

# What resources do Auckland general practitioners use for answering immediate clinical questions and for lifelong learning?

Zachary BH Gravatt,<sup>1</sup> Bruce Arroll MBChB, PhD, FNZCPHM, FRNZCGP<sup>2</sup>

<sup>1</sup>Medical student  
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<sup>2</sup>Department of General Practice and Primary Health Care, Faculty of Medical and Health Sciences, The University of Auckland, Auckland, New Zealand

## ABSTRACT

**INTRODUCTION:** General practitioners need to search for evidence to remain up-to-date with knowledge and to answer clinical questions that arise during consultations. In the past their main sources of information have been via colleagues and books.

**AIM:** To determine the resources Auckland GPs use to answer clinical questions and to maintain lifelong learning.

**METHODS:** One hundred questionnaires were mailed to Auckland GPs. There were 33 replies (33% response rate). From this sample 10 were chosen at random and all agreed to be interviewed (100% response rate).

**RESULTS:** All participants were using Internet resources to obtain answers to clinical questions. Colleagues were also important for answering immediate questions, but not for future requirements. There is possibly less use of paper book resources. The websites were used to obtain knowledge now and for future need, while paper books were only used for answering immediate questions.

**DISCUSSION:** The use of websites may be increasing in general practice for both immediate knowledge requirements and for lifelong learning. Colleagues are still a source of answers to immediate clinical questions, but textbooks may be less used. Empiric data are needed to monitor changes in answering clinical questions and the issue of lifelong learning requires more research.

**KEYWORDS:** Education, medical, continuing; family practice; information management; information storage and retrieval; medical informatics; Internet

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## CORRESPONDENCE TO: Bruce Arroll

Professor and Head of Department of General Practice and Primary Health Care, Elaine Gurr Chair in General Practice, Faculty of Medicine and Health Science, The University of Auckland PB 92019 Auckland New Zealand  
b.arroll@auckland.ac.nz

## Introduction

For medicine to continue to be respected as a profession, evidence-based decision-making is required where this is possible. This in turn depends on physicians being able to understand how and why they make decisions.<sup>1</sup> In particular, evidence-based decision-making requires a 'conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients'.<sup>2</sup> It is this definition that underpins evidence-based medicine (EBM). By applying such a definition it becomes apparent that physicians' knowledge following formal graduation will not remain current throughout their

careers unless they develop skills enabling them to participate in lifelong learning (LLL).<sup>3</sup>

General practitioners (GPs) are likely to search for evidence for two primary reasons. The first is to keep up-to-date with new information<sup>4</sup> and modern clinical opinion. This style of LLL and continuing medical education (CME) relies considerably on individuals' own awareness of strengths and weaknesses in their knowledge.<sup>5</sup> It has been suggested that GPs have imperfect abilities to judge their own learning requirements and external assessment is one proposed solution to this.<sup>6,7</sup> Currently GPs believe CME

is advantageous and can lead to patient benefits.<sup>8</sup> The literature suggests GPs may be somewhat misguided in this belief, because CME sessions only occasionally change health outcomes or result in professional development.<sup>9,10</sup> This might result from a preponderance of poor quality CME activities with low levels of effectiveness.<sup>11</sup>

The second reason GPs might search for evidence is to answer questions generated by patients.<sup>4</sup> However this can be an arduous and problematic task due to the time and effort required to navigate the large and ever-expanding wealth of medical information available.<sup>4</sup> Consequently, GPs may be unable to answer reliably 70% of clinical questions for which they have sought answers.<sup>4</sup> For certain questions electronic textbooks such as DynaMed, MDConsult and UpToDate might prove to be a reasonable resource for this problem.<sup>12</sup> These electronic textbooks are comprehensive, reasonably evidence-based where such information is available, and can give answers to common clinical questions in a few minutes of searching.

Previous research exploring the ways New Zealand GPs answer patient questions has been reported. This demonstrated that, although the majority of GPs had access to computers, they were not the most frequently used source for answering patient questions.<sup>13</sup> Instead, answers are most likely to be sought from books, followed by colleagues.<sup>13</sup> These patient questions were most likely to focus on issues related to treatment or diagnosis.<sup>13</sup>

On the issue of information sources used to find answers to clinical questions, interesting differences arise between GPs and specialists.<sup>4,14</sup> A 2005 New Zealand survey found that New Zealand GPs want information that is presented concisely, clearly, timely, attractively and is 'owned' and trusted by them.<sup>16</sup> GPs are unlikely to seek original research articles, but instead opt to conduct Internet searches. Specialists, however, are more likely to search the literature and journals or enter into correspondence with colleagues.<sup>16</sup> Family medicine residents who are trained in EBM are unlikely to perform evidence-based searches at the point of care, but instead use sources that allow them access to answers swiftly and conveniently.<sup>4,16</sup>

## WHAT GAP THIS FILLS

**What we already know:** GPs used colleagues and books in the past to answer immediate clinical questions. There is no recent overview of how general practitioners acquire clinical information and keep up-to-date.

**What this study adds:** Colleagues are still a common source of information, but it appears that paper books are being replaced with electronic resources. Websites are used both to answer clinical questions and to facilitate lifelong learning.

The aim of this study was to determine the resources used by GPs for lifelong learning and to retrieve answers to clinical questions as they arise during a consultation.

## Methods

One hundred questionnaires were mailed to a random selection of Auckland GPs using the Department of General Practice and Primary Health Care (Auckland University) database of Auckland GPs. This database is regularly updated. The questionnaire asked about sources of information (such as websites, books, colleagues, email), how often they were used and how often an 'answer' was found. There were 33 replies (33% response rate). It was considered that the responders were likely to be interested GPs keen on lifelong learning.

From this sample 10 were chosen at random and all agreed to be interviewed (100% response rate). The interview was conducted by telephone and notes were taken rather than an audio-recording. The interviewer had the GP's answers to the original questionnaire to guide the GP through the interview. These interviews were conducted between December 2008 and February 2009.

The GPs were asked which sources of information they used for particular enquiries; specifically, websites, online text, journals (electronic or paper), paper books, colleagues, audits, prescribing sources and email feeds. For each answer the GP was asked for the name of the source, if payment was required, if it was a source accessed when needed (a 'pull' resource) or information that is sent to them routinely (a 'push' resource),

Table 1. Demographics of interviewed general practitioners

Number of years since graduation	17–35 years
Median years since graduation	26 years
Fellow of the RNZCGP	9/10 (90%)
Male	5/10 (50%)
Overseas-trained	5/10 (50%)
Self-assessed electronic skills 0=poor; 10=excellent	Range 4.5–10 Median 7.5

how often they got an answer to their question and whether this source was for a question now or for future reference.

The study had ethics approval from The University of Auckland Human Participants Ethics Committee (Reference number 2008/427).

The GPs' responses are described and their resources listed in categories.

## Results

The demographics of the 10 GPs interviewed indicate that they were senior members of the profession, all but one were Fellows of the College with a median of 26 years since graduation. There were equal numbers of male and female and of NZ- and overseas-trained respondents. While there was a range in their self-assessed electronic skills, they generally judged these positively (Table 1).

The sources they used are shown in Table 2. All accessed websites for information when needed (a 'pull' resource) both for immediate clinical questions and for future reference, and 50% used websites daily. Other resources commonly used when information was needed at the point of care were paper books, MIMS catalogues and GP and specialist colleagues, whereas journals were used for updating knowledge. In general, they were more satisfied with the answers to their questions from Internet resources and colleagues than from books.

The resources they used are in Table 3. A wide range of websites are listed, including medical e-learning sites, literature databases, e-texts, general search engines and topic-specific sites. Relatively few paper textbooks are listed.

## Discussion

This study shows that all the participants were using the Internet both to seek information for questions requiring an answer now and for future learning. Half were using it daily. Colleagues and paper-based sources were only used daily by one of the participants and only used for immediate clinical questions.

This may represent a change in information seeking when compared with another Auckland-based study in 2002 where computers were rarely used to answer clinical questions. Colleagues including

Table 2. Details of use of sources

Source	Use at all	Use daily	Pull*	Free to use	Now/future†
Websites	10/10	5/10	10/10	Majority	10/10 both
Online textbook	2/10	0/10	2/10	1/10	1/10 now
Journals (paper and electronic)	8/10	Range (each issue to 1/year)	6/10	8/10	7/10 future
Paper book	8/10	1/10	7/10	4/10	7/10 now
MIMS‡	7/10	5/10	6/10	5/10	5/10 now
GP colleagues	7/10	1/10	7/10	7/10	7/10 now
Specialist colleagues	6/10	0/10	6/10	6/10	6/10 now
Pharmacist colleagues	2/10	0/10	2/10	2/10	2/10 now

\* Pull: information accessed when needed, v. push: a resource sent routinely to a clinician

† Whether resource for answering clinical questions now or for future learning

‡ Only source of prescribing used (at the time, every GP in New Zealand was given a free copy from the publisher)

Table 3. Resources used by the 10 GPs

Websites ('pull')	Routine emails ('push')	Journals (electronic or paper) and publications	Paper books	Colleagues
Australian Menopause Society	From PHOs	<i>Am J Clinical Nutrition</i>	<i>Clinical Evidence</i> (BMJ)	Diabetic nurse
British Medical Journal Learning	From DHBs	<i>Am J Medicine</i>	<i>A Handbook for the Interpretation of Laboratory Tests</i> (Diagnostic Medlab)	Laboratory specialist
CDC travel medicine	From MOH	<i>Australian Family Physician</i>		GP
Cochrane reviews	From hospital specialists	<i>British Medical Journal</i>		Hospital specialist
Dermnet	ePulse (RNZCGP)	<i>BPAC Best Practice</i>	<i>Fitzpatrick's Dermatology in General Medicine</i>	Pharmacist
Dilworth audiology	Research reviews via email	<i>Casebook</i> (Medical Protection Society)	<i>Grant's Atlas of Anatomy</i>	Peer group
e-medicine	Wonca journal alerts	<i>Consumer</i>		
Everybody		<i>Evidence Based Medicine</i>		
FamilyDoctor		<i>JAMA</i>		
FpNotebook.com		<i>New Zealand Doctor</i>	<i>Immunisation Handbook</i> (Ministry of Health)	
Goodfellow Club		<i>New Zealand Family Physician</i>	<i>The Merck Manual</i>	
Google		<i>New Zealand Medical Journal</i>	<i>Murtagh's General Practice</i>	
Google scholar				
Isabelhealthcare.com				
MD consult				
Med Media patient info				
Medscape				
New Zealand guidelines				
Patient.co.uk				
P.E.A.R.L. (cochraneprimarycare.org)				
Pharmac				
Procare				
Pubmed				
RACGP online CME-CPD				
Real age				
RNZCGP				
SearchMedica				
University of Auckland				
Wikipedia				

GPs, specialists and pharmacists were still common sources of information.<sup>13</sup> The use of journal articles or searching for literature other than through search engines was rare. We were also surprised at the wide range of websites used and the fact that some were using web resources daily and some less often.

A strength of this study is that each of the 10 GPs was able to be interviewed in some depth about their information approaches. A limitation is that they are a self-selected group of highly

motivated learners who probably represent one end of a spectrum of GPs and are not representative of all GPs. However, the study intended to interview such a group to see what innovations are possible in the primary care setting. It was not possible to do an in-depth interview on a wide range of GPs with the resources available to the study.

In the words of McConaghy we agree that 'clinicians must learn the techniques and skills to focus on finding, evaluating and using

relevant and valid information at the point of care. Clinicians also need sources for rapid retrieval of this information to integrate it into their daily practice and their careers of lifelong learning.<sup>14</sup> The GPs in our sample certainly have 'sources for rapid retrieval' and are using 'relevant' information; they are probably also getting 'valid' information, given the resources they have nominated.

Web resources have the potential to provide both immediate answers to clinical questions and contribute to lifelong learning. The possible change from textbooks to web resources has the additional advantages of providing clinicians with up-to-date information which is not possible with paper textbooks. Future research is needed and perhaps it would be worthwhile repeating the study of 2002 to see how answering clinical questions may have changed.<sup>13</sup> The issue of lifelong learning (knowledge for the future) needs more research.

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#### COMPETING INTERESTS

None declared.

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