FEATURE REVIEW

Evidence Based Medicine at McGill

Joyce Pickering*, MD, FRCPC

"Does McGill teach evidence based medicine?" I have sometimes been asked this question by medical students from other faculties of medicine who are interviewing for residency positions at McGill. I've always been a bit taken aback by this question. What else would we teach whim based medicine? Anecdote based medicine?

Surely all physicians (at least modern ones who are reasonably well trained) base their clinical decisions on evidence? After all, modern medicine is at least partly a science. So why do people talk about evidence based medicine (or EBM to the initiated) as if it were something apart from what physicians do all the time? In this article I will explain some of the origins of EBM and how and why it is taught at McGill.

The traditional medical school curriculum in North America for over 100 years now has been based on 1 to 2 years of "basic sciences", followed by clinical sciences and practical experience with patients. The rationale behind this is that if we understand basic sciences such as anatomy, biochemistry, physiology and pharmacology we will be able to understand our patients' diseases and be able to treat them. Sometimes this works wonderfully, and significant advances have been made in the treatment of diseases by understanding the mechanisms of diseases. As all clinicians have learned, however, it sometimes works very poorly, and what we think should happen with our interventions does not happen. As physicians we have not only often not helped our patients, we have sometimes (unintentionally) harmed our patients because something that was "supposed" to work, didn't. The recent study looking at steroid use in brain trauma is a good example (1). Well intentioned physicians thought that decreasing brain edema with steroids made sense. Experienced clinicians used it, and saw patients get better. Only the trial showed clearly that it harmed, and may have killed many patients. In retrospect we can see that both the theory and the perceptions of improvement must have been flawed.

To base a clinical decision only on our understanding of anatomy, physiology or pharmacology is not, of course, to practice medicine on a whim. It is practicing medicine on a sort of evidence, but it may be evidence from dissection, from a laboratory experiment or from animal experiments. It is not evidence from groups of real patients. Similarly, prescribing a drug because it worked in the last patient we tried it on is a sort of evidence - it's just not very good evidence. When we say evidence based medicine, we mean making clinical decision based on evidence from groups of real patients. In the hierarchy of medical evidence, evidence from a well done study on groups of real patients is always considered stronger than evidence from the laboratory, or from only a few patients. The recognition of this hierarchy of evidence has led to more and more clinical trials on important diseases.

Even among studies looking at groups of real patients, there are some studies that provide much better evidence than others. One of the best sorts of studies for evidence is the randomized clinical trial. This article is not the place to give a course in study design. Any clinical epidemiology text will do that, and students in the McGill Faculty of Medicine are formally taught this material in epidemiology (Unit 8) and in the Evidence Based Medicine course during Unit 9. But all physicians need to know how to judge which studies give the best kind of evidence on groups of patients, because it directly affects the decisions we make for our patients.

Evidence based medicine is a mandated core competency for residency programs under the Royal College of Physicians and Surgeons of Canada, the College of Family Physicians of Canada and the US

* To whom correspondence should be addressed: Joyce Pickering, Department of Medicine, Department of Epidemiology, Biostatics and Occupational Health, McGill University

Accreditation Council of Graduate Medical Education. Some of the specific skills needed to understand and apply evidence from groups of real patients to our own patients include formulating questions appropriately, finding the relevant literature efficiently and appraising that literature (2).

As students enter their clinical years and then their residency at McGill, evidence based medicine is reinforced many times. In every field of medicine there are controversies or unresolved questions clinicians look for clinical trials to answer these questions. Journal clubs, which are a part of almost all residency programs, are often about judging the quality of the evidence presented in the study. Many residency programs at McGill encourage or require their residents to take a summer course in clinical epidemiology to reinforce the resident's ability to judge evidence from groups of patients. A key skill for physicians is the ability to judge what kind of evidence is the best, particularly in situations where there might be conflicting results.

Of course evidence based medicine is not the answer to all clinical questions. Studies may show a benefit for a drug for a group of patients. But your patient is an individual - for him or her in particular, it may not work. So although evidence based medicine is a good source of information to begin a treatment, individual situations and responses always need to be considered.

In addition, we must often recommend treatments without the availability of as good evidence as we would like. The situation here is improving as is evident from looking through some of the major medical journals. Important clinical trials are being published weekly. But there are still many situations where we remain unclear as to the best course of action. In such cases we may still have to act based on what our understanding of basic sciences suggests would be best, or on our experience with a similar recent patient.

So yes, we do teach and practice evidence based medicine at McGill. We train our students and residents to ask good questions and recognize the hierarchy of evidence so that they can not only choose the best options for their patients now, but keep on learning as medicine changes. It's an indispensable part of being and staying a good physician, which is what McGill is all about.

REFERENCES

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Joyce Pickering is the new Associate Dean for Medical Education and Student Affairs. She is a general internist, based at the Royal Victoria Hospital. Her interests include tropical medicine, international health and epidemiology.