Op-Ed

Can complementary medicine be evidence-based?

Yes, if it embraces standardization and conventional research tools

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Two years ago, the editors of the *New England Journal of Medicine* declared: "It is time for the scientific community to stop giving alternative medicine a free ride."[1] Here were the voices of orthodoxy, loud and clear, sounding the death knell of complementary and alternative medicine (CAM). Echoing a long history of medical tribalism,[2] CAM was once again under attack for being antiscientific and grounded in unproven narrative.

Since that declaration, CAM practitioners and researchers have tried to defend their practices. They have begun to publish in peer-reviewed biomedical journals, and they recently held an international congress addressing research methodology and quality management.[3] A Cochrane Collaboration will publish a series of papers critically appraising systematic reviews of 30 CAM therapies.[4] All this, despite minimal research funding or infrastructure.

So, is the argument now over? Not quite, for there are still two fundamental conflicts between the "art" of CAM and the "science" of evidence-based medicine. Resolving these conflicts is the key to distinguishing evidence-based complementary medicine from practices based on anecdote.

The first conflict is between standardization and individualization. Evidence-based medicine emphasizes reproducibility. It attempts to define a universal "best practice," based on large randomized controlled trials and meta-analyses. This is the antithesis of CAM, which focuses on the individual interaction between patient and practitioner. Within the personal framework of CAM, no two interactions can ever be the same. Its practitioners argue that the consultation, a complex interplay between two people, is itself therapeutic, and it necessarily defies empiric understanding. Using a randomized controlled trial to measure CAM would be analogous, with this argument, to measuring a delicate rose with a ruler.

But this stance is no longer acceptable. A physician faced with a patient who has a particular disease manifestation needs to know precisely which orthodox or complementary treatment will help. The problem with CAM to date has been that the myriad therapies and their uses have not been adequately defined. David Eisenberg of the Center for Alternative Medicine Research at Harvard University told the congress that there are "so many labels, so little consensus." The first step to making CAM more evidence based must be to codify these treatments and to define their exact therapeutic indications.

Once complementary therapies have been defined in this way, their clinical efficacy can be assessed with the conventional research tools of evidence-based medicine. So, for example, in a randomized controlled trial, the herbal remedy St John's wort was as effective as imipramine for treating moderate depression.[5] In another trial, spinal manipulation was no better than control in treating episodic tension-type headaches.[6]

The second conflict is between faith in the randomized controlled trial as a gold standard for measurement and dissent from this belief. David Reilly, from the Glasgow Homoeopathic Hospital, voiced this tension at the congress, asking: "If you look at the complexity of caring for someone, are the tools adequate to address whether it works?" This question is a challenge to orthodox practitioners, for it asks us whether we are missing something important in CAM when we use standard assessment tools. Are these tools appropriate?

Randomized controlled trials are valued in medicine because they can test for causality, determine effect size, assess risks and benefits of treatments, and minimize selection and measurement bias. It is true that many CAM interventions are difficult to blind or have no satisfactory placebos, but these methodologic problems can be overcome. An example is the development of a "placebo needle" for use in acupuncture research—the placebo looks exactly like an acupuncture needle, and it causes the same dull pain sensation.[7] It does not, however, penetrate the skin, so it allows researchers to examine the specific physiologic effects of acupuncture.

A major criticism of randomized trials is that they fail to address individual patients' experiences of therapy. But evidence-based medicine has a wide range of qualitative tools that can be used to explore these more personal aspects. Qualitative research is an ideal way to examine why and when patients use complementary therapies and to help us understand the enormous benefits they experience. For example, a recent qualitative study addressed the question of why people self-medicate with St John's wort. Users reported previous use of other herbal remedies, a belief in their safety, and a desire to take control of their lives.[8]

Where evidence-based medicine has let doctors and patients down is in ignoring the nonspecific "complex effects" that are a crucial part of the healing process.[9] Indeed, Ted Kaptchuk, also from Harvard's Center for Alternative Medicine Research, believes that the biggest role for CAM could be to bring these effects into the forefront of medicine.[10] Randomized controlled trials at-

tempt to cancel out factors such as the therapeutic setting, the personality of the therapist, the amount of time given to patients, and even the very words spoken to them. Instead of being hidden within the placebo arm, these should be disentangled and studied systematically, so that their therapeutic benefits can be harnessed by all involved in the provision of health care.[11] The art of both orthodox and complementary medicine, Reilly's "complexity of caring," is difficult but not impossible to quantify.[12]

Over 40% of people in the United States use CAM.[13] This huge demand suggests that it offers something of value that is not provided by orthodox medicine. Politicians and policy makers have realized this fact, and a new presidential commission on CAM has been appointed. The tools of evidence-based medicine can help us to understand and explain the popularity of this branch of health care. In a state-funded health system, they can also guide us in spending decisions, ensuring that taxpayers' money is spent on the most effective orthodox and complementary treatments. Evidence-based medicine is a democratizing force, not a divisive one. Researchers and practitioners in the field of complementary medicine have nothing to lose, and much to gain, from embracing it. They should remember the words of an ancient Chinese proverb, quoted by Eisenberg at the congress: "Real gold does not fear even the hottest fire."

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