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# Complementary and alternative medicine in paediatrics in daily practice—A European perspective

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## KEYWORDS

Anthroposophic;  
Homeopathy;  
Herbal;  
Acupuncture;  
Mind-body;  
CAM;  
Children;  
Europe;  
Outpatient;  
Inpatient;  
Primary care

## Summary

**Introduction:** Complementary and alternative medicine (CAM) is used by both adults and children in Europe. Diverse cultural, ethnic and historical preconditions in European countries result in broad differences between the types of CAM practiced, prevalence of CAM use and integration in the health system. To date, no survey of CAM availability to paediatric patients in Europe exists.

**Methods:** We present an overview of CAM integration within the different levels of the European paediatric health systems as a narrative review. Paediatric CAM specialists in 20 European countries provided information about CAM integration in their countries in semi-structured interviews.

**Results:** Data from 20 European countries were available, representing 68% of the European population. CAM is offered in private practices in all 20 (100%) countries, and 80% described some form of CAM training for health professionals. While CAM is offered in outpatient clinics treating adults in 80% of these countries, only 35% offer CAM in paediatric outpatient clinics. Dedicated CAM inpatient wards exist in 65% of the countries for adults, but only in Germany and the Netherlands for children. Groups conducting some CAM research or CAM research focussed on paediatrics exist in 65% and 50% of the 20 countries, respectively. Homeopathy, acupuncture and anthroposophic medicine were most often named.

**Conclusion:** Every child in Europe has access to CAM treatment, mainly in private practices, whereas CAM outpatient clinics and inpatient services for children are rare. This is in contrast to adult treatment facilities, many of which offer CAM services, and the high percentage of European children using CAM.

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*Abbreviation:* CAM, complementary and alternative medicine.

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## Introduction

Complementary and alternative medicine (CAM) is often used by patients in Europe, and represents a broad range of different therapies.<sup>1–3</sup> Currently, CAM is provided primarily by general practitioners and non-medical therapists. Some efforts have been made in the last decade to explore the benefits of CAM use and improve quality by augmenting education about CAM for healthcare professionals, but these efforts primarily targeted use by adults.<sup>4–7</sup> An increasing integration of CAM treatment services into hospitals and medical faculties has created a demand for unification and quality assurance at the European level.<sup>8</sup> Despite increasing harmonisation and unification of legislation within the European Union, differences in health policies exist in each EU country that affect introduction of CAM into hospital-based healthcare.<sup>9,10</sup> CAM is often used by paediatric patients in European countries,<sup>11,12</sup> in fact, 30–50% of parents of children with acute and chronic diseases reported using CAM for their child.<sup>13–16</sup> Here we present a survey of CAM facilities for paediatric patients and in paediatric centres in Europe.

## Methods

A non-systematic, narrative review was chosen to describe the everyday practice of CAM in paediatrics in European centres as exactly as possible.<sup>17</sup> Information from peer-reviewed journals was supplemented with information from local experts because many publications about CAM use are not in English or in indexed journals. In October 2010 we first performed an internet search of PubMed and open access search engines using the combination of the search terms, “children”, “paediatric”, “pediatric” and “complementary medicine” or “alternative medicine” to identify paediatric CAM specialists or research groups in the 29 largest European countries that had published at least one article on CAM in the last decade. Corresponding authors from these publications were contacted in each country, and they were asked to provide information about paediatric CAM use in their countries. These authors stand out because of their activities in investigating CAM in paediatrics and were of different professions and positions, such as physicians, scientist and others. No negative selection had to be made, because paediatric CAM experts in European countries are very rare. For countries where we could not establish contact to an author of a publication or where no published articles existed, we tried to find other paediatric CAM experts by personal contacts who could describe the situation of CAM availability and use in their countries. All experts were asked to answer a semi-structured questionnaire containing questions about CAM practices for children in their countries. The answers received were analysed and compiled, and this qualitative evaluation was complemented by the personal experience of the authors.

## Results

Our evaluation includes information from the completed and returned 20 questionnaires (69%) out of the 29 requested. Thus, expertise on CAM was available representing 20

European countries with more than 260 million inhabitants (68% of total European population).

## CAM treatment in private practices

General practitioners, family physicians and paediatricians in private practice are healthcare professionals who act as the first point of care for all patients, including paediatric patients.<sup>18</sup> In every European country we assessed, some form of CAM treatment was provided in private practices (Table 1 and Fig. 1). This implies that every child has access to CAM therapies, even though some may not be close to home. A wide variety of CAM is provided in private practices, especially in Austria, Switzerland, Italy, the Netherlands and Germany. The three most frequently named CAM therapies in Europe were homeopathy, acupuncture and anthroposophic medicine. The types and duration of these therapies vary greatly between the different countries. CAM treatment of children under 8 years of age by doctors was forbidden by law till the end of 2011 in Sweden. Formal qualification of CAM practitioners and CAM education programmes for physicians also varies greatly both for specific methods and generally between European countries. Although CAM educational programmes for health professionals are available in 16 of the 20 (80%) countries we investigated, we cannot say whether CAM treatment for children is provided by specially trained paediatricians or by general practitioners (Fig. 2). Specific criteria for CAM qualification come from national organisations in most cases, and are most common for homeopathy, acupuncture and anthroposophic medicine. However, none of the countries require the administering healthcare professional to be formally qualified for CAM treatment.

## CAM treatment in outpatient clinics

Our survey requested information about outpatient clinics that offered CAM treatments for adults and paediatric patients, and include both designated CAM outpatient clinics and outpatient clinics with a different primary treatment focus that also offer CAM treatments. Outpatient clinics for adults that offered CAM treatments exist in 16 of the 20 (80%) investigated countries, whereas outpatient treatment services for children exist in only seven (35%) of the investigated countries (Fig. 1). Most outpatient clinics provide only a small fraction of existing CAM therapies, and these services are not always linked to an existing paediatric ward in a hospital specialised in CAM. We describe each of the outpatient clinics dedicated to CAM treatment in the following section, and each of these has at least one paediatrician on staff (Table 1).

Three paediatric departments in Germany with outpatient treatment services currently exist and are open to all children/parents interested in CAM therapies: (1) The “homeopathy in paediatrics” project was initiated 1995 in the university children hospital, *Dr. von Haunerschen Kinderhospital*, of the Ludwig Maximilian University of Munich, within which two paediatricians have been recruited to treat children with acute and chronic diseases with classical homeopathic remedies in addition to conventional therapy.<sup>19</sup> (2) Specialised CAM outpatient treatment in the areas

**Table 1** CAM services, trainings and research in different European countries for adults and children.

Country	Adults					Children		
	Private practices offering CAM Total (%)	Outpatient clinics offering CAM	Hospitals with inpatient wards offering CAM	Structured training in CAM	Research groups focusing on CAM	Paediatric outpatient clinics offering CAM	Paediatric hospitals with inpatient CAM wards	Research groups focussing on CAM in paediatrics
	20/20 (100%)	16/20 (80%)	13/20 (65%)	16/20 (80%)	13/20 65%	7/20 (35%)	2/20 (10%)	10/20 (50%)
Austria	Several	Several (hom., acup.)	Several (acup., herb., general CAM)	Several (acup, TCM, hom., osteopathy)	Several	Several (four in Vienna (paed. hosp. St. Anna; Social Medicine Centre East; Kaiserin Elisabeth Hosp.; Rudolf foundation); Landeskrankenhaus Klagenfurt; Landeskrankenhaus Bregenz)	None	Some (CAM in general and acup.)
Bulgaria	Several	Several (laser ther., acup., hom.)	Several (including univ. Hosp. Tzarica joanna, dept. Of herb., univ. Hosp. Alexandrovska: herb., laser ther., acup.)	None	Several	None	None	None
Cyprus	Several	None	None	Rare (hom. only)	None	None	None	None
Czech Rep.	Several	Some	None	Some	None	None	None	None
Denmark	Several	None	None	Some	Some	None	None	Some
France	Several	Rare (hom., auriculother.)	Rare (hom., auriculother.)	Rare (hom. only)	None	None	None	None
Germany	Several	Several	Several (including several univ. hosp.)	Several (undergraduate and graduate)	Several (including four chairs for CAM in medical faculties)	Some (Filderklinik and Gemeinschaftskrankenhaus Herdecke: Anthro.; children's hospital of Munich: Hom.)	Some (Filderklinik and Gemeinschaftskrankenhaus: Anthro. Med.)	Several
Greece	Several	None	None	Rare (hom. only)	None	None	None	None
Hungary	Several	Rare	Some (no legal status)	Some (hom.)	Several	None	None	Rare (paed. oncology)
Italy	Several	Several (>100 outpatient clinics for hom., herb., anthro., acup and other tcm)	Several	Several (hom., herb., acup., Ayurvedic medicine, anthro., TCM and homotoxicology)	Several (including Ministry of Health)	Several (many of the outpatient services are also open to children and some are unique to children)	None	Several
Netherlands	Several	Several (>20)	Several (>20)	Several	Several (no official funding)	Several (aromather., massage, hypnother., osteopathy and acup.)	Rare (Slotervaart hosp. Amsterdam: aromather., massage and hypnother.)	Several (acup., hypnother.)
Norway	Several	Several (50% of hospitals offer some CAM)	Several (50% of hospitals offer some CAM)	Some (one school has been accredited; a 3-year bachelor course in acup.)	Several (including a governmentally founded CAM research centre)	None	None	Several (acup., hom., music ther.)
Poland	Several	None	None	None	None	None	None	None
Portugal	Several	Rare	None	Rare (an institute in Lisabon offers courses on several types of CAM)	Some (in ethnopharmacology)	None	None	None

**Table 1 (Continued)**

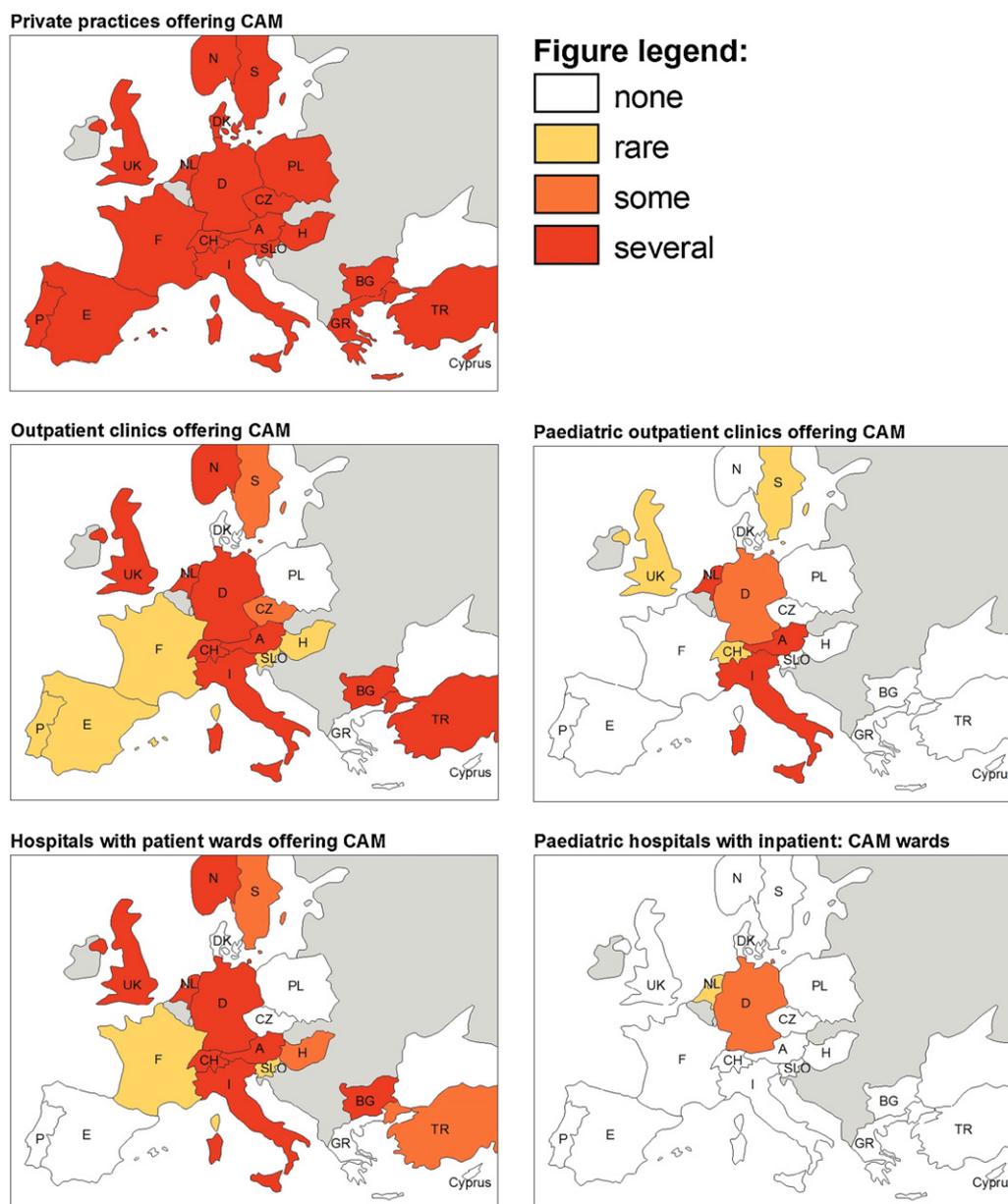
Country	Adults				Children			
	Private practices offering CAM Total (%)	Outpatient clinics offering CAM	Hospitals with inpatient wards offering CAM	Structured training in CAM	Research groups focusing on CAM	Paediatric outpatient clinics offering CAM	Paediatric hospitals with inpatient CAM wards	Research groups focussing on CAM in paediatrics
Slovenia	20/20 (100%)	16/20 (80%)	13/20 (65%)	16/20 (80%)	13/20 (65%)	7/20 (35%)	2/20 (10%)	10/20 (50%)
	Several	Rare	Rare (an institute of oncology; acup. for pain control)	None	None	None	None	None
Spain	Several	Rare	None	Several (hom., herb., acup.)	Some	None	None	None
Sweden	Several	Some (massage, anthr., acup. chiropractice.)	Some (antro.)	None	Several	Rare (Vidar clinics: Anthro. Med.)	None	Rare (Vidar clinics: Anthro. Med.)
Switzerland	Several	Several (acup., hom., anthro.)	Several (>6 including two university hospitals (anthro., herb., hom.))	Several (acup., neural ther., hom., herb., anthro.)	Several (including two chairs for CAM)	Rare (Ita Wegman Clinic)	None	None
Turkey	Several	Several (mostly acup.)	Some (mostly acup.)	Some (acup. only)	None	None	None	None
UK	Several	Several	Several	Several (CAM chairs in universities)	Several	Rare (Royal London Hospital of Integrative Medicine)	None	Some

*Abbreviation:* Paed. (paediatric); ther. (therapy); hom. (homeopathy); herb. (herbal medicine); acup. (acupuncture); anthro. (anthroposophic medicine); TCM (traditional Chinese medicine); instit. (institute); univ. (university); hosp. (hospital); clin. (clinics); dept. (department). none: 0; rare 1–2; several >2.

of cardiology, allergology, neonatology, neuropaediatrics and psychosomatic medicine are provided for children with acute and chronic diseases in the *Filderklinik*<sup>27</sup> in Filderstadt near Stuttgart.<sup>16</sup> The main emphasis of this department lies on anthroposophic medicine. (3) The *Gemeinschaftskrankenhaus Herdecke*<sup>28</sup> has outpatient CAM treatment services with a focus on anthroposophic medicine for general paediatrics as well as paediatric haematology, oncology, rheumatology, diabetology/endocrinology, gastroenterology, pulmonology, psychiatrics and psychosomatic medicine. The Royal London Hospital for Integrative Medicine in the United Kingdom (formerly the Royal London Homeopathic Hospital)<sup>20</sup> has a CAM outpatient clinic offering a wide range of CAM treatment options with a focus on homeopathy for all types of paediatric diseases. In Italy outpatient services for CAM treatment of children are mainly located in the northern provinces. A declining gradient of the frequency of CAM use has been described from northern to southern Italy.<sup>21</sup> Most outpatient services in Italy treat both adults and children, including the *Campo di Marte* Hospital in Lucca and the Integrated Medicine Centre of Empoli (Tuscany), but some are specialised for children (in Piedmont, Emilia Romagna, Tuscany, Veneto, etc.) focussing on homeopathy, herbal medicine, acupuncture or osteopathic medicine. Two paediatric CAM departments have well-established outpatient treatment services for children in the Netherlands, the St. Antonius Hospital in Nijmegen<sup>22</sup> and the Slotervaart Hospital in Amsterdam.<sup>23</sup> Both of these focus primarily on non-pharmacological mind–body practices, such as hypnosis, aromatherapy and massage. Six hospitals in Austria have outpatient CAM treatment services for children. However, CAM treatment services in Austria are limited to homeopathy and anthroposophic medicine, with one hospital providing acupuncture. (1) The *St. Anna Kinderspital* in Vienna houses two separate outpatient clinics for paediatric oncology patients, one which focuses on homeopathic methods and one with a focus on anthroposophic methods. (2) The Social Medicine Centre East in Vienna has a homeopathic outpatient clinic within the Department of Paediatrics. (3) The Rudolf Foundation in Vienna has a homeopathic outpatient clinic in the Department for Infants and Toddlers. (4) The *Landeskrankenhaus Klagenfurt* has a homeopathic outpatient clinic to treat paediatric oncology and general paediatrics patients. (5) The homeopathic outpatient clinic in the *Landeskrankenhaus Bregenz* treats all children.<sup>24</sup> (6) The outpatient clinic in the *Kaiserin Elisabeth Spital* in Vienna provides acupuncture for all children. In Switzerland, three paediatricians at the Ita-Wegman-Klinik in Arlesheim<sup>25</sup> offer outpatient treatment for children with any disease with a focus on anthroposophic medicine. A paediatric outpatient clinic focussing on therapies from anthroposophic medicine is maintained in the Vidar Hospital in Järna, Sweden.<sup>26</sup>

### CAM treatment on paediatric inpatient wards

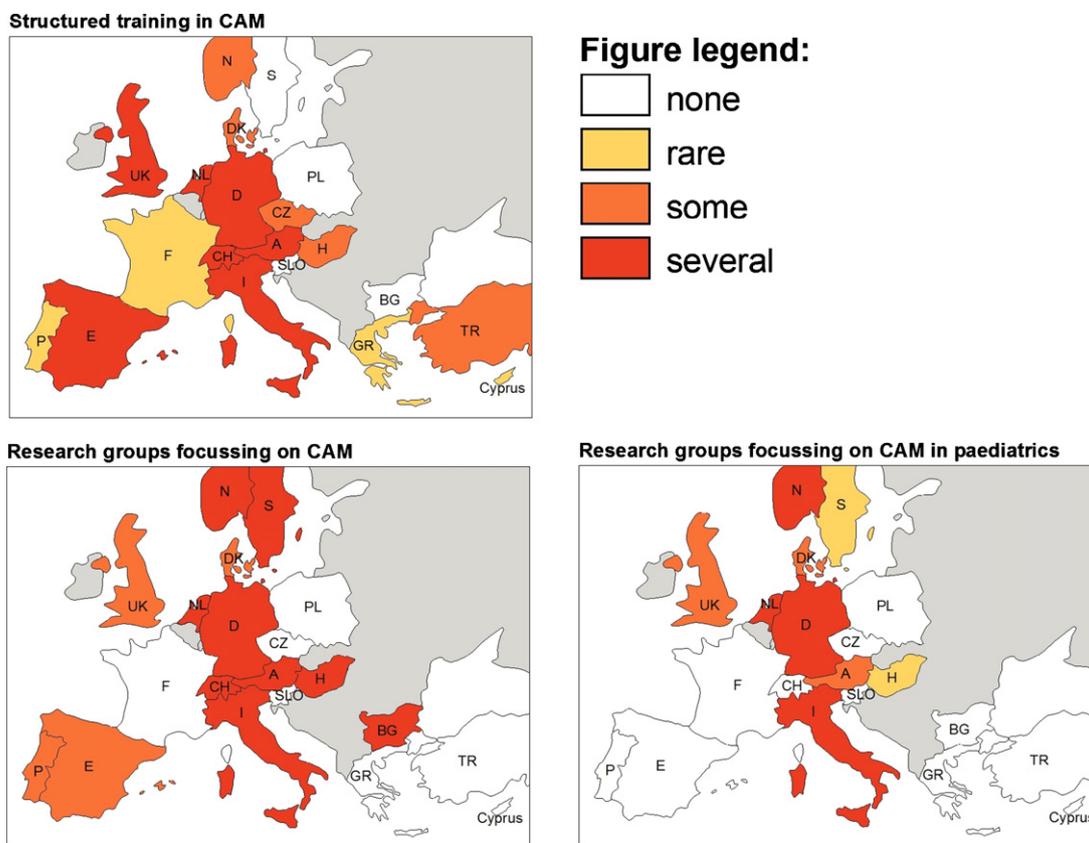
Some hospitals have CAM treatment services on inpatient wards. Such treatment options were available for adults in 13 (65%) and for children in 2 (10%) of the 20 surveyed European countries (Fig. 1). Homeopathy, acupuncture, herbal medicine and anthroposophic medicine are the most



**Figure 1** CAM services for adults and paediatric patients in different European countries. CAM services were described by local CAM experts of surveyed European countries. Outpatient clinics and inpatient wards were divided into services for adult and for paediatric patients. CAM services in private practices could not be differentiated because most general practitioners see adult as well as paediatric patients.

frequently offered CAM therapies (Table 1). Paediatric departments with a focus on CAM treatment services exist only in Germany and the Netherlands. Besides that, some physicians with various CAM qualifications provide CAM treatment options on an individual basis in existing conventional wards in some countries. Two integrative hospitals in Germany focussing on anthroposophic medicine have paediatric departments with inpatient CAM wards. Both the *Filderklinik* and the *Gemeinschaftskrankenhaus Herdecke* treat children with a broad spectrum of disorders from general paediatrics as well as diseases from special fields with an integrative approach using conventional and complementary therapies. The *Filderklinik* specialises in epileptology,

psychosomatic disorders, neonatology and cardiology for children along side general paediatrics. The *Gemeinschaftskrankenhaus Herdecke* specialises in diabetology, oncology, neonatology, rheumatology, psychosomatic diseases and neurology in children along side general paediatrics. Diagnosis and treatment follow the official guidelines from scientific societies, but are extended by treatment options from anthroposophic medicine. Non-pharmaceutical options are offered in addition to specific pharmaceutical remedies in both of these hospitals. These include external embrocation, medicinal baths and compresses as well as art, eurhythm and speech therapies. The therapeutic teams, including all doctors, nurses, pharmacists and therapists,



**Figure 2** CAM training and research in different European countries. CAM training options for health care professionals and existing research groups were described by local CAM experts of examined European countries. Research groups were divided into groups focussing on CAM in adult versus CAM in children.

on the paediatric inpatient wards in both hospitals are specifically qualified in anthroposophic medicine. Thus, anthroposophic medicine is not bound to individual persons in this treatment setting, but it is institutionally anchored. A programme for integrative paediatrics is established in the paediatric department at the Slotervaart Hospital in Amsterdam.<sup>23</sup> The integrative paediatrics programme focuses primarily on mind-body therapies in combination with conventional treatment of all diseases. Aromatherapy, massage and hypnosis are offered by a qualified treatment team in this programme. Acupuncture and hypnosis are provided mainly for children with gastroenterological problems in the inpatient setting at the St. Antonius Hospital, Nijmegen.<sup>22</sup> Two other CAM-specialised hospitals in Switzerland offer inpatient treatment options for children without having dedicated paediatrics departments. The *Clinica Santa Croce* is a hospital for homeopathy that focuses on the treatment of chronic diseases,<sup>29</sup> and the *Ita Wegman Klinik*<sup>25</sup> is a hospital for anthroposophic medicine for most acute and chronic diseases.

### Research of CAM treatments in Europe

The number of published scientific works in the field of CAM is increasing yearly.<sup>30</sup> Reports published by European research groups in the last decade investigated characteristics of CAM users as well as effects of specific CAM therapies

during treatment for a specific disease. Scientific groups conducting basic, translational or clinical research in the field of CAM exist in 13 (65%) of the 20 European countries investigated (Fig. 2), with most groups focussing on translational research of herbal medicines (Table 1). These experiments investigate potential effects of products or their components on cell lines derived from specific tumour entities in vitro. Research groups with a focus on CAM use by paediatric patients or diseases affecting children were identified in 10 (50%) of the investigated European countries. Although research groups were described in most countries, most of the departments and institutions where these studies were conducted have their main scientific emphasis on conventional medicine.

### Discussion

Our survey of CAM availability in 20 European countries shows that children have access to CAM therapies in all the countries that we examined, however, not always close to home or specifically from paediatricians or healthcare institutions specialised on paediatrics. CAM treatment is offered for both adults and children in private practices of family physicians and general practitioners in all 20 countries. Care is also not always recommended or supervised by a medical professional. It has been previously reported that approximately half of the children using CAM therapies were

advised to do so by a physician.<sup>13,15</sup> The remaining children received recommendations and advice from pharmacists, non-medical CAM therapists, family members or friends. Whereas some kind of CAM training for healthcare professionals was described in 80% of the countries we surveyed, practicing CAM does not require standardised certification in any of the countries. A shift towards requiring certification in Europe would not only guarantee a certain quality, but would improve the image of complementary medicine, since some of the variation in success may have its source in the variable quality of CAM treatment.

Outpatient services providing CAM for children were described in seven of the 20 countries. However, considerably fewer outpatient services were available for children than for adults, even though the extent of CAM use by children is comparable to that by adults in European countries.<sup>3</sup> CAM outpatient services in the 20 European countries surveyed could be divided into two groups: (I) treatment at existing integrative medical institutions with inpatient CAM services for children (only in Germany, Switzerland and Sweden) and (II) temporary programmes financed by special-interest groups. Temporary programmes have the drawback that they usually depend on a specific person hired only for the duration of the programme, having the result that when this person leaves the institution as funding ends, CAM treatment is also no longer available. CAM inpatient wards for children exist only in three hospitals, located in Germany and the Netherlands. That is far fewer than for adults, but may be explained by the delay in awareness about applications for CAM in paediatrics that also underlies the discrepancy in the number of outpatient services for children and adults.<sup>3</sup> A number of experts involved in our survey also described some integration of CAM in conventional paediatric wards by individual persons who also offer CAM treatments that are not officially announced via patient/parent information resources, such as the internet. Based on these responses, children may have more access to CAM on inpatient wards than is officially stated.

Variation in types and number of CAM therapies offered exist between established healthcare institutions and private practices, and also vary between countries. Homeopathy, anthroposophic medicine and acupuncture were named as the primary CAM therapies offered in outpatient services and on inpatient wards in the 20 countries surveyed. Homeopathy for paediatric patients is currently only offered on one inpatient ward in Germany and in multiple outpatient clinics in Germany, Austria and England. Anthroposophic medicine appears to be most popular in Germany, where it is offered on two paediatric inpatient wards and multiple paediatric outpatient clinics. One paediatric outpatient clinic for acupuncture exists in Austria. Mind–body therapies appear to be more popular in the Netherlands, with some even been offered on inpatient wards. A wide range of CAM therapies has been reported to be used by patients from different surveys previously carried out in European countries.<sup>13,14,31</sup> However, the majority of these services were provided in private practices or by non-medical CAM therapists and not via in- and outpatient services in the investigated European countries.

In summary, CAM treatments are available to children in all European countries examined, but primarily in private practices that do not always specialise in paediatrics. Some

CAM treatments are offered in inpatient and outpatient services for children in a few European countries, but these wards, departments, clinics or hospitals are usually specialised only on a certain area or areas of CAM. The types of CAM treatments that are popular also vary based on the country. Although children have access to CAM treatments in the European countries surveyed, the quality of care is also variable because certification of healthcare personnel is not required. While published surveys indicate that CAM use is just as popular among children as it is among adults, there are fewer resources in Europe for CAM care that are specialised entirely on children. Based on replies of the European experts we surveyed, the number of paediatric CAM resources is expected to increase in the future.

### Conflict of interest statement

The authors have no conflicts of interest.

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