A qualitative study to explore influences on general practitioners' decisions to prescribe new drugs

Ann Jacoby, Monica Smith and Martin Eccles

SUMMARY

Background: *Ensuring appropriate prescribing is an important challenge for the health service, and the need for research that takes account of the reasons behind individual general practitioners' (GPs) prescribing decisions has been highlighted.*

Aim: *To explore differences among GPs in their decisions to prescribe new drugs.*

Design of study: *Qualitative approach, using in-depth semi-structured interviews.*

Setting: *Northern and Yorkshire Health Authority Region.*

Method: *Participants were identified from a random sample of 520 GPs in a quantitative study of patterns of uptake of eight recently introduced drugs. Purposeful sampling ensured inclusion of GPs prescribing any of the eight drugs and working in a range of practice settings. Fifty-six GPs were interviewed, using a topic guide. Interviews were recorded on audiotape. Transcribed text was methodically coded and data were analysed by constantly comparing emerging themes.*

Results: *Both low and high prescribers shared a view of themselves as conservative in their prescribing behaviour. Low prescribers appeared to conform more strongly to group norms and identified a consensus among practice partners in prescribing and cost-consciousness. Conformism to group norms was represented by a commitment to practice formularies. High prescribers more often expressed themselves to be indifferent to drug costs and a shared practice ethos.*

Conclusions: *A shift in the attitudes of some GPs is required before cost-effectiveness is routinely incorporated in drug prescribing. The promotion of rational prescribing is likely to be more successful if efforts are focused on GPs' appreciation of cost issues and attitudes towards shared decision-making and responsibility.*

Keywords: *costs; decision-making; new drugs; qualitative research.*

A Jacoby, BA, PhD, professor of medical sociology, Department of Primary Care, University of Liverpool. M Smith, MA, research associate; and M Eccles, FRCP, FRCGP, MFPHM, professor of clinical effectiveness, Centre for Health Services Research, University of Newcastle upon Tyne.

Address for correspondence

Professor Ann Jacoby, Department of Primary Care, Whelan Building, The Quadrangle, Brownlow Hill, Liverpool, L69 3GB. E-mail: ajacoby@liv.ac.uk

Submitted: 29 March 2001; Editor's response: 3 July 2001; final acceptance: 4 October 2002.

©*British Journal of General Practice,* 2003, **53**, 120-125.

Introduction

ENSURING appropriate prescribing, and in particular appropriate prescribing of new and expensive drugs, is a major challenge for the health service. Inappropriate prescribing has both clinical and cost implications, which may be substantial.[1] Factors implicated in inappropriate prescribing, and methods for improving prescribing patterns have been the subject of a considerable body of research that has highlighted the complexity of this topic.[2-4] For example, characteristics of the drug, the patient, the clinician, and the professional environment have all been variously shown to influence prescribing decisions;[5-9] however, the findings have not always been consistent. Furthermore, the assumption that what constitutes appropriate prescribing is well defined has been challenged.[10] Recently, an attempt has been made to develop models explaining GPs' prescribing behaviour.[11]

General practitioners (GPs) in the United Kingdom appear to be conservative prescribers of new drugs. Taylor and Bond[12] report that newly adopted drugs accounted for only 5% of all non-repeat prescriptions, which were in turn only 62% of all prescription items written at surgery consultations. Despite such evidence, there is a perception of an inappropriate uptake of new drugs. McGavock *et al*[13] used routine data to chart changes in the use of three new drug groups and suggested that the increase in prescriptions was greater than the increase in the number of patients with specific indications for them. Most recently, Avery *et al*[14,15] reported that general practices with large increases in prescribing costs over a two-year period showed relatively large increases in prescriptions for various categories of drugs, including hospital-initiated drugs and new and expensive ones.

Prescribing involves a complex process[3] of sifting information from various sources and balancing a range of personal, social, and logistical influences, in addition to those that are purely medical and pharmacological.[2] In the case of new drugs, practitioners are trying to balance a range of factors, such as potential side effects, long-term effects, and the range of therapeutic indications, for which relatively little information is available and around much of which they may have little or no practical experience. Under such circumstances prescribing may be more 'an act of faith' than a rational process.[16] Avery *et al*[15] call for work that takes account of 'the reasons behind individual prescribing decisions'.

We undertook a study to explore individual GPs' attitudes towards prescribing specified new drugs, and to identify the range of potential influences on their decisions to do so.[17]

HOW THIS FITS IN

What do we know?

Previous research suggests there may be an inappropriate uptake of new and expensive drugs by GPs, which is associated with large increases in prescribing costs. Quantitative studies have identified a complex range of factors influencing GP decisions about prescribing, but further exploration is required of factors motivating individual GP prescribing decisions with regard to new drugs.

What does this paper add?

Our study shows that low prescribers of new drugs adopt a more cost-conscious approach to prescribing than high prescribers. They are more likely to conform to a practice norm that encourages such an approach and to use a prescribing formulary. Resistance to the concept of cost-consciousness must be overcome through local and national strategies, if greater cost-effectiveness in prescribing is to be achieved.

Consistent with the view that such methods offer the most appropriate way to explore complex attitudes and behaviour,[18] we adopted a qualitative approach. We hoped to shed light on factors contributing to the rise in prescriptions for new medicines and so inform policy on the promotion of their appropriate prescribing in general practice. A full report of our findings has been published elsewhere.[17] In this paper, we focus on differences in the way in which high and low prescribers of new drugs viewed themselves and the constraints upon them with regard to their prescribing behaviour.

Method

GPs who took part in this qualitative study were purposively sampled from a larger random sample, identified as part of a quantitative study of the patterns of uptake of eight recently introduced drugs among GPs in the Northern and Yorkshire Health Authority Region.[19] For the quantitative study, 509 GPs, all of whom had prescribed at least one of the index drugs, were sampled from a total of over 1800 across the region. The purposive sampling frame was constructed to include:

- all area health authorities in the region;
- both male and female GPs;
- GPs who had prescribed any one or more of eight index drugs within the study period (April 1995 to June 1997). Three groups were identified:
  - high prescribers, who had prescribed any five or more;
  - medium prescribers who had prescribed any four; and
  - low prescribers who had prescribed any three or fewer;
- fundholding or non-fundholding practices, and
- GPs in practices of varying size (single-handed, two to four partners, and five or more partners).

Initial letters of introduction, with an accompanying information sheet, were sent to GPs in each cell of the sampling frame. Letters were followed up with a telephone call to recruit participants and arrange interviews. During the telephone call, the interviewer (MS) reiterated both how the GPs had been identified and the subject of the research. The interviews, which were in-depth and semi-structured, took place between September 1997 and the end of January 1998. They were usually conducted in the doctors' surgeries, lasted up to an hour, and were tape-recorded. The interview topic guide was developed and tested in five pilot interviews with GPs who were not included in the qualitative sampling frame. The topics (Box 1) were drawn from current literature and informed by the experience of clinical members of the research team. The starting point for the interview was a discussion of the GP's prescribing patterns in relation to the eight recently introduced drugs, all of which were licensed for use in primary care (Table 1). The drugs were chosen to represent innovative and semi-innovative preparations, use in primary/secondary interface prescribing, and use in clinical areas where prescribing guidelines were established and where they were less clear.

Analysis

All interview transcripts were analysed using 'Framework', an established manual method of qualitative data analysis.[20] Three researchers independently searched a sample of transcripts to identify key themes. Then, working together, the themes were translated into index headings and subheadings that were annotated to appropriate sections of text in every transcript. Charts covering each topic area were completed by abstracting relevant sections of the indexed texts. Patterns were identified by comparing themes across the charts.

Results

Of 131 GPs approached, 56 (43%) agreed to be interviewed (Box 2). Informants included 25 from fundholding and 31 from non-fundholding practices; six were from dispensing practices. Fifteen were partners in large group practices (five partners or more), 24 in smaller group practices (two to four partners) and 17 were single-handed GPs. There were 24 high, 16 medium and 16 low prescribers of the index drugs.

From the thematic analysis, two broad sets of influences emerged: factors internal to the GP, and those that were external (summarised in Box 3). Key among internal factors appeared to be GPs' own past clinical experience and level of confidence in their role, the level of their expertise in

- prescribing policies and clinical interests of the GP;
- his or her experience of the named drugs in the context of their safety, efficacy, ease of use and cost characteristics;
- the clinical scenario in which they had been used;
- the information about drugs which GPs draw on and from where that information comes; and
- the practice organisation.

Box 1. The topic guide.

Table 1. The index drugs.

Name	Date of introduction	Indication	Degree of innovation	Prescribing path
Finasteride	February 1992	Benign prostatic hyperplasia	Innovative	Consultant-led
Fluticasone	April 1993	Prophylaxis of asthma	Semi-innovative	Use supported by clinical guidelines
Losartan	January 1995	Hypertension	Innovative	
Meloxicam	September 1996	Rheumatoid arthritis; oesteoarthritis (short-term)	Semi-innovative	
Nicorandil	November 1994	Prophylaxis and treatment of angina	Innovative	Consultant-led
Ranitidine bismuth citrate	September 1995	*H pylori* eradication; peptic ulceration	Semi-innovative	
Tramadol	July 1994	Moderate to severe pain	Innovative	
Venlafaxine	February 1995	Depressive illness	Innovative	Consultant-led

- prescribing of index drugs: 24 high adopters, 16 medium adopters, 16 low adopters;
- practice size: 17 single-handed; 24 small (two to four partners); 15 large (five or more partners);
- working in a fundholding practice: 25;
- working in a dispensing practice: 6;
- female:male: 10:46; and
- qualified for >20 years: 36.

Box 2: Characteristics of the 56 general practitioners.

Internal influences
- Level of risk aversion
- Confidence
- Level of prescribing experience
- Level of expertise in the clinical area
- Experience of index drug
- Cost-consciousness
- View of professional role

External influences
- Peers: practice partners; locums; specialist nurses; other GPs; hospital consultants; junior hospital doctors
- Literature: evidence-based; academic/peer-reviewed; other
- Study days/events
- Guidelines
- Drug companies: drug reps; adverts; 'freebies'
- Health authority: pharmaceutical adviser; PACT data; medical adviser

Drug characteristics
- Efficacy
- Safety and tolerability (adverse side effects profile)
- Regimen and compliance issues (dosing, mode of delivery)
- Cost
- Pharmacological niche/uniqueness
- Patient characteristics (age, clinical condition)

Box 3. Main influences on GP prescribing of new medicines.

specific clinical areas, and their attitudes towards cost-conscious prescribing. Important external factors included information provided by the pharmaceutical industry (particularly through drug 'reps'); written literature that was independent (including the *Drugs and Therapeutics Bulletin, British National Formulary*, peer-reviewed journals and the medical 'weeklies'); and health authority medical and pharmacy advisors. Other professional peers, in particular hospital consultants, also emerged as important influences, with a significant amount of prescribing of the index drugs appearing to be hospital-initiated or hospital-led. In addition to these personal and external social factors, the decisions individual GPs made were also influenced by their judgements about the efficacy, safety, tolerability, cost, and pharmacological niche of the index drugs (Box 3). A detailed descriptive account of all these influencing factors is provided elsewhere.[17]

Conservatism in prescribing

Within the period of scrutiny, data provided by the prescribing authority revealed that some high prescribers had prescribed as many as seven of the eight index drugs, while two low prescribers had prescribed only two of the drugs (one of the drugs, ranitidine bismuth citrate, had not been prescribed at all by GPs in the purposive sample, but all knew about it and were able to discuss reasons for its non-use). Despite this, we found striking similarity in the way responders across the two groups described their approach to prescribing as 'conservative' and 'cautious', generally sticking to what was familiar, tried and tested.

In the following and all subsequent quotes in the text, all comments have been anonymised; 'H' denotes a high prescriber and 'L' a low prescriber of the index drugs. Since the majority of those interviewed were male, we have opted to use the terms 'he' and 'his' thoughout:

> *'I'm a very cautious prescriber, I'm not dead keen on new things ... I tend to avoid* [new drugs] *because I prefer the long-tried and tested things ... I need to be familiar and comfortable with something before prescribing it.'* (H9)

'I'm not one for prescribing drugs that are new — I like to wait and see, read about it, assess it and then gradually introduce it ... I'm a rather cautious prescriber.' (L8)

GPs attributed their caution and conservatism to innate personality traits, medical training, clinical experience, or a combination of all three. Both general and personal clinical experiences were important reasons for eschewing new preparations. Regarding the former, GPs cited drugs that had failed to fulfil their promise and 'drug disasters' (H13). Regarding the latter, a main theme in their accounts was the problems associated with the side effect profiles of new drugs they had encountered. Knowledge of the characteristics of drugs was seen as critical to the prescribing process and their cautious attitudes reflected their lack of knowledge of the properties of new drugs, particularly regarding long-term use and the variability of patient reaction. Several took the view that it was not their role to assess new drugs and they were not prepared to try them until there were 'sensible, clear review indicators about use' (L4) which included sound research evidence about long-term effects and pharmacological niche. Hence a number said that they adopted a 'wait and see' approach (L8, L11, H6, H8, H18, H22) before considering a new drug as part of their therapeutic armamentarium.

Knowledge of a drug gives you power over its use ... I know very little about losartan and even less about nicorandil ... I've tried [tramadol] *but don't yet have a patient profile that fits who will benefit and who won't — so I'm being very careful.'* (H3)

'My attitude to new drugs is – let someone else make the mistake first — so, fairly cautious — explains why I haven't used much tramadol, have dropped finasteride and restrict fluticasone to a specific sort of indication. I use what I know and the new drugs when it's obvious from evidence where they're going to fit into the scheme of things' (L15)

However, we identified among the high prescribing group a small number of GPs, whom we refer to as 'triers', who, at the same time as describing themselves as cautious and conservative, professed a willingness to experiment with new drugs:

'I do like to try new drugs, I'm not going to wait until somebody tells me I've got to try them. I will try them if they sound as though they will be beneficial.' (H16)

'If it's superior to other drugs on the market, and with less side effects, and easy to take, easy to administer, then I will give it a try.' (H22)

These 'triers' tended to be individuals with interest and expertise in a particular clinical area and who therefore had the confidence to act innovately:

'My main interest is hypertension, I have been working in cardiology and it [losartan] *is a new product, is the first of the ACE 2 inhibitors and I think I just wanted to see for myself how good it is.'* (H4)

'I take on the responsibility of looking after these people myself only because I have got experience in doing so ... I am familiar with the drugs and quite happy to play around with both dosage and combination of product to get the patient better.' (H16)

The majority of GPs, then, appeared to operate within a personal comfort zone of prescribing, which meant that most were reluctant to prescribe new medications. Many claimed that they would prescribe the index drugs only as a second or third-line choice, or as follow-on prescribing of a drug that had been initiated by a consultant. They viewed this approach as minimising the risks in prescribing and so as both safe and responsible for themselves and their patients.

Cost-consciousness in prescribing

Though no other clear patterns emerged from the data, our analysis did indicate stronger conformism to group norms and clearer consensus between practice partners, both in prescribing behaviour and in attitudes towards cost-consciousness, among the low prescribers. Cost-consciousness was expressed by positive attitudes towards cost-effectiveness, and the view that rational prescribing encompassed an awareness of the costs involved. One low prescriber, though describing himself as 'not interested in cost' and committed to the view that patients should have the drugs they need, nonetheless commented that he could 'take this approach and still keep a low budget'. Another, though admitting to being overspent on the practice prescribing budget, described himself as anxious about issues of cost-effectiveness. Several GPs in the low prescribing group emphasised their use of generic prescribing and cheaper drugs as a means of controlling drug costs.

'I do try to prescribe relatively cheap drugs when possible and only move onto more expensive ones when the others have failed or had adverse effects. That [cost] *is certainly a factor ... I'm probably slightly more likely to prescribe newer drugs than I was in the past, I guess. I don't think that's a big shift. I have been, and I still am, I think, pretty cost-conscious.'* (L5)

'We are a fairly cost-conscious practice. We deliberately reduce our prescribing costs and there is a drive towards generics and that was a conscious decision.' (L15)

There was less evidence of such attitudes in the high prescriber group, GPs more often expressing themselves as indifferent to drug costs.

'When I first prescribe a drug, cost does not come into it. If you need a product and it costs £1000 a shot, you will get it if that is the right product for you, over something that costs a tenner. My attitude is that if the patient needs a drug they get it, regardless of cost ... So cost comes low down in my priorities when I'm trying things.' (H16)

'Efficacy, safety, cost and acceptability — they are the sort of key items I go for [when considering prescribing something new] *and probably in that order ... Cost is, I wouldn't have put it at the highest priority. I mean we are not here to count beans, we are here to treat patients!'* (H7)

The arguments put forward by these high prescribers as justifying their position included the need to respect colleagues' clinical freedom and the view that there could be longer-term savings from short-term higher costs. However, a number acknowledged the need to become more cost-conscious and that organisational change in the form of fundholding had encouraged a more cost-conscious approach to prescribing.

Conformism in prescribing

The influence of group norms was evident through reports of practice formularies that were in use or being actively developed, and this appeared to be somewhat more commonly the case in the low prescriber group than in the high prescribers. There was also more emphasis in the comments of low prescribers on an awareness of similarities in prescribing between partners as a result of a high level of communication, either informally or formally. The comments of high prescribers suggested that, in this group, there was a less clear commitment to the concept of the practice formulary and the need for agreement about prescribing, either generally or in relation to the new drugs.

'We don't have a formal one [formulary] ... *but because we are small we do tend to have a fair amount of discussion about things and we do note what our colleagues are prescribing.'* (L6)

'I don't think it's a comprehensive formulary we have but we actually have a very effective one ... We are on the right side of all those [health authority prescribing incentive scheme] *markers.'* (L4)

'We do have [a practice formulary] *It's for guidance rather than any strict adherence to — you know, you'll only prescribe from this list. It's very informal ... it was probably just a response to all the pressure we had from health authority and government to rationalise prescribing.'* (H1)

'Well, it's in the mind ... The practice manager has been telling me [to put it on paper] *but we've never got to it ... I know what I am doing. I don't prescribe willy nilly.'* (H6)

Discussion

This qualitative study indicates that there is a wide range of factors influencing GPs' propensity to prescribe new drugs. It also suggests that low prescribing of new and expensive drugs may, in part, be accounted for by an ethos that reinforces careful or conservative prescribing, based on a review of available evidence and linked to an awareness of drug costs. GPs in practices where such an ethos was less apparent generally had less well-formulated attitudes towards drug costs. As a manifestation of this ethos, the practice formulary was a frequently offered example of a structural framework aimed at providing consistency in prescribing. There appeared to be more commitment to the concept of a formulary in practices where the low prescribers were based.

Strengths and limitations of the study.

Much of the existing research evidence around prescribing decisions reached by GPs is drawn from quantitative studies with relatively little explanatory power. The decision to prescribe new medicines involves what Grant and Dowell,[21] in relation to GPs' decisions about intermediate medical care, describe as 'a multifactorial, idiosyncratic' process. We opted to explore this process using a qualitative approach, which is proposed as most suitable for exploring topics relating to complex attitudes and behaviours.[18] While no attempt was made to directly link GPs' subjective accounts with objective prescribing data, there is good reason to be confident of the link between them.[5,22,23] Trustworthiness of the research is supported by the process of analysis, whereby the three researchers independently identified key themes, met regularly to discuss and resolve coding discrepancies, and to agree upon interpretation of the findings. The study may thus be seen as further contributing to understanding of the 'reasons behind individual prescribing decisions'.[15] One limitation of the study was that it was based in one UK health region only, involving 56 GPs: the findings therefore require further investigation in larger scale studies.

How this study contributes to existing literature

In common with earlier research,[12] we found GPs consistently described themselves as cautious and conservative. However, for a small number, most commonly in the high prescriber group, this self-perception co-existed with a willingness to try out new drugs. These 'triers' had often developed interests in particular clinical and therapeutic areas. Their expertise encouraged them to behave with more confidence and to try a new drug in what they saw as appropriate circumstances. While trying did not automatically lead to adoption of a drug or the relinquishment of others, these decisions were often described as being made with little regard for issues of cost.

Consistent with other studies,[5-9] a wide range of influences on prescribing was reported. Prominent among these in explaining whether doctors were high and low prescribers of new drugs appeared to be the level of their acceptance of or resistance to the ethos of cost-awareness. Our results suggest that some of the resistance to cost-conscious messages may have as much to do with attitudes to healthcare organisation in general as to specific features of a single drug. The notion of practice formularies has been around for several years so it is somewhat surprising to find that the concept and its consequences are still not always accepted. One interpretation of this is that one element required to develop and maintain a practice formulary — consensus — is still not routinely present within all general practices. Given that the move towards primary care trusts is likely to require such consensus, our findings suggest that this may, for some GPs, represent an unwelcome constraint.

The desirability of an ethos of cost-conscious consensus presupposes that it is important and appropriate to consider cost issues when prescribing. Within a health care system such as the National Health Service, funded by universal suffrage but free at the point of delivery, it is appropriate that cost considerations are included within patient management decisions, such as drug prescription. The National Institute for Clinical Excellence (NICE) is now providing guidance based on the principle that the opportunity costs of treatment decisions should be minimised by making the most cost-effective choices and thereby maximising the benefit of finite resources. There is an expectation that this guidance will be appropriately incorporated into patient care. However, our results suggest that this may require a shift in the attitudes of some GPs around the issues both of cost and consensus.

Conclusion

Although this study is based around prescribing, the results may have a wider validity and speak to a more general phenomenon, which needs to be further explored. This is highlighted in other recently published qualitative studies of GPs' attitudes and behaviour.[21,24] Focusing on the issues raised around prescribing *per se* it suggests that, to promote cost-effective prescribing, efforts should focus on incorporating cost-consciousness more uniformly into GPs' 'reasoned' actions'[22] through strategies implemented at both national and local level.

References

1. Soumerai SB. Factors influencing prescribing. *Aust J Hosp Pharm* 1988; **18(suppl):** 9-16.
2. Bradley CP. Uncomfortable prescribing decisions: a critical incident study. *BMJ* 1992; **304:** 294-296.
3. Drage M, Wakeford R, Wharton A. What do general practitioners think changes their clinical behaviour? *Educ Gen Pract* 1994; **5:** 48-53.
4. Allery LA, Owen PA, Robling MR. Why general practitioners and consultants change their clinical practice: a critical incident study. *BMJ* 1997; **314:** 870-874.
5. Segal R, Hepler CD. Drug choice as a problem-solving process. *Med Care* 1985; **23:** 967-976.
6. Soumerai SB, Avorn J. Predictors of physician prescribing change in an educational experiment to improve medication use. *Med Care* 1987; **25:** 210-221.
7. Schwartz RK, Soumerai SB, Avorn J. Physician motivations for non-scientific drug prescribing. *Soc Sci Med* 1989; **28:** 577-582.
8. Isacsson G, Redfors I, Wasserman D, Bergman U. Choice of antidepressants: questionnaire survey of psychiatrists and general practitioners in two areas of Sweden. *BMJ* 1994; **309:**1546-1549.
9. Cockburn J, Pitt S. Prescribing behaviour in clinical practice: patients' expectations and doctors' perceptions of patients' expectations — a questionnaire study. *BMJ* 1997; **315:** 520-523.
10. Barber N. What constitutes good prescribing? *BMJ* 1995; **310:** 923-925.
11. Armstrong D, Reyburn H, Jones R. A study of general practitioners' reasons for changing their prescribing behaviour. *BMJ* 1996; **312:** 949-952.
12. Taylor RJ, Bond CM. Change in the established prescribing habits of general practitioners: an analysis of initial prescriptions in general practice. *Br J Gen Pract* 1991; **41:** 244-248.
13. McGavock H, Webb CH, Johnston GD, Milligan E. Market penetration of new drugs in one United Kingdom region: implications for general practitioners and administrators. *BMJ* 1993; **307:** 1118-1120.
14. Avery AJ, Heron T, Lloyd D, *et al*. Investigating relationships between a range of potential indicators of general practice prescribing: an observational study. *J Clin Pharm Ther* 1998; **23:** 441-450.
15. Avery AJ, Rogers S, Heron T, *et al.* A prescription for improvement? An observational study to identify how general practices vary in their growth in prescribing costs. *BMJ* 2000; **321:** 276-281.
16. Mapes REA. Physicians' drug innovation and relinquishment. *Soc Sci Med* 1977; **11:** 619-624.
17. Smith M, Jacoby A, Eccles M. *Influences on general practitioners' decisions to prescribe new medicines: findings from a qualitative study*. University of Newcastle: CHSR Report No. 94, December 1998.
18. Pope C, Mays N. Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *BMJ* 1995; **311:** 42-45.
19. Campbell M, Smith J, Bateman N *et al.* Uptake of new drugs in primary care and hospitals. [Unpublished report.] University of Newcastle: Wolfson Unit, 1998.
20. Ritchie J, Spencer L. Qualitative data analysis for applied policy research. In: Bryman A, Burgess RG (eds). *Analysing qualitative data.* London: Routledge, 1994.
21. Grant J, Dowell J. A qualitative study of why general practitioners admit to community hospitals. *Br J Gen Pract* 2002; **52:** 628-635.
22. Denig P, Haaijer-Ruskamp FM, Zijsling DH. How physicians choose drugs. *Soc Sci Med* 1988; **27:** 1381-1386.
23. Cockburn J, Pitt S. Prescribing behaviour in clinical practice: patients' expectations and doctors' perceptions of patients' expectations — a questionnaire study. *BMJ* 1997; **315:** 520-523.
24. Marshall M, Sheaff R, Rogers A, *et al.* A qualitative study of the cultural changes in primary care organisations needed to implement clinical governance. *Br J Gen Pract* 2002; **52:** 641-645.

Acknowledgements

We are grateful to Joanne Greenhaugh for her work on the initial analysis of the data and to Norma Cardill for secretarial support in transcribing the interview transcripts. The work was funded by the Department of Health for England and Wales Prescribing Initiative.