



National Audit Office

## Prescribing costs in primary care

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# SUMMARY

**1** The National Health Service spends £8 billion a year on prescription drugs in primary care in England. Expenditure on primary care drugs has increased by 60 per cent in real terms over the last decade, and the number of items dispensed has increased by 55 per cent. The continued development of new drugs for use in the NHS, the identification of new applications for existing drugs, and England's ageing population, mean that further growth can be expected.

**2** There are, however, ways in which the Department of Health (the Department) and NHS bodies can help make growth more affordable without affecting patient care, and hence enable more people to be treated or expensive treatments to be made more widely available.

They can seek to influence doctors' prescribing decisions, for example where different drugs have the same clinical effect but different prices; and they can seek to control the prices the NHS pays for drugs.

**3** This report examines the first of these approaches: supporting doctors and other prescribers in their prescribing decisions. We looked at the scope for improving the efficiency of prescribing, issues involved in assessing prescribing effectiveness, and the influences on prescribing behaviour. We also examined the extent of drugs wastage, due, for example, to patients not taking drugs they were prescribed, or being given repeat prescriptions for medicines of which they already had a sufficient stock.

**4** The Department's main mechanism for controlling drugs prices is the Pharmaceutical Price Regulation Scheme, an agreement negotiated every five years with the pharmaceutical industry, that aims to ensure that the health service can obtain drugs at fair prices, whilst promoting a strong industry capable of developing new and improved medicines. This scheme has recently been the subject of a review by the Office of Fair Trading, which has made recommendations for reform of the scheme (summarised in Appendix 1), which the Government is currently considering.

**5** The main strands of our methodology were: a survey of 1,000 general practitioners (GPs); a survey of prescribing advisers in Primary Care Trusts (PCTs); case studies of good practice across the country; an analysis of the NHS database of all primary care prescriptions written for the period August 2005 to July 2006; an in-depth study of practice in two PCTs with different prescribing outcomes, involving focus groups and interviews with GPs and PCT staff; consultation with an expert panel of academics, GPs, pharmacists and other stakeholders; and interviews with representatives of the industry, relevant professional bodies and other organisations. Appendix 2 sets out our methods in more detail.

**6** Although there has been progress in some areas in recent years, for example an increase in the proportion of prescriptions written that allow drugs to be dispensed in cheaper, 'generic' form, the Department acknowledges that there is scope for improving value for money in primary care prescribing. In September 2006 the NHS Institute for Innovation and Improvement launched its 'Better Care, Better Value' indicator for the prescribing of statins (drugs used to lower blood cholesterol levels and reduce the risk of heart attacks and strokes). The Department estimated that £85 million could be saved by more systematic prescribing of lower cost, generic forms of these drugs.

**7** We examined four groups of drugs, including statins, that account for 19 per cent of the total primary care drugs bill and which are used to treat conditions where there are several suitable drugs available at differing prices. We found large variations between PCTs in the extent to which local GPs prescribed lower cost drugs for these conditions, meaning that there is scope for most PCTs to increase efficiency, without affecting clinical outcomes, by increasing the proportion of low costs drugs used. We estimated that as a result PCTs could save more than

£200 million a year, for example, if all PCTs achieved at least the standard of the most efficient 25 per cent. We also found there were variations in the volume of prescribing which did not match variations in indicators of clinical need, such as local disease prevalence. An unusually low volume of prescribing may indicate unmet need, and an unusually high volume may indicate excessive prescribing, both of which represent poor value for money.

**8** Practice Based Commissioning, the Department's initiative that gives individual GP practices more control over their PCTs' financial resources, allows GPs to reinvest a proportion of any efficiency savings they make into their practices. It therefore could be a lever for improving value for money in prescribing, but its potential has yet to be tested. Only eight per cent of GPs responding to our survey said it would encourage significant savings. GPs will therefore continue to need support from PCTs in managing their prescribing.

**9** GPs have to update their prescribing knowledge continuously, but we found that it was difficult for GPs to assimilate all the information they received on prescribing. Both official NHS prescribing advisers and the pharmaceutical industry influence GPs' prescribing decisions, with the industry spending more than £850 million annually marketing its products to GPs. Two thirds of the GPs we surveyed said that PCTs' prescribing advisers have more influence on their prescribing behaviour than the pharmaceutical industry, but one in five GPs indicated they felt that pharmaceutical companies have more influence than prescribing advisers.

**10** Another influence on GPs' prescribing is the secondary care sector, as around a fifth of primary care prescribing is initiated in hospital, and drug choices in general practice are often guided by local specialists. Hospitals limit consultants' prescribing options to drugs approved by the hospital's expert drugs and therapeutics committee as a cost-effective subset of the large range of medicines available. GP practices are not subject to such a committee, but GPs should review prescriptions originating in secondary care at regular intervals to see if they are still required or should be changed. However, only a quarter of respondents to our GP survey mentioned that they would routinely review consultants' prescriptions when asked what arrangements they had in place for managing prescriptions that originate in hospital but are dispensed in the primary sector.

**11** Our analysis showed that several mechanisms are effective in improving value for money in prescribing, and can be adopted by PCTs. These include personalised communication with GPs from local experts, providing financial and practical incentives, and involving the whole prescribing community, across primary and secondary care, in decisions on local drugs policies. Currently PCTs currently vary considerably in their approaches to medicines management, and the extent to which they are employing these strategies.

**12** We found that drugs wastage is a significant cost for the NHS: at least £100 million a year, and perhaps considerably more than this, although the lack of robust data, and the wide range of reasons for waste, makes quantification difficult. There are local examples of anti-wastage practices in place, such as limiting the initial time period of new prescriptions, or of the length of time between repeat prescriptions, and information campaigns to raise public awareness about the cost of medicines to the NHS. The Department recognises that wastage is a serious problem, and has introduced medicines use reviews for patients with long term conditions, and repeat dispensing schemes that allow patients to collect repeat prescriptions directly from pharmacists, who can check whether they are still taking their medicines or experiencing difficulties with them, in an attempt to tackle some of the causes of waste.

**13** Uptake of these initiatives, however, has been low since their introduction in 2005. In the year to September 2006 less than 0.5 per cent of dispensing was done by repeat dispensing. By December 2006 about 500,000 medicines use reviews had been conducted in total. Academic research suggests that many PCTs remain to be convinced of the value of medicines use reviews, and that further action is needed to support and embed the medicines use review service. It will be important to evaluate the effectiveness of these initiatives after the electronic prescription service comes fully online.

## Conclusion on value for money

**14** There is scope to improve the efficiency of prescribing in primary care. Improving efficiency frees up money, without affecting clinical outcomes, which can then be used to pay for treatments for other patients. We found over £200 million of potential efficiency savings by looking at just 19 per cent of the primary care drugs bill. The areas we examined offer the most significant savings opportunities, but further savings may be possible in other areas of primary care drugs expenditure.

**15** Wastage of drugs, under-prescribing, and over-prescribing, whenever they occur, represent poor value for money. The Department of Health does not currently monitor levels of drugs wastage, so it is difficult to form a view on whether its current anti-wastage measures are proportionate. Assessing whether local prescribing volumes are consistent with clinical need is complex. However, combining prescription data with local prevalence data can provide benchmark information for PCTs and GP practices to help identify opportunities for improving the value for money they get from their prescribing.

## Recommendations

**16** We make the following recommendations on the basis of this examination.

### The Department of Health should

- a** Build on the 'Better Care, Better Value' statin prescribing indicator to develop further metrics, across a larger proportion of the primary care drugs bill, that PCTs can use to quantify achievable improvements in areas of high prescribing volume and against which they can assess themselves.
- b** Commission the NHS Business Services Authority and the Information Centre (Prescribing Support Unit) to collaborate in developing prescribing benchmarking tools for PCTs that improve on the currently available electronic prescribing analysis and cost data by incorporating local prevalence information.
- c** Actively promote their prescribing benchmarking tool to PCTs and seek PCTs' feedback to improve its accessibility and functionality for producing reports that prescribing advisers can use directly with GP practices.
- d** Evaluate the effectiveness of medicines use reviews and repeat dispensing schemes after the electronic prescription service comes fully online.
- e** Update the 1996 survey of residual medicines to come up with a more robust estimate of the scale of medicines wastage in England, and better information on why patients don't take their drugs.

### Strategic Health Authorities should

- f** Ensure that PCTs integrate approaches to prescribing across primary and secondary care, so that patients discharged into primary care have their medicines reviewed regularly, that drugs are not continued for longer than necessary, and that there is consistency between GPs' and consultants' choices of drugs.



### All Primary Care Trusts should

- g** Assess the value for money they are getting from prescribing by benchmarking themselves against other PCTs, and identify areas where improvement is necessary.
- h** Make more active use of the medicines management indicators in the Quality and Outcomes Framework to promote more efficient prescribing, where this is an issue of importance as part of the local prescribing strategy, with appropriate performance management by Strategic Health Authorities.
- i** Use GP practice-level information about prescribing in the areas identified for improvement to identify practices whose prescribing behaviour is significantly different from that of their peers. Ensure that prescribing advisers maximise their face-to-face contact time with these practices, and gain commitment to improvements in prescribing, develop practice-level action plans, and monitor and follow up performance.
- j** Support prescribing advisers in seeking to influence GPs' prescribing behaviour in targeted areas by:
  - keeping messages clear and simple, focused only on a small number of key prescribing priorities;
  - emphasising that value for money in prescribing includes quality of outcome as well as economy, and that there remains scope for practices to use more expensive drugs when that is clinically appropriate; and
  - backing up key messages with endorsement from senior management and local clinical opinion leaders.
- k** Identify the costs associated with possible PCT-wide ways of improving prescribing such as additional financial incentives or practice-based pharmaceutical support for GPs, and the potential 'return on investment' in terms of prescribing cost savings; and implement such programmes when they would be cost effective.



# PART ONE

## The primary care drugs bill

### The NHS spends £22 million a day on prescription drugs in primary care

**1.1** The NHS in England spent £8.2 billion on prescription drugs in primary care in 2006 – about £22 million every day, and around a quarter of the total expenditure on primary care. Ninety-eight per cent of these drugs are prescribed by GPs. **Figure 1** gives some key facts about how drugs expenditure breaks down. **Figure 2** shows the main agencies involved in providing a prescription to a patient.

#### 1 Key facts about the primary care drugs bill

In 2006:

- 752 million prescriptions items were dispensed in primary care. Seventy-seven per cent of these were for six therapeutic areas: the cardiovascular system, the central nervous system, the endocrine system, the respiratory system, the gastro-intestinal system, and infections.
- £1.9 billion (almost a quarter of the total bill) was spent on cardiovascular prescriptions.
- Ninety-eight per cent of prescriptions dispensed in the community were written by GPs, the remainder by nurses, pharmacists and dentists.
- The average cost to the NHS of a prescription item was £11.

In 2005 (latest figures available):

- There were on average 14 prescription items dispensed per head of population over the course of the year. Patients under the age of 16 received 4 items per head on average, whereas those over 60 received 38 per head.
- 88 per cent of all prescription items dispensed were free to patients.

Source: NHS Information Centre

### The primary care drugs bill has increased in price and volume over the last decade

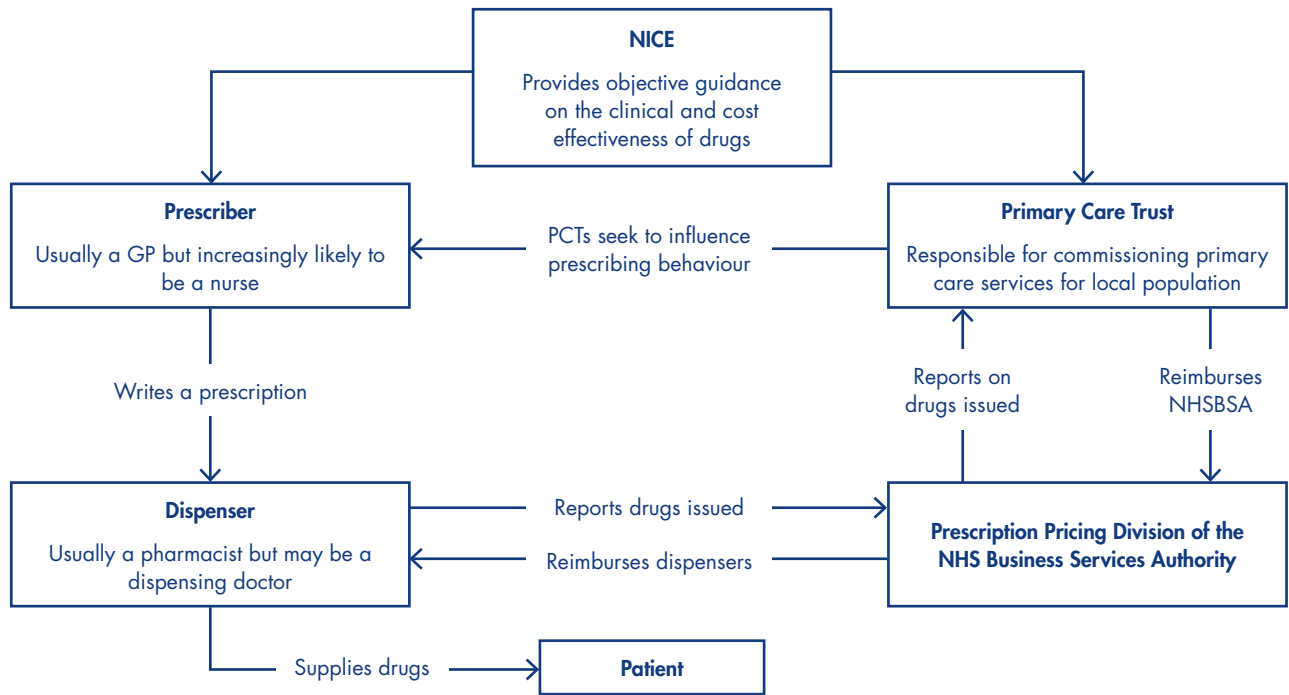
**1.2** In 2006, 752 million prescription items were dispensed – up by four per cent from 720 million in 2005, and by 55 per cent from 485 million in 1996. **Figure 3** shows that the primary care drugs bill increased from £4.0 billion in 1996 to £8.2 billion in 2006 – a 60 per cent increase in real terms. The average cost of a prescription item has risen from £8.26 in 1996 to £10.90 in 2006 – a three per cent increase in real terms<sup>1</sup>. The Department believes that this cost increase is mainly attributable to the shift from older drugs to more expensive newer ones.

**1.3** Figure 3 also shows that there was a dip in the total bill in 2005 in comparison with 2004. This mainly reflects the 2004 renegotiation, between the Department of Health and the pharmaceutical industry, of the scheme for regulating drug prices, which led to a one-off cut in prices in 2005. Growth has resumed from 2006, as indicated in Figure 3.

### Further growth in drugs expenditure can be expected

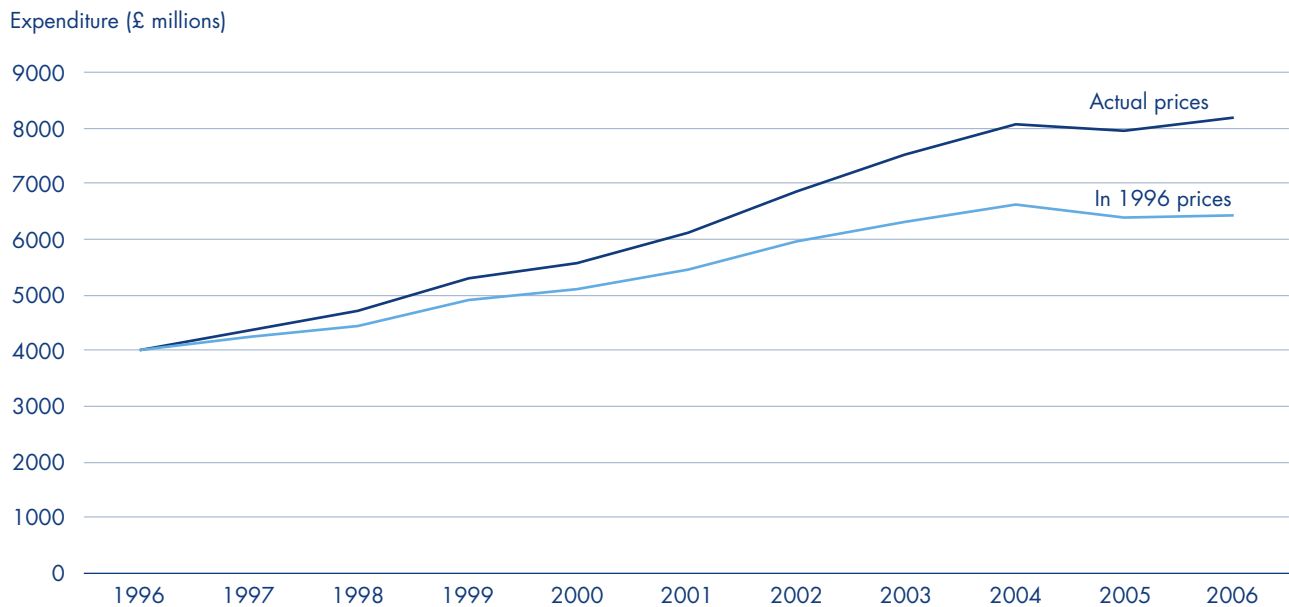
**1.4** New treatments are continually being licensed for use in the NHS, and as these treatments are taken up, they will tend to increase the use of drugs within the NHS. New opportunities for improving health through medication are also being identified, which increase the volume of prescribing. For instance in January 2006 the National Institute for Health and Clinical Excellence (NICE) issued guidance which it is estimated will result in an extra 3.3 million patients in England and Wales being treated with statins (drugs which reduce blood cholesterol levels). Volume increases in drug consumption are also likely to continue due to England's ageing population.

**2** Main agencies involved in providing prescriptions



Source: National Audit Office

**3** Expenditure on prescription drugs has increased over the last decade



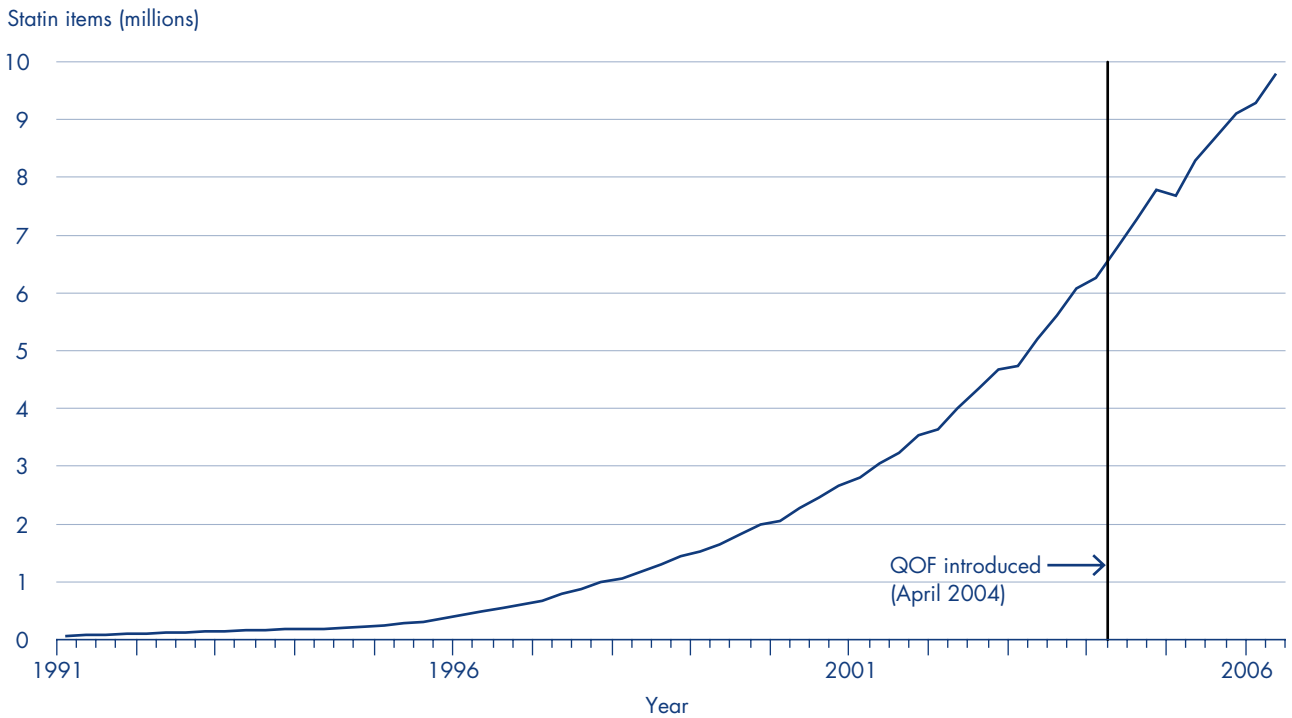
Source: NHS Information Centre

**1.5** Department of Health policy initiatives have also led to growth in prescribing. For example, the NHS Business Services Authority (NHSBSA) believes that implementing the National Service Frameworks for Coronary Heart Disease, Diabetes, and Older People has led to increases in the volume of cardiovascular and endocrine system drugs.<sup>2</sup>

**1.6** There is mixed evidence whether changes to GPs' contracts have led to growth. These contracts are underpinned by the Quality and Outcomes Framework (QOF), which rewards levels of achievement on specified outcome measures such as controlling high blood pressure and cholesterol levels in patients. The NHSBSA says that

the QOF has helped to maintain high growth in drugs that fall into the QOF's clinical domains.<sup>3</sup> Seventy-two per cent of respondents to our GP survey felt that the QOF had caused an increase in their prescribing, and qualitative research commissioned by the Department of Health and the Association of the British Pharmaceutical Industry in 2006 found that QOF was the factor most frequently considered to have the greatest degree of influence on levels of new medicines uptake.<sup>4</sup> However, research from the Department of Health shows that the growth in statin prescribing following the introduction of the QOF in April 2004 was only a continuation of the already rapid growth taking place (Figure 4).

**4** The rate of growth in statin prescribing did not further increase after the introduction of QOF



Source: Department of Health



## PART TWO

## The scope for more efficient and effective prescribing

### There are ways of moderating the growth in drugs expenditure

**2.1** Although the volume of drug use in the NHS is growing, there are several ways in which the Department and NHS bodies are helping to make this growth more affordable. Whilst the prescription of drugs is a matter for doctors' independent clinical judgement, the Department and NHS bodies can nonetheless seek to influence both the choices made by doctors when prescribing, for example between different drugs that have the same clinical effect but different prices, and the prices the NHS pays for drugs.

**2.2** Our report focuses on the opportunities to influence the choices made by doctors when choosing which drugs to use when treating their patients. The main mechanism used by the Department to influence drug prices is the Pharmaceutical Price Regulation Scheme, which has recently been the subject of a review by the Office of Fair Trading (OFT),<sup>5</sup> summarised in Appendix 1.

**2.3** The PPRS is an agreement between the Government and the pharmaceutical industry which currently allows the Department to influence drugs prices by capping pharmaceutical companies' profits and by negotiating across-the-board price cuts at regular intervals. The OFT's main recommendation is that the current PPRS should be replaced with a system that would set maximum allowable prices for drugs based on their therapeutic value compared to other drugs. The relative values of drugs would be evaluated using techniques from health economics, and the effect of the proposed change would likely be to reduce price differences between drugs of similar therapeutic value. The Government is currently considering its response to the OFT's report. If the Government decides to act on the OFT's recommendations, the next opportunity to change the PPRS will be in the next renegotiation of the scheme, which is due to take effect from 2010.

**2.4** The scope for savings in prescribing choices arises because, for many conditions, there are a range of drugs that could be prescribed. Upon deciding to treat a patient with drugs, a doctor will typically have a range of different options to choose from. Frequently, the cost of these varies considerably. It does so for two main reasons:

- Many drugs are available in both branded and generic versions (see Figure 5), the latter generally being cheaper.
- There may also be more than one drug available for treating a given medical condition, also at different prices.

Implementation of the OFT's recommendations, if they are accepted by the Government and agreement reached with the pharmaceutical industry, would tend to reduce such price differences from 2010. But it unlikely totally to eliminate them, and the OFT's proposed reforms are complementary to measures to influence prescribing at a local level.

### 5 Branded and generic drugs

A branded drug is a drug marketed under a brand name. A pharmaceutical company creating a new drug usually markets that drug under a brand name, normally initially under the protection of a patent, which prevents other manufacturers making the drug. A generic version of a drug is pharmaceutically equivalent to the branded version, containing the same active ingredient(s) at the same strength, but may only be produced after the branded drug's patent has expired. Brand name drugs are normally much more expensive than generic versions of the same product, for example because of manufacturers seeking to recover research and development costs. For instance, in October 2006, generic simvastatin 20mg (a drug used to treat high blood cholesterol levels) could be bought for £2.34 for a pack of 28, compared with £29.69 for a pack of 28 of the branded version.

*Source: National Audit Office*

**2.5** In primary care, if a specific brand-name drug is prescribed, the pharmacist is obliged to dispense this, even if a generic version is available.<sup>6</sup> It is therefore good practice to prescribe drugs by their chemical name, as this means that, when both a generic and a branded version of a particular medicine are available, the cheaper version (almost always the generic) can be dispensed. GPs in the UK do usually prescribe in this way, and the NHS has made significant progress in improving generic prescribing rates in recent years, with generic prescribing increasing from 51 per cent in April 1994 to 83 per cent in September 2006. This is one of the highest generic prescribing rates in Europe. In 2005, 80 per cent of prescriptions were written by chemical name, and 59 per cent of prescriptions dispensed were for generic drugs (the difference between prescribing and dispensing rates being mainly due to the fact that not all chemical entities prescribed are available in generic form). However, the higher cost of branded drugs means that they still account for three quarters of the total drugs bill by cost.

**2.6** NICE provides objective guidance on both the clinical and cost effectiveness of medical treatments and highlights the fact that the additional cost of more expensive drugs is not always matched by greater effectiveness. For example, based upon available clinical evidence, NICE's Technology Appraisal 94, *Statins for the prevention of cardiovascular events*, states that 'when the decision has been made to prescribe a statin, it is recommended that therapy should usually be initiated with a drug of low acquisition cost'. Similarly, NICE guidance on two types of drugs used to treat high blood pressure, known as ACE inhibitors and angiotensin-II receptor antagonists, states that 'the benefits from ACE inhibitors and angiotensin-II receptor antagonists [are] closely correlated, and they should be treated as equal in terms of efficacy (although, because of cost differences, ACE inhibitors should be initiated first)'.<sup>7</sup>

## Primary Care Trusts could save more than £200 million without affecting clinical outcomes through more efficient prescribing

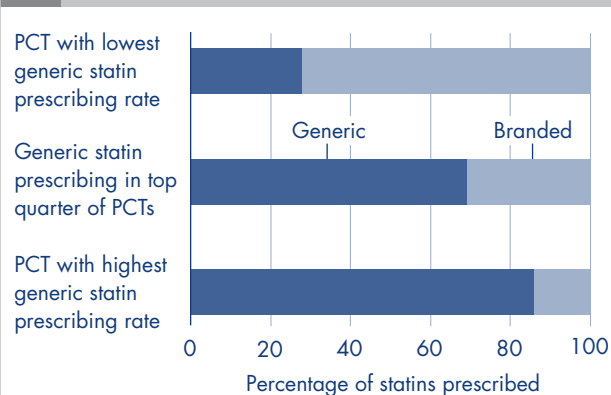
**2.7** For the purposes of this report efficient prescribing is defined as ensuring that value for money is achieved by prescribing a high proportion of low acquisition cost drugs for conditions where there are a range of suitable drugs available. Improving prescribing efficiency frees up money, which could then be used to pay for treatments for other patients, without affecting clinical outcomes.

**2.8** The Department has acknowledged that there is high variation in the efficiency of prescribing for certain therapeutic areas. In September 2006 the NHS Institute for Innovation and Improvement launched its 'Better Care, Better Value' indicator for the prescribing of statins. This showed that, during the second quarter of 2006-07, the proportion of statin prescriptions that were lower cost (generic simvastatin and pravastatin) varied from 28 per cent to 86 per cent across English PCTs.<sup>8</sup> In the top quarter of PCTs at least 69 per cent of statin prescriptions were for lower cost forms (**Figure 6**). Had all the remaining PCTs achieved that standard, the Department estimates that £85 million would have been saved over a year.

**2.9** Efficiency in statin prescribing has improved since the 'Better Care, Better Value' indicator was launched. **Case study 1** shows that significant improvements are possible in a short timeframe. The specific methods employed by Rochdale PCT are considered further in Section 3 of this report, in our discussion of how PCTs can support more efficient prescribing behaviour.

**2.10** Extending the analysis carried out by the Department, we examined variations in efficiency of prescribing, and the scope for efficiency improvements, for the four types of drugs listed in **Figure 7**. Between them, these drugs accounted for £1.5 billion of expenditure (about 19 per cent of the annual primary care drugs bill) between August 2005 and July 2006, with 104 million prescriptions written during that period. There are other components of the drugs bill where efficiency savings may also be possible; but we focussed on these areas because they account for a high volume of prescriptions, and there are simple ways in which savings can be achieved without adversely affecting clinical outcomes.

### 6 Variation in low-cost statin prescribing



Source: Department of Health

## 7 Commonly prescribed types of drugs

Drug type	Purpose	Scope for savings
Statins	Reduce high blood cholesterol levels	Generic simvastatin, a drug with a strong evidence base, is much less expensive than alternative branded drugs.
ACE inhibitors/angiotensin-II receptor antagonists (renin-angiotensin drugs)	Reduce high blood pressure	Most ACE inhibitors are off patent. A2RAs are considerably more expensive. ACE inhibitor therapy is normally adequate except for a minority of patients who prove to be intolerant.
Proton pump inhibitors	Treat gastric conditions such as dyspepsia, peptic ulcer disease and gastric reflux	Savings arise from using generic PPIs rather than higher cost branded drugs, and through choice of formulation for the PPI prescribed (some dispersible tablet formulations are only available as more expensive branded products).
Clopidogrel	Reduce blood clotting in the secondary prevention of heart attacks and strokes	Clopidogrel therapy is initiated in hospital and should be time-limited up to a maximum of 12 months (aspirin can be used as an alternative anti-clotting agent), but there is variation in GPs' practice.

Source: National Audit Office

### CASE STUDY 1

#### Rochdale PCT has rapidly improved its statin prescribing efficiency

When the NHS's 'Better Care, Better Value' indicator for efficient statin prescribing was launched in September 2006, 19 per cent of Rochdale PCT's statin prescribing was of low-cost statins – the least efficient in England. However, Rochdale<sup>1</sup> subsequently achieved the largest improvement in statin prescribing efficiency in the country over the next three months, and by December 2007 almost 45 per cent in Heywood, Middleton and Rochdale PCT was for low cost statins. Rochdale's medicines management team attribute this improvement to the deployment of a range of tactics, including:

- a prescribing incentive scheme;
- employing pharmacy technicians to work in GP practices to assist in switching patients' medication;
- extensive benchmarking at a practice level and also against PCTs with similar demographic profiles but more efficient statin prescribing;
- sending letters to patients explaining the statin switching policy; and
- engaging with secondary care, both locally and across Greater Manchester, around the issue of statin initiation.

#### NOTE

<sup>1</sup> From October 2006, Rochdale PCT was incorporated into Heywood, Middleton and Rochdale PCT.

**2.11** We commissioned the Department of Medicines Management at Keele University to examine the scope for efficiency savings in these four areas.<sup>9</sup>

**2.12** In three of the therapeutic areas we looked at (statins, renin-angiotensin drugs, and proton pump inhibitors), the measure we used to compare efficiency between PCTs in their prescribing was the cost per **defined daily dose** (DDD). The DDD is a standardised measure of volume which can be used to compare prescribing between practices and PCTs, within a therapeutic area, taking account of the differences in potency of different preparations of drugs, and differences in the way in which numbers of prescription items correlate to volumes (e.g. one prescription item might represent one month's supply of a drug in one area, and three month's supply in another). It is developed and maintained by the World Health Organisation. In this system, each drug is given a value that represents 'the assumed average maintenance dose per day for a drug used for its main indication for adults', allowing prescribing volumes to be compared validly within therapeutic areas.

**2.13** **Figure 8 overleaf** shows the variation between PCTs – based on the PCT structure before reconfiguration in October 2006 – in the cost per DDD paid for statins, renin-angiotensin drugs, and proton pump inhibitors, for the period August 2005 to July 2006.

## 8 Cost per defined daily dose for drugs prescribed by PCTs in England, August 2005 to July 2006

	Lowest	Average for England	Highest
Statins	£0.10 (North Eastern Derbyshire PCT)	£0.21	£0.37 (North Norfolk PCT)
Renin-angiotensin drugs	£0.08 (South West Dorset PCT)	£0.17	£0.28 (Southport & Formby PCT)
Proton Pump Inhibitors	£0.46 (Plymouth PCT)	£0.57	£0.70 (North Norfolk PCT)

Source: Keele University analysis of NHSBSA data

**2.14** The fourth drug we looked at, clopidogrel, is an antiplatelet drug (reduces blood clots) which is initiated in secondary care, usually after an acute cardiovascular event. NICE guidance states clopidogrel treatment should be limited to a maximum of 12 months after which, for patients other than those who are intolerant to aspirin, treatment with low dose aspirin is an appropriate alternative. Following a patient's discharge from hospital it is their GP's responsibility to end treatment with clopidogrel, normally by prescribing aspirin in its place. However practice based audit data, as well as the expert opinion of the clinical pharmacologists we spoke to, indicate that in some instances clopidogrel is prescribed for longer periods than is recommended. For example, Keele University studied a population of 197,314 patients in the West Midlands through 2004 and 2005. Fifty-seven per cent of the 633 of these patients who were prescribed clopidogrel in 2004 received over a year's treatment.

**2.15** Over-prescribing of clopidogrel may be due to a lack of certainty amongst GPs about when to cease treatment with this drug, or because patients have been incorrectly diagnosed as aspirin intolerant. Treatment with aspirin or with clopidogrel can sometimes lead to dyspepsia; however addition of a proton pump inhibitor such as omeprazole can often alleviate symptoms. There are significant cost differences between alternative treatment regimes. For example it is possible to treat about six people with aspirin and omeprazole, or 40 people with aspirin alone, for the cost of treating one person with clopidogrel.

**2.16** Data from the NHSBSA shows a high variation in the amount of clopidogrel prescribed across the country, even after adjusting for differences in population age and sex composition between PCTs.<sup>10</sup> **Figure 9** shows the variation in the volume of clopidogrel prescribed per 1,000 (age and sex weighted) patients across England (the analysis here is presented in terms of volume, rather than cost per DDD, because the wide range of applications for aspirin means that it is not possible to identify when it is being used as a substitute for clopidogrel.)

**2.17** More efficient prescribing in the four therapeutic areas we looked at would lead to financial savings for the NHS. The level of savings achieved depends on assumptions about the level of improvement that PCTs can make. The target adopted by the Department in its productivity indicator for statin prescribing is for PCTs in the bottom 75 per cent in prescribing efficiency to achieve the standards of the least efficient of the top 25 per cent. We modelled this degree of improvement across the four areas we considered.<sup>11</sup> We found that, had all PCTs in the bottom 75 per cent prescribed as efficiently as the top 25 per cent over the period considered, £227 million would have been saved, comprising of £97 million savings on statins, £67 million on renin-angiotensin drugs, £39 million on clopidogrel and £24 million on proton pump inhibitors. Calculations by the Department of Health in April 2007, using data from July to September 2006, suggested that some efficiency improvements had started to be made in statin prescribing, but confirmed that the potential to save around £200 million a year remained.

**2.18** On this basis, we consider that a savings target of £200 million for PCTs would not be unreasonable as a realistic estimate of the potential level of savings. There is scope for further savings if PCTs already in the top quartile of efficiency improve further. If all PCTs could prescribe as efficiently as the top ten per cent, over £300 million could be saved.

## 9 Volume of clopidogrel (defined daily doses per 1,000 age and sex weighted patients) prescribed by PCTs in England, August 2005 to July 2006

Lowest	Average for England	Highest
61 (Torbay Care Trust)	149	341 (North Liverpool PCT)

Source: Keele University analysis of NHSBSA data



**2.19** **Figure 10** indicates the shifts in prescribing behaviour that would be required to deliver the £227 million savings figure, and **Figure 11 overleaf** shows how these savings break down across PCTs.

**2.20** The level of savings each PCT could have achieved is not a complete measure of the efficiency of its prescribing. A PCT could prescribe a relatively high proportion of low acquisition cost drugs, but could still have the potential to make large savings in absolute terms, with just a small further increase in efficiency, because it prescribes a large quantity of drugs. This would be the case where the PCT has either a large patient population, or a particularly high prevalence of the condition(s) for which the drugs are indicated (or both). For example, Sunderland Teaching PCT was in the top quarter of PCTs for the efficiency of its statin prescribing (i.e., a relatively high proportion of its statin prescriptions were for generics). However, it was also in the top quarter for potential savings in this area due to being a large PCT with a relatively deprived population, which means that it had a high volume of prescriptions for statins.

## More effective prescribing may require some PCTs to prescribe more, others less, in certain areas

**2.21** Effective prescribing is defined as ensuring that the clinical needs of a population are met by prescribing a volume of drugs which is consistent with the prevalence of a disease. Although GPs and other prescribers can attempt to do this for the patients who present to them, not all patients who may require treatment are registered with GPs, and not all registered patients are diagnosed.

Deprived groups within the local population may be vulnerable in this regard. For example Birmingham East and North PCT found that prevalence of coronary heart disease appeared to be concentrated in the wealthier suburbs, and relatively low amongst its diverse, mainly south Asian population. However, mortality rates were highest in areas that seemed relatively disease free. The PCT concluded that its most disadvantaged populations were being served by practices that had been unable systematically to identify and manage heart disease.<sup>12</sup>

**2.22** Nevertheless, despite the fact that estimates of disease prevalence rates based on data from GP practices probably underestimate true prevalence, examining such estimates' measures of prescription volumes is an important starting point in identifying PCTs that exhibit unusually low or unusually high levels of prescribing. The former may indicate unmet need, and the latter excessive prescribing, both of which represent poor value for money.

**2.23** Variations in prescribing effectiveness can be illustrated by combining datasets that are currently routinely collected within the NHS, as shown in **Figure 12 overleaf**, which is taken from an analysis commissioned by West Midlands Strategic Health Authority. Each point in the diagram represents a PCT. The horizontal axis shows prevalence of diabetes, obtained from the information GP practices return to the central Quality Management and Analysis System (QMAS), the national system that supports the Quality and Outcomes Framework for determining GPs' remuneration. The vertical axis shows the volume of diabetic test strips prescribed in a year, per thousand (age and sex standardised) patients, obtained from the NHSBSA.

### 10 Changes in prescribing to deliver £227 million in savings

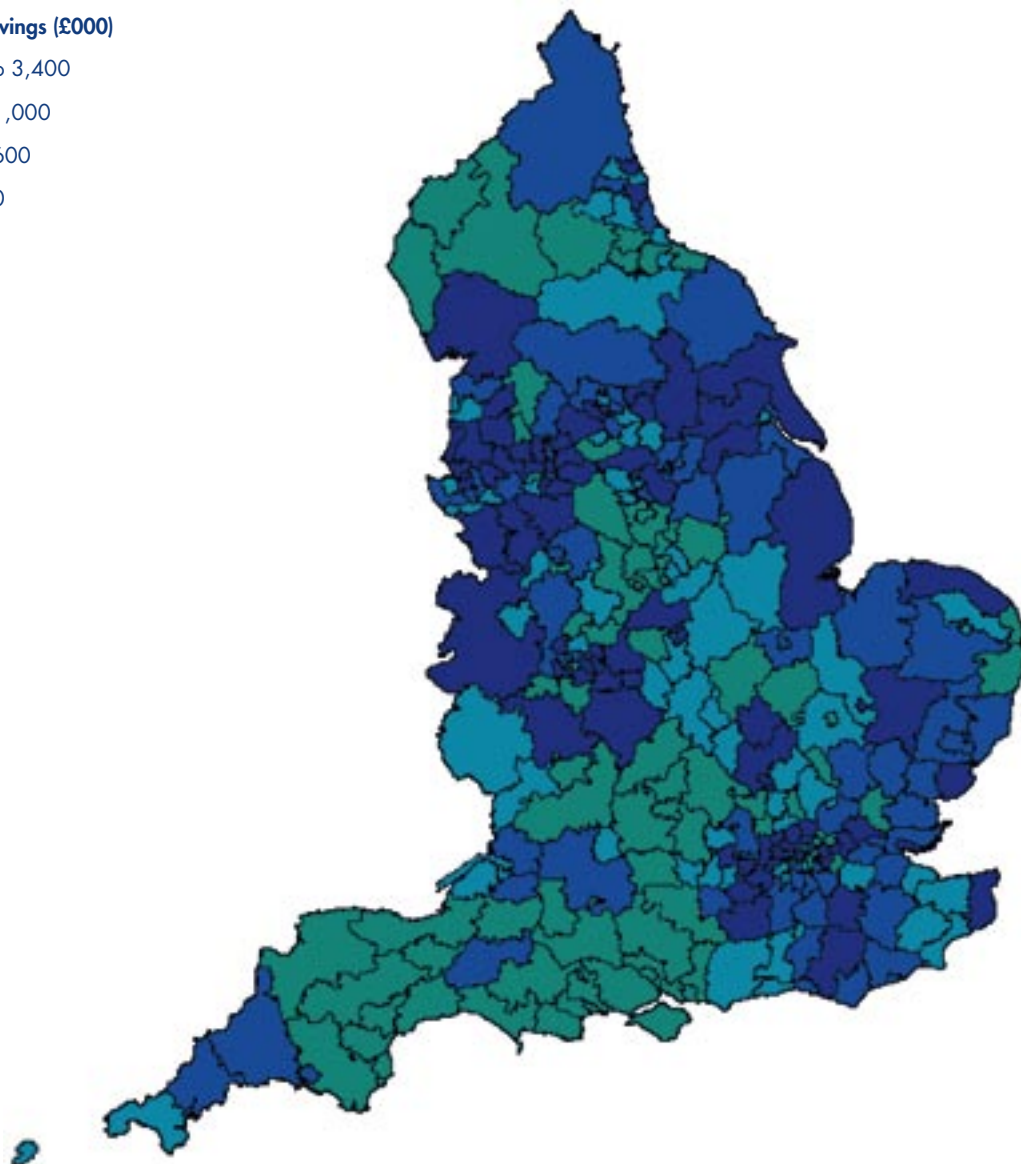
	Average across England (July 2006)	Level PCTs require to reach to deliver savings	Level of most efficient PCT (July 2006)
Percentage of statins prescribed as generic simvastatin	52%	66%	84%
Percentage of renin-angiotensin drugs prescribed as ACE inhibitors	79%	84%	89%
Percentage of proton pump inhibitors prescribed as generics	82%	87%	95%
Volume of clopidogrel prescribed (DDDs per thousand age-sex weighted patients)	149	111	61

Source: Keele University analysis of NHSBSA data

## 11 Potential prescribing efficiency savings across England

### Potential Savings (£000)

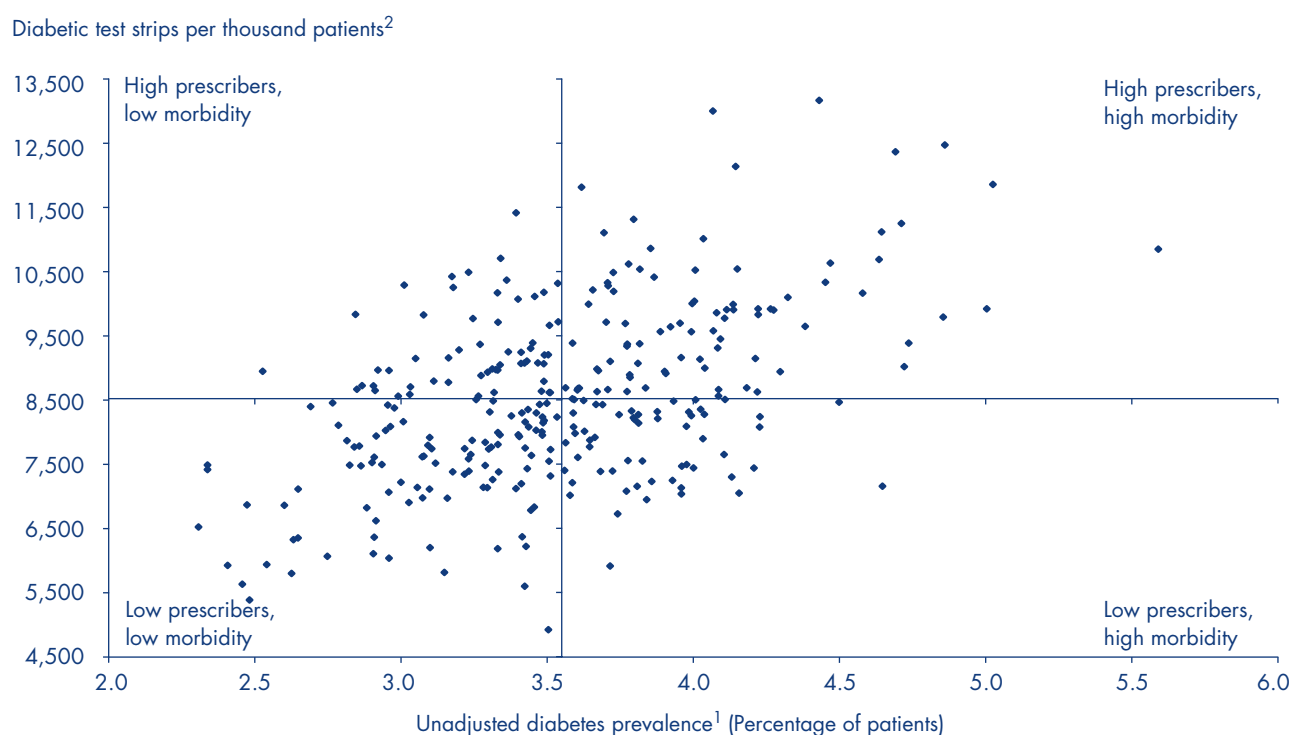
- 1,000 to 3,400
- 600 to 1,000
- 300 to 600
- 0 to 300



**2.24** The figure demonstrates how prevalence of a condition does not fully account for prescribing volume: different PCTs with the same prevalence of diabetes can differ considerably in the volume of test strips they prescribe.<sup>13</sup> In particular, PCTs in the top left quadrant have lower than average diabetes prevalence, but higher than average prescribing, which could represent a waste of resources. PCTs in the bottom right quadrant have higher than average prevalence, but are prescribing at lower

than average levels, which could indicate unmet need and potential future health complications. PCTs falling into either of these quadrants are clear candidates for investigation, as both overprescribing and underprescribing are poor value for money. This analysis can also be performed within individual PCTs to identify GP practices whose prescribing patterns are significantly different from their peers, and may warrant further examination.

## 12 Morbidity Matrix for England PCTs: Variation from England average diabetes prevalence<sup>1</sup> versus diabetic test strips<sup>2</sup> per thousand patients



Source: Keele University analysis of NHSBSA and QMAS data

### NOTES

- 1 Diabetes Prevalence data: Unadjusted prevalence rate from QMAS data for April 05 to March 06.
- 2 Diabetic Test Strips: BNF section 6.1.6 Blood glucose testing strips per thousand patients August 05 to July 06.

**2.25** Such volume vs prevalence charts are not routinely available to, or used by, PCTs at present. They could be constructed for a number of common prescribing areas, such as prescribing for high blood pressure and for high cholesterol, to provide a tool to support PCTs to benchmark themselves against others, and also to benchmark practices within individual PCTs. They do not have to take the form shown in Figure 12. For example, 'expected' or 'average' levels of prescribing can be calculated for different prevalence rates, on the basis of current clinical practice as revealed by the data, and PCTs or practices whose actual prescribing level is significantly above or below what would be expected for their degree of disease prevalence can be identified for further investigation.

**2.26 Case study 2** shows how improving effectiveness and efficiency together leads to better value for money.

## CASE STUDY 2

### North Eastern Derbyshire PCT obtained good value for money in statin prescribing

An active policy of identifying high-risk patients for whom simvastatin 40mg would be beneficial made North Eastern Derbyshire PCT the highest prescribers of low cost statins in the country, and also helped the PCT reduce its hospital admission rate for heart attacks by 25 per cent between 2002 and 2005. The PCT encouraged GPs to prescribe the branded generic Simvador, which meant that the PCT was able to afford to implement its statin policy during 2003.



## PART THREE

## Supporting GPs and PCTs to get better value for money from their prescribing budgets

### Improving efficiency and effectiveness entails changing some GPs' prescribing behaviour

**3.1** Achieving efficiency savings and enhancing value for money in prescribing requires prescribers – mainly GPs, since GPs write 98 per cent of primary care prescriptions – to change prescribing behaviour in some instances. In practice, this will entail starting new patients on more cost-efficient drugs in some cases and switching existing patients' medications when necessary. It will also require prescribers to consider whether, on the basis of evidence of patient needs and by comparison with clinical practice nationally, they need to prescribe more or less in certain areas.

**3.2** In this section we set out firstly how GPs find out about what drugs are on the market, and their incentives for using particular drugs, and then we examine what works in influencing GPs to modify their prescribing practice if necessary.

### GPs have to update their prescribing knowledge continuously

**3.3** Fifty-six per cent of respondents to our GP survey said that over half of their consultations result in a prescription, yet GPs receive relatively little formal training in clinical pharmacology and prescribing.<sup>14</sup> Moreover, new drugs are continually being developed and marketed. Six of the ten most commonly prescribed drugs in primary care in 2005 were not available when the majority of GPs currently in their forties were training. GPs must therefore ensure that they keep abreast of information about drugs and prescribing issues, and decide what the implications are for their prescribing practice.

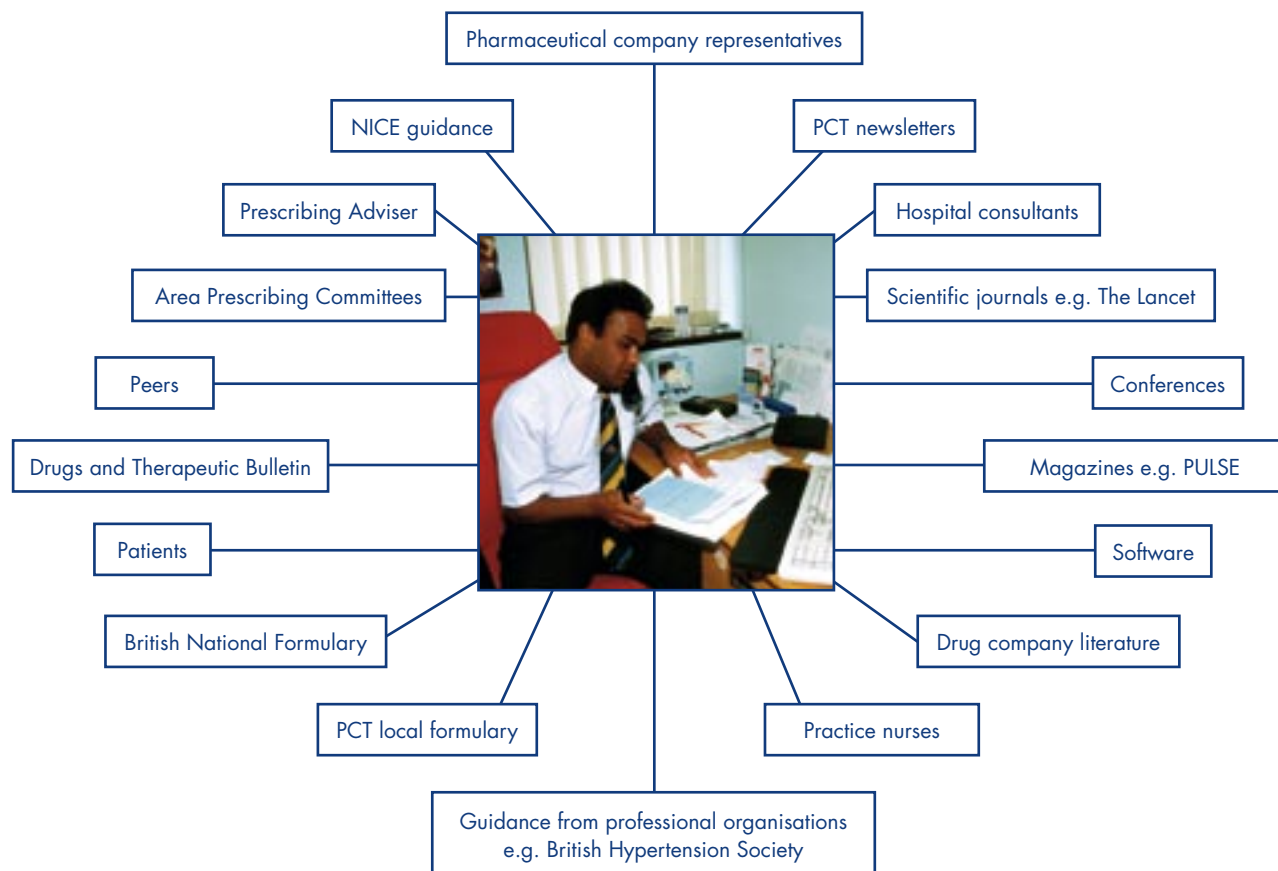
**3.4** GPs receive a large amount of prescribing information, and have to reconcile different, sometimes conflicting, sources of advice. **Figure 13** shows some of the sources of information about prescribing that have to be considered by a typical GP.

**3.5** GPs have limited time to process all the material they receive related to prescribing. Seventy-five per cent of the GPs we surveyed estimated that they read less than half of the prescribing information they received over the past year; and 40 per cent said they read less than a quarter. Most GPs in the focus groups conducted for us by RAND Europe felt that due to limited time and resources, their practice was only able to focus on two or three issues in prescribing at any one time.

**3.6** It can be difficult for GPs, who are not generally experts in pharmacology or statistics, to appraise technical and statistical information about the effects and efficacy of drugs. Only five per cent of respondents to our GP survey said they always felt confident in appraising prescribing information. Research in 1996 found that different statistical presentations of the same research results led to different prescribing decisions by GPs, and that the majority of GPs studied admitted to having problems understanding statistics commonly found in medical journals.<sup>15</sup>

**3.7** GPs may receive conflicting information from different sources. For example, guidance relevant to statin prescribing produced by the Joint British Societies (a group representing six professional societies in the area of cardiovascular disease) suggested that targets for blood cholesterol reduction in patients at risk of cardiovascular illness should be lower than the Department's official target set in the National Service Framework for Coronary Heart Disease. This would entail more aggressive prescription of statins. Confusion in the NHS about targets for blood cholesterol levels prompted the National Director for Heart Disease and Stroke to issue a statement in November 2006 clarifying the fact that national policy had not changed.

### 13 Influences on GPs' prescribing decisions



Source: National Audit Office

**3.8** Moreover, through the internet, patients have access to a vast amount of information from many different sources making claims for the benefits of particular drugs. Seventy six per cent of the GPs we surveyed reported that patient demands for drugs had increased over the last three years.

### Practice Based Commissioning could be a lever for improving value for money in drugs expenditure, but its potential has yet to be tested

**3.9** Under Practice Based Commissioning individual GP practices are given greater control over their PCTs' financial resources and are entitled to reinvest a proportion of any efficiency savings they make in their practices. For 2006-07, PCTs set indicative practice budgets and practices, developed a commissioning plan covering, as a minimum, prescribing, and the services covered by the national Payment by Results tariff. Practices are then entitled to recommend how to reallocate at

least 70 per cent of any resources freed up by their commissioning plans. In January 2007 94 per cent of GP practices had taken the incentive payment to become involved in Practice Based Commissioning.

**3.10** One of the aims of Practice Based Commissioning is to encourage GPs to get greater value for money from their prescribing budgets. However, 37 per cent of GPs we surveyed did not know what impact Practice Based Commissioning would have on their drugs bill and 20 per cent said that it would not encourage their practice to make any savings. Thirty six per cent said that Practice Based Commissioning will encourage small savings, and eight per cent said that it will encourage significant savings. Accordingly, GPs will need continued support from PCTs in managing their prescribing, both to help them manage their budgets, and where Practice Based Commissioning has yet to significantly affect behaviour. We therefore examined how GPs obtain information about drugs, and the evidence of what helps them to make effective and efficient choices.

## GPs are influenced by the pharmaceutical industry's marketing

**3.11** The pharmaceutical industry spends more than £850 million annually on marketing and promotional efforts,<sup>16</sup> and there are 8,000 pharmaceutical industry representatives (about one representative for every four GPs) visiting doctors and marketing their drugs across the country.<sup>17</sup> Over half of postgraduate education and training for doctors in the UK is sponsored by the pharmaceutical industry.<sup>18</sup>

**3.12** The Health Select Committee's 2005 inquiry into the influence of the pharmaceutical industry concluded that the industry promotes medicines aggressively after launch. It found that industry promotional efforts were 'relentless', and targets included not only prescribers but also the general public. The Committee concluded that 'the blame for inadequate or misinformed prescribing decisions does not only lie with the pharmaceutical industry, but with doctors and other prescribers who do not keep abreast of medicines information and are sometimes too willing to accept hospitality from the industry and act uncritically on the information supplied by the drug companies'.<sup>19</sup>

**3.13** In its response to the Select Committee's report, the Government agreed that clinicians should receive independent advice on medicines, and pointed to local advice available from Drugs and Therapeutics Committees, and national advice available from NICE. It also reported that the Department of Health purchased the Drugs and Therapeutics Bulletin (DTB) for all NHS doctors in England. The DTB is an independent monthly bulletin providing critical impartial reviews of treatments, formerly published by the Consumers' Association. Summary journals such as the DTB were rated one of the top sources of prescribing information for objectivity and usefulness by GPs in our survey. In 2006, however, the Department ceased to purchase the DTB for doctors. It has now been acquired by the BMJ Group, and is available to doctors on subscription. The Department funds the British National Formulary, the standard, regularly updated reference on all licensed drugs in the UK, which was rated the top source of information for both objectivity and usefulness by the GPs we surveyed.

**3.14** Our survey showed that 87 per cent of GPs have contact with industry representatives, although 26 per cent will only see them outside their surgery at external events. Nationwide, 21 per cent of GPs reported that they see industry representatives at least once a week. The majority of respondents see a representative between once a week and once every three months.

## Prescribing advisers have an important role to play in helping GPs assimilate prescribing information

**3.15** In order to support GPs in adopting best practice in prescribing, PCTs employ prescribing advisers, specialists with pharmacy qualifications and experience, to advise GPs on current and upcoming prescribing issues, cost-efficient prescribing and the implications of guidance from bodies such as the National Institute for Health and Clinical Excellence for the prescribing of new and existing drugs. There are currently around 1,200 prescribing advisers in England and Wales<sup>20</sup> – about one for every 25 GPs.

**3.16** The National Prescribing Centre (NPC), a Department of Health funded NHS organisation, has the remit of promoting and supporting high quality, cost-effective prescribing and medicines management across the health service, to help improve patient care and service delivery. The NPC runs a wide-ranging support programme including: delivering education and development activities for prescribing advisers and other relevant professionals; publishing concise, evidence-based therapeutic information; developing good practice guides about medicines-related issues; plus horizon scanning for significant new medicines.

**3.17** We surveyed prescribing advisers on their methods of communication with GPs, their perceived influence on and relationship with GPs, and their views on the usefulness and objectivity of different sources of prescribing information available to GPs. We also obtained GPs' views on the same issues from our GP survey.

**3.18** Relationships between GPs and prescribing advisers appear to be generally positive. Fifty-one per cent of GPs describe their relationship with their prescribing advisor as good and 40 per cent describe it as reasonable. Only nine per cent describe it as poor. Prescribing advisers' assessments of their relationship with GPs were more positive, with 97 per cent describing it as good and the remainder saying it was reasonable.

**3.19** Prescribing advisers are effective at influencing GPs' behaviour, but the pharmaceutical industry also has a significant influence. Two thirds of the GPs we surveyed said that prescribing advisers have more influence on their prescribing behaviour than pharmaceutical companies, with 43 per cent indicating that prescribing advisers have much more influence than the industry. Prescribing advisers themselves also felt that they had more influence than industry, but they did not rate their own influence on GPs as highly as GPs themselves did. Fifty nine per cent of prescribing advisers felt they have more influence on

GPs than big pharmaceutical companies, and 29 per cent rated themselves as having much more influence than the industry. However 21 per cent of GP respondents indicated that they felt that pharmaceutical companies have much more or slightly more influence than prescribing advisers.

**3.20** The industry is focussing on new prescribers, in particular nurses. For instance in 2003 GlaxoSmithKline funded 235 nursing diplomas in respiratory disease management and 199 diplomas in diabetes management.<sup>21</sup> Prescribing advisers we surveyed reported that whilst they felt they had more influence than the pharmaceutical industry over GPs, they felt this was not the case for nurse prescribers and practice nurses. Nurse prescribers issued 6.3 million prescriptions in 2005-06. Nurses' prescribing powers were extended in 2006, and the proportion of prescriptions written by nurses can be expected to increase.

## We found five key ways to help GPs improve the value for money of prescribing

**3.21** Our focus groups, interviews, case studies and surveys of GPs and prescribing advisers indicated that the strategies and approaches used by PCTs which have been successful in influencing GPs' prescribing behaviour in a particular therapeutic area, or with respect to a specific prescribing issue, could be summarised under the following five headings:

- Communication from trusted sources and local opinion leaders.
- Financial incentives.
- Provision of tailored comparative (benchmarking) information to GP practices.
- Provision of practical support such as pharmacist time to GP practices.
- A coordinated approach to prescribing across the primary and secondary care sectors.

**3.22** PCTs which have successfully encouraged changes in prescribing behaviour have generally used several of these approaches. However, our focus groups with prescribing advisers indicated that PCTs vary in the resources they devote to improving prescribing, the extent to which they coordinate actions and initiatives to address key areas of concern, and the way they use data to inform decision making.

**3.23** We now discuss how each of these five approaches can be used to help GPs achieve value for money improvements.

## GPs' preferred sources of prescribing information are official guidance and professional colleagues

**3.24** We asked the 1,000 GPs in our survey to rate 23 sources of prescribing information for usefulness and objectivity. **Figure 14 overleaf** shows the six sources of information ranked most useful, and most objective, by GPs and also by the prescribing advisers we surveyed.

**3.25** There is a strong correlation between how prescribing advisers score the usefulness and objectivity of information sources. However, GPs rate scientific journals and NICE technology appraisals as more objective than useful, preferring, as useful sources of information, their colleagues. The qualitative research on prescribing choices that we commissioned from RAND Europe indicated that objective information (such as NICE technology appraisals) mirrors the uncertainty of scientific findings and was considered by some GPs as ambiguous and too far removed from practice work to be applicable.

**3.26** PCTs often attempt to remove these ambiguities in adapting the guidance notes to the local context, making the PCT guidance notes less technical and clearer to follow. This process involves prioritising some options and removing others. This might be based on the clinical needs of the local population, but can also be motivated by budgetary constraints of the PCT. Through this process of prioritising some options, the information becomes useful, but less objective, especially as GPs often consider PCTs to be mainly driven by a budgetary agenda. For example, in the focus groups run by RAND Europe, one GP said that information from the prescribing adviser/PCT was 'dominated' by budgetary concerns, and several GPs felt that information that took into account cost pressures as well as clinical outcomes could not be objective.

**3.27** GPs find it most useful to receive prescribing information in the form of a summary publication, as shown in **Figure 15 on page 23**. GPs' preferences vary by year of qualification, with 50 per cent of respondents who qualified in 1960 to 1969 preferring to receive information in person, compared with 34 per cent of those who qualified after 2000. Earlier qualified GPs also prefer to receive information at a seminar or conference, which was a preferred medium for 64 per cent of GPs who qualified in 1960 to 1969 but only 45 per cent of those who qualified after 2000. Two thirds of GPs qualified in 1960 to 1969 liked to receive prescribing information in an academic publication, compared to one third of those qualified since 2000.

## 14 Most useful and objective sources of prescribing information

### GPs' view

Rank <sup>1</sup>	Most useful	Most objective
1	British National Formulary <i>(the standard reference on all licensed drugs in the UK, updated regularly)</i>	British National Formulary
2	Summary journals such as Drugs and Therapeutics Bulletin and Bandolier <i>(these provide summarised information based on a review of more detailed academic studies)</i>	Summary journals such as Drugs and Therapeutics Bulletin and Bandolier
3	Other GPs	Scientific Journals such as <i>The Lancet</i> , <i>The British Medical Journal</i>
4	NICE clinical guidelines for specific conditions	NICE clinical guidelines for specific conditions
5	PCT prescribing adviser/medicines management team	Prodigy <i>(prescribing support software funded by the Department of Health)</i>
6	Consultants	NICE technology appraisals

### Prescribing advisers' view

Rank <sup>1</sup>	Most useful	Most objective
1	PCT prescribing adviser/medicines management team	British National Formulary
2	British National Formulary	PCT prescribing adviser/medicines management team
3	Summary journals such as Drugs and Therapeutics Bulletin and Bandolier	Newsletters from PCT prescribing adviser/medicines management team
4	Newsletters from PCT prescribing adviser/medicines management team	London New Drugs Group <i>(a group of healthcare professionals who volunteer their services to help manage the entry of new drugs in a cost-effective and equitable manner)</i>
5	Area prescribing committee	Summary journals such as Drugs and Therapeutics Bulletin and Bandolier
6	London New Drugs Group	PCT local drugs formulary

Source: National Audit Office surveys of GPs and prescribing advisers

#### NOTE

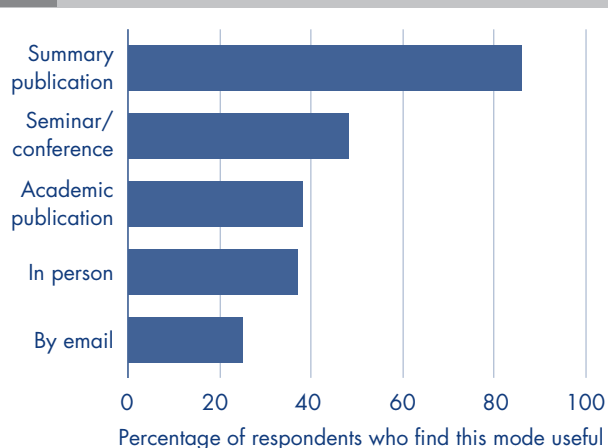
1 Ranked out of 23.

**3.28** Personal contact is an effective means of communicating about prescribing with GPs. Market research quoted by the Health Select Committee shows that the promotion of drugs by pharmaceutical representatives increases uptake of NICE guidance. This research found that

“representative promotion of NICE approved products can have a supportive effect. The growth of prescriptions in those doctors who received calls from representatives was larger than in those doctors who had not received any calls.”<sup>22</sup>



## 15 GPs' preferred ways of receiving prescribing information



Source: National Audit Office survey of GPs

**3.29** RAND Europe's focus groups in Northumberland PCT showed that harnessing the power of local opinion leaders could help to mitigate concerns about undue focus on cost pressures at the expense of quality. The PCT worked with about five GPs whom it considered to be effective in influencing their peer group's prescribing behaviour, in communicating messages to GP practices.

**3.30** Nearly all the prescribing advisers we surveyed said they used face-to-face meetings with GPs to influence their prescribing behaviour. However only 27 per cent of respondents said that they or a member of their team would visit each of the GP practices in their PCT at least monthly. Twenty-four per cent of prescribing advisers said they visited each GP practice at least once a year, and 12 per cent said they visited each practice at least every six months. We asked prescribing advisers what would be the best way of influencing GPs' prescribing habits if resources were not limited. The most popular response was 'greater contact time with GPs', followed by 'financial incentives'.

## Financial incentives can motivate value for money improvements

**3.31 Case Study 3** shows how incentive schemes have motivated improvements in two PCTs. Seventy-two per cent of respondents to our GP survey said their prescribing had increased in response to the Quality and Outcomes Framework (QOF), which rewards achieving defined outcomes for patients – measured through a points system – with higher pay. Thirty per cent felt that the QOF had made their prescribing more efficient, while 13 per cent said that the QOF had not had any impact on their prescribing.

**3.32** There are two indicators in the QOF which reward practices for meeting a prescribing adviser at least annually, and agreeing up to three actions related to prescribing. These are indicators 'Med 6' and 'Med 10' in the 'Medicines management' section of the QOF. Although, as outlined in Part 2, we found large variations between PCTs in prescribing efficiency, nearly all practices achieve the maximum of 4 points on each of Med 6 and Med 10 (in 2005-06, 98 per cent and 92 per cent of practices achieved these standards, respectively).

**3.33** Three quarters of GPs whose PCTs had their own financial incentive schemes to reward efficient prescribing (over and above the QOF) said that these schemes incentivised them to stay within their prescribing budgets. However a third of GPs responding to our survey said that their PCT didn't have a prescribing incentive scheme, or they didn't know if it did.

## Benchmarking is an effective means of influencing GPs' prescribing behaviour

**3.34** Benchmarking involves comparing indicators of prescribing, such as volume and cost, across GP practices or PCTs, making allowance for differences in patient demographics (**Case study 4**). 'ePACT' (electronic prescribing analysis and cost) data is produced by the NHS Business Services Authority Prescription Pricing Division. It is available to all PCTs to help with benchmarking. It provides information down to practice level on prescribing trends and can be analysed comparatively by a range of denominators.

### CASE STUDY 3

#### Financial incentives can effectively reduce growth in the drugs bill

In Bristol North PCT £500,000 was invested in financial incentives for practices. Practices were given £1 per patient on their list if they kept within their prescribing budget and an additional £1,000 if they met four PCT prescribing targets. Growth in Bristol North PCT's drugs bill was £1.2 million less than in nearby PCTs, which were of similar demography and population. Over the previous two years growth rates in Bristol North PCT were at least 1.5 per cent below the local average.

In Coventry PCT practices who signed-up to an incentive scheme for efficient statin prescribing and met the scheme's targets were paid 10 per cent of the savings accrued for that period as a result of switching. This financial incentive was considered by the PCT's medicines management team to be a key factor in encouraging 52 of the 63 practices to join the scheme. In August 2005, 41 per cent of the PCT's statin prescribing was for generic simvastatin; within 15 months this increased to 61 per cent.

## CASE STUDY 4

### GP prescribing is influenced by benchmarking

Comparative information can increase pressure on GPs to improve value for money in prescribing. In Northumberland PCT, GP practices are sent quarterly prescribing reports listing key performance indicators and prioritising areas where cost savings can be made. GPs report that comparative information at the practice level is useful because it takes into account the local context.

Research conducted by RAND Europe for the NAO showed that comparative information can influence prescribing behaviour. For example, it may increase pressure on practices to improve the cost efficiency of prescribing in an area identified for improvement by the PCT.

**3.35** Eighty six per cent of the GPs we surveyed said their practice's prescribing was benchmarked against other practices, and 70 per cent of these reported that benchmarking influences their prescribing behaviour.

**3.36** Respondents to our survey of prescribing advisers ranked benchmarking against similar practices as the fourth best way to influence GPs' prescribing behaviour, after face-to-face contact, individual emails and regular newsletters.

### Investing in practical support can reap value for money rewards

**3.37** Practical support to GP practices is effective in reducing unnecessary growth in the drugs bill. Practical support can take a variety of forms (**Case study 5**), including the provision of dedicated pharmacist support to GP practices and administrative support to assist in the switching of medications.

### A coordinated approach to prescribing across the primary and secondary sectors is important

**3.38** In 1994 the Audit Commission estimated that 16–20 per cent of primary care prescribing was initiated in hospital. A further 40 per cent could also be strongly influenced by hospitals because drug choices in general practice are often guided by local specialists.<sup>23</sup> GPs responding to our survey ranked consultants in their top six sources of prescribing information. The method of managing prescriptions originating in secondary care that GPs most frequently mentioned was to continue with the drug(s) prescribed, with around a quarter of respondents mentioning that they would review these.

## CASE STUDY 5

### Practice-based support can produce financial savings and encourage GPs to prescribe efficiently

In New Forest PCT and Eastleigh and Test Valley South PCT each of the 38 practices, covering 350,000 patients, was given dedicated pharmaceutical support to assist with its medicines management policy. The PCT employed 8 full time equivalent pharmacists costing in the region of £400,000 created savings of more than £1.1 million by encouraging the compliance of patients with their medications and supporting practices in changing prescribing habits.

In Bristol North PCT practices received pharmacist support in proportion to the size of their prescribing budgets, from four hours of support a week for practices with budgets less than £750,000, up to 12 hours per week for practices with prescribing budgets of more than £1.2 million.

PCT provision of administrative support for practices encourages GP participation in medication switching. New Forest PCT adopted a policy of switching statin prescriptions to generic simvastatin. Some GP practices were concerned about the workload involved in changing several hundred patients' prescriptions. Practices were provided with template letters to patients whose medication would change, explaining the reasons for it. In some practices patients were given the phone no of the medicines management team and invited to ring them if they had any queries. In 2005-06 generic simvastatin prescribing increased from less than 50 per cent to 75 per cent of statin prescribing.

**3.39** A study by Prosser and Walley published in 2003<sup>24</sup> examined the influences on prescribing behaviour for GPs who prescribed a high level of new (recently launched) drugs and for GPs who were low prescribers. As **Figure 16** shows, the biggest influence cited by low (conservative) prescribers was hospital consultants, whereas the biggest influence on high prescribers was pharmaceutical representatives. Focus groups of GPs conducted for us by RAND Europe found that hospital consultants can influence GPs' prescribing behaviour, and that GPs will generally not challenge prescriptions written in secondary care.

**3.40** Expert prescribing committees (**Case study 6**) are an approach used in parts of the NHS to develop local policies for prescribing. For example, every hospital has a Drugs and Therapeutics Committee and consultants are bound by its decisions. Hospital pharmacists will not normally dispense a consultant's prescription if it is for a drug not in the formulary, and can, for instance, dispense a generic alternative if a brand name drug is prescribed.

**3.41** GPs in primary care, however, are not subject to formularies unless these have been agreed locally, and by law community pharmacists must dispense brand name drugs if that is how the prescription is written. Some groups of PCTs have established Area Prescribing Committees, which aim to set local primary care drugs usage policy and coordinate prescribing in both primary and secondary care. Currently there appears to be considerable variation in the extent to which Area

Prescribing Committees are active, the influence they have, and the ways in which they operate. GPs responding to our survey ranked Area Prescribing Committees as relatively low (18th out of 23 options) for both usefulness and objectivity, whereas prescribing advisers saw them as much more useful (ranked 6th) and objective (ranked 9th). However almost a fifth of prescribing advisers said they did not have a local Area Prescribing Committee.

## 16 Factors influencing GP prescribers (from Prosser and Walley, 2003)

Influences cited	High prescribers (Percentage of 173 new drug initiations)	Low prescribers (Percentage of 19 new drug initiations)
Pharmaceutical representatives	46	10
Failure of current treatment	23	31
Patient request	21	32
Hospital/consultant colleague	13	58
Guidelines	10	26
GP colleague	9	0
Adverts/mailings	9	0
Curiosity	6	0
Nurse	5	10
GP press	5	5
British National Formulary	3	0
PCT or Strategic Health Authority influence	3	0
Peer-reviewed literature	2	16
Self-medication	1	0

Source: Prosser and Walley (2003), p. 585

## CASE STUDY 6

### Expert prescribing committees can be effective when they involve representatives of different healthcare sectors and finance and medical professionals

New Forest and Eastleigh and Test Valley South PCTs belong to a District Prescribing Committee covering four PCTs, a mental health trust and two acute hospitals. The Committee has developed a formulary for use in hospitals and GP practices, and monitors what is prescribed in primary care. It has influenced GPs to talk to others about their prescribing behaviour. In addition, PCT staff felt that this encouraged GP practices to comply with guidance on efficient prescribing as it required senior PCT leader involvement in medicines management.

Prescribing committees in hospitals can also reduce cost pressures on primary care prescribing that originate in secondary care by restricting the prescribing choices available to hospital consultants. The Use of Medicines Committee at University College London Hospital (UCLH) includes a GP, a representative of the local PCT, a lay member, representatives of each of the hospital trust's clinical directorates, a nurse, clinical pharmacologists, and the trust's

finance director. The Committee meets every month to evaluate applications from consultants and other prescribers for drugs to be included on its formulary, and to review whether existing drugs should be dropped or replaced. Evaluations are based on evidence about the efficacy, safety, cost and ease of use of drugs, and around 50 per cent of applications are approved. The Committee considers the implications of the trust's prescribing on the local health economy. For instance, the Committee took a strict line on rofecoxib (Vioxx: a widely-used pain relieving drug subsequently withdrawn from the market by its manufacturers because of concerns about increased risk of heart attack and stroke), and the prescribing of this in local PCTs was lower than the national average. In addition, patients admitted to UCLH while being treated with high cost statins are switched to generic alternatives, and all patients are discharged with a summary of how long they need to be on their medication. A key factor in the Committee's success is its integration into the trust's governance structures, providing senior management support for potentially contentious decisions.



# PART FOUR

## Wastage of drugs

### Drugs wastage is a significant cost to the NHS

**4.1** Drugs are wasted when they have been dispensed to a patient, but are not taken. The scale of wastage on an individual patient level can be large, as the photo below demonstrates. The full cost of wastage is difficult to estimate and estimates vary widely. A cautious estimate of the value of medicines returned unused is £100 million annually.<sup>25</sup> However, this figure almost certainly underestimates the full cost of drugs wastage, as it is based only on unused medications that are actually returned. The Department of Health estimates that as much as 10 per cent of all drugs prescribed are wasted – which would mean up to £800 million-worth of drugs are wasted annually in primary care.<sup>26</sup> However, the Department has not recently conducted research into the causes of and extent of drugs wastage. Moreover, the full cost of wastage is not just the cost of the drugs themselves. PCTs have to pay for returned drugs to be destroyed, and for treating the effects of non-adherence.

**4.2** As part of the Essential Services element of the new community pharmacy contract, PCTs have to arrange for the collection and disposal of pharmaceutical waste from pharmacies and GP surgeries. PCTs represented at focus groups conducted by the NAO estimated that they each spent approximately £5,000 annually to destroy returned medicine. If representative of the national picture, this would give an annual figure of approximately £1.5 million spent across England by PCTs on destroying returned drugs.

**4.3** Drugs wastage is a problem common to all health systems. According to the World Health Organisation, globally there is only 50 per cent adherence to prescriptions in long term condition medications.<sup>27</sup> Drugs are wasted for a wide range of reasons, which vary according to individual patient, medication type and therapeutic area. Some of the most common of these are given in **Figure 17**.

### 17 Some causes of medicines wastage

- Medicines are dispensed but remain uncollected
- Patients are recovering and no longer need their medication
- A medicine is unsuitable for the patient due to side-effects
- Medicines prescribed during a hospital stay, such as antibiotics, are continued unnecessarily when the patient returns home
- Acute (time-limited) medicines are transferred onto the repeat prescription record and issued every time that a repeat prescription is generated
- Seasonal medication remains on a repeat prescription all year
- Some patients tend to stockpile “just in case” medicines and re-order repeat medication that they do not need
- Non-equivalent pack sizes of medicines prescribed simultaneously can lead to the slow accumulation of “extra” doses. Over time this can generate significant amounts of waste

Source: NPC Medicines Management Team



Unused medicines returned by a single patient in North Eastern Derbyshire PCT, 2006. Source: North Eastern Derbyshire PCT

**4.4** Many GPs have systems in place for reducing medicines wastage. However, these are not universal. In our survey, 58 per cent of GPs said that they had taken action to reduce drugs wastage (67 per cent of respondents from the Eastern region said they had wastage reduction systems in place, compared to 53 per cent in London and the North West). Sixty eight per cent of GPs qualified in 1960 to 1969 and 70 per cent of those qualified in 1970 to 1979 said that they had wastage systems in place, compared with 37 per cent of those who qualified after 2000.

### PCTs have taken a range of actions to counter drugs wastage

**4.5** One approach to reducing wastage is starting new patients on prescriptions of a limited time period. Bristol North PCT recommends prescribing new drugs for 14 days only in the first instance, reflecting research evidence that if patients are going to give up medication or have side effects from it they will do so in first two weeks.

**4.6** Some Canadian provinces have had a 'Trial Prescriptions' service since the mid-1990s, in which pharmacists dispense 7–14 days' supply of a new prescription medicine and monitor patients' responses. If the patient tolerates the treatment the remainder of the prescribed quantity is supplied. Generally the pharmacist receives a professional fee for each supply made and for documenting the results of the trial. Support available to participating pharmacists includes information pamphlets for patients. Almost 90 per cent of the patients who were offered the trial prescription service accepted. Wastage avoidance per trial prescription was on average £2.40, varying by drug type from 87p for beta blockers to £4.43 for calcium channel blockers.<sup>28</sup>

**4.7** Prescribing for shorter periods has also been promoted in England. Coventry PCT, for example, has developed a drugs wastage reduction policy that includes promoting prescribing for 28 day periods for patients on repeat prescriptions. Research has shown home and excess medicine stock values for patients prescribed a 28 day supply of a medicine to be one third less than those for patients receiving prescriptions to cover 56 days.<sup>29</sup>

**4.8** Some PCTs have run public awareness campaigns to counter drugs wastage. Derbyshire County PCT distributed posters such as the one shown below, and leaflets to public places such as libraries, schools, GP surgeries, and community pharmacies. In 2006, NHS employees in Hampshire and Isle of Wight PCTs were given car bumper stickers with their payslips as part of a campaign to reduce drugs wastage. The stickers showed the number of heart operations, hip replacements and cataract operations that could have been paid for by the money spent locally on wasted drugs.



Drugs Wastage Public Awareness Campaign Poster  
Source: Derbyshire PCT

## The Department has introduced medicines use reviews and repeat dispensing schemes, both of which have reducing waste as one of their aims

**4.9** Medicines use reviews (MURs) and repeat dispensing were introduced in the 2005 community pharmacy contract. MURs involve accredited pharmacists periodically undertaking structured reviews with patients receiving medicines for long term conditions, to establish how the medicines are being used and any problems that may be present. A report of the review is provided to the patient and their GP. Repeat dispensing offers patients the opportunity to collect repeat medications directly from a nominated pharmacy without having to contact the prescriber each time they need a fresh supply. Repeat dispensing can help to reduce wastage because it enables pharmacists to ask patients questions in order to ensure that they are still taking their medicine and not experiencing difficulties with it.

**4.10** The Royal Pharmaceutical Society of Great Britain told us that it is too early to make a value for money judgement on either of these initiatives. Uptake of repeat dispensing is still low. In the year to September 2006 less than 0.5 per cent of dispensing was done by repeat dispensing.

**4.11** Approximately 500,000 MURs had been carried out by December 2006. Recent research concludes that the number of MURs conducted in the first year of the new community pharmacy contract was substantially lower than expected.<sup>30</sup> Most SHAs and PCTs surveyed for this research viewed MURs as a part of the new community pharmacy contract with considerable potential but where progress was often slow. Barriers to the further provision of MURs identified included the lack of clarity over what constitutes an MUR, the need for electronic transfer of MUR reports to GPs, and the lack of integration with the work of general practice.

## APPENDIX ONE

# The Office of Fair Trading's report on the Pharmaceutical Price Regulation Scheme

The Office of Fair Trading published its report on the Pharmaceutical Price Regulation Scheme in February 2007. It recommends that the current 'profit-cap- and price-cut' scheme be replaced with a value-based pricing scheme, in which the prices the NHS pays for medicines reflect the therapeutic benefits they bring to patients.

The OFT estimates that a value-based scheme could release over £600 million per year that could be used more effectively, giving patients better access to medicines and other treatments which they may currently be denied. Over time, the OFT argues, value-based pricing would also give companies stronger incentives to invest in drugs for those medical conditions where there is greatest patient need.

The study proposes two options under which the prices of on-patent branded prescription drugs could be set according to value-based principles:

- 1** Ex post value-based pricing – this would involve retaining upfront freedom of pricing for companies but would replace company-wide profit controls and price cuts with a series of reviews of the cost effectiveness of individual drugs or drug classes, conducted some years after launch.
- 2** Ex ante value-based pricing – this, in addition to the ex post reviews, would involve a fast-track ex ante assessment of a new drug's cost effectiveness before launch.

The OFT believes that, in the long run, the ex ante approach is to be preferred. It notes, however, that any new arrangements would need to be phased in appropriately, and that major changes to the system should not be rushed. The precise timetable for reform would be a matter for the Government, in discussion with industry, to consider.

The Government is currently considering its response to the OFT's report.

# APPENDIX TWO

## Methodology

We designed this study to examine the scope for improving the efficiency of prescribing, issues involved in assessing prescribing effectiveness, and the influences on prescribing behaviour. We also examined the extent of drugs wastage. Our study methodology involved the collection and analysis of primary and secondary data to provide evidence on the influences on GPs' prescribing behaviour; the opinions of prescribing advisors about their relationship with GPs and the influences on prescribers; the potential nationwide savings from prescribing drugs more efficiently; trusts in which efficient prescribing is occurring; and the causes and costs of the wastage of medicines. We also reviewed relevant literature on prescribing, and consulted with a wide range of stakeholders including pharmacists, pharmacologists, prescribing advisers, GPs, academics and representatives of the pharmaceutical industry. Details of the main strands of our methodology are set out below.

### Financial analysis

We engaged the Department of Medicines Management at Keele University to carry out analysis of all prescriptions written over a 12 month period from August 2005 to July 2006. Keele analysed four therapeutic areas which account for about 19 per cent of primary care expenditure on drugs. A measure of efficiency was calculated in each therapeutic area by examining the exact price that PCTs paid for the mix of drugs they prescribed over the period. The savings each PCT could have achieved were calculated by applying varying increases in the efficiency of prescribing to the actual volume prescribed. The three scenarios examined were: all PCTs in the bottom 50 per cent of prescribing efficiency to prescribe at the average cost per unit; all PCTs in the bottom 75 per cent of prescribing efficiency to prescribe at the same cost per unit as the highest cost member of the top 25 per cent; and all PCTs to prescribe with at the same cost per unit as the most efficient PCT. This analysis is used in Part 2 of the report.

### Survey of GPs

We commissioned Drs.Net, the largest UK internet service provider and market research firm for GPs, to run a web-survey of GPs in England. Questions were asked about issues including sources of prescribing information, relations with prescribing advisers, prescribing incentives, the Quality and Outcomes Framework, patient demands on prescribing, benchmarking, and drug company representatives and their influence. The survey also carried questions for the Office of Fair Trading's study of the Pharmaceutical Price Regulation Scheme: these considered GPs' perceived price ranking of certain drugs. The survey was conducted between 18 August 2006 and 7 September 2006, and 1,000 GPs responded. The response was nationally representative in GPs' gender, year of qualification and region. The results of this survey are used extensively in Part 3 of the report.

### Survey of Prescribing Advisers

We ran a postal questionnaire-based survey of prescribing advisers which was distributed on our behalf by the National Prescribing Centre. This survey asked prescribing advisers questions on topics such as their roles, visits to GPs, information sources and their relationships with GPs. The survey was conducted in August 2006 and sent to prescribing advisers in all 303 PCTs in existence in England at the time. In total we received 158 responses, a 51 per cent response rate. The results of this survey are also used extensively in Part 3 of the report.

### Prescribing Adviser Focus Groups

We held a focus group of Prescribing Advisers in Bristol North PCT in March 2006 and two further focus groups at the National Prescribing Centre annual conference in Nottingham in June 2006. The results of these groups contributed to our understanding of the effective means that PCTs can use to influence GPs' prescribing behaviour explored in Part 3, and the causes of drugs wastage given in Part 4.



## Case study visits and interviews

We identified examples of good practice in improving value for money in prescribing, and visited PCTs in North Eastern Derbyshire, Coventry, Bristol North and the New Forest, as well as the Use of Medicines Committee at University College Hospital in London. Material from these case studies is used in paragraph 2.26, throughout Part 3, and also in Part 4.

## Qualitative analysis of GP prescribing behaviour

We commissioned RAND Europe to conduct a qualitative analysis of what shapes GPs' prescribing decisions and how the cost efficiency of prescribing might be improved in the future. In two PCTs with contrasting levels of low-cost statin prescribing, Peterborough and Northumberland, RAND conducted three interviews between October and November 2006 with senior managers to identify prescribing issues, followed by two focus groups with GPs and finally a workshop involving PCT senior managers, GPs, and other knowledgeable individuals (such as pharmacists) to discuss prescribing influences, communication and marketing strategies and ways to improve the cost efficiency of GPs' prescribing. The RAND report is published in full on the NAO website, and was used extensively to inform our findings in Part 3.

## Expert consultancy

We commissioned an industry expert on sales and marketing of pharmaceutical products to provide advice on the evidence base for our report, and potential marketing and communication strategies which PCTs could use to influence GPs' prescribing behaviour and improve value for money in prescribing.

## Expert panel

We also convened an Expert Panel which advised us on emerging findings and issues arising as our fieldwork progressed. We thank them for their time and assistance. The members of the Expert Panel were:

Nicola Bent, Associate Director of Implementation Systems at the National Institute for Health and Clinical Excellence;

Beryl Bevan, Chief Pharmacist, Ealing PCT;

Professor Stephen Chapman, Professor of Prescribing Studies, Keele University;

Professor Joe Collier, Professor of Medicines Policy, St George's Hospital;

Clive Jackson, Chief Executive, National Prescribing Centre;

Dr Jim Kennedy, Prescribing Spokesperson, Royal College of General Practitioners and a practising GP;

Terence Lacey, Data Analyst, National Institute for Health and Clinical Excellence;

Dr Anne Mason, Research Fellow, Centre for Health Economics, University of York;

Dave Roberts, Unit Manager, Prescribing Support Unit, NHS Information Centre;

Alaster Rutherford, Head of Medicines Management, Bristol PCT;

Dr Mark Spencer, GP in Acton, West London;

Professor Adrian Towse, Chief Executive, Office of Health Economics.

# GLOSSARY

ACE inhibitor	A type of renin angiotensin drug used in the treatment of hypertension, heart failure, diabetic nephropathy and prophylaxis of cardiovascular events, generally available in both branded and generic form.
Angiotensin-II receptor antagonist	A type of renin angiotensin drug used in the treatment of hypertension, heart failure, diabetic nephropathy and prophylaxis of cardiovascular events, generally only currently available in branded form.
Antiplatelet	A drug used to reduce blood clotting and reduce the risk of cardiovascular events.
Area Prescribing Committee (APC)	A group working across several primary care trusts to set local primary care drugs usage policy and coordinate prescribing in primary and secondary care.
British National Formulary (BNF)	The standard reference on all licensed drugs in the UK, updated regularly.
Clopidogrel	An antiplatelet drug prescribed in secondary care usually after an acute cardiovascular event such as a heart attack or stroke.
Clinical pharmacology	The study of how drugs interact within the human body in order to establish benefits and side effects.
Consultant	A senior specialist doctor, usually in secondary care.
Defined Daily Dose (DDD)	A standardised measure of prescribing volume for a drug, based on the daily dosage recommended by the World Health Organisation for the drug's main indication.
Diabetic Testing Strip	Used in conjunction with a monitor by diabetics to record the level of blood glucose.
Drugs and Therapeutics Bulletin (DTB)	An independent monthly bulletin providing reviews of treatments.
Drugs and Therapeutic Committee (DTC)	The group responsible for deciding which drugs can be prescribed in secondary care by creating a trust level formulary from which all employees of the trust must prescribe.
Effective prescribing	Defined in this report as ensuring that the clinical needs of a population are met by prescribing a volume of drugs which is consistent with the prevalence of a disease.
Efficient prescribing	Defined in this report as ensuring that, where there is a range of drugs of similar efficacy but varying price available to treat a condition, a high proportion of the prescriptions written are for low acquisition cost drugs.

ePACT (electronic prescribing analysis and cost) data	Produced by the NHS Business Services Authority Prescription Pricing Division, ePACT data provides information down to practice level on prescribing trends and can be analysed comparatively by a range of denominators.
Formulary	A list of drugs which typically limits the number of drugs which can be purchased, prescribed and dispensed. NHS trusts have formularies from which doctors, nurses and pharmacists employed by the trust must prescribe.
GP – General Practitioner	GPs are the doctors responsible for delivering the majority of primary care in the community.
Information Centre	Created in April 2005 out of the former NHS Information Authority and the Department of Health Statistics Unit to collect, analyse and distribute facts and figures for the health and social care communities.
Long term condition	A condition, such as diabetes or asthma, for which a patient needs treatment for a sustained period of time.
Medicines Use Review (MUR)	A structured review between patients receiving medication for a long term condition and a pharmacist to identify how the drugs they are prescribed are being used and if there are any problems.
National Institute for Health and Clinical Excellence (NICE)	An independent organisation covering England and Wales, responsible for providing guidance on the promotion of good health. NICE provides objective guidance on the clinical and cost effectiveness of drugs and treatments.
National Prescribing Centre (NPC)	A health service organisation, formed in April 1996 by the Department of Health. Its aim is to ‘promote and support high quality, cost-effective prescribing and medicines management across the NHS, to help improve patient care and service delivery’.
NHS Business Services Authority	Established in April 2006 with the aim of being ‘the first choice for the Department of Health and the NHS in commissioning, procuring and performance managing all appropriate non-clinical NHS-related business and service contracts’.
NHS Business Services Authority Prescription Pricing Division	The body responsible for processing all NHS prescriptions, determining reimbursement levels and payment.
NHS Institute for Innovation and Improvement	Established in 2005 its mission is to improve health outcomes and raise the quality of delivery in the NHS by accelerating the uptake of proven innovation and improvements in healthcare delivery models and processes, medical products and devices and healthcare leadership.
Omeprazole	A proton pump inhibitor available in branded and generic forms.
Payment by Results tariff	A funding system introduced in 2004-05 which links payment to activity and casemix.
Pharmaceutical Price Regulation Scheme (PPRS)	An agreement negotiated every five years between the Department of Health and the pharmaceutical industry, which aims to secure the provision of safe and effective medicines for the NHS at reasonable prices; promote a strong and profitable pharmaceutical industry capable of such sustained research and development expenditure as should lead to the future availability of new and improved medicines; and encourage the efficient and competitive development and supply of medicines to pharmaceutical markets in the UK and other countries.

Pharmacist	The health care professional responsible for dispensing prescription medicines to patients and providing advice on their proper use.
Primary Care	The point at which most people enter the health system and the 'gateway' to the NHS, for example GPs are providers of primary care.
Primary Care Trust (PCT)	A statutory body and part of the NHS responsible for delivering healthcare and health improvements to local residents, for example by commissioning care from providers such as hospitals.
Practice Based Commissioning (PBC)	A Department of Health initiative under which practices receive information on how their patients use health services. This information can be used for the redesign of services by front line clinicians for the benefit of patients, for example by reinvesting a proportion of any prescribing efficiency savings they make.
Pravastatin	The active ingredient of some branded statins, pravastatin is also available generically in the UK.
Prescribing Advisor	A pharmacist employed by a PCT as part of its medicines management team to provide support to prescribers and help implement the PCT's prescribing priorities.
Proton Pump Inhibitor	A drug used in the treatment of gastric conditions such as dyspepsia, peptic ulcer disease and gastric reflux.
Quality Management and Analysis System (QMAS)	A database on GP practices' performance against QOF targets.
Quality and Outcomes Framework (QOF)	A component of GPs' contracts, the QOF sets targets for GPs against evidence-based criteria covering a range of general and condition-specific indicators. Payments to practices are calculated on the basis of the extent to which these targets are met.
Renin-angiotensin drugs	Drugs used in the treatment of hypertension, heart failure, diabetic nephropathy and prophylaxis of cardiovascular events.
Repeat dispensing	A scheme which allows patients to collect repeat medications from a pharmacist without being issued with a new prescription by a prescriber.
Repeat prescription	A prescription which allows a patient to collect medicines on several occasions without an appointment with a prescriber.
Rofecoxib (Vioxx)	A pain relieving drug previously widely used in the treatment of osteoarthritis, amongst other conditions, Vioxx was voluntarily withdrawn from the market by its manufacturers because of concerns about increased risk of heart attack and stroke linked to long-term use.
Secondary care	Specialist care, for example in a hospital, usually administered following a referral from primary care.
Simvastatin	The active ingredient of some branded statins, simvastatin is also available generically in the UK.
STAR PU – (Specific Therapeutic group Age-sex Related Prescribing Unit)	A weighting of patient numbers, based on the proportions in different age and sex categories, to provide a standardised measure of demand when comparing prescribing costs in a particular therapeutic area between practices or PCTs.

Statin	A drug used to lower cholesterol in the prevention and treatment of cardiovascular disease.
Strategic Health Authority (SHA)	The body responsible for the supervision of the NHS trusts within its boundaries to ensure that local services are commissioned and run effectively and efficiently.
Therapeutic Area	The broad area of application of a drug or treatment, for example the infection control, the central nervous system, the respiratory system.
World Health Organisation	The United Nations specialised agency for health.

## ENDNOTES

- 1 NHS Information Centre, Prescriptions Dispensed in the Community Statistics for 1995 to 2005: England.
- 2 NHS Business Services Authority Pharmaceutical Directorate, *Update on growth in prescription volume and cost, year to September 2006*, p.6 (available at [http://www.ppa.org.uk/pdfs/publications/SMT\\_V&C\\_report\\_200609.pdf](http://www.ppa.org.uk/pdfs/publications/SMT_V&C_report_200609.pdf)).
- 3 *Ibid.*, p. 8.
- 4 Adelphi Research UK, *Qualitative Analysis of Variation in Uptake of Medicines across the NHS in England*, p.33.
- 5 *The Pharmaceutical Price Regulation Scheme: An OFT market study* (OFT, 2007).
- 6 Hospital pharmacists will not normally dispense a consultant's prescription if it is for a drug not in the formulary (the agreed list of drugs used in the hospital), and can, for instance, dispense a generic alternative if a brand name drug is prescribed.
- 7 *Management of hypertension in adults in primary care*, June 2006.
- 8 PCTs were reconfigured in October 2006, with the total number reducing from 303 to 152. The calculations in this section, as well as those underlying the 'Better Care, Better Value' indicators, are based on pre-reconfiguration boundaries. The overall scope for savings, however, due to changes in GPs' prescribing behaviour, remains, irrespective of how PCTs are configured.
- 9 See the Technical Supplement, available at [www.nao.org.uk](http://www.nao.org.uk), for a discussion of the issues in prescribing in these four areas, and the ranges of drugs available.
- 10 The adjustment is carried out using a measure known as a 'STAR PU', which is defined in the Technical Supplement available at [www.nao.org.uk](http://www.nao.org.uk).
- 11 Details of the calculations are given in the Technical Supplement.
- 12 Christie, S *On local and national tensions*, Health Service Journal, 4 January 2007, p. 17.
- 13 Diabetic testing strips can be used to test either blood or urine in people with diabetes. People with diabetes who are on insulin find them particularly useful. However, they are widely prescribed for people who are not on insulin. The evidence base for their effectiveness is poor, and they are often prescribed without education in how to use them to improve self management. Several large trials are underway to determine their usefulness. A 10 per cent reduction in prescriptions would lead to a saving of £14 million.
- 14 Aronson J, Henderson G, Webb D and Rawlins M, *A prescription for better prescribing*, British Medical Journal 2006, 333: 459-60, points out that medical students had a median of 61 hours of teaching related to pharmacology, clinical pharmacology and therapeutics in 1994 and that the amount of teaching has fallen since then.
- 15 Cranney, M and Walley, T *Same information, different decisions: the influence of evidence on the management of hypertension in the elderly*, British Journal of General Practice, 1996, 46, 661-663.
- 16 Source: Department of Health.
- 17 House of Commons Health Committee, *The Influence of the Pharmaceutical Industry*, Fourth Report of Session 2004-05, Volume I, p.25, paragraph 77 a.
- 18 *Ibid.*, p.25, paragraph 73.
- 19 *Ibid.*, p.76 paragraph 271 and p.64, paragraph 234.
- 20 Not all of these are full time, and current reorganisation in the NHS may have implications for adviser numbers.

- 21 *Ibid.*, Volume I, p.25, paragraph 73.
- 22 *Ibid.*, Volume I, p.57 paragraph 210.
- 23 Audit Commission: *A Prescription for Improvement. Towards more rational prescribing in general practice.* London: HMSO, 1994.
- 24 Prosser H and Walley T, *New drug uptake: qualitative comparison of high and low prescribing GPs' attitudes and approach*, *Family Practice* 2003, 20: 583-591.
- 25 The Department of Health has quoted this estimate for some years, e.g. *Hansard* 10 November 2003, column 130W; 5 June 2006, column 385W.
- 26 Department of Health, *Management of Medicines: A resource to support implementation of the wider aspects of medicines management for the National Service Frameworks for Diabetes, Renal Services and Long-Term Conditions*, July 2004, available at <http://www.dh.gov.uk/assetRoot/04/08/87/55/04088755.pdf>
- 27 World Health Organisation, *Adherence to Long Term Therapies: Evidence for Action*, 2003. (This figure refers to medication which is taken incorrectly as well as that not taken at all).
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- 29 Hawksworth GM, Wright DJ, Chrystyn H, *A detailed analysis of the day to day unwanted medicinal products returned to community pharmacies for disposal*, *Journal of Social and Administrative Pharmacy*, 1996; 13: 215-222.
- 30 Blenkinsopp A, Bond C, Celino G, Inch J, *Medicines Use Reviews: the first year of a new community pharmacy service*, *Pharmaceutical Journal* 2007, 278: 218-223.