What Is Philosophy and Its Role in Science and the Healing Arts?

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INTRODUCTION: PHILOSOPHY IN GENERAL

The term philosophy has a number of meanings. Here are four from a recent dictionary entry:

> **philosophy noun**
>
> **1. examination of basic concepts:** the branch of knowledge or academic study devoted to the systematic examination of basic concepts such as truth, existence, reality, causality, and freedom
>
> **2. system of thought:** a particular system of thought or doctrine
>
> **3. guiding or underlying principles:** a set of basic principles or concepts underlying a particular sphere of knowledge
>
> **4. set of beliefs or aims:** a precept, or set of precepts, beliefs, principles, or aims, underlying somebody's practice or conduct[1]

In this paper I will primarily discuss the first of these meanings of "philosophy" but will also be considering the implications of "professional" or "academic" philosophy for scientific disciplines and especially the "healing arts," including chiropractic.

Academic philosophy comprises a number of subdisciplines or specialties within itself. What might be termed the core of philosophy includes the subjects of value theory, itself divided into aesthetics, ethics, and political or social philosophy, and then logic, epistemology or the

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theory of knowledge, and metaphysics. The latter subject -- metaphysics — deals with the meaning and foundations of "existence, reality, causality, and freedom [of human actions]." In addition to these core subjects, there are vigorous applied areas of philosophy, such as the philosophy of science, philosophy of law, philosophy of economics, and philosophy of religion. Academic philosophy draws on a rich history dating back to ancient Greek times, during which Plato and Aristotle taught and wrote extensively on these themes. Other ancient non-Western cultures also have had their major philosophers, indicating that the drive to philosophize is universal amongst humans. Academic philosophy also can be divided into crosscutting favored general approaches, some of which are drawn from the names of the great philosophers, such as Platonism and Kantianism, and others that reflect broader groupings, such as existentialism, British empiricism, analytic philosophy, continental philosophy, and American pragmatism. It is in this last tradition, American pragmatism, with its roots in the work of William James, Charles Pierce, and John Dewey, that I am myself most comfortable, though I have been (mis)characterized by some as a "logical empiricist." (Readers should rest assured that this is just some philosophical name-calling.)

Academic philosophy is usually first encountered as a required core course in college, and professional philosophers typically obtain their credentials to teach and write about philosophy by completing a PhD in the subject, though this is neither necessary nor sufficient to make a good philosopher. In point of fact, perhaps the most influential philosophical book of the past half-century was written by a physicist, Thomas Kuhn, who was the author of *The Structure of Scientific Revolutions.*[2] Virtually all contemporary philosophers specialize in one of the core or applied subdisciplines, such as ethics, epistemology, or philosophy of science, though many have more than one competency. And most philosophers also maintain a rough allegiance to a particular philosophical tradition, though some may change their affiliations over the course of a career.

THE RELATIONS OF SCIENCE AND PHILOSOPHY

Philosophy has been the nurturing seedbed of many disciplines no longer considered part of philosophy proper. What we study today as "physics" was until the nineteenth century termed "natural philosophy," and the same can be said about psychology. Though it is not fully appreciated in modern times, major scientific results in physics and biology came from such philosophical greats as Aristotle and Descartes. In the nineteenth century, the philosopher-physicist Ernst Mach developed conceptual analyses of fundamental physical ideas, such as mass, that had significant influence on later work on relativity by Einstein. The

T. S. Kuhn (1962) *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.

work on science and falsifiability by the late philosopher Sir Karl Popper is reported to have led to Peter Medawar's Nobel Prize in medicine. And the earlier-mentioned work of Thomas Kuhn on scientific revolutions has not only made the term "paradigm" one that is frequently used by scientists in their scientific publications, but has drawn even wider recognition — it is known, for example, to be Al Gore's favorite book.

Philosophy is not science — or no longer is viewed as having science as one of its subdisciplines. But philosophy *is* heavily involved in analyzing science and scientifically-related subjects such as medicine, and as we will hear in other papers, chiropractic. Philosophy of science deals both with science in general and with more specific sciences, including physical, biological, psychological, and social sciences. During the first 70 or so years of the twentieth century, philosophy of science was virtually synonymous with the philosophy of physics. That began to change in the 1970s, and in the past 30 years large subgroups of philosophers have developed extensive literatures in the philosophy of biology and the philosophy of psychology, the latter sometimes also known as philosophy of mind. There are even sub-sub specialists, for example the "neurophilosophers," typified by Patricia and Paul Churchland.[3] Both philosophers of biology and philosophers of psychology have made important contributions to their philosophized-about sciences, for example David Hull and Eliott Sober in philosophy of biology and Dan Dennett and the Churchlands in philosophy of psychology. Scientists themselves continue to generate philosophically important work in philosophy of physics, computer science, psychology, and biology. A number of books that have philosophical components are co-authored or contributed to by both philosophers and scientists.

PHILOSOPHY OF MEDICINE AND THE HEALTH SCIENCES (AND ARTS)

The above remarks sketch some of the meanings of philosophy and philosophy's relationships with the sciences. I now want to turn to philosophy's relations to the health sciences and the healing arts, and will do so initially from the perspective of "philosophy of medicine." I do not take the term "medicine" in any exclusionary sense, though it frequently seems to have the connotation of being associated both with physicians' activities (to the exclusion of nursing science's and other health practitioners' work) and also with organized medicine, represented for example by the American Medical Association. The sense I adopt of "medicine" is the common dictionary meaning of the term: medicine is "the art or science of restoring or preserving health, and may involve drugs, surgical operations, or other types of interventions." To continue at this general level of analysis, I next want to share with you

[3] See for example Patricia Churchland (1986) *Neurophilosophy : Toward a Unified Science of Mind/Brain.* Boston: MIT Press.

what I (and Tris Engelhardt) call the Guttentag-Pellegrino thesis of the essence of medicine.[4] This thesis is that though medicine has an extensive and continually increasing scientific basis, several physician-philosophers, including Otto Guttentag and Edmund Pellegrino, have seen the essence of medicine in its orientation to one distinct end -- the affirmative response of the physician to a plea from the individual patient to help in restoring or preserving that patient's health. This focus on the individual patient can and has been extended to include a public health perspective where help is provided for populations. Similarly, the focus can be broadened to refer to the more complex health care team of diverse practicioners who help the patient restore or preserve a state of health.

It is this broad sense of medicine that has been involved in what has developed as yet another subdicipline of philosophy termed the "philosophy of medicine." Philosophy of medicine encompasses those issues in epistemology, value theory, logic, methodology, and metaphysics generated by or related to medicine. Biomedical ethics is a component of the philosophy of medicine in its broadest sense. Issues in the philosophy of medicine have frequently focused on the nature of the practice of medicine, on concepts of health and disease, and on understanding, at a deep level, the kind of knowledge that physicians employ in diagnosing and treating patients.

There is a rich, complex history of philosophical reflections concerning medicine reaching back to the beginnings of Greek philosophy. Reflections on the status of medical knowledge took a further step in the 19th century with the introduction of clinical pathological correlations, statistical methods, and systematic experimentation, out of which grew a substantive literature exploring the character of medical reasoning and the framing of diagnoses. Debates also developed among prominent 19th century physicians over contrasting physiological, ontological, nominalist, and realist accounts of disease entities.

Contemporary philosophy of medicine has been concerned with the nature of medicine in an increasingly scientific context, a concern that has generated several models of medicine, including George Engel's biopsychosocial model, as well as analyses of the nature of the physician-patient interaction. The long-standing debate over the ontological status of health and disease has been recapitulated in modern times and also extended by a number of authors, some of whom favor an objective, statistically-based account (such as Christopher Boorse) and others who argue for an irreducible social and valuational element in these concepts (Tris Engelhardt). Several approaches to diagnostic logic, including Bayesian and

[4] See K. F. Schaffner and H. T. Engelhart, "Philosophy of Medicine" in *Encyclopedia of Philosophy*, Revised Edition. E. Craig, (ed.). London: Routledge. Vol. 6, pp. 264-269. Some of material in the following few pages draws on this article, which also contains references to that literature.

computer-based analyses have been developed, and sophisticated methods of determining disease causation and therapeutic efficacy, including analyses of the randomized clinical trial, have also been explored. A debate over whether the philosophy of medicine should be considered as a distinct discipline (Edmund Pellegrino) or as a branch of the philosophy of science (Arthur Caplan) has provoked vigorous arguments in the literature.[5]

In the remainder of this paper, I am going to draw on two themes in contemporary philosophy of medicine that I think will be of special interest to the attendees at this conference. The first is to briefly recapitulate the nature of the biopsychosocial model and the second is to discuss some of the relations between orthodox medicine and what has been termed alternative or complementary medicine, with a focus on the question what makes a health care intervention scientifically acceptable.

THE BIOPSYCHOSOCIAL MODEL OF MEDICINE

An excellent illustration of the intersection of philosophy and medicine that includes aspects both of philosophy *of* medicine and philosophy *in* medicine, to use a distinction argues for by Pellegrino, can be found in Dr. George Engel's advocacy of a biopsychosocial model of medical practice.

Over the past several decades, Engel has developed a biopsychosocial model of medicine. Engel contrasts this model with the dominant biomedical model, dominant at the time of his classical article on the subject in 1977 and still dominant today, which he construes both as reductionist and detrimental to the best interests of patients.[6] In 1977 he wrote:

> The dominant model of disease today is biomedical, with molecular biology its basic scientific discipline. It assumes disease to be fully accounted for by deviations from the norm of measurable biological (somatic) variables. It leaves no room within its framework for the social, psychological, and behavioral dimensions of illness. The biomedical model not only requires that disease be dealt with as an entity independent of social behavior, it also demands that behavioral aberrations be explained on the basis of disordered somatic (biochemical or neuro-physiological) processes. Thus the biomedical model embraces both reductionism, the

[5] See Pellegrino, E. (1976) "Philosophy of Medicine: Problematic and Potential," *The Journal of Medicine and Philosophy 1* :5-31 and also Caplan, A. (1992) "Does the Philosophy of Medicine Exist," *Theoretical Medicine, 13*: 67-77.

[6] Engel, G. (1977) "The Need for a New Medical Model: A Challenge for Biomedicine," *Science, 196*, 129-136.

> philosophical view that complex phenomena are ultimately derived from a single primary principle, and mind-body dualism, the doctrine that separates the mental from the somatic (1977, p. 130).

Engel adds to this characterization that the current biomedical model is also exclusionist regarding mental disease:

> Biomedical dogma requires that all disease, including "mental" disease, be conceptualized in terms of derangement of physical mechanisms. This permits only two alternatives whereby behavior and disease can be reconciled: the *reductionist*, which says that all behavioral phenomena of disease must be conceptualized in terms of physicochemical principles; and the *exclusionist*, which says that whatever is not capable of being so explained must be excluded from the category of disease. (1977, p. 130)

The biopsychosocial model, which Engel urges on the other hand, is meant to supplement this current model which has taken on the status of an uncriticizable dogma. Engel notes the "enormous advantages of the biomedical approach," but also believes that "concentration on the biomedical and exclusion of the psychosocial distorts perspectives and even interferes with patient care" (p. 131). This supplementation and correction of the biomedical model involves:

1. *Recognition of complex causation*: "The biomedical defect constitutes but one factor among many, the complex interaction of which ultimately may culminate in active disease or manifest illness" (p. 131).

2. *Recognition of various levels of activity*: "how [a disease such as diabetes with attendant polyuria, polydipsia, polyphagia, and weight loss, confirmed by laboratory documentation of relative insulin deficiency, is experienced, reported by, and affects any one individual requires] consideration of psychological, social and cultural factors, not to mention other concurrent or complicating biological factors" (p. 132).

3. *Recognition of the individual variability of a disease*, which "reflects as much ... [psychological, social, and cultural factors] as it does quantitative variations in the specific biochemical defect" (p. 132).

A biopsychosocial model "requires a scientifically rational approach to behavioral and psychosocial data for," as Engel notes, "these are the terms in which most clinical

phenomena are reported by patients." One needs such information to establish a clear relationship between particular biochemical processes and the *clinical* data of an illness." Furthermore, Engel notes, "By evaluating *all* the factors contributing to both illness and patienthood, rather than giving primacy to biological factors alone, a biopsychosocial model would make it possible *to explain why* some individuals experience as 'illness' conditions which others regard merely as 'problems of living,' be they emotional reactions to life circumstances or somatic symptoms" (1977, p. 133, emphasis added). A biopsychosocial model thus should assist in accounting for "the dysphoria and the dysfunction which lead individuals to seek medical help, adopt the sick role, and accept the status of patienthood (1977, p. 133).

Engel's biopsychosocial model accordingly delineates a set of important and often overlooked considerations affecting our concepts of health, disease, and the role(s) of medicine.

THE PHILOSOPHICAL AND SCIENTIFIC FOUNDATIONS OF ENGEL'S BIOPSYCHOSOCIAL MODEL AND A TEMPORARY (?) MOVE TO AN INFOMEDICAL MODEL

In his 1977 essay, Engel suggested that one might find ways to unify the psychosocial and biological dimensions of medicine by looking to a "general systems theory perspective" (1977, p. 134). This general systems theory perspective was one that had been propounded by the organismic biologist, Ludwig von Bertalanffy in a book titled *General System Theory* published in 1968. That approach stressed the role of various hierarchically related levels of organization, and sought to identify isomorphisms (similar patterns) that can operate across various different levels. Though in his 1977 essay Engel did not provide any details of this general systems theory perspective, in his 1979 Vestermark Memorial lecture, published both in the *American Journal of Psychiatry* and also in *The Journal of Medicine and Philosophy* elaborated on this perspective.[7] In this later essay, Engel cited not only von Bertalanffy's ideas but also those of the biologist and embryologist Paul Weiss who had developed similar hierarchically oriented analyses of biological systems. For Engel, it was important to recognize inputs at each of the levels of organization as well as causal influences that could act across the levels of organization. A picture of these levels can be found in Engel's 1981 essay, where that series of levels was utilized by Engel to distinguish the different approaches that the biomedical and the biopsychosocial models would take to an example of a specific patient's illness.

[7] Engel, G. (1981) "The Clinical Application of the Biopsychosocial Model," *The Journal of Medicine and Philosophy 6*:101-124.

In 1987, in his Foreword to Foss and Rothenberg's book, *The Second Medical Revolution: From Biomedicine to Infomedicine*, Engel seemed to give up the term biopsychosocial for "infomedical," apparently searching for still further generalizing word to describe what he, Engel, was trying to accomplish. In 1987 Engel wrote that Foss and Rothenberg "have taken it upon themselves to tackle one of the most important and one of the most difficult tasks of this century, that is to make a solid case for the need to supersede the classical paradigm upon which biomedicine is founded." Engel added that "their *infomedical model* provides a formula which not only builds on but goes considerable beyond what others have so far proposed. In the Kuhnian sense it does truly demarcate a medical revolution."[8] (p. vii).

Further along in this Foreword, Engel wrote of this infomedical model:

> ... I could not but concede that [the authors']... analysis of the place of the biopsychosocial model (and of general systems theory in its formulation) in the medical revolution was not without merit. *Biopsychosocial* as a term by which to convey postmodern scientific thinking is clearly inadequate for medicine. As Foss and Rothenberg convincingly argue, *bio*, *psycho*-, and *socio*- do not by themselves convey anything that is necessarily uniquely human; and what is more exquisitely human than medicine? Further these prefixes do not even reference the ecosystem. The very word *biopsychosocial*, as though linking three entities, all too readily pulls one back toward the classical Newtonian-Cartesian position, a tripartite dualist re-edition of *psychosomatic* or *psychophysiological*. Unfortunately, too many present-day proponents of the biopsychosocial model are using the term in just this fashion. *Infomedical model*, as a term, makes for a better counterpart to *biomedical* if for no other reason than that it not only stands on its own, but it links information from multiple levels of organization (mind, culture, body), surely a distinctive feature of postmodern medicine (Engel, 1987, pp. viii-ix).

But it seems from a very recent analysis of the available literature that this term "infomedical model" did *not* catch on, and Engel's most recent 1997 essay returns to the now classical "biopsychosocial term."[9]

[8] Laurence Foss and Kenneth Rothenberg ; foreword by George L. Engel (1987) *The second medical revolution : from biomedicine to infomedicine*. Boston: New Science Library.

[9] Engel GL "From biomedical to biopsychosocial. Being scientific in the human domain" *Psychosomatics* 1997 Nov-Dec;38(6):521-8. I searched for this infomedical term both in the NLM database as well as on

The bottom line here then is that Engel's claim is that better health care would be delivered by healers mindful of the psychosocial as well as the biological dimensions of illness. The appreciation of the complexity of a human being's reality and a joint analysis of the interactions among various levels of causation, from the molecular through the organ-level to the intellectual, emotional, familial, economic, and ecologic will both permit a better understanding of how illness arises, as well as provide a richer armamentarium for the physician and the health care provider.

THE ROLES OF THE VARIOUS LEVELS IN UNDERSTANDING AND ASSESSING HEALTH CARE INTERVENTIONS

Engel's arguments for the significant roles of the psychological and social dimensions of medicine provide an important perspective for another role that philosophy can and is playing in contemporary debates about complementary and alternative medicine. Complementary and alternative medicine now goes by the initials of this phrase, namely CAM, and I shall be using that abbreviation. Because chiropractic is virtually always listed among these complementary and alternative approaches to health care, this debate to which I now turn is likely to be of special interest to those attending this conference. Again I return to the tradition of philosophical pragmatism to obtain some insight.

I have already mentioned that philosophical pragmatism stems from the work of James, Pierce, and Dewey, and it has continued to flourish in contemporary times. Also, recently a number of bioethicists have discovered pragmatism. Pragmatism in the vernacular sense has both positive and negative connotations. A positive one is that it means "straightforwardly practical," whereas a negative connotation suggests lack of firm principles, often in ethics. Both of these colloquial senses do have roots in philosophical pragmatism, but to explore those would take us too far afield for this paper. (I hasten to add that pragmatic ethics is complex and multitextured, and does not lack ethical principles.) The general philosophical sense of the term defines pragmatism as "a philosophical view that a theory or concept should be evaluated in terms of how it works and its consequences as the standard for action and thought."[10] It is this sense that is well supported in the writings of the philosophical pragmatists, and which I am going to take as a general framework for the remainder of this paper.

Google and found virtually no references other than two to the Foss and Rothenberg book, which has been out of print for some time.

[10] *Encarta® World English Dictionary* © & (P) 1999 Microsoft Corporation. All rights reserved. Developed for Microsoft by Bloomsbury Publishing Plc.

One of the major issues that arises in debates about complementary and alternative medicine -- again I am going to call this CAM -- is whether its interventions to help with the care of patients' health are *safe* and *effective*. The common response of mainstream medicine -- as well as of federal agencies such as the FDA — is that safety and effectiveness need to be demonstrated through clinical trials. Such trials are mandatory for pharmaceuticals, but other interventions are often not required to be judged as rigorously. Clinical trials can be of a number of different types, but the one that is usually recommended as providing the most valid form of evidence is the randomized, double-blind, controlled clinical trial, often abbreviated as RCT. The control in such a trial may or may not be a placebo, depending on circumstances that I cannot go into in this paper, but I have done so elsewhere.[11]

In the CAM world, there are proponents of some alternative therapies who claim that RCTs represent a methodological approach to health that is limited, insular, and even overly Western, and an approach that will not detect powerful healing interventions that require very different methodologies. I myself was initially quite skeptical about such claims, but a reasonably close reading of some work in traditional Chinese medicine (TCM) has convinced me that TCM probably, at least for *some* of its practicioners, *is* an alternative paradigm, to use Kuhn's apt term here. The paradigm term is apt because TCM has its own metaphysics, methodology, classification schemes, and practices that are quite self-contained and that can yield ways of diagnosing and treating illnesses that do not easily map or correlate with orthodox science and medicine. I will not be able to review the arguments for this but I have discussed some of them in an in-press paper.[12] There are published sources where you can find support for this view, and an excellent one is David Eisenberg's book *Encounters with Qi: Exploring Chinese Medicine. Qi*, as many of you know, is the TCM term for an "energy" field or energy flows that are fundamental in accounting for health and disease.

What I do want to argue in this paper is that even when worlds are as divergent as traditional Chinese medicine and orthodox Western medicine, there are some basic principles that can provide sufficient common grounds for both approaches, so that important dialogues can commence and mutually valuable new things learned from even very divergent perspectives. Again harking back to philosophical pragmatism, I think that the common ground can be found in the concepts of interventions, causation, health, and especially the phrase "what works." Let me elaborate.

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[11] K. F. Schaffner (1995) "Research Methodology -- I. Conceptual Issues" in *Encyclopedia of Bioethics*. 2nd edition. New York: McGraw Hill, 2270-2278.

[12] K. F. Schaffner "Assessments of Efficacy in Biomedicine: The Turn Toward Methodological Pluralism," presented at the Hastings Center/Harvard University forums on complementary and alternative medicine, to appear in D. Callahan (ed.) Georgetown University Press, in press.

My thesis is that there are two *core senses* of causation involved in the notion of "works" in the phrase "what works." This thesis is supported by common usage, which defines the term "works" as "to function or operate in the desired or required way." One sense articulates what philosophers call the "efficient cause" sense of works – as found in our typical concept of causation that we see in common examples such as a baseball breaking a window. That sense can, from my point of view, best be more deeply analyzed in terms of a manipulation or *intervention* notion: one intervenes in the world and a change occurs. To block erroneous causal attributions (such as found in coincidences), one idealizes the situation and assumes that everything else is held constant, *but for* the intervention. Since not all interventions are physically possible, it is usual to also speak of the intervention in a "counterfactual" or "hypothetical" way – that is, consider IF the intervention WERE made. Such counterfactual considerations require analogical speculations and indire874 0 T0.00"7(n)1liTlwsual beurs.(Thes)-2.9( )]TJ0

The second sense of works in the expression "what works" elaborates on the phrase "in the required way." The use of the term "required" identifies what philosophers call a "final cause" sense of cause that is inherent in the notion of "works." I think a *core* sense of that final cause idea, as understood within the medical area, points to what is usually referred to as an "objective" notion of health – relief of pain and/or disability and life extension. This notion of an "objective" account of health has been philosophically defended and deeply analyzed by Christopher Boorse.[16] Boorse's account is controversial but it can be taken as a base point for further analyses that can incorporate more divisive cultural notions of health and disease, through a dialogue and negotiation process.[17] Again to return to Hogwarts Hospital in the Harry Potter world, a Hogwarts hospital formulary committee reviewing the evidence for the potion *Skele-gro* would want to know whether it effectively regrows erroneously removed arm bones to cure that kind of disability.[18] And I think they would look to RCTs.

But reviewing the evidence that tested *Skele-gro* may be fairly easy compared to the issues raised in TCM, where *Qi* rules, as was discussed above. Hogwarts Hospital committees – and for that matter committees at Mass General as well – would have to have some means of identifying "energy or *Qi* imbalances" along various systems, or of finding some abnormal correlate discernable in those cases. But if this is not possible to do in a consistent manner, and here there are different positions that have been voiced,[19] then a less direct means of assessment may be feasible. This less direct evaluation would pool like cases of illness, and compare the remedies used, for example herbal therapy with acupuncture with a placebo and

[16]Christopher Boorse, "Health as a Theoretical Concept," *Philosophy of Science 44*: 542-573, 1975 and also see his "A Rebuttal on Health," in ed. J. Humber and R. Almeder, *What is Disease?* Totowa NJ: Humana Press, 1997). Pp. 3-134.

[17]I myself have recently argued that Boorse's account is incomplete but that it can be naturally extended in my "Coming Home to Hume: A Sociobiological Foundation for a Concept of 'Health' and Morality," *Journal of Medicine and Philosophy 24 (4)* (1999): 365-375. For an account of illness freighted with an alternative community's values see Anne Fadiman, *The Spirit Catches You and You Fall Down : A Hmong Child, Her American Doctors, and the Collision of Two Cultures,* (Farrar Straus & Giroux, 1997). For a discussion of how disputes between orthodox and alternative medicine may relate to concepts of health and disease see B. Lohff, J. Schaefer, K. H. Nierhaus, T. Peters, T. Schaefer and R. Vos, "Natural Defenses and Autoprotection: Naturopathy, an Old Concept of Healing in a New Perspective," *Medical Hypotheses 51* (1998):147-151.

[18]J. K. Rowling, *Harry Potter and the Chamber of Secrets* (New York: Scholastic, 1999), pp. 174-175.

[19]In a recent presentation Alvin Feinstein strongly criticized the concept of Qi as non-operational ("Evidence-based medicine and the assessment of alternative medicine, "University of Pennsylvania Conference on "Complementary and Alternative Therapies in the Academic Medical Center: Issues in Ethics and Policy, Philadelphia, November, 1999). In remarks from the floor, David Hufford argued that the ability to discern Qi and its imbalances is a skill akin to identifying the differences between good and bad wine vine growths: it can take many years of apprenticeship to learn and it is very difficult to express only in words and measurable quantities. Also see Eisenberg's book *Encounters.…*

sham acupuncture, using an RCT. But even this less direct mode of evaluation may itself not always be best to detect the effects of an intervention.

Why this is the case is because there can be situations when we need to move beyond RCTs to less rigorous studies. RCTs (including placebo-controlled double-blinded RCTs) may not be feasible or appropriate for a number of reasons. I will not give a detailed catalogue of these but can refer readers to two recent articles by Black and by Feinstein.[20] Some reasons not to use RCTs are the presence of obvious effects, the need for huge sample size or searches for very-long range effects, and interventions that would be unethical to use. Black adds yet another argument against RCTs that is of special interest to us since we all subscribe -- I think -- to the biopsychosocial model discussed earlier. Black writes:

> Finally, a randomized trial may be inappropriate because the very act of random allocation may reduce the effectiveness of the intervention. This arises when the effectiveness of the intervention depends on the subject's active participation, which, in turn, depends on the subject's beliefs and preferences. As a consequence, the lack of any subsequent difference in outcome between comparison groups may underestimate the benefits of the intervention…. The same may be true for many interventions for which clinicians, or patients, or both, have a preference (despite agreeing to random allocation), and where patients need to participate in the intervention - psychotherapy, for example.... Many interventions to promote health or prevent disease fall into this category, particularly those based on community development. It is at least as plausible to assume that experimentation reduces the effectiveness of such interventions as to assume, as most researchers have done, that the results of observational studies are wrong. (Black, 1996)

This does not mean there are not scientifically good ways to study such interventions, but a discussion of those would take me beyond my allotted space. Feinstein's article just mentioned discusses some of these.[21]

[20]N. Black, "Why we need observational studies to evaluate the effectiveness of health care," *British Medical Journal 312* (1996): 1215-1218 and Alvin R. Feinstein, "Problems of randomized trials," in *Nonrandomized Comparative Clinical Studies*, ed. U. Abel and A. Koch, (Dusseldorf: Symposion Publishing, 1998), pp. 3-13.
[21]Feinstein, "Problems," 1998.

SUMMARY AND CONCLUSION

What I have done in the section immediately above is to suggest that though we may begin to question whether there is any best general methodology for evaluating health care interventions, further philosophical and scientific analysis leads us back to "the gold standard" of the RCT, with some exceptions. Those exceptions do seem to involve the way in which the mind interacts with the body, and the power of beliefs and belief systems. I, as well as others, some of whom are I think participants at this conference, do not want to throw all interventions that we cannot explain into the placebo effect basket. What goes under the phrase "placebo effect" is in actuality far too complex and nuanced to be so simply lumped. On this theme, I'd like to close with a quotation from David Eisenberg's book on *Qi* that I have referred to earlier. This quotation is from his chapter on the marriage of Chinese and Western medicine and I believe it relevant to many forms of healing, including chiropractic. Eisenberg wrote:

> What about other aspects of healing? Western scientists are beginning to acknowledge the placebo effect as a real, though poorly understood, mechanism of healing. … Perhaps there are other dimensions to healing, ones that have nothing to do with pills, scalpels, exercises, or conscious beliefs. It is conceivable that human beings possess a capability to promote healing in one another. This kind of healing goes by many names: faith-healing, shamanism, the laying on of hands, external Qi Gong. We don't understand these methods of healing. There is a science to be teased out of the debris of case reports and folk testimonials. Perhaps this kind of healing represents the ability of one person to alter the physiology of another without the assistance of drugs or scalpels. This kind of healing, which has always been an integral part of the doctor-patient relationship, remains an underexplored realm of modern medicine. To understand it will require the expertise of many fields, including medicine, psychology, physics, and philosophy. The art of healing is thousands of years old. The science of healing is still in the process of being born. (Eisenberg, 237)