General practice research: attitudes and involvement of Queensland general practitioners

Deborah A Askew, Alexandra M Clavarino, Paul P Glasziou and Christopher B Del Mar

ABSTRACT

Objectives: To determine general practitioners' (GPs') attitudes towards and involvement in general practice research.

Design: Postal survey and semi-structured interviews conducted from May to September 2001.

Participants and setting: 467 of 631 GPs in four Queensland Divisions of General Practice responded to the survey (74% response rate); 18 selected GPs were interviewed.

Main outcome measures: Survey — attitudes to research; access to information resources; and involvement in research. Interviews — the need for general practice research; barriers against and factors enabling greater participation in research.

Results: 389/463 (84%) GPs, especially younger and more recent graduates, had positive attitudes to research, but only 29% wanted more involvement. 223/462 (48%) were aware they had access to MEDLINE, although presumably all those with Internet access (89%) would have free access via PubMed. Barriers included the general practice environment (especially fee-for-service funding), and the culture of general practice. Enabling factors included academic mentors; opportunities to participate in reputable, established research activities relevant to general practice; and access to information resources.

Conclusions: Although Australian general practice has a weak research culture, about a third of GPs would like to increase their involvement in research. However, the research must be perceived as relevant, and structured to minimise the inherent barriers in the environment and culture of general practice.

MJA 2002; 177: 74-77

RESEARCH EVIDENCE is a prerequisite to ensuring the best possible care is provided to patients in the most effective and efficient manner.[1] However, many clinical decisions in general practice are not supported by evidence — the evidence does not exist, is not applicable to general practice, or is not incorporated into practice.[2]

Between the 1980s and 1990s, there was a fivefold increase (to about 55 per year) in Australian general practice research publications.[3] Yet the rate remains deplorably low compared with that in other medical disciplines.[4] Most general practice research is conducted by academic departments of general practice,[3] with the equivalent of about 8.6 full-time-equivalent, core-funded academic staff doing the research.[5] This weak research culture in general practice is not restricted to Australia.[6-8]

The Commonwealth Government's Primary Health Care Research, Evaluation and Development (PHC-RED) Strategy aims to embed a research culture in Australian general practice and primary care. This would strengthen GPs' involvement with research at three levels: leading research (eg, initiating research projects), participating in research (eg, recruiting patients to research projects), and consciously basing clinical decisions on research evidence (eg, searching medical databases to answer specific clinical questions).[9]

By determining GPs' attitudes towards and involvement in general practice research, we aimed to provide a baseline against which the outcomes of the PHC-RED Strategy can be assessed.

METHODS

We combined quantitative (postal survey) and qualitative (semi-structured interviews) techniques. Ethical approval for our study was provided by the University of Queensland's Behavioural and Social Sciences Ethical Research Committee.

Survey

In May 2001, we sent a postal questionnaire to all 656 GPs in four (out of 20) Queensland Divisions of General Practice: Brisbane Inner South, Ipswich and West Moreton, Bundaberg and District, and Southern Queensland Rural, representing two metropolitan, one provincial and one rural Divisions, respectively.

We could not find an existing questionnaire which covered all aims of our study. Therefore, we used a subset of questions from a UK study[7] (supplemented by our own questions to assess attitudes to research, involvement in research, and self-assessed understanding of research terminology), as well as questions from an Australian study about access to electronic bibliographic databases.[10]

Centre for General Practice, School of Population Health, The University of Queensland Medical School, Brisbane, QLD.

Deborah A Askew, GradDipNutr&Diet, MHlthSc, Primary Health Care Research Evaluation and Development (PHC-RED) Coordinator, and PhD Candidate;
Alexandra M Clavarino, BA, PhD, Research Fellow, Centre for Health Promotion and Cancer Prevention Research;
Paul P Glasziou, MBBS, PhD, Professor of Evidence Based Practice;
Christopher B Del Mar, MD, FRACGP, FAFPHM, Professor of General Practice, and Director.
Reprints will not be available from the authors. Correspondence: Ms Deborah A Askew, Centre for General Practice, School of Population Health, The University of Queensland Medical School, Herston Road, Herston, QLD 4006. d.askew@sph.uq.edu.au

1: Respondents' involvement in general practice research (*n* = 467)

Involvement	Never	In the past only	Currently only	Both in the past and currently	Data missing
Attended research methodologies course	335 (72%)	114 (24%)	6 (1%)	8 (2%)	4 (0.9%)
Acted as principal investigator	393 (84%)	62 (13%)	2 (0.4%)	7 (1%)	3 (0.6%)
Recruited patients into research project	191 (41%)	234 (50%)	13 (3%)	25 (5%)	4 (0.9%)

2: Respondents' attitudes to research, and correlations between attitudes

		Concordance with other attitudinal statements		
Attitudinal statement	Respondents agreeing	*Research is useful in day-to-day management of patients*	*Practising evidence-based medicine improves patient care*	*Prefer clinical experience to research evidence*
Research is useful in day-to-day management of patients	389/463 (84%)			
Practising evidence-based medicine improves patient care	325/465 (70%)	$\rho = 0.48$		
Prefer clinical experience to research evidence	363/464 (78%)	$\rho = -0.24$	$\rho = -0.33$	
Desire for more involvement in general practice research	135/459 (29%)	$\rho = 0.34$	$\rho = 0.24$	$\rho = -0.19$

ρ = Spearman's correlation coefficient (a measure of correlation between variables).
All Spearman's correlation coefficients were significant ($P < 0.01$).

Non-respondents were sent reminders in June/July and September 2001. Privacy issues precluded any analysis of non-respondents.

The data were analysed using Spearman's rank correlation, Wilcoxon signed-rank tests, χ^2 tests, and logistic regressions. Characteristics of respondents were compared with those of national and State GPs.

Interviews

We conducted semi-structured interviews with a convenience sample of 18 GPs who had participated in research activities of the Centre for General Practice, University of Queensland. The interviews asked about the need for research in general practice, perceived barriers to involvement, and factors to facilitate involvement.

Interviews were transcribed verbatim, entered into NUD*IST4 (qualitative data analysis software[11]) and summarised according to recurrent patterns and themes. Two of us (D A A and A M C) independently coded a subset of interviews, and emerging themes were compared, and disagreements resolved on the basis of consensus.

RESULTS

Of the 656 questionnaires, 25 were returned (the GP had retired, the address was incorrect, or the recipient was not a GP — divisional mailing lists often include other medical and health professionals). We received 467 (74%) responses to the remaining 631 questionnaires.

Respondents

Most respondents (63%; 295/465) were men and their mean age was 45 years (range, 26–79 years). They had graduated from medical school a mean of 21 years ago (range, 3–56 years): 302 (65%) within Queensland, 43 (9%) in other Australian States, and the remaining 119 (26%) had graduated overseas. The respondents were representative of Queensland GPs in sex ratio, but were younger, more likely to be Queensland trained and less likely to be overseas trained than GPs nationally ($P < 0.01$).

Levels of involvement in general practice research

Just over half the respondents had recruited patients into research projects, but few had received any formal research training, or been principal investigators. Very few respondents had any current involvement in research (Box 1).

Attitudes to research

Most respondents considered that research findings were useful in the day-to-day management of patients and that practising evidence-based medicine (EBM) improves patient care (Box 2). However, these attitudes did not preclude respondents preferring clinical experience to research evidence for clinical decision-making. Spearman's correlation coefficients indicate the relationship between responses to the attitudinal variables. For example, GPs agreeing that research was useful were likely to consider that practising EBM improves patient care and conversely, GPs who preferred clinical experience to research evidence were unlikely to want to increase their involvement in research (Box 2).

GPs with experience as principal investigators were more likely to have attended a course on research methods ($P < 0.001$), to have recruited patients into research projects ($P < 0.001$), to agree that EBM improves patient care ($P < 0.05$), and to prefer experience over evidence for clinical decision-making ($P < 0.05$). They were no more likely to want more involvement in general practice research.

Logistic regression analysis of factors that could affect attitudes towards research — age, sex, time since graduation and where initial medical qualifications were received — showed that younger respondents and more recent graduates were more likely to have a positive attitude towards research.

There were no differences in attitudes between GPs who responded to the ini-

tial mailout and those who responded to the two reminder mailouts.

Access to databases and the Internet

Most respondents reported access to the Internet at their home or surgery (89%; 416/466), but less than half the respondents reported access to MEDLINE (48%; 223/462) (in fact, all those with Internet access have free access to MEDLINE through PubMed) and the Cochrane Library (44%; 204/464). Among respondents with Internet access, knowledge of access to MEDLINE was not significantly associated with sex, age, place or year of graduation, or previous experience as a principal investigator of a research project.

Understanding of EBM terms

Of the respondents, 251 (54%) and 223 (48%), respectively, reported that they understood the terms "systematic review" and "number needed to treat", but few felt able to explain the meaning to others (11% and 21%, respectively). Asked whether they would like to understand these terms, 91/163 (56%) and 81/147 (55%) respondents not understanding "systematic review" and "number needed to treat", respectively, would like to. About 10% of respondents had never heard of these terms.

Themes from the qualitative data

The GPs interviewed did not have a common understanding of research. Some definitions focused on gathering

3: GPs talk about general practice research: themes emerging from the qualitative data

(quotes have been selected to reflect common responses).

Reasons general practice needs research

The GPs appreciated that research was necessary for any discipline to progress. However, this research needs to be both relevant and applicable.

> *". . . a lot of the research over many years has been done in hospitals, on hospital patients not on general practice patients, but two-thirds of the medicine, or probably more, occurs out here in general practice . . . only sick people go to hospital, well people go to their general practitioner and what we do for them is not necessarily well documented or may not be based on evidence . . . ."*

Providing an evidence base for general practice was commonly perceived as necessary to increase the rationality of prescribing; to provide a competitive edge, particularly over complementary therapies; and to improve the credibility of general practice and overall patient concordance.

> *". . . alternative practitioners . . . make great claims about the efficacy of their treatments and people seem willing to pay money regularly without any kind of rebate . . . to try these treatments. So I think if general practice can actually do the research, and actually come up with evidence that supports the efficacy of the treatments we use, that will give us the edge over competitors in the health service industry . . . I think it gives you more credibility . . . patients are fairly discerning these days and they're aware of what's available and so if you can give people the evidence that what you're going to prescribe works — then they're probably much more likely to take it . . ."*

Perceived barriers to involvement in general practice research

The funding arrangement for general practice was consistently and almost unanimously cited as the major barrier to involvement in research. The reality of the funding arrangements renders research, and any activity not involving patient contact, a luxury because the time involved is not remunerated.

> *". . . but there is a major negative and it's tied in with time . . . GPs are a bit like a laboratory animal . . . a rat in a turbine . . . you know they're working harder and harder and work longer and longer hours for less and less money . . . and to try and work research into that sort of environment . . . is not easy . . . "*

General practitioners spoke of the "GP mindset" that ascribes higher authority to clinical experience than research evidence, particularly where divergence exists.

> *". . . [we are told] that Amoxil doesn't work [very well] in otitis media [although] most of us don't believe it. But unless that research is being done, we'd still be saying you must come down at the first sign of an earache and get some Amoxil . . . "*

Active enquiry is not common behaviour in general practice.

> *". . . the environment itself is not one where people are encouraged to ask questions and spend time finding the answers to those questions."*

The GPs also spoke of reluctance to become involved in research projects where they doubted the credibility of the researchers or the activity. Invitations from pharmaceutical companies to become involved in research activities were perceived to be "*thinly veiled commercial ventures*" aimed at encouraging needless prescribing changes between drugs of the same class, or for market research on the behaviours of GPs or their patients.

Factors perceived as enabling participation in general practice research

The GPs indicated they were more likely to become involved in a research activity if it was established and administered by a reputable third party such as a university department of general practice.

> *". . . doing what the university is doing . . . all the organising of it, doing all the writing of it and getting the GPs who are interested . . ."*

The topic had to be relevant to general practice, their patient profile and their interests.

> *". . . research should be determined by the profession itself — be 'grass roots research rather than ultra-professorial research' — research by the specialists — professor of cardiology or nephrology or whatever who tend to go to the nth degree in the research rather than reflecting the general practice environment . . ."*

Additionally, the research methodologies need to be simple, easily explained to patients and *". . . able to be fitted into a standard consultation without too much trouble, then it's quite OK."*

Some suggested that research is slowly becoming part of the culture of general practice, and gaining acceptance as an appropriate activity for GPs to engage in. Access to information resources such as the Internet, MEDLINE and the Cochrane Library was also considered important.

> *". . . I think the increased access to the Internet has made a huge difference [to the uptake and dissemination of research] . . ."*
>
> *". . . there has been a greater emphasis on it from lots of places — universities, [and]* Australian Family Physician *has published original work by GPs for the last couple of years . . ."*

On the individual level, GPs wanted to redress their lack of research knowledge, skills and experience by gaining access to academic mentoring and, for some, formal research training. Collegial support was also considered important to prevent isolation undermining enthusiasm — as one GP said, *"a group to work with (even if only one other)".*

information to *"find a truth to stop us making the same mistakes in the future"* or answering a question by *"going beyond textbooks to journals, the Internet or colleagues"*. One GP differentiated between trials and real research "*in a lab with animals and test-tubes*". Research was generally understood in terms of quantitative methodologies, "*with sufficient numbers for statistical significance*".

Themes from the interviews relating to the need for research in general practice, barriers and enabling factors are presented in Box 3.

DISCUSSION

Three key findings emerged from this study.

- Although most GPs consider research necessary, they prefer clinical experience over research evidence when making clinical decisions.
- GPs are unaware of the information resources they have access to, notably MEDLINE.
- About a third of GPs want to increase their level of involvement in general practice research, and would do so if provided with opportunities sympathetic to general practice working conditions.

Our study has some limitations. Our survey sample was a purposely selected, convenience, cluster sample of General Practice Divisions, and possibly was unrepresentative. The response rate of 74%, although good,[12] means response bias could be present,[13] even though there were no significant differences in the reported attitudes to research between GPs responding to the initial mailout and those responding to reminder mailouts. Also, the stated attitudes could reflect socially desirable responses rather than respondents' true attitudes.[14]

Our results concur with those of previous studies that most GPs consider general practice research findings to be useful,[8,15] and that general practice needs a relevant and applicable evidence base.[2] That GPs report relying more on experience than evidence when making clinical decisions is not new,[16] and could be explained by our finding that the general practice culture and working conditions do not encourage questioning, nor provide time to seek answers. Numerous questions arise in general practice, but few are identified and articulated,[17,18] and only about 30% are pursued.[19]

That a third of GPs wished to increase the level of their research involvement agrees with findings of an earlier Australian study.[20] We identified similar barriers,[20] and have further identified a range of factors that would enable involvement:

- opportunities compatible with routine general practice;
- topics of relevance to general practice;
- payments to offset costs; and
- a culture change that encourages GPs to question.

Most GPs have been educated and trained within a system that reinforces the authority of clinical experience, so that the less experienced defer to those with more and specialised experience (ie, GPs are taught to defer to specialists).[21]

Progress could be made towards embedding a research culture in general practice by enabling GPs to become aware of, and use, available resources. GPs will engage in research if the topic is relevant and the logistics of participation are possible within the constraints of general practice. These findings can inform both the implementation and evaluation of the PHC-RED Strategy.

COMPETING INTERESTS

None identified.

D A Askew receives a PhD scholarship from the National Prescribing Service. The questionnaire study was funded under the Commonwealth Department of Health and Ageing Primary Health Care Research, Evaluation and Development (PHC-RED) Strategy.
Neither the National Prescribing Service nor the Commonwealth Department of Health and Ageing had any involvement in any aspects of the study design, data collection, interpretation or analysis, or had any influence in the writing and submission of this article.

ACKNOWLEDGEMENTS

Many thanks to the GPs who completed yet another survey and participated in the interviews, and to the four Divisions of General Practice (Brisbane Inner South, Ipswich and West Moreton, Southern Queensland Rural, and Bundaberg and District) for agreeing to participate, and for actively assisting in achieving the response rate. Also thanks to the *MJA* referees whose comments strengthened this article.

REFERENCES

1. Fairhurst K, Huby G. From trial data to practical knowledge: qualitative study of how general practitioners have accessed and used evidence about statin drugs in their management of hypercholesterolaemia. *BMJ* 1998; 317: 1130-1134.
2. NHS, R&D Strategic Review — Primary Care. Report of Topic Working Group, June 1999. Available at: <http://www.doh.gov.uk/research/documents/rd3/primary_care_final_report.pdf> (accessed June 2002).
3. Ward A, Lopez D, Kamien M. General practice research in Australia, 1980–1999. *Med J Aust* 2000; 173: 608-611.
4. Askew DA, Glasziou PP, Del Mar CB. Research output of Australian general practice: a comparison with medicine, surgery and public health. *Med J Aust* 2001; 175: 77-80.
5. Kamien M. Has Australian academic general practice really come of age? *Med J Aust* 2001; 175: 81-83.
6. Giveon S, Kahan E, Kitai E. Factors associated with family physicians' involvement in research in Israel. *Acad Med* 1997; 72: 388-390.
7. McColl A, Smith H, White P, Field J. General practitioners' perceptions of the route to evidence based medicine: a questionnaire survey. *BMJ* 1998; 316: 361-365.
8. Robinson G, Gould M. What are the attitudes of general practitioners towards research? *Br J Gen Pract* 2000; 50: 390-392.
9. Del Mar BC. Publishing research in *Australian Family Physician*. *Aust Fam Physician* 2001; 30: 1094-1095.
10. Young JM, Ward JE. General practitioners' use of evidence databases. *Med J Aust* 1999; 170: 56-58.
11. NUD*IST4 [computer program], V4.0. Melbourne: QSR International, 1991-97.
12. Mangione TW. Mail surveys: improving the quality. Applied Social Research Methods Series, Vol 40. Thousand Oaks, Calif: Sage Publications, 1995.
13. Stocks N, Gunnell D. What are the characteristics of general practitioners who routinely do not return postal questionnaires: a cross sectional study. *J Epidemiol Community Health* 2000; 54: 940.
14. Babbie ER. The practice of social research. 6th ed. Belmont, Calif: Wadsworth Publishing Company, 1992.
15. Young J, Ward J. Evidence-based medicine in general practice: beliefs and barriers among Australian GPs. *J Eval Clin Pract* 2001; 7: 201-210.
16. Mayer J. Exploring general practitioners' attitudes to evidence-based medicine using evidence-based guidelines: a focus group study [Master's thesis]. Melbourne: Monash Department of Community Medicine and General Practice, Monash University, 1998.
17. Barrie AR, Ward AM. Questioning behaviour in general practice: a pragmatic study. *BMJ* 1997; 315: 1512-1515.
18. Ely JW, Osheroff JA, Ebell MH, et al. Analysis of questions asked by family doctors regarding patient care. *BMJ* 1999; 319: 358-361.
19. Gorman PN, Helfand M. Information seeking in primary care: how physicians choose which clinical questions to pursue and which to leave unanswered. *Med Decis Making* 1995; 15: 113-119.
20. Silagy CA, Carson NE. Factors affecting the level of interest and activity in primary care research among general practitioners. *Fam Pract* 1989; 6: 173-176.
21. Becker HS, Geer B, Hughes E, Strauss AM. Boys in white: student culture in medical schools. New Brunswick, NJ: Transaction Books, 1977.

(Received 22 Apr 2002, accepted 7 Jun 2002) ❑