Complementary and Alternative Medicine

Complementary and alternative medicine (CAM) includes a group of diverse medical and healthcare systems, practices and products that are not generally considered part of conventional medicine. Complementary medicine is generally regarded as additional treatment that is used alongside conventional medicine, whereas alternative medicine is regarded as a treatment used in place of conventional medicine. [1]

There has been considerable interest in the use and regulation of CAM. A House of Lords Select Committee Report was published in November 2000. A subcommittee of the Royal College of Physicians was set up to examine certain aspects and reported in Clinical Medicine in 2003. [2] The House of Lords Select Committee was very keen that there should be professional standards, registration and accountability in all aspects of CAM. However, statutory regulation has not happened and remains voluntary for most forms of CAM, other than osteopathy and chiropractic. Osteopathy is regulated by the General Osteopathic Council. Chiropractic is regulated by the General Chiropractic Council.

CAM does appeal to the public; many feel it is more natural; some feel the holistic approach benefits them; others may turn to it when they feel conventional medicine has let them down. We have a duty to help our patients make informed decisions about their healthcare. We should provide them with the evidence about CAM to aid their empowerment and decision-making process. High-quality evidence is often lacking and a UK study (looking at the impact of CAM on health outcomes) called for those evaluating impact, to use standardised tools to improve the overall quality of the studies. [4]

Analyses of studies into the prevalence of use of CAM in the UK report poor methodological quality. A 2013 systematic review found that across surveys on CAM in general, the average one-year prevalence of use of CAM by people in the UK was 41.1% and the average lifetime prevalence was 51.8%. [5] These figures were 26.3% and 44% respectively when surveys of poor quality were eliminated. Herbal medicine was the most used CAM, followed by homeopathy, aromatherapy, massage and reflexology. A parallel review of studies of referrals/use by doctors showed an average prevalence of use across all surveys of around 20%, an average referral rate of 39% and that 46% of practitioners recommended the use of CAM. [6] Only 10% of practitioners reported having received training in CAM however. Acupuncture was the CAM most used, followed by homeopathy and relaxation therapy.

There are three NHS homeopathic hospitals in the UK (in London, Glasgow and Bristol) and the British Homeopathic Association states that the NHS spends around £4 million per year on homeopathy. [7] This does not include maintenance and running costs of these hospitals. [8]

Of the various forms of CAM, acupuncture is amongst the most popular. A 2012 survey estimated 4 million sessions are provided annually in the UK and that 42% of practitioners practised within the NHS. [9]

Homeopathy

Homeopathic treatment is available within the NHS; however, not all primary care trusts or GPs agree to fund referrals, and the matter causes regular political debate as policy does not match evidence. [8]

The homeopathic approach is based on the concept that "like cures like" - in other words, that "an illness can be treated with a substance, taken in small amounts, that produces similar symptoms in a healthy person". For example, the homeopathic remedy allium cepa is made from an extract of onions. If a person chops onions, they make the eyes sting and water and the nose run. Using the homeopathic philosophy of 'like for like', this means that a disorder with these symptoms should be cured by a small dose of onion. Hence, allium cepa may be used to treat hay fever.

Homeopathic medicines are prepared by serial dilution in steps of 1:10 or 1:100, denoted by Roman numerals X and C respectively. Dilution of 1000c or more are labelled with Roman numeral M. At each step there is succussion, or vigorous shaking, it is believed that the more the dilution, the greater the 'potency'. The dilution most frequently sold in pharmacies is 6c, which is a $10^{-12}$ dilution of the original mother tincture. Hence, it is likely that a 6c dilution will contain just a few molecules of the initial substance, but much higher dilutions, such as the 30c ($10^{-60}$), will contain even fewer.

One of the proposals for how such 'ultramolecular' dilutions work is the 'information hypothesis'. This is the theory that water is capable of storing information relating to substances with which it has previously been in contact, and subsequently transmitting this information to biosystems. There is some research from the field of materials science suggesting that this is plausible. [10] Succussion has been suggested as an important part of this process. It has been proposed that the mathematics of dilution are not as simple as were initially believed as a result of surface effects, rendering the final solutions less dilute than expected. [11]
There have been many publications and much debate and controversy about the evidence for homeopathy. On the whole, meta-analyses of homeopathy are inconclusive and don't provide sufficient information for conclusions to be drawn about homeopathy in general. Although certain randomised controlled trials and clinical outcome studies have shown some benefit, a number of Cochrane reviews of homeopathy in various conditions have found little convincing evidence that homeopathy provides benefit above that of placebo.\cite{12} The National Health and Medical Research Council of Australia released a report in 2015 stating it had concluded, having examined the available evidence “that there are no health conditions for which there is reliable evidence that homeopathy is effective”.\cite{13} It therefore advised against using homeopathy for conditions which were chronic, serious, or could become serious. The 2010 report from the Science and Technology Committee of the House of Commons in the UK came to the same conclusion, although it did not change government policy on funding NHS homeopathy.\cite{8, 14} The National Institute for Health and Care Excellence (NICE) does not recommend the use of homeopathy for any condition.

It has been suggested that the benefits of homeopathy are due to the quality and holistic nature of the homeopathic consultation, rather than to the remedies themselves.\cite{15} The Faculty of Homeopathy regulates the training and practice of homeopathy by medically qualified doctors and other healthcare professionals. There is a published list of doctors who are members of the faculty.\cite{16}

- The most experienced homeopaths have the qualifications FFHom or MFHom.
- The qualification LFHom indicates a doctor who may use homeopathy in a limited way for minor ailments.

For homeopaths who are not doctors, there is no single registering body. There are a number of professional organisations registering homeopaths in the UK, including The Society of Homeopaths, the British Homeopathic Association, the Alliance of Registered Homeopaths and the Institute for Complementary and Natural Medicine.

**Acupuncture**

Acupuncture originated in China, probably more than 4,000 years ago. The profession has robust self-regulation by the British Acupuncture Council and other organisations and this has been acknowledged by Parliament; however, there is as yet no statutory regulation.\cite{17} Practitioners who practise within the NHS as doctors, nurses and physiotherapists are regulated via their professional bodies. The house of Lords Select Committee on Science and Technology defined acupuncture as follows:

"Acupuncture involves inserting small needles into various points in the body to stimulate nerve impulses. Traditional Chinese acupuncture is based on the idea of ‘qi’ (vital energy) which is said to travel around the body along ‘meridians’ which the acupuncture points affect. Western acupuncture uses the same needling technique but is based on affecting nerve impulses and the central nervous system; acupuncture may be used in the West as an anaesthetic agent and also as an analgesic.”
Numerous Cochrane reviews have looked at the evidence for acupuncture in certain conditions. Many reviews conclude that further analysis is required but the following have more positive conclusions:

- **Headache:** acupuncture could be a valuable non-pharmacological tool in patients with frequent episodic or chronic tension-type headaches.\(^\text{[18]}\)
- **Migraine prophylaxis:** acupuncture is at least as effective as, or possibly more effective than, prophylactic drug treatment, and has fewer adverse effects. Acupuncture should be considered a treatment option for patients willing to undergo this treatment.\(^\text{[19]}\)
- **Neck pain:** there is moderate evidence that acupuncture for chronic neck pain is more effective than placebo at the end of treatment and at short-term follow-up.\(^\text{[20]}\)
- **Nausea and vomiting during chemotherapy:** electro-acupuncture seems to be beneficial in treating acute vomiting induced by chemotherapy. However, it needs to be compared with the newer anti-emetics and its use in those with refractory symptoms needs investigating.\(^\text{[21]}\)
- **Back pain:** no firm conclusions can be drawn about the effectiveness of acupuncture for acute pain but it does achieve pain relief and functional improvement in chronic low back pain and is recommended by NICE.\(^\text{[22]}\)
- **Postoperative nausea and vomiting:** compared with anti-emetic medication, P6 acupoint stimulation seems to have similar efficacy in preventing nausea and vomiting postoperatively.\(^\text{[23]}\)

A large prospective UK trial in 2001 of 34,000 consultations found no reports of serious adverse events (defined as events requiring hospital admission, leading to permanent disability, or resulting in death).\(^\text{[24]}\) Practitioners did report 43 minor adverse events. The most common events were severe nausea and fainting. There were three avoidable events; two patients had needles left in and one patient had moxibustion burns to the skin, caused by practitioners’ errors.

**Reflexology**

The House of Lords Select Committee on Complementary and Alternative Medicine described reflexology as follows:

“A system of massage of the feet based on the idea that there are invisible zones running vertically through the body, so that each organ has a corresponding location in the foot. It has also been claimed to stimulate blood supply and relieve tension.”

The concept behind reflexology is that reflex points on the feet and hands correspond to all of the organs, glands and parts of the body. For example, the toes represent the head and the ball of the foot represents the chest and lung region. By applying pressure to these points, it is thought that blood circulation is improved, the body relaxes and organs and glands become balanced. There is less research on the proposed mechanism of action of reflexology than on acupuncture or manipulation. It is thought that the areas activated by massage of the feet may have something in common with the lines of ‘qi’ in acupuncture.

Systematic reviews have failed to demonstrate health benefits of reflexology and trials are generally of poor quality. It nevertheless remains a popular therapy due to anecdotal success stories and the soothing nature of the treatment.\(^\text{[25]}\) It appears to have survived in Egyptian culture since 2330 BC, from which time a hieroglyphic mural depicting the practice dates.

**Manipulation therapies - osteopathy and chiropractic**

The 'manipulative therapies' include osteopathy and chiropractic. The two therapies have some similarities. Their practitioners use their hands to work with joints, muscles and connective tissue and to diagnose and treat soft tissue imbalances and abnormalities in skeletal function. Manipulation techniques are commonly used for low back pain, neck pain, shoulder pain, headache and sports injuries.

Osteopathy is regulated by the General Osteopathic Council. Chiropractic is regulated by the General Chiropractic Council.
Some common techniques used both by osteopaths and chiropractors include:

- **High-velocity thrusts**: a short, sharp controlled movement with low amplitude is applied to the spine to restore local articular range and quality of movement. This produces the classic ‘cracking’ sound.
- **Muscle energy technique**: a soft tissue technique to increase a joint’s range of movement.
- **Functional technique**: taking a joint into continuous, different planes of movement that produce little tension and do not provoke pain. The idea is eventually to work back to the initial starting position - now, it is hoped, with less or no pain. This technique reduces the stimulation through the local neuromuscular tissues and can lead to a release in tension.

Much has been made of the potential dangers of spinal manipulation but (despite its widespread use) serious complications such as vertebral artery dissection occur very rarely. One systematic review of chiropractic interventions found rates varied between 5 strokes/100,000 manipulations to 1.46 serious adverse events/10,000,000 manipulations and 2.68 deaths/10,000,000 manipulations. [26]

There are a number of absolute and relative contra-indications to manipulation at any level, including:[27]

- Any potential sinister cause of back pain, including a history of malignancy that may involve bone, such as breast cancer or a haematological malignancy. Also metabolic states affecting bone strength.
- Aneurysm of a major artery.
- A patient on anticoagulants or who has a clotting disorder. Some suggest that this is a relative contra-indication and depends on the patient’s age and the location of the planned manipulation. Cervical spine manipulation carries a higher risk. Thoracic and lumbar spine manipulation carry a lower risk, especially in a younger patient.
- A patient with neurological disease. Manipulation is contra-indicated if there are upper motor neurone signs. However, some practitioners would be happy to perform manipulation at adjacent joints in those with lower motor neurone signs, in order to unload the strain at the nerve root affected.
- Presence of cauda equina syndrome.
- Acute infection or fracture of the bones or joints involved.
- Active inflammatory arthritis.

The evidence for manipulation for back pain:

- Cochrane reviews concluded that there was no evidence that spinal manipulative therapy was superior to other standard treatments for patients with acute or chronic low back pain. [28, 29] They recommend that the decision to refer should be based on cost, patient preference and availability of providers.
- NICE guidelines for the treatment of low back pain advise considering referral for manual therapy, including spinal manipulation, as one of the treatment options, depending on patient preference. [22]

### Aromatherapy

Aromatherapy is a complementary therapy that uses plant extract essential oils that are either inhaled, used as a massage oil, applied as a cream or added to a warm bath. It can be used to alleviate specific symptoms or as a relaxant. It is based on the healing properties of essential oils, of which there are over 400, extracted from plants all over the world. Popular oils used include chamomile, lavender, rosemary and tea tree. [30] Aromatherapy carrier oils are used for mixing blends of essential oils in order to make bath oils or massage oils. They are mainly extracted from nuts and seeds. Examples are sweet almond oil, evening primrose oil and black seed oil.

Aromatherapy is used to help promote relaxation. It is currently widely used in the management of chronic pain, depression, anxiety and stress, insomnia and some cognitive disorders. [31]

Side-effects can include allergic reactions (including rash for patient or therapist), headache and nausea. It should also be noted that:

- **People with diabetes** should avoid angelica.
- **People with epilepsy** should avoid fennel, rosemary and sage (because of the risk of over-stimulating the nervous system).
- **People with hypertension** should avoid hyssop, rosemary, sage and thyme.
- **Pregnant women** should avoid basil, laurel, angelica, thyme, cumin, aniseed, citronella and juniper. An aromatherapist should always be alerted if the patient is pregnant, because of potential teratogenic and uterine effects of the oils.
- **Those with sensitive skins** should avoid basil, laurel, coriander, tea tree, neroli, geranium, mint, yarrow, Roman and German chamomile, lemon balm, citronella, ginger, hops, jasmine, lemon, lemon grass (unless greatly diluted with a carrier oil), turmeric and valerian. Skin patch testing can be carried out beforehand if there are concerns. Care should be taken in those with a history of allergy or atopic conditions such as asthma, eczema or hay fever.
- **Oestrogen-dependent tumours** such as breast cancer or ovarian cancer, are a contra-indication to the use of oils with oestrogen-like compounds, such as fennel, aniseed, sage, and clary sage.
- There may be possible interactions of essential oils, with antibiotics, antihistamines and sedatives.
- Cinnamon, turmeric, valerian, laurel, juniper, aniseed, coriander and eucalyptus should not be used for longer than two weeks at a time because of concerns about toxicity.
- **Bitter almond, red thyme, common sage, rue, wormwood, tansy, savoy, wintergreen and sassafras oils should be avoided at all times by everyone as they can be poisonous.**

There is no evidence to suggest that aromatherapy can cure or prevent any illnesses; however, some studies suggest it can promote well-being. Cochrane reviews found inadequate evidence to make recommendations for its use in dementia, postoperative nausea and vomiting, or pain management in labour. [33, 34, 35] Aromatherapy is commonly used to help promote well-being in people with advanced cancer. However, 2016 NICE consultation on its upcoming changes to palliative care guidelines suggests it may withdraw complementary therapies from its recommendations.
Herbal remedies

The medicinal properties of herbs have been exploited for many centuries. The druids and the Ancient Egyptians are amongst the best-known exponents of herbal medicine. The concern is that many herbal remedies that are for sale have not been thoroughly tested for efficacy, toxicity, drug interactions and teratogenicity. In addition, there are often problems of variation in potency between batches and correct doses are not carefully established.

The Medicines and Healthcare products Regulatory Agency (MHRA) is the government agency which is responsible for ensuring that medicines and medical devices work and are acceptably safe. The MHRA website also provides a list of registered herbal medicines.

See separate St John's Wort article - of all the various herbal remedies, St John's wort is one of the best-researched.

Hypnosis

Hypnosis may be practised by medically qualified people, clinical psychologists or those without healthcare qualifications. Hypnosis must be used with skill and care, as adverse events, including the implantation of false memories, may occur. The British Society of Clinical Hypnosis can help in finding a registered practitioner. Both competence and ethics are essential.

Evidence of efficacy is limited but examples of conditions for which hypnosis is used as therapy include:

- Smoking cessation. (Cochrane review shows no benefit on six-month quit rates compared to other treatments or no treatment.[38])
- Weight control.
- Irrational fears and phobias.
- Stress management.
- Compulsive behaviour.
- Anxiety and panic attacks.
- Pain management during labour and childbirth. (Cochrane review showed not enough evidence to make recommendations, but may show some promise.[39])

There have been a number of systematic reviews, including Cochrane reviews, showing no evidence for other uses of hypnosis, such as for irritable bowel syndrome and induction of labour.[40, 41]

Macrobiotic diets

The aim of the macrobiotic diet is to avoid foods containing toxins. Macrobiotic diets were at one time popular with people who have cancer who believe that it can help them fight their cancer and lead to a cure. However, as yet there is no scientific evidence supporting a macrobiotic diet treating or curing cancer or any other disease.[42] Different versions of the diet are used. One has been found to be helpful in control of glycaemic levels in type 2 diabetes.[43]

Those following a strict macrobiotic diet need dietary advice to avoid developing conditions due to deficiencies, such as scurvy.

Chelation therapy

Chelation therapy is the use of chelating agents - usually the man-made amino acid ethylene diamine tetra-acetic acid (EDTA) - to remove heavy metals from the body. It is of proven value in Wilson's disease, haemochromatosis and heavy metal poisoning (including lead and mercury). It has also been promoted by some for the treatment of other disorders, including arterial disease, Alzheimer's disease and autism; there is, however, no evidence for these indications.[44, 45]

Faith healing

Faith healing is not new. It is well documented in both the Old Testament (Second Book of Kings, chapter 5) and the New Testament (Gospel of Luke, chapter 8, verses 26 to 56) of the Bible, along with the observation that it is only effective where there is absolute faith. There are still charismatic preachers who carry out 'faith' healing in which people come to the front and publicly discard the wheelchairs that they have allegedly depended upon for many years.

Conclusion

There is some evidence that CAM may work for certain conditions but, for many conditions, the evidence is of poor quality and it is impossible to draw a firm conclusion about its effectiveness. However, we must remember that in many areas this is not the same as evidence of lack of efficacy. More research is needed in this area and more work and understanding on the interface with conventional medicine.

Further reading & references

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**Peer Reviewer:** Dr Helen Huins

**Document ID:** 1791 (v2)

**Last Checked:** 11/02/2016

**Next Review:** 09/02/2021

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