Point-of-Care Information That Changes Practice: It’s Closer Than We Think

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Providing care for our patients that is based on the best available evidence, and integrating that evidence with our patients’ values in the context of family and community, should be the goal of every family physician. In two studies in this issue of *Family Medicine*, Ramos et al and Schwartz et al study how we do (and too often do not) apply the best available evidence. Their work builds on that of Gorman et al, Covell et al, Ely et al, and others by studying how we answer questions at the point of care.3,6

Ramos et al directly observed an average of six patient visits per physician among the residents and faculty of a family practice training program.1 Not surprisingly, they found that residents ask more questions than their teachers do (1.5 versus 0.8) and that residents are more likely to attempt to immediately answer their questions (74% versus 39%) but that faculty place more value on the “left-over” questions that remain unanswered at the end of the clinic. This makes sense—residents presumably had fewer patients per clinic and more time to answer questions and therefore had fewer important questions left at the end of the day.

The traditional approach to evidence-based medicine (EBM), as described by Ramos et al, involves a laborious process of formulating a question; identifying, appraising, and synthesizing the best evidence in the primary literature or systematic reviews; and then applying the answer to patient care. In the Ramos et al study, less than 1% of questions were answered using the primary literature, which is consistent with work by Ely et al in a group of more than 100 Iowa family physicians, most of whom were in private practice.5

Information Mastery, Not EBM

And can you blame them? While sources of primary literature such as MEDLINE are rich and important resources, they were designed for researchers, not clinicians. Although the “Clinical Queries” feature of MEDLINE is somewhat helpful, it is not fully realized and is unknown to most physicians. MEDLINE should be a reference of last resort.

Shaughnessy et al have pioneered a much more practical approach called Information Mastery that is really the second generation of EBM. Central to Information Mastery is the “usefulness equation:** Usefulness of medical information = (relevance x validity) / work.**

Thus, the most useful information is highly relevant and highly valid, and little work is needed to obtain the information. MEDLINE provides much irrelevant information that is of highly variable validity, and it takes a great deal of work to obtain it. Is it any wonder, therefore, that physicians in practice don’t use MEDLINE? Information Mastery is much more practical because it argues that physicians should first look to “predigested” sources of information that have evaluated the relevance and validity of information and made it available at the point of care.8 While these references exist (InfoRetriever, Clinical Evidence, the Cochrane Library, and the American College of Physicians Journal Club are the best examples, although only the former has formal criteria for relevance to primary care physicians), they were apparently not available in the training program studied by Ramos et al. That’s too bad, because Information Mastery, not EBM, is what most physicians should be striving to practice.

The work of Ramos et al also has some other limitations. The sources used by the physicians to answer their questions are grouped into five categories: another person, a pocket text, a comprehensive text, a pre-appraised source of evidence, and the primary medical literature. These categories, however, are not mutually exclusive. For example, InfoRetriever is a pocket text in that it runs on handheld computers, it includes pre-appraised sources of evidence such as POEMs and the Cochrane Library, and also includes Griffith’s *5-minute Clinical Consult*, a comprehensive text. As new references blur boundaries, we will need new categories and terms to describe them.
What is EBM, Anyway?

While Ramos et al. state that “Physicians rarely apply evidence-based medicine,” several of the references cited to support this statement predate the development and dissemination of the principles of EBM. This statement also begs the question: what does it mean to “practice EBM”? Hopefully it doesn’t mean formulating a question, searching MEDLINE, critically appraising the studies that you find, and then applying an answer based on the best available evidence. This is wildly impractical, even for academic physicians and residents. It also does not mean only ordering a test or recommending a treatment if there are data from a randomized controlled trial to support it—if that were the case, we would find ourselves paralyzed by lack of information too often. It also doesn’t mean using algorithms or “cookbook medicine,” although good evidence-based guidelines can be a helpful aid to reducing inappropriate variation and applying the best evidence.

Rather than trying to practice EBM, I believe that physicians should practice the eminently more practical approach of Information Mastery. Information Mastery involves attitudes, knowledge, and skills. This attitude includes a willingness to question the traditional wisdom and a healthy skepticism about new tests and treatments. It requires knowledge of the limitations of human cognition and observational skills, the basic principles of clinical epidemiology, and the ability to read critical appraisals of others. When choosing an information source, an “Information master” asks three questions: (1) Is there a filter for relevance that helps weed out the disease-oriented evidence? (2) Is the information evaluated for validity and labeled with a “strength of recommendation” or “level of evidence”? So I can quickly find the best evidence and know when the evidence is weak? and (3) Does the information source reduce work by making it easy to find the evidence at the point of care? Successfully answering these questions requires good information management skills (including use of handheld computers and the Internet) and a regular diet of “Patient-Oriented Evidence That Matters” (POEMs), the most useful information for clinicians.

In the second study in this issue of Family Medicine, Schwartz et al. studied the questions generated by three residency faculty at an urban family practice training program in Michigan. The researchers seemed to be setting themselves up to fail. The physicians were not skilled computer users, did not appear to particularly value EBM, and had slow Internet access. Nevertheless, despite these limitations, they found that the physicians were able to answer most of their questions with an evidence-based source of information.

Different Physicians, Different Approaches to Information

Wyszewianski and Green have described four kinds of physicians with regard to their attitude toward new information. “Seekers” are the prototypical “EBM junkies” who value evidence, carry handheld computers, and are willing to practice differently than their colleagues if they believe the evidence supports it. Schwartz et al. note that only 5% of physicians are willing to take the time to search the primary literature or systematic reviews to answer their questions, and this corresponds to the percentage of seekers in the physician population. The remaining 95% of physicians are split fairly evenly between “receptors,” “traditionalists,” and “pragmatists.” Like seekers, receptors value evidence over anecdote, but they also “have a life” and prefer that someone else does the work of sifting through the evidence for them. The traditionalists value the opinion of trusted authorities, while pragmatists are focused on getting through the day as efficiently as possible, usually not stopping to reflect on their practice.

Wyszewianski and Green emphasized that each group requires a different strategy to help them change practice and apply the best evidence to patient care. While all you have to do is give seekers a computer and turn them loose, the other groups need sources that recognize the importance of filtering for relevance, evaluating and labeling the validity of each item or recommendation, and reducing the work. The physicians in Schwartz’s study probably fell into the receptive or perhaps the traditionalist category and would therefore have less patience for slow Internet connections and might have more trouble interpreting the language of EBM, such as “number needed to treat” or “likelihood ratio.”

Current Efforts to Deliver Evidence-based Information

Three efforts within the specialty of family practice are notable for their work to create evidence-based resources. The Family Practice Inquiries Network (FPIN) is a consortium of universities and residency programs dedicated to identifying the questions of family physicians, answering them concisely with the best available evidence, and disseminating the answers to practitioners (www.fpin.org). This grass-roots effort began as part of an AAFP-funded Research Center and is now growing into a national effort.

InfoRetriever was originally written for the Apple Newton in 1995 and now exists in versions for the PocketPC, Palm, desktop Windows, and Web browser. It integrates a variety of evidence-based resources (POEMs, the Cochrane Database of Systematic Reviews, evidence-based guidelines from the National Guidelines Clearinghouse, a database of diagnostic test information, and more than 100 clinical
decision textbook and a drug database (www.infopojems.com).

DynaMed is an electronic textbook developed largely by a single family physician. While not strictly evidence based (evidence is not clearly labeled), it certainly has an “EBM attitude” (www.dynamicmedical.com). It was initially free but is now moving to a subscription-based model.

Unfortunately, too many physicians expect that this sort of information should be free or at least that they shouldn’t have to pay for it themselves. However, developing truly useful information sources for use at the point of care is not cheap, and all three of these references will require significant funding over the next few years to develop new content, disseminate it, and provide technical support to users. Funding will have to come from either foundations, family medicine organizations, “sweat equity” for contributing content, site licenses from hospitals and universities, or individual subscriptions. Relying on industry to supply our information is too dangerous; we can have free information or we can have unbiased information, but we usually can't have both.

Where Should We Go From Here?
We’re already headed in the right direction, but much remains to be done. While EBM is nicely integrated into the curriculum of most medical schools, many faculty and community preceptors continue to practice “anecdote-based medicine,” providing poor role models for our learners. If you fall into this category, attend an Information Mastery course, read POEMs every month, buy a handheld computer, and spend a few hours learning to use it and stocking it with evidence-based references. Don’t let the adoption of EBM be something that occurs only after the current generation of faculty and preceptors grows older and retires from practice.

Fast, comprehensive information resources such as Clinical Evidence, the Cochrane Library, Dynamed, and InfoRetriever exist today and deserve the support of the family medicine community so they can become even more useful. The culture of training programs and private practices must change to foster an atmosphere of inquiry rather than authority. Instead of a monthly journal club that is literature driven, start a Q&A Club that is driven by questions from practice. Each physician can bring one question and an evidence-based answer to the meeting and share it with his or her colleagues. Question authority, and don’t be afraid to question your own practice. I truly believe that our future as a specialty is at stake—unless we become experts at answering our questions with the best available evidence, the quality of our care will suffer, and our patients will go elsewhere.

Competing Interests: Dr Ebell is the author of InfoRetriever and has served as a consultant to the Family Practice Inquiries Network. He was also the editor of the Journal of Family Practice, which publishes POEMs each month, and is a former colleague of Drs Schwartz and Laud at Wayne State University.

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