIGN would help when setting these kinds of priorities and the prioritisation process would fall naturally to health boards. However, the SEHD would need to consider the prioritisation against the increased risk of ‘postcode prescribing’ whereby different priorities may be adopted in each health board area.

Ways of encouraging prescribers to take greater responsibility for budgets and controlling them include:

- giving them up-to-date information to allow them to manage the budget
- allowing them to keep part of any savings as long as they meet quality targets
- setting targets using quality and cost indicators.

Exhibit 33 has an example of a prescribing incentive scheme from Borders Primary Care Trust.

Exhibit 33 A prescribing incentive scheme

The prescribing incentive scheme for Borders Primary Care Trust has two elements:

a) Budgetary incentives

- A guaranteed payment up to maximum of £2,000 will be paid to each practice for the first £2000 of their under spend.
- £50,000 of the Prescribing Management Fund will be held in reserve by LHCCs to be distributed to under spending practices. This will be paid to each practice as a pro rata share related to the level of under spend (up to a maximum of the under spend). This will be paid even if, overall, there is not a joint LHCC under spend and is in addition to the payments available under the quality marker section (see below).
- If LHCCs jointly, and in total, under spend on prescribing, the first £50,000 of any under spend will be retained 100% by the LHCCs on a non-recurring basis.
- If the overall underspend is between £50,000 and £200,000, then in addition to the first £50,000, 50% of the balance will be retained by the LHCCs to be distributed to practices on an agreed basis.
- The maximum total incentive payment retained by LHCCs will be capped at £150,000.
- Unless otherwise agreed all payments will be made in the following financial year and will be non-recurring.

b) Incentives relating to quality markers

- Formulary compliance: practices will need to achieve 80% or more compliance in 9 out of 11 formulary compliance markers. The markers are ulcer healing medicines, diuretics, beta-blockers, ACE inhibitors, calcium channel blockers, statins, antidepressants, antibiotics, NSAIDs, low use of topical NSAIDs, and inhaled corticosteroids.
- The number of PPIs prescribed per 100 patients.
- The number of antibiotics prescribed per 100 patients.
- The percentage of patients receiving statin therapy and reaching the target cholesterol level of 5mmols/L.

The payments for this part of the prescribing incentive scheme will be £500 per marker per practice.

Prompt feedback on prescribing indicators, and advice and support to improve prescribing, can also help motivate prescribers and encourage a change in prescribing behaviour.

Recommendations:

- *For trusts to be able to plan the effective implementation of guidelines, any future SIGN guidelines should include an assessment of the cost impact for Scotland. Where NICE has produced guidance for England, HTA should endorse these as appropriate and clearly emphasise the cost impact for Scotland.*
- *The SEHD, health boards and PCTs should share their work on estimating the costs of implementing national guidelines. This would reduce duplication and ensure budgets are set using consistent assumptions across Scotland.*
- *Implementing guidelines should be viewed as service developments, with the associated prescribing costs clearly identified and considered alongside other health developments.*
- *PCTs should ensure that prescribing medicines associated with national guidelines is managed carefully and targeted accurately, so that the extra spending achieves greatest patient benefits.*

- *Health boards and PCTs should use the assessment of costs of implementation, together with an assessment of the local position, to identify funds for specific medicines that are backed by evidence-based guidelines.*
- *Prescribers should have access to up-to-date budget information to allow them to manage their budget. Consideration should be given to allowing them to keep a proportion of any financial saving to further improve patient care within their practice population, as a part of a properly managed incentive scheme. However this needs to be balanced against overall budget requirements.*

4.2.2 Scottish Medicines Consortium decisions on new medicines

The Scottish Medicines Consortium (SMC) has recently been established and has started evaluating new medicines within NHSScotland. When a new medicine is licensed, the SMC assesses data submitted by the pharmaceutical manufacturer on:

- its effectiveness (how well it is expected to work in the general population)
- which patients would benefit from it
- its effectiveness compared with treatments being used at present
- cost effectiveness.

The SMC then issues a final recommendation to health boards and area drug and therapeutics committees on how to use the new medicine. A positive opinion on a new medicine may have significant budgetary impact in future years.

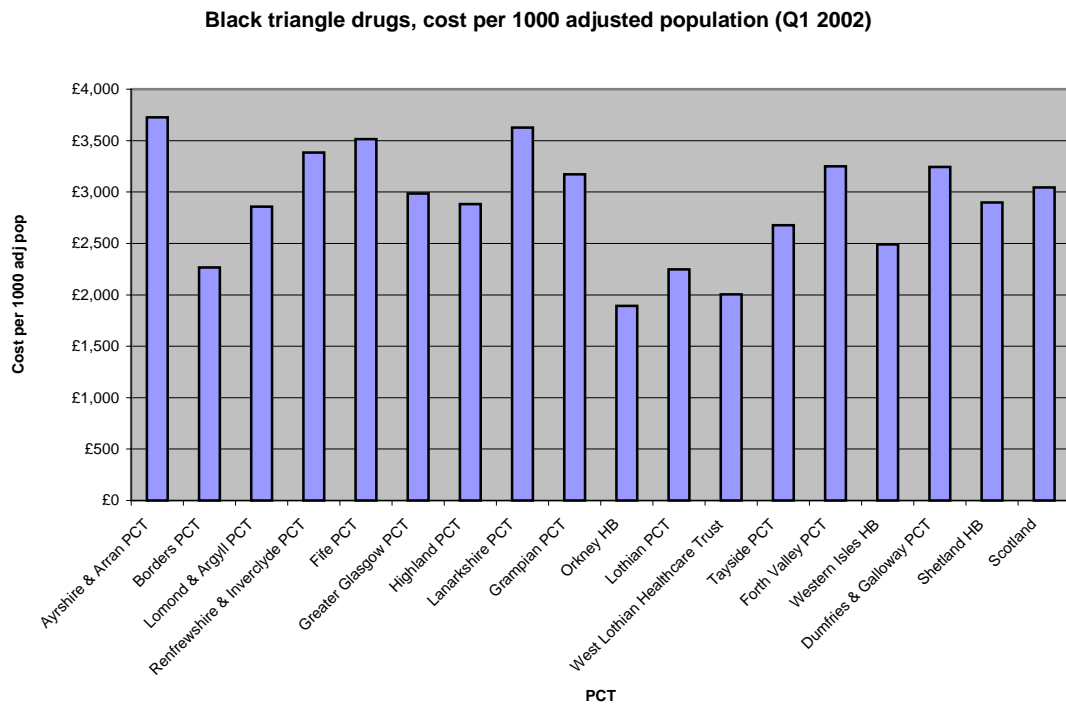
The SMC issued recommendations on 13 medicines relevant to primary care prescribing between May and December 2002. Nine of these received a positive SMC judgement. Estimates of the additional annual cost associated with these medicines indicate that most new medicines initially account for a relatively small proportion of spending in primary care, and may only become significant in subsequent years or once prescribing is supported by a national evidence-based guideline.

The uptake of new medicines varies widely across Scotland. Exhibit 34 provides a crude measure of the uptake in practices within primary care trust areas by examining the cost of ‘black triangle’ medicines. These are largely newer medicines that the BNF highlights using a black triangle symbol. This report used the black triangle list of medicines from September 2002. An up-to-date list of these medicines is available on the website of the Committee on the Safety of Medicines (CSM)⁸.

All medicines are initially ‘black triangle’ when launched. Prescribers should report any suspected adverse incidents or reactions to these medicines to develop a body of safety evidence from routine clinical practice. The Committee for the Safety of Medicines reviews black triangle status after two years. Where further monitoring is required, medicines continue to be highlighted in this way.

⁸ The Committee on the Safety of Medicines website is within the website for the Medicines and Healthcare Products Regulatory Agency: www.mca.gov.uk/aboutagency/regframework/csm/csmhomemain.htm

Exhibit 34 'Black triangle' medicines indicator

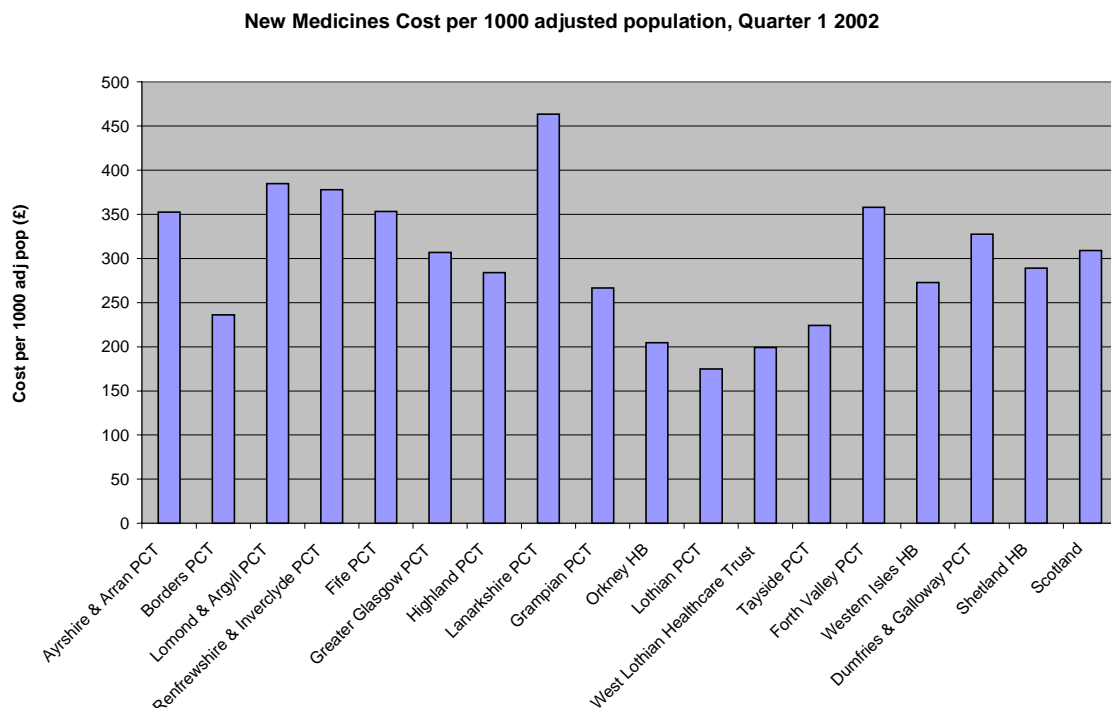


Source: ISD

Overall, the cost of 'black triangle' medicines accounted for around 8% of total prescribing expenditure in Scotland for the first quarter of 2002. However there is local variation: for example, practices in Ayrshire and Arran spend nearly twice as much on prescribing 'black triangle' medicines than Lothian.

The cost of new medicines launched in the 15 months from October 2000 shows a similar variation across Scotland (Exhibit 35).

Exhibit 35 Cost of medicines launched in the 15 months from October 2000



Once a medicine is licensed, GPs may prescribe it if they think it is the most clinically appropriate medicine for their patient. However independent advice on how effective and cost effective the medicine is, compared to existing therapies, can help them make their decision. In the absence of independent information, prescribers may rely on promotional literature from pharmaceutical companies. The SMC now provides appraisals of new medicines. This should help decision-making at a local level and help prescribers to get advice.

Comparative information on clinical and cost effectiveness is often not available when the SMC makes its decision. For new medicines with considerable cost implications, the SMC and trusts/health boards should consider how to gather a body of evidence on the effectiveness of new medicines compared to existing treatments.

Local processes to assess new medicines and local affordability of new treatments must be seen to be quick and fair. Any decisions not to fund medicines must be explicit and open. If these can be achieved then prescribers are more likely to take ownership.

Recommendation:

- *For new medicines with considerable clinical or financial implications, the SMC and PCTs should consider how to gather a body of evidence on the effectiveness of new medicines compared to existing treatments.*

4.3 Strategies and action plans

A clear prescribing strategy and action plan help focus prescribing support where it is needed most and where it can have greatest impact. Clear prescribing strategies with realistic prescribing targets show the level of prescribing quality and efficiency required.

The 1999 baseline report ‘*Supporting prescribing in general practice*’ stated that all PCTs should have prescribing strategies and action plans that the management team and the trust board agree and support. The report gave further details of what the strategies and plans should cover, but as a minimum:

- they should be understood by all those involved in prescribing
- a nominated director should have clear responsibility for the action plan
- the trust board should receive regular progress reports.

All trusts now have prescribing strategies or action plans. Some trusts are beginning to go one step further and are developing health board-wide prescribing strategies across primary and secondary care. For example, in Tayside, an area-wide Medicines Unit provides advice on medicines across NHS Tayside and supports evidence-based practice in the use of medicines. Lothian Primary Care Trust has its own medicines management team strategic plan which sits firmly within the Lothian-wide prescribing management network. The strategic plan states that there is an opportunity to develop a ‘Lothian Prescribing Centre’ that encompasses medicines management, medicines information and research and development.

Ways to make it easier to ensure high-quality prescribing for patients across the primary and secondary care sectors include the following:

- prescribing strategies that extend across health board areas
- joint primary and secondary care formularies
- a strong area-wide prescribing committee structure that both primary and secondary care prescribers recognise.

Recommendations:

- *All PCTs and LHCCs should have written prescribing strategies and action plans that cover quality and efficiency aspects of prescribing.*
- *There should be regular progress reports to the trust board and health board, and to all those involved in prescribing.*
- *Health board-wide prescribing strategies that address prescribing issues across primary and secondary care should be developed.*

4.4 Formulary development and implementation

A comprehensive formulary providing clear guidance on first and second-line medicines for treating the most common conditions can be an important tool in encouraging high quality and efficient prescribing. Developing joint health board-wide formularies can improve patient care by minimising disruption to patients as they move between hospitals and primary care.

During our review, GPs said a definitive statement or policy on what should - or more particularly, should not - be prescribed for certain conditions, would be useful when they consult with patients. A well-developed and easily accessed formulary and related policies or guidelines could provide these statements.

There have been different approaches to local formulary development across Scotland. They vary from a written list, sent to all GPs, of recommended first-line medicines in each BNF section; to a comprehensive joint diagnosis-based formulary. For example, Lothian primary care and acute trusts, together with West Lothian integrated primary and secondary care trust, use a joint formulary. In primary care there is an electronic formulary compatible with the GPASS software that generates prescriptions.

This electronic formulary - eLJF-GPASS - is mainly disease-based. Prescribers just enter a diagnosis to find which medicines the formulary recommends for a particular condition. Benefits to the GP include quick access to pre-entered medicines, a degree of clinical decision support at the point of prescribing and also automated prescriptions. The system features small default quantities for short-term treatments; for example, seven days' supply of the formulary NSAIDs. This potentially reduces wasteful prescribing. The system also defaults to 28 days' supply for the initiation of long-term treatments such as antihypertensive medicines.

The formulary is available in a number of formats to ensure the widest number of prescribers possible have access to it. Formats include:

- hard copy
- an abbreviated list – for hospital doctors to carry in their pockets
- CD-Rom
- local trust intranets and the NHS net

- GPASS
- palm-based for hand-held computers.

Lothian has also surveyed how its formulary is used. In Lothian, 84% of GPs use GPASS and, of these, three quarters have asked for the electronic Lothian Joint Formulary (eLJF).

A key aspect of the Lothian joint formulary is that prescribers have been closely involved in developing it. Working groups helped develop the formulary for each therapeutic area; there were training sessions for electronic users; and there was a dynamic process of feedback as the formulary developed. The formulary has also been a factor in encouraging GPs to use computers and GPASS during patient consultations.

A joint formulary requires continuous maintenance and upgrade, and systems to rapidly communicate new guidelines and formulary changes. However formularies may be shared and customised locally to help avoid duplicated effort, although local ownership needs to be established.

Recommendations:

- *PCTs should develop area -wide formularies. Consideration needs to be given to involvement in formulary development so as to achieve ownership.*
- *The structure of formularies and how easily they can be accessed and used by prescribers should be carefully considered. The use of a diagnosis or disease-based formulary appears to have been very successful in Lothian and other PCTs may wish to consider this format.*

4.5 Repeat prescribing and dispensing

4.5.1 Repeat prescribing

Managing repeat prescribing well is an important element in maximising both the quality and the cost effectiveness of prescribing. A repeat prescription is one that a patient asks for and gets between review appointments and without a face-to-face consultation. Repeat prescriptions account for 75% of all items prescribed and more than 80% of prescribing costs⁹.

Since repeat prescriptions are so common, and account for most prescriptions, systems are needed to manage the process properly. These systems should guard against the dangers of repeat prescribing, namely:

- Prescribers may not adequately review treatments as the patient's needs change.
- New medicines may be prescribed without the doctor or patient being aware of the full range of medicines being taken, so increasing the risk of adverse medicine reactions and interactions.
- Prescribers may not monitor patient compliance.

⁹ Harris CM and Dadjia R, 'The scale of repeat prescribing', British Journal of General Practice, 1996, 46:640-1

- Unsynchronised supplies issued to patients may create the potential for them to waste or hoard unwanted medicines.

Our baseline report referred to a study of repeat prescribing¹⁰ and stressed the important role that periodic review and tight control of repeat prescribing have in ensuring effective treatment, minimising therapeutic misadventure and limiting waste. The study also identified the issues that a repeat prescribing system should deal with.

Repeat prescribing systems are often considered as a project in their own right. However, they should be considered together with medication review and waste management to ensure truly efficient repeat prescribing that improves patient care and the quality of prescribing. The three elements of holistic repeat prescribing are therefore:

- **repeat prescribing systems to:**
 - produce prescriptions
 - update patient records
 - flag when medicines have been ordered
 - standardise the quantity of medicines for each prescription. Standardising the quantity supplied to 28 days or less, particularly until a stable medication regimen is established, has been shown to reduce waste. In Kirklees, a University of Bradford¹¹ study showed it was possible to cut waste by 33% using this approach
 - synchronise repeat prescriptions for each patient so that all prescriptions for a single patient are renewed on the same day
 - generate review dates.
- **medication reviews to:**
 - periodically review each patient's medication
 - check patient compliance
 - flag any adverse reactions
 - check if the patient's needs have changed
 - optimise doses of medicines to ensure patients get the most appropriate strength of medicine, so that they take the minimum number of tablets for their required dose at a given time. This has been shown to reduce prescribing costs. For example a study in Angus LHCC, Tayside,¹² identified potential savings of £6,820 a year based on eight out of 15 community pharmacists taking part over nine and a half months.

¹⁰ Zermansky AG, 'Who controls repeats?', British Journal of General Practice, 1996, 46:643-47

¹¹ Hawksworth G M, Wright D J, Chrystyn H, 'A detailed analysis of the day to day unwanted medical products returned to community pharmacies for disposal', Journal of social and administrative pharmacy, Vol. 13, No. 4, 1996

¹² Rothnie K, Henderson M, Manzi D 'Cost effectiveness is improved by dose optimisation', Primary Care Pharmacy, Nov 2001;63-64

- **waste management** – Putting the above measures in place should cut waste. Managing waste can be improved further by monitoring returned waste medicines from time to time, and by carrying out patient information campaigns. Monitoring can also show where repeat prescribing systems may need to improve further.

The baseline report contained a case study on a randomised controlled trial of medication review undertaken in Glasgow¹³. Exhibit 36 provides an update on this work.

Exhibit 36 Repeat prescribing in general practice: Lead Clinical Pharmacists Medication Review 2001/2002, Greater Glasgow Primary Care Trust

<p>Aims and objectives of Medication Reviews To improve the quality of prescribing and address the increase in medicine expenditure arising from inappropriate or unnecessary repeat prescribing by conducting medication review clinics.</p> <p>Approach Medication review involves the pharmacist reviewing the patient, their chronic condition(s) and all their medicines during a consultation. Following review a care plan is drawn up and agreed with the GP. The pharmacist takes responsibility for ensuring the plan is implemented and is followed up to ensure desired outcomes are achieved. The consultations are semi-structured and documented. During the review the pharmacist considers the following questions:</p> <ul style="list-style-type: none"> • Does the patient understand what their medication is for and the benefits they should expect? • Can compliance/concordance be improved? • Is therapy necessary/dose excessive? • Is therapy ineffective/sub-optimal? • Are there actual/potential adverse medicine reactions or contra-indications? • Is therapy/disease appropriately monitored? • Are there any actual/potential untreated indications? • Is there a more cost effective alternative? <p>Evaluation/Outcomes This service was provided in 63 practices. Evaluation of 5572 patients reviewed in 34 of these practices demonstrated that 76.6% of patients had an average of 2.4 problems relating to their medicine therapy identified. GPs agreed with 95% of the actions recommended by the pharmacist who subsequently ensured 99% of these agreed actions were implemented. Follow up three months after the changes were made found that 83.5% of changes were still in place. Making the assumption that therapy is maintained long-term the lead clinical pharmacists estimate potential health gains to include:</p> <ul style="list-style-type: none"> • Prevention of 28 major coronary events through improved use of statins. • Prevention of six deaths through improved use of ACE inhibitors. • Prevention of nine deaths through improved use of antiplatelets. • Prevention of eight fatal/non-fatal strokes or MI through improved use of antihypertensives. <p>In addition there were health improvements in a number of other areas including respiratory disease, osteoporosis, and diabetes.</p> <p>The estimated impact on the annual cost of medicines was a cost increase of £172,096. This was offset by a reduction in costs of £202,921, resulting in a net saving of £30,825.</p>

¹³ Repeat prescribing in general practice: outcome of a randomised controlled trial of medication review, Professor C Mackie, Professor D Lawson, Alison Campbell, Alister McLaren and Professor R Waigh

Recommendations:

- *As part of clinical governance, PCTs and GP practices should ensure that repeat prescribing systems conform to the requirements that this section of the report highlights.*
- *Medication reviews, including dose optimisation, should take place regularly, normally at least annually. GPs, practice pharmacists or community pharmacists may undertake the reviews.*
- *Periodic examination of returned waste medicines and subsequent patient information campaigns should be used to improve waste management and provide an indication where repeat prescribing systems may be further improved.*

4.5.2 Repeat dispensing

In a repeat prescribing system, patients can get medication by repeat dispensing. This is where the prescriber produces a prescription that gives the community pharmacist authority to dispense medication in agreed instalments. Grampian and Tayside have piloted repeat dispensing schemes (Exhibit 37). The results highlighted the benefits of a repeat prescribing and dispensing system. But they also highlighted that the current remuneration and reimbursement models for community pharmacists make it difficult to introduce these systems.

Exhibit 37 Pilot repeat dispensing schemes

Grampian

Community pharmacists dispensed one GP-produced prescription in three 28-day instalments. This was in addition to a more systematic review of each patient's medication to identify adverse medicine reactions, poor compliance and wastage. Pharmacists identified and rectified problems related to medication for 12.4% of patients in the study. A total of 66% of study patients did not need their quota of prescribed medication, representing 18% of the total medicines budget. And 81% of patients said they wanted to continue with the system because they found it more convenient and they valued pharmacist intervention and advice. GPs supported the system as it reduced their workload. Pharmacists found they had to wait for three months before submitting prescriptions for payment but found the system professionally satisfying.

Tayside

The GP gave study patients six 28-day interval prescriptions, which were left with their community pharmacist. The GP reviewed each patient after each six-month interval. They identified a need for a hand-held patient medication card to record the medicines dispensed and aid the GP clinical review. Professionals and patients valued the service and there was evidence to show an improvement in clinical care through an established review. However, a retrospective review of prescription encashment indicated no significant change in compliance or prescribing costs. Funding was made available to all GP practices in Tayside but the pilot did not progress. This has been put down to the fact that it was a pilot scheme, the need to issue multiple prescriptions, all of which must be signed by the GP, a six-month interval being too short for some repeat prescriptions and the effort required to change the systems outweighing patient benefit.

The Scottish Health Plan, *Our National Health*¹⁴, is committed to improve how repeat medication is provided. In addition, *The Right Medicine: A Strategy for Pharmaceutical Care in Scotland*¹⁵ describes developing and rolling out a repeat dispensing model as a shared care package between GPs, pharmacists and patients.

¹⁴ Scottish Executive Health Department, 'Our national health: A plan for action, a plan for change', 2000

¹⁵ Scottish Executive Health Department, 'The Right Medicine. A strategy for pharmaceutical care in Scotland', 2002

In 2001, a report for the Primary Care Division of the Scottish Executive¹⁶ recommended a model for repeat prescribing and dispensing based on a system of master and slave prescriptions (Exhibit 38). The model was based on the results of an extensive literature review and took on board the previous pilot work in Tayside and Grampian. It is currently being piloted in North East Fife with encouraging results. The arrangement is relatively simple and, if the pilot scheme is extended, the programme could be implemented throughout NHSScotland.

Exhibit 38 Master and Slave Prescriptions: A Model for a Repeat Prescribing and Dispensing System

This model consists of a master prescription for a six-month quantity of medication which is signed by the GP and either two 56-day or five 28-day slave prescriptions which are unsigned. This flexibility allows for local agreements between GPs, pharmacists and patients on the time interval for repeat prescriptions.

The master prescription is the legal authorising prescription and the unsigned slaves act as the triggers to reimburse the pharmacist. The slave prescriptions are dispensed in sequence, with the master prescription as the final instalment of the transaction. The GP can opt to repeat a six-month instalment before seeing the patient for a formal review.

A robust repeat prescribing system must be in place in the practice to maximise the impact of this model. GPASS has helped with work to develop a module for the repeat dispensing programme. It prompts the GP to request patient consent to participate in the service and on sharing agreed read codes to allow some core clinical information on the patient's condition to be shared. It also generates the master and slave prescriptions.

A patient-held order record serves two main purposes. Firstly, it shows which repeat items the patient needs and patients can use it in the pharmacy. Secondly it records information on the collection of repeat prescriptions. Patients can share this information with their GP during their review.

The repeat dispensing module has been designed to view each six-month period as a horizon. As a result, if a new medicine is introduced or a dosage quantity adjusted during a six-month period and included in the repeat list, the programme will automatically calculate the required number of days' treatment until the end of that horizon. It will then produce the required number of prescriptions.

Currently any discontinued medicines rely on verbal communication from the GP or patient. However, as NHSNet connections are rolled out across Scotland, it is planned to include an e-mail option to allow the GP to notify the pharmacist automatically if a medicine is discontinued.

This way of working mirrors current arrangements and therefore makes it possible to consider rolling out a paper-based model with minimum disruption to current practice and payment methods. In addition, work is currently under way as part of the e-Pharmacy programme to include the repeat prescribing and dispensing model in its developing stages.

A more systematic approach to repeat prescribing and dispensing has many benefits for patients, GPs, practice staff, community pharmacists and NHSScotland. Patients receive the medicine they need when they want it and they have regular contact and advice from their pharmacist. The systematic approach to repeat prescribing and dispensing improves the quality of care for the patient, formalises the medication review process and better identifies problems with compliance. It also reduces medicine wastage, yielding potential savings.

¹⁶ Strath A, 'Repeat prescribing and dispensing systems: An option appraisal', June 2001

Recommendations:

- *PCTs and GP practices should ensure that they review and update their repeat prescribing systems to make it easier to introduce a national repeat prescribing and dispensing model.*
- *When the SEHD pilot is complete, health boards, PCTs and GP practices should introduce the national model for repeat prescribing and dispensing as they implement 'The Right Medicine'.*

4.6 Sharing good practice

We have found little evidence of formal sharing of good practice across Scotland, although all involved recognise its importance and would like to see less duplication of effort.

One way to keep duplication to a minimum is to create central pools of information. These could cover, for example, prescribing initiatives that have been successful, or the development of formularies or local guidelines. This would significantly help prescribing teams, along with consistent prescribing information produced centrally by ISD.

Although there are now several websites, such as the Association of Scottish Trust Chief Pharmacists (ASTCP) and the Scottish Prescribing Advisors Association (SPAA), it is difficult to get practitioners to report their work. Evaluation of initiatives is also extremely limited. This lack of evaluation makes it very difficult to define the impact of specific prescribing support initiatives.

Websites will only become effective media for sharing data if there is commitment to reporting work in progress; and if entering and updating material are funded and managed.

Some trusts have established systems to help share information among people interested in prescribing within their own trust area. However these are usually limited to the area involved. Exhibit 39 provides an example of information sharing in Highland Primary Care Trust.

Exhibit 39 Prescribe-a-chat. A secure means of disseminating information in Highland

Prescribe-a-chat was set up in January 2002 to overcome a significant problem in delivering prescribing information to pharmacists based all over the Highlands quickly and securely. Hosted by SHOW, information is held in areas, likened to rooms, where only authorised users have access to specific rooms. Access rights depend on the role of the individual, to protect both the information and the people using it. Messages can be posted on prescribe-a-chat for all other participants with access to that room, to read and respond to. Prescribe-a-chat is also an important means to disseminate information.

Prescribing information can now be shared proactively across the area, without fear of compromising prescriber confidentiality, and without wasting clinical pharmacy time cutting and pasting raw data. In addition, the web-based forum has given the opportunity to explore ways of allowing isolated pharmacists to network with their colleagues and share learning, without having to travel long distances. As the user list has grown – to encompass members of the prescribing support team, trust financial colleagues, prescribing support pharmacists, clinical and prescribing leads of the LHCCs and LHCC managers, and interested GPs - networking has also grown across professions. Members do not

have to be linked to the NHSnet and only need their own password to access a particular discussion room or to access the internet.

As well as general discussion areas, prescribe-a-chat currently also holds the following information:

- SPA data (by practice) held in all individual LHCC rooms and updated quarterly.
- Prescribing indicators held in all individual LHCC rooms and updated quarterly.
- Primary care information group and ISD – variance from budget held in all individual LHCC rooms and updated monthly.
- Medicine costs, sorted by medicine name and also by cost value, held in all individual LHCC rooms and updated quarterly.
- Prescribing indicator comparisons held in LHCC global views and updated quarterly.
- Variance from prescribing budget comparisons held in LHCC global views and updated monthly.

In March 2003 Prescribe-a-chat won the national Guild of Healthcare/First Databank Award for innovative use of IT in pharmacy.

The National Prescribing Centre (NPC) makes it easier to share good practice, amongst other activities, in England and Wales. It aims to “facilitate the promotion of high quality, cost effective prescribing and medicines management, in the wider context of evidence-based practice, through a co-ordinated and targeted programme of activities supporting relevant professionals and senior managers working for the NHS”. Exhibit 40 provides details of the activities of the NPC.

Exhibit 40 The activities of the National Prescribing Centre (NPC)

The NPC delivers a wide range of activities across the following five main areas of work:

- Information on medicines and their use. This includes helping to co-ordinate how to provide effective information on medicines and prescribing-related issues to audiences who include Strategic Health Authorities (StHAs); PCTs and their prescribers; prescribing advisers; and practice-based support personnel. The information is disseminated through various NPC publications such as MeReC Publications; Connect newsletters; New Medicines and On the Horizon Bulletins.
- Education and Training. This includes delivering a co-ordinated programme of events aimed at supporting StHAs, PCTs and practice-based prescribing advisers and support personnel; senior professionals and managers; prescribers; and other relevant professionals across the NHS. A number of targeted therapeutic workshops, day seminars and national conferences are run throughout the year.
- Dissemination of Good Practice. This ensures that StHAs, PCTs and, through them, their GPs and other prescribers, have a clear understanding of how the wider prescribing agenda is developing. It also ensures that information and support on evidence-based healthcare, clinical effectiveness and medicine use is potentially of value to the NHS both locally and nationally. NPC guides to good practice available on the website include: ‘Area Prescribing Committees: maintaining effectiveness in the modern NHS’; ‘GP Prescribing Support: a resource document and guide for the New NHS’; ‘Implementing NICE Guidelines’; and ‘Modernising Medicines Management’.
- Information Technology. This includes helping to develop information systems related to prescribing, and assessing the potential of new and emerging technologies to aid the work of StHAs, PCTs and prescribers. The NPC's work builds on developments such as the 'Toolkit' initiative produced in collaboration with the Prescription Pricing Authority and Prescribing Support Unit.
- Informing Research and Initiatives. Continuing to keep StHAs, PCTs and other relevant NHS staff informed of key information emerging from both the NHS Research and Development and Health Technology Assessment initiatives. In addition, and, contributing to this, it includes identifying important technologies for further NHS-funded research.

The NPC runs ‘cascade training’: people are recruited from throughout England for a number of days each year to act as NPC training advisors. The NPC in-house team trains them as a group to a high

level, and equips them with the resources and techniques that work in practice. They then go back to their regions and deliver this training locally. Training now covers eight (BNF) therapeutic areas:

- antibiotics
- cardiovascular disease
- cardiovascular risk
- central nervous system disorders
- endocrine
- gastro-intestinal disease
- NSAIDs and analgesics
- respiratory disease

Over 70 workshops have been delivered since the programme started in September 2001. Audiences have included GPs, prescribing advisors, community pharmacists, prison pharmacists, primary care technicians and nurses from both primary and secondary care.

In addition to the above, extra resources have been secured to employ a 'Parachute Team' who deliver specific training to individual PCTs in specific areas or with individuals in the PCT.

The NPC has set up a system of Quality Assurance of training that is delivered locally.

At present, Scotland is not formally involved in the NPC and there is no equivalent central prescribing resource in Scotland.

Recommendations:

- *PCTs should develop ways to share methodologies, protocols and good practice across Scotland. This should include developing existing or new websites. They should also consider appropriate ways of funding and managing how to share practice.*
- *The SEHD should consider developing a central resource to support local initiatives, avoid duplication of effort and build on good practice across Scotland. In addition the resources that may be available through the NPC should be explored.*

4.7 Computerisation

In our 1999 baseline report 'Supporting prescribing in general practice' we said that more sophisticated information systems were needed to support prescribers and enable improvements in prescribing quality and efficiency. The report highlighted the advantages of computerisation at a number of levels and made the following recommendations:

- Making more use of computers in GP practices.
- Making sure that processing prescriptions centrally at PSD generates the management information that ISD and PCTs need.
- Supporting the production of an agreed plan to achieve an integrated electronic prescribing system as part of an overall strategy.

Since 1999 many initiatives have been set up as test information systems in different areas, in line with the national strategy for information 2001 - 2005¹⁷. The national electronic clinical communications implementation programme (ECCI) is an example.

¹⁷ NHSScotland National Strategic Programme for Information Management and Technology, Strategy for Information, 2001-2005

This is a national programme to implement electronic clinical communication between primary and secondary care. Funding and other support is being given to collaborative pilot projects between primary and secondary care with the aim of developing the range of electronic communications. This includes reporting test results, transmitting referral and discharge letters and booking appointments. Speeding up electronic discharge letters would be particularly helpful for continuity of prescribing and for prescribing queries after patients have been discharged.

There has also been progress in the area of electronic transfer of prescriptions (ETP). This programme seeks to electronically connect GPs, community pharmacists and the Common Services Agency (CSA) for prescribing, dispensing and reimbursing prescriptions. An ETP pilot project between a GP practice and community pharmacy in Irvine has ironed out initial obstacles. It is now ready to progress to three GP practices and five community pharmacists (including one multiple) in the Irvine, Kilwinning and Dundonald LHCC. This stage will also involve two additional pharmacy systems.

Although there have been some good pilot projects in particular areas there are no clear time scales and targets for rolling successful pilots out. Specific issues are raised below.

4.7.1 Computerisation at practice level

Benefits of using a computer in the surgery include electronic diagnosis-based formularies; and easy electronic access to up-to-date information on medicines and their appropriate use. GPASS and decision support systems such as CDSS - now CS (clinical support) – can also be effective administrative tools, holding patient records, linking to formularies, producing prescriptions and providing prescribing support.

There may be other benefits to holding all patient information electronically, such as linking diagnosis or patient symptoms to prescriptions. If this information was collated for different types of patient or condition, it would allow for more effective research and clinical audit. It would also allow monitoring of the quality and cost effectiveness of prescribing.

However there are still GPs in Scotland who do not use computers in the practice. While GPs are being connected to the NHS net there is, as yet, little use of e-mail between GPs and trusts. A number of trusts said the increased use of e-mail or systems such as CS posed hardware problems.

4.7.2 Community pharmacists networked to practices

We said in our original report that if community pharmacists were to work more closely with GP practices then benefits could be gained from networking practices with community pharmacists. If community pharmacists are to be part of a multi disciplinary primary care team, and carry out medication reviews from their own premises, they would benefit from access to the relevant patient information.

At the time of our review, community pharmacists are still not linked with practices, and community pharmacists are not linked by e-mail or to the NHS intranet. However since the last report work has been done to develop models based on the concept of a central store of patient data, from which information can be pulled as required or

permitted. This type of central store, that allows community pharmacists and GP practices appropriate access, would make it easier for people in different disciplines to work together.

4.7.3 Linking prescribing and dispensing with patient details and a unique patient identifier

Our 1999 baseline report stated that if all prescriptions carried a patient identifier then it would be possible to link medicines prescribed and medicines dispensed, to other information such as patient age, sex and diagnosis. This information would greatly improve monitoring and clinical audit. There has been progress in this area, as many prescriptions now carry a patient identifier; but no routine use is currently made of this information.

NHSScotland is still some way from being in a position to routinely link prescribing to patient information in a way that would allow easy clinical audit and monitoring of the quality of prescribing.

4.7.4 Computerisation at PSD and ISD

Since the last report, work has started to develop New PRISMS. This promises to provide information on what has been dispensed in a more comprehensive manner than ever before. New PRISMS is potentially a significant step forward in terms of providing existing and new information in a more user-friendly way and providing information on DDDs rather than simply by number of scripts or total quantity. New PRISMS will not be able to link dispensing information with either prescribing information or patient information until such primary care information becomes available. However it would provide a platform to do this in the future. We therefore support the development of New PRISMS for what it can deliver now and as a step to providing more comprehensive prescribing information to trusts in future.

4.7.5 Primary and secondary care interface

There has been progress in recent years in developing electronic links between primary and secondary care; for example the use of electronic discharge letters. Again, there is still a considerable way to go. There is currently only limited electronic transfer of information between GPs and secondary care, and none between secondary care and community pharmacists.

4.7.6 Provision of hardware and training

While technology exists to achieve all the benefits mentioned above, it is not currently in place. If the benefits are to be realised then clearly computer systems need to be further developed. However there also is a need to ensure that GPs' and pharmacists' computer hardware are fit for purpose. If that purpose is going to develop, there is a need to invest in GPs' and pharmacists' hardware and training, as well as in new software.

GPs and pharmacists must be able to use computers in such a way that they see them as a benefit, not a hindrance. Key issues are therefore competency through training, inputting times and speed of computer response.

Recommendations:

- *While we accept that communication and computerisation developments take time, we recommend that clear timescales and specific targets are produced for the main, centrally-funded computer developments. It is important that those using existing information systems can plan based on a clear knowledge of when improved information systems will be introduced.*
- *PCTs need to be aware of any hardware enhancements required as a result of IT developments so they can plan how to implement them. Trusts also need to plan how they will deliver appropriate training to ensure high levels of acceptance of new systems.*

4.8 Public expectations

Patient knowledge of what medicines are available, and their expectations about what treatment they might expect to receive, have increased in recent years. Patients are becoming more involved in decisions about their treatment and are more informed about the options available, which is a positive development. This, coupled with the high level of repeat prescribing may make the case for a public education campaign. This would aim to change expectations about receiving certain medicines such as antibiotics. By also changing expectations about requests for repeat prescriptions, it would help avoid medicines being wasted.

Some PCTs are already running their own public awareness campaigns. Exhibit 41 provides some examples.

Exhibit 41 Examples of local public awareness campaigns

Grampian Primary Care Trust runs an antibiotic public awareness campaign each year to educate people on increasing levels of antibiotic resistance and tips for self-care of common infections. Evaluation by Grampian Health Promotion Unit showed a slight decrease in antibiotic prescribing last year. Grampian has also run public education campaigns for repeat prescription requests, which included coverage in the local press and involved the local health council; and to reduce waste, which is estimated at over £1 million per year in Grampian.

Tayside Primary Care Trust has run a campaign with leaflets and posters to educate the public about the £350,000 of medicines that are wasted in Tayside each year and how responsible requests for repeat prescriptions can help

A national public information campaign may kick-start local initiatives and it may be easier to encourage local media involvement after such a campaign. Other national campaigns have certainly been deemed successful; for example the national campaign for vaccination against influenza. However, again, it is important to avoid duplicated effort and to share the outcomes of local campaigns that have already been developed. This may help make the message more effective and avoid costly mistakes.

Recommendation:

- *The SEHD and health boards should develop a joint plan to take action on the public awareness issues raised above.*

5 Recommendations

Improving prescribing quality:

- PCTs should evaluate where prescribing quality can be improved. Resource implications and benefits of improving quality should be part of the evaluation. These evaluations should contribute to trusts' prescribing strategies and plans.

Improving prescribing efficiency:

- PCTs should have policies and protocols in place to ensure the most cost effective treatment is considered as a first-line option for new patients.
- PCTs should examine where further prescribing efficiency savings can be made. The resource implications of achieving these savings should be considered as part of the evaluation. These evaluations should contribute to trusts' prescribing strategies and plans to ensure these savings are maintained.

Prescribing support:

- PCTs and LHCCs should consider how to make their prescribing advice more prospective to encourage prescribers to prescribe cost effectively first time.
- PCTs and LHCCs should encourage evaluation of prescribing initiatives and ensure results are shared across Scotland.

National information, prescribing indicators and targets:

- ISD and PCTs should develop a common set of prescribing indicators for all trusts. The indicators should include targets for prescribing performance. These targets should be produced centrally as part of 'New PRISMS' to minimise duplicated effort across Scotland, and may then be incorporated into the Performance Assessment Framework (PAF).
- The Scottish Executive Health Department (SEHD), ISD and PCTs should examine how to develop prescribing indicators related to morbidity and diagnosis. They should also look at how to collect the necessary data in Scotland, initially in national priority clinical areas.

National guidance and advice:

- For trusts to be able to plan the effective implementation of guidelines, any future SIGN guidelines should include an assessment of the cost impact for Scotland. Where NICE has produced guidance for England, HTA should endorse these as appropriate and clearly emphasise the cost impact for Scotland.
- The SEHD, health boards and PCTs should share their work on estimating the costs of implementing national guidelines. This would reduce duplication and ensure budgets are set using consistent assumptions across Scotland.
- Implementing guidelines should be viewed as service developments, with the associated prescribing costs clearly identified and considered alongside other health developments.
- PCTs should ensure that prescribing medicines associated with national guidelines is managed carefully and targeted accurately, so that the extra spending achieves greatest patient benefits.

- Health boards and PCTs should use the assessment of costs of implementation, together with an assessment of the local position, to identify funds for specific medicines that are backed by evidence-based guidelines.
- Prescribers should have access to up-to-date budget information to allow them to manage their budget. Consideration should be given to allowing them to keep a proportion of any financial saving to further improve patient care within their practice population, as a part of a properly managed incentive scheme. However this needs to be balanced against overall budget requirements.
- For new medicines with considerable clinical and financial implications, the SMC, trusts and boards should consider how to gather a body of evidence on the effectiveness of new medicines compared to existing treatments.

Strategies and action plans:

- All PCTs and LHCCs should have written prescribing strategies and action plans that cover quality and efficiency aspects of prescribing.
- There should be regular progress reports to the trust board and health board, and to all those involved in prescribing.
- Health board-wide prescribing strategies that address prescribing issues across primary and secondary care should be developed.

Formulary development and implementation:

- PCTs should develop area-wide formularies. Consideration needs to be given to involvement in formulary development so as to achieve ownership.
- The structure of formularies and how easily they can be accessed and used by prescribers should be carefully considered. The use of a diagnosis or disease-based formulary appears to have been very successful in Lothian and other PCTs may wish to consider this format.

Repeat prescribing and repeat dispensing:

- As part of clinical governance, PCTs and GP practices should ensure that repeat prescribing systems conform to the requirements that section 4.5.1 of the report highlights.
- Medication reviews, including dose optimisation, should take place regularly, normally at least annually. GPs, practice pharmacists or community pharmacists may undertake the reviews.
- Periodic examination of returned waste medicines and subsequent patient information campaigns should be used to improve waste management and provide an indication where repeat prescribing systems may be further improved.
- PCTs and GP practices should ensure that they review and update their repeat prescribing systems to make it easier to introduce a national repeat prescribing and dispensing model.
- When the SEHD pilot is complete, health boards, PCTs and GP practices should introduce the national model for repeat prescribing and dispensing as they implement '*The Right Medicine*'.

Sharing good practice:

- PCTs should develop ways to share methodologies, protocols and good practice across Scotland. This should include developing existing or new websites. They

should also consider appropriate ways of funding and managing how to share practice.

- The SEHD should consider developing a central resource to support local initiatives, avoid duplication of effort and build on good practice across Scotland. In addition the resources that may be available through the NPC should be explored.

Computerisation:

- While we accept that communication and computerisation developments take time, we recommend that clear timescales and specific targets are produced for the main, centrally-funded computer developments. It is important that those using existing information systems can plan based on a clear knowledge of when improved information systems will be introduced.
- PCTs need to be aware of any hardware enhancements required as a result of IT developments so they can plan how to implement them. Trusts also need to plan how they will deliver appropriate training to ensure high levels of acceptance of new systems.

Public expectations:

- The SEHD and health boards should develop a joint plan to take action on the public awareness issues raised in this report.

Glossary of Terms

ACE inhibitor	Angiotensin-converting enzyme inhibitor: - this class of drugs is one option for treating hypertension and heart failure.
Adjusted populations	Populations adjusted to take account of differences in prescribing due to age and sex, and in the level of morbidity and life circumstances. For example, deprivation as measured by the Arbothnott index. The Arbothnott index is derived from data on mortality rates, unemployment rates among the under 65's, income support rates for the over 65's and other measures of deprivation.
ADTC	Area Drug and Therapeutics Committee.
Anxiolytic	Class of drugs to alleviate anxiety, (sedatives)
Benzodiazepines	Group of drugs, now known to cause dependence at low doses, widely prescribed as hypnotics and anxiolytics (sedatives), especially between 1960 and the mid '80s.
BNF	British National Formulary, published jointly by the British Medical Association (BMA) and the Royal Pharmaceutical Society of Great Britain (RPS), each March and September.
CHD	Coronary Heart Disease
Compliance	The extent to which patients follow the instructions of the doctor or drug manufacturer when taking (or omitting to take) drugs.
CRAG	Clinical Resource and Audit Group.
DDD	Defined Daily Dose: the average amount of a drug needed each day to obtain optimum therapeutic effect for adults suffering from the conditions for which it is most usually prescribed, e.g. based on DURG [WHO] recommendations.
Diuretics	Class of drugs used in the treatment of hypertension, heart failure and oedema, (water tablets)
Formulary	List of selected drugs, sometimes accompanied by guidance and protocols for their use, compiled by most hospitals, health boards, some GP practices.
Generic medicine	Copy of a medicine whose patent has expired.
GIC	Gross Ingredient Cost

GORD	Gastro-oesophageal reflux disease.
GP	General practitioner - family doctor in contract with the NHS.
GPASS	General Practice Administration System for Scotland. This standard system for the storage of morbidity and repeat prescribing data on computer is supplied by the Scottish Office.
HRT	Hormone Replacement Therapy
Hypertension	High blood pressure - a risk factor for heart disease and strokes.
Hypnotic	Class of drugs used to treat insomnia, (sleeping pills).
Indication	A medical condition (disease) e.g. one for which a medicine has been licensed.
ISD	Information Statistics Division.
LHCC	Local Health Care Co-operative.
Lipid regulating drugs	Group of drugs used to reduce high blood cholesterol.
MDI	Metered Dose Inhaler
Modified Release	Sustained release formulation of a drug which releases its chemical ingredients gradually, enabling it to be taken less frequently e.g. once a day.
Morbidity	Incidence of illness or disease (or health risk factors).
NHSQIS	National Health Service Quality Improvement Scotland
NICE	National Institute for Clinical Excellence
NPC	National Prescribing Centre
NSAID	Non-steroidal anti-inflammatory drug, used for the treatment of rheumatoid and osteoarthritis.
PAF	Performance Assessment Framework
PCT	Primary Care Trust.
PIG	Prescribing Information Group
Polypharmacy	Giving a patient lots of different drugs - unstated implication that some are required to counteract the side effects of the others.

PPA	Pharmaceutical Prescribing Advisor.
PRISMS	Prescribing Information System for Scotland.
PRODIGY	Clinical decision support system in general practice
PPIs	Proton pump inhibitors – class of drug that inhibits gastric acid production, used for the treatment of ulcer disease and GORD.
PSD	Practitioner Services Division
Repeat prescription	Officially defined as a prescription issued without a consultation. A broader definition is a second or subsequent prescription of a drug for treatment of a stable chronic condition requiring long term medication.
SEHD	Scottish Executive Health Department
Side effect	Unplanned (and usually undesirable) additional effect of a drug on an individual patient.
SIGN	Scottish Intercollegiate Guidelines Network.
SMC	Scottish Medicines Consortium
SPA	Scottish Prescribing Analysis.
SSRI	Selected Serotonin Re-uptake Inhibitor - class of drugs used to treat depression.
Statins	Class of drugs that lower cholesterol and produce important reductions in coronary events.
WHO	World Health Organisation.

APPENDIX A. QUALITY INDICATORS BY TRUST AND FOR SCOTLAND

- A1 Proton Pump Inhibitor (PPI) maintenance doses as a percentage of maintenance and treatment doses
- A2 2.5mg bendrofluazide as a percentage of 2.5mg and 5mg
- A3 Single diuretics as a percentage of single and combined diuretics
- A4 ACE Inhibitors per 1000 adjusted population per quarter
- A5 Low dose aspirin per 1000 adjusted population per quarter
- A6 Statins per 1000 adjusted population per quarter
- A7 Hypnotics and anxiolytics per 1000 adjusted population per quarter
- A8 Established antibiotics as a percentage of all oral antibiotics
- A9 Amoxicillin as a percentage of amoxicillin and co-amoxiclav

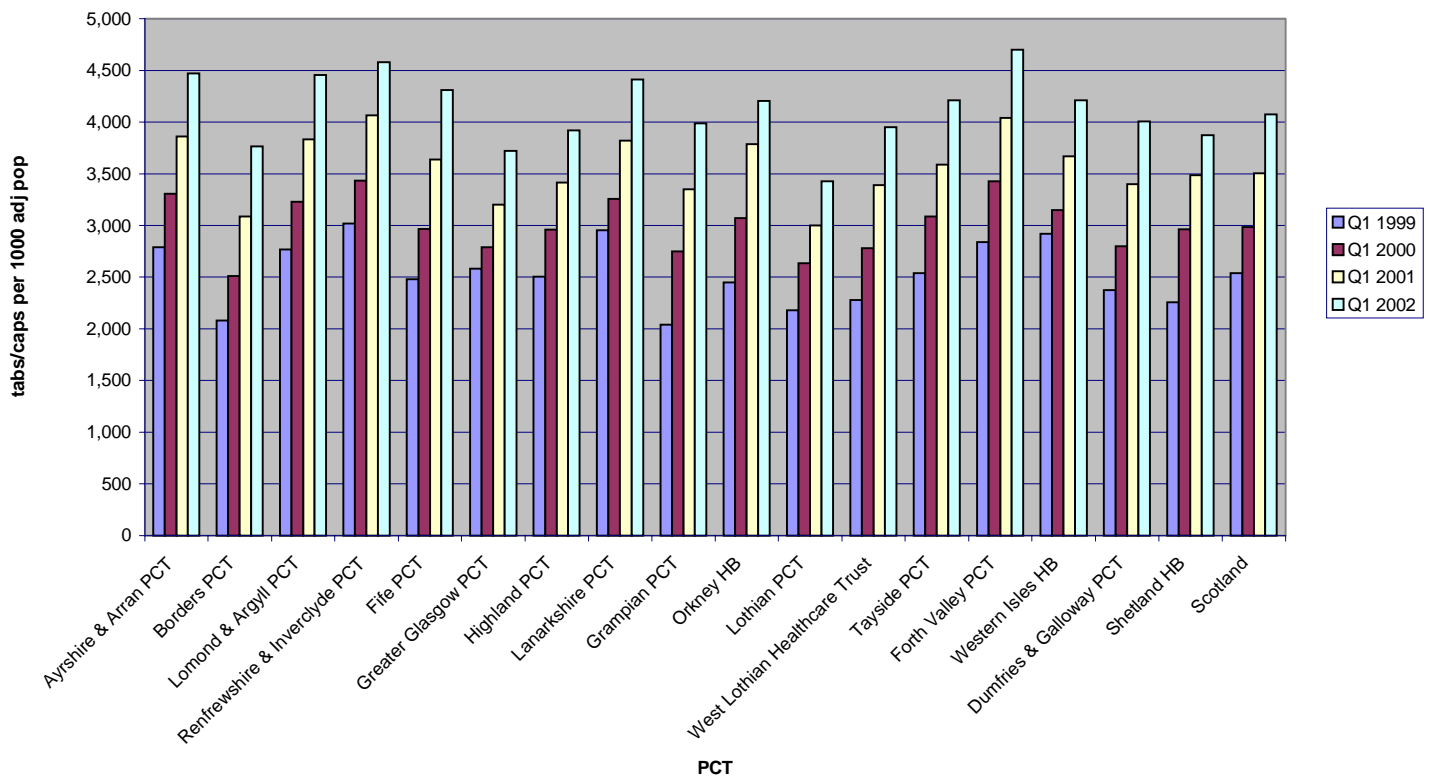
APPENDIX A1

Proton Pump Inhibitor (PPI) Maintenance Doses¹ as a Percentage of Maintenance and Treatment Doses.

NICE states that a regular maintenance dose of PPIs will prevent gastro-oesophageal reflux disease (GORD) in 70 to 80% of patients and should be used in preference to the higher healing dose². PPIs may also be used at the higher dose for the treatment of gastric and duodenal ulcer disease, and *H.pylori* eradication. It is unclear what proportion of total PPI use is for this purpose.

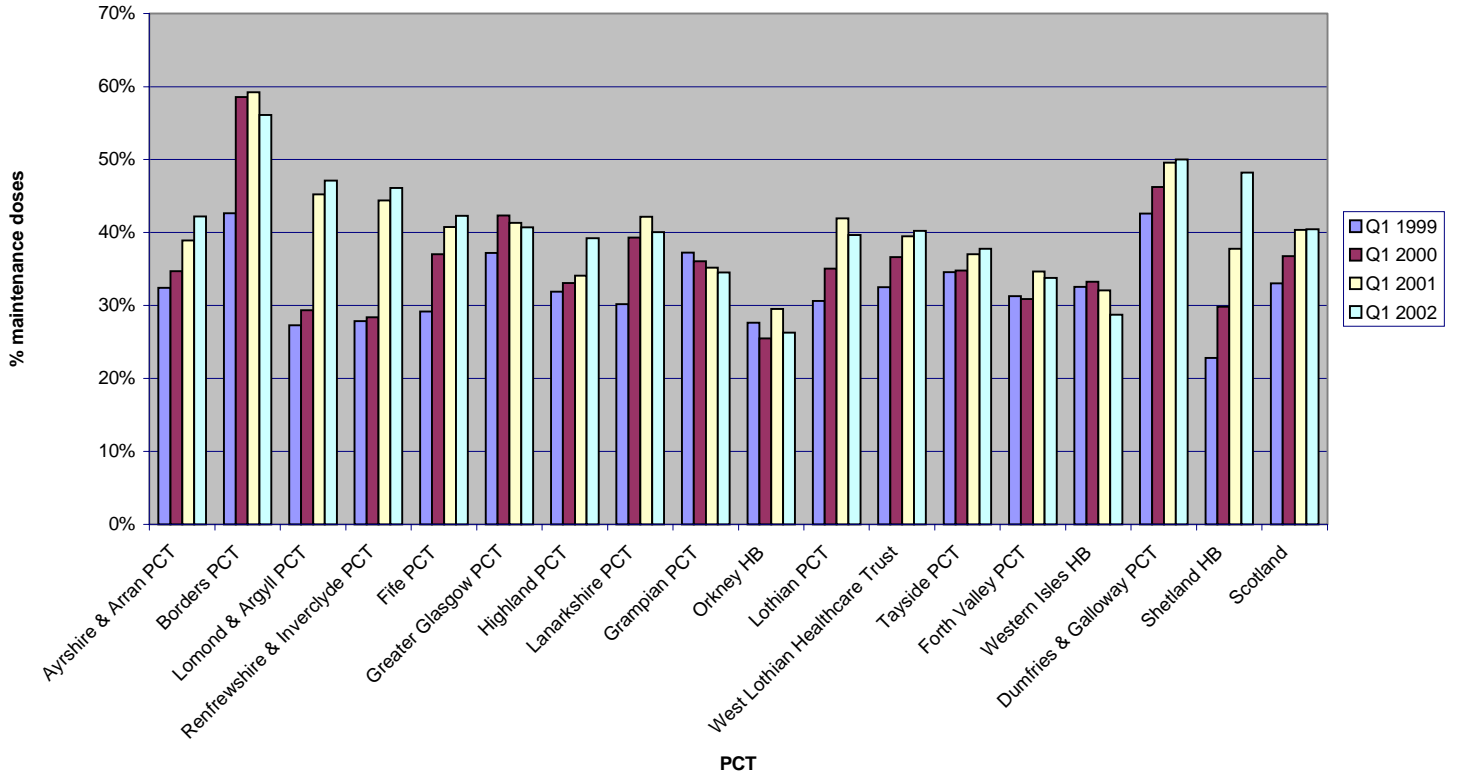
The use of maintenance and treatment doses of PPIs (in tablets/capsules) has increased by 59% between the first quarter of 1999 and the first quarter of 2002. The use of maintenance doses as a percentage of maintenance and treatment doses has increased from 33% to 40% over the same time period.

PPI tablets/capsules (maintenance & treatment doses) per 1000 adjusted population per quarter



¹ PPI maintenance doses are defined as omeprazole 10mg, lansoprazole 15mg, pantoprazole 20mg, rabeprazole 10mg, esomeprazole 20mg
² NICE Technology Appraisal Guidance No. 7, July 2000.

PPI maintenance doses as % of maintenance and treatment doses

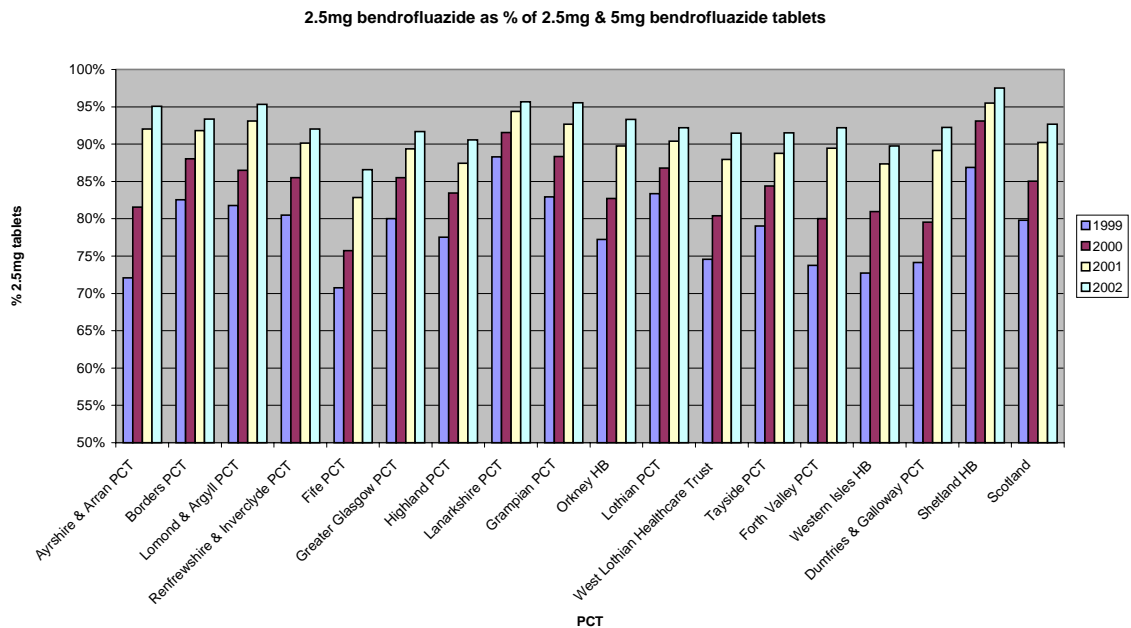


APPENDIX A2

2.5mg Bendrofluazide as a Percentage of 2.5mg and 5mg.

In the management of hypertension, a low dose of a thiazide e.g. bendrofluazide 2.5mg daily, produces a maximal or near maximal blood pressure lowering effect, with very little biochemical disturbance. Higher doses cause more marked changes in plasma potassium, uric acid, glucose and lipids, with no advantage in blood pressure control, and should not be used³. Bendrofluazide may also be used in higher doses for oedema in patients with heart failure and it is unclear what proportion of total bendrofluazide use is for this purpose.

There has been a marked increase in the use of 2.5mg as a percentage of 2.5mg and 5mg tablets across Scotland, from 80% in the first quarter of 1999 to 93% in the first quarter of 2002.

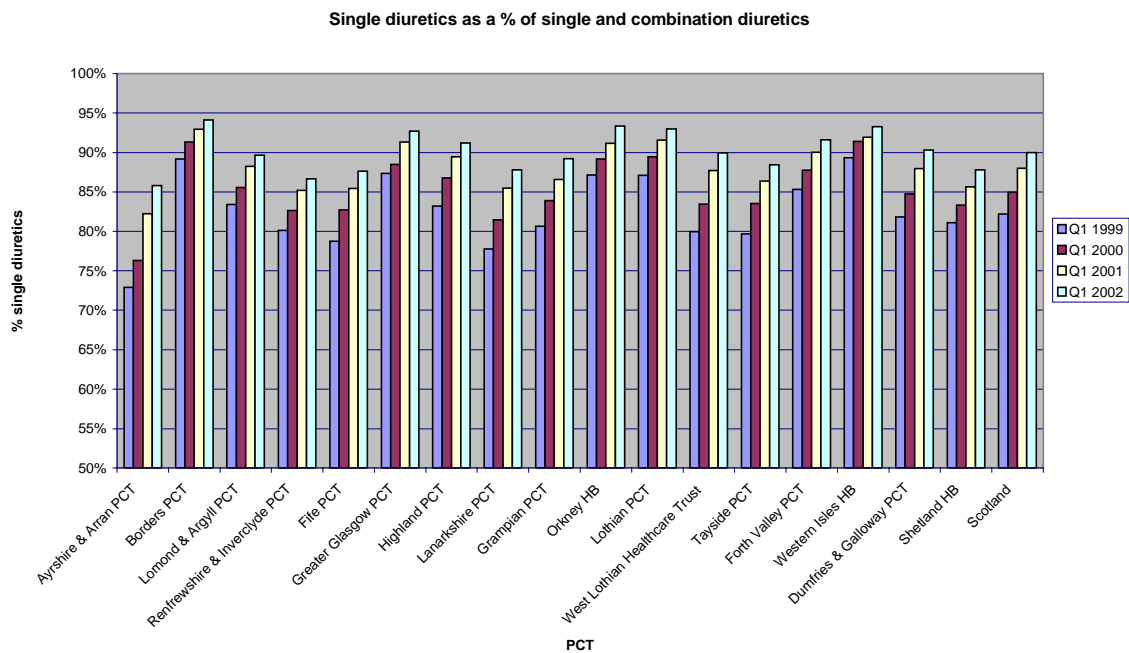


APPENDIX A3

Single Diuretics as a Percentage of Single and Combined Diuretics.

It is now generally accepted that combined diuretics are over-prescribed and that single agents are sufficient in most cases. This is particularly so in the treatment of hypertension where low dose diuretic therapy is usually all that is required. High prescribing of single diuretics as a percentage of all diuretics is therefore seen as effective prescribing⁴.

The use of single diuretics as a percentage of single and combination diuretics has increased from 82% in the first quarter of 1999 to 90% in the first quarter of 2002.



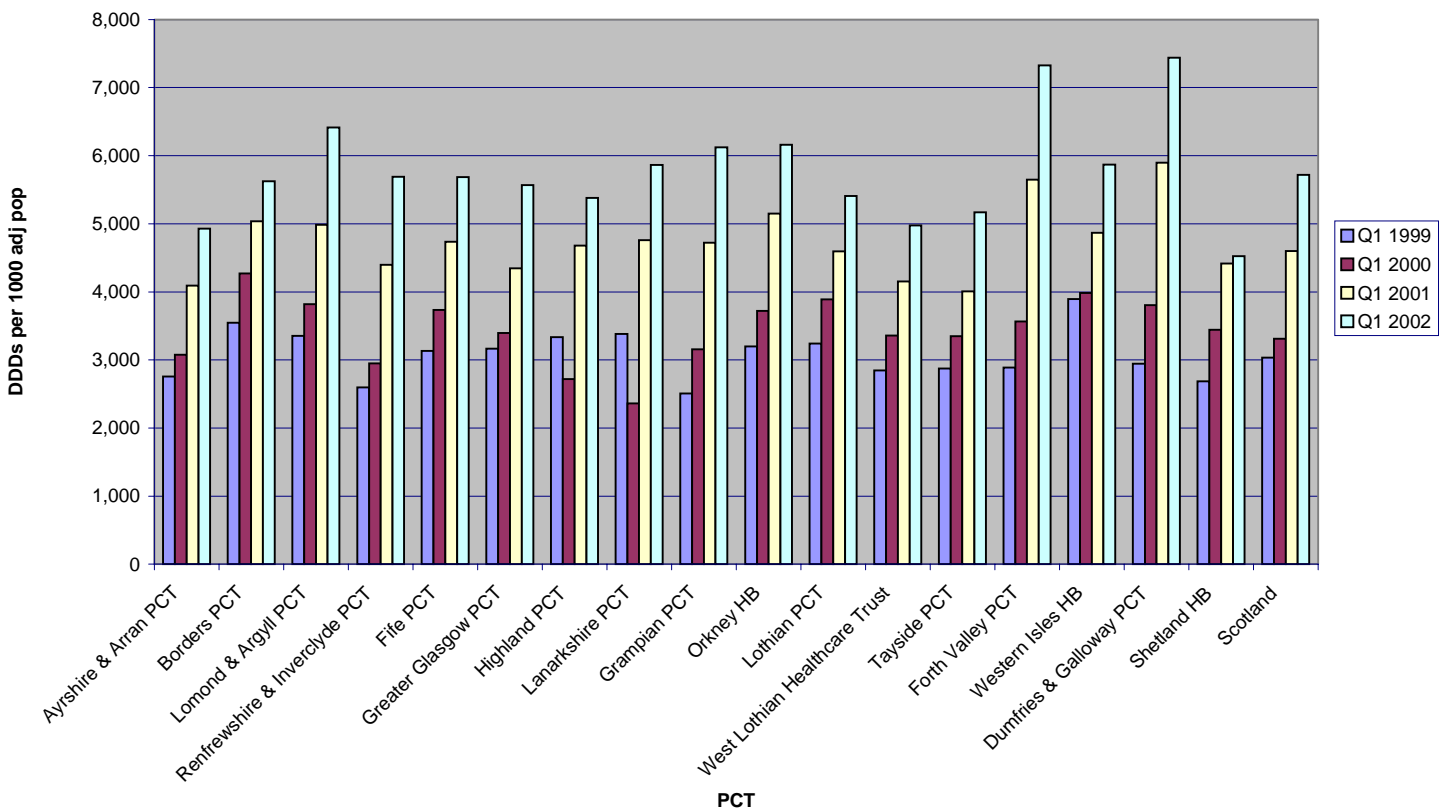
APPENDIX A4

ACE Inhibitors Per 1000 Adjusted Population Per Quarter.

There is good evidence to support the use of ACE inhibitors in the treatment of heart failure⁵, diabetic nephropathy⁶, secondary prevention of CHD⁷ and high-risk primary prevention. Prescribing of ACE inhibitors has increased as CHD initiatives have been taken forward. As with statins, prescribing ACE inhibitors within a managed CHD initiative may result in lower levels of prescribing compared to an uncoordinated approach involving unplanned primary and secondary prevention. ACE inhibitors are also used in hypertension, and although they may be recommended for certain patient groups, for example diabetics⁸, they may inappropriately be chosen as first-line treatments for others. The level of prescribing of ACE inhibitors is only a proxy for good care and may be influenced partly by secondary care.

Prescribed DDDs of ACE inhibitors have increased significantly in all trusts and health boards from 3,035 DDDs per 1000 adjusted population in the first quarter of 1999 to 5,720 DDDs per 1000 adjusted population in the first quarter of 2002.

ACE inhibitor DDDs per 1000 adjusted population per quarter



⁵ SIGN Guideline 35
⁶ SIGN Guideline 55
⁷ SIGN Guideline 41
⁸ SIGN Guideline 49

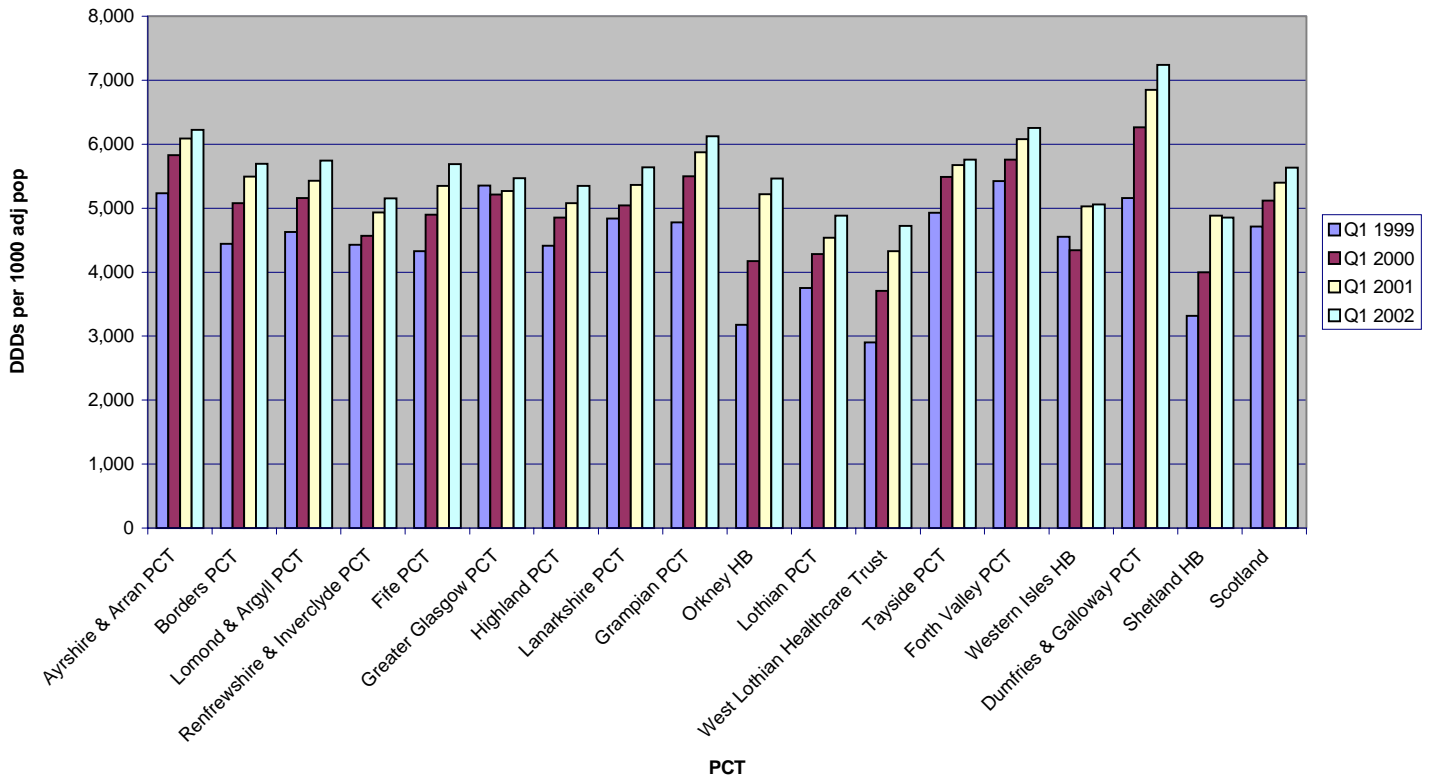
APPENDIX A5

Low Dose Aspirin Per 1000 Adjusted Population Per Quarter

There is good evidence to support the use of aspirin in the secondary prevention of cardiovascular disease⁹ and in primary prevention where the CHD risk is sufficient to warrant treatment with lipid lowering drugs¹⁰. Prescribing of aspirin has increased as CHD initiatives have been take forward. Many patients who take aspirin may obtain it directly over the counter from Community Pharmacists and these will not be included in the prescribed DDDs below.

Prescribed DDDs of low dose aspirin have increased from 4,712 DDDs per 1000 adjusted population in the first quarter of 1999 to 5,637 DDDs per 1000 adjusted population in the first quarter of 2002.

Aspirin DDDs per 1000 adjusted population per quarter



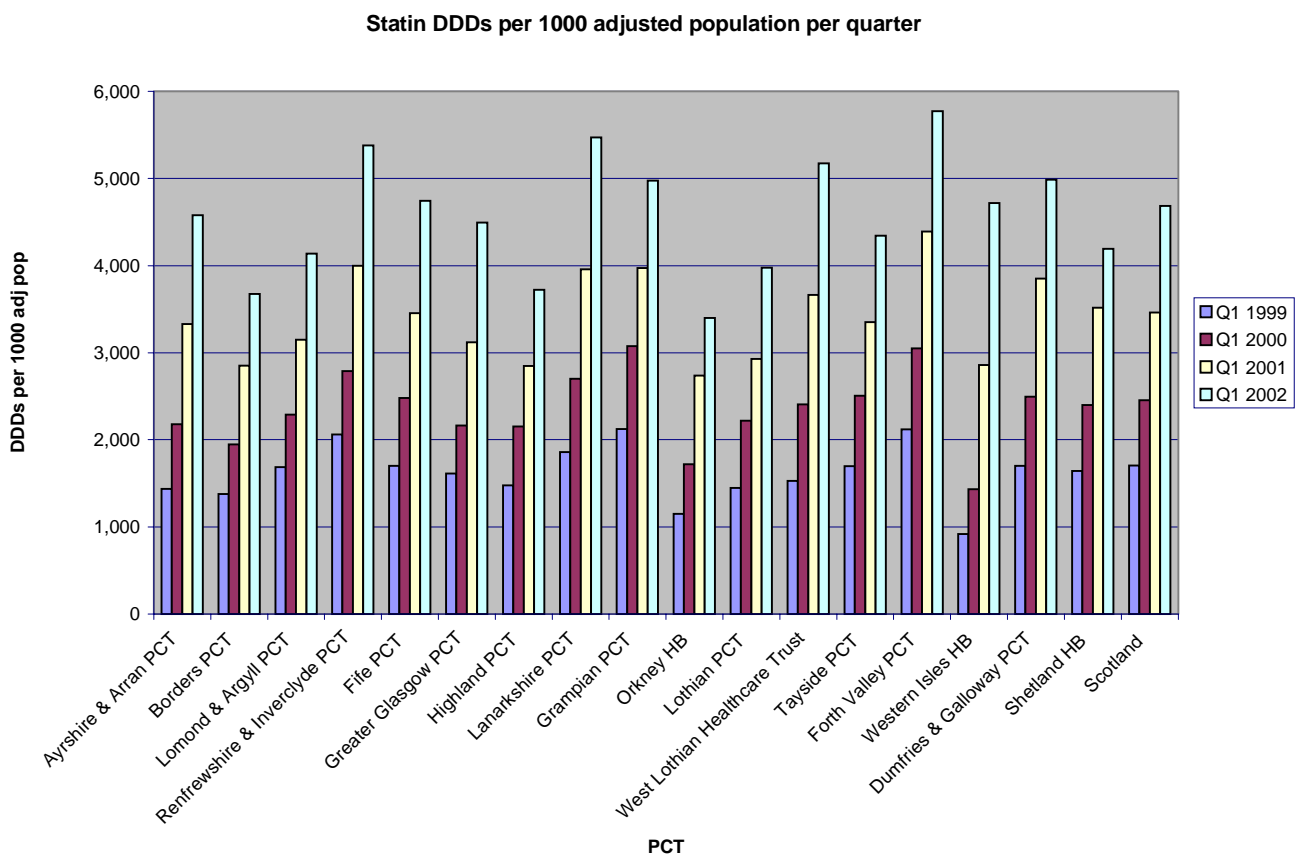
⁹ SIGN Guideline No. 41, 51
¹⁰ SIGN guideline No. 40, 49

APPENDIX A6

Statins Per 1000 Adjusted Population Per Quarter.

There is good evidence to support the use of statins in secondary prevention of cardiovascular disease¹¹ and in high-risk primary prevention¹². Treatment of CHD is a national priority for Scotland and prescribing of statins has increased as CHD initiatives have been taken forward. Targeting statins at patients who would benefit most i.e. as part of a managed secondary prevention of CHD initiative, may result in lower levels of prescribing compared to an uncoordinated approach involving unplanned primary and secondary prevention. The level of prescribing of statins is only a proxy for good care and may be influenced partly by secondary care.

Prescribed DDDs of statins has increased dramatically in all trusts and health boards – from 1708 DDDs in the first quarter of 1999 to 4689 DDDs in the first quarter of 2002.



¹¹ SIGN Guideline 41, 51
¹² SIGN Guideline 40

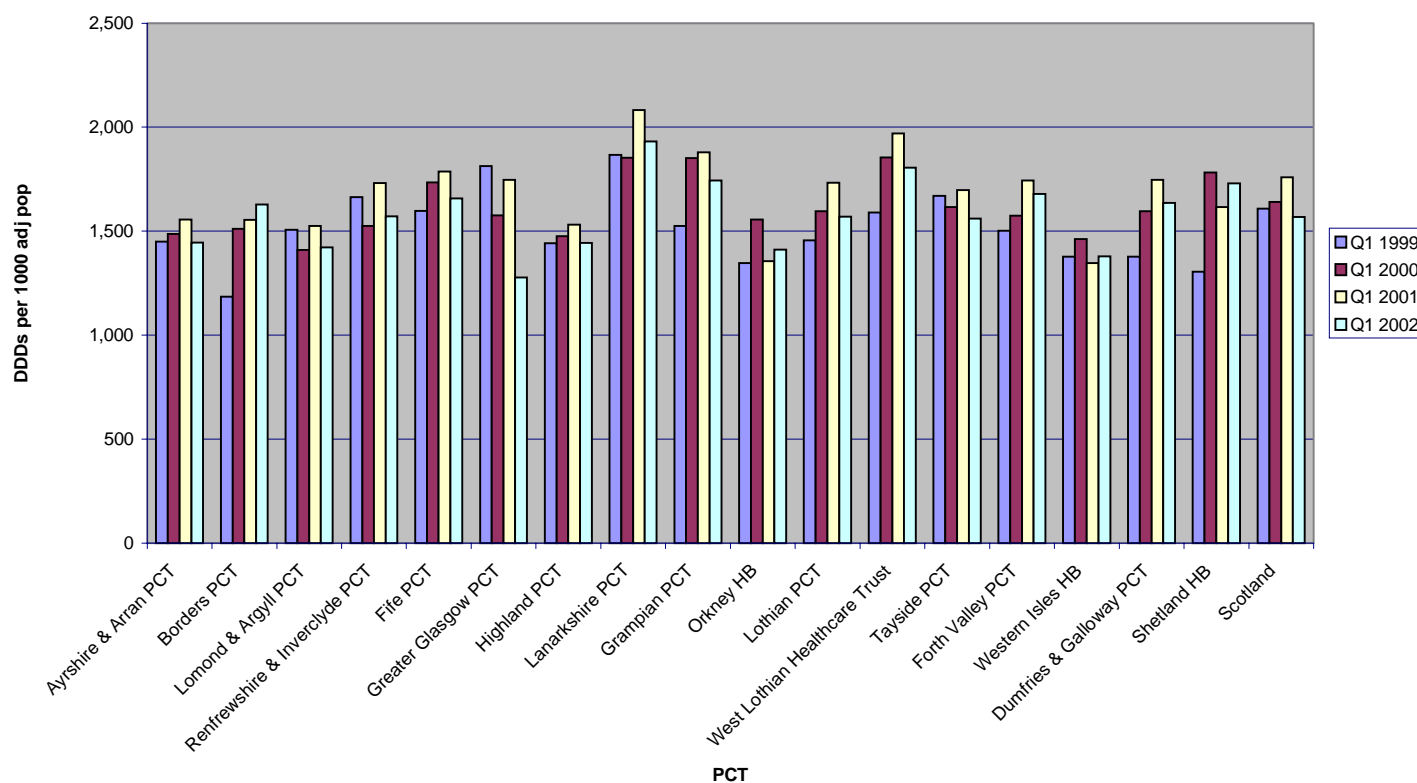
APPENDIX A8

Established Antibiotics as a Percentage of all Oral Antibiotics.

Reports from the House of Lords, the Royal Pharmaceutical Society of Great Britain and the Standing Medical Advisory Committee highlight unnecessary or inappropriate use of antibiotics as a key factor in the emergence of resistance. The use of newer antibiotics¹⁴ when established antibiotics could be as effective potentially undermines the effectiveness of these newer antibiotics. The drive to reduce the inappropriate use of established antibiotics, for example amoxicillin for viral infections, interacts with this indicator, reducing the proportion of established agents.

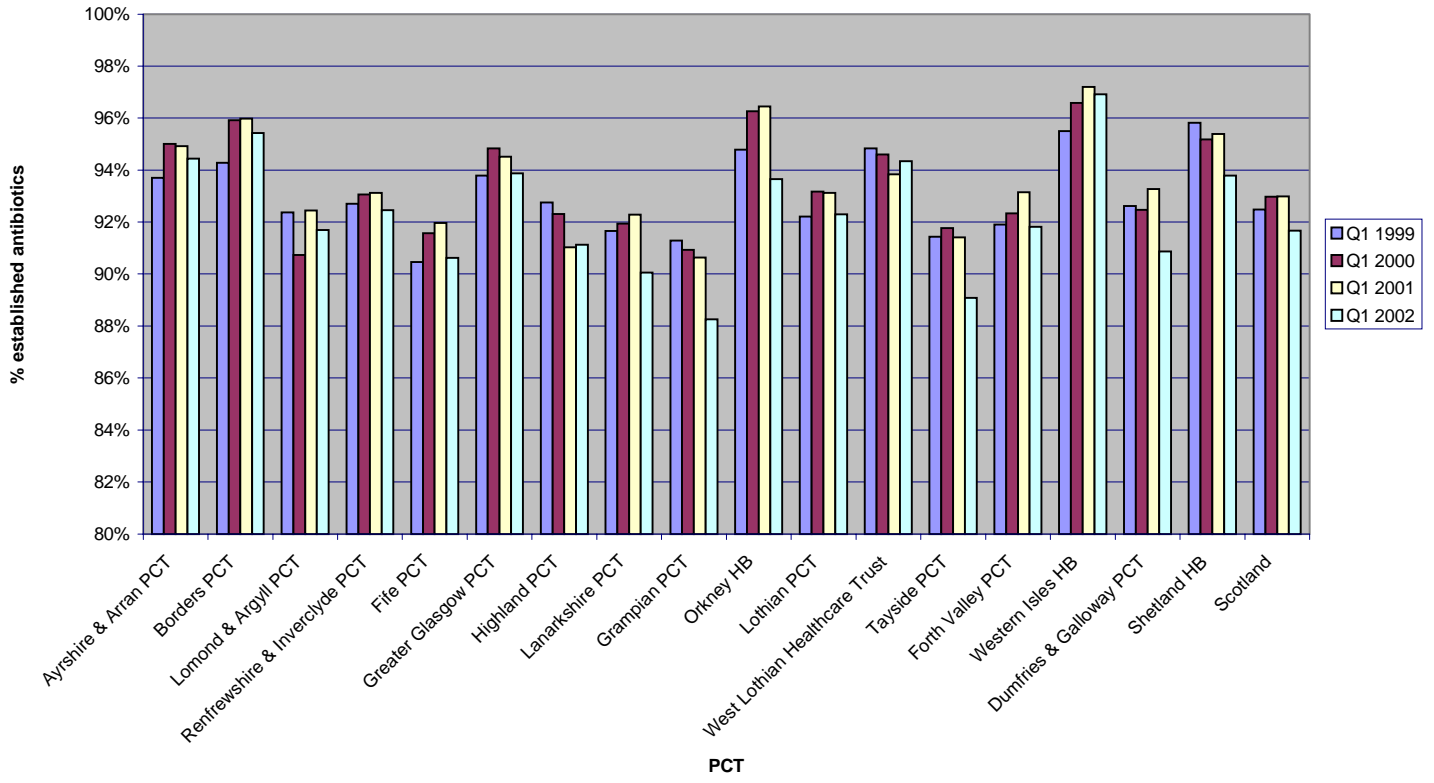
The overall use of antibiotics has reduced from 8.23 million DDDs in the first quarter of 1999 to 7.94 million DDDs in the first quarter of 2002. The use of established antibiotics relative to newer antibiotics has remained static at around 92% over this time period.

Antibiotic DDDs per 1000 adjusted population per quarter



¹⁴ Newer antibiotics are defined as ciprofloxacin, levofloxacin, norfloxacin, ofloxacin, clarithromycin, cefixime and cefpodoxime

Established antibiotics as a % of established and new oral antibiotics

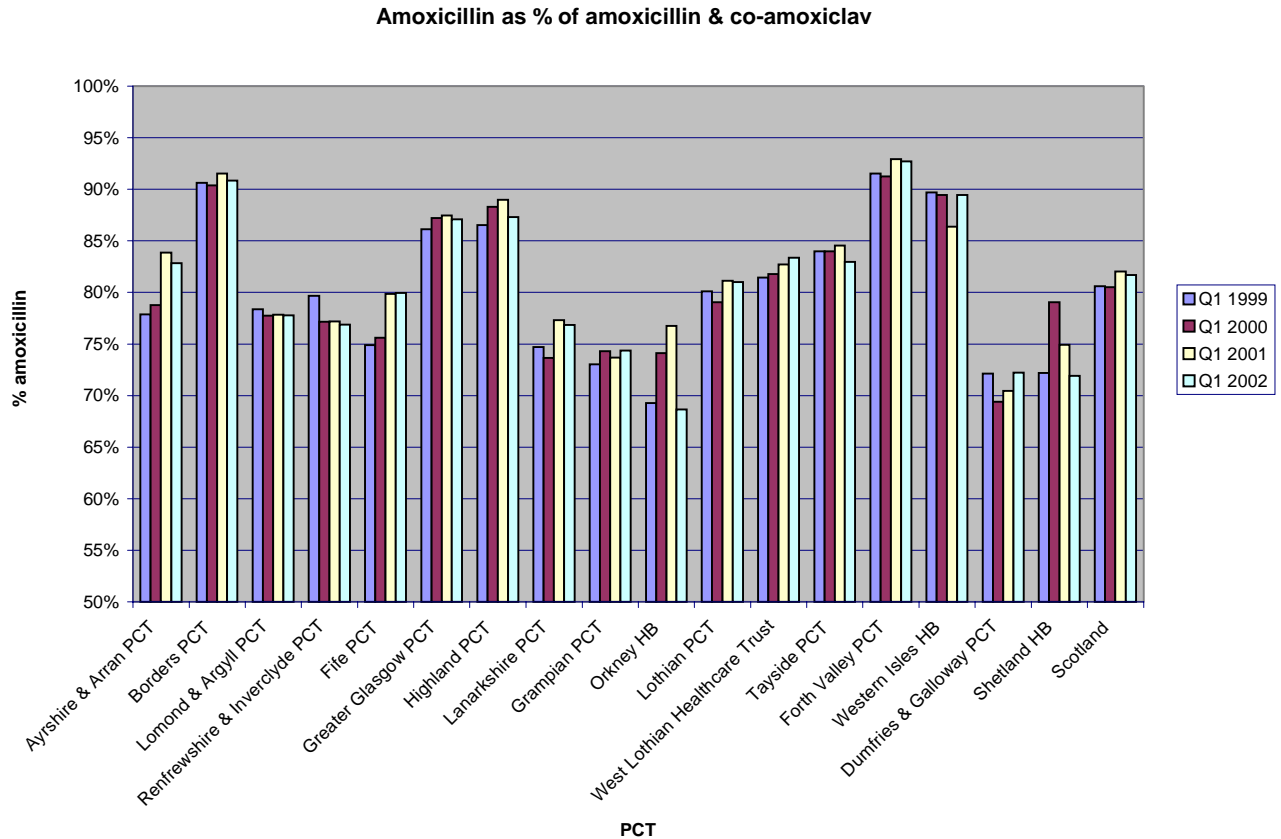


APPENDIX A9

Amoxicillin as a Percentage of Amoxicillin and Co-Amoxiclav.

Co-amoxiclav should be reserved for infections that are likely, or known, to be caused by amoxicillin-resistant beta-lactamase-producing strains¹⁵. The Committee on Safety of Medicines (CSM) within the medicines control agency have issued a warning that the risk of acute liver toxicity is 6 times greater with co-amoxiclav than amoxicillin. The drive to reduce the inappropriate use of established antibiotics, for example amoxicillin for viral infections, interacts with this indicator in the same way as the indicator showing established antibiotics as a percentage of all oral antibiotics.

The use of amoxicillin relative to co-amoxiclav has slightly increased – from 81% in the first quarter of 1999 to 82% in the first quarter of 2002.



APPENDIX B. INDICATORS OF PRESCRIBING EFFICIENCY BY TRUST AND FOR SCOTLAND

- B1. Established medicines as a proportion of established and newer therapies**
 - B1.1 ACE Inhibitors as a percentage of angiotensin II receptor antagonists and ACE inhibitors
 - B1.2 Established antidepressants as a percentage of all antidepressants
 - B1.3 Traditional NSAIDs as a percentage of all oral NSAIDs

- B2. Proportion of generic versions of medicines rather than brands**
 - B2.1 Generic prescribing rates
 - B2.2 Potential generic savings per 1000 adjusted population

- B3. Use of medicines marked by the BNF as less suitable for prescribing**

- B4. Medicines considered to be of limited value**
 - B4.1 Potential savings resulting from the discontinuation of peripheral and cerebral vasodilators
 - B4.2 Potential savings resulting from the discontinuation of topical NSAIDs

- B5. Premium priced substitution**
 - B5.1 Potential savings resulting from the substitution of effervescent co-codamol 8/500 with co-codamol 8/500 standard
 - B5.2 Potential savings resulting from the substitution of isosorbide mononitrate (ISMN) MR with ISMN standard
 - B5.3 Potential savings resulting from the substitution of diclofenac MR with diclofenac standard
 - B5.4 Potential savings resulting from the substitution of transdermal oestrogen only HRT with an oral preparation
 - B5.5 Potential savings resulting from the substitution of salbutamol dry powder and automated inhaler devices with metered dose inhalers (MDIs)

- B6. Therapeutic substitution**
 - B6.1 Potential savings resulting from the substitution of non-fluoxetine SSRIs with fluoxetine
 - B6.2 Potential savings resulting from the substitution of co-codamol 8/500 with paracetamol 500mg
 - B6.3 Potential savings resulting from the substitution of minocycline with oxytetracycline

APPENDIX B1

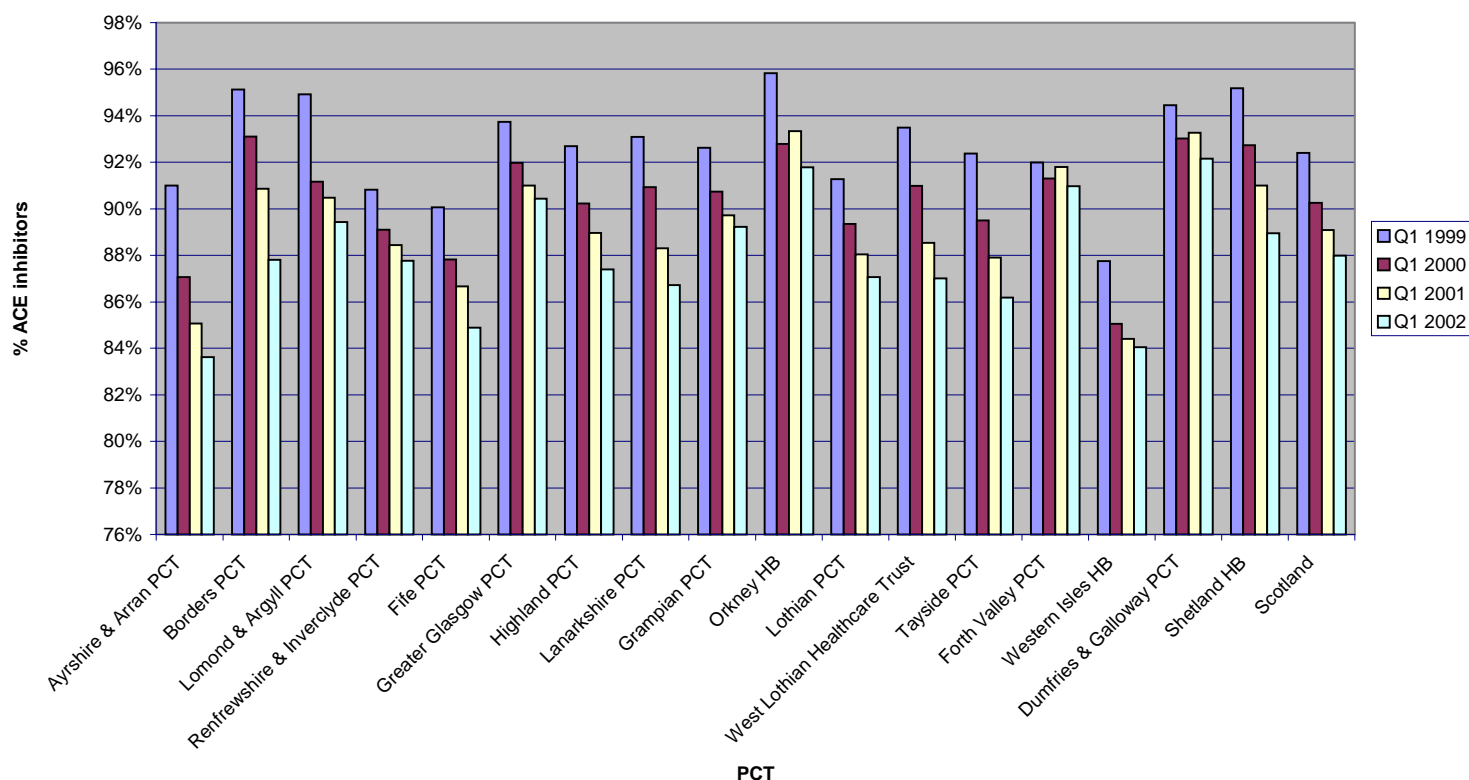
ESTABLISHED MEDICINES AS A PROPORTION OF ESTABLISHED AND NEWER THERAPIES

Appendix B1.1 ACE Inhibitors as a percentage of Angiotensin II Receptor Antagonists and ACE Inhibitors

Angiotensin II antagonists are recommended for treatment of hypertension, and more recently for the treatment of diabetic nephropathy, in patients intolerant of ACE inhibitors, particularly due to persistent cough¹.

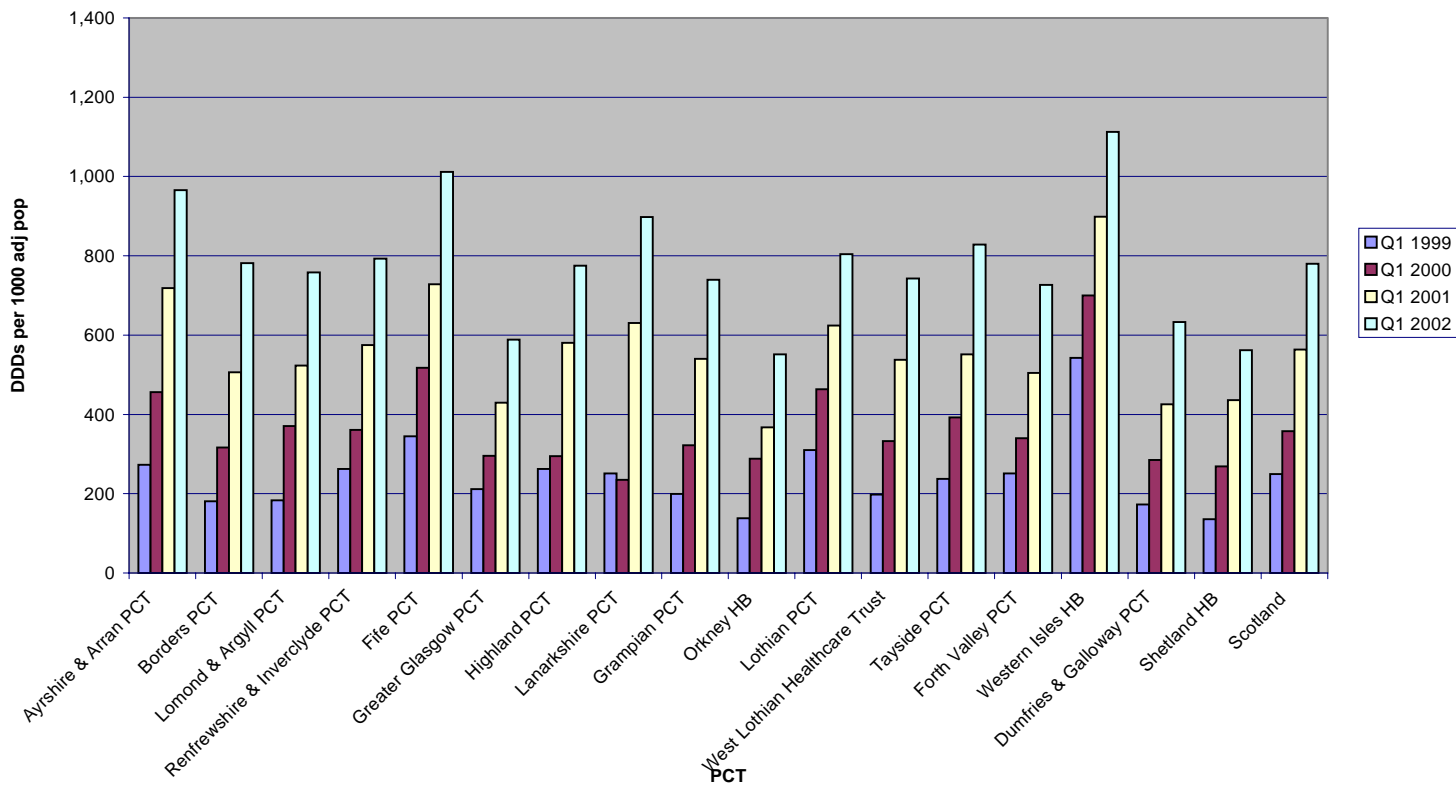
The use of ACE inhibitors as a percentage of ACE inhibitors and angiotensin II receptor antagonists has decreased from 92% in the first quarter of 1999 to 88% in the first quarter of 2002.

ACE inhibitors as a percentage of ACE inhibitors and angiotensin II receptor antagonists



¹ SIGN Guideline 49, 55

Angiotensin II receptor antagonist DDDs per 1000 adjusted population per quarter

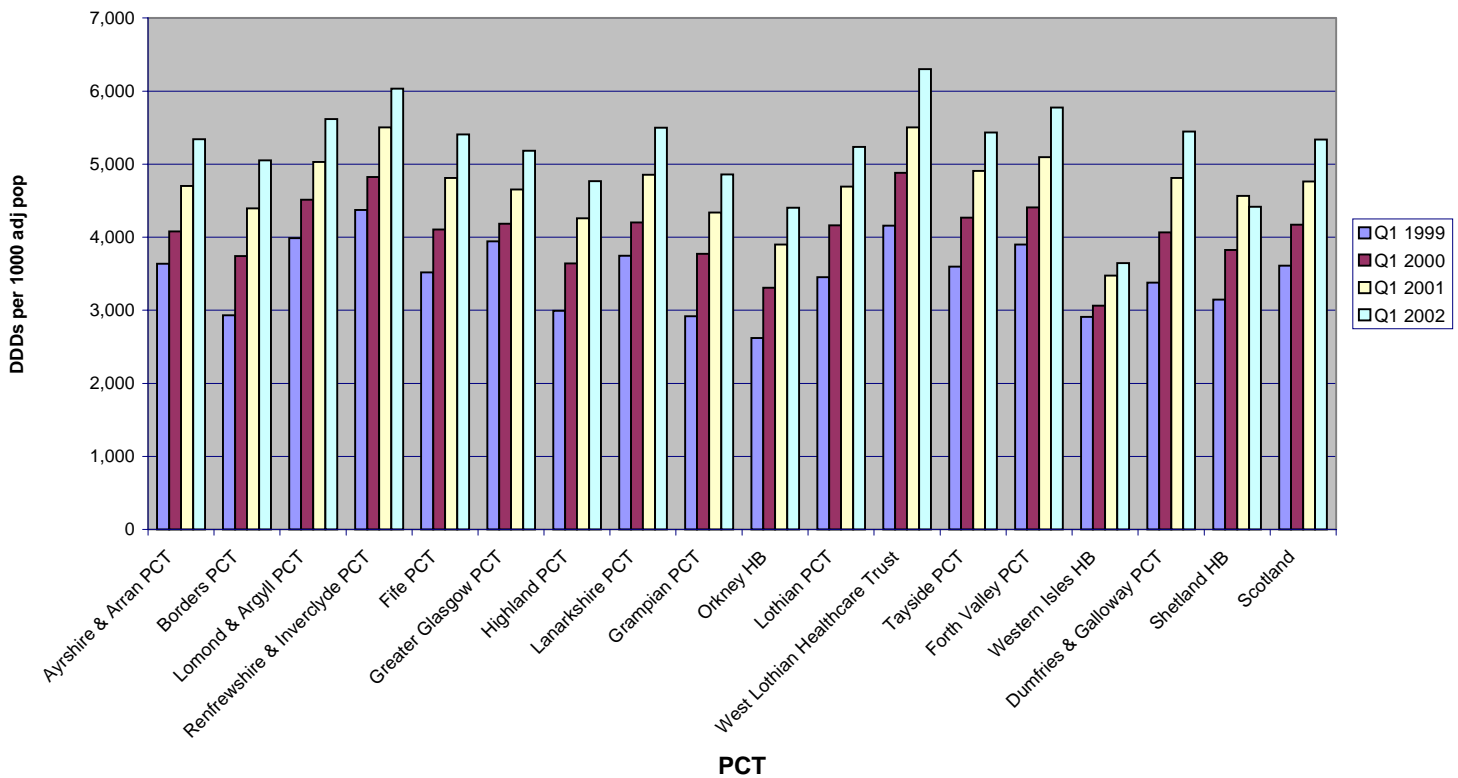


Appendix B1.2 Established Antidepressants as a Percentage of all Antidepressants

Newer antidepressants² are considerably more expensive than established agents, such as generic fluoxetine, and should be reserved for patients who do not respond to, or are intolerant of, first-line options i.e. SSRIs or tricyclics³.

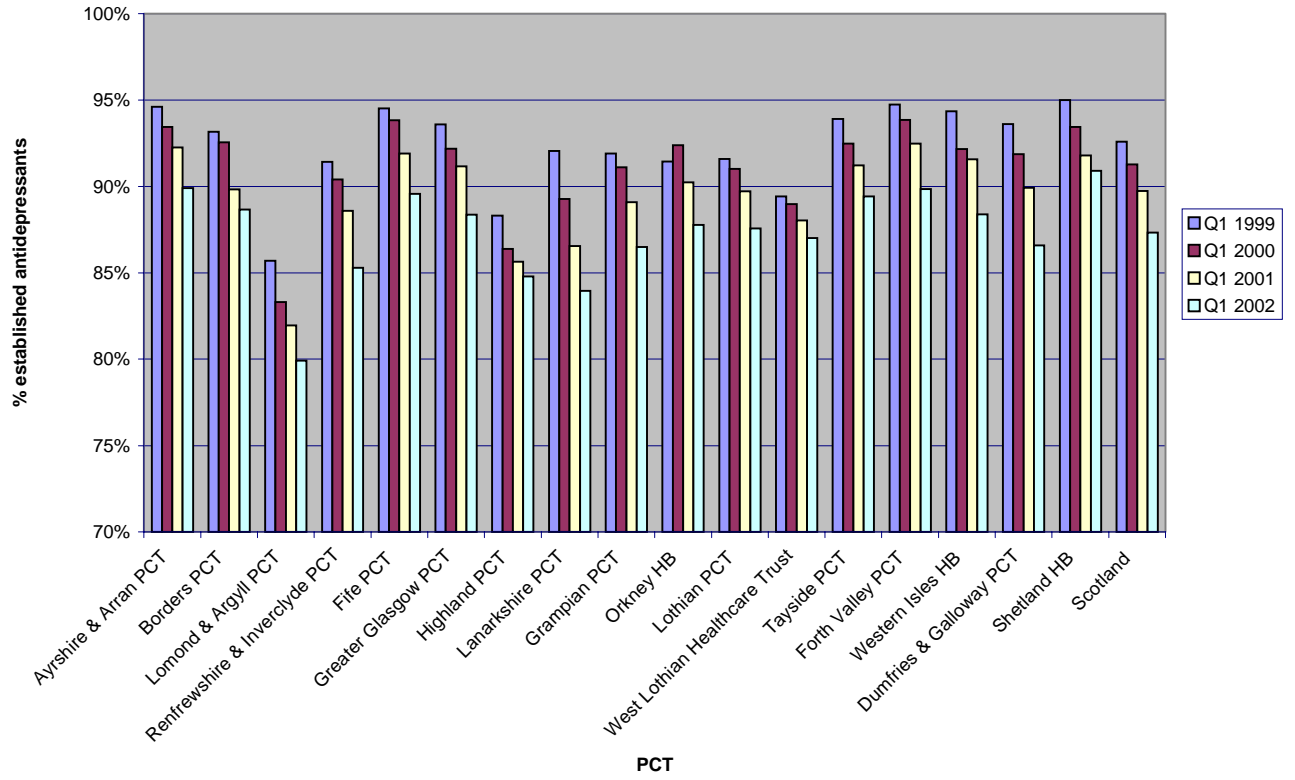
The use of all antidepressants (in DDDs) has increased by 46% between the first quarter of 1999 and the first quarter of 2002. The use of established antidepressants as a percentage of established and newer antidepressants has reduced across Scotland from 93% to 87% in the same time period.

Antidepressant DDDs per 1000 adjusted population per quarter



² Newer antidepressants are defined as venlafaxine, mirtazapine, nefazodone and reboxetine
³ Medicines Resource Bulletin, Issues 17, April 2002

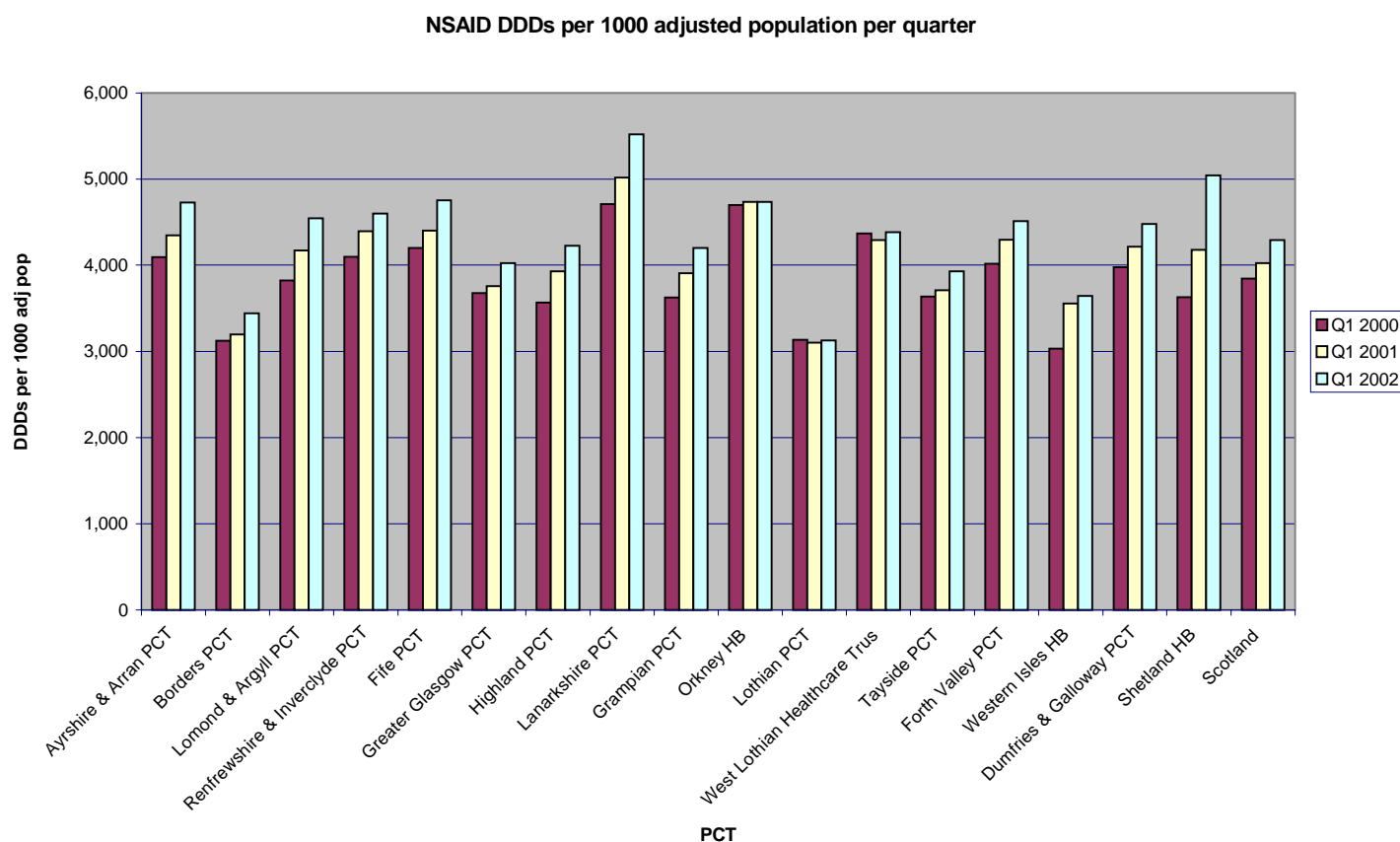
Established antidepressants as a % of new and established antidepressants



Appendix B1.3 Traditional NSAIDs as a Percentage of all Oral NSAIDs.

Cox-2 specific NSAIDs⁴ should be used in preference to standard/traditional NSAIDs⁵ only when clearly indicated for patients with a history of gastroduodenal ulcer, perforation or gastrointestinal bleeding, and for other patients at high risk of developing serious gastrointestinal side-effects. They should not be routinely used in preference to standard NSAIDs or for patients with cardiovascular disease. The benefit of Cox-2 specific NSAIDs is reduced in patients taking concomitant low-dose aspirin and this combination is not justified⁶.

The use of all NSAIDs (both traditional and Cox-2 specific) in DDDs increased by 10% between the first quarter of 1999 and the first quarter of 2002. The use of traditional NSAIDs as a percentage of traditional and Cox-2 specific NSAIDs has reduced from 96% to 76% over the same time period.

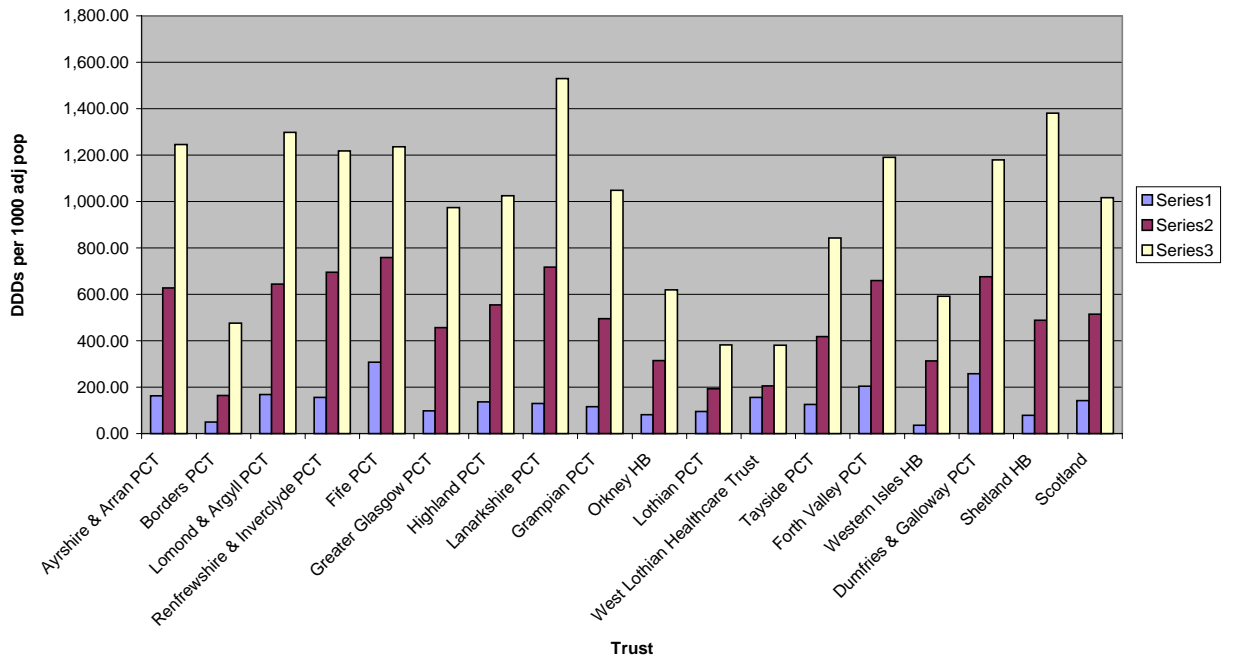


⁴ Cox2 specific NSAIDs are defined as celecoxib, rofecoxib and etorocoxib

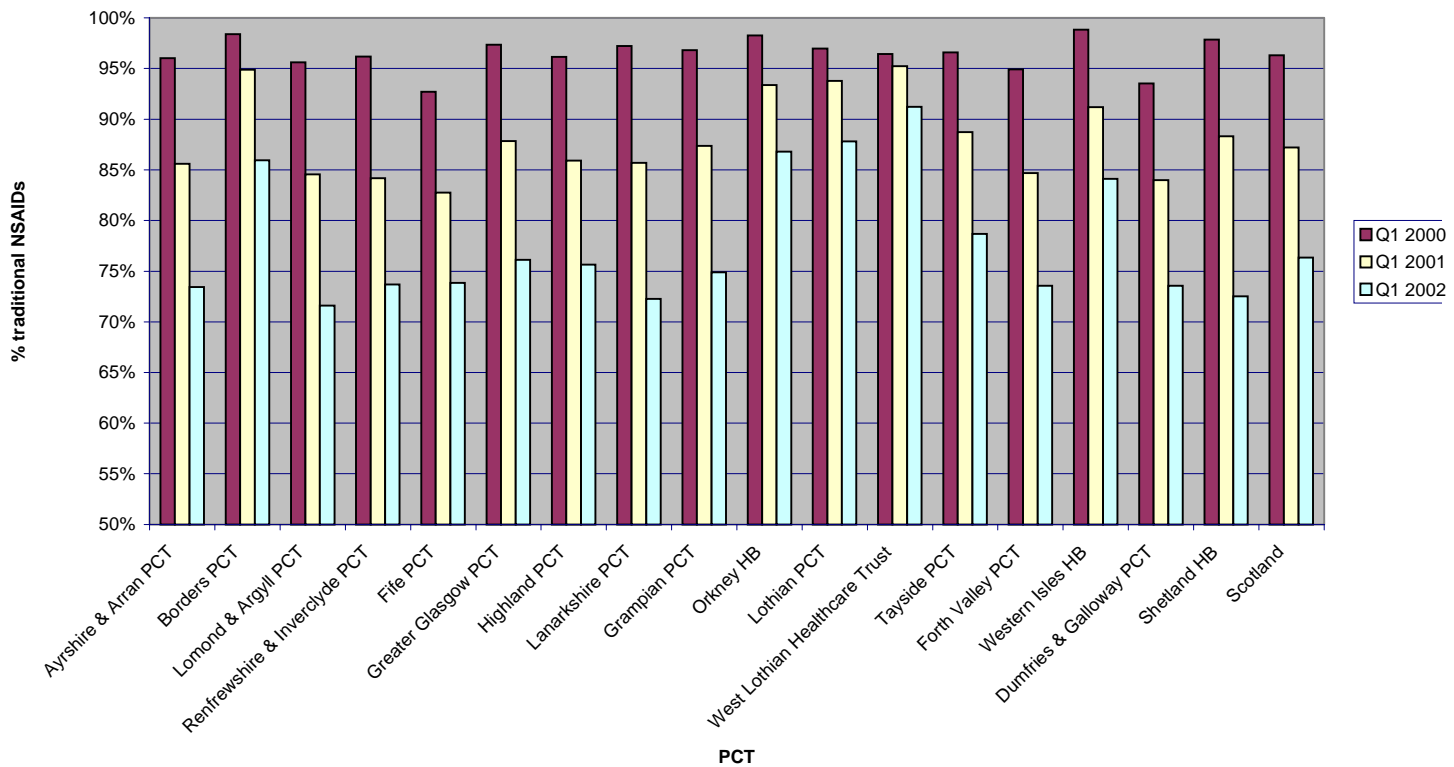
⁵ Traditional NSAIDs are defined as non-Cox2 specific NSAIDss

⁶ NICE Technology Appraisal Guidance No. 27, July 2001

Cox-2 selective inhibitor DDDs per 1000 adjusted population per quarter



Traditional NSAIDs as a percentage of traditional NSAIDs & COX-2 inhibitors



APPENDIX B2

PROPORTION OF GENERIC VERSIONS OF MEDICINES RATHER THAN BRANDS

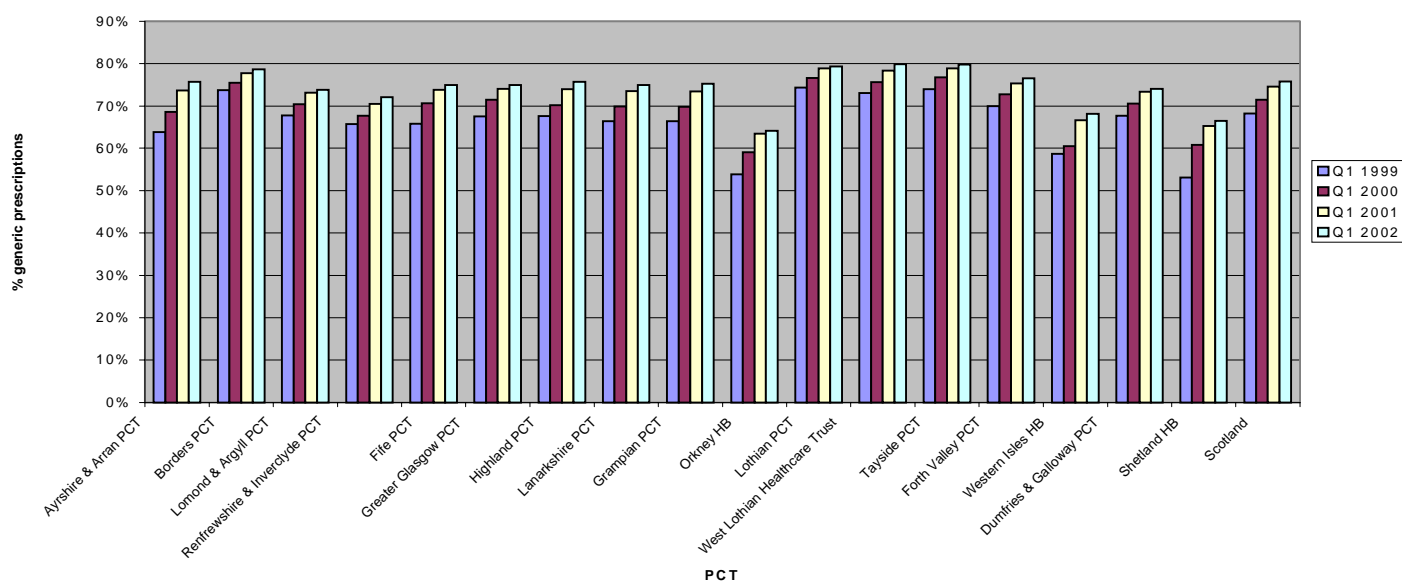
Appendix B2.1 Generic Prescribing Rate

When a medicine is first produced, it is usually covered by a patent for a number of years and can command a high price. This can reflect the development costs associated with its production. After a period of time, the patent will expire and other manufacturers can produce generic versions of the drug. A generic price is set which should be lower than the branded version of the medicine. In order to ensure cost effective prescribing, generic versions should be prescribed wherever possible. Generic prescribing rates are included as a PAF and CRAG indicator.

Whilst generic prescribing is generally to be encouraged, a small number of drugs should be prescribed by brand name due to bioavailability variation between brands⁷. 100% generic prescribing is therefore not recommended and the optimum rate appears to be around 80%.

The generic prescribing rate has increased from 68% in the first quarter of 1999 to 76% in the first quarter of 2002.

Generic prescriptions as a % of all prescriptions



⁷

Bioavailability is defined as the fraction of medicine administered that reaches the central circulation. Different preparations of the same medicine may vary widely in bioavailability. This is not important in most medicines but for some, where the difference between therapeutic and toxic dose is small, this change in bioavailability can be of clinical significance. Examples include lithium, mesalazine, carbamazepine and modified release formulations.

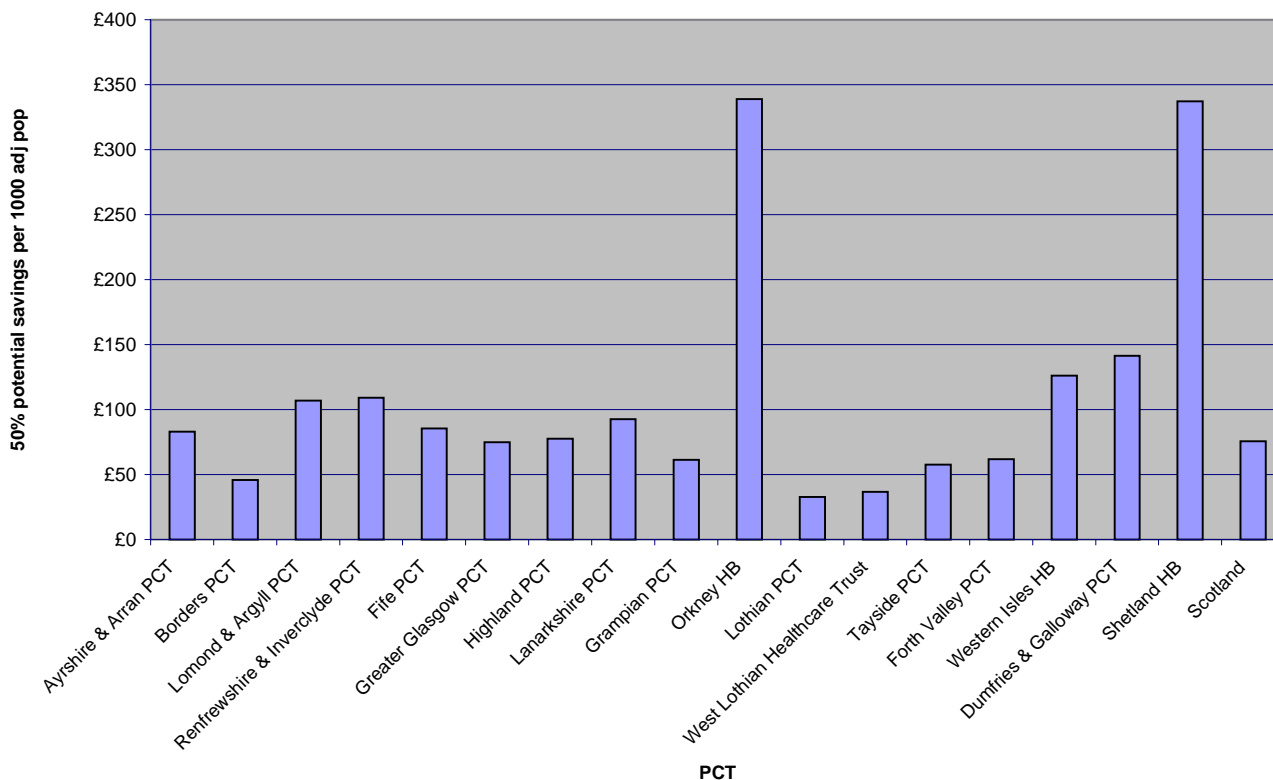
Appendix B2.2 Potential Generic Savings Per 1000 Adjusted Population.

Generic prescribing only releases savings if the medicine prescribed is no longer covered by a patient and is available in a generic form.

This indicator shows the potential saving if branded medicines were substituted with appropriate available generic alternatives. High potential generic savings are usually associated with a low generic prescribing rate.

The total (100%) annual potential saving that could be realised across Scotland amounts to £3.06 million, based on the first quarter of 2002. Changing 50% of the remaining branded medicines prescribed to generic alternatives would save £1.5 million across Scotland.

50% potential generic savings per 1000 adjusted population, Q1 2002



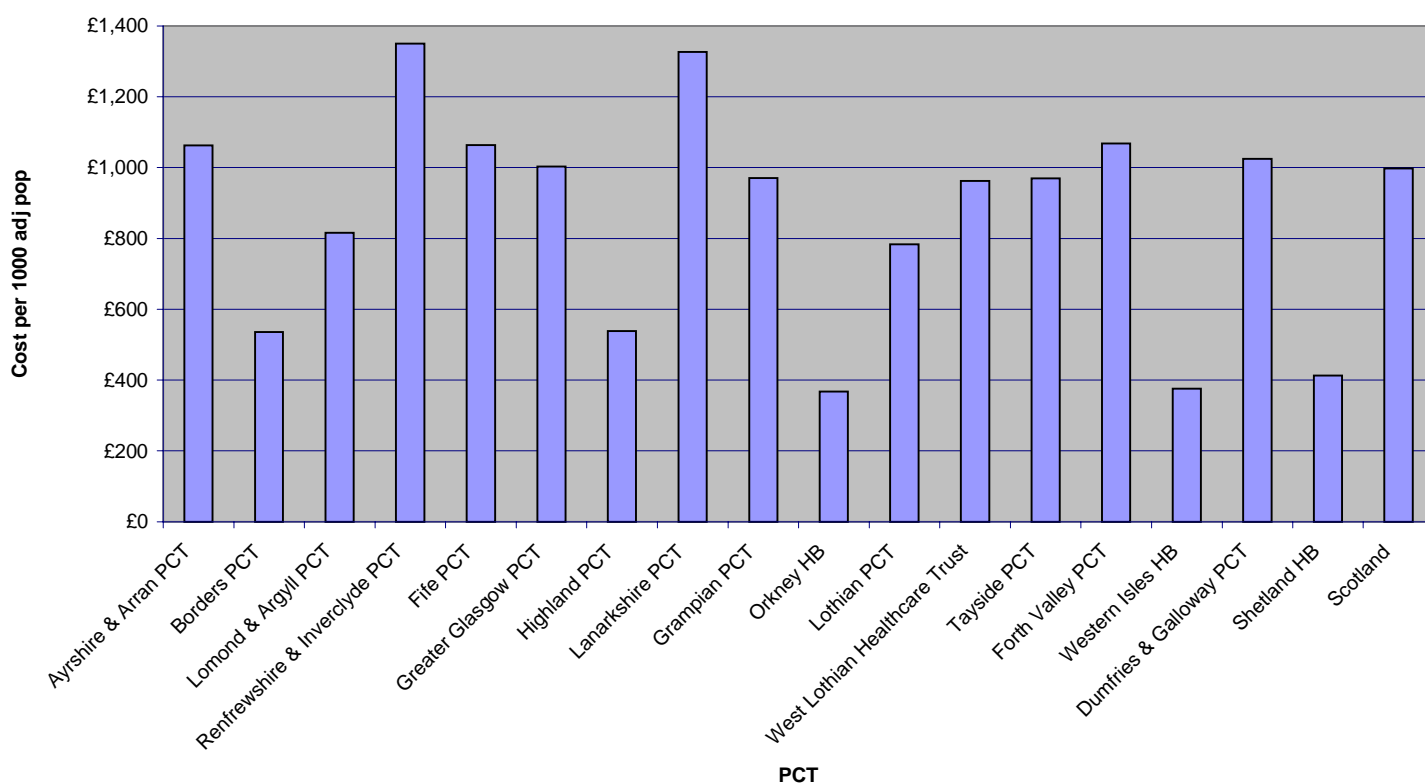
APPENDIX B3

MEDICINES LESS SUITABLE FOR PRESCRIBING

The BNF identifies preparations that are considered by the Joint Formulary Committee to be 'less suitable' for prescribing. Although such preparations may not be considered as medicines of first choice, their use may be justifiable in certain circumstances⁸. This indicator overlaps with 'drugs of limited value' and the list of drugs 'less suitable' is updated in every BNF edition, making comparison over time difficult. The list for this indicator is based on BNF Edition 44, September 2002. Total cost, according to this list, should not be interpreted as a potential saving as an alternative drug may be prescribed.

4.25 million prescriptions are issued annually in Scotland for medicines considered less suitable for prescribing (based on data relating to Quarter 1 2002) compared to 4.29 million in the 1999 baseline report. This represents a total annual cost of £20.19 million compared to £15.57 million in the 1999 baseline report. BNF chapter 4, the Central Nervous System, accounts for the largest proportion of this annual expenditure, and within this, co-codamol is the single drug associated with the greatest cost.

BNF drugs less suitable for prescribing, cost per 1000 adjusted population (Q1 2002)



⁸ BNF Edition 44, Sept 2002

APPENDIX B4

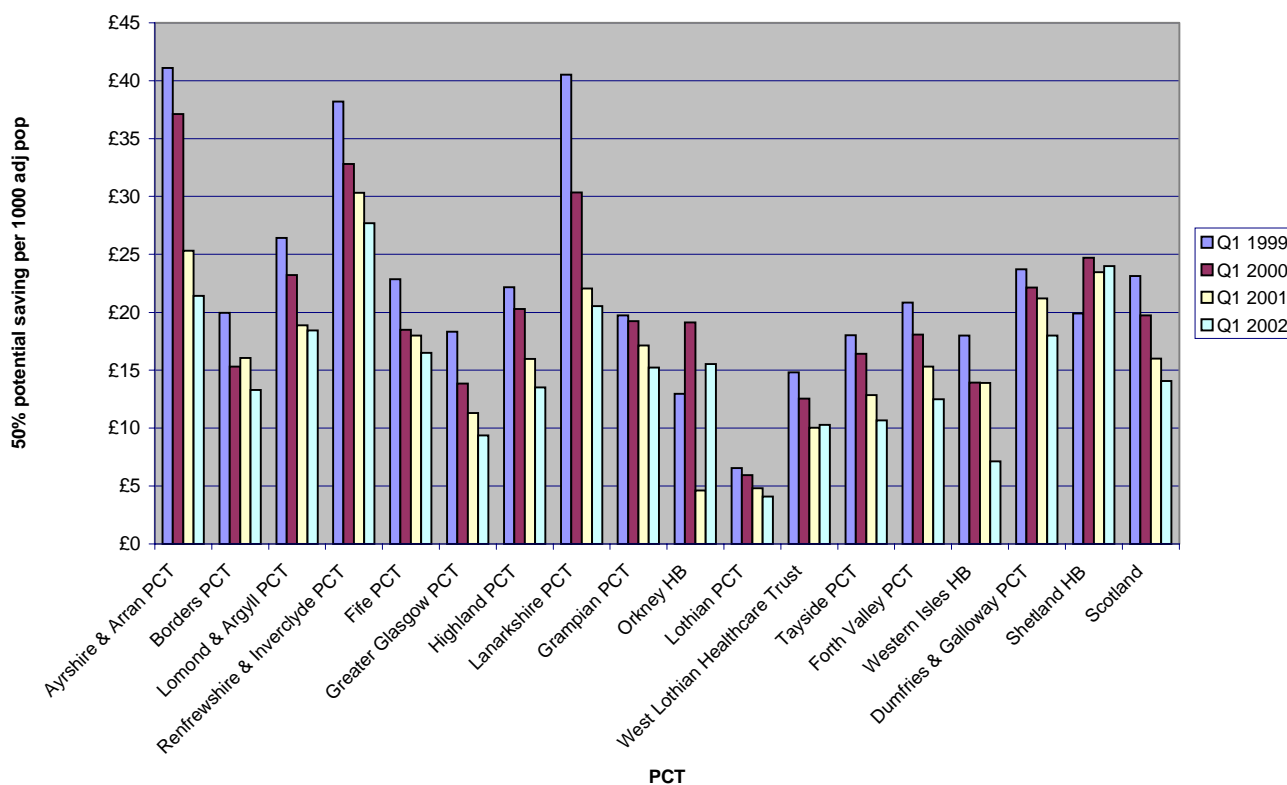
MEDICINES OF LIMITED VALUE

Appendix B4.1 Potential savings resulting from the discontinuation of peripheral and cerebral vasodilators

Most peripheral vasodilators⁹ are not established as being effective¹⁰. Although discontinuation may be difficult in some patients, a policy of not prescribing these agents for new patients would result in a gradual discontinuation rate over time.

The number of items prescribed in this area has fallen by nearly 37% between the first quarter of 1999 and the first quarter of 2002. Likewise, the annual expenditure (potential saving) has reduced by nearly 40% from £947,000 to £570,000 over the same time period (based on quarter 1 data).

Peripheral vasodilators, 50% potential saving per 1000 adjusted population per quarter

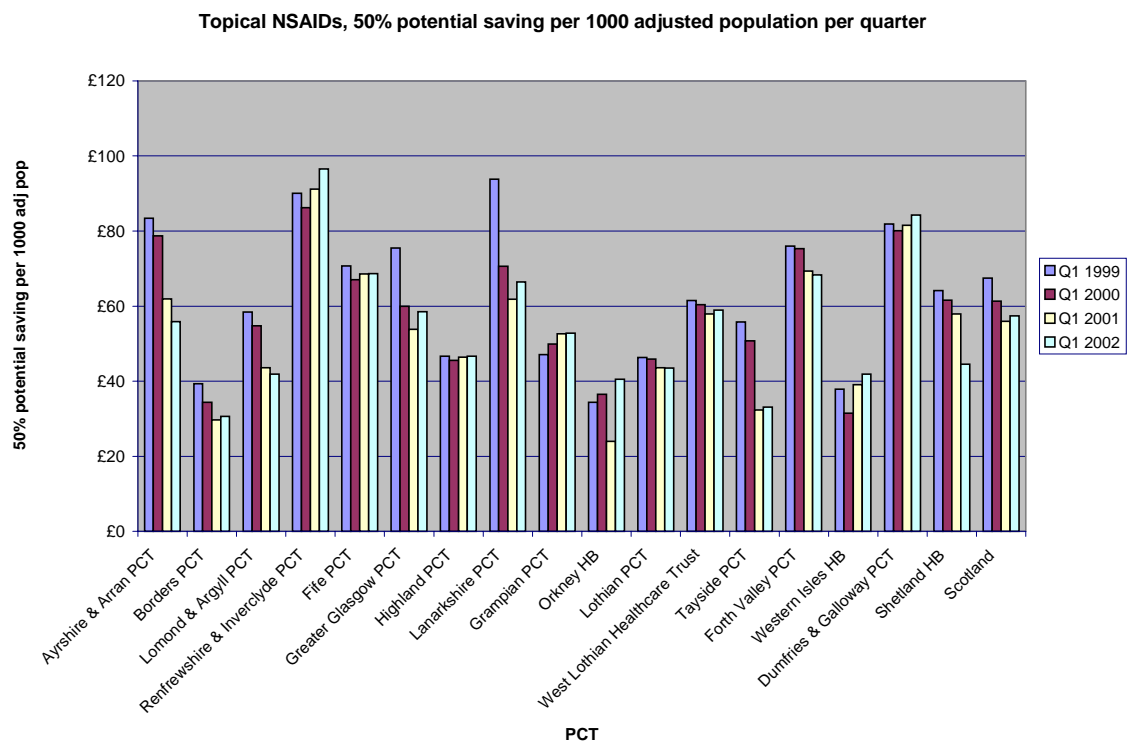


⁹ Peripheral and cerebral vasodilators are defined as cinnarizine, thymoxamine, nicotinic acid derivatives, oxpentifylline, oxerutins and co-dergocrine (naftodrofuryl is not included)

¹⁰ BNF Edition 44, Sept 2002

Appendix B4.2 Potential Savings Resulting from the Discontinuation of Topical NSAIDs¹¹

Topical NSAIDs are associated with a large placebo effect¹² but may provide some slight relief of pain in musculoskeletal conditions¹³. Although it is assumed that topical NSAIDs can be discontinued they may be substituted with rubefacient in some patients. Since 1999, the number of items prescribed has reduced by just over 15%. The annual potential savings to be made have also reduced by nearly 16% from £2.76 million in the 1999 to £2.32 million in 2002, or £1.2 million if 50% of topical NSAIDs were discontinued (based on quarter 1 data).



¹¹ Topical NSAIDs are defined as benzydamine, diclofenac, felbinac, heparinoid, ibuprofen, ketoprofen, piroxicam
¹² Medical Resource Bulletin, Issue 8, 1997
¹³ BNF Edition 44, Sept 2002

APPENDIX B5

PREMIUM PRICED PREPARATIONS

Premium priced substitution is concerned with substituting standard versions of certain medicines in place of more expensive formulations, presentations or devices and aims to maintain patient benefit whilst minimising costs.

However, there can be difficulties with implementation. For example, it can be difficult to transfer a patient from one medicine to another, e.g. if stabilised on a long-term treatment such as for blood pressure. New policies recommending use of the most cost effective preparation, formulation or device in new patients can however, be implemented, resulting in a steady shift in prescribing and generation of savings over time.

The indicators selected reflect prescribing changes associated with greatest saving for Scotland as a whole.

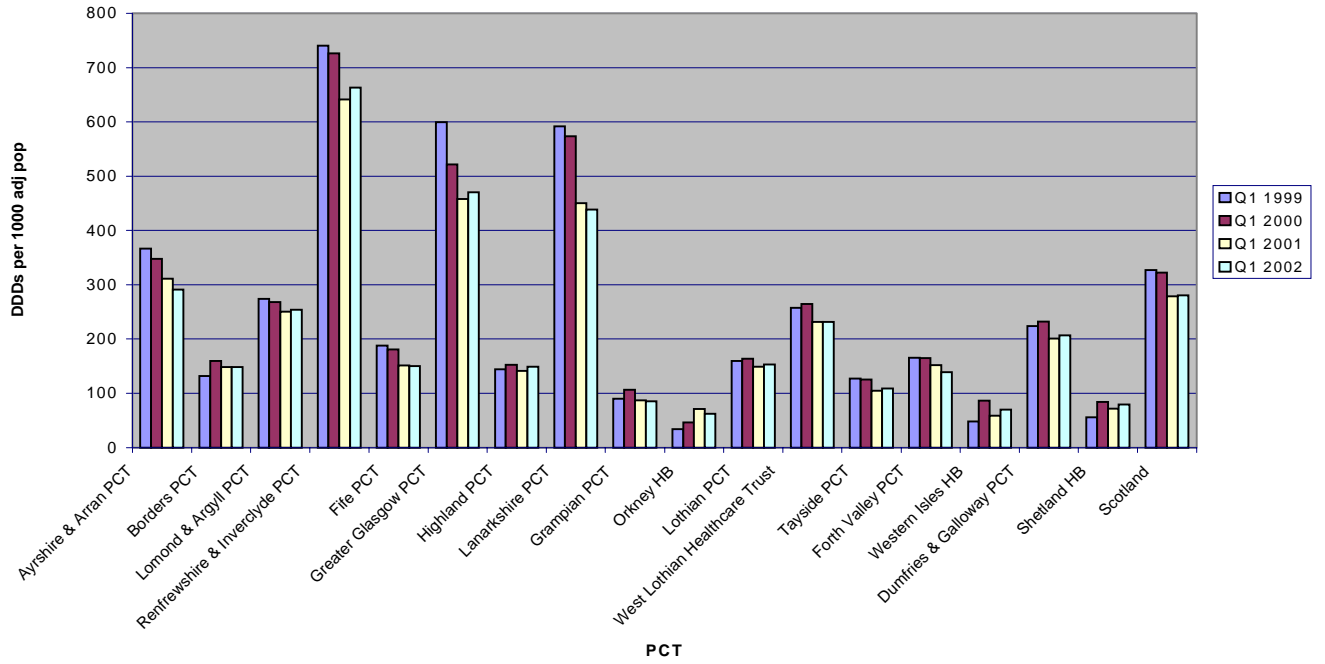
Appendix B5.1 Potential savings resulting from the substitution of Effervescent Co-Codamol 8/500 with Co-Codamol 8/500 standard

Effervescent co-codamol 8/500 is considerably more expensive than the standard formulation and provides no extra benefit, unless the patient finds conventional tablets difficult to swallow.

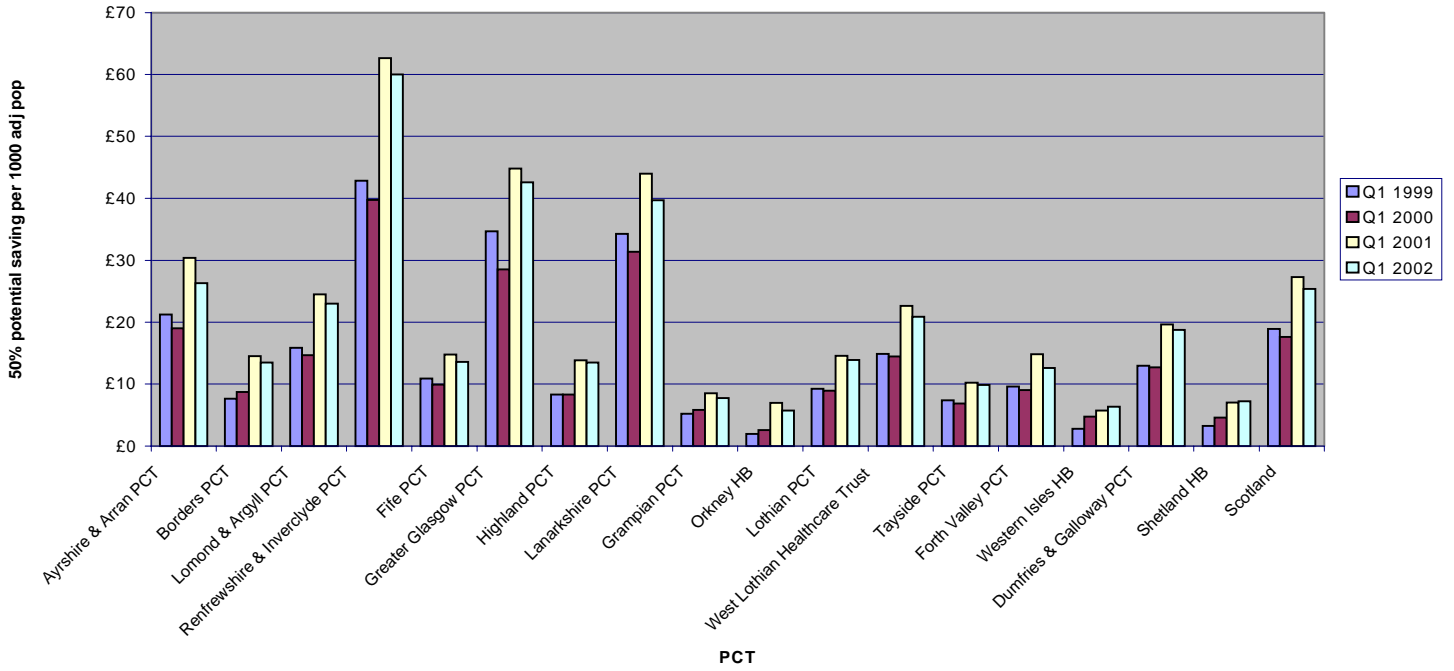
Prescribed DDDs of effervescent co-codamol have reduced by over 15% between the first quarter of 1999 and the first quarter of 2002, whilst those of standard co-codamol have increased by nearly 16% in the same time period.

However, during this time there has been an increase in the price differential between the two formulations resulting in an increase in the value of annual potential saving from £775,000 in 1999 to £1,03 million in 2002 (based on quarter 1 data), despite improvements in prescribing behaviour being made. If 50% of current levels of effervescent co-codamol 8/500 were substituted with the standard formulation, annual savings of £514,000 could be made in Scotland.

Co-codamol 8/500 effervescent DDDs per 1000 adjusted population per quarter



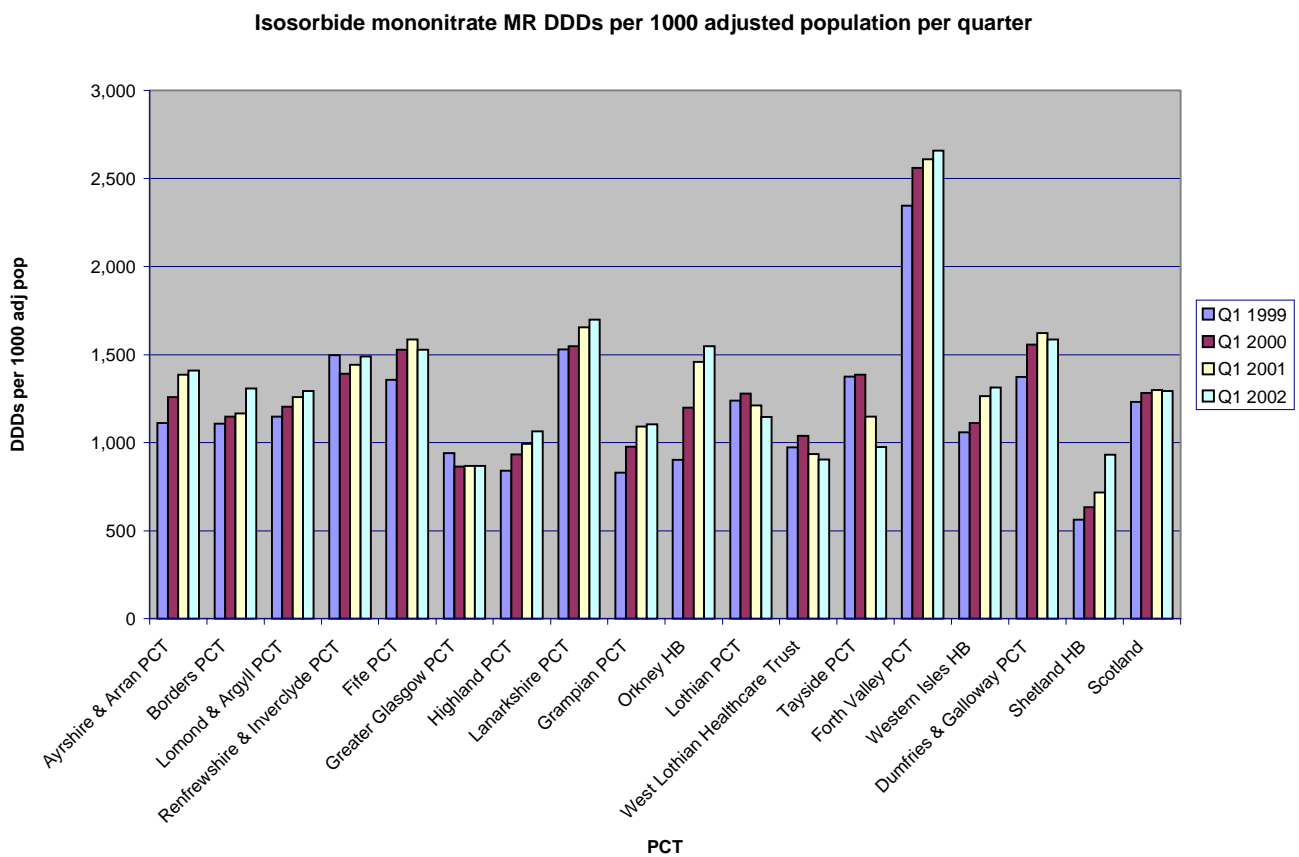
Cocodamol 8/500 effervescent substituted with standard, 50% potential saving per 1000 adjusted population per quarter



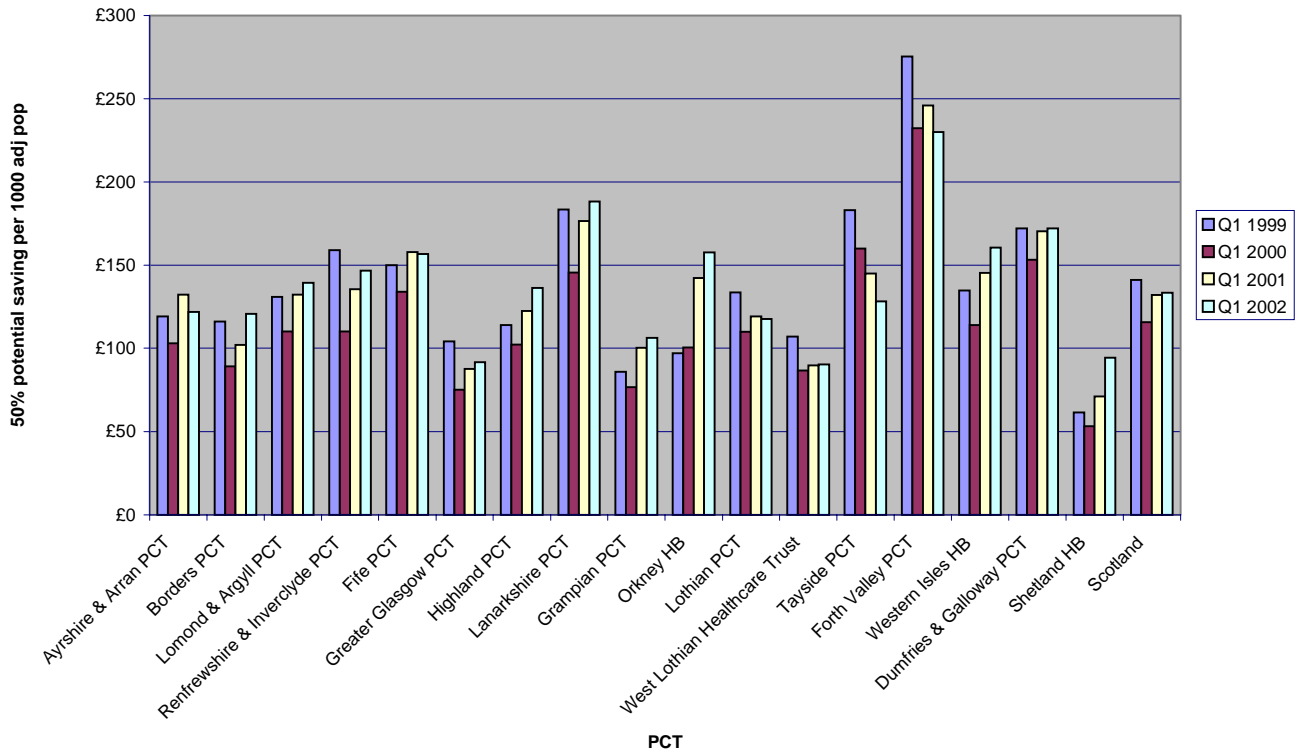
Appendix B5.2 Potential savings resulting from the substitution of Isosorbide Mononitrate (ISMN) MR with ISMN Standard

Modified release (MR) ISMN is significantly more expensive than the standard ISMN formulation but has the benefit of increased patient convenience. Whereas the MR formulation is administered once daily, the standard formulation requires asymmetric twice daily dosing. The benefits of increased patient convenience should be compared against the increased cost in the individual patient and may be justified in some patients where compliance is an issue.

The prescribed DDDs of ISMN MR formulation have increased by 4% between the first quarter of 1999 and the first quarter of 2002, whilst the prescribed DDDs of the standard formulation have reduced by the same percentage. Despite this, the annual potential savings have reduced from £5.77 million in 1999 to £5.40 million in 2002 (based on quarter 1 data), or £2.7 million if 50% substitution was made. The reduction in potential savings shown is due to a slight price reduction of the MR formulation.



Isosorbide mononitrate MR substituted with standard, potential saving per 1000 adjusted population per quarter

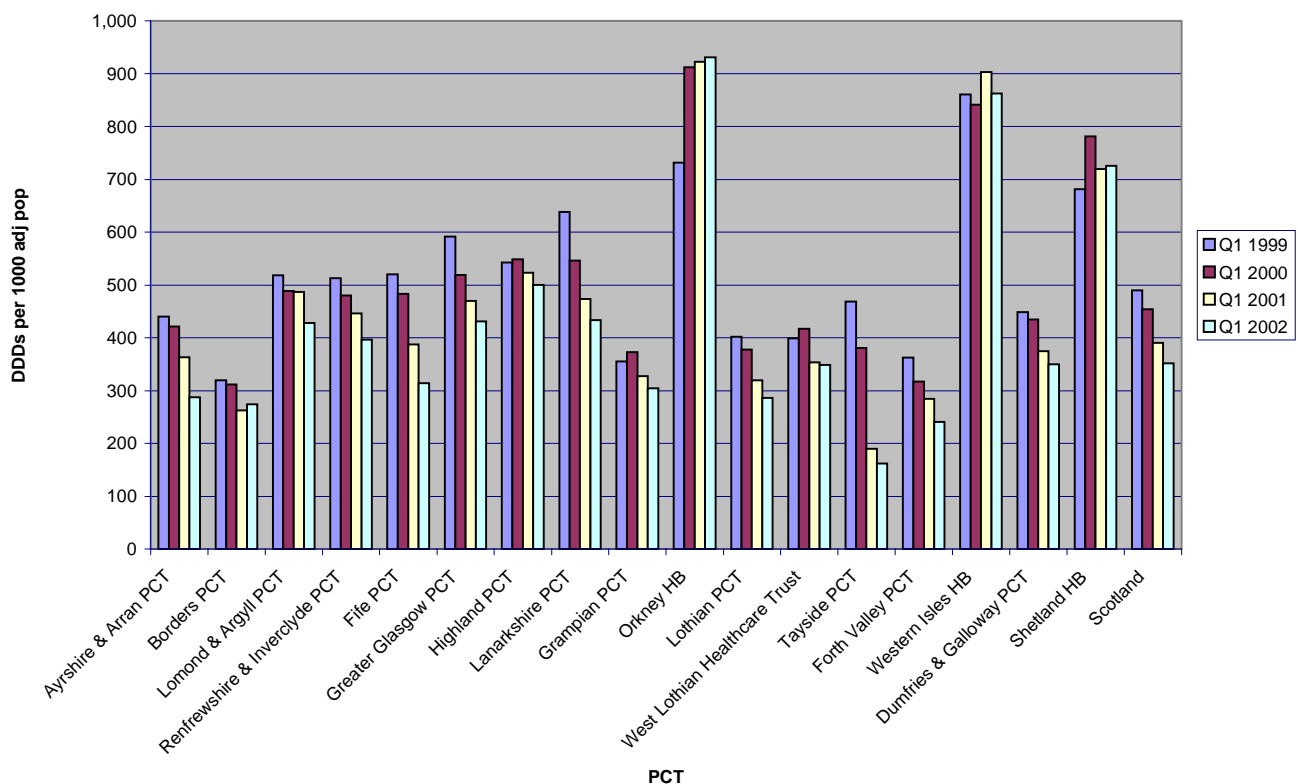


Appendix B5.3 Potential savings resulting from the substitution of Diclofenac MR with Diclofenac standard

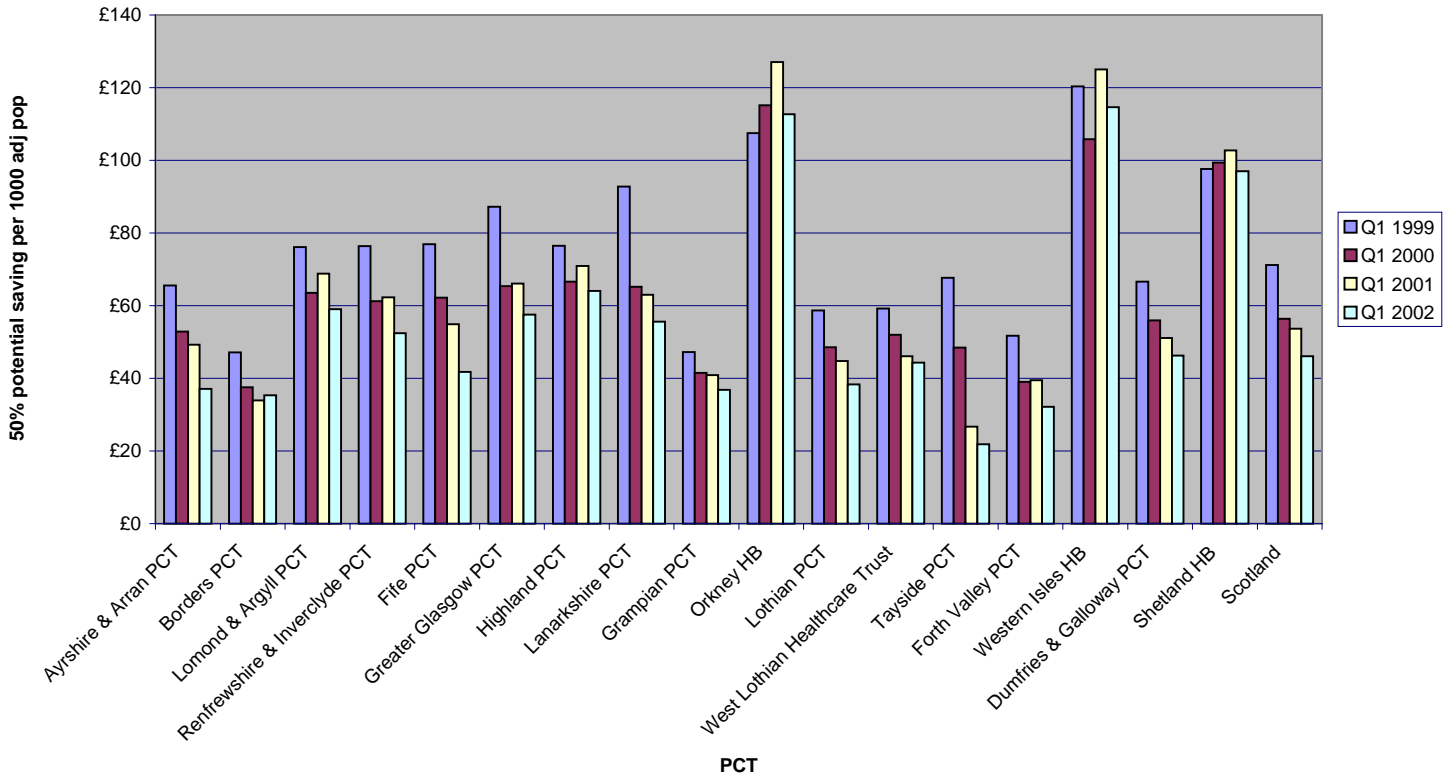
Modified release (MR) diclofenac is considerably more expensive than the standard formulation but has the benefit of increased patient convenience. However, this advantage is unlikely to justify the extra cost in most patients.

Prescribed DDDs of diclofenac MR have reduced by nearly 29% between the first quarter of 1999 and the first quarter of 2002, whilst those of standard diclofenac have increased by just over 18% in the same time period. The annual potential savings have reduced from just over £2.9 million in 1999 to £1.9 million in 2002 (based on quarter 1 data), or £932,000 if 50% of the currently prescribed diclofenac MR were substituted with diclofenac standard. The reduction in potential savings shown is partly due to the decreased use of the MR formulation but also due to a slight reduction in price of the MR formulation.

Diclofenac MR DDDs per 1000 adjusted population per quarter



Diclofenac MR substituted with standard, 50% potential saving per 1000 adjusted population per quarter

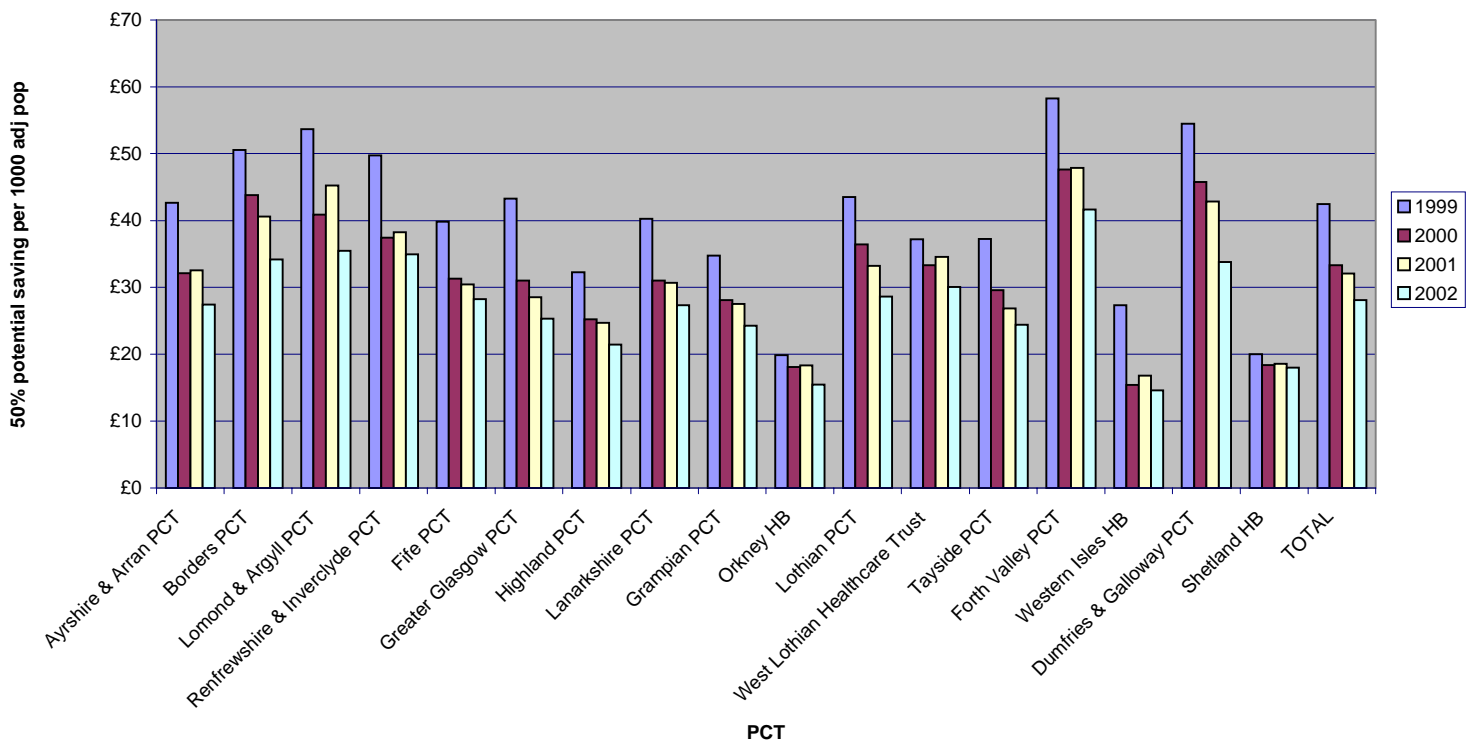


Appendix B5.4 Potential savings resulting from the substitution of transdermal oestrogen only hormone replacement therapy (HRT) patches with an oral preparation

Transdermal HRT patches have similar efficacy to oral HRT preparations but are considerably more expensive. Transdermal patches should be reserved for those women who are unable to tolerate oral formulations. Patches currently account for 38% of oestrogen-only HRT preparations prescribed. For this indicator, drug use has been measured in the number of months supplied and the cost of the oral oestrogen substitute has been based on Elleste-Solo® which is one of the cheapest oestrogen-only oral HRT preparations.

Between 1999 and 2002, the number of months supply of transdermal oestrogen-only HRT patches has reduced by over 9%, whilst the number of months of oral oestrogen-only HRT has increased by nearly 19%. The annual potential saving has reduced from £1.74 million in 1999 to £1.14 million in 2002 (based on quarter 1 data), or £569,000 if 50% of the currently prescribed patches were substituted with oral preparation. The reduction in potential savings shown is largely due to a reduction in the price differential between oestrogen patches and the oral formulation.

Oestrogen patches substituted with oral preparation, 50% potential saving per 1000 adjusted population per quarter

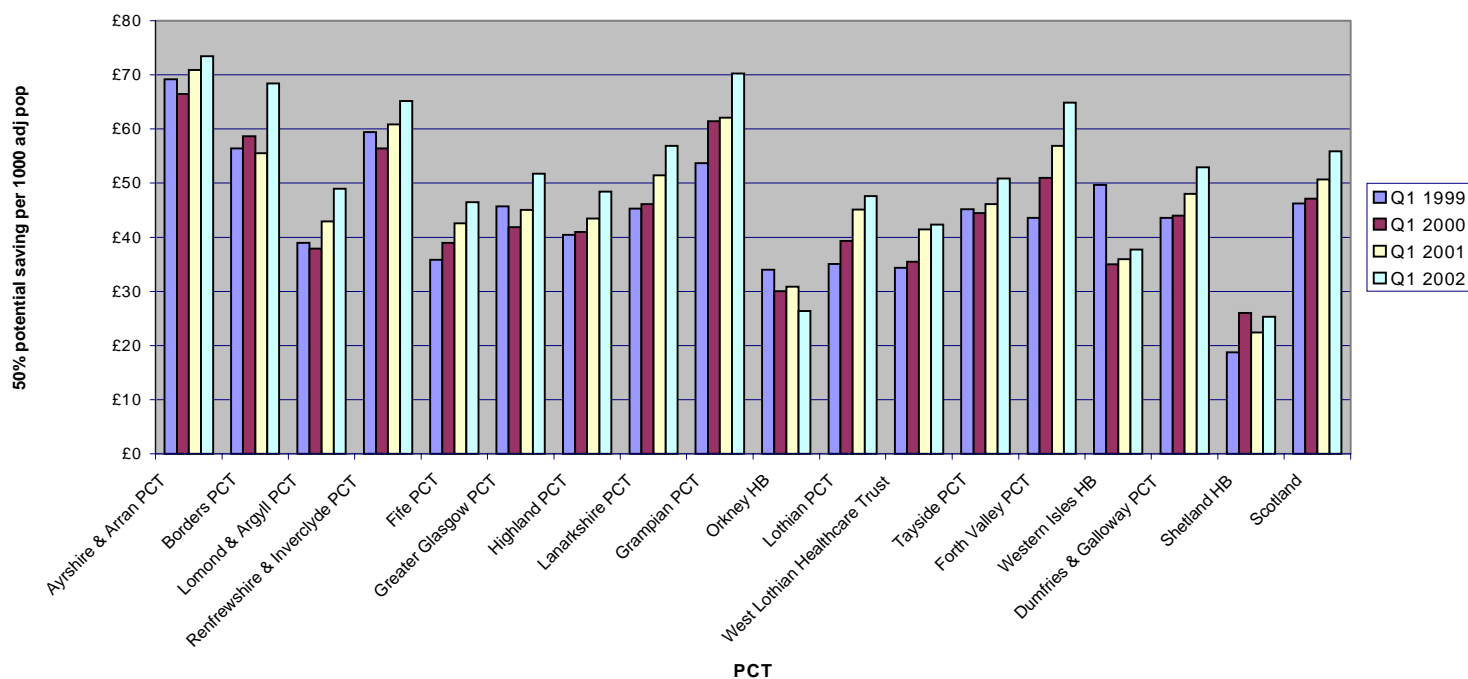


Appendix B5.5 Potential savings resulting from the substitution of Salbutamol Dry Powder and Automated Inhaler Devices with Salbutamol Metered Dose Inhalers (MDIs).

In general, breath activated and dry powder inhaler devices are considerably more expensive than standard MDIs¹⁴. Standard MDIs with a large volume spacer are recommended as first-choice in children receiving inhaled bronchodilators or corticosteroids, and in adults receiving high dose corticosteroids^{15,16}. Breath activated or dry powder inhaler devices may be required if patients are unable to be taught how to use an MDI successfully.

The prescribed DDDs of salbutamol breath activated and dry powder inhalers have increased by just over 20% between the first quarter of 1999 and 2002, resulting in an increase in potential savings from £1.89 million in 1999 to £2.26 million in 2002 (based on quarter 1 data), or £1.1 million if 50% substitution were made.

Salbutamol dry powder and automated inhaler devices substituted with MDI, 50% potential saving per 1000 adjusted population per quarter



¹⁴ An MDI is a device that contains a pressurised inactive gas that propels a dose of medicines in each 'puff'. Each dose is released by pressing the top of the inhaler.

¹⁵ NICE Technology Appraisal Guidance No. 10, August 2000, No. 38, April 2003

¹⁶ SIGN Guideline 63

THERAPEUTIC SUBSTITUTION

Therapeutic substitution is concerned with substituting less expensive but therapeutically equivalent medicines in place of more expensive alternatives, with the aim of maintaining patient benefit whilst minimising costs.

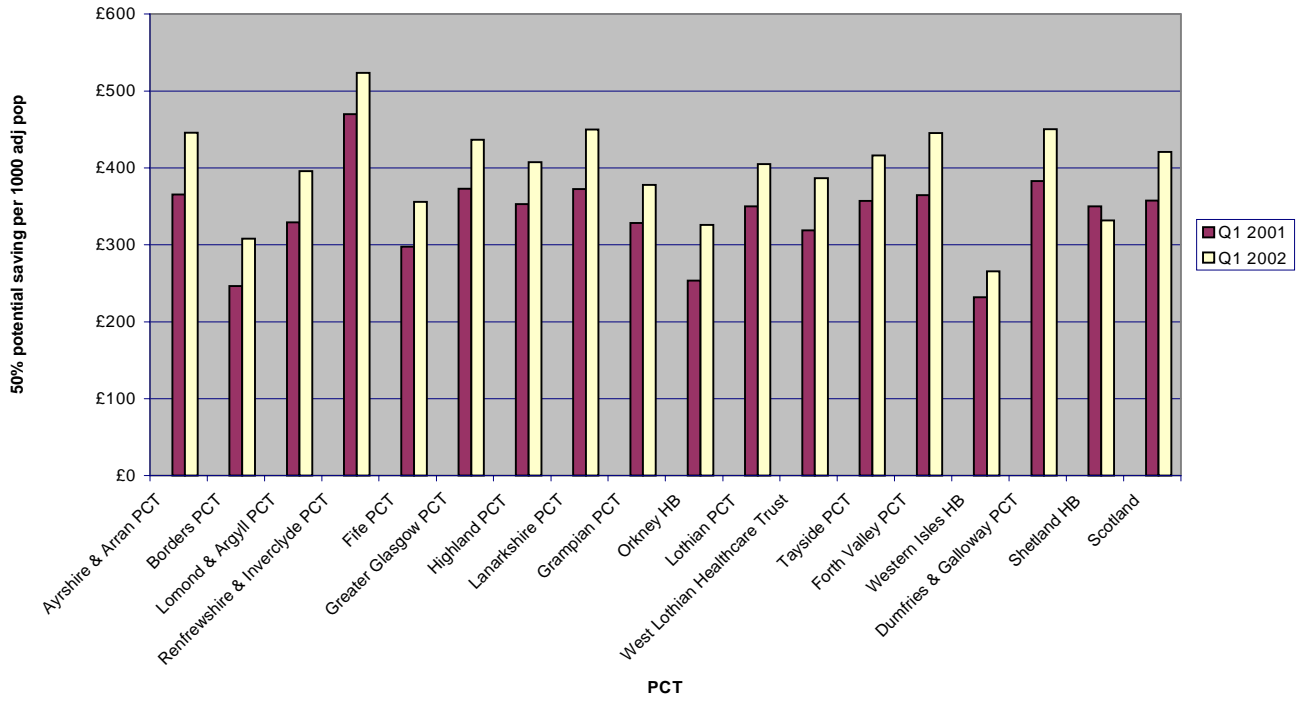
As with premium price substitution, there can be difficulties with implementation but new policies recommending use of the most cost effective medicine in new patients can be implemented, resulting in a steady shift in prescribing and generation of savings over time.

Appendix B6.1 Potential savings resulting from substitution of non-Fluoxetine SSRIs (type of antidepressant) with Fluoxetine

Fluoxetine was the first SSRI antidepressant to enter the Scottish Drug Tariff and is currently significantly cheaper than other SSRIs. There is little difference in terms of safety and efficacy between SSRIs¹⁷. Fluoxetine is therefore the most cost-effective SSRI in the majority of patients. It may be inappropriate to switch existing patients who are stabilised on non-fluoxetine SSRIs, but fluoxetine should be considered first-line in new patients requiring an SSRI. It should also be noted that the potential savings available through this indicator will fall as paroxetine and citalopram enter the drug tariff.

Fluoxetine accounts for 32% of SSRI prescribed DDDs and the total annual potential saving if all non-fluoxetine SSRIs were switched to fluoxetine would be £17 million (based on quarter 1 2002 data) or £8.5 million if 50% substitution were made.

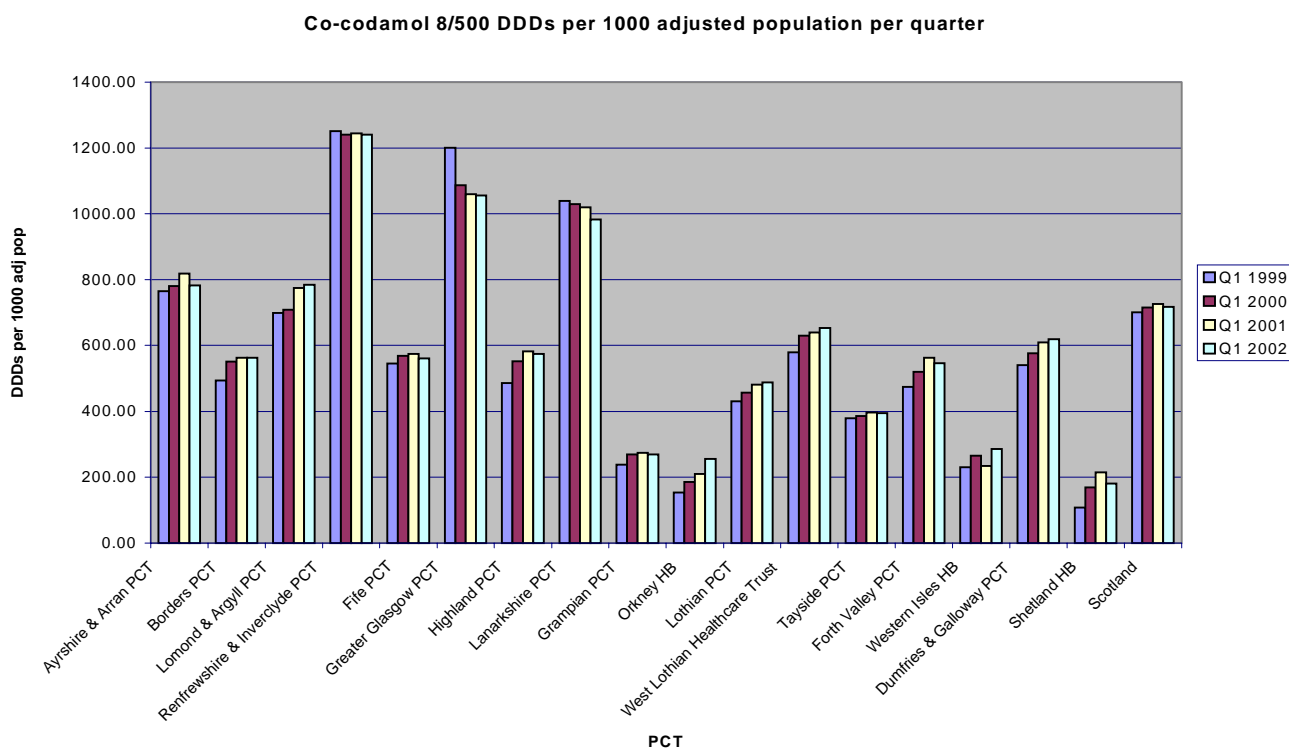
Non-fluoxetine SSRI substitution with fluoxetine, 50% potential saving per 1000 adjusted population per quarter



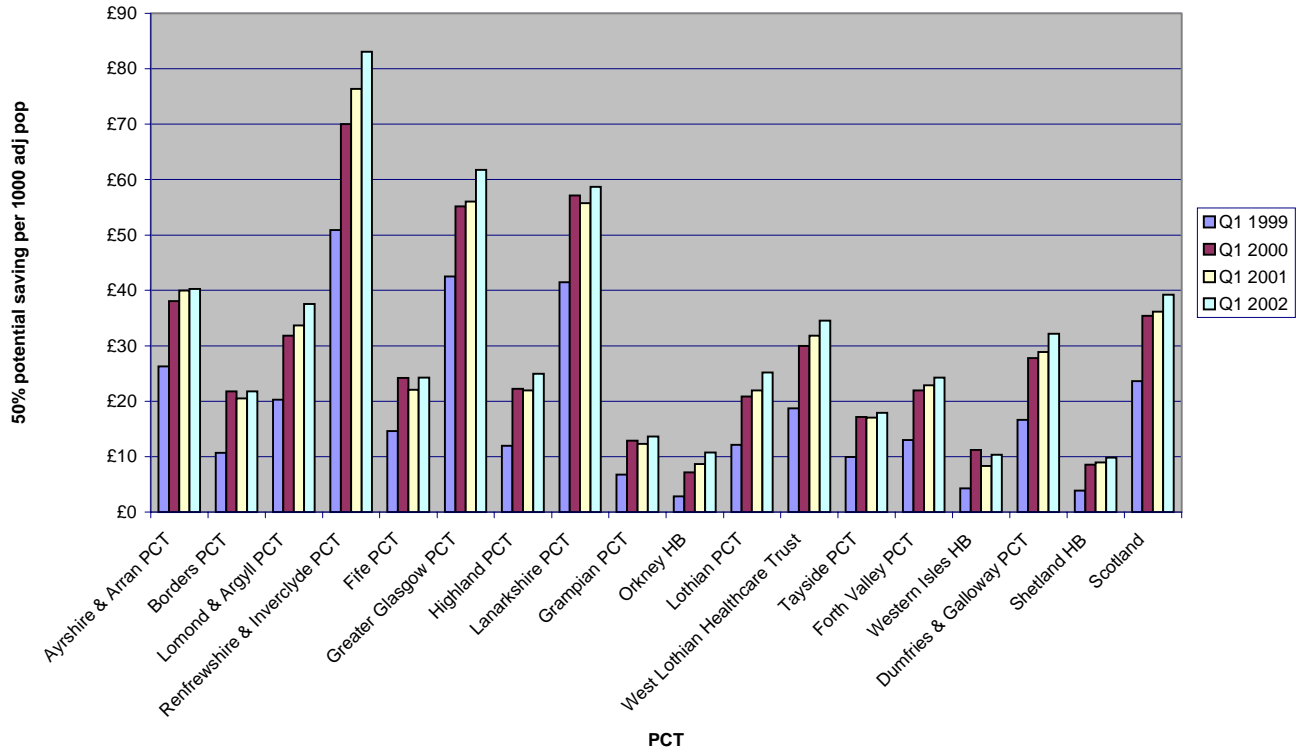
Appendix B6.2 Potential savings resulting from the substitution of Co-Codamol 8/500 (standard and effervescent formulations) with Paracetamol 500mg

Co-codamol 8/500 contains paracetamol with a low dose of the weak opioid codeine. The advantages of compound analgesic preparations containing paracetamol or aspirin with a low dose of an opioid analgesic have not been substantiated. The low dose of opioid may be enough to cause opioid side-effects yet may not provide significant additional relief of pain¹⁸.

Prescribed DDDs of co-codamol increased by just over 1% between the first quarter of 1999 and the first quarter of 2002, whilst prescribed DDDs of paracetamol increased by just over 27% in the same time period. The annual potential savings increased from £967,000 in 1999 to £1.58 million in 2002 (based on quarter 1 data), or £794,000 if 50% substitution is made. The increase in potential savings is largely due to an increase in the price differential between co-codamol and paracetamol, combined with a slight increase in the use of co-codamol.



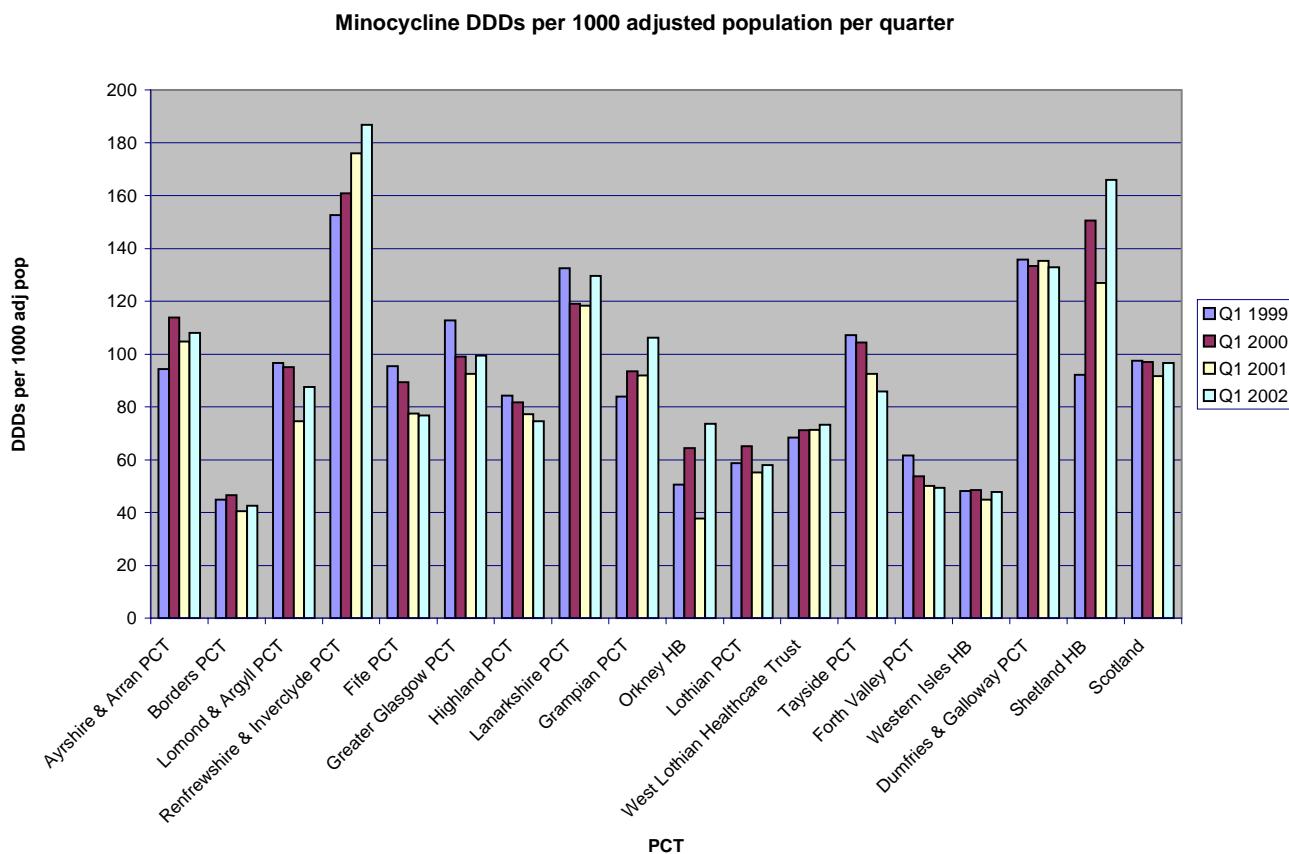
Co-codamol 8/500 substitution with paracetamol, 50% potential saving per 1000 adjusted population per quarter



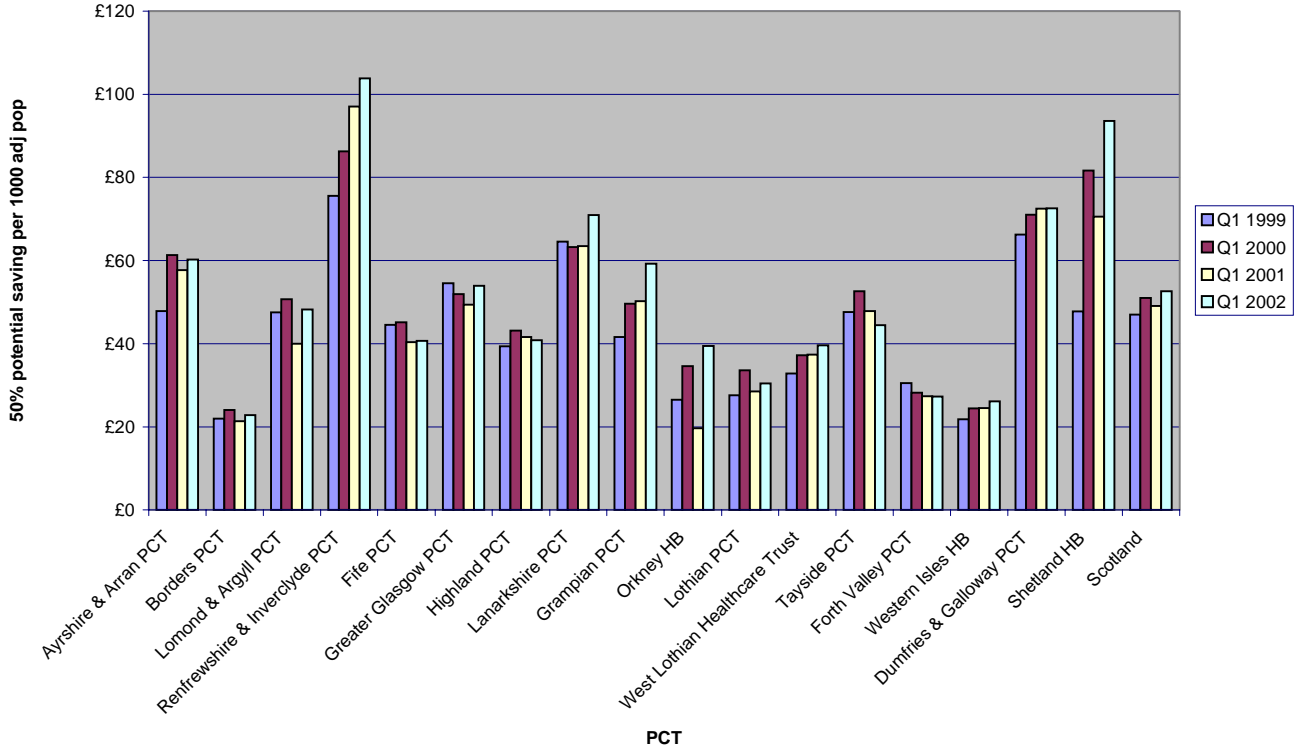
Appendix B6.3 Potential savings resulting from the substitution of Minocycline with Oxytetracycline

Minocycline has a broader spectrum than other tetracyclines, such as oxytetracycline or doxycycline, but has more side-effects¹⁹. Minocycline has a place as a second or third line option in the treatment of acne, however the modified release (MR) formulation is particularly expensive.

Prescribed DDDs of both minocycline and oxytetracycline reduced between the first quarter of 1999 and the first quarter of 2002, minocycline by just under 1.5% and oxytetracycline by nearly 4.5%. The annual potential saving has increased slightly from £1.92 million to £2.13 million over this time period (based on quarter 1 data), or £1.1 million if 50% substitution were achieved. The increase in potential savings is mainly due to an increase in the price of minocycline.



Minocycline substitution with oxytetracycline, 50% potential saving per 1000 adjusted population per quarter



Appendix C

Advisory panel

Ms J Agnew	Trust Chief Pharmacist, Highland PCT
Dr K Beard	Hospital Prescribing Advisor, Greater Glasgow Health Board
Mr I Bishop	Lead Pharmacist, South LHCC, Forth Valley PCT
Ms S Burney	Head of the Primary Care Information Unit, Information and Statistics Division of the Common Service Agency, NHSScotland
Dr D Crookes	Medicines Management Advisor, Lothian PCT and General Practitioner
Dr L Cruikshank	Associate Medical Director, South LHCC, Forth Valley PCT, and Chair of the Forth Valley Joint LHCC Prescribing Group, and General Practitioner
Mr G Downie	Trust Chief Pharmacist, Grampian PCT
Mr G Lindsay	Trust Chief Pharmacist, Lanarkshire PCT
Professor C Mackie	Head of the Centre of Pharmacy, Robert Gordon University, Aberdeen
Dr S Mackie	Director of Clinical Standards and Health Improvement, Lanarkshire PCT
Dr D Richardson	GP Prescribing Lead, Ayrshire and Arran PCT and General Practitioner
Dr E Rimmer	Medical Prescribing Advisor, Western Isles Health Board and General Practitioner
Dr H Simpson	Medical Prescribing Advisor, Ayrshire and Arran PCT and General Practitioner
Dr R Taylor	Chair of the Prescribing Group of the Royal College of General Practitioners and General Practitioner
Mr A Thorburn	Prescribing Advisor, Lanarkshire PCT

Supporting prescribing in general practice - a progress report



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