

## Commentary: Evidence-based Medicine and Practice Variations

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When I took a job as director of the Regional Medical Program at the University of Vermont over 30 years ago, my goal was clear. It was to bring the benefits of modern medicine to the furthest corners of the state. My training as an epidemiologist led me to believe that good planning required information on the extent of underuse of effective treatments, and for this reason we undertook an analysis of the region's health care delivery system. What I learned challenged the assumption that patterns of practice at academic medical centers were worthy standards for high quality care. Among the communities they served, the per capita use of health care varied idiosyncratically, suggesting that demand for health care was driven largely by factors other than patterns of illness, patient preference and the findings of medical science.

Since then, much has changed to improve the scientific basis of clinical decision making. Thanks in no small way to the epidemiologist Archie Cochrane, academic medicine came to recognize that medical theory without experimental evidence cannot serve as the basis for rational clinical decision making. This led to the widespread adoption of clinical trials as the preferred strategy for testing clinical theory. The accumulation of clinical trial evidence made possible the rationalizing efforts of the Cochrane Collaboration to evaluate and synthesize the information from clinical trials. The acceptance of accountability by the British Medical Journal Publishing Group for organizing, integrating and updating evidence in ways that make sense to practicing physicians is a giant step forward in the struggle to institutionalize evidence-based medicine as an ethical standard guiding everyday practice.

But to what extent have these successes served to reduce unwarranted variations in practice? The evidence-based medicine movement is having an important impact on the underuse of effective care—on care that is clearly beneficial and involves no significant tradeoffs between benefits and harms. For example, in a recent article in JAMA, Jencks and his colleagues report a fall in underuse of beta blockers, immunizations, mammograms and several other effective treatments among Medicare enrollees in the United States<sup>1</sup>. These successes are due in large part to the concerted efforts of Medicare's Quality Improvement Organizations. Similar successes have been reported in the private sector.

However, underuse of effective care is only one cause of variations in practice. For some conditions, medicine offers more than one treatment option. Early stage (non-metastatic)

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<sup>1</sup> Jencks SF, Huff ED, Cuedon T. Change in the quality of care delivered to Medicare beneficiaries, 1998-1999 to 2000-2001. JAMA. Jan 15 2003;289(3):305-312.  
<http://jama.ama-assn.org/cgi/content/full/289/3/305>

breast cancer, for example, can be treated with lumpectomy or mastectomy. For this condition, clinical trial evidence as synthesized in *Clinical Evidence* gives an authoritative answer: equal effectiveness in terms of 10-year mortality. But rational decision making involves more than evidence concerning the “main” outcome of treatment. It requires information on patient preferences. This is because the two treatments differ in terms of the other outcomes, and choice involves tradeoffs in terms of quality of life. Women who choose lumpectomy avoid the loss of a breast but undergo radiation and may have local recurrence. Women who undergo mastectomy avoid radiation and the risk of local recurrence, but must deal with the loss of a breast.

Most surgical procedures, including the use of lumpectomy for breast cancer, continue to exhibit extensive variation from one medical community to another. The problem arises in part because for such conditions the tradition of delegating decision making to physicians can result in misdiagnosis of the patient’s own preference. A promising solution involves bringing the patient into the decision making process, a change that (as shown by a recent Cochrane review<sup>2</sup>) is facilitated by the use of patient decision aids. These not only explain the risks and benefits and scientific uncertainty of alternative treatments but also help patients to sort out and reveal their own preferences.

The movements towards evidence-based medicine and informed patient choice need to be conjoined. It is truly impressive to see the progress that has been made in meeting the challenge posed by *Clinical Evidence*’s leading question: What are the effects of treatments? But to establish the ethical basis for clinical decision making we need to include a second question: What is the preference of the patient?

Changing the doctor-patient relationship from paternalism to the shared decision making model isn't easy. An important step would be to increase the awareness of practicing physicians and patients about this partnership. The BMJ Publishing Group is to be commended for its leadership in creating *Clinical Evidence*, and the *Clinical Evidence* on-line version which together provide significant support towards evidence-based clinical practice.

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<sup>2</sup> O'Connor AM, Stacey D, Entwistle V, Llewellyn-Thomas H, Rovner D, Holmes-Rovner M, Tait V, Tetroe J, Fiset V, Barry M, Jones J. Decision aids for people facing health treatment or screening decisions (Cochrane Review). In: The Cochrane Library, Issue 2 2003. Oxford: Update Software. <http://www.cochrane.org/cochrane/revabstr/ab001431.htm>