

Evidence-based medicine and complementary medicine

To apply evidence-based medicine (EBM) to complementary medicine (CM)—treatments such as acupuncture, chiropractic, homeopathy, or herbal medicine—seems, at first glance, a contradiction in terms. CM is often *defined* as techniques for which no evidence of benefit exists (or as a speaker at a recent Cochrane Colloquium put it, “medicine is either scientific or complementary”). But many of the interventions used by conventional clinicians have little scientific support; conversely, there is evidence from randomised trials in support of some interventions that are commonly described as CM. CM is an increasingly prevalent aspect of health care: about 10% of the UK population visit a practitioner each year,¹ and about 40% of UK general practices offer their patients access to CM services on the national health service.² As such, CM constitutes important area for the implementation of EBM for better patient care.

Can EBM be applied to CM?

There are two perspectives for thinking about EBM and CM. The *external* perspective is that of those outside CM. This might include a community mental health team deciding whether to employ an acupuncturist to treat addiction, a family physician considering whether to refer patients with anxiety disorders to a homeopath, or a patient deciding whether to buy an over the counter herbal remedy for depression. EBM can and should be used as part of such decisions. The *internal* perspective is that of CM practitioners themselves, finding, appraising, and acting on evidence to diagnose, treat, and prognose more effectively. This use of EBM is more problematic.

EBM and decisions about referring to or purchasing CM

Contrary to widespread belief, there is considerable evidence on which to base decisions about whether to refer to or purchase CM care. The registry of the Cochrane Collaboration field in CM currently lists over 4000 randomised controlled trials (RCTs), with a further 5000 papers awaiting analysis. There are about 200 systematic reviews of CM interventions, over 60 of which are protocols or completed reviews on the *Cochrane Library*. These deal with topics such as St John's Wort (a herbal treatment) for depression; acupuncture for migraine and chronic headache; osteopathy and chiropractic for neck pain; hypnosis for smoking cessation; and homeopathy for influenza.

One problem with much CM research is that it often has low clinical relevance. For example, a well known RCT found significant differences between a homeopathic remedy and placebo for the treatment of hay fever.³ Normally, homeopaths give different remedies to patients with hay fever depending, at least in part, on non-medical characteristics of each patient such as their personality or taste in food. This makes homeopathy difficult—though not impossible—to test using standard RCT methodology. These researchers decided to use one remedy as an artificial “test case” because it

allowed a simpler trial design. Their question was not: “is homeopathy an effective treatment for hay fever?” but: “is homeopathy a placebo?” The clinical implications of the study's findings for the management of hay fever are not straightforward therefore.

An associated problem is that the diseases and disorders which have been subject to CM research are not representative of those seen in clinical practice. There have been over 30 trials of acupuncture for nausea.⁴ This is not because nausea is a common presenting complaint in acupuncture, but because it is easy to research: only a single acupuncture point is used, large numbers of surgical patients can be recruited, and outcome can be assessed in a few hours. Chronic fatigue, a condition more commonly found in acupuncture practice,⁵ has not been evaluated, probably because such research presents considerably greater practical difficulties.

There are only a moderate number of RCTs of CM interventions in mental health. With the exception of certain herbal treatments such as St John's Wort for depression⁶ and kava-kava for anxiety,⁷ there are few high quality RCTs of any of the main CM treatments (acupuncture, homeopathy, herbal medicine, osteopathy, and chiropractic) for any of the main mental illness diagnoses. Even where mental health outcomes are assessed, most RCTs have not examined a mental health population. For example, although there are many trials showing a fall in anxiety scores after massage, most have studied acute anxiety associated with cancer, intensive care, or surgery.⁸

Another problem of implementing research in CM is that there are significant variations in the way that CM is practised. For any particular CM treatment there will be various different schools of thought with respect to methods of diagnosis and treatment. In acupuncture, for example, there are those who use traditional Chinese concepts of *yin* and *yang* and those who rely purely on Western neurophysiology. Among traditional acupuncturists, there are those who treat as the basis of the “five element” theory and those who treat using the “eight principles.” Needles may be inserted deeply or so that they just pierce the skin, for a period of 30 seconds or 30 minutes, during which time they may (or may not) be stimulated by manual twirling, or with electricity. So, for example, an alcohol addiction unit considering referring patients for acupuncture might be impressed by an RCT retrieved from Medline,⁹ but may not know whether the acupuncture used by local practitioners is similar to that used in the trial.

Evidence-based decisions about purchasing or referring to CM may therefore require appraisal of research in which both the condition and the intervention are either unlike, or are not known to be like, the presenting problem. This should weaken, but not eliminate, any inferences made from clinical research. One of the strengths of the evidence-based medicine approach is that, through decision analysis,¹⁰ it provides a practical framework for the evaluation of CM evidence. CM treatments have long been prey to the view that no decision is worth taking until the evidence crosses a

certain threshold (the level of which is never made explicit) at which point the evidence becomes “strong.” Decision analysis, conversely, allows an explicit estimate of how much evidence is “enough” evidence.

In a simple decision tree with one decision (use or avoid treatment) and two outcomes (cure or illness), it can be shown that, to recommend treatment, the disutility of treatment must be lower than the disutility of the illness multiplied by the probability that the treatment will be successful. If a disease is considered to be 20 times worse than the risks, costs, and nuisance of a potential treatment, then that treatment is warranted once there is a greater than 5% chance that it will be effective. Many CM treatments are relatively safe, inexpensive, and non-invasive, and therefore have low disutilities. The wider use of such analyses may result in such decisions that, although homeopathy should not be a routine option in depression, there is a case for referring cases where the response to conventional treatment has been poor or when drug adverse effects are causing particular distress.

Use of EBM by CM practitioners

Considerable barriers remain to the use of EBM by practitioners of CM. The main problem is a dearth of research data examining those questions most likely to be asked by practitioners in the course of their work. So although evidence exists that chiropractors can offer effective treatment in back pain,¹¹ there is less evidence on which types of spinal manipulation are most beneficial. Similarly, the benefits of acupuncture for migraine have been supported by RCTs,¹² but there is no information on which strategies for point selection should be favoured, or how long needles

should be kept in place or how many treatment sessions are optimal. Undertaking and implementing such research would require a greater commitment to science, critical thinking, and EBM than is currently found in the CM community.

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