

Through The CAM Looking Glass

By [Dr. Anthony G. Payne](#)

The reasons people seek answers to health challenges in the world of CAM (Complementary & Alternative Medicine) or integrative medicine are as varied as people themselves, though in my experience a great many do so owed to real or perceived failures on the part of their mainstream doctors to diagnose or treat or otherwise address their ills (Again, real or perceived). My interaction with patients and “natural medicine” (*Is there an unnatural medicine?*) practitioners from chiropractors to naturopathic physicians to just about everything else under the “alt med sun” is extensive – stretching from my childhood in the 1960s to the present – and has taught me a great deal firsthand about how disappointment with conventional or mainstream medicine plus hope, wishful thinking, the placebo effect, lack of critical thinking, and sometimes desperation have sent my folks into the arms of those who offer seemingly definitive diagnoses and/or solutions (Or at least less personally intimidating non-invasive diagnostic methods plus gentler therapies often dispensed or administered with a great deal more TLC than some overworked MDs can understandably muster).

Do these people get positive results? By all means. But as to why, this isn’t always a clear cut case of “I took or did this and it worked”. Many of the diagnostic methods used on these patients have been disproved and utterly discredited, as are some of the treatments prescribed. For more than a few I’ve followed – some for years—their illness is psychosomatic and their improvement the end result of their vested faith in their practitioner and expectancy that his or her therapy will prove efficacious. Others attribute improvement to a non-standard treatment when it was more likely a prior mainstream treatment or just the disease or condition having run its course.

Back when I first began exploring nonstandard medical and paramedical modalities (1960s as a boy of 8 or so) many specific herbal, nutritional and other forms of intervention had not been formally evaluated in well-designed and executed clinical trials. As a result there was the very real possibility some of these would pan out once put to the test. And if some of these gentler remedies could bring about remediation of disease with few if any of the side effects associated with their pharmacological counterparts, their promotion and use seemed a reasonable course of action or recourse for both practitioners and patients. This line of reasoning apparently informed and motivated many to offer them at the retail and professional level and scores of ailing folks to seek them out in health food stores and in the offices of clinicians of various stripes.

The years and subsequent rigorous evaluation has not been kind to many cherished non-standard diagnostic tests and remedies (Nor to many accepted mainstream techniques and treatments either). What should have happened is that treatments and diagnostic methods that didn’t pan out following rigorous evaluation should have gone the way of the dinosaurs. But they didn’t. Why? The reasons are varied but among the recurring ones I have run across down through the years among medical

consumers and many integrative practitioners are: (1) A refusal to accept scientific valid consensus findings from multiple studies (Many I've confronted with this have said something to the effect that "I know this, but I also know it works no matter what and I won't set it aside". True believers whose reasons have more in common with the kind of faith articulated in revival meetings than anything else); (2) A vested interest in the therapy or therapeutic agent that makes it difficult to relinquish it; and (3) A lack of exposure to the methods of science and critical thinking and how to apply them when it comes to evaluating a given therapy, diagnostic method or treating compound, drug, herb or such.

In my own case, I took my childhood interest in the promise of natural medicine and eventually ran with it over time. Mine was a wide-ranging course whose first stop was another childhood passion, physical anthropology (and especially dietary patterns throughout human evolution). To my way of thinking, the best way to approach diet, human disease and even psychology was through an evolutionary lens, something given increasing credence by subsequent developments and discoveries. Following this I studied and did hands-on work with various mainstays of what is now known as integrative medicine such as [homeopathy](#) (German school), orthomolecular nutrition and psychiatry, therapeutic nutrition, botanic medicine or phytotherapy, and much more. Along the way I came up with and shared various ideas with such notables in science such as [Stephen Jay Gould](#) (Nonstandard but seemingly promising approaches to the mesothelioma that had him in its grip plus my thoughts on the possible effects of ultra low levels of iridium during the Cretaceous-Tertiary asteroid impact on bacteria that populated the guts of prehistoric animals, insects and such), [Karl Folkers](#) (CoQ10 for treating various avian diseases) and [Carl Sagan](#) (Feasibility of going a Cosmos type program focused on human evolution as well as one that focused on medicine including the impact of the CAM movement).....many whose work was quite controversial such as [Michael Persinger](#) (Application of his extremely low frequency electromagnetic technology to induce hallucinatory states aimed at pain attenuation or rallying immune response in terminally ill cancer patients).....and still others who were regarded as being solidly on the fringe such as [Roy Kupsinel, MD](#) (Shared with him information and thoughts on a botanic drug called [PADMA 28](#) which had shown efficacy for Peripheral Artery Disease in 5 randomized double-blind, placebo-controlled trials done in Europe). I was, in short, "all over the map" in the sense I was working with and acting on knowledge, ideas, therapies and forms of therapeutic intervention that spanned the gamut from the realistically possible or promising to tentatively proved on one end, to the far-fetched and virtually impossible on the other. This was not a pattern peculiar to me though, but one that seemingly characterizes if not defines a large segment of the CAM movement (Both practitioners and proponents).

Thankfully though, I listened to the skeptics and critics of many of things I had studied or was otherwise involved with. As a result of their well reasoned writings I decided I needed to master aspects of the scientific method that was not part of my education and hands-on work or which was but which I'd sometimes glossed over in my erstwhile rush to help suffering people. I thus went on to teach myself such things as the principles of medical statistics and clinical studies design and then applied this body of knowledge and methods to help evaluate many of the ideas, therapies and treatments in my repertoire. The outcome was predictable: I found many which failed to hold water and thus had to be ditched, while others garnered evidence that suggested a more circumspect use or dose than proponents had

originally declared effective. Among those I tossed was homeopathy (though Jacque Benveniste's published paper in the Nature in 1988 made me take a second look – [until the methodological flaws which invalidated his work became apparent](#)) plus many botanic medicines and individual herbs.

I also tested things for myself using the tools of science; the methods that as Carl Sagan rightly contended reliably "delivers the goods" (Truth in the tentative scientific sense of "successive approximations" as pioneering astronomer [Edwin Hubble](#) put it; that is, findings that might be overturned or subject to modification as new evidence turns up). One prime example was EAV testing, the use of what amounts to a computerized galvanometer to diagnose or otherwise detect allergies, organ deficiencies and bodily needs for various nutrients and such.

During the late 1980s I was introduced to EAV (Electroacupuncture according to Voll) or electrodermal testing using a [Vegatest device](#) and trained in it as part of my staff duties for a prominent CAM physician (Later this unit was replaced with a computerized [Interro device](#)). As a baby boomer I'd grown up watching such venerable sci-fi classics as the Outer Limits, Twilight Zone and Star Trek, and as such had a special fondness for high tech medical, scientific and robotic devices. Anything along this line that might make medical diagnostics as easy and forthright as Dr. Leonard "Bones" McCoy's medical tricorder was especially appealing to me– which the EAV machine in some ways was purported to be.

To understand what EAV or electrodermal testing is all about you have to first understand the principle behind it. In-a-word, these machines are purported to measure changes in the body's flow of "energy" along "[acupuncture meridians](#)". According to proponents there are specific points on people's hands and feet that can be used to gage health in various organs and also test drugs, hormones, nutrients and such to see what will remedy any detected abnormalities. This is how it works: The patient holds a moist gauze covered conductive metal cylinder in one hand which is connected to the device (A tiny electric current is sent through this wire by the machine). A second wire runs from the device to a probe held by the technician or doctor who does the testing. When the probe is touched to specific "acupuncture points" a low voltage circuit is completed and the flow of current is measured by the EAV machine and a reading is displayed that indicates organ status (Healthy or unhealthy and, if unhealthy, to what degree). The operator can supposedly determine what will bring the meridian flow back up or down to normal by testing various substances housed in small vials (These vials are introduced one-by-one or in combinations into receptacles into the machine or a plate that connects probe and/or cylinder to the machine). In addition, allergy testing is can supposedly be done by placing vials of known/suspected allergens in the receptacles or on the plate and watching for responses (A jump in the readings).

Even if the principle behind the machine were true – that meridians exist and can be tapped into in a meaningful way to diagnose – it is obvious that if the skin stays at the same level of moisture the readings can be influenced subtly or grossly by the pressure the operator using when he or she applies the probe. This alone would tend to throw off readings. And in practice I saw this for myself. In fact, I quickly realized that what I was doing with the machine was essentially a variation on psychic parlor cold readings – that is, by combining my own perceptive reading of body language and asking leading

questions I would come up with “findings” that agreed with the patient’s known medical history and expectations.

This said, what intrigued was the use of the machine to determining drugs, hormones and such that “balanced” a patient’s readings. The readings would supposedly indicate what single or combination of drugs and such would benefit the patient, as well as the dose. This was something I could actually put to the test in a strictly scientific way.

With the assistance of a research engineer friend of mine named Jim this is what we did:

First we filled glass vials (identical to the others in the EAV testing kit) with arsenic, mercury, cadmium and other toxic substances plus samples of deadly herbs and toxic weeds and labeled each one. I then had my buddy go to a separate room and cover the labels on all the vials in the kit – the original ones plus those we created -- with other labels bearing an alphanumeric code which he recorded on paper and locked away. Jim then mixed up all the vials and brought them to me. I proceeded to perform tests on a succession of about 40 people, both healthy and ill over a five (5) day period. The end result? Eighty-three percent tested out as "needing" arsenic, mercury, cadmium, etc. (That is, the EAV device clearly indicated 83% of those tested would especially benefit from pure, toxic doses of various heavy metals, toxic herbs, poisons, etc.)

I shared my findings with the clinic director, of course. The EAV machine found its way to a storage closet not too long afterwards.

In the ensuing years I watched many more CAM diagnostic devices and treatments fail to hold up to testing, both those I carried out as well as more formal and rigorous ones conducted by others. Conversely, some herbal medicines, individual herbs, therapeutic dietary measures and such were shown to be effective for various health conditions in formal clinical studies. This said, a great many of these studies were not so rigorous in design or poorly designed and/or executed. And the number proved effective in well designed and executed [randomized controlled trials](#) (RTC) appeared to be quite small. Naturally, until these remedies and such pan out in RTCs their effectiveness remains an open question.

Given the paucity of hard scientific evidence underlying many cherished CAM diagnostic methods and treatments, one is compelled to ask if it is it ethical or wise to run a clinical practice based largely on such unproved testing and/or remedies? Certainly not if the practitioner admits patients who have foregone undergoing proper diagnostic work-ups and scientifically validated medical care for his or her clinical offerings (Unless the practitioner is qualified to do this sort of testing and treatment and competently does so). But what if the practitioner and his methods or treatments are not substituted for standard medical care by the patient, do no harm and largely inspire hope? It could be argued that even if the CAM practitioner’s fare is medically ineffective or even worthless, the positive aspects such as the placebo effect and corresponding reductions in anxiety or fear make it worthwhile provided the cost is not outrageous. Perhaps so. As for squaring the ethical issues involved, at the very least CAM

practitioners should clearly label unproved diagnostic methods and treatments as such and disclose any known hazards or potential side effects, making them *de facto* experimental. Many in fact do.

Of course, the fact that unproved treatments are being used at all by CAM practitioners of various stripes and also by legions of people doing dietary and supplement self-experimentation is galling to many mainstream physicians, medical consumer advocates, journalists and others. More than a few of these would tightly regulate these remedies and severely reduce access to them, something the vast majority of Americans appear to oppose. In an ideal world unproved diagnostic methods and disease-specific treatments would be speedily and thoroughly evaluated, and those that indisputably bomb would be swiftly abandoned by CAM practitioners. But testing has often moved at a snail's pace and even when specific remedies have been repeatedly shown to have no efficacy, many proponent CAM practitioners and medical consumers refuse to relinquish them. Some of this is likely a reflection of human ignorance or stubbornness (as in "it'll be vindicated somehow") or both. Some people just flat out prefer to live on the other side of looking glass even when so doing lands them squarely in a land of illusions and delusions. But since illusions and delusions help many folks cope with the vicissitudes of life including illness, these discredited CAM tests and treatments is unlikely to vanish anytime soon – if ever.

Want to learn more about how many CAM modalities and treatments hold up to scientific scrutiny? How to think critically about CAM as well as other heterodox beliefs and practices?

[PIER \(American College of Physicians\) - Provides information on specific diseases and includes interpretations of the extant evidence](#)

[SKEPTICISM - James Randi Educational Foundation](#)

[COMMITTEE FOR SKEPTICAL INQUIRY](#)

[THE SKEPTIC'S SOCIETY & SKEPTICS MAGAZINE](#)

[NATIONAL CENTER FOR SCIENCE FOUNDATION](#)

[Snake Oil Science](#) by R. Barker Bausell, Ph.D.

[The Demon Haunted World](#) by Carl Sagan, Ph.D.

[Any and All Books by James Randi](#)

[The Undercover Philosopher](#) by Michael Philips

[Skeptical Look at Acupuncture](#)

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