



## Perception and Usage of Complementary Medicine in Major Medical Centers

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### Abstract

Complementary medicine is a treatment and care system that is applied together with the conventional medical treatment. People prefer complementary medicine methods to alleviate symptoms of chronic diseases, reduce the side effects of conventional treatments and improve their health and wellness. Recently, the number of complementary and alternative medicine (CAM) clinics and services in hospitals are increasing due to patients' demand. Since complementary methods differ in the countries where they are originated, perspective on CAM utilization in different countries tends us to evaluate complementary medicine practice in major medical center. On the other hand, popular use of complementary therapies at major medical centers or hospitals naturally worries many academics, doctors and scientist. However, it is a well-known fact that modern/orthodox medicine cannot cure every patient or disease and it is important to offer patients complementary therapies to reduce their symptoms and pains, to increase their moral condition and motivation, reduce side effects of the conventional therapies, as well as to provide new treatment options. Our mini-review about the integrative or complementary medicine practice at major medical center reveals that many hospitals promote those therapies, from natural medicine, music therapy, and chiropractic to energy healing and recently dozens of prestigious medical schools teach doctors about integrative medicine. Furthermore, it is important for physicians and also for doctors to understand those treatments and the reasons why patients demand such methods and prevent any interaction of complementary medicine with conventional treatments.

**Keywords:** Complementary Medicine; Integrative Medicine; Hospital Practice; Perception of Complementary Medicine

### Introduction

Complementary and alternative medicine (CAM) methods are known since the beginning of human kind but the interest in these methods worldwide has been increasing rapidly since 1990 [1,2]. Complementary Medicine and Alternative Medicine are different from each other, but often referred together. As it is well known, while complementary medicine is the treatment and care system applied in conjunction with conventional therapy, alternative medicine means treatment other than conventional methods. Regarding the percentage of CAM usage in the world; it was found that 42% in the United States, 49% in France, 70% in Canada, 46% in Australia, 31% in Belgium; 71% in Chile, 70% in China, 40% in Colombia and 80% in Africa, patients one way or another use CAM method [2,3].

Increased popularity of the complementary medicine methods in the world tend us to discuss those practice in hospitals in which the complementary medicine program used in addition to the conventional treatments. CAM therapies/methods are not commonly applied in small or medium sized hospitals due to capacity and resource problems; however large hospitals like Mayo Clinic, John Hopkins Medical Center, which are mostly private, incorporate CAM clinics within the hospital. For example, acupuncture, massage therapies, herbal treatments are used in Mayo Clinic; therapies reducing the side effects of conventional therapies and improving the quality of life of the patient are used at John Hopkins Medical Center, the methods to support patients in the treatment of cancer are used at the Memorial Sloan Kettering Cancer Center and complementary medicine methods are mostly used in gynecological disorders at Heidelberg University Hospital.

In this study, we focus on complementary medicine practice at the major medical centers in Western Medical Discipline since these methods are sometimes referred as mainstream treatments in China, Korea, Japan, India and Vietnam. For example, Traditional Chinese Medicine (TCM) is a system of healing that dates back to 200 B.C. and Chinese medical students take compulsory courses in both modern and traditional medicine. Therefore, Chinese physicians are aware of the advantages of both systems and can decide for the right combination [4]. In this circumstance, it is not possible to accept TCM as a complementary for China, just like Campo in Japan or Ayurveda in India. Complementary methods should be considered differently in the countries where they were originated [5]. Different perspective on CAM utilization in different countries leads us to evaluate complementary medicine practice in major medical center in mostly western countries.

### Definitions

In 1991, the National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health was established in the United States due to the increasing practices of CAM and lack of academic research and convincing literature in this area. In December 2014, the name of NCCAM has been changed to National Complementary and Integrative Health Center (NCCIH) [6]. This center used complementary health approach as a basis for defining health practices and products. NCCIH classifies complementary health approaches as Natural Products; Mind and Body Therapies and Other Complementary Health Approaches.

### Natural products

Natural products include many different groups of substances from a variety of sources such as plants, marine organisms, bacteria and fungi. NCCIH supports research on natural products as long as a link can be established to traditional medicine or other complementary and integrative health practices. Natural products are basically defined as herbs, vitamins, minerals and probiotics. These products can be easily found by consumers and often sold as dietary supplements. The use of natural products has increased significantly in recent years. According to 2012 National Health Interview Survey (NHIS), the use of natural products among adults in the United States was found to be 17.7%, and the most commonly used product was fish oil/omega 3 among adults, and *Echinacea* and fish oil/omega 3 among children [6,7].

### Mind and body therapies

Mind and body therapies aim to improve health affecting the physical functioning of the body together with the mind. For this purpose, mind-body practices focus on the interaction between

brain, body, mind and behavior in a single point using acupuncture, massage therapy, meditation, relaxation techniques, spinal manipulation, and/or yoga. Mind-body practices have key components of body-based exercise and mind-based practice. Body-based exercise emphasizes specific posture and body control, whereas mind-based practice focuses on self-control of attention, emotion, and thought in a mindful. According to 2012 NHIS, the most widely used mind-body practices among adults were found to be yoga, chiropractic, osteopathic manipulation, meditation and massage therapy [8].

### Other complementary health approaches

The therapies not covered by the above classes are classified as other complementary health approach. For example, Ayurveda, Traditional Chinese Medicine, Homeopathy and Naturopathy are classified as other complementary approaches using not the only natural products or body-mind techniques [6,7].

### The use of complementary medicine

Although important advances are observed in conventional diagnosis, care and treatment of diseases, patients' interest in the complementary medicine is rapidly increasing. This may be due to the patient's desire to get more control and responsibility in their treatment, their efforts to reduce symptoms, high cost of the treatments, and failure to achieve satisfaction with conventional treatments [1]. Complementary Medicine techniques support the body's natural ability to heal, reducing stress and promoting a state of relaxation that leads to better health. All methods used in complementary medicine provide benefits for patients such as healthy lifestyle changes, less pain, less depression, improved immune system, greater mobility and physical independence, and increased quality of life [9].

The safe and appropriate use of CAM is main concern for the hospitals, especially when used concomitantly with other medicines. Recently both scientists and clinicians focus on the clinical studies of complementary therapies to understand and prove their effectiveness and safety. However, the use of different complementary medicine methods in different ages, culture or social groups and individual differences made it difficult to interpret the previous studies. Similarly, complementary medicine usage level has showed considerable variations depend on the selected patient group, the methods, cultural differences and access to traditional healthcare services. The differences between the prevalence of CAM in the Eastern countries and the Western countries are also due to these reasons [2,10]. The preference of complementary medicine methods varies from country to country, for example while

the most common treatment is aromatherapy, massage and multi-vitamins in UK, it is herbal remedies in USA [11]. In a study performed in Australia in 2010, it was found that 65% of cancer patients used at least one complementary medicine method and more than half of those use the method with conventional treatment [8,12]. Similarly, the prevalence of the use of CAM and spiritual practices in the pediatric patients during cancer treatment were investigated in Scotland and it was found that 55% families used CAM and 57% used spiritual practice. Also, they found that socio-economically advantaged people might be more likely to use CAM [11].

According to Health and Retirement Study in the United States, approximately 88% of the elderly population was reported to be using complementary medicine due to the prevalence of various age-related medical conditions. Considering the aging of the population and increased life expectancy, rates of CAM among the older people is expected to be increasing [13]. Since, the pharmacokinetics and pharmacodynamics are different and poly-pharmacy for their various comorbidities is also very common in elderly population, the use of CAM in elderly should be taken more control than young adults [14].

Similarly, almost half of the elderly population suffers from chronic pain. Because of inadequate pharmacological treatment and undesirable side effects of pain relief, nonpharmacological interventions are used by doctors and nurses whilst giving conventional treatment [15]. Manipulative and body-based applications (chiropractic and massage), mind and body therapies have been found useful in the treatment of pain in the elderly and adults. For example, chiropractic and massage are found to be the most commonly used complementary method in the treatment of low back pain in USA [16]. In the treatment of pain, music therapy is also used for centuries, it is well known that endorphin hormone secreted by the effect of music decreases pain, stress and slows aging process [12,17].

### Complementary Medicine Practice at the Major Hospitals in the Western World

In order to better understand the complementary medicine services (CAM methods) in hospitals, a two-year complementary medicinal questionnaire was launched in 2010 by Samueli Institute and the American Hospital Association. The aim of this study was to get information about the complementary medicine methods used in the hospitals, the costs of these methods, personnel employment, their reimbursement plans, and the adaptation of the methods to the conventional treatments. According to the study, more than 42 percent of responding hospitals indicated that they

offer one or more CAM therapies. Patient demand (85%) was the primary reason for providing complementary medicine services in the hospitals. In order to access the complementary medicine service in these hospitals, the patient must be referred by his/her own request or by the physician [18]. The complementary medicine practices in major hospitals are briefly summarized below.

#### Complementary Medicine Practice at Mayo Clinic

Mayo Clinic is one of the most important hospitals in USA with the campuses in various states such as Arizona, Florida, and Minnesota. Departments and Centers of Integrative Medicine and Health at the Mayo Clinic offer treatments that improve patient's health by using conventional medicine. The benefits of these treatments are primarily in managing symptoms, for example helping people with medical conditions to feel better by reducing fatigue, pain and anxiety. These treatments mostly depend on natural products (herbal products, dietary supplements) and body-mind applications (Massage therapy, Acupuncture, Meditation, Yoga). In addition, counseling is also provided for patients by Integrative Medicine and Health experts [19].

#### Complementary Medicine Practice at John Hopkins Medical Center

Complementary medicine practice is applied within the Johns Hopkins Integrative Medicine and Digestive Center which is a part of The Johns Hopkins University, School of Medicine. Practitioners, who are physicians, massage therapists, acupuncturists, psychotherapists or nutritionists offer different treatment options for patients with chronic conditions using individualized approach. Their integrative medicine services include acupuncture, cognitive behavioral therapy, mind-body therapy (Integrative psychotherapy), Reiki and Therapeutic massage for treatments and to improve quality of life. For example they specifically offer Cognitive Behavioral Therapy for Women with Irritable Bowel Syndrome [20].

#### Complementary Medicine Practice at Cleveland Clinic

Complementary medicine service is given under the name of Integrative and Lifestyle Medicine in Wellness Institute of Cleveland Clinic. Different methods such as acupuncture, chiropractic manipulation and relaxation techniques are offered to patients here as an integrative medicine method. In addition, dietary and herbal products are also recommended to patient to manage their chronic diseases such as diabetes, heart diseases and fibromyalgia. In the case of lifestyle medicine, it is aimed to improve health and quality of life by eliminating tobacco use, improving diet, practicing stress relief techniques and increasing physical activity. The practices, te-

chniques and services offered here include: Acupuncture, Chinese Herbal Therapy, Chiropractic Therapy, Culinary Medicine, Hypnotherapy, Interactive guided imagery, Massotherapy - massage therapy, Mind/body coaching - relaxation practice, Reiki and Yoga.

Acupuncture is one of the most utilized services offered here for the treatments of different chronic problems such as chronic pain, digestive disorders, obesity, depression and addictions to nicotine, alcohol and drugs. On the other hand, in the case of Chinese herbal therapy the herbalist in the Center for Integrative and Lifestyle Medicine can prescribe herbs either as primary therapy or as a complement to acupuncture treatments. The herbalist can perform several diagnostic procedures and take a detailed health history of the patient. Once patients have been fully assessed, the herbalists make recommendations and provide a customized formula. Common feature of these services is personalized treatment. The personalized treatment programs are applied based on the family history of the patients, health problems, and the symptoms. The methods at Cleveland Clinic's Center for Integrative and Lifestyle Medicine are not a substitute for conventional medical diagnosis or treatment. However, it can complement patient's conventional treatment plan [21].

### Complementary Medicine Practice at Memorial Sloan Kettering Cancer Center

Memorial Sloan Kettering Cancer Center is located in the New York state of the United States. At the Memorial Sloan Kettering Cancer Center, according to the clinical status of cancer treatment, support system is provided to the patient at every stage. A number of complementary therapies are applied on an evidence-based basis by certified therapists who have received special oncology training in the complementary medical service. Their evidenced-based complementary therapies help people to manage different physical and emotional effects of cancer diagnosis and treatment.

Regarding herbs, they have very important online library and mobile app for objective information on the potential benefits and risks of using dietary supplements and herbal products. There is special Integrative Medicine Center at the hospital in the name of The Bendheim Integrative Medicine Center. It offers a wide range of services designed to enhance quality of life, increase self-awareness, and prevent and manage physical and emotional symptoms of cancer. They offer acupuncture, massage therapy, exercise classes, personal training, mind-body therapies and nutritional advices [22].

### Complementary Medicine Practice at Massachusetts General Hospital

Complementary treatments at Massachusetts General Hospital Cancer Center are offered together with the conventional therapy. These treatments are applied to control the symptoms of diseases and help the healing process. Their support programs for cancer patients and survivors are designed to help patients, their families and caregivers to cope with the challenges of a cancer diagnosis. They are saying for cancer patient that: "When someone has cancer, it is important to take care of the whole person". Integrative Therapies Program focuses on the restorative functions of the human body, and services are designed to work individually with patient's unique body, mind, and spirit at Massachusetts General Hospital. Complementary treatments offered in this center are Acupuncture, Art Therapy, Massage Therapy and Music Therapy. In addition mind-body therapies such as Yoga, Tai-chi and Qi-gong are also practiced in the center to help patient's strength to chemotherapy and radiation [23].

Unlike other major hospitals, music therapy is actively applied here. Music therapy sessions here can include active music making, gentle live music for relaxation, music-supported meditation, learning a new instrument, writing songs, or creating recordings to share with loved ones. In cancer care, music therapy is a one of the important supportive therapy that is a part of complementary medicine program. It has been shown to help reduce fear and anxiety, promote relaxation, improve mood, support pain management, decrease feelings of isolation, and provide space for emotional release and self-expression [24].

### Complementary Medicine Practice at NHS Greater Glasgow and Clyde

NHS Greater Glasgow and Clyde (NHSGGC) is one of the 14 regional National Health Service (NHS) in Scotland hospitals and general practice. The NHSGGC serves a population of 1.2 million people and it is one of the largest organizations in the UK and has 35 clinics of different types.

The NHSGGC has NHS Centre for Integrative Care. The Centre for Integrative Care on the Gartnavel Hospital campus is part of NHS Greater Glasgow and Clyde. Patients are applied to this center with complaints of anxiety, chronic pain, chronic low energy/chronic low mood. Long-term care is provided to patients. The interventions offered in the hospital are Mindfulness based cognitive therapy, Art and Music therapy, Physiotherapy, Allergy therapy, Anthro-



sophic medicine and complementary therapies such as acupuncture, homeopathy and Mistletoe Therapy [25].

Although Mistletoe is well known traditional medicine, Mistletoe therapy is not very common in the world. And it has not yet been regarded as a conventional cancer treatment. Mistletoe treatment is an anthroposophic method and can be integrated with conventional cancer treatment in this center. There is an oral preparation of mistletoe and ampoules for injection. Mistletoe treatment does not replace cancer treatment. It aims to strengthen the natural defense and immune system, directly affecting the cancer cells [26].

### Complementary Medicine Practice at Royal Children's Hospital in Australia

Royal Children's Hospital - Australia is one of the best children hospitals in the world. The use of complementary therapies is common and increasing, especially for sick children in Australia. Some families find that this is a way that they can meaningfully contribute to their child's health, comfort and well-being [27].

There are more than 200 different complementary treatments, differentiated from each other and divided into 4 main groups for better understanding in this hospital. This is adapted from the Center for Holistic Pediatric Education and Research in Boston.

- Biochemical techniques (herbal treatment, minerals, vitamins, Bach flowers, aromatherapy oils)
- Biomedical techniques (massage, osteopathy, chiropractic, Alexander technique)
- Life style change (diet, exercise, meditation, relaxation, hypnosis, mind-body techniques)
- Bioenergetic techniques (reiki, touch therapy, kinesiology, acupuncture).

Royal Children's Hospital has an informative on the use of above techniques as complementary medicine. It explains herbal remedies, homeopathy, food supplements and nutritional supplements as complementary medicine methods. Complementary medicine methods used in the hospital are applied safely to the patient by taking into consideration the safe dosage and proper use. Patients who wish to use complementary medicine within the hospital can only use them within the framework of the hospital's principles. The patient's physician must approve the use of complementary medicine. If approved, it is considered "CAM Use with Medical Approval", if not approved then it is considered as "CAM Use against Medical Advice". The Royal Children's Hospital also has a contact

number in order to give information about complementary treatments. Patients are informed about the interaction and possible side effects of the complementary treatments such as interactions of *Ginkgo biloba*, autoimmune effect of *Echinacea*, toxicities of Kava and so on [10,28].

### Complementary Medicine Practice at Hadassah Medical Center in Israel

Hadassah Medical Center was the first medical institution in Israel to establish a complementary medicine clinic in 1990. This clinic provides both conventional and complementary treatment services to approximately 1000 patients per month. Physicians and therapists working here are trained in conventional and complementary therapies. After the diagnosis of the patients, various complementary medicine methods are recommended to the patients and used for their treatment. The complementary medicine programs applied here are acupuncture, homeopathy, auriculotherapy, mesotherapy and medical hypnosis in addition to body-mind techniques such as reflexology, su-juk, Tu-na and Bach flowers. The complementary medicine clinic works in cooperation with several departments and units in Hadassah Hospital. For example complementary medicine treatments here can help to alleviate side effects of chemotherapy, pain reduction, stress control, improve the quality of life and offer alternative replacements for pain killers at the Department of Oncology. The clinic provides optimal treatment by deciding from the best of both conventional and complementary medicine [29].

### Conclusion

Patient-centered care models and complementary therapies to create more coherent care coordination constitute a great opportunity for new set up in hospitals such as complementary medicine clinics or integrative medicine center [18]. However, more effort is needed to be made for complementary and conventional medicine to work in harmony. For example while physicians in high-level hospitals in Israel have a positive approach to complementary medical practices, they are not willing to cooperate with complementary medical practitioners [30,31]. Although the use of CAM has gradually increased in Australia, it has not developed enough in the medical curriculum [32]. Since the safety documentation of complementary medicine is still not sufficient, it should be advised that the patient should contact the physician before using those medicines [33]. Increased popularity and usage of complementary therapies in the clinics raises the responsibilities of the hospitals for the quality, safety and efficacy concern of the methods.

In the 2010 Health Forum/Samueli Institute survey, 82% of responding hospitals reported that they did not offer herbal supplements in their hospital pharmacies. According to the above information and the surveys most hospitals offer noninvasive therapies as a complementary method instead of herbal therapies for safety concerns. Hospitals are aware of the potential interactions between herbal supplements and conventional treatments. Hospitals have policies regarding the use of herbal and nutritional supplements during hospitalization to avoid adverse reaction [14,34].

Most patients at the community hospitals have complex medical problems, which have not been resolved with conventional medical treatment. Patients need more intense care in addition to their conventional therapies. Although integrative medicine treatments include multiple recommendations, incorporating a wide variety of lifestyle modifications and CAM therapies, generally patients recalled the treatment recommendations after 1 month. Patients tended to follow the treatment recommendations either completely or not at all even if it is difficult to follow [35]. High adaptation to the treatment have increased the effectiveness of the therapy both pharmacologic and placebo.

The growing demand for Integrative Medicine programs in hospitals is particularly notable when you consider a new department in an established hospital organization. Not only it requires significant interdepartmental cooperation starting a treatment model to complement conventional therapies, hospitals need highly trained physicians who specialize in this field. Since lack of controlled clinical studies of CAM therapies, having highly experienced, eminently qualified physicians or practitioner is of the importance for all healthcare organization having CAM therapies [36].

While complementary therapies are increasingly taking place at top medical center or hospitals, naturally it worries many academics, doctors and scientist. However, it is well known that modern/orthodox medicine cannot cure every patient and it is important to offer patient alternative or complementary therapies to reduce their symptoms, pains and increase their moral condition and motivation, reduce side effects of the conventional therapies or offer new treatment options. For example, in 2017, Joint Commission, a nonprofit organization that accredits more than 21,000 U.S. health care organizations and program, has called for hospitals to provide complementary and alternative treatments for pain to reduce opioid use. Commission has released new pain assessment and management standards that will require hospitals to provide

nonpharmacologic pain treatment options including acupuncture, chiropractic care and massage therapy. The National Institutes of Health (NIH) is also expanding research on CAM treatments to address opioid epidemic. In September 2017, NIH awarded \$14 million in grants to study non-drug approaches to prevent chronic low back pain. The research planned to examine the effectiveness of spinal manipulation and self-care strategies such as behavioral and coping strategies, mind-body approaches, lifestyle advice and pain education compared to prescription medication [37,38].

On the other hand, some hospitals have built luxurious, wellness centers to draw patients for spiritual healing, homeopathy, massage therapies and more. And they are promoting such treatments for a wide range of conditions, including depression, heart disease, cancer, and chronic pain. According to Ross et al, 2017, complementary therapies are not covered by the health insurance in many countries. For this reason, it is important to support complementary medicine in hospitals and to educate physicians on these issues to prevent unnecessary expense of the patients [39,40].

According to our mini-review about the integrative or complementary medicine practice at major medical centers, it is clear that many of hospitals promote alternative therapies, from homeopathic medicine to energy healing. And dozens of prestigious medical schools teach doctors about integrative medicine. This is very important for physicians, because patients are going to keep using dietary supplements, herbal remedies, and other alternative therapies no matter what their doctors say. And it's important for physicians to understand those treatments and ask correct questions to their patients to make sure to prevent any confrontation with conventional treatments.

The use of complementary methods in major medical centers should be considered by community hospitals to support patients healing process. Governments have to develop strategies to deal with patient's new demand for their health care. Training of physicians, medical officers, pharmacists and other health workers at all level of health care system should be emphasized more now. Inclusion of more studies on complementary medicine practice in the various academic programs is needed to get effective usage of complementary medicine in the hospitals and medical centers.

### Competing Interest

No competing interest to declare.

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