

'Really simple, summary, bang! That's what I need.'

– Clinical information needs of New Zealand general practitioners and the resources they use to meet them

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ABSTRACT

We used a mixed method study to describe the information needs of New Zealand GPs and the sources they use to meet them. Study data came from focus groups involving 30 GPs in Invercargill, Dunedin, Christchurch, Wellington, Auckland, and Kaitiaia, and a survey of 350 randomly selected GPs (66.7% response rate). The greatest need was for information about drugs, and the least pressing for information about new research into rare conditions and emerging international health threats. The most useful information is concise, clear, timely, trusted, attractively presented, and 'owned' by GPs. Personal contacts were the most trusted source of clinical information. BPAC materials were the most used, most trusted formal information source. GPs will consider information they mistrust if it is readily accessible and easy to use. More research to define how far GPs' actions follow the information they receive would clarify the usefulness of information sources of different types.

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Introduction

General practice is a complex clinical environment in which the need for specific items of information is difficult to predict and difficult to meet,^{1,2} despite an overwhelming amount of information being available.³ GPs need information to decide and validate clinical management strategies, to answer patients' questions, and to keep up-to-date with recommended 'best practice' in responding to the myriad of health issues patients bring.^{4,5}

In New Zealand, sources of information range from informal relationships with patients and colleagues,

to measures of patients' biological functions (laboratory tests and investigations), to formal advice provided by the Ministry of Health and its agencies. Not all information is useful, however, and even useful information may not be used because it is not trusted or it becomes lost in the 'tsunami' of paperwork besetting GPs.⁶ A recent review concluded that GPs needed trusted information sources, personal contacts, user-friendly formats, and timely delivery if they were to use information.⁷

As part of an evaluation of the Best Practice Advocacy Centre (BPAC) we conducted focus group meetings ad-

addressing a variety of topics, including information needs and sources. Informed by the focus groups, we then completed a national survey to further evaluate BPAC's role.

In this analysis we aimed to use some of the evaluation's quantitative and qualitative data to describe the types of information GPs need and the critical components of used clinical information, and to assess the relative importance of different sources of information and the amount of trust GPs have in these sources.

Methods

Focus groups

We held six focus groups involving 30 GPs in Invercargill, Dunedin, Christchurch, Wellington, Auckland, and Kaitia. One further focus group in Dunedin involved 10 GP registrars.

Each focus group lasted an hour and was tape-recorded with participants' permission. A facilitator (SD or DK) interacted with participants while a co-facilitator (SR or KB) kept notes recording the tone of discussions and the body language of participants. Immediately following each meeting, the facilitator and co-facilitator reviewed notes taken during the meeting and recorded their main impressions in a brief preliminary report. Tapes were transcribed and axial coding of ideas expressed in each focus group allowed us to abstract for this analysis only sections coded as specifically relating to information needs and sources.⁸ We used both the notes made during the meetings and the transcripts to develop themes and key findings relating to these specific topics.

Survey

A representative random sample of 350 general practitioners was drawn from the Medical Council register, augmented and updated by the current BPAC mailing list. After three weeks, non-responders to the initial mailing were sent another survey form and a different letter asking for their response. After a further two

weeks, non-responders were telephoned. Surveys collected information about the size and location of the recipient's practice, their recognised need for different types of information, and the sources they used to meet their information needs.

Frequency of information need and use of listed information sources was recorded on a 5-point scale from 1='never' to 5='all the time'. Respondents also indicated their level of trust in each information source on a 5-point scale that was collapsed into three categories, where 1 and 2='trust', 3='neutral' and 4 and 5='distrust'.

Survey data were analysed to present descriptive statistics and, where appropriate, chi-square tests for categorical data were used to test for statistically significant trends (e.g. by north/south location) and for differences between respondents on the basis of regional location of practice (upper North Island, lower North Island, upper South Island, lower South Island), inner city, suburban, or rural location of their practice, and practice size (small = 1–2 full-time-equivalent [FTE] GPs; medium = 2–4.9 FTE GPs; large = 5 or more FTE GPs). We set the level of significance at $p=0.01$ to compensate for multiple testing.

Results

General summary of focus groups

Focus group participants were GPs who had received BPAC material for at least one year. In the South Island, many focus group participants had experiences of BPAC that extended over eight years. Although the overall purpose of focus group meetings was to evaluate BPAC's programme, prompts such as '*where do you get your information from?*' were used early in each meeting, before focused discussions about BPAC: responses to such prompts generated much of the qualitative material used in this analysis. All focus groups discussed time and information overload pressures, their use of computers and electronic in-

formation, and their view of information in journals.

General summary of survey respondents

Twenty-six surveys were returned after being sent to doctors who had died, retired, or moved from the practice; 216 completed responses were received from eligible general practitioners (response rate 66.7%). There was no difference between GP responders and non-responders with respect to either their sex or the location of their practices – although response rates showed a non-significant ($p=0.256$) improving trend from north to south New Zealand. Even so, 70.6% of all responses came from the North Island.

Overall, 43.0% worked in small practices, 36.0% worked in mid-sized practices, and 21.0% worked in large practices. Eighty doctors (37.0%) indicated they had a special interest in at least one of the topics listed in Table 1. Most GPs (59.0%) worked in suburban practices but 19.3% worked in the inner city and 21.7% worked in a rural location.

Types of clinical information GPs need

Figure 1 shows the proportions of GPs reporting in the survey that they recognised a need for different types of information 'regularly', 'frequently', or 'all the time'. Overall, the greatest need was for information about drugs and the least pressing needs were for information about new research into rare conditions and emerging international health threats. There were no differences between North and South Island respondents or by practice location or practice size in the type of information needs frequently recognised.

Critical characteristics of useful information

Most focus groups commented that their main difficulties with picking up useful information were time, 'headspace', and information overload. Sometimes they ended up pro-

viding something other than best informed care as a way to deal with tensions in time management:

'I've prescribed a bit of it, I'm not in the remotest bit sure whether it actually works but I'd like to know. I haven't had the time...often it's easier to write the script than it is to actually do the research. Now that's bad, but when you're busy, you've got a lot to do and you want to live a life outside medicine as well, you sometimes do that.'[GP]

'We sometimes have too much information. Information overload... it's kind of really easy to lose your patience some days...I can spend more time reading this than actually face-to-face in contact with patients.'[GP]

1. **Brevity.** Used information is brief and clear. These characteristics are critical because general practitioners must manage a broad scope of information. 'Long-winded' information usually fails to meet their practical needs.

'...the depth of the articles passes me by because I read them, I tear them out and mean to file them, and there's absolutely no way I can remember them all. I read it and I think that's really interesting and fantastic and then five minutes later I can't remember a single word. I literally don't have the space or the time ...I find the simple things...a single page, really simple, summary, bang! That's what I need.'[GP]

'... if you can do all the reading for us in whatever areas we need and tell us in a way we can digest them, then...that would be - I think that would be fantastic.'[GP registrar]

2. **Timeliness.** GPs often need immediate access to information when they are with patients:

'When you need to refer to it, you don't need to refer to it in half an hour. You've got the patient sitting there right in front of you, two feet away from you - you need that information now.'[GP]

3. **Recognition by authorities.** A related need is for educational in-

formation that is explicitly recognised by the profession's accreditation and re-accreditation processes.

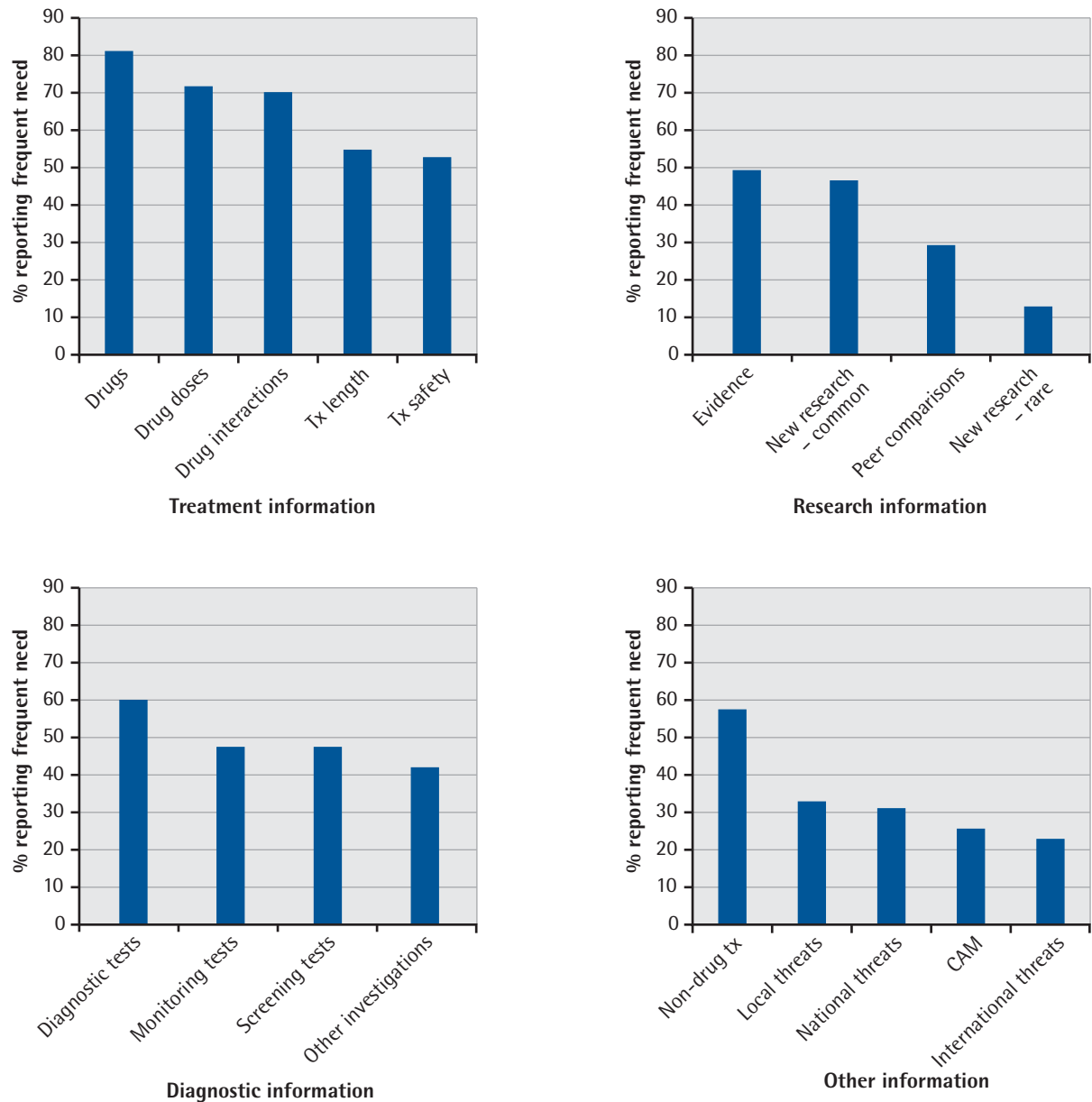
'Cos you go to a meeting that doesn't quite interest you, just for the CME points, whereas you can learn a bit more [by reading].' [GP]

4. **Ownership.** Focus groups also told us that clinical information is most used by GPs when it explicitly or implicitly acknowledges and respects the clinical environment they practice in. The New Zealand Guidelines Group, for instance, was a source of trusted

Table 1. Special interests listed by general practitioners

Topic	N with special interest
Women's health	11
Musculoskeletal medicine	10
Sports medicine	10
Children	8
Elderly people's care	8
Palliative care	6
Sexual/reproductive health	6
Obstetrics/gynaecology	5
Aviation medicine	4
Student health	4
Dermatology	4
Cardiovascular medicine	3
Chronic care incl. wound care	3
Minor surgery	3
Nutrition	3
Acupuncture	3
Diabetes	2
Occupational health	2
Travel medicine	2
Accidents	1
Addiction	1
Eating disorders	1
Fatigue	1
Genetics	1
Mental health	1
Mind/body, holistic care	1
Osteopathy	1
Pain management	1
Patients with other languages	1
Practice/service management	1
Respiratory disease	1
Rheumatology	1

Figure 1. Types of clinical information needs by frequency of high need



clinical advice but its products had restricted use, partly because GPs expressed a sense of disenfranchisement relating to the Guidelines Group:

'...trouble is, when you don't have any ownership of it you're not going to use it.' [GP]

- Presentation.** GPs were discriminating recipients of information, especially if it was unsolicited. They often 'binned' mail unopened, having decided its value on the basis of its exterior pres-

entation, on past experiences of similar mail, and on the attractiveness of the package.

'I reckon I decide in 10 seconds whether I'll read it.' [GP]

'When you pick up something, there's the initial presentation. It's clear, concise, what it's about. So that sort of thing.' [GP]

Information sources

All the GPs we spoke to learned about improving their clinical care from a variety of information sources:

'Learning is sort of multi-faceted. We pick it up in journals and we pick it up from talking to people...It comes from many different sources. And the Internet.' [GP]

Survey results indicated that GPs used personal contacts with colleagues in their workplace and in hospitals, and other primary care providers (especially pharmacists) as their most frequent source of clinical information. All the high use/high trust information sources were personal contacts, except for hard copy

BPAC material. Personal contact with hospital-based colleagues was their most trusted source overall. Table 2 shows the sources of information listed in the survey, according to the proportion of general practitioners reporting that they used each source 'regularly', 'frequently', or 'all the time'. Proportions indicating trust and distrust of each source are also shown.

Frequency of different resource use did not vary by practice location but was associated with practice size. Survey respondents working in larger practices used personal contact with colleagues in their practice more ($p<0.001$), and CME ($p=0.007$) and the New Zealand Guidelines Group ($p=0.002$) less than GPs from smaller practices. GPs in larger practices also trusted the information they received from their colleagues more than GPs in smaller practices ($p=0.005$).

Information from the New Zealand Guidelines Group was highly trusted but hard copy Guidelines were in the medium use range and the Guidelines Group website was a low use information source. In focus groups, we defined a wide range of responses to Guidelines Group materials. Most discussions focused on why GPs did not use them:

'I find them too long.' [GP]

'They're very long-winded – you know some of them are 80 pages long.' [GP]

However, this reaction was not universal. In some practices Guidelines Group material was appreciated for its detail and used as a learning tool to improve care practice-wide:

'They're very good actually, and we've gone through a number of those, around the medical centre and they're very comprehensive...Most of the staff have actually had a look at that, you know, so we're using some of the information in it and I think it's excellent. But it certainly is – takes a while to get through it.' [GP]

Electronic information sources were generally in the low use/high trust range, except for generic electronic searches (via search engines

Table 2. Sources of clinical information used by general practitioners, and the degree of trust they have in each information source

Clinical information source	Frequent use (%)	Trust (%)	Distrust (%)
Contact with peers outside your own workplace	89.9	85.3	1.0
Continuing professional education	87.1	92.3	0.5
Contact with others in your own workplace	85.5	83.6	2.0
Hard copy BPAC material	81.2	93.0	1.0
Contact with hospital colleagues	79.6	94.6	1.0
General web searches, e.g. google	63.1	31.5	62
Hard copy Pharmac material	60.8	69.1	4.3
Hard copy – New Zealand Guidelines Group	54.2	89.9	0.5
Contact with pharmacists	49.8	65.7	3.0
Drug reps	49.5	7.8	33.3
PHO material	49.3	72.1	1.6
Hard copy Medsafe material	46.3	89.0	1.1
Unsolicited advertisements	34.5	2.6	59.2
New Zealand Guidelines Group website	33.7	89.3	0.6
Medsafe website	32.5	89.0	0.6
Pharmac website	31.3	68.9	5.6
Pubmed website	30.5	72.8	2.4
Hard copy material from NZHIS	22.9	83.2	1.3
BPAC website	22.7	92.5	1.2
Hard copy of papers identified by PubMed searches	22.3	73.6	2.3
NZHIS website	15.4	82.3	2.3
Libraries	9.2	74.8	4.7

such as 'google') – these were medium use/medium trust. Focus groups said they were unlikely to access information during their clinical work if it was available only electronically – electronic information was therefore inherently less useful than hard copy information. Although some GPs are highly computer literate and prefer electronic information, for many GPs neither their own training or working habits, nor their practice computers were up to the task of accessing electronic data in real time:

'If you want access to quick information, you've got the patient there, and it takes you 15 minutes to download it...you're now running late.' [GP registrar]

Pharmaceutical companies remain an important source of information for GPs. Survey results identified drug reps and unsolicited advertisements as low trust information sources but they were read and considered more than some other, more trusted, information sources. Pharmaceutical industry information was appreciated for its concise, clear format that allowed rapid understanding. GPs understood the biases in drug company material but were comfortable that they could handle pharmaceutical company marketing without being unduly influenced.

'They just push their products and we stop for a bit of edification...' [GP]

'It's not that they're telling you wrong – it's just that they're not telling you everything about other drugs that are the same but cheaper.' [GP registrar]

'I'm not saying the drug companies deliberately introduce bias, but they're trying to sell something...' [GP]

Journals were another common source of information. GPs indicated they read a broad array of journals, including *American Family Physician*, *American Journal of Psychiatry*, *Australian Family Physician*, *British Medical Journal*, *Diagnostic Medicine*, *New England Journal of Medicine*, *New Zealand Family Physician*, *New Zealand Medical Journal*, and *New Zealand Doctor*. Two GP groups discussed the disappearance of the journals *New Ethicals* and *Patient Management* and how this had left a gap in their educational resources. Although they were not peer-reviewed journals, doctors had valued *New Ethicals* and *Patient Management* because they were 'at least' independent.

Discussion

This study has confirmed that GPs in New Zealand encounter frequent needs for clinical information. Table 1, showing special interests of survey respondents, covers an array of topics defined by a wide range of demographic characteristics, diseases, procedures, and approaches that are both traditional and alternative. The snapshot provided by Table 1 suggests a scope of activity in general practice that is bound to generate diverse information needs. To meet these needs we have found that GPs use a similarly wide variety of resources. Some resources provide trusted information and some they do not trust, but the most useful information is concise, clear, timely, trusted, attractively presented, and

ideally recognised by authorities and reflecting a knowledge and appreciation of the clinical environment of general practice. The sources most closely approaching this ideal were personal contacts, especially contacts with hospital colleagues, and hard copy material from BPAC.

The characteristics of information used by GPs in New Zealand resemble the factors identified by Swinglehurst in her review of the information needs of UK general practitioners.⁷ However, we found that in addition to Swinglehurst's factors, New Zealand GPs preferred information that was attractively packaged and that they felt they 'owned'. Currently, 'packaging' is more likely to refer to packaging in regular post rather than electronic packaging because electronic information sources are used less frequently than hard copy. This will probably change over time as technology is updated and knowledge about computers among GPs improves.

The importance of 'ownership' of information, as well as brevity and presentation, was highlighted by the contrasting study results about the pharmaceutical industry and the New Zealand Guidelines Group. We found similar frequency of use of both these information sources, yet the latter were among the most trusted information sources and the former among the least trusted. We suggest this finding relates to presentation, brevity, and ownership, primarily. Pharmaceutical companies are more likely to win GPs' favour on presentation grounds. Lack of brevity probably critically contributes to the high trust GPs have in the Guidelines Group's products, even though it increases the amount of work needed to use the information in guidelines and gives pharmaceutical companies (and other creators of brief informa-

tion products, such as BPAC) an edge in terms of access to the GP audience. Ownership was an issue expressed with reference to the Guidelines Group, but not the pharmaceutical industry. Others have found that doctors believe their relationships with the pharmaceutical industry are inevitable, and that although the goals of medicine and industry may often diverge, sometimes they meet.⁹ Perhaps that meeting imparts an acceptable level of 'ownership' in industry products. Alternatively, maybe the Guidelines Group might alter its information development processes to secure a higher level of buy-in (and therefore, use) by GPs.

Personal contacts were very important to the GPs in our study, both in terms of the frequency of their use and the trust with which information from personal contacts is received. This is not surprising as personal contacts are a form of human interaction that has been shown in a variety of health care contexts to be more effective than any other.¹⁰⁻¹² Contributing to the popularity of personal contacts as an information source for GPs may be the fact that they can be used to derive more specific and timely information than most other information sources, and their use involves relatively little work. Shaugnessy and Slawson¹³ developed a formula for information usefulness (Figure 2) that explains the critical dependence of useful information on the amount of work it takes a person to process it – the more work, the less useful. However, this result of the current study would benefit from more investigation, because not only were personal contacts more often used than other information sources, but they were also more often trusted. We do not know if this trust is well placed, whether the trust depends on the type of information conveyed, and how often GPs act on information received from personal contacts.

A weakness of this study is that it rests on secondary analysis of data collected for another purpose – the evaluation of BPAC's programme. This

Figure 2. Information usefulness equation

$$\text{Usefulness of medical information} = \frac{\text{Relevance} \times \text{Validity}}{\text{Work}}$$

may have biased both discussions in focus groups and survey responses, but the direction of the bias is difficult to establish. Certainly focus group discussions yielded more detail (both positive and negative) about BPAC information than information from other sources. The survey questions we analysed for this study did not, however, emphasise BPAC. The survey provided a list of types of information that we thought GPs might need and information sources we thought they might use, incorporating every type of information raised in the focus group discussions. As well, 70% of survey respondents came from the North Island, where BPAC products are less familiar to GPs than they are in the South. Combined with the higher than usual survey response rate (66.7%), we are reasonably confident that survey responses provide a fair representation of the informa-

tion needs and sources used by New Zealand GPs.

A strength of the study is its mixed method approach. Although the survey provides 'generaliseable' results, the focus groups allowed a greater understanding of context and drew out a range of experiences that are not adequately represented by the survey's aggregated results. This was particularly apparent in discussions about the New Zealand Guidelines Group, where a wide spectrum of views about the value and uses of their products was expressed. The focus groups also provided all the material we used to define the critical characteristics of useful information in spontaneous discussion. The close match between this study's results and the Swinglehurst information review, published just after the focus groups were completed, validates this study's findings.

In conclusion, general practitioners drew upon a wide variety of trusted and less trusted information sources during their daily practice of medicine. Their highest use and greatest trust was given to the information they derived from interactions with their colleagues. They will consider information that they mistrust if it is readily accessible and easy to use (brief and attractively packaged). BPAC hard copy information, similar in presentation to pharmaceutical products, is their most used, most trusted formal information source. More research to define how far their actions follow the information they receive would clarify the usefulness of information sources of different types.

Competing interests

All the authors are part- or full-time employees of the Best Practice Advocacy Centre.

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Women in Medicine

'Family-and-career. Every woman I know resents that it is still regarded as a women's issue. Every female doctor I know is aware that, however tricky her own balancing act may be, it can't compare with the difficulties and complexities endured by other women in our workplaces – the clerical staff, the medical assistants, the women juggling lower-paying jobs with much less power and authority but with the same family imperatives. And just as every reasonably wise physician comes eventually to the understanding that not all outcomes are optimal, so every marginally competent parent learns to accept the imperfections in our performance during this most important life assignment. You do your best, you count your blessings, and you try to clean up the spills.'

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