

## CURRENT TOPIC

## Complementary and alternative medicine for children: does it work?

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### Abstract

**Paediatric use of complementary and alternative medicine is common and increasing, particularly for the sickest children. This review discusses the various options available including dietary supplements, hypnosis, massage, chiropractic, and acupuncture.**

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Keywords: complementary medicine; alternative medicine; holistic medicine; dietary supplement; review

### Introduction and epidemiology

The use of complementary and alternative medical (CAM) therapies is increasing considerably in paediatric as well as adult populations, particularly among the affluent and educated.<sup>1,2</sup> Approximately 20–30% of general paediatric patients have used one or more CAM therapies<sup>2,3</sup>; use among adolescents ranges from 50% to 75%.<sup>4,5</sup> Rates among patients with chronic, recurrent, or incurable conditions, such as those with cancer, asthma, rheumatoid arthritis, and cystic fibrosis range from 30% to 70%.<sup>6–8</sup> Parents of hospitalised children, particularly those in neonatal and paediatric intensive care units, report keen interest in providing CAM to their children during hospitalisation, but often have not discussed their interest in or use of CAM with their child's physician.<sup>9–11</sup>

Paediatricians and medical institutions have struggled to adapt quickly to these rapid shifts in culture and patient demand. Most medical schools in the USA and Canada now offer at least one course in holistic/complementary/alternative medicine, and the numbers and depth of these courses are increasing rapidly.<sup>12–17</sup> Physicians, including paediatricians, report a high (over 50%) rate of using CAM therapies themselves,<sup>18–20</sup> and most physicians provide CAM therapies themselves or refer patients to CAM providers.<sup>21–26</sup> Are physicians pandering to patient demands? Or are there data to suggest that at least for some conditions and some therapies, integrative medicine offers real benefits?

### Definitions

The terms “holistic medicine” and “integrative medicine” describe approaches to patients and therapies, respectively.<sup>27</sup> Holistic medicine re-

fers to caring for the whole patient—body, mind, emotions, and spirit—in the context of the patient's and family's values, culture, and community; this is simply another way of stating the highest ideals of conventional medicine.<sup>28</sup> “Integrative medicine” refers to considering a broad range of therapies and selecting those that have the best evidence of safety and effectiveness in the context of holistic care.<sup>29</sup> Integrative medicine takes evidence based medicine one step further by including consideration of *all* potential therapies, not simply those that have been part of mainstream medical practice.

### Treatment goals

Nearly every study of the epidemiology of CAM has underscored the fact that only a minority of patients and families talk with their physicians about their use of CAM therapies.<sup>30</sup> If physicians want to know what families do and what they value, a systematic approach is necessary in taking a history about patients' goals. We consider therapeutic goals in five major categories:

- (1) Curing disease
- (2) Managing or minimising symptoms
- (3) Preventing disease
- (4) Promoting wellness/resilience and minimising stress/toxins
- (5) Achieving inner peace and harmony.

All of these goals are legitimate. To assess in a meaningful way whether or not a therapy is useful, both clinicians and patients must explicitly understand the goal or goals of treatment. For example, in treating paediatric oncology patients, acupuncture may be used, not to cure the cancer (goal 1), but to help manage pain and nausea symptoms (goal 2) or to promote a sense of well being (goals 4 and 5).

### CAM options

The term CAM encompasses a wide range of disparate therapies that often rely on different philosophies, beliefs, assumptions, and practices. Visits with a homeopathic practitioner typically are lengthy and focus on taking a very extensive history, while visits with a chiropractor may be quite brief and focused on physical examination and adjustment procedures. In order to understand and remember the range of potential therapies in a clinically useful fashion, we consider the range of therapeutic

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Table 1 Therapeutic options

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<i>Biochemical</i>
• Medications
• Herbs
• Dietary supplements
<i>Lifestyle</i>
• Diet
• Exercise
• Environment
• Mind-body
<i>Biomechanical</i>
• Massage
• Chiropractic/spinal adjustment
• Surgery
<i>Bioenergetic</i>
• Acupuncture
• Reike, therapeutic touch, laying on of hands
• Prayer and ritual
• Homeopathy

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options in four major domains: biochemical, lifestyle, biomechanical, and bioenergetic (table 1). Each domain contains several kinds of therapies. For example, biochemical therapies include medications as well as vitamins, herbs, and other dietary supplements. Biomechanical therapies include massage and chiropractic as well as surgery.

### Specific conditions and therapies

Few clinicians would argue with the tenet that patient focused, humane, holistic care is the ideal of medicine. Nor would modern physicians disagree on the importance of considering a range of treatment options and using an evidence basis to select those most likely to be beneficial and least costly or harmful. Questions about the effectiveness of complementary and alternative medicine tend to be focused on the merits of individual therapies for specific conditions and patients rather than the over arching philosophical orientation to patient care.

For the most part, a great deal more evidence is needed to evaluate claims of safety and effectiveness of natural therapies compared with more synthetic medications and surgical approaches. In practice, most paediatricians do not demand rigorous scientific evidence of safety or efficacy before recommending home remedies such as chicken soup, peppermint tea, or vaporisers for children suffering from mild, self limited conditions such as upper respiratory infections. On the other hand, common sense demands that more stringent evidence is required for evaluating the effects of more toxic or costly treatments for life threatening conditions, particularly if effective treatments are already available. As scientific evidence accumulates, therapies considered as CAM may cross the line into mainstream care; this transition appears to be especially easy if financial support and professional advocacy are involved, for example, marketable products or well organised practitioners.

### Dietary supplements

Probiotics (for example, yoghurt) have proven effective in reducing the severity and duration of diarrhoea in healthy children<sup>31–33</sup>; many paediatricians have begun recommending increased yoghurt intake for children suffering from diarrhoea and as prophylaxis for those children assigned to antibiotic therapy. Health

food stores are replete with medicinal products (capsules, tablets, and liquids), containing lactobacillus bacteria, that claim to “support healthy intestinal function” or “maintain a healthy balance of intestinal flora”. The effectiveness and optimal dosing of such products for children remains unknown.

For many other dietary supplements (such as using St John’s wort to treat depression and echinacea to treat the common cold),<sup>34–36</sup> there are no published studies on effectiveness for children. Despite the absence of data on paediatric safety and effectiveness, tremendous efforts are being made to market paediatric herbal products, enticing parents and pressuring paediatricians. Paediatricians are especially likely to be cautious about the hazards of the chronic use of herbs. Over the past 40 years, increasing data about the cumulative toxicity of a herb that had been widely used for medical, religious, and recreational purposes for centuries—tobacco—support this cautious approach. Recent studies evaluating herb–drug interactions with St John’s wort (leading to notable declines in serum concentrations of digoxin and other medications) also suggest the need for careful review of scientific data before casually reassuring patients about using herbs.<sup>37</sup>

### Lifestyle therapies: mind–body medicine

Hypnosis is an effective preventive therapy for paediatric migraines,<sup>38–40</sup> chemotherapy associated nausea and pain, as well as several behavioural conditions,<sup>41–44</sup> yet hypnosis and similar mind–body therapies have not been widely disseminated from behavioural paediatrics to general paediatric practice nor into specialty areas in which it might be quite useful in reducing procedure related anxiety and pain. Currently there are no significant market forces (other than some patient demand) promoting the use of mind–body therapies. Teaching such practices demands substantial clinician time which may be worthwhile over the long term, but poorly reimbursed in some health care systems. Additional research is needed on evaluating the long term cost effectiveness of mind–body therapies and developing the most effective strategies for disseminating proven therapies into practice.

### Biomechanical therapies: massage and chiropractic

Like hypnosis, massage has proven helpful in treating several paediatric conditions. These include low birth weight, pain, asthma, attention deficit hyperactivity disorder, and depression.<sup>45–50</sup> Moreover, massage is enjoyable, safe, and sought after by patients.<sup>51</sup> Yet, it is seldom among the therapeutic options considered first by paediatricians. Historically, massage has been tainted by its link with the adult entertainment industry, and it may be viewed as self indulgent rather than medically indicated. Furthermore, as with mind–body therapies, the time required to provide services, personnel costs, and questions about long term benefits are significant barriers to widespread use of massage therapies for children.

On the other hand, despite the fact that chiropractic is one of the most common alternative therapies sought by families, there is a remarkable absence of randomised, controlled clinical trials suggesting that it is a significantly helpful or cost effective therapy for any major paediatric disease.<sup>52, 53</sup> Unlike hypnosis and massage therapy, chiropractors have formed a strong professional community that has effectively persuaded the public to pay for their services.<sup>54</sup>

### Bioenergetic therapies: acupuncture

Research on acupuncture is finally penetrating into paediatric practice. Recent studies suggest that certain children readily accept acupuncture as a potential treatment option,<sup>55</sup> and that some acupuncturists specialise in treating children.<sup>56</sup> It remains to be seen whether the benefits noted in adult patients (for example, in treating pain and nausea) are also found in children.<sup>57, 58</sup> Although it markets no unique product and has not formed an effective professional guild, acupuncture has made intriguing inroads into mainstream medicine, and is now provided as a treatment option in approximately one third of paediatric pain treatment programmes at academic medical centres in North America.<sup>56</sup> The vast majority of paediatric patients/families pay out of pocket for acupuncture services, but third party payment for acupuncture is gradually gaining ground.<sup>54</sup>

### Costs and benefits

There is a widespread assertion that CAM practices are less expensive than mainstream medicine and that using such therapies will lower overall health care costs. This assertion posits that CAM therapies would replace more expensive mainstream therapies rather than being used in addition to mainstream medicine. This assertion has not undergone rigorous testing. In fact, recent data suggest that including complementary therapies as treatment options increases overall health care costs for adults because CAM therapies are used as "add ons" rather than replacements.<sup>59, 60</sup> Similar studies have not been reported for children.

### Summary

Paediatric use of complementary and alternative medical therapies is common and increasing, particularly for the sickest children. In order to answer the question of whether or not such therapies work, it is essential that paediatricians systematically elicit families' goals and expectations of treatment, be aware of the range of therapies used, be systematic and specific when asking about them, and be aware of the complex interplay among scientific evidence and market forces governing availability of and payment for CAM therapies. These are the elements, not just of complementary or alternative care, but of good paediatric care in the modern era.

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## STAMPS IN PAEDIATRICS

### Oleander poisoning

The nerium and yellow oleander are both poisonous plants. Accidental poisoning can occur by ingestion (as little as one leaf of the nerium oleander may be lethal in children), by inhalation of smoke from burning oleander, or from the use of medical preparations from the leaves of oleander which have been used as treatments for malaria, leprosy, venereal diseases, and to induce abortions. Deliberate poisoning has been recorded in suicide attempts and in criminal cases. The American Association of Poison Control Centres received 3873 reports of oleander exposure between 1991 and 1995 (*Clin Chemistry* 1996;42:1654–8). Oleander is also used as an animal poison, which is best illustrated by its role as a rat poison.

All parts of the nerium oleander are poisonous, primarily due to the contained cardiac glycosides—that is, oleandrin, nerin, digitoxigenin, and olinerin of which oleandrin is the principal toxin. The bark also contains rosenin which has strychninelike actions. The clinical features of oleander poisoning are therefore similar to digoxin toxicity and include nausea and vomiting and lethal brady- and tachyarrhythmias including asystole and ventricular fibrillation.

The stamp from Yugoslavia in 1967 which depicts the nerium oleander comes from a six stamp set illustrating medical plants.



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