

Asking good research questions in general practice

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Introduction

Asking questions is something deeply ingrained in our lives. Especially so if we work as general practitioners and welcome patients with questions such as 'How can I help you today?' or find out more information to help our patients with questions such as 'When did that pain begin?' There are many kinds of questions that could be asked and asking good questions is a feature that trainees have to learn in order to be able to develop the art of good general practice. A general practitioner who was shy of asking questions, or did not ask the right kind of question at the right time, would find that errors arose or that the art of their work did not flourish. Patients are not satisfied if the general practitioner does not ask the right questions to help them sort out the undifferentiated problems they bring to their doctor.

There are questions that are crucial to the development of general practice even though they are not related to the individual care of patients, nor might they help an individual general practice. These are the science questions. In this article I argue that although these questions are not common, they have characteristics that require understanding. The art of asking a good question is just as important in the science of general practice as it is in the art of general practice.

The characteristics of a good research question

In common parlance, science is synonymous with research: When a gen-

eral practitioner does research, he or she does science. The dictionary defines research as:

*'Endeavour to discover new or collate old facts etc. by scientific study of a subject'*¹

A general practitioner does research using some kind of method in order to obtain results to answer a question. Armstrong and Howie^{2,3} advise that good research questions have the following characteristics:

1. The question is found in the course of everyday general practice;
2. The question is simple;
3. The question is important;
4. The question is interesting;
5. The question is useful;
6. The question is answerable preferably within a predictable and relatively short time frame;
7. The question is asked by any general practitioner, not just the creative genius.

Close examination of this list indicates that there are two issues that a general practitioner needs to consider when developing the art of asking a good research question:

1. The needs of the general practitioner

A general practitioner is likely to ask research questions if he or she is creative or has an interest in general practice as an academic discipline. This

general practitioner will seek interesting or creative questions that will satisfy a need to search for knowledge. For example, I noticed a group of women in my practice who had premenstrual syndrome, also seemed to have atopy related disorders. My research question was: Is there an association between PMS and asthma, eczema, or hay fever? This question became a knowledge creating exercise because I could not find previous research on this topic. Eventually I found there was an association between PMS and hay fever in our practice population.⁴ There was no other

motive except to see if this question could provide new knowledge.

People have a range of inclinations to satisfy their needs, and seeking knowledge is but one of them.⁵ Most general practitioners do not have a need to seek knowl-

edge through research because they are set in their career path as doctors working in clinical practice. Some general practitioners do have such needs. This is evident from the many publications New Zealand general practitioners have produced over the last 30 years from research work done in their own practices, in their own time, and often funded out of their own pockets.⁶ A few general

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practitioners in New Zealand choose to work full-time in academic institutions. Others find time through doing postgraduate degrees, or through work done in audit or peer review. All this work provides an opportunity to satisfy a need to increase knowledge by asking research questions.

2. The pragmatic constraints in general practice

Armstrong and Howie argue for a pragmatic approach to research.^{2,3} There is no place for obscure research questions. A general practitioner who chooses to explore a research question that is irrelevant to the everyday work of general practice is unlikely to sustain the interest of other general practitioners (or practice staff) to take part in the study. There is also no place for questions that are too difficult to answer. A question that will take up a lot of practice time to answer will not be useful unless considerable resources are obtained to sustain the collection of data over time. Finally, there is no place for research questions that produce results that are unpublishable. Funding organisations such as the RNZCGP Research and Charitable Trust require the researcher be explicit on how answerable a particular question might be before they consider funding the project.

Few research questions will grab the attention of the entire worldwide medical community. There are over 30 million research articles published, but surprisingly few have been shown to change worldwide clinical practice.⁷ Many research publications are ignored because their research questions are not well formulated (namely the questions are not simple, answerable, and useful). Most publications are useful because the questions asked

are relevant to the interests of local medical communities. For example, research questions asked by New Zealand general practitioners are mostly published in the *New Zealand Family Physician* or the *New Zealand Medical Journal* because a New Zealand readership is desired. Similarly, researchers who work within a particular clinical subspecialty, or do particular clinical audits, will publish in journals read by a particular audience to whom a question is of interest.

Asking questions starts research

Those general practitioners who are keen to increase the amount of knowledge in their practice, but lack the skills to do so, can turn for help to three groups of texts written on the conduct of general practice research. The first group focus on the pragmatic aspects of carrying out research in the general practice setting;^{2,3,8} the second group compare qualitative and quantitative methods;^{2,9} The final group focuses on case-based anecdotal research in general practice.^{10,11} These texts vary enormously with respect to the

research methodologies they discuss, but they all emphasise that the start of any research activity begins with asking the right question.

Different questions require different kinds of methods. If a research question is

one where meaning, attitudes, or values is being asked, then qualitative methods are needed. For example a qualitative method was required to identify the attitudes answering the question: why do general practitioners prescribe antibiotics for acute

asthma attacks?¹² Quantitative methods are needed if a research question requires the description of the frequency of events occurring in general practice, or if a question gives

rise to a hypothesis to be tested. For example a quantitative method of collecting systematic data was required to answer the question: What kind of injuries are managed by a general practitioner in a practice over time?¹³ Similarly, quantitative

methods were needed to test the hypothesis: Were there social differences between those children who had delay in immunisations from those who do not?¹⁴

Is a good question one for research or audit?

Armstrong makes a distinction between monitoring, audit, and research.² He points out that monitoring and audit are both legitimate data gathering activities that will produce unpublishable, but nevertheless useful results. Monitoring differs from audit and research because it is merely a form of counting. It allows a general practitioner to describe what happens in a general practice but no more. For example, general practitioners routinely monitor their incomes, but rarely publish the economics of their general practice.¹⁵ In contrast, both research and audit require the collection of information in order to answer questions.

Audit and research differ in the kinds of questions they ask. Research questions are part of a *linear* process where one research project follows another. A useful research question will be one that either starts a linear process or contributes to other processes occurring in the research community. The process involves answering one question after another and in that way increasing knowledge. For example, in 1967 Dr Wood asked from a single case: do women on the oral

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contraceptive pill develop hypertension?¹⁶ Since that time, there have been 1170 publications found on Medline on this topic, five were from general practice, and 12 were randomised controlled trials.

In contrast, audit is a *cyclical* process.¹⁷ An audit begins by collecting information about a medical topic in a particular medical practice. The information is evaluated in order to describe any deficiencies in the practice. Actions are implemented within the practice to rectify the deficiencies. At a later date, data is collected again to see if there had been any improvement in the deficiencies found with the practice. This cycle is repeated as long as deficiencies are described. A good audit question will be one that improves the quality of care provided in a practice. For example, an audit of cervical smear testing in our practice in 1988 arose from a question about the quality of the kind of smear delivery we offered.¹⁸ We changed from a doctor-only policy, to one providing women with a choice of a nurse or doctor to perform cervical smears.

There are key differences between asking questions for audit or research. Firstly there is a difference in focus. Audit entails questions that focus on a convenience sample – usually one particular general practice. The kinds of questions asked in such audits are essentially teleological – the questions seek answers that are sought for the purpose of improving the care provided by a particular practice. Medical research has a more pluralistic focus. Some research questions aim to improve particular practices. Other research questions merely reflect the curiosity or eagerness of the general practitioner to describe the new. Furthermore, some research agencies, such as pharmaceutical companies, ask their research questions for profit.

A second key difference in focus is that medical research involves questions that are subject to public scrutiny such as peer review, whereas audit does not. Peer review is a particular requirement from editors of reputable journals. In contrast, audits are often not published.

A final key difference is that questions for research are often carried out to produce answers that are unbiased and generalisable to populations outside a particular sampling frame.¹⁹ That is why care is taken by medical researchers to focus the research question, to specify a particular sampling frame, to carefully eliminate bias from a study, and to ensure that the correct analysis is done on the data. In contrast, the aim of an audit question is to provide answers that provide quality improvement for a particular practice and not to be generalisable to other practices.

Conclusion

Good research questions are simple, answerable, and useful. Those general practitioners who need to increase the amount of knowledge in their work undertake to ask good research questions. Research is started by asking the right question and is answerable. A good research question will be one that generates a linear process where one question will follow from another in order to build a body of knowledge. Good questions are valuable because they increase the amount of knowledge that is useful for the improvement of general practice care.

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