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What should medical students learn about CAM?

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In the UK, each medical school is free to set its own curriculum, following guidelines set down by the General Medical Council (GMC) concerning the skills, knowledge and attitudes a newly graduated doctor should achieve. The medical schools are subject to visitations by the GMC to see how the guidance as been interpreted. An important part of the GMC guidance is contained in paragraph 14b of *Good Medical Practice* 2012 (1), which states that *"In providing care you must provide effective treatments based on the best available evidence"*. It might therefore seem obvious that the curriculum should be based on evidence-based medicine and provide students with the skills needed to gather, interpret and evaluate clinical evidence. Complementary and alternative treatments for which there is no evidence of efficacy or safety should, presumably, be dismissed by medical teachers.

There is, however, a problem. Most patients are not trained medical scientists, and do not have the skills and knowledge to evaluate evidence of efficacy. They will have heard about complementary and alternative therapies from friends, newspapers and magazines, TV and radio, and from internet searches. With some notable exceptions, few journalists in the popular press and media have the scientific background to provide critical evaluation, and testimonials and anecdotes appear convincing. In any case, a "miracle cure", especially if supported by a celebrity endorsement, will always make a better news story than a report of a randomised controlled trial that shows that the treatment is ineffective. This means that the doctor has to be able to explain to patents why what appears to be a promising treatment will not be effective, and may indeed be unsafe. In turn this means that the medical course must expose students to complementary and alternative therapies. We have to ask what should they be taught? how should it be taught? and who should do the teaching? These are not easy questions to answer.

Most medical schools include at least some teaching about CAM, and in particular why patients may choose alternative practitioners instead of, or together with, conventional treatment. This is important, since if a patient has a strong belief in an alternative treatment, his or her reasons must be understood if they are to be persuaded to accept evidence-based treatments and eschew (possibly dangerous) alternative treatments. The doctor has to know enough about the alternative therapies to be able to explain not only that there is no evidence of efficacy, but also to be able to explain why, in many cases, the therapies are based on pseudoscience or outdated concepts. Medical science has long abandoned the concept of humours and the doctrine of signatures. Nevertheless, the concepts of ying and yan, balance and qi (a mysterious "life force") may attract the unwary, especially since they have a long history in traditional oriental medicine.

The questions of who should teach medical students about CAM and how it should be taught are interconnected. The question of who should teach is especially difficult to answer. In a traditional, lecture-based, medical course each subject is taught by a specialist in that area, usually some-one who is involved in research. Thus, the mechanisms of drug action and the use of medicines are taught by pharmacologists, building on a foundation of knowledge that has been laid down by physiologists and biochemists (among others). My background is in nutritional biochemistry. I would be offended and deeply worried to find that nutrition was being taught by psychologists or anatomists. While I sometimes use anatomical diagrams in my lectures, it is always with the understanding that the students have a deeper knowledge and understanding of anatomy than I do. In a problem-based learning course, while the students' discussions may be facilitated by non-specialist tutors, the problems themselves have been crafted by specialists, and the facilitators have been trained by specialists.

If we follow this logic through, then it would seem to be obvious that the most appropriate people to teach about CAM are the CAM practitioners themselves. I would no sooner teach about homeopathy or acupuncture (except to point out the paucity of evidence of efficacy) than I would allow a homeopath or acupuncturist to teach nutrition and metabolism. I tremble to think about a reflexologist teaching anatomy. However, this raises the problem that CAM practitioners have belief and faith in their treatments, but do not evaluate clinical evidence critically. If they did, they would presumably abandon their unproven therapies. While medical students are a highly intelligent and well-educated audience, most are unlikely to be able to evaluate the (lack of) evidence provided by an enthusiastic, charismatic and possibly evangelical proponent of an unproven therapy. From their knowledge of anatomy they may be able to see the underlying flaws in reflexology, but many will compartmentalise their knowledge. “Anatomy is on Monday, and today is Wednesday.” “Who will be setting the exam questions, and what answers will they be expecting?” (I have experience of this problem. Some years ago I was sharing a viva table with a physiologist. We had taught different but overlapping topics, and in some cases had differed in what we had said. The student in front of us resembled a chameleon placed on a plaid blanket, since there were two different “correct” answers to the question, depending on which one of us asked it, and we were sitting side by side.)

In an ideal world, perhaps the lectures on CAM could be conducted as debates, with a CAM practitioner and a relevant medical scientist together in the lecture room. It would certainly be entertaining to see a homeopath in debate with, say, a pharmacologist like David Colquhoun (2). Sparks would certainly fly, but would the students be able to reach what we would hope to be the correct conclusions?

Ho *et al*. (3) report what appears to be the first survey of the student experience of evidence-based medicine and CAM teaching in UK medical schools. The good news is that while there may have been no teaching of statistics and evaluation of evidence in the students’ current year of the course, all reported that there was in other years. Just over half the students reported that they had received lectures on CAM in their core course. Of these, under half described the lectures as ‘critical’ (applying the criteria of EBM), with 16% describing them as ‘uncritical’ (demonstrating the use of CAM without discussing evidence of efficacy) and 39% as ‘discursive’ (explaining why patients might choose CAM, regardless of whether or not there is evidence of efficacy). 33 students reported that they had had placements with CAM practitioners. Of these, 61% stated they had received no feedback on the placement, 12% reported feedback with a specialist tutor, 15% with a non-specialist facilitator, 9% peer-led reflection, and 3% a tutor-marked written account.

There is cause for concern here. It would seem that only half the teaching about CAM in the core course was appropriately critical, applying the principles of EBM, and over half the students who had been placed with a CAM practitioner had not received any formal feedback on their experience. The authors (3) conclude that “There is a need for UK curriculum coordinators to review and improve the teaching of CAM-related components in the undergraduate medicine courses.”

References

1. **Good Medical Practice** [http://www.gmc-uk.org/guidance/good_medical_practice.asp]

2. David Colquhoun’s blog **DC’s improbable science** at http://www.dcscience.net/

3. Ho D, Chan K, Bewley S. and Bender DA **Evidence-based Medicine and Complementary and Alternative Medicine teaching in the UK medical courses: a national survey of the student experience.** FACT 2013; 00: 00-00.

   This paper has now been published: Ho, D., Chan, K., Bewley, S. and Bender, D. A. (2013), Evidence-based medicine and complementary and alternative medicine teaching in UK medical courses: a national survey of the student experience. Focus on Alternative and Complementary Therapies, 18: 176–181. doi: 10.1111/fct.12059, http://onlinelibrary.wiley.com/doi/10.1111/fct.12059/abstract