

# Ecology of family physicians' research engagement

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During the past 2 decades, family medicine research has grown and is in some ways coming of age. Before the 1990s family medicine research was largely a “cottage” industry with very few established professional researchers and only a few family physicians carrying out research “around the kitchen table.”<sup>1</sup> With the establishment of research career-track programs in the larger academic family medicine departments in Canada, the United States, Australia, and the United Kingdom, family medicine has created an emerging group of professional researchers able to compete at the highest levels for grants and publication in national and international peer-reviewed journals.<sup>2-4</sup>

Maintaining and building on this success is a challenge, but it is equally important to understand how all family physicians do or do not engage with research and work toward even greater engagement. How do family physicians engage with research? Why is it important that they do so? How can we achieve greater engagement within our discipline?

We describe an ecology of family physicians' research engagement to explain the potential levels of involvement that all family physicians might have, and where we believe that such engagement might be lacking and why. The purpose of the ecology concept is to provide a language and framework with which to think about research engagement across our discipline; to orient the training of competencies in research engagement; and ultimately to create a framework to evaluate our progress as a discipline.

As with the ecology of medical care model,<sup>5</sup> we propose a visual model (Figure 1). It demonstrates the ways that family physicians might engage with research and the relative intensity of such engagement. Most family physicians likely have the least intensive, but nonetheless critical, engagement. The other end of the model is occupied by that very small number of family doctors who commit most of their professional time to producing research. The model, the description, and the discussion are not meant to be a systematic review, but are

informed by our observations and reflections, as well as by selected evidence from the family medicine literature.

## Developing and maintaining a core competency

The most fundamental way that family physicians can engage with research is as consumers of its many “products”—the results of randomized controlled clinical trials of therapies, information on the appropriate use of new and more accurate diagnostic tests, and recommendations from clinical practice guidelines (CPGs), to name a few.

There is an assumption that as part of their continuing professional development and maintenance of skills all family physicians engage with the research literature by using critical appraisal and applying CPGs, and that they are competent in doing so. Competence means that all family physicians have the ability to seek, find, and critically evaluate the most current, high-quality research outcomes and apply them in the clinical setting in a timely manner. However, it is likely that most time-crunched family physicians rely on secondary resources that seek and evaluate the evidence for them. Further, many older family physicians were not trained in these skills.

Are we preparing family physicians of the future to more fully engage with research? It is our experience teaching family medicine residents what was called a generation ago *critical appraisal* and is now called *evidence-based medicine*—the skill of being able to find and critically evaluate the products of clinical research for use in practice—that in spite of such training residents are not regular or systematic readers of the medical literature and they, too, rely heavily on secondary or tertiary reviews of evidence such as UpToDate. Because much of their training still occurs in non-family physician specialist settings they also tend to rely on non-family physician specialist teachers to provide them with what these teachers consider up-to-date information.

There are potential dangers in this. For example, in a recent systematic review of a random sample of InfoPOEMS (Patient-Oriented Evidence that Matters) on drug therapies relevant to family physicians, the authors disagreed with 3 of 10 of the recommendations made, owing to poor study quality or the failure to measure patient-oriented outcomes of treatment (Khoosal, Davey, and Pimlott; unpublished data).

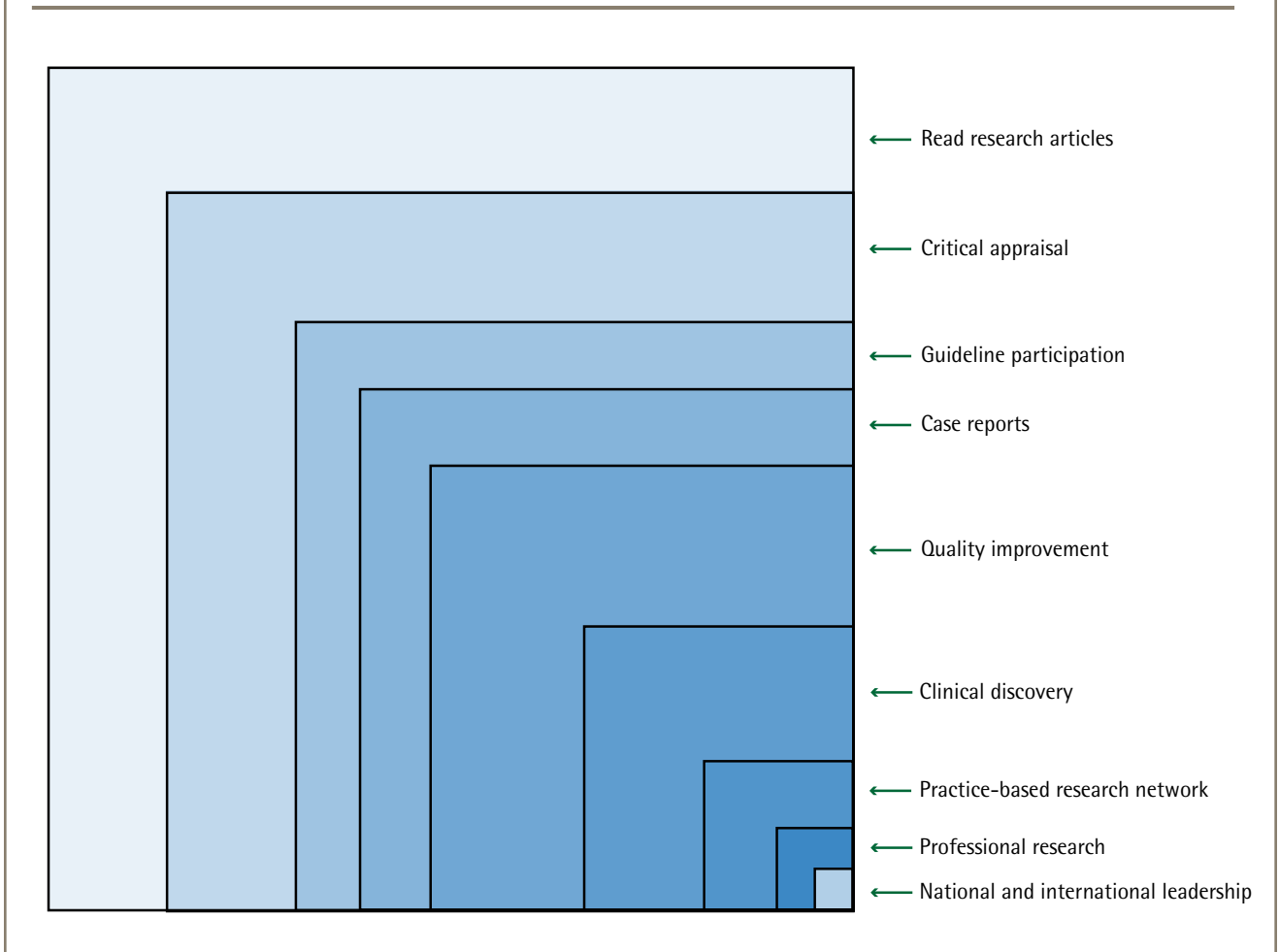
In family medicine training programs we are failing to sufficiently impart to learners the importance and relevance of the crucial skills of being able to seek out the

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Figure 1. Ecology of family physician research engagement



evidence, critically evaluate it, and apply it appropriately in practice. This is a challenge that we must take up anew with more consistent role modeling of these attitudes and skills on the part of family medicine teachers.

### World turned upside down

Family physicians rely heavily on CPGs to keep up to date and to improve patient care. However, there are serious problems with many current models of CPG development and implementation that present an opportunity for greater family physician engagement and influence. Although there are exceptions such as those developed by the Canadian Task Force on Preventive Health Care and the US Preventive Services Task Force, most CPGs are oriented to a single disease and panels are dominated by non-family physician specialists, many of whom have conflicts of interest.<sup>6</sup> Family physicians are suspicious of such conflicts and it influences their uptake of CPGs.<sup>7</sup> Because of the lack of representation of both family physicians and members of the public, CPG panelists fail to consider larger issues such as economic consequences,

opportunity costs of privileging one condition over others, and effective ways to implement CPGs.

A recently published CPG on the management of hyperlipidemia<sup>8</sup> created by a guideline committee of mainly family physicians and other primary care practitioners addresses many of these concerns. Guidelines like this could be the way of the future. One implication of an increased role in development of CPGs is that it will be increasingly important that family physicians are well trained to critically appraise the primary research literature and that they maintain these skills after they enter practice.

### Quality improvement: engagement in action

The growth of continuous quality improvement presents an opportunity to engage family physicians in a microcosmic research experience. Research is defined as the generation of generalizable knowledge. Studying one's own practice and behaviour with a view to improving patient-centred care follows a very similar process. From the generation of the question to collecting and

analyzing data to drawing appropriate conclusions, the pathway is shared. The skills required to perform quality improvement in a clinical practice are easily transferable to the development of a research question that is systematically answered. Many family medicine training programs mandate that residents must complete a quality improvement project, providing them with a skill that will have value once in practice, along with greater insight into the research process.

### Case reports: a core activity

One of the best ways that family physicians can engage with and contribute to research is the case report.<sup>9</sup> Although it has been devalued as a form of research, case reports add to our understanding of early or unusual presentations of illness, and occasionally lead to the discovery of new diseases, as with HIV infection.

We have struggled in family medicine training to engage residents with research. Part of the reason is that we have asked them to engage with it as professional family medicine researchers do: developing a research proposal, submitting it to an institutional review board, carrying out the study, and writing it up (hopefully for publication). Many of them are turned off research in the process.<sup>10</sup> Most lack the prerequisite skills or the time to develop them during their residency, but another problem is that their primary focus during a short generalist training program is to become clinically competent. Encouraging residents to become astute clinical observers and to support them in publishing interesting or unusual cases is a way to engage them with research that aligns with their priorities and that will positively affect their professional identities. It might even provide the skills and confidence to contribute case reports to the literature once in practice.

### Clinical discovery: forgotten form of research

In the latter part of his career, Ian McWhinney lamented that family physicians were no longer engaged in what he called *clinical discovery*.<sup>11-13</sup> By this he meant the discovery of new diseases, new or unusual presentations of diseases with natural histories already thought to be well understood, and unique ways in which diseases (and their treatments) might interact in patients. The single case report is one form of clinical discovery, but it also encompasses case series and pragmatic interventions in one's practice. The observational, descriptive work of pioneering general practitioners such as Edward Jenner, James McKenzie, and William Pickles are prime examples.<sup>14</sup>

McWhinney argued that part of the reason for the decline in this form of research is that clinical observational research has been devalued in the era of the randomized controlled trial. Yet it remains an important form of research in family medicine and one of the

most accessible ways family physicians can contribute to research in our discipline.

### Practice-based research networks: the new frontier

Although practice-based research networks (PBRNs) are not new, their development in Canada has lagged behind other countries. Over the past decade, Canadian PBRNs have been developed despite a lack of infrastructure funding or support.

One of the challenges for PBRNs is to develop processes that allow clinicians working "at the coal face" to engage with professional family medicine researchers, some of whom might not be family physicians. There is a tremendous opportunity for family physicians who make important clinical discoveries and who are practising in larger PBRNs to leverage the expertise of their research colleagues and the collective clinical data available through the network. Using evolving information technology to create virtual observatories where clinical observations can be shared and approaches to patient management compared has enormous potential. "Crowdsourcing" could extend to research in family medicine and engage family physicians in research on an entirely new level.

### The professional researcher

Like all endeavours, proficiency and expertise come from the combination of training and experience. Research expertise requires limiting clinical practice to allow time to engage with and produce research. We have called physicians who do this *professional researchers*. In an environment where research proposals have a 15% chance of receiving funding,<sup>15</sup> it has become imperative for researchers to commit the necessary time to developing expertise if they want to thrive as funded researchers. This move from "weekend warrior" to professional researcher, while essential for competitive success, is made by a select few highly committed family physicians. However, success as a family physician researcher also requires close links to the "laboratory" of family medicine: community-based clinical practice.

### Life in a box


This descriptive model for understanding research engagement is not static and has limitations. Although **Figure 1** implies a hierarchy of boxes that represent the types and levels of engagement, this is clearly not the case. Over the course of their careers family physicians will engage with and be involved in research in different ways. Some who choose to pursue life as a professional researcher might journey in a linear fashion along this continuum. Most family physicians will occupy different places at different times in their careers as their clinical practices, interests, and career stages dictate. The box is not a prison, but a semipermeable membrane.

## Conclusion

Unlike the ecology of medical care, it is currently difficult to put numbers to each of the boxes. Both quantitative (to put some numbers to the categories) and qualitative (to determine the explanatory and generative power of the model) research will need to be done to make the model more robust.

It is safe to assume that most family physicians in clinical practice are users of research and its products whether they do so via the primary literature or not. It is also safe to say that of the more than 35 000 family physicians in Canada,<sup>16</sup> very few are professional researchers. For example, in the department to which one of us belongs (N.P.), there are more than 600 family physician faculty members, but fewer than 25 funded part-time or full-time professional family physician researchers.

In developing this model and reflecting on the challenges that remain for family medicine as a discipline, 2 things stand out. The first is that we have been largely successful in developing professional family medicine researchers, although obstacles remain. The second is that we should focus on developing and maintaining the core skills required for family physicians to engage with and participate in research more fully. These include the ability to seek, evaluate, and apply research in practice and the ability, motivation, and support to contribute knowledge in the discipline through writing, publishing case reports, participating in the development of family medicine-oriented CPGs, and being involved in clinical discovery and the development of new knowledge through PBRNs.

It might be idealistic to hope—but it is certainly worth striving for—that all family physicians will develop and maintain such skills and engage more fully with research. 

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### Competing interests

None declared.

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