Developing a National Vision for Complementary and Alternative Medicine in Undergraduate Medical Education

Report on an Invitational Workshop held September 27-28, 2003

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Health Canada Santé Canada

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Executive Summary

The need to include complementary and alternative medicine (CAM) in undergraduate medical education (UME) has been underscored in Canadian and international studies, and in several published reports. This call for the inclusion of CAM in UME has been based largely on two factors. First, physicians need to be aware of all the health services their patients may be using, in order to identify any potentially harmful interactions. Second, physicians are often called upon to provide reliable health-related information to their patients. Physicians thus need to be adequately prepared to communicate with patients who are using CAM, or who may be interested in doing so.

In response to this need, a multi-phase project addressing CAM in UME within Canadian medical schools was initiated in early 2002. The project was chaired by Dr. Marja Verhoef, Professor and Canada Research Chair in Complementary Medicine, in the Department of Community Health Sciences, University of Calgary. Major funding was provided Health Canada.

As part of the project, a workshop was held on September 27-28, 2003, for faculty interested in developing CAM curriculum at their respective medical schools. Participants included faculty from 14 of the 16 Canadian medical schools, a representative from the Canadian Federation of Medical Students, a second medical student who founded the Alternative and Integrative Medical Society at the University of British Columbia, two CAM practitioners, and representatives of the funders.

The purpose of the workshop was to help establish a shared national vision regarding CAM in UME. In particular, the workshop aimed to work toward consensus regarding:

- a statement of the purpose of CAM in UME;
- a list of student learning objectives;
- curriculum content with regard to CAM in general and with regard to specific CAM practice areas;
- strategies to facilitate the implementation of CAM in UME; and
- next steps.

Recognizing the current emphasis on patient-centred health care and the interdisciplinary nature of health care, participants agreed to the following statement of purpose of CAM curriculum in UME.

> *To prepare physicians to practice health care in an environment where CAM is used by their patients and where there is a potential for interactions among therapies.*

Workshop participants further refined draft learning objectives that fell into one of three categories; those relating to knowledge, those relating to skills, and those relating attitudes. All participants agreed that these learning objectives require further development.

A topic-based approach to organizing curricula was selected because it was most applicable to all the medical schools represented at the workshop. Curriculum content was divided into two broad sections: (1) topics relating to CAM in general, and (2) topics relating to specific CAM products or practices.

The eight CAM in General topics were: (1) Definitions of CAM, (2) Typologies of CAM, (3) Utilization of CAM, (4) Reasons for Using CAM, (5) Evidence, (6) Implications for Practice, (7) Integration of CAM and Conventional Medicine, and (8) Bridging Paradigms. For seven of the eight general CAM topics, there was relative agreement amongst participants that it should be discussed in UME, albeit there often was diversity in opinion about focus and approach to these topics. There was no consensus among participants as to whether the topic, Integration of CAM and Conventional Medicine, should be included in teaching UME.

The nine categories of CAM products and practices were: (1) Natural Health Products, (2) Traditional Chinese Medicine, (3) Naturopathic Medicine, (4) Chiropractic, (5) Homeopathy, (6) Therapeutic Bodywork, (7) Mind-Body Practices, (8) Expressive Therapies, and (9) Energy Therapies. Workshop participants rated the categories on a scale of 1 to 5 (1=do not include in a curriculum; 5=include in a curriculum). The most highly rated category was natural health products (4.96), underscoring a high degree of consensus amongst participants that this is an area that medical students should be aware of. In general, participants favoured giving more time and more detailed consideration in the curriculum to CAM modalities that are more widely used (with variation by region or culture), such as natural health products, Traditional Chinese Medicine, naturopathic medicine, and chiropractic. Most participants thought that the proposed list of sub-topics (descriptive overview, concepts and principles, evidence, safety issues, clinical implications, teaching materials, and information resources) to consider when teaching specific CAM products or practices was helpful, and recommended applying them as appropriate to the CAM modality being presented.

In lieu of establishing consensus on how to implement CAM into UME programs, participants were asked to relay experiences and offer suggestions on a number practical issues and challenges. Discussions focused on: teaching methods, teaching resources, points of entry into the curriculum, recruiting, training, and retaining instructors, building relations and getting support, and funding.

Among the strategies to facilitate the development of CAM in UME curriculum, participants agreed that highest priority should be given to:

- a national working group on CAM in UME;
- a model or core curriculum for CAM in UME; and
- shared educational resources for CAM in UME.

The organizers of the workshop have developed a plan of action to implement these priorities.

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1. Introduction

The increasing concurrent use of conventional medical services and complementary and alternative medicine (CAM)[1] services, and the lack of discussion between conventional physicians and patients about CAM use, together depict a communication breakdown in an area where communication is vital for appropriate medical care and patient safety. Recent surveys show that knowledge about CAM is lacking amongst medical students[2] and practicing physicians,[3] although both groups report that they would like to see more attention paid to CAM in undergraduate curricula.[4]

There are two primary reasons why medical students require familiarity with CAM. First, physicians need to be aware of all the health services their patients may be using, in order to identify any potentially harmful interactions. Second, physicians are often called upon to provide reliable health-related information to their patients. Physicians thus need to be adequately prepared to communicate with patients who are using CAM, or who may be interested in doing so.

For these reasons government and medical organizations are also calling for greater CAM content within undergraduate medical education (UME) programs. Major national-level policy commissions in the United States and the United Kingdom have underscored the importance of professional education in CAM as a critical step toward the evidence-based integration of selected CAM therapies into health care systems. Likewise, there have been several Canadian initiatives that, in considering issues related to the utilization of CAM in Canada and the regulation of natural health products in Canada, have discussed the professional development of conventional physicians with regard to CAM. Documents produced by these bodies all speak to the need for a greater familiarization by medical students with CAM therapies, their potential uses, and their main weakness, to highlight a few educational objectives (see Appendix A for a list of documents).

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[1] For the present purposes, complementary and alternative medicine (CAM) can be defined as "health-related systems, treatments, practices, and products which do not currently have widespread acceptance within Canadian health care systems." Prominent examples include acupuncture, traditional Chinese medicine, massage therapy, herbal remedies, yoga, and meditation.

[2] Duggan K, Verhoef MJ, Hilsden RJ. First-year medical students and complementary and alternative medicine: attitudes, knowledge, and experiences. *Ann R Coll Physicians Surg Can* 1999; 32:157-60; Baugniet JH, Boon HS, Ostbye T. Complementary/alternative medicine: comparing views of medical students with students in other health care professions. *Fam Med* 2000; 32:178-84.

[3] Winslow LC, Shapiro H. Physicians want education about complementary and alternative medicine to enhance communication with their patients. *Arch Intern Med* 2002; 162:1176-81.

[4] Verhoef M, Best A, and Boon H. Role of complementary medicine in medical education: opinions of medical educators. *Annals RCPSC* 2002; 35(3):166-170; Kreitzer MJ, Mitten D, Harris I, Shandeling J. Attitudes toward CAM among medical, nursing and pharmacy faculty and students. *Alt Ther Health Med* 2002; 8:44-54.

Medical schools in Canada are therefore taking steps to introduce education about CAM into undergraduate medical education curriculum (hereinafter referred to as CAM in UME), but progress has been slow. In light of the need for increased education about CAM in UME, Dr. Marja Verhoef at the University of Calgary's Faculty of Medicine, Department of Community Health Sciences, spearheaded a multi-phased project on CAM in UME, largely funded by Health Canada.

In 2002, the Calgary investigators interviewed Associate Deans of UME in each of the 16 Canadian medical schools about CAM education, and convened a workshop for them to discuss the interview findings at the annual meeting of the Association of Canadian Medical Colleges. The Associate Deans made five recommendations to help advance the development and introduction of CAM in UME:

- further develop common and realistic educational objectives based on knowledge, skills, and attitudes with respect to CAM;
- explore financial, administrative, and other supports to implement CAM in UME;
- create web-based resources that focus on CAM knowledge, skills, and attitudes;
- identify leaders or champions in CAM teaching in each medical school; and
- encourage faculty development with regard to CAM teaching.

In 2003, the Calgary investigators received funding to conduct further research on CAM in UME. A project team with investigators from across Canada was established to conduct several small projects aimed at collecting as much information about CAM in UME, above and beyond what was learned from the Associate Deans interviews and workshop. The team: (1) created a resource list of websites and published articles on CAM in UME as well as selected CAM definitions; (2) reviewed provincial policies regulating the practice of CAM and referral to CAM practitioners by registered physicians; (3) surveyed physicians to obtain their perspectives on CAM in UME; and (4) interviewed one to four faculty and students in each medical school about the current state of CAM in UME in their school, and the issues and challenges associated with introducing CAM in UME.

A steering committee[5] was also established to organize a two-day workshop on September 27-28, 2003, for faculty interested in developing CAM curriculum at their respective medical schools. Participants included faculty from 14 of the 16 Canadian medical schools, a representative from the Canadian Federation of Medical Students, a second medical student who founded the Alternative and Integrative Medical Society at the University of British Columbia, two CAM practitioners, and representatives of the funders (see Appendix B for a list of participants). Summaries of the outcomes from the aforementioned sub-projects were sent to the participants to help prepare for the meeting. This report summarizes the outcomes of the workshop.

[5] The steering committee consisted of Dr. Marja Verheof, Dr. Michael Epstein, and Rebecca Brundin-Mather.

2. Purpose of the Workshop

The purpose of the workshop was to help establish a shared national vision regarding CAM in UME. In particular, the workshop aimed to work toward consensus regarding:

- a statement of the purpose of CAM in UME;
- a list of student learning objectives;
- curriculum content with regard to CAM in general and with regard to specific CAM practice areas;
- strategies to facilitate the implementation of CAM in UME; and
- next steps.

3. Purpose of CAM Curriculum in Undergraduate Medical Education

The organizers of the workshop proposed a draft statement of the purpose of CAM curriculum in UME. In reviewing this statement, participants discussed the rationale for introducing CAM curriculum in UME: (1) widespread use of CAM by patients; (2) the need to facilitate disclosure of CAM use to physicians; and (3) the potential for adverse effects, including adverse interactions. Participants agreed to the following revised statement of purpose of CAM curriculum in UME:

> To prepare physicians to practice health care in an environment where CAM is used by their patients and where there is a potential for interactions among therapies.

Participants observed that this statement of purpose is aligned with several broad trends in health care and in medical education. One such trend is the emphasis on patient-centred health care. Another such trend is the recognition of the interdisciplinary nature of health care. Preparing physicians to be able to dialogue knowledgeably with patients and with practitioners about CAM could be seen and be presented as an extension of these trends.

4. Student Learning Objectives

Student learning objectives should provide a clear and succinct statement of the desired outcomes of a curriculum. Three categories of learning objectives were previously identified in a survey of medical educators and further developed during the Associate Deans workshop: those relating to ***knowledge***, those relating to ***skills***, and those relating to ***attitudes***. In 2003, as part of the interviews with faculty and students to assess current CAM in UME activities within Canadian medical schools, respondents were given the Associate Deans' draft set of learning objectives and asked to identify which ones applied to their current CAM in UME curriculum.[6] Based on their responses, the draft objectives were ranked in descending order of frequency within each class of objectives.

[6] Many respondents, particularly those in schools with little or no CAM education, checked the objectives that they felt *should be* a priority for inclusion in their school's UME program, in addition to those that currently exist.

At the workshop, participants made a number of general observations about the list of draft objectives. First, several participants commented that in education in CAM, as in other areas of learning, the exploration of attitudes is fundamental. This creates the conditions in which it is possible to gain new knowledge and skills. Second, participants noted that the exploration of attitudes and the acquisition of knowledge and skills are, in many ways, inseparable; it is artificial to divide them, particularly in competency-based approaches to medical education. Finally, participants suggested that the objectives should be phrased in terms that are measurable, in order to support evaluation of student learning and evaluation of faculty instruction.

Participants also made specific comments about each of the draft objectives, including suggestions as to which objectives should be retained and which should be deleted.[7]

The draft objectives were revised in light of all these comments, as follows:

Knowledge

The student will be able to:

K1 Describe definitions of CAM, classification schemes for CAM, and definitions of several prominent CAM practices.

K2 List CAM therapies that are commonly used by patients with the following illnesses, conditions, or purposes (list to be provided).

K3 Identify safety issues associated with the following CAM therapies (list to be provided), including:
- side effects;
- contra-indications;
- potential interactions with other CAM therapies;
- potential interactions with conventional medicine.

K4 Describe the current evidence for the following therapies as applied to specific conditions (list to be provided).

K5 Identify reliable sources for clarifying the current state of evidence for the following CAM therapies (list to be provided).

K6 Describe, in general terms, the current state of the regulation of natural health products.

[7] The draft list of learning objectives included an objective relating to students' knowledge of the definition, gathering, and interpretation of evidence. The subject of evidence was discussed again later in the meeting (see p. 10 below). At that point it was felt that instruction about the nature of evidence and standards of evidence should be provided within UME as a whole rather than uniquely or specifically in curriculum on CAM. Accordingly, the list of learning objectives below does not include an objective relating to students' knowledge of the nature or standards of evidence, but does include objectives relating to students' knowledge of evidence and sources of evidence for specific CAM therapies (K4 and K5).

K7 Describe, in general terms, the current state of regulation and credentialing of common CAM practices and practitioners in the student's province.

K8 Describe, in general terms, the regulatory responsibilities of physicians with regard to practicing CAM or referring to CAM practitioners in the student's province.

Skills

The student will be able to:

S1 Discuss the subject of CAM with patients in a professional manner. This will involve:
- including CAM in taking the patient's history;
- listening respectfully;
- responding to patients in a knowledgeable way;
- informing and advising patients regarding CAM; and
- acknowledging the limitations of his or her knowledge regarding CAM.

S2 Locate, understand, evaluate, and communicate information regarding the safety and efficacy of the following CAM therapies (list to be provided).

S3 Communicate effectively with CAM practitioners with regard to assessment, treatment, decision-making, referrals, and patient safety.

Attitudes

The student will be able to:

A1 Describe her or his beliefs regarding CAM and the extent of her or his knowledge regarding CAM, and identify how these may affect her or his practice.

A2 Demonstrate respect for the beliefs and choices of patients who use CAM.

5. Curriculum Content: Topics Relating to CAM in General

There are a variety of ways to organize medical curricula. They may be topic-based, problem-based, competency-based, or concept-based – to name but a few organizing principles. For the purposes of the workshop it was necessary to select one or another of these approaches as the primary basis for organizing the general content of CAM curricula. A topic-based approach was selected, as being the most applicable to all the medical schools represented at the workshop and the easiest to consider in the time of the workshop. It was noted, however, that topic-based material would need to be adapted for use in a competency-based UME curriculum.

The workshop considered eight topics that pertain to CAM in general:

- definitions of CAM;

- typologies of CAM;
- utilization of CAM;
- reasons for using CAM;
- evidence;
- implications for practice;
- integration of CAM and conventional medicine; and
- bridging paradigms.

The organizers made a brief presentation on each topic (rationale and sub-topics, reproduced below), which was followed by comments from the participants and a decision as to whether the topic should be included in curriculum on CAM.

Definitions of CAM

Rationale: The complexities of teaching and learning about CAM are typically compounded by the breadth and diversity of CAM products and practices, and by a lack of consensus and shared understandings about basic definitions and terminology. This module will lay the foundation for meaningful discussion and learning about CAM by establishing consensus around basic definitions of CAM, specific CAM practice areas, and related concepts.

Sub-topics: Definitions of CAM: NCCAM definition, Cochrane definition, other definitions. Distinction between CAM products and CAM practices. Definitions of specific CAM systems, products, and practices.

Comments: Participants agreed that there should be a section on definitions. It was noted that students often ask about specific practices when more general definitions of CAM are presented. A short handout on definitions and on specific practices can be useful.

Typologies of CAM

Rationale: The number of CAM products and practices literally number in the thousands. By reducing cognitive complexity and imposing structure, a classification system makes this large messy field easier to grasp and understand. Several typologies for classifying CAM products and practices have been developed. This module will review the major ones.

Sub-topics: NCCAM typology; Tataryn typology; other typologies.

Comments: Many participants discuss typologies or classification systems of CAM under definitions. They usually select one typology, so as to avoid providing too much information to students at an early stage. There was a difference of opinion as to which typology was most suitable for an introductory course. It was noted that each of the typologies can be problematic for CAM practitioners. Participants suggested that if many typologies were to be presented, the topic should stand on its own. Otherwise it should be incorporated into definitions, and kept relatively simple.

Utilization of CAM

Rationale: Widespread utilization of CAM by the public has been a major factor driving the introduction of CAM into undergraduate medical curricula. Furthermore, since disclosure of CAM use to physicians is the exception and not the rule, many physicians may be unaware of the extent of CAM use by their patients. Estimates of CAM utilization vary widely, however, depending upon (1) definition of CAM, (2) definition of regular use, (3) instrumentation and sampling strategies, (4) specific populations surveyed. This module will provide students with an overview of current estimates of utilization for CAM in general, and for CAM by specific populations.

Sub-topics: Prevalence of CAM use; patterns of CAM utilization; predictors of utilization; disclosure of CAM use to physicians; information-seeking behaviours; utilization of CAM by specific populations; identification of the most highly utilized CAM therapies.

Comments: Participants agreed that the curriculum should discuss utilization of CAM, since this explains the relevance of CAM in UME. It drives home the reason why physicians need to have some understanding and training regarding CAM. It was suggested that, more than knowing the details of utilization, students need to understand its variety and appreciate its complexity. It would be useful for them to be aware of differences in utilization both historically and geographically (that is, in other times and around the world). It could be helpful to ask students if they have ever used CAM themselves, so as to create an awareness that CAM is not necessarily exotic (i.e., outside of their world), but rather is something that touches them directly on a regular basis.

Reasons for using CAM

Rationale: While the widespread use of CAM by the public is now generally recognized, there is considerable diversity of opinion concerning the specific reasons and motivations of CAM users.

Sub-topics: Personal value systems. Opinion leadership. Decision strategies. Decision biases and heuristics. Errors of judgment.

Comments: Participants agreed that the curriculum should include a discussion of why people use CAM, but there was diversity in the focus of and approach to this topic in existing curricula. Several participants deal with this topic as part of utilization. Many agreed that it is important not to "problematize" the behaviour of people who use CAM; the reasons for using CAM are often the same as the reasons for using conventional medicine. It was noted that, for example, in oncology there is a general discussion of patient behaviour that includes CAM. It might be helpful to focus on predictors of use, so as to help students anticipate the circumstances in which they should be attentive to patients' use of CAM. Participants used a variety of approaches to engaging students in this topic: inviting patients to explain to the class why they use CAM; using a question-and-answer dialogue with the class to explore why, in their view, people use CAM; using a case study.

Evidence

Rationale: Of all the complex issues raised by CAM, none is more controversial than the issues surrounding research methodologies and standards of evidence. Persuasive arguments and counter-arguments are frequently made concerning the appropriate research methods for evaluating CAM therapies, the appropriate standards of evidence, and the interpretation of existing evidence bases for CAM therapies. This module will attempt to bring clarity to this subject by addressing questions such as the following: (1) What is the magnitude and quality of the evidence base for selected CAM therapies? (2) What should be the standard of evidence for CAM therapies? (3) What conclusions and implications for clinical practice can legitimately be drawn from existing evidence bases for selected CAM therapies?

Sub-topics: Description of CAM evidence base; standards of evidence; appropriate research methodologies; interpretation of CAM evidence bases and implications for clinical practice; how to locate evidence for CAM.

Comments: Participants agreed that it is essential to develop students' awareness of the nature of evidence and of standards of evidence for medical practice. But they noted that there are several issues here, some of which are specific to CAM and others of which are not. It was suggested that it is helpful to distinguish between two objectives. The first is to dispel the commonly held perception that there is no evidence for CAM. This can be usefully done in a course on CAM. The second is to introduce students to some of the complexities surrounding evidence-based decision-making, including recognition of different types of evidence, different methods for gathering evidence, issues pertaining to standards of evidence, and so on. Most participants agreed that this is best done as part of undergraduate medical curriculum as a whole. The issues that arise when assessing and applying evidence in other areas of medical practice are also relevant to CAM, and it is important that students understand this. The contribution of CAM curriculum might be to draw connections between evidence as applied in conventional medicine and evidence as applied in CAM, which often rests on different assumptions and a long historical tradition of use.

Implications for practice

Rationale: Estimates of CAM use by the general population suggest that most physicians are seeing CAM users in their offices on a regular basis. Furthermore, the majority of persons using CAM do not disclose this fact to their doctors. The subject of CAM use continues to be a source of great discomfort in the doctor-patient relationship.

Sub-topics: Relevance of CAM to clinical practice; discussing CAM with patients and colleagues; dealing with nondisclosure and reluctance to communicate; advising patients regarding CAM therapies; referrals to and from CAM practitioners; collaboration with CAM practitioners. Issues relating to policy, regulation, quality assurance, and physician liability.

Comments: Participants agreed that this topic should be considered for inclusion. Although participants currently do not treat this topic at length in their courses, they noted that there are a number of points of entry for the various sub-topics included in this topic. One group of sub-topics relates to students' awareness of and ability to elicit patients' belief systems with regard to

illness, health, and health care, and students' skills in listening to patients and taking a comprehensive medical history. This could easily fit into or build on undergraduate medical curriculum that focuses on a patient-centred approach to health care. Another group of sub-topics relates to physicians' roles, responsibilities, and liability with regard to providing advice to patients, providing referrals to CAM practitioners, and monitoring potential adverse interactions. Here it is important for students to be aware of the regulations both of their own professional regulatory authority as well as those for CAM practitioners; to be aware of the limits of their knowledge; to be aware of sources of information, including CAM practitioners, to supplement their own knowledge; and to be able to apply broader medical ethical frameworks to issues that arise when responding to patients about CAM.

Integration of CAM and conventional medicine

Rationale: Implicit in much of the attention that CAM has been receiving from researchers, practitioners, and educators is the assumption that some forms of CAM could and/or should become incorporated into health care systems. The precise nature of the relationship between CAM and conventional medicine, however, remains unclear. Several models of such a collaborative relationship have been proposed, and many pilot projects involving "integrative medicine" now exist. This module is intended to prepare physicians to participate in the development and implementation of integrative health care initiatives.

Sub-topics: Integration; definitional and conceptual issues. Recommendations of major policy initiatives addressing integration (e.g., Prince of Wales Report, COST Report, White House Commission Report).[8] Perspectives on integration from Health Canada (Health Human Resources Strategies Division and Natural Health Products Directorate).[9] Examples of integration at the individual, team, institutional, and national levels. Evaluating effectiveness of integrative health care.

Comments: There was no consensus among participants as to whether integration of conventional medicine and CAM should receive consideration as a topic. Many participants considered it premature and counterproductive to introduce the concept of integration into the curriculum. They found it more useful and helpful to discuss more specific aspects of the relationship between practices and practitioners. For example, they introduce students to dual-trained practitioners (physicians who are also trained in CAM). They invite CAM practitioners to discuss with the class how they relate to physicians. They introduce students to dealing with questions from patients about seeing a CAM practitioner or addressing issues for which conventional medicine offers limited or no relief (such as pain). They treat ethical and legal considerations when making a referral to a CAM practitioner. They discuss ways in which

[8] *Integrated Health Care: A Way Forward for the Next Five Years? A Discussion Document.* [United Kingdom:] The Foundation for Integrated Medicine, 1997; The COST (European Cooperation in the Field of Scientific and Technical Research) Report on Unconventional Medicine (ISBN 92-828-6350-6) is no longer available on the COST web site (http://cost.cordis.lu/src/action_detail.cfm?action=B4) as the action ended in 1998; White House Commission on Complementary and Alternative Medicine Policy – Final Report. March 2002 (available at www.whccamp.hhs.gov/finalreport.html, accessed on November 4th, 2003).

[9] See the resources available on the website of the Natural Health Products Directorate, under the heading "health promotion", at www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/health_promotion_e.html.

conventional and CAM practitioners can communicate, with the patient's consent, about a patient's care.

Bridging paradigms

Rationale: Many CAM systems are based upon principles, beliefs, and assumptions that differ substantially from those of conventional medicine. As such, these systems present a challenge to conventional thinking regarding health, illness, and healing. Theory and research suggest that receptivity to these new ideas can be enhanced by first providing students with background material to assist in the process of "bridging paradigms." Several medical schools are experimenting with course content involving such things as (1) exploration of personal attitudes and beliefs regarding CAM; and (2) overviews of culture, science, knowledge, decision-making, and critical thinking. Early experience suggests that this approach may enhance receptivity and open-mindedness on the part of students.

Sub-topics: Exploring personal attitudes towards CAM; culture, beliefs, and values; psychosocial dynamics of paradigm shifts; critical and creative thinking; cognition and social conditioning; resistance to change.

Comments: Participants agreed that this is an important aspect of undergraduate medical education, and that is has particular relevance in developing the attitudes and skills of physicians with regard to CAM. Participants described various ways in which their undergraduate medical curriculum aims to make students aware of beliefs and attitudes with regard to health, illness, and medicine. CAM curriculum can usefully build on and reinforce students' understanding OF paradigms, beliefs, and attitudes.

6. Curriculum Content: Topics Relating to Specific CAM Products or Practices

In proposing curriculum content relating to specific CAM products or practices, the organizers of the workshop selected several categories of CAM products or practices for consideration in a curriculum, and proposed a set of sub-topics to be addressed when providing instruction on these categories. CAM categories were selected if (1) the category has a history of widespread use within one or more province of Canada; (2) the category has a substantial evidence-base of reasonable quality; (3) the category has quality assurance mechanisms such as regulatory bodies and quality standards (in the case of products), or accreditation, licensure, and certification (in the case of practitioners); (4) the category exemplifies one or more key CAM-related principles, concepts, or issues. The organizers assumed that instructors would determine which of these category of products or practices would be most pertinent in a curriculum for their students.

The proposed category of CAM products and practices were as follows (specific products or practices that might be a focus for consideration are underlined):

- Natural health products, including vitamins, minerals, herbal therapies, enzymes, functional foods, homeopathic remedies.

- Traditional Chinese Medicine, including acupuncture, qi gong, tai chi, Chinese herbal medicine.
- Naturopathic medicine.
- Chiropractic.
- Homeopathy.
- Therapeutic bodywork, including massage, cranio-sacral manipulation, structural integration, visceral manipulation.
- Mind-body practices, including yoga, meditation, relaxation techniques, hypnosis, guided imagery.
- Expressive therapies, including art therapy, music therapy, psychodrama, movement and dance therapy.
- Energy therapies, including Reiki, therapeutic touch, healing touch, qi gong.

Proposed sub-topics for consideration when providing instruction on the above included the following:

- Descriptive overview: Brief description of the practice, its history, prevalence, and patterns of utilization.
- Concepts and principles that are central to understanding the practice area (e.g., for homeopathy this could include the principle of similars, and the concepts of potentization and succession).
- Evidence: Description of the current evidence base for this practice area, broken down by health condition if possible (e.g., five randomized controlled trials for fibromyalgia involving a total of 723 patients). Direction of evidence regarding this practice area (e.g., persuasive for condition A, suggestive for condition B, inconclusive for condition C, tentatively negative for condition D, insufficient evidence for condition E).
- Safety issues: Known risks, adverse effects, contra-indications, interactions.
- Clinical implications: What is the relevance and implication of this topic for the practice of medicine?
- Teaching materials: A description of any teaching materials that currently exist for this topic and where to find them.
- Information resources: How and where to find reliable information on this topic. Books, journal articles, and websites that would be useful for developing curriculum on this topic.

At the workshop participants were invited to rank the proposed categories on a scale of 1 to 5 (1 = do not include in a curriculum; 5 = include in a curriculum). The most highly rated category was natural health products, underscoring a high degree of consensus amongst participants that this is an area that medical students should be aware of. The average ranking per class was as follows:[10]

- Natural health products: 4.96
- Traditional Chinese Medicine: 4.50
- Chiropractic: 4.45
- Naturopathic medicine: 4.37
- Homeopathy: 4.20
- Mind-body practices: 3.94
- Therapeutic bodywork: 3.90
- Energy therapies: 3.88
- Expressive therapies: 2.72

Participants also offered specific suggestions about what to include or not include in curriculum on the above categories, and how to present the more complex or important aspects of different CAM modalities. These suggestions were recorded in writing and will be made available to a working group on a CAM curriculum (see Next Steps, below).[11] In general, participants favoured giving more time and more detailed consideration in the curriculum to CAM modalities that are more widely used (with variation by region or culture), such as natural health products, Traditional Chinese Medicine, naturopathic medicine, and chiropractic. Many participants recommended focusing on certain products or practices, such as the five most commonly used herbs (within natural health products) or acupuncture (within Traditional Chinese Medicine) or massage (within therapeutic bodywork). Most participants thought that the proposed list of sub-topics was helpful, and recommended applying them as appropriate to the CAM modality being presented.

7. Implementation Strategies

The introduction of CAM into undergraduate medical education raises a number of practical issues and challenges. Participants in the workshop discussed these practicalities, including:

- teaching methods;
- teaching resources;
- points of entry in the curriculum;
- recruiting, training, and retaining instructors;
- building relations and getting support;
- requirements or guidelines from regulatory bodies; and
- funding.

[10] The denominator in each class was the total number of responses per class. Some participants did not rank all classes.

[11] A record of participant's comments and suggestions is available by request from Dr. Marja Verhoef, University of Calgary, Department of Community Health Sciences, 3330 Hospital Drive NW, Calgary, AB, Canada T2N 4N1.

Teaching methods

Participants have used a variety of methods to facilitate the participation or engagement of students in learning about CAM.

- detailed questionnaire on attitudes, combined with discussion of the findings of the questionnaire;
- web-based modules or resources for self-teaching;
- case studies and vignettes;
- structured debates;
- panels of patients;
- visits to CAM practice sites or by CAM practitioners.

The method employed should further the objectives and suit the content of the learning module.

Teaching resources

The organizers of the workshop prepared a summary of CAM teaching materials currently used in Canadian medical schools (see Appendix C). Participants indicated that they would be willing to share their resources. Several indicate that they had relatively few materials and would benefit from common resources.

A shared database of information resources would require:

- determining the philosophy or philosophies that govern the selection and presentation of materials;
- keeping the material up to date;
- presenting the material in a format usable to all (BlackBoard was suggested as a possible electronic format);
- ensuring the accuracy of the material and safeguarding the "seal of approval" of the medical schools; and
- avoiding the risk of lost investment if better resources become available elsewhere on the internet.

Points of entry

Participants agreed that, ideally, students would receive a separate overview on CAM early in their medical education, and that subsequently specific or technical aspects of CAM would be integrated into other courses or modules of the curriculum. In practice, integration of CAM instruction into the rest of the curriculum is a challenge. It can be difficult to ensure that CAM gets more than superficial or token consideration. Participants found it helpful to tailor material to "host" courses in the rest of the curriculum, to work with individual faculty to develop curriculum, and to become involved in the overall development of curriculum (e.g., by being a member of the curriculum committee). Participants acknowledged that is important to be economical and creative in looking for ways to introduce CAM: time in the curriculum is at a

premium. It was noted that students can be effective allies in getting material introduced into the curriculum.

Recruiting, training, and retaining instructors

CAM courses have drawn on research faculty of the medical school, CAM practitioners, physicians who practice CAM, and patients, all of whom have been utilized as instructors or instructional resources. Various issues need to be considered when recruiting and training these different types of instructors. For research faculty it is important to create opportunities to learn about CAM (e.g., a seminar series) and to foster an environment in which it is acceptable and credible to be interested in CAM (e.g., a recognized CAM research network). Among CAM practitioners it is important to select those who are accustomed to handling questions from skeptics and who are comfortable in an academic medical environment. It was suggested that faculty and staff at CAM educational institutions or regulatory bodies would be good candidates for such roles. Physicians who practice CAM can be very good role models, provided they are respected by their colleagues, but they can be difficult to find. Patients may have strong views; it is important to allow students an opportunity to "debrief" after a session with patients. In all cases, students are more open to learning when instructors are not highly critical of conventional medicine or highly laudatory of CAM.

Building relations and getting support

Participants identified several keys to getting support for instruction about CAM in the curriculum. These included:

- having a champion who has access to the opinion leaders or decision makers (opinion leaders could include people who run curriculum blocks, members of curriculum committees, department heads, medical students, etc.);
- getting support from students (in one medical school a positive response from students in a survey was instrumental in doubling the time allotted to CAM in the curriculum);
- getting support from or making comparisons with other universities;
- obtaining an endorsement or impetus from a regulatory or accrediting body.

Requirements or guidelines from regulatory bodies

Although several provincial Colleges of Physicians and Surgeons have stipulated policies or guidelines within their regulatory framework regarding physicians practicing CAM or referring to CAM practitioners, these do not directly affect the direction or content of CAM curricula in UME. The Liaison Committee on Medical Education (LCME) is the nationally recognized accrediting authority for medical education programs leading to the M.D. degree in U.S. and Canadian medical schools. Thus, UME programs will look to the LCME regarding accreditation standards relating to CAM education. At a minimum, curriculum developers will need to stay current with respect to CAM-related regulations and policies pertaining to the practice of medicine within their province.

Funding

Funding is necessary to develop, implement, and maintain educational programs. Apart from research faculty in medical schools, all other instructors need to be compensated for their time. Possible sources for funding include:

- funds that deans of medical schools have for small pilot or research projects;
- funding for knowledge translation and exchange from the Canadian Institutes of Health Research;
- transitional funding programs such as the Primary Health Care Transition Fund which was created by the federal government and administered by Health Canada. (This fund is no longer available, but similar funding programs are likely to be created from time to time.)
- Health Canada.

8. Elements of a National Vision for CAM in UME

The workshop concluded with a discussion of the elements of a national vision of CAM in UME. This was understood to refer to "a picture of the envisioned future of CAM in UME curriculum." Participants considered a number of possible components that could help to bring about that envisioned future, discussing what these components might entail and weighing their relative importance to CAM in UME.

The possible components included:

- a national working group to oversee the development of curricular resources and support the implementation of CAM in UME;
- shared educational resources for CAM in UME;[12]
- a website to support CAM in UME (including, e.g., BlackBoard resources, a chat room, etc.);[13]
- a model or core curriculum for CAM in UME;[14]
- specific CAM content in the examinations leading to the Licentiate of the Medical Council of Canada (LMCC);
- an evaluation framework for CAM in UME;[15]
- a national student group, including anglophone and francophone members, to facilitate communication nationally and locally among students and between students and faculty on CAM;

[12] Participants reiterated many of the considerations cited above at p. 15.
[13] Participants reiterated many of the considerations cited above at p. 15.
[14] There was some discussion of the difference between offering a menu for medical schools to consider or use as they develop their CAM curriculum, and specifying a set of (minimal) core competencies that medical students should have with regard to CAM. It was suggested that, given the diversity of approaches in UME in Canada, there would have to be some flexibility between these two possible options.
[15] Proceedings of a Working Conference on Evaluation of CAM Curricula. Ann Arbor, MI: University of Michigan Complementary and Alternative Medicine Research Center. Copies may be order from the Center, 715 E. Huron Street, Suite 1W, Ann Arbor, MI 48104, USA, Attention: Lynn Owens.

- collaboration and cross-training between medical schools and faculty and CAM educational institutions and faculty.

Participants voted on these components, ranking them high, medium, or low. The outcome was as follows:

High priority:

- a national working group on CAM in UME;
- a model or core curriculum for CAM in UME;
- shared educational resources for CAM in UME.

Medium priority:

- specific CAM content in the examinations leading to the Licentiate of the Medical Council of Canada (LMCC);
- a website to support CAM in UME;
- a national student association or mechanism for student involvement in the national working group;
- collaboration and cross-training between medical schools and faculty and CAM educational institutions and faculty.

9. Next Steps

After the workshop the organizers convened a meeting involving several of the participants to plan steps to implement the suggestions made at the workshop. The purpose of this meeting was to follow up on the issues raised at the workshop over the previous two days, and to determine an appropriate plan of action for advancing the agenda for CAM in UME at the national level.

Agenda items consisted of:

- listing and prioritizing follow-up activities (projects and reports);
- planning the implementation of follow-up activities; and
- developing an organizational structure (committees, working groups, teams, etc) to support follow-up activities

Proposed action plan

The most important follow-up activities identified were:

1. establishing a national working group;
2. establishing a curriculum project team;
3. establishing a teaching materials project team; and
4. writing reports, including:
   (a) the report on the workshop (English and French);

(b) a publication summarizing the outcomes of the workshop, to be submitted for publication in the *International Journal of Complementary and Integrative Medicine*;
(c) an editorial/point-of-view on CAM in UME, to be submitted for publication in the *Canadian Medical Association Journal*; and
(d) a publication on points of entry for CAM into UME curricula.

Preliminary terms of reference for the national working group and the curriculum project team were developed, members for both teams were identified, and dates for future meetings of the national working group were selected.

APPENDIX A

REPORTS AND RESOURCES ON CAM AND MEDICAL EDUCATION

	TITLE	URL
Canada	*Perspectives on Complementary and Alternative Health Care* (2001). (English and French)	http://www.hc-sc.gc.ca/hppb/healthcare/pubs/comp_alt/index.html http://www.hc-sc.gc.ca/hppb/soinsdesante/pubs/perspectives/index.html
	Perspectives on Natural Health Products: a collection of executive summaries from stakeholder consultation reports (2001 and 2002). (English and French)	http://www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/hp_perspectives_intro_e.html http://www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/hp_perspectives_cp_f.html
	Complementary and Alternative Medicine in Undergraduate Medical Education: Perspectives of Associate Deans in Canadian Medical Schools – Summary (2002). (English and French)	http://www.ucalgary.ca/~camig/websites.html
	Complementary and Alternative Health Practices and Therapies - A Canadian Overview (1999).	http://www.yorku.ca/ychs/Publications.htm
	Various resources provided by the Natural Health Products Directorate, Health Canada (English and French)	http://www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/resources_e.html http://www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/resources_f.html
United Kingdom	Prince of Wales Foundation for Integrated Health Care. Complementary and Alternative Medicine: the consumer perspective (2003).	The report is not on web site, but can be ordered from: http://www.fihealth.org.uk/fs_publications.html The report is discussed in Coates JR et al. Integrated Healthcare: A Way Forward for the Next Five Years? A Discussion Document from The Prince of Wales Initiative on Integrated Medicine. *J Altern Complem Med* 1998; 4(2):209-247.
	House of Lords Select Committee on Science and Technology Sixth Report: Chapter Six – Professional Training and Education (2000)	http://www.publications.parliament.uk/pa/ld199900/ldselect/ldsctech/123/12311.htm
	Tomorrow's Doctors: Recommendations on Undergraduate Medical Education (2003)	http://www.gmc-uk.org/med_ed/tomdoc.htm
United States	*White House Commission on Complementary and Alternative Medicine Policy: Final Report* (Chapter 4)	http://www.whccamp.hhs.gov/fr4.html
	White House Commission on Complementary and Alternative Medicine Policy: Meeting on Training, Education, Credentialing and Licensing of CAM Practice. Volume I: February 22, 2001. Proceedings	http://govinfo.library.unt.edu/whccamp/meetings/transcript_022200.html
	American Medical Students Association EDCAM (Education Development for Complementary and Alternative Medicine) Initiative	http://www.amsa.org/humed/CAM/
	American Association of Medical Colleges - Medical Objectives Project	http://www.aamc.org/meded/msop/

APPENDIX B

LIST OF PARTICIPANTS

Steering Committee

University of Calgary	Marja Verhoef, PhD
	Rebecca Brundin-Mather, MASc
University of Saskatchewan	Michael Epstein, PhD

Facilitator

Facilitator	Theodore de Bruyn, PhD

Participants

University of British Columbia	Ashley Riskin, 3rd year medical student
	Anita Tannis, MD
University of Alberta	Doreen Oneschuk, MD
University of Calgary	Janette Hurley, MD
University of Saskatchewan	Joe Schnurr, MD
	Anne Leis, PhD
University of Manitoba	Bryan Magwood. MD
Queens University	Kanji Nakatsu, PhD
University of Western Ontario	Jawaid Younus, MD
	Ed Lui. PhD
McMaster University	Alan Neville, MD
University of Toronto	Heather Boon, PhD
University of Ottawa	Derek Puddester, MD
Université de Montreal	Michel Boivin, MD
Université Laval	Sylvie Dodin, MD, MSc
Dalhousie University	Jana Sawynok, PhD
Memorial University of Newfoundland	John Crellin, MD, PhD
Canadian Federation of Medical Students	Vishal Avinashi, 3rd year medical student
CAM Practitioners	Trish Dryden, Med, RMT
	Dr. Dennis O'Hara, DC, ND, PhD
Health Canada	Joan Simpson
Hospital for Sick Children Foundation	Gwen Burrows

APPENDIX C

SUMMARY OF CAM TEACHING MATERIALS IN CANADIAN MEDICAL SCHOOLS

Introduction

In order to help assess the current state of teaching materials for CAM in UME currently in use within Canadian medical schools, workshop participants were asked to provide copies of materials such as course outlines, PowerPoint slides, teaching cases, assignments, and so forth. A summary of the teaching materials that were received as of August 24, 2003, is included below.

Highlights:

1. Teaching materials were received from 10 of the 16 Canadian medical schools.

2. Roughly 350 pages of materials were received.

3. Materials received consisted primarily of course syllabi and overhead transparencies (PowerPoint slides). There were a small number of case studies, assignments, and information resource guides.

4. Roughly half of the materials pertained to topics relating to CAM in general, with most of the remainder pertaining to specific CAM practice areas and a very few materials pertaining to CAM for specific populations.

Summaries:

Summaries of materials received from each of the schools are outlined below. (N.B. In the descriptions that follow, I have used the term "CAM Basics" to describe portions of the curriculum which address topics related to CAM in general, such as fundamentals of CAM, definitions, prevalence, patterns of use, research and policy initiatives, implications for clinical practice, and so forth.)

Alberta

- Course notes for CAM basics. Case study on CAM for palliative care in cancer treatment. Powerpoint slides. (10 pages)

- Syllabus for a plenary presentation on CAM basics followed by small group discussions. Contains the following: description of class format; questions for small groups; definitions of 15 prominent CAM practice areas; key issues; Powerpoint slides. (8 pages)

British Columbia

- Detailed interview guide to assist students in the process of interviewing a CAM practitioner and/or patient. Includes preparation, approach to the interview, questions for the practitioner, questions for the patient, questions for the student, questions for group discussion after the interview, and evaluation form for the project. (5 pages)

- Information resource guide for medical and dental students: definitions, utilization statistics, classification system, descriptions of CAM modalities, policy statement — BC College of Physicians and Surgeons, regulation, issues regarding referrals, websites for integrative clinics, professional associations, academic institutions, other CAM organizations. (4 pages)

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- Syllabus for "Treatment Options from a Psychosocial Perspective: Introduction to a Healing-Based Medical Philosophy." Includes comprehensive health status assessment including 25 items each for body, mind, and spirit. (8 pages)

- Syllabus for "Treatment Options from a Psychosocial Perspective: The Healer's Journey." (1 page)

Calgary

- CAM Fair is included as part of CHW program. Includes powerpoint slides on CAM basics, CAM for asthma, and homeopathy. Information resources including websites, databases. (29 pages)

- Syllabus for Culture, Health and Wellness. Contains rationale, course mission, course objectives, session titles and objectives (10 sessions of two hours each, of which 1 is specifically on CAM, spread over 2 medical years), evaluation criteria, references, organizational resources. (9 pages)

Laval

- Course notes on Asthma and CAM (Asthme et MACS),including references (21 pages)

- Course notes on Insomnia and CAM (Insomnie et MAC), including references (16 pages)

- Powerpoint slides on CAM and Obstetrics (Médecines alternatives et complémentaires, place de celles-ci en obstétrique) – 3 hour lecture to Ob/Gyn students (43 slides)

- Powerpoint slides on CAM and menopause (Ménopause, explorer les approches alternatives) – 3 hour lecture to Ob/Gyn students (49 slides)

- Powerpoint slides on CAM and osteoarthritis (Interactions médicamenteuses et traitement par les médecines alternatives des arthralgies, de l'arthrose et de l'arthrite rhumatoïde) – (55 slides)

Manitoba

- The CAM module occurs in the second-to-last pre-clinical unit at the University of Manitoba. It is expected that, by this time, students will have a relatively firm grounding in the basic elements of diagnostics and therapeutics and this should augment comparisons between allopathic medicine and CAM. The module currently consists of five lecture sessions which cover six important topics: introduction to CAM; mind-body therapies; naturopathy; homeopathy; chiropractic; and acupuncture. The notes for these sessions are organized into a binder and are handed out to students at the beginning of the module. (26 pages)

McMaster

- Teaching case on CAM for HIV. (2 pages)

Queens

- Powerpoint slides for herbal medicine covering basics of herbal medicine and one slide for each of several prominent herbal remedies. No specific evidence cited. (3 pages)

Saskatchewan

- Syllabus for Med I CAM curriculum and Med III CAM curriculum. Course notes including learning objectives, session descriptions, CAM definitions, classification typology, glossary, term project. Ten teaching cases with CAM content. Briefing instructions for guest lecturers. Powerpoint presentations for 6 modules: (1) overview of CAM; (2) CAM in historical/cultural context; (3) CAM, Culture, and Belief Systems; (4) patterns of CAM utilization; (5) implications of CAM for clinical practice; (6) overview of the CAM evidence base. Guide to locating information on CAM. Summaries of the evidence for selected CAM practice areas: acupuncture, chiropractic, massage therapy, psychoneuroimmunology, placebo response, Reiki, therapeutic touch. Bibliography: selected RCTs, systematic reviews, and meta-analyses. (185 pages)

Toronto

- Session description for 3 hour class on common CAM therapies (herbal medicine, homeopathy, chiropractic, and acupuncture). Contains description, objectives, readings, information resources, and powerpoint slides. Slightly different descriptions of essentially the same class for Med III and Med IV students. Two very brief case studies involving natural alternatives to immunization and CAM for newly diagnosed cancer. (19 pages, powerpoint slides printed 9 per page)

Western Ontario

- Session outline for a single 3 hour class on CAM as part of Health, Illness, and Society. Contains session objectives, schedule/format, groups and topics, instructions to students, selected citations. (4 pages)