

Scottish general practitioners' attitudes and knowledge in respect of prescribing costs

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Abstract

The government's proposal to introduce drug budgets will compel general practitioners to consider the financial consequences of prescribing. A survey was carried out of general practitioner principals in Grampian and a sample elsewhere in Scotland to examine their attitudes towards considering costs when prescribing and assess the accuracy of their knowledge of drug costs. Most general practitioners agreed that costs should be borne in mind when choosing medicines but their knowledge of drug costs was often inaccurate. Only one third of estimates were correct to within 25% of the actual cost, and there was a tendency to overstate the cost of cheap drugs and understate the cost of expensive ones. Some general practitioners were not aware of the relative prices of competing products or proprietary products and generic equivalents.

The findings highlight the importance of providing general practitioners with readily accessible and up to date information on drug costs if prescribing budgets are to work.

Introduction

Continued concern about the size of the NHS drugs bill has led the government to announce that from 1992 in Scotland general practitioners will be subject to prescribing budgets.¹ For most general practitioners these budgets will be "indicative"—that is, prescribing costs will be expected to come within a specified budgetary limit. Larger practices which opt to participate in the practice budgets scheme will be paid an amount to cover prescribing costs.

Practices which exceed their indicative or practice budgets will be offered advice and may have their prescribing subjected to peer review. If such an investigation finds that a member or members of the practice have been overprescribing sanctions may be applied.

Budgets will compel general practitioners to consider the financial consequences of their prescribing to a greater extent than ever before. This raises two crucial questions: Do general practitioners accept the need to consider costs when prescribing? and How well do they know the cost of the drugs they prescribe? This paper examines these issues based on a survey of general practitioner principals in Grampian and elsewhere in Scotland.

Methods

As part of a larger study of prescribing,² a postal questionnaire was sent to all 273 general practitioner principals in Grampian in October 1986. To assess whether these doctors were representative of Scottish doctors more generally the questionnaire was also sent to a random sample of 94 Scottish principals.

The questionnaire asked general practitioners about their attitudes towards prescribing costs and assessed their knowledge of the net ingredient cost of 21 drugs. The drugs were chosen to include products from different therapeutic groups—namely, ulcer healing preparations (ranitidine, cimetidine); preparations for allergic disorders (chlorpheniramine maleate, terfenadine, sodium cromoglycate); analgesics (co-dydramol, co-proxamol, paracetamol); non-steroidal anti-inflammatory drugs (ibuprofen, Brufen (ibuprofen), Naprosyn (naproxen), mefenamic acid); antibiotics (ampicillin, Penbritin (ampicillin), amoxycillin, penicillin V); nervous system preparations (diazepam); and cardiovascular preparations (enalapril, glyceryl trinitrate, Transiderm-Nitro (glyceryl trinitrate), nifedipine). Cheap and expensive preparations, commonly and less commonly used preparations, generic and proprietary preparations, competing products, and established and newly marketed preparations were covered by this selection.

Additional information was obtained, for Grampian doctors only, about characteristics of the general practitioners—for example, year qualified, sex, number of further qualifications, location of practice, size of partnership—and their frequency of prescribing each of the 21 drugs.

It would not have been reasonable to expect general practitioners to know the exact cost of drugs (there are often discrepancies between published sources of cost information—for example, *British National Formulary*, *Monthly Index of Medical Specialities*, *Chemist and Druggist Price List*). Hence in keeping with other studies of doctors' perceptions of costs^{3,4} we accepted as accurate those estimates which were within 25% of the actual cost (obtained from the Prescription Pricing Bureau, Aberdeen). Doctors were urged not to estimate the cost of products they had never prescribed.

Results

A total of 223 Grampian doctors (82%) and 72 (77%) of the Scottish sample returned the questionnaire. Of these, 213 (96%) and 68 (94%) respectively attempted the cost estimation section.

Attitudes towards drug costs in the Grampian and Scottish samples were very similar, and the differences between them were not significant at the 5% level when using χ^2 tests (table I). Three quarters of the Grampian principals (169; 76%) and two thirds of the Scottish sample (47; 66%) agreed that costs should be taken into account when prescribing; 161 Grampian doctors (73%) and 54 Scottish doctors (75%) thought that prescribing costs could be reduced without affecting patient care, and the same proportions saw better cost information as a means of achieving this.

Grampian and Scottish doctors' knowledge of drug costs was virtually identical (table II). Around one third of all cost estimates were accurate to within 25%

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of the actual cost, roughly 44% were overestimates, and 24% were underestimates. With respect to individual products *t* tests showed no significant differences in the average cost estimates of the Grampian

TABLE I—General practitioners' attitudes towards prescribing costs. Figures are numbers (percentages) of doctors

	Agree	Uncertain	Disagree	Significance of difference
<i>When deciding on best treatment for an individual patient the doctor should normally take cost into account</i>				
Grampian (n=223)	169 (76)	6 (3)	48 (22)	χ ² =5.40; p=0.07
Scotland (n=71)	47 (66)	6 (8)	18 (25)	
<i>Most general practitioners could reduce substantially their prescribing costs without adversely affecting patient care</i>				
Grampian (n=222)	161 (73)	32 (14)	29 (13)	χ ² =0.22; p=0.90
Scotland (n=72)	54 (75)	10 (14)	8 (11)	
<i>Providing general practitioners with more information on drug costs would lower the cost of prescribing</i>				
Grampian (n=223)	161 (72)	36 (16)	26 (12)	χ ² =0.20; p=0.91
Scotland (n=71)	53 (75)	10 (14)	8 (11)	

TABLE II—Accuracy of general practitioners' estimates of drug costs. Figures are numbers (percentages) of estimates

	Grampian (n=4293)	Scotland (n=1243)
Underestimates	1030 (24)	286 (23)
Accurate estimates*	1417 (33)	398 (32)
Overestimates	1846 (43)	559 (45)

*Within 25% of the true cost.

TABLE III—Grampian general practitioners' perceptions of the cost of 21 drugs

Drug	No of estimates	Actual price (£)	Range of estimates (£)	Mean estimate (£)	SD (£)	Median estimate (£)
Enalapril (Innovace) tablets 10 mg; 28	123	10-40	5.00-30.00	13.70	5.42	12.00
Diazepam tablets 5 mg; 90	212	0-14	0.20-10.00	2.02	1.62	1.55
Ranitidine (Zantac) tablets 150 mg; 60	213	27-43	2.50-80.00	21.22	9.18	20.00
Cimetidine (Tagamet) tablets 400 mg; 60	213	17-80	2.00-70.00	16.38	7.17	16.00
Chlorpheniramine maleate (Piritor) tablets 4 mg; 90	212	0-84	0.25-20.00	1.85	1.76	1.20
Terfenadine (Triludan) tablets 60 mg; 60	207	5-59	0.70-30.00	5.61	3.02	5.00
Transiderm-Nitro (glyceryl trinitrate) patches 5 mg; 30	196	19-33	3.00-60.00	14.70	7.53	13.30
Glyceryl trinitrate tablets 0.5 mg; 100	213	0-41	0.02- 5.00	0.81	0.60	0.60
Nifedipine (Adalat) tablets 10 mg; 100	211	12-19	2.00-40.00	10.78	5.27	10.00
Co-proxamol tablets; 100	205	1-84	0.80-10.00	3.41	1.74	3.00
Co-dydramol tablets; 100	206	1-64	0.50-10.00	3.24	1.72	3.00
Mefenamic acid (Ponstan) capsules 250 mg; 100	213	5-27	1.50-20.00	6.23	3.12	6.00
Paracetamol tablets 500 mg; 100	213	0-45	0.25-12.00	1.35	1.12	1.00
Ibuprofen tablets 400 mg; 100	204	3-10	0.80-60.00	5.01	4.71	4.00
Brufen (ibuprofen) tablets 400 mg; 100	207	6-07	0.80-40.00	6.96	3.81	6.00
Naprosyn (naproxen) tablets 250 mg; 100	210	10-76	1.00-60.00	9.12	4.93	8.10
Ampicillin capsules 250 mg; 28	206	1-18	0.30-14.00	2.07	1.75	1.60
Penbritin (ampicillin) capsules 250 mg; 28	201	1-99	0.30-20.00	3.23	2.07	3.00
Amoxycillin capsules 250 mg; 21	210	3-31	0.40-24.00	3.55	2.23	3.00
Penicillin V tablets 250 mg; 28	213	0-41	0.20-10.00	1.18	0.97	1.00
Sodium cromoglycate (Intal) aerosol inhaler 1 mg; 1	205	12-13	1.00-16.00	7.29	3.30	6.50

TABLE IV—Accuracy of Grampian general practitioners' estimates of cost of 21 drugs listed in order of actual cost (cheapest to most expensive). Figures are numbers (percentages) of estimates

	Underestimates	Accurate estimates*	Overestimates
Diazepam (n=212)	0	0	212 (100)
Glyceryl trinitrate (n=213)	34 (16)	64 (30)	115 (54)
Penicillin V (n=213)	17 (8)	34 (16)	162 (76)
Paracetamol (n=213)	4 (2)	21 (10)	188 (88)
Chlorpheniramine maleate (n=212)	23 (11)	81 (38)	108 (51)
Ampicillin (n=206)	33 (16)	47 (23)	126 (61)
Co-dydramol (n=206)	12 (6)	62 (30)	132 (64)
Co-proxamol (n=205)	16 (8)	47 (23)	142 (69)
Penbritin (ampicillin) (n=201)	18 (9)	54 (27)	129 (64)
Ibuprofen (n=204)	33 (16)	45 (22)	126 (62)
Amoxycillin (n=210)	55 (26)	105 (50)	50 (24)
Mefenamic acid (n=213)	36 (17)	100 (47)	77 (36)
Terfenadine (n=207)	64 (31)	95 (46)	48 (23)
Brufen (ibuprofen) (n=207)	46 (22)	89 (43)	72 (35)
Enalapril (n=123)	10 (8)	57 (46)	56 (46)
Naprosyn (naproxen) (n=210)	105 (50)	82 (39)	23 (11)
Sodium cromoglycate (n=205)	146 (71)	57 (28)	2 (1)
Nifedipine (n=211)	78 (37)	108 (51)	25 (12)
Cimetidine (n=213)	60 (28)	132 (62)	21 (10)
Transiderm-Nitro (glyceryl trinitrate) (n=196)	102 (52)	74 (38)	20 (10)
Ranitidine (n=213)	113 (53)	89 (42)	11 (5)

*Within 25% of the true cost.

and Scottish samples. Table III presents results for the Grampian doctors only.

The number of replies was notably lower only for enalapril, which at the time of questioning was recently marketed and not used by 90 (42%) of the doctors. The range of cost estimates for each drug was wide but included the actual cost in nearly all cases. The exception was diazepam, the cheapest product, for which all the doctors overestimated the cost.

The distribution of replies into underestimates, accurate estimates (that is, within 25% of the true cost), and overestimates varied greatly among products, from all general practitioners overestimating the cost of diazepam to 146 (71%) underestimating the cost of sodium cromoglycate. There was little consistency in the accuracy of estimates within therapeutic groups, even when comparing generic and proprietary forms of the same preparation (for example, ibuprofen and Brufen, ampicillin and Penbritin). Doctors were no better informed about the cost of drugs which they prescribed frequently.⁶ They, however, consistently understated the cost of relatively expensive drugs and overstated the cost of cheaper ones (table IV).

Some doctors were not aware of the relative prices of competing products, even when the cost differential was large. For example, 27 doctors (13%) thought that ranitidine and cimetidine were equally costly, and 16 (8%) thought that cimetidine was more costly; 18 doctors (9%) thought that amoxycillin and ampicillin were equally costly, and seven (3%) thought that ampicillin was more costly. Even more surprisingly,

some doctors were unaware that proprietary products are more expensive than generic equivalents. For instance, 25 (12%) thought that Brufen and ibuprofen were equally costly, and five (2%) thought that ibuprofen was more costly. Similarly, 16 doctors (8%) thought that Penbritin and ampicillin cost the same, and 10 (5%) believed that ampicillin was more expensive.

Multiple regression analysis showed little association between the accuracy of general practitioners' cost estimates and their individual or practice characteristics.⁶

Discussion

The finding that Scottish general practitioners' perceptions of drug costs are often inaccurate is consistent with other studies in Britain.^{7,8} Given the view of most doctors in our study that drug costs should be borne in mind when choosing a patient's treatment, this may have important implications for

the efficiency of prescribing. Overestimating the cost of cheap drugs and underestimating the cost of expensive ones may bias general practitioners' choices towards higher cost products, thus inflating the NHS drugs bill. A future paper will investigate the relation between general practitioners' perceptions of costs and their prescribing patterns.

This study highlights a demand among Scottish general practitioners for better information about drug costs. The information which they currently receive is limited to total numbers of prescriptions and costs for the doctors themselves, their practice and health board, and for Scotland as a whole. There are, however, plans to introduce in 1990 a more detailed information system for Scottish general practitioners, similar to the prescribing analyses and cost (PACT) system recently implemented in England.

There are also plans to include drug costs in the computerised module of the general practice administration system for Scotland (GPASS) and to extend the viewdata computer system (VADIS) to an increasing number of general practitioners in Scotland.¹ The viewdata computer system would provide doctors with instant up to date information on clinical attributes of drugs as well as the relative costs of products with the same therapeutic effects. Nevertheless, as only 37% of practices in Scotland are currently computerised (West Coast Computer Consortium, Paisley, personal communication) a major investment will be required to provide these systems and update them regularly.

Given the deficiencies in general practitioners' knowledge of drug costs identified in this paper, such an investment may be necessary if the government's proposals for prescribing budgets are to work.

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Screening in Practice

Health checks for adults

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Which tests are worth while?

Prevention and health promotion are now with us. They are included in the new terms of service of general practitioners, and all patients in the 16-74 year age group who have not been seen for three years must be offered a "health check." Most doctors will be aware that the validity of this recommendation is open to doubt. There is considerable concern about the efficacy, cost effectiveness, and feasibility of such an exercise, but it is wrong to dispose of the baby as well as the bathwater. Some tests are worth while (box): properly organised screening for smoking habit, blood pressure, cervical cancer, and breast cancer saves lives and prevents unnecessary suffering. Detailed information on appropriate screening intervals can be found in the references given in this article and more information on test efficacy in the article on the theory of screening.¹ This paper discusses some of the practical issues to be considered in making screening successful in general practice.

Practical problems

The most important practical problems facing general practitioners in the implementation of screening programmes are summarised in table I.

RECRUITMENT

A major problem with postal recruitment and with assessing coverage is accurate registration.² Little can be done about patient mobility, but motivated reception staff can make a great contribution to maintaining correct addresses. When prescriptions are

Worthwhile mass screening programmes

- Smoking habit
- Hypertension
- Cervical cancer
- Breast cancer (mammography)
- Alcohol consumption

Possible mass screening programmes

- Hyperlipidaemia (? adequate resources for management are available)
- Obesity (? effective intervention is possible)
- Faecal occult blood (if results of randomised trials are favourable)

Unnecessary mass screening programmes

- Proteinuria
 - Haematuria
 - Glycosuria
 - Bacteriuria
- (but selective urine analysis in elderly patients may be worth while and merits further research)

written on desk computers linked to the main register patients often point out an incorrect address on the prescription during the consultation. Accurate registers also allow identification and targeting of high risk groups.

QUALITY ASSURANCE

Quality assurance depends primarily on good training. This means training general practitioners in the practical theory and management of screening programmes. It also means that all staff must be

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