

Complementary and alternative medicine use among children with asthma in Australia

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Aim: To explore current complementary and alternative medicine (CAM) use by children with asthma in Australia. **Methods:** The results of an audit of CAM use by one of the authors (AMD) in 212 parents of children with a history of asthma, recruited from three different settings (outpatient clinic at a tertiary paediatric hospital, metropolitan and rural practices) were compared to three published studies of CAM use in children with asthma in Australia, as identified by literature review. **Results:** The prevalence of CAM use amongst children with asthma in Australia is 45-61%. Common CAM modalities used include chiropractic methods, vitamins and minerals, homeopathy/naturopathy, spiritual/psychological modalities and diet therapy. CAM was used more commonly in female children and those with persistent asthma, poor control of symptoms or using high doses of medication. Importantly, only a small number of parents report their child's CAM use to their doctors. **Conclusion:** Recent surveys of CAM use among children with asthma in Australia demonstrate a high prevalence which has important implications for those managing paediatric asthma.



The aim of this review is:

1. To compare the results of an audit performed by one of our authors (AMD) on CAM use in paediatric asthma with other surveys on the prevalence of CAM use among children with asthma in Australia identified on a literature search.
2. To describe the characteristics of CAM users in these surveys.

Methods

Audit of CAM use in children with asthma

One of the authors (AMD) performed an audit of CAM use in children with asthma over a 12 month period. The audit involved recruitment of parents of children with a history of asthma, aged between one and twelve years from three different settings: the asthma clinic of a tertiary paediatric hospital (The Children's Hospital at Westmead (CHW), NSW) (n=84); general and specialist practices in the metropolitan area surrounding the hospital (n=69); and general and specialist practices in rural regions of Bathurst, Orange and Forbes (n=59). Parents of children under 12 months of age were not included because of the difficulty with diagnosis of asthma in this age range. In addition, parents of children over the age of 12 were excluded because it was felt they may have a different approach to the use of CAM. None of the children had co-existing lung diseases such as bronchopulmonary dysplasia or cystic fibrosis. Those with other non-pulmonary disabilities were included.

A questionnaire consisting of four sections was used in the study:

1. asthma severity (using the Functional Asthma Severity Index); [12]
2. CAM use (a modified version of the questionnaire used in Andrews *et al.* [3]);
3. asthma knowledge of parents (a validated questionnaire); [13] and
4. sociodemographic data.

The study was approved by the CHW Ethics Committee Ethics and informed consent was obtained from parents who agreed to participate in the study. Parents completed the questionnaire either whilst waiting for their child's appointment or were able to complete the study at home and return in a reply-paid, pre-addressed envelope.

Introduction

The current approach to asthma management aims to empower patients with confidence, skills and motivation to manage their asthma. [1] This asthma self-management education approach has seen positive results in asthma health status and markedly reduced unplanned visits. [2] However, it has been suggested that the autonomy given to asthma patients may encourage them to seek a wider range of management approaches and view conventional medical treatments as one of several alternatives available. [3]

Complementary and alternative medicine (CAM) has received considerable attention and popularity over the years. A 2005 Australian population-based survey estimated an overall CAM use of 68.9% with \$1.86 billion spent on CAM products in a 12-month period. [4] In a survey of general practitioners (GPs) in Perth, [5] 90.2% of GPs reported being approached to give advice on complementary therapies (CT) and 37.6% were currently practicing CT in addition to conventional medicine.

For the purpose of this review, we will assume that the terms CAM and CT are synonymous and adopt the term CAM for consistency. Although various definitions exist, CAM is commonly referred to as a wide range of medical and healthcare systems, practices and products that are not currently considered to be part of conventional medicine. [6] However, developing a universal definition for CAM has remained a challenge as different cultures have their own sets of traditional beliefs and what is considered as CAM in one country may be regarded as part of standard treatment in another. [7] CAM may be used as a supplement to conventional treatment or as an alternative (that is, replacing conventional therapies). Publications on the use of CAM among paediatric patients in Australia are limited, but there have been reports in chronic, disabling conditions including cancer, [8] juvenile arthritis [9] and asthma. [3,10,11]

Literature Search Strategy

Online literature searches were conducted to identify English language articles. Medline, Cochrane and PubMed databases were searched from their inception to 31 July 2009. The search terms used included: complementary medicine or complementary therapies; alternative medicine; asthma or asthma, exercise-induced; child or children. When the keywords used mapped to subject headings, these headings were 'exploded' to include all terms from the hierarchy of controlled index terms. In addition, the bibliographies of articles were searched for further relevant publications. Papers were selected by one author (KH) and were included if the papers were expressed in a way that described general use and incidence of CAM use in children with asthma (that is studies relating to specific CAM modalities and/or their efficacy were excluded) (Figure 1).

There were fifteen studies which fitted our inclusion criteria. These were then reviewed to only include those studies which were conducted in Australia. In total, three studies were found and reviewed and the results compared to our audit. The quality of those articles selected was not appraised in light of the small number of available studies.

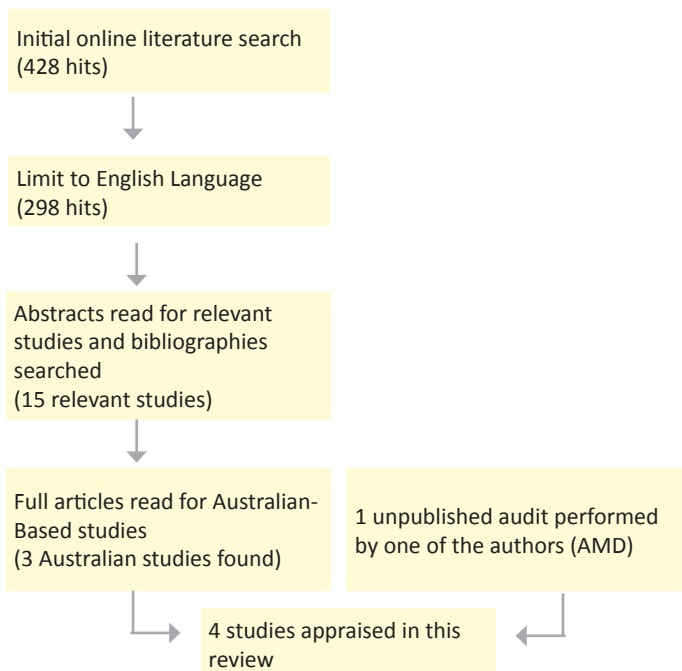


Figure 1. Flow diagram of literature search

Table 1. Summary of studies included in review.

	Donnelly <i>et al.</i> , 1985[11]	Andrews <i>et al.</i> , 1998[3]	Shenfield <i>et al.</i> , 2002[12]	CHW Audit, 1999
Location of Study(city, state)	Brisbane, QLD	Adelaide, SA	Sydney, NSW	NSW
Age Range(years)	-	1-6	0.7-18.8	1-12
Recruitment strategy	Families of children admitted to hospital with either asthma (group A) or minor surgical complaints (group non-A); non-A group had no family members with asthma	Parents of children attending pulmonary Outpatient Clinic or General Medical Outpatient Clinic	Patients with known asthma from Paediatric Emergency Department, Paediatric/Adolescent Wards and private consulting rooms of one investigator	Patients from chest and asthma outpatient clinic, general/specialist practices in metropolitan region surrounding hospital and general/specialist practices in three rural towns
Sample size (survey response)	238:(95.4% A); (91.8% non-A)	51 (93%)	174 (92%)	212
Type of Questionnaire	Interview	Self-completed	Interview/telephone	Self-completed
Prevalence of CAM use	45%	55%	51.7% CM; 24.7% CT	61%

Results

Who has been surveyed and how?

The results of our audit and the three other published studies are summarised in Table 1. The previously published studies were conducted in South Australia, [3] Queensland [10] and New South Wales. [11] Sample size ranged from 51-238 children with an age range from 0.7-18.8 years. Subjects were recruited from hospital in-/out-patient admissions and clinics, [3,10,11] paediatric emergency departments, specialist appointments and general practices. [11] All studies adopted a questionnaire method but different styles of data collection were employed. These included face-to-face interviews, [10,11] telephone interviews [10,11] and self-completion surveys. [3] A general exclusion criterion was an insufficient fluency and/or command of English.

What proportion of children with asthma use CAM?

The prevalence of CAM use amongst children with asthma in Australia ranged from 45-61% (Table 1). We found 56% of users were currently still employing CAM, while 44% were previous users. Amongst users, approximately half used only one modality at any one time, whilst a small number used several different therapies. [3] We found that some families reported having tried up to nineteen different therapies. We also found little variation in the use of CAM between city and rural locations.

What is being used?

The common CAM modalities used are listed in Table 2. The most frequently used modalities include chiropractic methods, vitamins and minerals, homeopathy/naturopathy, spiritual/psychological modalities and diet therapy. Shenfield *et al.* investigated the frequency of medicinal CAM use and found that of 145 CAM preparations, 62.1% were in current use, 37.9% had been previously used, 62.8% were used on a daily basis and 6.9% were used several times a week. [11] In most cases, only one modality was used at any one time and half of all preparations were in the form of tablets with the remaining in the form of inhalants, vapours and teas. We found that children from city medical practices were more likely to use faith healing, homeopathy and music therapy than children from other locations (rural and outpatient clinics). We also noted a significant use of Chinese medicine in locations with a greater proportion of children whose primary language was Chinese.

What are the age and gender characteristics of CAM users?

The age of CAM users varied among studies. We found no age relation to CAM use similar to Andrews *et al.* [3] In contrast, Shenfield *et al.* [11] found that children using CAM were significantly older than non-users. However, the age range investigated in that study was considerably different to our study (0.7-18.8years vs. under 12 years). Most studies did not report the gender profile of CAM users but we found female children tended to use CAM more frequently, which is consistent with

Table 2. Summary of the most commonly used CAM.

Study	Most frequently used CAM
Donnelly <i>et al.</i> [11]	Chiropractic (21.4%); homeopathy/naturopathy (18.8%); acupuncture (9.4%); herbal medicines (4.7%).
Andrews <i>et al.</i> [3]	Massage (20%); diet therapy (18%); relaxation exercises (16%); positive therapy (16%); meditation (12%); vitamins (12%).
Shenfield <i>et al.</i> [12]	<i>Products:</i> Vitamins and minerals (53%); herbal preparations (29%); homeopathic remedies (14%). <i>Therapies:</i> Homeopathy (32%); naturopathy (32%); Buteyko (11%).
CHW Audit	Diet therapy (45%); vitamins (36%); massage (23%).

its use in the general adult and paediatric population. [14-16]

What are the asthma severity and other disability characteristics of CAM users?

We found that persistent asthma, poor to very poor symptom control and higher frequency of doctor visits were significantly associated with the use of CAM which is similar to the findings of Shenfield *et al.* [11] We also noted that children with asthma who have other symptoms or disabilities such as eczema and hayfever, were more likely to use CAM; another finding which has been documented previously. [10,11]

What are the medication use characteristics of CAM users?

Shenfield *et al.* [11] reported that the use of high-dose inhaled or oral corticosteroids and the frequency of side-effects with bronchodilators were related to increased CAM usage. One additional reason cited for the use of CAM was the concern over potential long-term side-effects from corticosteroid use and many parents wanted a 'more natural, less harmful approach.' [11] We only found CAM use to be associated with the use of ipratropium bromide.

What are the characteristics of parents whose child uses CAM?

Although a relationship between higher education and CAM usage has been reported elsewhere, [14-16] we, along with Donnelly *et al.*, [10] did not find any significant correlation. While we found that parents using CAM were more likely to be in paid employment and have higher income, similar to Shenfield *et al.*'s report of an association with parents whose occupations were classified as professional/managerial [11], Andrews *et al.* [3] studied a low-middle occupational status subject population but also reported a fairly high CAM use (55%). Thus, it is unclear whether education, employment and socioeconomic status of parents have any direct influence on CAM usage in children with asthma.

How available are CAM modalities?

It has been suggested that the increasing popularity of CAM is attributed to wide media coverage [10] and increased awareness of treatment options available. [3] Of the paediatric CAM users in Shenfield *et al.*, 33% of remedies were purchased from pharmacies, 23.8% from alternative practitioners, 23.1% from health food shops and 11.6% from supermarkets. [11]

How much are parents spending on CAM?

The costs of CAM use among children with asthma have been found to range from AU\$2-\$200 per month (medicinal CAM) and AU\$25-\$400 per month (non-medicinal). [11]

Initiation of CAM use

We found that 83% of CAM usage was initiated by parents/carers after making a personal decision to implement the therapies, 12% were referred by their local doctor and 5% by an alternative healthcare practitioners, with no differences in location of practice.

How satisfied are parents with CAM and conventional medicine?

The degree of satisfaction with CAM in children with asthma has been reported to be between 52.4 – 82.4%. [10,11] When CAM users were asked to evaluate their satisfaction with conventional medicine, 61.2-87.1% were satisfied and 82.8% felt that conventional medicine was effective. [11]

How open are parents about their child's use of CAM?

Shenfield *et al.* [11] found that 47.8% of parents had reported their child's CAM use to their doctors. Typical responses from parents who were not forthcoming about their child's CAM use include 'not worth mentioning,' 'doctors did not ask,' 'irrelevant for doctors to know,' 'doctors are sceptical' and personal choices. [11]

Discussion

A relatively large proportion of children with asthma in Australia have tried some form of CAM with 45–61% of parents reporting the use of CAM in the surveys conducted to date. This is consistent with extrapolated data (50-60%) from a review that examined the use of CAM in adult and paediatric asthma patients. [7]

The common CAM modalities used among the paediatric asthma group have been described in this review. While the list of CAM modalities is extensive and continually changing, it is possible that some CAM modalities were not captured in these surveys. The likely reasons are the use of a pre-determined set of CAM modalities that parents choose from, and many modalities are not being considered as CAM by parents. As mentioned, what constitutes CAM is viewed differently and varies among cultures and beliefs. [7] For example, the most popular forms of CAM modalities used in Turkish children with asthma are quail eggs, herbal medicine, Turkish wild honey, speleotherapy and royal jelly. [17] This implies that a practitioner must be equipped with some information on CAM modalities that are specific to local cultures and beliefs in order to appreciate its implications in management.

What is behind the increasing trend of CAM use? Motivating factors for CAM use can be categorised into 'push' factors from conventional medicine and 'pull' factors from CAM. [18] "Push" factors have been described as 'problematic aspects' of current healthcare that cause parents to look for alternatives. [18] Surveys have revealed asthma severity (persistent asthma), poor to very poor symptom control, higher frequency of visits to the doctor, use of inhaled/oral corticosteroids and the frequency of side-effects of medications are associated with increased CAM usage (push factors). One of the biggest push factors appears to be the use of inhaled/oral corticosteroids and medication side-effects. [11] As children in this category as are usually the more 'difficult' to manage, this presents a dilemma for the practitioner who possess evidence of conventional medical efficacy, but faces parents who do not wish to use these treatments and seek alternatives. Thus, a practitioner must be equipped with skills of effective communication, empathy towards parents'/patients' requests and the ability to strike a balance between the evidence of science and patient-centre care.

'Pull' factors are described as features of CAM modalities that attract patients into trialling them. [18] Wanting a 'more natural' and 'less harmful' approach [11] are examples described in the surveys. A study in the United Kingdom (UK) [19] found that the benefit of CAM use was the provision of opportunities to explore a wider range of causes of asthma than usually discussed within the normal healthcare system. The study also found that, through holistic treatments, parents were exploring broader questions about their child's health that conventional medicine seemed unable to answer (such as addressing deeper underlying causes of illnesses including social and emotional factors). [19]

Another 'pulling' factor described in the surveys is the wide-spread advertising and availability of CAM modalities. [3,11] Shenfield *et al.* found that 33% of remedies were purchased from pharmacies, 23.8% from alternative practitioners, 23.1% from health food shops and 11.6% from supermarkets. [11] This is consistent with studies [16,20] which suggest that some families were unaware of the difference between

conventional medications and CAM, since most supermarkets and retail pharmacies stock CAM products without any clear indication that these products are of a different category to licensed medications. The age of information technology and media [10] has aided the increase in CAM usage and providing 'education' of their presence, effectiveness and availability. Insurance rebates [20] also made CAM affordable to the public through rebates.

From these 'push' and 'pull' factors, it may be implied that parents may be unsatisfied with conventional medicine. However, Shenfield *et al.* [11] and Donnelly *et al.* [10] found otherwise. Despite concerns over the potential long-term side-effects, parents were still satisfied with conventional medications and thought they were effective. Thus, there seemed to be little association between the use of conventional medicines and their effectiveness with the likelihood of CAM use.

One issue that arises from the surveys is patient disclosure of CAM use. Shenfield *et al.* [11] found that 47.8% of parents had reported their use to their doctors, which is slightly higher than reported findings of the general population (20.7% [15] and 37% [16]). A 48% disclosure rate may be insufficient, especially in terms of potential adverse drug interactions and potential harmful substances being used that the practitioner should be aware of in managing their patients. Slader *et al.* [7] suggested several reasons for the varying levels of disclosure in countries where integrative use of CAM has not occurred. These include reluctance to inform practitioners for fear of ridicule, failure of practitioners to directly ask patients and the perception by parents that practitioners would not be interested in knowing. Locally, Shenfield *et al.* [11] found similar responses. This low level of disclosure seems to have both practitioner and parental factors involved.

From a practitioner's point of view, it was found that only 28% of CAM use is being documented by doctors with only a slight increase (40%) of use being documented after practitioners are educated about CAM. [21] This may suggest that practitioners are disinterested in CAM or that they do not consider CAM as significant in clinical practice. However, studies of Australian GPs suggested otherwise. Approximately 47% of Perth GPs have undertaken postgraduate studies in CAM [5] and across all studies [5,22,23], 50 – 62.9% of GPs expressed interest in future training. In terms of effectiveness, most GPs in Perth and Victoria saw well-known therapies (acupuncture, meditation, hypnosis, chiropractic methods and yoga) to be moderately to highly effective. [5,24] Thus, it seems that practitioners are quite receptive in integrating CAM with conventional medicine and perhaps, the main problem lies in directly questioning patients on the use of CAM. This was highlighted by Mazur *et al.* [25] who found a 81% increase (from 0%) in reporting rates elicited by direct questioning versus spontaneous reporting by

the patient.

From a patient's point of view, studies have suggested that there is a definite perception among the Australian public that doctors are generally disinterested and frequently dismissive and critical of other alternatives. [11,16] In the UK, it was found that a majority of patients felt that health professionals should be more open about CAM and give due consideration and priority to patient's preference of treatment options. [19] Such pre-conceived attitudes about practitioners' acceptance of CAM may add to the pre-existing barriers in many patient-doctor relationships and may contribute to the reportedly low disclosure rates.

The issue with non-disclosure may ultimately be caused by a difference in attitude and perception of practitioners and expectations of parents toward their practitioners. While there are many studies (locally and internationally) which examine the attitudes of practitioners toward patient use of CAM, [26,27] the expectations that parents have of their practitioners have not yet been explored in Australia and knowledge of this may add to improving disclosure and patient-doctor relationships.

Limitations of studies

There are several limitations of the studies reviewed in this paper. Firstly, the exclusion of non-English speaking populations may exclude many CAM users such as recent immigrants who may be more likely to be using CAM. [15] Secondly, sampling of patients from specialist clinics and hospital-related cohorts may not capture CAM users who may not visit their doctors, either because their asthma is well-managed or is not diagnosed. [5] Thirdly, non-disclosure, as discussed, may skew results through reporting bias, as evident in the data of Shenfield *et al.* [11] who conducted home-visits in 10% of their cohort and found that 23.5% of subjects had reported less than actual CAM use. Lastly, self-completed or interview questionnaires may influence results, as experienced in our audit where some subjects may be reluctant to answer the questionnaire fully, resulting in important data being unable to be extracted.

Conclusion

The use of CAM in children with asthma is an important topic that deserves to be drawn to attention. Reported prevalence of CAM use ranges from 45-61% with slightly more than half being current users. Throwing light on this subject will hopefully increase awareness among those managing paediatric asthma.

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