

## Postscript

In this book, we have identified numerous and serious ethical problems with CAM. *The Moral Maze of Complementary and Alternative Medicine* is thus a biting criticism of CAM as it is practiced today. The reason why we criticise the ‘today’ is, of course, because we want to help create a better ‘tomorrow’. So, what does the future hold for CAM? As scientists, we are not good at reading tea-leaves. Perhaps the better question therefore is: what should the future of CAM be, in view of the many ethical problems that we discovered?

In our view, the incessant violation of fundamental ethical principles is, in the long-run, not tolerable. Therefore, we would urge all involved—regulators, health politicians, professional bodies, practitioners—to work towards bringing CAM in line with the currently accepted ethical standards of healthcare. In many instances, this might mean stopping CAM altogether. This will not be an attractive prospect to some, but the alternative would be to allow double standards in medical ethics. This, in our view, would not be in the best interest of consumers, patients or healthcare as a whole.

Our book will no doubt upset, anger or horrify many who are enthusiastic about CAM. They will disagree with and object to many of our arguments. But we do not mind constructive criticism at all. In fact, we welcome it in the hope that this eventually might lead to ethical progress. However, we fear that much of the criticism of our book—particularly that originating from the realm of CAM itself—will not be constructive but will take the form of ad hominem attacks. We predict that the more fanatical CAM proponents will claim that we are not qualified to judge in the domain of CAM, or that we are dishonest or corrupt.

It is therefore important, we feel, to point out that none of this is true. We are not paid by anyone to defame CAM. What we have written in this book are our sincere conclusions based on many years of research and experience. Our sole motivation in writing *The Moral Maze of Complementary and Alternative Medicine* is to generate ethical progress and contribute towards a better healthcare of tomorrow.

# Glossary<sup>1</sup>

**Acupuncture** can be defined as the insertion of needles into the skin and underlying tissues at acupuncture points for therapeutic or preventative purposes. Traditional acupuncture is based on Taoist philosophy and has no grounding in science. Western acupuncturists believe that acupuncture is based on neurophysiological concepts. The effectiveness of acupuncture is still in dispute. Acupuncture frequently causes mild adverse effects and occasionally serious complications. For most conditions, the risk/benefit balance of acupuncture is negative

**Anthroposophic medicine** was developed by Rudolf Steiner about a century ago. It is based on mystical concepts that have no basis in fact. Numerous therapies are employed by anthroposophic doctors, few of which are supported by sound evidence. Depending on the nature of the therapy, anthroposophic treatments can cause minor or major adverse effects. The risk/benefit balance depends on the treatment in question but usually is not positive

**Aromatherapy** is the use of essential oils for medicinal purposes. There is a wide range of essential oils on offer. The term ‘essential’ here does not mean vital but is derived from essence. Aromatherapy is usually combined with gentle massage; less commonly it is applied via inhalation. Its effectiveness for specific diseases is not supported by good evidence, however, it is an agreeable and relaxing therapy. It can occasionally cause adverse effects such as allergic reactions. The risk/benefit balance might be positive if aromatherapy is used for relaxation and well-being

**Ayurvedic medicine** is a traditional Indian system of healthcare using oral medications, physical treatments, mind-body approaches and life-style measures.

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<sup>1</sup>This glossary is aimed at providing short explanations about the CAM modalities mentioned in the text. The intention is to provide the essential details for understanding of the issues at stake. The main source for compiling the glossary was the *Oxford Handbook of Complementary Medicine* edited by one of the present authors (Ernst) in 2008 (Ernst E, Pittler MH, Wider B et al (2008) *Oxford Handbook of Complementary Medicine*. Oxford University Press, Oxford).

Some of the interventions involved might be effective for some conditions, but most are too under-researched to be sure. Many Ayurvedic medications contain toxic substances such as heavy metals and can therefore cause serious adverse effects. The risk/benefit balance depends on the exact modalities used

**Bach flower remedies** were developed about a century ago by Dr Edward Bach who had a background in homeopathy. They are based on his notion that all diseases are due to emotional imbalances which can be corrected with one of his 38 remedies. The remedies are too highly diluted to contain sufficient amounts of active ingredients. The evidence fails to show that they are efficacious. No direct risks have been reported. The risk/benefit balance is not positive

**Bromelain** is the name of a protein extract made from pineapples which is rich in enzymes. It is sold as a dietary supplement and claimed to work for a range of conditions. Some studies have suggested that it is efficacious for osteoarthritis; however, the evidence is not strong. Allergic reactions are possible. If used for osteoarthritis, its risk/benefit balance might be positive

***Bryophyllum pinnatum*** This plant contains cardiac glycosides. It is native to Madagascar but has become a popular house plant in many countries. In some parts of the world, it is used as a traditional remedy for heart conditions. However, its effectiveness has not been well documented. In high doses, it can cause severe poisoning. Its risk/benefit balance is negative

**Carctol** is an herbal mixture developed by an Ayurvedic practitioner from India who has been promoting his remedy for many years as a treatment of a wide range of conditions. Today, Carctol is promoted mostly as a cancer cure. One 560-mg capsule of Carctol contains *Hemidesmus indicus* (roots): 20 mg/*Tribulus terrestris* (seeds): 20 mg/*Piper cubeba* Linn. (seeds): 120 mg/*Ammani vesicatoria* (plant): 20 mg/*Lepidium sativum* Linn. (seeds): 20 mg/*Blepharis edulis* (seeds): 200 mg/*Smilax china* Linn. (roots): 80 mg/*Rheumemodi wall* (roots): 20 mg. There is no evidence that it is efficacious. Believing the bogus claims could therefore cost cancer patients their lives. Its risk/benefit balance is negative

**Chiropractic** is a form of healthcare that was developed by D.D. Palmer and focusses on the relationship between the spine and the rest of the body. The hallmark therapy of chiropractors is spinal manipulation which, they believe, is necessary to adjust 'subluxations'. These are mystical entities which Palmer believed are the cause of virtually all disease. Consequently, he promoted chiropractic as a cure-all. Yet the effectiveness of chiropractic spinal manipulations is doubtful even for back and neck pain, which are their prime indications today. They cause transient adverse effects in about 50% of all patients; in addition, serious complications, including deaths have regularly been recorded. Its risk/benefit balance is usually not positive

**Craniosacral therapy** is a gentle form of manual therapy developed by W.G. Southerland and J.E. Upledger. They believed that rhythmic motions of the cerebrospinal fluid determine our health and can be influence by manual

manipulations from the outside. The effectiveness of this approach is not supported by evidence. No adverse effects have been noted. Its risk/benefit balance is not positive

**Cupping** is a traditional therapy that has been used in several cultures. There are two different types of cupping. Dry cupping is a therapy where one or more vacuum cups are applied over the intact skin which usually is strong enough to cause bruising. In wet cupping, the skin is scratched prior to applying the vacuum which allows blood to be sucked into the cup. The mechanism of action might be that of a simple counter-irritation. Cupping is promoted for a wide range of conditions, usually with no or only scant evidence in support. Wet cupping can cause infections which can become serious, if untreated. The risk/benefit balance of wet cupping is negative, that of dry cupping is highly questionable

**Eurythmy** is an expressive movement and exercise originated about a century ago by Rudolf Steiner in collaboration with Marie von Sivers. It is used as a performance art, in education, and as an anthroposophic therapy. It is claimed to re-integration of body, soul, and spirit. However, it is neither biologically plausible nor supported by sound evidence. No specific adverse effects are known. Its risk/benefit balance is unknown

**Evening primrose oil** Evening primrose (*Onagraceae* family) is a plant native to North America. The oil made from its seed contains linoleic acids and is used therapeutically. It is commonly used as a supplement for a range of indications. However, for none of them is the evidence sufficient to justify its remarkable popularity. Adverse effects include headache and gastrointestinal symptoms. Its risk/benefit balance is negative

**Gerson<sup>®</sup> therapy** was developed by Max Gerson in the early 20th century. It includes a starvation diet of raw foodstuff and coffee enemas and is used mostly (but not exclusively) to treat cancer. There is no good evidence that it is effective for any condition and plausible evidence to suggest that it can cause severe harm. Therefore, its risks clearly outweigh its benefits

**Herbal medicine** or phytotherapy can be defined as the medicinal use of preparations that contain exclusively plant material. It is advisable to differentiate traditional herbalism from rational phytotherapy. Traditional herbalism is based on obsolete assumptions about the nature of disease and usually employs herbal mixtures that are tailor made for each patient. It is not supported by sufficient evidence for effectiveness. Rational phytotherapy is the use of a herbal extract based on evidence from clinical trials for specific condition. An example is St John's Wort for depression. The risk/benefit balance for evidence-based phytotherapy is positive

**Homeopathy** The basic principles of homeopathy were formulated by a German physician named Samuel Hahnemann in the early nineteenth century. Homeopathy is based on two central principles: the 'law of similars' and the 'law

of infinitesimals'. The former principle holds that a substance able to cause a symptom in healthy subjects can also be used to cure that symptom. The latter principle holds that a therapeutic substance becomes more potent as it is diluted, provided that the process of dilution is accompanied by a special form of vigorous shaking ('succussion'). Hahnemann and his followers assembled a body of literature based on observations of the apparent effects of administration of a range of diluted substances on various subjects (including themselves). Its assumptions fly in the face of science and the trial evidence fails to support that it is more effective than placebo. Much harm is done not normally through the remedies but via the advice issued by homeopaths. Thus, the risk/benefit balance of homeopathy is negative

**Homeoprophylaxis** Homeopaths tend to advise their patients against immunisations and instead recommend homeopathic immunisations or 'homeoprophylaxis'. This normally entails the oral administration of homeopathic remedies, called nosodes, i.e. potentised remedies based on pathogenic material like bodily fluids or pus. There is no evidence that homeoprophylaxis is effective. After conventional immunisations, patients develop immunity against the infection in question which can be monitored by measuring the immune response to the intervention. No such effects can be observed after homeoprophylaxis. The risk/benefit balance is negative

**Integrative care** Integrative (or integrated) medicine has been defined as a 'comprehensive, primary care system that emphasizes wellness and healing of the whole person'. The aim of integrative medicine is to use evidence-based conventional and CAM side by side. The main problem with this approach is that most forms of CAM are not evidence-based. In practice, most centres of integrated medicine make ample use of unproven or disproven treatments

**Intercessory prayer** is the act of praying on behalf of others. In CAM, this is often used as a form of therapy where the ill person is prayed for by one or more people with the aim of improving his/her health. Intercessory prayer is not a plausible therapy and there is no good evidence that this approach is effective. The risk/benefit balance is not positive

**Iridology** Iridologists believe that discolourations on specific spots of the iris of a patient provide diagnostic clues as to the health of organs. They have maps where certain areas of the iris correspond to the organs of the body. Iridology is not in accordance with anatomical and physiological knowledge, and there is no good evidence that it can accurately diagnose anything; therefore, it is likely to lead to false-positive and false-negative diagnoses. The risk/benefit balance is negative

**Kinesiology** or applied kinesiology (AK) is a diagnostic technique developed by the US chiropractor George Goodheart Jr. It involves the practitioner testing the strength of the patient's muscle groups which allegedly provides information about the patient's health. The assumptions of AK are not plausible, and its

validity has been tested repeatedly and was not confirmed. The risk/benefit balance of AK is therefore not positive

**Laetrile** also often called Vitamin B17 (although it is not a vitamin), is a partly man-made form of the natural substance amygdalin, found naturally in raw nuts and the pips of many fruits, particularly apricot, or kernels. It is converted to cyanide in the body and often claimed to be an effective cancer therapy. However, there is no evidence that it is effective and compelling evidence that it can be harmful. The risk/benefit balance is negative

**Lens culinaris lectin** Lentils are part of the staple diet in many regions of the world. They contain carbohydrate-binding proteins called lectins which are sometimes used for medicinal purposes. No serious adverse effects have been noted. The risk/benefit balance is unknown

**Massage therapy** Massage is a therapy where the soft tissues of whole body areas are manipulated, usually by hand. There are many types of massage therapies originating from different parts of the world. There is some evidence to suggest that some forms of massage are effective in treating some conditions. Massage therapy is not associated with serious adverse effects. Its benefits can outweigh its risks

**Mindfulness-based stress reduction** Mindfulness is the process of bringing one's attention to the internal and external experiences occurring in the present moment which can be developed through the practice of meditation. Mindfulness-based stress reduction is the use of mindfulness to assist people suffering from stress, pain or a range of other conditions. There is good evidence to suggest it is effective and safe. Therefore, the risk/benefit balance is positive

**Mistletoe** (*Viscum album*) therapy goes back to Rudolf Steiner and his anthroposophical philosophy. Steiner argued that mistletoe is a parasitic plant on host trees which it eventually kills, similar to a cancerous tumour killing a patient. Inspired by homeopathy's like cures like theory, he concluded that therefore, mistletoe must be a treatment for cancer. The evidence is conflicting but the best data fail to show that mistletoe preparations cure cancer or improve cancer patients' quality of life. Mistletoe is not free of adverse effects. The risk/benefit balance is not positive

**Naturopathy** is an eclectic system of healthcare which employs the forces of nature for stimulating the body's ability to heal itself. The modalities used include herbal extracts, manual therapies, heat and cold, water and electricity. Its effectiveness and safety depend on the exact mixture of modalities applied. The risk/benefit balance is in most cases not positive

**Nutritional therapy** Nutritional therapies use diets for medicinal purposes. In CAM, there is a plethora of diets which are being promoted as treatments for a wide range of conditions. They usually have in common that their plausibility,

effectiveness and safety are unknown or uncertain. The risk/benefit balance of these nutritional therapies is often negative

**Osteopathy** is a manual therapy involving manipulation of the spine and other joints as well as mobilization of soft tissues. It was originated in the US by Andrew Still some 230 years ago. Today, US osteopaths have mostly become conventional physicians, while elsewhere they are CAM practitioners. Osteopathy is advocated for a wide range of condition, but only for back pain is the evidence encouraging. Osteopathy can cause adverse effects as well as serious complications. Its risk/benefit balance is usually not positive

**Papain** is an enzyme from papaya fruit that breaks down proteins. It is used medicinally for a wide range of conditions, both orally and topically. Its effectiveness is not supported by good evidence. No major adverse effects are on record. Its risk/benefit balance is uncertain

**Phytotherapy** is a synonym of herbal medicine. The term ‘rational phytotherapy’ is sometimes used to describe the use of evidence-based herbal treatments and differentiate them from the use of traditional herbal medicine which is usually individualised according to the characteristics of a single patient

**Reflexology** is the treatment employing manual pressure to specific areas of the body, usually the feet, which are claimed to correspond to internal organs with a view of generating positive health effects. The therapy lacks plausibility and its effectiveness is not supported by good evidence. There are no major risks. The risk/benefit balance fails to be positive

**Reiki** is a Japanese therapy where the therapist claims to channel life energy into the patient’s body which is supposed to stimulate his self-healing abilities. The therapy lacks plausibility and its effectiveness is not supported by good evidence. There are no major risks. The risk/benefit balance fails to be positive

**Schuessler salts** were developed by the German homeopath W. H. Schuessler at the end of the 19th century. To this day, they are highly popular in Germany and are now beginning to find enthusiasts elsewhere. Schuessler believes that diseases were due to imbalances of the body’s minerals. His remedies are highly diluted like homeopathic medicines. There is no evidence that Schuessler salts are more than placebos. Their risk/benefit balance is not positive

**Shiatsu** is a Japanese therapy akin to acupressure; the therapist uses his fingers to apply pressure to certain points of the body. The therapy lacks plausibility and its effectiveness is not supported by good evidence. There are few major risks. The risk/benefit balance fails to be positive

**Sodium selenite** is the sodium salt of selenium; it is a colourless, inorganic solid. Its effectiveness and safety are not known, and its risk/benefit balance is unknown

**Spiritual healing** is, like Reiki, a form of energy healing where the therapist claims to channel life energy into the patient's body which is said to stimulate his/her self-healing abilities. The therapy lacks plausibility and its effectiveness is not supported by good evidence. There are no major risks. The risk/benefit balance fails to be positive

**Therapeutic touch** is yet another form of energy healing where the therapist claims to channel life energy into the patient's body which is said to stimulate his/her self-healing abilities. It is particularly popular with US nurses. The therapy lacks plausibility and its effectiveness is not supported by good evidence. There are no major risks. The risk/benefit balance fails to be positive

**Traditional Chinese medicine (TCM)** is a diagnostic and therapeutic system based on the Taoist philosophy of Yin and Yang. It is used as an umbrella term for methods that emerged from China, including acupuncture, herbal medicine, tui-na (Chinese massage), tai chi and diet. Some of these treatments are biologically plausible, e.g. herbal medicine and diet. A few may be effective and safe. The risk/benefit balance depends on the therapy in question but is generally negative

**Ukrain** is an alternative cancer drug based on two natural substances: alkaloids from the greater celandine and the compound thiotepa. Its effectiveness is highly questionable, although its adverse effects seem relatively minor. Its risk/benefit balance is not positive

# Index

## A

- Aconite, 3–5, 8
- Acupuncture, 15, 16, 127, 128, 133, 136, 137, 213
  - asthma and, 3
  - back pain and, 19, 20
  - cognitive impairment and, 85, 87
  - depression and, 15
  - education, 106–108, 111, 117
  - hot flashes and, 74, 75
  - research, 35, 46, 53, 54, 70
  - risks of, 140–142, 185
  - slimming and, 192
- Acupuncture Now Foundation (ANF), 15, 16
- Alliance of Registered Homeopaths (ARH), 113
- American Chiropractic Association (ACA), 145
- American Public Health Association (APHA), 90
- American Statistical Association (ASA), 47
- Anecdotal evidence, 6, 12, 27–29, 32, 33, 57, 58, 96, 107, 159, 198
- Anthroposophic medicine, 64, 87, 88, 126, 215, 217
- Arnica, 79
- Aromatherapy, 68, 157, 195, 213
- Association of British Neurologists (ABN), 143, 144
- Association of Catholic Doctors (Bund Katholischer Ärzte), 186
- Autonomy, principle of, viii, xix, xx, xxiii, xxv
  - CAM commerce and, 190, 196, 203, 207, 208
  - CAM education and, 102, 103, 109, 120
  - diagnostic techniques and, 130
  - false hope and, 187
  - informed consent and, 146, 147

- placebos and, 176, 177
  - vaccination and, 12–14
- Ayurvedic medicine, 136, 166, 178, 191, 213

## B

- Bach flower remedies, 79, 80, 157, 200, 214
- Beneficence, principle of, xxiii
- Benveniste, Jacques, 158, 163
- Boots, pharmacy stores, 195, 196
- British Acupuncture Council (BAC), 127, 141
- British Chiropractic Association (BCA), 142
- Bromelain, 65, 214
- Bryophyllum pinnatum, 64, 214

## C

- Carctol, 17, 18, 199, 214
- Carrasco, Ignacio, xx
- Charles, H.R.H. Prince, 178, 179, 182, 187, 191
- Chiropractic, 3, 157, 172, 173, 214
  - back and neck conditions and, 20
  - diagnostic techniques and, 130–132
  - education, 108, 109, 113–117
  - informed consent and, 123–126, 129, 138, 140
  - marketing, 192, 193, 203
  - research, 53, 66, 74, 92
  - risks of, 20, 141, 142, 144, 145
  - vaccination and, 8–10, 12, 204
- Coffee enema, 133, 186, 206, 215
- Colquhoun, David, 47, 50
- Consequentialism, xviii–xxiv
- Craniosacral therapy, 77, 78, 95, 108, 214
- Cupping, 80–82, 215

## D

- Deontology, *see nonconsequentialism*
- Detox, 133, 135, 136, 171, 191

- Disutility, xxiii  
 Do No Harm Initiative Inc., 10  
 Duty, ethical, xix–xxi, 101, 120, 138, 140, 144, 154–156
- E**  
 Edwards, Robert, xx  
 Endpoint, clinical trial, 39–42, 50, 56. *See also* ‘research’ for each specific therapy  
 Eurythmy, 87, 88, 215  
 Evening primrose oil, 83, 215  
 Evidence-Based Medicine (EBM), 5, 102, 110, 112–114, 120
- F**  
 Fairness, *see justice*  
 Fraudulent research, 38, 41, 52, 56, 80, 82–85, 95, 162, 180  
 Frolov, Oksana, 11
- G**  
 General Chiropractic Council (GCC), 21, 92  
 General Medical Council (GMC), 118  
 Gerson® therapy, 186, 187, 199, 206  
 Gidley, Sandra, 201  
 Glasgow Homeopathic Hospital, 205
- H**  
 Hahnemann, Samuel, 4, 109, 216  
 Healing crisis, 174  
 Herbal medicine, 93, 96, 112, 215. *See also naturopathy, phytotherapy, and TCM*  
 cancer and, 188, 199, 200  
 degrees in, 116  
 Internet advice and, 126  
 rational phytotherapy and, 134  
 reductionism and, 166  
 research, 40, 41, 53, 55  
 selling, 195  
 sleep quality and, 64  
 vascular dementia and, 87  
 Herd immunity, 14, 204  
 Hippocratic oath, xviii, xix, 22  
 HIV, 154, 163, 188, 202  
 Holism, 102, 110–113, 120, 123, 164, 165, 167, 168, 175, 182  
 Homeopathy, 2, 4, 6, 153–156, 162–164, 174, 217  
 animals, use with, 179, 180  
 asthma and, 125  
 cancer and, 188, 199  
 consumer satisfaction and, 90, 91  
 deaths due to, 203  
 degrees, 116  
 diabetes and, 7, 8, 63  
 education, 105–107, 109–115  
 facial bruising and, 79  
 homosexuality and, 186  
 informed consent and, 126, 129, 138, 140  
 molecular memory and, 5, 66, 107, 163  
 NHS and, 201, 202  
 research, 31–33, 43–46, 51, 53, 66, 78, 93–95, 158  
 respiratory tract infections and, 71–73  
 risks of, 140, 169  
 scientific methodology and, 165, 166  
 test system for, 84  
 tonsillopharyngitis and, 91, 92  
 vaccination and, 10–12. *See also homeoprophylaxis*  
 Homeoprophylaxis, 10, 204, 216  
 Horrobin, David, 83
- I**  
 Integrative care, 71, 216  
 Intercessory prayer, 1, 47–49, 82, 176, 216  
 International Chiropractic Association (ICA), 9, 10, 145  
 Ioannidis, John, 42  
 Iridology, 131, 132, 175, 179, 216
- J**  
 Justice, xix, xxiii–xxv, 102, 103, 120, 215
- K**  
 Kemp’s test, 131  
 Kinesiology, 200, 216  
 Kuhn, Thomas, 161, 162, 164
- L**  
 Laetrile, 17, 18, 153, 217  
 Law of similars, 4, 215  
 Lens culinaris lectin, 65, 217
- M**  
 Magnetic bracelets, 194  
 Manitoba Chiropractors Association (MCA), 202  
 Massage therapy, 68, 77, 78, 125, 130, 157, 217  
 Materia medica, homeopathic, 2  
 Medicare, 201

Mindfulness-based therapy, 75, 217  
 Mistletoe, 17, 18, 200, 217  
 MMR vaccination, 8, 12  
 Montagnier, Luc, 163

## N

National Center for Complementary and Integrative Health (NCCIH), 94  
 National Health and Medical Research Council (NHMRC), 139, 140  
 Naturopathy, 217  
   asthma and, 125  
   education, 117  
   leukaemia and, 21  
   research and, 53, 89  
   vaccination and, 10–12, 114, 115  
 National Health Service (NHS), 155, 165, 178, 200–202, 206  
 National Institutes of Health (NIH), 155, 189  
 Nonconsequentialism, xviii–xxiv, 102  
 Nonmaleficence, xxiii, 22, 130  
 Nowicky, Wassil, 84, 85  
 Nutritional therapy, 116, 157, 217

## O

Occam's razor, 49, 95  
 Osteopathy, 11, 116, 175, 218

## P

Palmer, B.J., 9  
 Palmer, D.D., 9, 109, 123, 125, 214  
 Paltrow, Gwyneth, 193  
 Papain, 65, 218  
 Paradigm shift, 94, 161–164, 182  
 Paternalism, 13, 14, 146, 147, 176, 203  
 Peczely, Ignaz von, 131  
 Peer review, 54, 57, 65, 79, 80, 92, 166  
 Phytotherapy, 91, 134, 215, 218  
 Placebo effect, 28–30, 32, 145, 154, 175–177, 180, 182  
 Placebo group, 35–39, 43–45, 50, 51, 66.  
   *See also 'research' for each specific therapy*  
 Post hoc fallacy, 31–33  
 Postmodernism, 159, 162, 181  
 Potentiation, 4, 204, 216  
 Preference-satisfaction utilitarianism, xxi, xxiii  
 Principlism, xxiii, xxiv  
*p*-value, 42–44, 46–50, 58

## Q

Qi, 46, 106–108, 112, 128, 172

## R

Randomised Clinical Trial (RCT), 35–39, 41–45, 50–52, 54, 57, 86  
   back pain and, 75, 77, 78  
   depression and, 69  
   education and, 107  
   scientific methodology and, 159, 164–166  
 Reductionism, 111, 112, 165, 166, 168  
 Reflexology, 68, 116, 157, 175, 218  
 Regression to the mean, 29  
 Reiki, 61–63, 69, 145, 146, 157, 218  
 Respect, *see autonomy*  
 Rhino poaching, 204  
 Rights, patient, xix, xx, xxv, 9, 10  
 Royal Pharmaceutical Society (RPA), 201  
 Rule-utilitarianism, xxi, xxii  
 Russell, Bertrand, 160

## S

Sackett, David, 112  
 Sagan, Carl, 163  
 Sampson, Wallace, 118  
 Schuessler salts, 200, 218  
 Scientism, 165  
 Scrutton, Steve, 113  
 Sheffield, Fran, 10  
 Similitude, *see law of similars*  
 Sodium selenite, 65, 218  
 Spiritual healing, 82, 130, 219  
 Statins, 3, 5, 6  
 Statistical significance, 43, 49, 50, 79  
 St John's wort, 134, 200, 215  
 Succussion, 4, 84, 216

## T

Traditional Chinese Medicine (TCM), 15, 16, 56, 86, 87, 172, 195, 204, 219  
 Teleology, *see utilitarianism*  
 Thompson, Elizabeth, 188  
 Tredinnick, David, 187, 188

## U

Ukrain, 17, 18, 84, 85, 200, 219  
 Utilitarianism, xvii, xxi–xxiv, 102, 146, 147, 154–156, 182, 187, 196, 206

## V

Virtue ethics, xxii, xxiv, 146, 153–156, 183

## W

Wood, Julie, 202