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 a complementary 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 CAM, with a House of Lords Select Committee Report in November 2000 and a subcommittee of the Royal College of Physicians set up to examine certain aspects.2 They reported in Clinical Medicine in 2003.3 The House of Lords Select Committee was very keen that there should be professional standards, registration and accountability in all aspects of CAM.2 Statutory regulation of the acupuncture profession has failed to happen and it is now thought any regulation in the future will be voluntary.4 Osteopathy is regulated by the General Osteopathic Council. Chiropractic is regulated by the General Chiropractic Council.

CAM does appeal to patients; 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.5

Complementary and alternative medicine use

A report in the Lancet in 2007 stated that about 13,000 patients had been treated at four homeopathic hospitals (Bristol, Glasgow, Liverpool and London) in the UK each year.6 14.5% of the population say that they trust homeopathy and £38 million is spent on homeopathy each year in the UK.

Of the various forms of CAM, acupuncture is amongst the most popular. Approximately three million people undergo acupuncture treatment in the UK each year.7

Homeopathy

Homeopathic treatment is still available within the NHS; however, not all primary care trusts or GPs agree to fund referrals.3 The homeopathic approach is based on the concept of ‘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’.9 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 the Latin numbers x and c, respectively. At each step there is succussion, or vigorous shaking. 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 leading 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.10 There is some research from the field of materials science suggesting that this is plausible.11 Succussion has been suggested as an important part of this process.

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. Certain randomised controlled trials and clinical outcome studies have, however, shown some benefit. 12,23 It has also 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.1 Cochrane reviews (various dates and conditions) state homeopathy provides no benefit above that of placebo.

The Faculty of Homeopathy regulates the training and practice of homeopathy by medically qualified doctors. There is a published list of doctors who are members of the faculty:2,16

- 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. The Society of Homeopaths is the largest professional organisation registering homeopaths in Britain. It has more than 2,300 members who must satisfy the Society’s code of practice.

**Acupuncture**

Acupuncture originated in China, probably more than 4,000 years ago. The profession has robust self-regulation by the British Acupuncture Council and this has been acknowledged by Parliament.4 The house of Lords Select Committee on Science and Technology defined acupuncture as follows: 17

> 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.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.19
- **In vitro fertilisation (IVF) treatment:** acupuncture does increase the live birth rate when performed around the time of embryo transfer. Larger trials are needed.20
- **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.21
- **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.22
- **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 the National Institute for Health and Clinical Excellence (NICE).23

Postoperative nausea and vomiting: compared with anti-emetic prophylaxis, P6 acupoint stimulation seems to reduce the risk of nausea but not vomiting postoperatively.24

A large prospective UK trial 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).25 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: 17 ‘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.26 By applying pressure to these points, it is thought that blood circulation is improved, the body relaxes and organs and glands become balanced.26 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.

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15. Introduction to Homeopathy, NHS Evidence - CAM; NHS library information on complementary and alternative medicine.
17. Sixth Report, Complementary and Alternative Medicine, House of Lords Select Committee on Science and Technology, November 2000.
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 seldom occur. The risk of a serious complication due to manipulation is somewhere between one in 100,000 and one in 5.8 million.29,31 Where there have been problems from manipulation, they have more often been when manipulating the cervical spine.29 The following are contra-indications to manipulation at any level:  

- Any potential sinister cause of back pain, including a history of malignancy that may involve bone, such as breast cancer or a haematological malignancy.
- A patient on anticoagulants or who has a clotting disorder.32 Some suggest that this is a relative contra-indication and depends on the patient’s age and where the practitioner is wanting to manipulate. Cervical spine manipulation carries a higher risk. Thoracic and lumbar spine manipulation carries 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.
- Active inflammatory arthritis.

The evidence for manipulation for back pain:

- The UK ‘back pain, exercise and manipulation’ (BEAM) trial was a randomised trial based on 181 general practices.33 It concluded that spinal manipulation is a cost-effective addition to ‘best care’ for back pain in general practice. Manipulation alone probably gives better value for money than manipulation followed by exercise.

A Cochrane review in 2004 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.34

- The European Back Pain Guidelines have recommended the use of manipulation for acute nonspecific low back pain35 and chronic nonspecific low back pain.36

Aromatherapy

Aromatherapy is a complementary therapy that uses plant extract essential oils that are either inhaled, used as a massage oil, or occasionally ingested. It can be used to alleviate specific symptoms or as a relaxant.37 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.38 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 can help to promote relaxation.38 It is currently widely used in the management of chronic pain, depression, anxiety and stress, insomnia and some cognitive disorders.39

Side-effects can include allergic

37 Aromatherapy Council.
Evolving use of alternative medicines

Alternative medicines will continue to influence healthcare decisions in many societies out to 2050. Alternative medicine is growing in popularity: homeopathic medicine, for example, is a more than one billion/year industry. Meanwhile, Western medicine faces up to ominous consequences for decades of antibiotic and pain medication overuse. A preferable future outcome may represent an integrated version of both Western and alternative care that avoids extreme positions on good health.

In Canada for example, alternative, or complementary, medicine used for chronic conditions in pediatrics is on the rise. Chronic illnesses in children like asthma and obesity, globally on the rise, represent a growing market for this type of treatment. Because of the expected long-term impact of these diseases on society, identifying a safe and noninvasive treatment would have huge benefits since the obesity generation is growing up into adults with expensive and debilitating health problems.

Another demographic force of change is the large Baby Boomer cohort approaching old age in an era with many alternatives to traditional medicine. Boomer open-mindedness may again prove its capacity to transform society, this time by raising the status of alternative medicine. An important artifact of the baby boomer zeitgeist is the recognition of the mind-body connection, which focused on opening the mind in their youth but perhaps may become channelled into living longer, healthier lives in their old age. An example is the Stanford study toward creating a ‘virtual compassion gym’ where individuals can be trained in altruism and empathy, traits which have been shown to reduce inflammation and improve cardiac function, among other benefits. Similarly, new research supports psychosomatic treatment, such as meditation, for chronic pain. Perhaps future alternative treatments will have social as well as individual health benefits, including a less drug-dependent and mindful society.

Embracing the mind-body connection also might signal the rising impact of the East on consumer culture, which will in turn grow to influence the direction of the healthcare market. As the influence of Asian consumers rises, cultural preferences will start to shape the products and services offered.

China’s new middle class has more discretionary income to spend, and some of it will go to healthcare. Will Chinese healthcare consumers replace their traditional treatments with Western ones, or help advance alternatives? Meanwhile, there is an aspect of globalisation which de-stigmatises traditional remedies from non-Western/Anglo cultures. Cross-cultural exchange through globalising forces has helped advanced acceptance of differences, although it also creates many opportunities for co-opting sensitive and valued traditions. Moving toward 2050, traditional healing may gain greater acceptance and earn many more customers, but it may likely be a different interpretation.

Fragmented social organisation is another cultural force favouring the rise of alternative medicines. Disillusionment with large, private institutions, BigPharma, and other symbols of centralised knowledge and power is growing. Access to information is being broken down by the World Wide Web, so by 2050 expect to see health and healing as much more participatory and far less top-down. Information comes at a cost, though: ‘cyberchondriacs’ feel sicker with each Google search result. Reducing the anxiety that ambiguous online information creates in patients may be a part of some future medical practices or health services.

The cost of health care is expected to rise, and, some have predicted, so will economic inequality. The fact that alternative medicine is cheaper will allow it to flourish among expensive high-tech treatments. However, substituting inadequate alternative treatments or untrained practitioners for standard health care is a dangerous prospect. Regulation of alternative medicine will need to make progress by 2050: it will be likely that alternative health practitioners will supplement the shrinking workforce of medical doctors, filling the coming shortage in healthcare providers.

**The good:**
- Mind-body connection
- Meditation
- Empathy
- Improved cardiac function

**The bad:**
- 100% chemical-free, all-natural, malaria vaccine.
- Wow! It says here it also stops hair loss.