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Evidence-based practice: new techniques and technology

Most of us believe that our clinical practice is based on data. In reality, there is a dearth of hard data to support many of our clinical decisions. Although surgeons are reluctant to admit this in public, de facto acknowledgement is noted by the *Canadian Journal of Surgery* in the publication of a series of articles on evidence-based medicine,¹⁻³ in which the Evidence-Based Surgery Working Group from McMaster University outlines the basic principles, and McLeod and colleagues and Hill and associates will apply them, in future issues, using different models. The concept of levels of evidence is an important one. Recommendations for therapy can be made as a function of the level of evidence (I, II or III) and the quality of the treatment classed as I, II or III. It turns out that much of the evidence supporting surgical practice (medical practice also) is class II and III or is frankly empirical. Surgical practice is particularly prone to "expert opinion" — what our teachers told us was the right way to do X or Y. This is particularly evident when a department has 2 experts in the same area. Their indications, preoperative preparation, operative technique and postoperative care can be entirely different yet the results identical, suggesting that there may be no best way or that we may not be analyzing practice to define what is the best way.

When nonmedical people ask what I am doing in Oxford and I reply "studying and taking a course in evidence-based medicine," they uni-

versally look puzzled and ask "Isn't what you already do evidence-based?" Some fancy footwork is required to explain the evolving concepts that are a part of this discipline and why there is value in learning them.

Surgery in all disciplines has been undergoing a revolution over the last decade as our refinement of surgical technique increases, driven by patient-centred outcomes, competition for patients and new technology. Examples of patient-driven operative approaches can be seen in the establishment of laparoscopic cholecystectomy (LC) as the standard approach. How should a new technique such as LC be established? Is a randomized-controlled trial (RCT) the correct study? At what point in the evolution of a new operative technique is an RCT appropriate? Surgery as a discipline has not come to grips with these questions, and so we leave ourselves open to criticism from our medical colleagues and the public.

The second area of focus for surgeons must be the evaluation and introduction of new technology. We are enthusiasts and when given the opportunity to try something new and potentially better we are keen to do so. However, structured evaluation is rarely a part of the process. It seems obvious that it should be and it is here that the rules and levels of evidence should help us to find out if the new tool or technique really is for the better. The next area of importance is providing surgeons with the credentials to use these new techniques and technology. There are almost no established processes in place for the education and accreditation of surgeons in these domains. The importance of doing so is obvious for quality assurance and protection of the public. We must define these processes before a public body decides that we are unable to do so.

Finally, education of the next generation of surgeons is an integral part of our obligations regarding the introduction, use, credentialling and evaluation of new techniques and technology. We are the role models, and if we are sloppy about how these things are done we can be sure that the next generation will do no better. Indeed, we are in a phase, likely to continue for some time, where there are 2 and sometimes 3 different ways to do an operation. If the way to Carnegie Hall is practice, it seems apparent that the same applies to the

technical aspects of surgery and in particular to innovations. In this area, Dr. Waddell⁴ has delineated some of his concerns, which are easy to support. In the context of this Editor's View there are 2 areas of required learning for the upcoming generation of surgeons: the acquisition of the increased skill base that new technology will demand and the skills associated with evidence-based surgical practice and their application to the evaluation of published material as well as the surgeon's own clinical outcomes.

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