

The arrogance of science and the pitfalls of hope

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When passion edges into zeal and frustration becomes arrogance, scientists lose credibility and risk depriving us of their considerable and unique understanding of the intricacies of biology and the nuances of meaningful research. Alternative medicine has more than its share of snake-oil merchants and other zealots, and there is little doubt that patients are wasting money on much of what they have to offer. Watching scarce research dollars and journal space being spent on the evaluation and discussion of unlikely remedies is frustrating to scientists.¹ Yet Drs. Ian Tannock and David Warr (page 801) go too far in their outright dismissal of all unconventional therapies for cancer. Cancer brings with it both fear and hope and it is the latter that leads many to try alternative and complementary approaches. We need to construct bridges, not moats, between thoughtful and careful science and unconventional therapy.

Patients have always sought and always will seek help from practitioners outside of conventional medicine. In the US more visits are made to alternative practitioners than to primary care physicians.² In Europe³ and Australia⁴ up to 50% of the population use alternative therapies. Some of the more scientifically minded among us may be surprised to know that people who use such therapies tend to have a higher level of education than those who do not use them.⁵ If the scientific message that alternative therapies don't work is so "loud and clear," why do so many people, physicians included, use them?

A commonly cited factor is the presence of a chronic condition.⁵ Any illness that we label "chronic" can be viewed at least in part as one of conventional medicine's failures. When I practised medicine in Nigeria years ago, I often saw the botched results of the witch doctor's remedies. A common therapy for any illness in newborns was to rub cow dung on the umbilical stump, the result being neonatal tetanus and death. On the other hand, Western-trained physicians had little to offer for most chronic conditions. Many patients came to the university centre for care, but an equal and perhaps greater number went into the bush to seek the advice of traditional healers — some of which, no doubt, was helpful.

Patients seek alternative care when mainstream medicine doesn't get results. The management of cancer is a case in point: despite a decades-long "war" against cancer, age-adjusted cancer mortality in the US *increased* by 6% from 1970 to 1994.⁶ Encouragingly, oncologists have recognized this failure and are beginning to shift the objective of chemotherapy, particularly of solid tumours, from prolonging life to improving its quality.⁷

Many patients being treated for cancer seek symptomatic relief — and, more fundamentally, hope — from alternative therapies. This is the reality. It was to give physicians and patients reliable information about what some of these therapies are all about that we published the 6-part series, "Unconventional therapies for cancer."⁸⁻¹³ Tannock and Warr's claim that this is tantamount to publishing a guide to "Canadian witch doctors" disregards the care that was taken to provide a cautious and balanced account. Moreover, their dismissive rhetoric appears, reductively, to tar "unconventional" and "traditional" medicine with the same brush. Western medicine has had many occasions to be reminded that it is well to approach traditional practices with a certain humility. Amid misconception and ignorance — cow dung on umbilical stumps — it is sometimes possible to glean insight into the cultural contexts of healing and (as pharmaceutical companies know) a potential gold mine for research.



Editorial

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‡ See related article page 801 and letters on the same topic page 758



The failures of conventional medicine, along with the general public's increasing willingness to challenge the establishment (not just in medicine but in all aspects of society) have led to greater and more aggressive public involvement in science. The Canadian Breast Cancer Research Initiative is only one example of patients taking control of the agenda. The fascinating series of essays on "Science and Society" appearing regularly in *Science* document the many ways that the public has become involved in scientific research. Bruno Latour, commenting on how patients with muscular dystrophy in France took over the research agenda, says it well:

The patients did not wait for results to trickle down from science into their daily lives, with no option other than to be open-minded or close-minded about progress toward a cure for the disease. They did not expect genes, viruses, or vaccines to transform their subjective suffering into an objective determination. They took over. They tailored a science policy adjusted to what they perceived as their needs. Far from expecting certainty from science, they accepted that they must share risk in research.¹⁴

Tannock and Warr miss the point when they suggest that patient support organizations should limit their role to providing "support and additional funding for research." These individuals want to lead, not follow. They want to set the research agenda — and they should. It is their disease and their money.

Although Tannock and Warr are quick to point out that the handful of trials of vitamin C and hydrazine sulfate that have been done provided evidence against their use in cancer therapy, they fail to emphasize how little research has been devoted to the evaluation of alternative therapies. The score may be 5 to 0 but the game isn't baseball. It is cricket, and research in alternative therapy has not had its innings. Very few practitioners with an interest in alternative medicine are trained in research. As a result, hardly any funds in Canada are spent on the evaluation of alternative medicine. In 1997 the National Cancer Institute of Canada (NCI) awarded \$48 million for cancer research. Most of this money — perhaps appropriately, given the failure of clinical research to improve cancer outcomes — went to basic research and studies of cancer biology.¹⁵ A negligible amount — again, perhaps appropriately — went toward the evaluation of alternative therapies.

What we need, and what we are going to get, is greater public involvement in determining research agendas. This will require mutual education and listening. And it will have to involve a process for integrating the desires of patients with the knowledge of scientists. Science progresses infrequently through serendipity. Scientific investigation is hard work and relies heavily, if not almost exclusively, on past research. And, not incidentally, it is the very nature of this hard work and the stiff competition for limited

research dollars that makes scientists so intolerant of what they see as useless research.

In China, high school graduates who want to become doctors have a choice between studying traditional Chinese medicine or Western medicine. Those who do well in science and mathematics are encouraged to enter medical schools not unlike our own. Those who do well in language tend to enter traditional medicine. Much of the training of the latter group involves learning how to decipher the realms of neglected ancient manuscripts that describe herbal and other remedies. As I understand the process, reconstructed accounts that appear promising are passed on to Western-trained practitioners for evaluation and testing. What we need in Canada is not a war between conventional and alternative medicine, but a collaboration.

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