



# Complementary and alternative medicine and medical students in Australia: Where do we stand?

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## EDITORIAL

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## Introduction

### What is 'CAM'?

Complementary and alternative medicine (CAM) encompasses a diverse group of therapies that fall outside the paradigm of conventional medical practice, and are often used in conjunction with or alongside such practices. Generally speaking, CAM may be thought of as a group of therapies that offer more holistic approaches to medical ailments, compared to exclusively conventional therapies which may only “view the body mechanistically”.<sup>1</sup> Many examples of CAM have originated from non-Western societies and are built upon the well-established culture of those societies.<sup>2</sup> The World Health Organization (WHO) reports that about 75% of the world’s population relies on medical practices that have originated from indigenous or traditional systems.<sup>3</sup>

Patients consult CAM practitioners for a number of reasons; often due to a chronic problem where they have received unsatisfactory outcomes from conventional therapies or encounters.<sup>4</sup> However, many continue to use both systems concurrently and this is to perhaps to achieve a balanced, synergistically-driven therapy.<sup>4</sup> In Australia, approximately half of the population uses or has used CAM, with an estimated 70 billion visits to CAM practitioners a year. Surprisingly, this is the same number of visits to medical practitioners.<sup>5,6</sup> As a nation, Australia spends well over \$4 billion on CAM annually and this figure is rising as the

prevalence and integration of these therapies into conventional medicine increases.<sup>6,7</sup>

The National Institutes of Health (NIH) classifies CAM into seven broad categories:<sup>8</sup>

1. Natural therapies.
2. Mind-body therapies.
3. Body manipulation.
4. Movement therapies.
5. Traditional healers.
6. Energy field-based therapies.
7. Whole medical systems.

In Australia, chiropractic, natural therapy and acupuncture remain three of the top most sought-after CAM.<sup>5,9,10</sup> These are the CAM modalities in which Australian practitioners and medical students may find themselves encountering and hence will be explored in further detail.

### Key CAM modalities in Australia

#### Chiropractic

Chiropractic trumps the list of alternative medical therapies used in Australia, being utilised nearly twice as much as acupuncture and thrice as much as osteopathy.<sup>11</sup> It is based on the notion that the nervous system is disrupted when the mobile bones of the spinal column have moved to an undesirable arrangement and that overall well-being depends on an ideal alignment.<sup>12</sup>

Many apprehensive medical students and professionals from anecdotal sources seem to opt for management without chiropractic due to its association with severe and permanent disabilities. Possible severe adverse events include subarachnoid haemorrhage and paraplegia.<sup>13</sup> However, spinal manipulation is noted in many reviews to introduce no more risk to the patient than sham manipulation,<sup>14</sup> and there is a general consensus that these cases are rare.<sup>15</sup> Chiropractic has been recommended to have a place in cost-effective management plans alongside evidence-based therapies and medications for lower back pain.<sup>16</sup>



### *Natural therapies*

Natural therapies are alternative treatments that employ substances found in or derived from nature; the most common examples being vitamins, minerals and herbal preparations commonly sold as dietary supplements.<sup>8</sup> Whilst the relatively recent increase in demand and popularity of natural therapies has made this somewhat of a “new age” approach, natural therapies have been utilised for hundreds of years by various cultures.<sup>17-20</sup> Prominent examples of other natural therapies commonly used in medical practice include herbal products, probiotics, cod liver oil, St John’s wort, and *Ginkgo biloba*.

On the whole, natural therapies are accessible, cheap and have relatively few side-effects compared to many medications prescribed to patients by doctors. However, the erroneous belief<sup>21-24</sup> that they are superior, less toxic and always safe compared to conventional pharmacological agents may lead to a failure to disclose their usage by patients.

Perhaps the biggest barrier to further integration and acceptance of natural therapies in conventional medical practice is the relative paucity of evidence demonstrating their efficacy. Whilst there is substantial research into this area, it has been claimed that most evidence for their efficacy come from *in vivo* studies with extensive clinical trials lacking.<sup>19</sup> Moreover, since these substances are normally available over the counter, they do not receive the same tight legislation and regulation and mandatory safety testing as conventional drugs.<sup>25, 26</sup>

### *Acupuncture*

Acupuncture involves the treatment of various ailments by the insertion and manipulation of needles into various parts of body. Originating in China about 3000 years ago under the Traditional Chinese Medicine paradigm, it has now spread across the world as a fairly popular form of therapy used for pain management, fertility issues, nausea and depression amongst many other problems.

The mechanism behind acupuncture has always been a hotly debated and controversial area.<sup>27</sup> Traditionally, acupuncture has its roots in the concept of *qi*, which is a metaphysical force believed to flow in the body via channels called meridians. These channels also transport blood and fluid and disruption of these are said to give rise to disease.<sup>28</sup> In spite of many efforts by the modern scientific community, no evidence of this has been found and this has led to many individuals and organisations dismissing acupuncture due to its unsound scientific basis.<sup>29</sup> Nevertheless, there have been various other theories raised that could possibly explain its efficacy, such as the release of endorphins and serotonin and neural stimulation.<sup>30,31</sup>

Although widely used, the current research on its efficacy is mostly inconclusive although there are areas where it could be effective, especially when used for musculoskeletal problems.<sup>32-34</sup> It has also been shown to be a relatively safe form of treatment with very few serious adverse events.<sup>35,36</sup>

### **The current nature of CAM**

The field of CAM therapies is a highly diverse area that offers much potential for future medical practice. Already, certain modalities – as explored above – have proven reasonably effective and are growing in popularity and demand;<sup>37</sup> in Australia, for example, acupuncture is a popular CAM that reflects this trend.<sup>38</sup> General practitioners (GPs) have been considered the linking body between therapy and its evidence-based foundations for patients, and as such, play an active role in guiding suitable CAM therapy.<sup>39</sup> Since CAM use can be traced back to prominent influences in one’s life, such as culture and family,<sup>40</sup> it is congruent with the paradigm shift in medicine to consider the person and their background in a holistic manner.

Surveys sent out to GPs in Australia demonstrated a high interest in complementary medicine.<sup>41</sup> Those that replied tended to positively view non-medicinal and non-manipulative therapies such as massage, meditation, hypnosis and acupuncture. Therapies that involved manipulation or medicinal basis, (such as osteopathy and homeopathy), were viewed less favourably. This is perhaps due to their highly invasive nature and the perceived higher risk that may go along with them.<sup>41</sup>

Needless to say, in Australia, the evidence and prevalence of CAM is expanding and this is likely to be the biggest impetus in supporting its integration into mainstream medicine.<sup>7</sup> Said integration can be seen through the direct support from the Australian Medical Association (AMA), the Royal Australian College of General Practitioners (RACGP) and the government’s support for CAM regulation.<sup>7</sup>

### *Evidence-based medicine and CAM*

Due to the limited amount of research funded and hence performed for a number of CAM, therapeutic effects in outcomes are often criticised for the deficiency of subjects, poor study design and the placebo effect – as was the case for a number of the above studies. An attempt is often made to reduce or account for the placebo effect by a number of interventions through, for example, matched controls and delegation of equal attention to control and intervention groups. A



consideration that is unique to complementary medicine is the patient's perception of complementary medicine itself. Could a potentially perceived ambiguous nature heighten or modify the placebo effect compared to that of a standard treatment? After all, the practitioner's 'performance' of the therapy is often deemed crucial to its outcome.<sup>42</sup> Indeed, it is well established that placebo effects across studies can vary depending on experimental conditions and the individuals themselves.<sup>43</sup> This, therefore, raises questions as to the credibility of some study results and highlights the need for further investigation and clarification of the aforementioned therapies.

Indeed, conventional medicine relies heavily on the concept of evidence-based medicine (EBM) to guide therapies. Thus, probably one of the main reasons why CAM is not as widely accepted as it could be is due to the fact that there is relatively little evidence for these practices, and they rely more on anecdotes and assumptions.<sup>43-45</sup> Conversely, it has been claimed that individuals that demand EBM "seek to establish their particular epistemology as the primary arbiter of all medical knowledge" and that the underlying principles of CAM are naturally incongruent with the testing methodology of EBM.<sup>46</sup> Others have argued that the EBM statistical approach is too restrictive and case-control trials are not perfect.<sup>43</sup> In an interesting twist, it has been claimed that a significant portion of general practice treatments may not be adequately evidence-based anyway.<sup>44</sup>

### **Medical students, CAM and the future**

So where do we medical students fit in amongst the great debate over CAM? Over the years, there have been several surveys done to assess the attitudes of medical students towards complementary medicine. The general consensus amongst students is that this is an important, emerging field of medicine and many are highly interested in it, sometimes even more so than doctors.<sup>47-50</sup> The 2011 International Federation of Medical Students' Association (IFMSA) and Asian Medical Students' Association (AsMSA) joint conference in Hong Kong, for example, had a CAM theme, being entitled: "Integrative Medicine: Evidence-based traditional, complementary and alternative medicine in modern medical practice".

However, due to the fact that most universities place little emphasis on complementary medicine, many students feel uncertain and sceptical about CAM as a medical system.<sup>50-52</sup> This notion was particularly pronounced in a study which found that educational exposure to CAM is proportional to the perceived value of it.<sup>53</sup> Hence, medical students, receiving the least amount of CAM education, viewed it as less useful compared to their other health professional student

counterparts.<sup>53</sup> Of concern, medical students often are not aware of the safety issues and dangers of even the most common CAM modalities present.<sup>54</sup> Therefore, as the prevalence and acceptance of CAM increases, it is essential for medical schools to address this inadequacy in our knowledge of CAM.

Currently, some questions are yet to be completely answered, such as how much CAM knowledge should be taught to medical students and who should teach the content. Nevertheless, a guiding principle that ought to govern such teaching is that CAM tuition should not be taught separately; but instead incorporated seamlessly into current medical curricula.<sup>55</sup> Medical students show a significant interest in both EBM and CAM and so it is recommended that at the most fundamental level, an EBM teaching style should be embraced when dealing with CAM education.<sup>56</sup> Despite this, CAM education is currently not standardised, ill-structured CAM curricula is rife, and a large percentage of medical schools offer it only as electives.<sup>57,58</sup>

There is still plenty of work to be done in terms of its integration into mainstream medicine. There is a severe lack of evidence-based advice on the potential benefits and adverse effects of a wide variety of CAMs, and efforts have been hampered by the lack of funding, issues with ethics approval, difficulty of applying appropriate outcome measures and placebos, amongst others. There are also issues with the standardisation of alternative medicine; regulation of medication tends to be more lax and issues such as contamination, variation in potency between crops and incorrect species have been raised before. The risk of adverse side effects, especially if used concurrently with mainstream medicine, is significant. As of now, less than half of CAM users report their use of alternative therapies to their GPs.<sup>11</sup> This is an alarming statistic, given that there are major drug interaction and potential complications with medical interventions. Therefore, increasing awareness and exercising a non-judgemental approach when enquiring about CAM will contribute to making the collaboration of CAM and traditional medicine more streamlined and safer for our patients.

The widespread support and demand for CAM means that CAM is something that is likely to stay. Given the immense popularity and potential for harm, we as future medical practitioners have to take an active interest in this aspect of therapy and actively engage in CAM discussion with patients, especially when many have the preconceived idea that they will be judged harshly by



their practitioner should they disclose its usage.<sup>59,60</sup> We should certainly keep an open mind towards these and embrace them as additional and/or potential tools in our armamentarium of therapies to treat patients holistically, whilst at the same time not compromising the bedrock of EBM that we are built on. It is a fine line to tread for medical professionals in the future, and undoubtedly, more discussion and consideration on this subject in the future will be of paramount importance.

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