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Special Index

Mysticism and/or rigor: Can science and alternative medicine shake hands?

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"There is no alternative medicine," the editors of the *Journal of the American Medical Association* wrote last year. "There is only scientifically proven, evidence-based medicine supported by solid data or unproven medicine, for which scientific evidence is lacking."[1]

ACUPUNCTURE: medicine or mysticism?

Still, use of therapies that commonly fall under the rubric "alternative"--most of them relatively unproven--continues to grow. In the Nov. 11 issue of *JAMA*, Dr. David Eisenberg reported that 42 percent of Americans used at least one alternative treatment in 1997, up from 39 percent in Eisenberg's groundbreaking 1990 study.[2] With that many patients using alternative methods, a public health argument can be made for examining them--at least those most widely used--scientifically. Congress seems to agree, voting last September to expand the NIH's Office of Alternative Medicine into a National Center for Complementary and Alternative Medicine, with an annual budget for 1999 of $50 million. Columbia's Richard and Hinda Rosenthal Center for Complementary and Alternative Medicine is one of 13 NCCAM research sites, specializing in alternative approaches to women's health.

But the study of alternative medicine remains controversial. A scathing editorial in the *New England Journal of Medicine* last September characterized alternative medicine primarily by its lack of scientific testing and took advocates to task for "deny[ing] the need" for such testing. "Many advocates of alternative medicine...believe the scientific method is simply not applicable to their remedies," the editors wrote.[3] While the NCCAM recently announced a $4.5 million randomized, double-blind, placebo-controlled study of the safety and efficacy of St. John's wort, widely used for mild to moderate depression, those who study alternative medicine question the universal

application of that model--developed on and particularly well-suited to refined, single-effect pharmaceuticals--even on herbs used very much as drugs to address specific conditions. Are alternative therapies so different that they require a different interpretation of scientific method?

"In some cases, a double-blind, placebo-controlled trial works well for herbs because we can put them in the model of a drug," explains physiologist Dr. Fredi Kronenberg, director of the Rosenthal Center. "However, most herbs in traditional cultures are given as part of a whole system of medicine. It's 'take this herb and do this exercise and change your diet'--a multidimensional treatment. In most herbal traditions, you're diagnosed, you're given an herbal remedy, you come back. If your symptoms have changed, you may get different herbs, you may get different doses. That's much more difficult to study. How do you study a model where things are changing as you go along? Do we want to squeeze this all into the Western medical model, or is that going to change the whole way that this medicine differs from drugs, from purified-compound medicine?"

Kronenberg and her colleagues recognize the challenge but do not back down from it. "What's been exciting at the center," she says, "is that we bring them together; we put the methodologists, study design people, and biostatisticians in the same room with the Chinese practitioner and the Ayurvedic practitioner and the *tai chi* practitioner and say, 'How can we study what it is that you do with a rigorous scientific design?'"

One issue raised by the *NEJM* editorial is that despite a lot of noise, the Office of Alternative Medicine has not produced much in the way of results. That's partly a matter of budget. Kronenberg notes that with the amount of research monies the NIH office has had in previous years, most projects have been, of necessity, small pilot studies. "These are $30,000 studies. For $30,000, you can establish your methodology and get some preliminary teaser results." What you can't expect, she says, is the kind of definitive assessment of efficacy that will come, for example, from the study of St. John's wort.

It's also partly the result of the need to create infrastructure for studying alternative therapies, according to Kronenberg. There is, for instance, no unified bibliographic data base that includes the major publications in alternative medicine; Medline, the main U.S. clinical database, doesn't include some important alternative sources. The Rosenthal Center has taken the lead in trying to organize a searchable international database of alternative medicine research, a project that is itself still searching for funding. Reviewing existing research is a necessary starting point for determining what practices and therapies might be promising candidates for more in-depth study, so without such simple tools, many grants during the Office of Alternative Medicine's first five years have gone into preliminary rock-breaking rather than full-blown research.

Critics of alternative medicine, however, argue that money spent studying some therapies is merely wasted. Dr. Stephen Barrett, a retired psychiatrist, author of several books on health fraud, and founder of the Quackwatch web site, observes that "somebody has to set research priorities. Priorities have traditionally been given to methods that have the most promise, either because they make the most sense or because they have something unusual to offer, or, at times, because people have a special interest in them. What has happened [with alternative medicine] is the government has intruded into the process. They set up a funding mechanism and an organization to issue grants to methods that allegedly weren't getting sufficient attention."

Barrett also favors funding decisions that consider whether a study's findings are likely to have practical effects. "If you do a research project and nobody pays any attention to the results, does it make sense to do it? [For a lot of alternative modalities] it's a waste of money, because nobody who believes in it is going to have their mind changed by any research, and nobody who doesn't believe in it is going to have their mind changed by any research. You've earmarked this money to study something alternative. My question is, is there something else that's more important that's going to be neglected? I don't know, but I do know there are many potentially valuable projects that are going unfunded."

While much of the controversy may be attributed to battles over ever-scarce research dollars, others see an underlying battle over the nature of science itself. "The reason why alternative medicine is dismissed is because our scientific culture, and medicine in particular, has a 400- or 500-year-old world view predicated on disproving the dominant religious paradigm of medicine, physics, and physiology that existed when the church was the dominant institution: vitalism, spiritualism, and animism," says Dr. Joseph Loizzo, director of the Center for Meditation and Healing at Columbia-Presbyterian and health care project director at Columbia's Dharam Hinduja Indic Research Center, where he studies Tibetan and Ayurvedic medicines. "The mechanistic models are all designed to show there's nothing but the mechanism. From the point of view of the history of science, what they're really showing is that the church was wrong when they said there was a spirit or vital principle. But the problem is, we're not just like machines.

"So all of our science is based on this somewhat archaic war over who's right, the church or the mechanists. If you say anything that sounds remotely like 'the mind has an effect; there's something subtle that isn't like a machine influencing what's happening,' Western physicians are all trained to dismiss it as a superstition, but our mechanism has now become the counter-religion. It's a paradigm that derives from modern Newtonian physics, and that's no longer the sole paradigm even in physics. Quantum mechanics and wave mechanics leave a lot more room for subtle things to influence concrete

things."

Physicists, however, note that while quantum theory may change our understanding of submicroscopic activity, that doesn't change the fact that Newtonian laws work very well to explain macroscopic activity. If you push something hard enough, it still falls over. The notion of the observer's effect has a specific meaning in quantum mechanics that was never intended to be generalized. Or, as Barrett puts it, "It's funny, it's only in health care. You don't have people flipping coins to see if a bridge will hold up."

ST. JOHN'S WORT: alternative medication? placebo? dangerous?

The battle over scientific method has been joined vigorously by defenders of traditional allopathic medicine. Dr. Arnold S. Relman, former editor-in-chief of *NEJM*, professor of medicine and social medicine at Harvard Medical School, a Columbia medical school graduate, and a former Columbia trustee, recently reviewed the works of alternative medicine guru Andrew Weil in *The New Republic*, taking him to task for his abandonment of scientific rigor in favor of unsubstantiated anecdote. "What I do consider radical--and not fitting into what we ought to be teaching our medical students--is the idea that there's some other intuitive, personal, internal way at getting at the truth that does not require the marshaling of objective evidence," cautions Relman. "And that's my argument with Andrew Weil and with all alternative medicine practitioners. It's their suggestion that there's really a better way, or an acceptable alternative way, of finding out what's true."

One alternative to the alternativists' non-material interpretations of clinical results may involve the placebo effect. "Alternative practitioners make passionate claims that their patients feel better during treatment," observers Dr. Gerald Neuberg, associate clinical professor of medicine and director of the intensive care unit at New York Presbyterian's Allen Pavilion (and a member of the advisory board for Quackwatch). "Patients probably do feel better, since the placebo effect is potent medicine. We all could build pretty successful practices by dispensing little else. But since controlled clinical trials generally have not been performed, the problem is how to distinguish the psychotherapeutic benefit of treatment from the actual effects of the spec ific treatment.

"We as clinicians all need to learn about alternative practices, because our patients ask us about what they read and hear about," says Neuberg. "So it's becoming more important for practicing physicians to have some familiarity with the alternative modalities and to try to figure out what advice to give people. The bottom line for all of us: We should want to know whether our treatments are safe and effective, regardless of whether they're natural or

synthetic."

With fundamental principles in conflict, a consensus--beyond the basic agreement that treatments should be safe and effective--may be unattainable in this field. But, as Kronenberg observes: "These debates are not happening in health food stores or on the street. That's the whole purpose of an academic institution: There are people here who don't agree with each other in every discipline." Perhaps that very contentiousness makes research universities the natural arena for alternative medicine to respond to the challenge of science.

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1. Fontanarosa PB, Lundberg GD. Alternative medicine meets science. *JAMA* 280 (1998): 1618-1619.

2. Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA* 280 (1998): 1569-1575.

3. Angell M, Kassirer JP. Alternative medicine--the risks of untested and unregulated remedies. *N Engl J Med* 339 (1998): 839-841.

Related links...

- Debate on alternative medicine, "Cutting Edge" column, *HMS Beagle*, BioMedNet
- Alternative Health News Online
- Center for Alternative Medicine Research in Cancer, University of Texas, Houston
- Alternative medicine page, Health Care Information Resource, McMaster University, Montreal
- "Enhancing the Accountability of Alternative Medicine," report by Milbank Memorial Fund
- *The Scientific Review of Alternative Medicine*, peer-reviewed journal evaluating alternativist claims
- National Council Against Health Fraud
- Alternative Medicine in Chicago
- American College for Advancement in Medicine, advocacy group for methods such as chelation therapy
- John Weeks, "The Emerging Role of Alternative Medicine in Managed Care," Medscape (requires free registration)

- Free Medline search engine, HealthGate

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