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Influences on the prescribing of new drugs

Background

The aim of this study was to identify the factors that influence prescribing of new drugs among general practitioners, endocrinologists and psychiatrists.

Methods

Four focus groups were conducted with GPs, endocrinologists and psychiatrists on sources of awareness and influences on prescribing of new drugs.

Results

Pharmaceutical companies were the most important source for becoming aware of new drugs. There were many influences on the decision to prescribe a new drug, the most important being efficacy, safety, cost and advantage over existing therapies. Endocrinologists placed greater emphasis on evidence from clinical trials and scientific conferences, and psychiatrists and GPs placed more weight on pharmaceutical representatives, colleagues and specialists.

Discussion

New drug prescribing occurs in a complex environment with many influences. Effective interventions to promote rational, safe and effective prescribing of new drugs will need to be cognisant of these factors.

■ **A new drug may offer new treatment options, an advantage over existing drugs or no real advantage. Relatively little is known about a drug's adverse effects when the product arrives on the market, as phase³ trials are designed primarily for determining efficacy.¹ There are many new drugs for prescribers to consider; 94 new drugs were approved for use in Australia between January 1996 and December 1998.² Postmarketing surveillance may eventually reveal previously unseen adverse effects such as fatal rhabdomyolysis with cerivastatin³ and Steven-Johnson syndrome with valdecoxib.⁴ Newer, more costly drugs may also displace existing and equally effective drugs or nondrug therapies.⁵ Given the potential benefits and risks of new drugs, an understanding of the influences on their prescribing is important.**

Factors shown to affect new drug use include:

- drug characteristics (eg. adverse effect profile, indications, efficacy)
- colleagues
- sales representatives
- patient factors (eg. failure of current therapy, prescription requests).⁶⁻⁹

The aim of this study was to identify and understand determinants of awareness and prescribing of new drugs among general practitioners, endocrinologists and psychiatrists in Australia. Specialists are often the first to prescribe new drugs and may influence the uptake of new drugs by GPs through referrals. Endocrinology and psychiatry both have larger numbers of new drugs approved than some other specialties.

Methods

A purposive sample of GPs, psychiatrists and endocrinologists who worked in metropolitan Sydney (New South Wales) and had been in medical practice for at least 7 years, were recruited via telephone by an independent recruitment company. The specialist practitioners were selected to ensure a mix of private and public practitioners.

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An experienced qualitative researcher organised and facilitated the groups: two of GPs and one each of endocrinologists and psychiatrists. The focus groups were semistructured using an interview guide.

Central questions included: 'How do you become aware of a new drug?' and 'What influences your decision to prescribe a new drug?' Participants were asked to define their own understanding of a new drug before being provided with the following definition: 'A drug that has in the past 1–2 years been Pharmaceutical Benefit Scheme (PBS) listed, or released to the market, or a new chemical entity.' Toward the end of the focus group, participants were asked to nominate and then rank the five most important influences on their decision to prescribe a new drug. Ethical approval for the study was provided by the University of Sydney Human Research Ethics Committee.

Data analysis

Focus groups were digitally recorded and transcribed. One of the researchers, using the software package QSR-N6, applied grounded theory by continually developing a comprehensive tree of themes, which captured the range of responses in the transcripts. The coding was conducted by one investigator in consultation with two of the research group. Interpretation was initially verified by one of the senior researchers and further verified by ongoing discussions with other members of the group.

Results

Twelve GPs, six endocrinologists and six psychiatrists participated in the four focus groups. Each group ran for 1 hour and all were conducted during October 2005. Participants worked in private and public sectors, including hospitals, medical centres and family practice.

Only those themes given greatest emphasis by participants, and those given high priority in the rating exercises, are discussed.

Key influences on awareness of new drugs

Participants became aware of new drugs from various sources. The most frequently mentioned source was the pharmaceutical industry (representatives, direct mailouts and drug launch meetings). Colleagues and specialists were also important. Endocrinologists emphasised the impact of evidence from clinical trials and the medical literature. The patient was mentioned as a source of awareness by GPs and psychiatrists. Conferences and the medical literature were not frequently mentioned.

Drug company representatives were frequently reported as a means of becoming aware of new drugs.

A psychiatrist discussed how it was possible to learn about a new

drug before its release through a drug company representative:

'For drugs that haven't been released yet they're theoretically not allowed to tell you... but if you ask, then they can mention it. So you might say, "well, is there anything in the pipeline to treat depression?"'

Participants reported that pharmaceutical companies facilitated awareness of new drugs in other ways, including drug conferences, advertisements in journals and prescribing software, and by direct mail.

Colleagues raised awareness of new drugs in two ways: through patient referral and through informal contact.

'You send them a patient and they put them on some whiz bang new wonderful drug. Or they've just come out of hospital and they're on some whiz bang new drug.' (GP)

Key influences on prescribing new drugs

Five key areas were reported as having a major influence on prescribing. The most common were new drug characteristics and patient factors.

The drug characteristics of interest were:

- the safety of the drug (including adverse effects and interactions)
- its efficacy/effectiveness
- cost of the drug
- PBS listing
- ease of taking the drug.

Patient factors included:

- need for the drug (eg. adverse effects with existing treatment)
- compliance
- ability to pay
- requests for the drug.

Prescriber characteristics, such as personal knowledge of and experience with the drug, and familiarity with the condition being treated, were important for some participants. Colleagues and specialists influence prescribing through referral and recommendation. Drug companies provide samples and information via sales representatives.

Safety was an important factor in each focus group discussion, and was most frequently ranked as the number one factor influencing the prescribing decision.

'I want to know the problems I'm going to encounter. And that's I suppose what I'm afraid of. You just put someone on a new product and bang, something that you don't even know happens.' (GP)

'Well, safety. I mean if you've got patients on some of the older drugs where you're risking suicide or toxic interactions... then if you have a drug that's safe in overdose or has less toxic interactions with other medications, then obviously that's something you'd also be looking at.' (Psychiatrist)

Efficacy of the drug was another important reason influencing prescribing.

'Decision to prescribe is to do with its effectiveness and the adverse effects. Is it better than the current treatment?' (GP)

'I put efficacy number one, no point using it if it doesn't work.'
(Endocrinologist)

A new drug's advantage over existing medications was rated highly as an influence on the decision to use a new drug, particularly among psychiatrists and endocrinologists (Table 1).

Every group raised the issue of cost to the patient in the decision to prescribe, including listing on the PBS. Several participants perceived that a drug not PBS listed simply would not be prescribed. Other participants said that they were often surprised at how much patients would spend if they believed it was in their best interest.

Patient need was discussed in terms of lack of treatment response to existing treatment, or a lack of alternatives – reaching a 'road block', as one GP participant expressed it.

Pharmaceutical companies were not mentioned as frequently when specifically asked about influences on decisions to prescribe; although there were disparate views among the participants.

Discussion

Factors reported to influence the prescribing of new drugs in this study included patient factors (ability to pay and need), drug characteristics (adverse effects, safety, efficacy and PBS listing), recommendation from peers and experts, and familiarity with the therapeutic area and knowledge of the drug. Although this study is based on only four focus groups and may have not obtained information about all influences, qualitative studies by researchers in the United Kingdom have had similar findings.^{6,10}

This study demonstrates that interpersonal relationships have a powerful influence on new drug use. Relationships with sales representatives, colleagues, specialists, experts and patients are all important. A previous study found that the information provided

through direct personal contact was the most powerful.⁷ Moreover, information most frequently rated as important theoretically, was not that most used in practice, particularly for GPs. Sales representatives, samples, and patient requests are all known to influence the prescribing of new drugs.^{9,11,12}

Objective sources of information such as journal articles and evidence based information from independent organisations may be underutilised in informing prescribing decisions.

Understanding how different specialties assess and use new drugs is of critical importance, as others have found that prescribing in general practice is strongly influenced by specialist prescribing and advice.^{13,14}

New drug prescribing occurs in a complex environment. The focus groups identified many different factors that influence awareness of new drugs and their prescribing, which varied between participants and groups. Those interested in improving the quality of prescribing need to be aware of the factors that influence prescribing behaviour, such as the role of interpersonal relationships, patient referral processes, and characteristics of the drug, the patient and the doctor. A greater investment is needed in developing and implementing effective strategies to promote rational, safe and effective prescribing decisions with new drugs.

Implications for general practice

- Pharmaceutical companies remain a significant source of information about new drugs in general practice and in some medical specialties.
- Decisions about the prescription of new drugs are usually driven by evidence of efficacy and safety of the drug.
- Relationships with sales representatives, colleagues, specialists, experts and patients are important in decisions about new drugs.
- Efforts should be made to ensure the utilisation of objective sources of information that have the capacity to improve prescribing decisions, so that the patient is given the best possible care.

Table 1. The most important influences on decisions to prescribe a new drug by professional group*

Influence	Endocrinologists (n=6)	Psychiatrists (n=5)	GPs (n=10)	Total (n=21)**
Evidence of safety	6	4	8	18
Evidence of efficacy or effectiveness	4	3	7	14
Advantage over existing	4	4	3	11
Cost	4	2	4	10
Colleagues/specialists/experts	1	5	4	10
Patient need	1	3	3	7
Drug company representatives	0	1	5	6
Other†	6	2	5	13

* All participants were asked to nominate and then rank up to five of the most important influences on their decision to prescribe a new drug

** Twenty-one participants engaged in the ranking exercise (10 GPs, six endocrinologists, five psychiatrists)

† Other includes PBS listed, samples, familiarity/experience, mechanism of action, ease of use, meetings/conferences, credibility of research company and available/approved

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References

1. Hunter D. First, gather the data. *N Engl J Med* 2006;354:329–31.
2. Rawson NSB. Time required for approval of new drugs in Canada, Australia, Sweden, the United Kingdom and the United States in 1996–1998. *CMAJ* 2000;162:501–4.
3. Staffa J, Chang J, Green L. Cerivastatin and reports of fatal rhabdomyolysis. *N Engl J Med* 2002;346:539–40.
4. Solomon SD, McMurray JJ, Pfeffer MA, et al. Cardiovascular risk associated with celecoxib in a clinical trial for colorectal adenoma prevention. *N Engl J Med* 2005;352:1071–80.
5. Mintzes B, Health Action International – Europe. Blurring the boundaries: new trends in drug promotion. Amsterdam: HAI-Europe, 1998. Available at www.haiweb.org/pubs/blurring/blurring.con.html [Accessed April 2006].
6. Prosser H, Almond S, Walley T. Influences on GPs' decision to prescribe new drugs—the importance of who says what. *Fam Pract* 2003;20:61–8.
7. McGettigan P, Golden J, Fryer J, Chan R, Feely J. Prescribers prefer people: the sources of information used by doctors for prescribing suggest that the medium is more important than the message. *Br J Clin Pharmacol* 2001;51:184–9.
8. Caudill TS, Johnson MS, Rich EC, McKinney WP. Physicians, pharmaceutical sales representatives, and the cost of prescribing. *Arch Fam Med* 1996;5:201–6.
9. Mintzes B, Barer ML, Kravitz RL et al. Influence of direct to consumer pharmaceutical advertising and patients' requests on prescribing decisions: two site cross sectional survey. *BMJ* 2002;324:278–9.
10. Prosser H, Walley T. New drug prescribing by hospital doctors: the nature and meaning of knowledge. *Soc Sci Med* 2006;62:1565–78.
11. Muijters PE, Grol RP, Sijbrandij J, Janknegt R, Knottnerus JA. Differences in prescribing between GPs: impact of the cooperation with pharmacists and impact of visits from pharmaceutical industry representatives. *Fam Pract* 2005;22:624–30.
12. Hall KB, Tett SE, Nissen LM. Perceptions of the influence of prescription medicine samples on prescribing by family physicians. *Med Care* 2006;44:383–7.
13. Robertson J, Treloar CJ, Sprogis A, Henry DA. The influence of specialists on prescribing by GPs. A qualitative study. *Aust Fam Physician* 2003;32:573–6.
14. Robertson J, Fryer JL, O'Connell DL, Sprogis A, Henry DA. The impact of specialists on prescribing by general practitioners. *Med J Aust* 2001;175:407–11.