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Effective Health Care

Bulletin on the effectiveness of health service interventions for decision makers

Acupuncture

This bulletin summarises the research evidence on the effectiveness of acupuncture.

- Acupuncture involves the stimulation of specific points (acupoints) on the skin, usually by the insertion of needles. It is widely used in both private and NHS settings. It has been estimated that one million acupuncture treatments are given on the NHS and two million in the private sector in England each year.
- In the West, acupuncture is most commonly used for the treatment of chronic pain, particularly musculoskeletal complaints. Whilst there are many RCTs evaluating the effectiveness of acupuncture, the majority are of poor quality, and provide conflicting evidence.
- Acupuncture appears to be effective for postoperative nausea and vomiting in adults, chemotherapy-related nausea and vomiting and for postoperative dental pain.
- Current evidence suggests that acupuncture is unlikely to be of benefit for obesity, smoking cessation and tinnitus. For most other conditions, the available evidence is insufficient to guide clinical decisions.
- Acupuncture appears a relatively safe treatment in the hands of suitably qualified practitioners, with serious adverse events being extremely rare.

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A. Background

In the UK, acupuncture is widely used in both private and National Health Service settings. In surveys of complementary medicine use, acupuncture is consistently cited amongst the most commonly used.[1] Approximately 7% of the adult population in England have received acupuncture.[2] Most acupuncture sessions are provided by specialist practitioners without other medical qualifications, of whom there are over 2,200 in the UK.[3] In addition, the British Medical Acupuncture Society has over 2,000 doctors as members who use acupuncture in hospital or general practice,[4] and there are over 1,200 physiotherapists who are members of the Acupuncture Association of Chartered Physiotherapists.[5] In 1995, the last year for which there are data, approximately 10% of GPs in England either referred patients for acupuncture or administered it themselves.[6] A more recent survey estimated that in 1998, the NHS provided one million acupuncture treatments in England. Currently, the estimated total cost to the NHS of nearly £26m is equivalent to all other complementary therapies combined.[2] In the private sector, it is estimated that patients receive around two million acupuncture treatments a year.[7]

B. What is acupuncture?

Acupuncture involves the stimulation of specific points on the skin, usually by the insertion of needles. In its original form acupuncture was based on the principles of traditional Chinese medicine. Traditional acupuncturists understand health in terms of a vital force or energy called 'Qi' (pronounced 'chee'), which circulates between the organs along channels called meridians. Qi energy must flow in the correct strength and quality through each of these meridians and organs for health to be maintained. The acupuncture points are located along the meridians and provide one means of altering the flow of Qi. Traditional acupuncturists use an Oriental medicine framework for referring to disturbances thought to cause symptoms, such as 'kidney yang vacuity, water overflowing' or 'damp heat in the bladder'.

Many conventional health care professionals who practise acupuncture have dispensed with such concepts. Acupuncture points are thought to correspond to physiological and anatomical features such as peripheral nerve junctions, and diagnosis is made in purely conventional terms. One concept thought important by some practitioners is that of 'trigger points' which they believe often correspond to acupuncture points.[8] This is an area of increased sensitivity within a muscle which is said to cause a characteristic pattern of referred pain in a related segment of the body. An example might be tender areas in the muscles of the neck and shoulder that relate to various patterns of headache.[8]

It is often implied that a clear distinction exists between traditional and western acupuncture, but the two approaches overlap considerably.[9] Moreover, traditional acupuncture is not a single, historically stable therapy[10] and there is considerable variation between different 'schools' of acupuncture practice.[9] Two acupuncturists treating the same patient may vary in the particular points chosen, the depth and duration of needling, the method and intensity of needle stimulation and the use of adjunctive techniques such as massage or herbal medicines.

The current proposed mechanism for acupuncture analgesia is that acupuncture stimulates peripheral nerves in muscles to send impulses to the central nervous system. Three separate centres – spinal cord, midbrain and hypothalamus/ pituitary – are activated and release endorphins and enkephalins, which block pain perception.[11]

Acupuncture has been shown to induce reproducible patterns of neural activity in a wide variety of brainstem, midbrain and cerebral cortical structures. For example, stimulation of an acupuncture point traditionally used to treat eye disorders leads to a similar pattern of activity in the visual cortex as a visual stimulus as imaged by functional magnetic resonance imaging (fMRI). Stimulation of a non-acupuncture point or a point non-specific for vision has no effect.[12]

C. Nature of the clinical evidence

Most of the conditions that acupuncturists treat are either self-limiting (e.g. low back pain, morning sickness) or have a relapsing and remitting course (e.g. migraine, asthma), and almost without exception, the presenting complaint is a subjective symptom such as pain, fatigue or breathlessness.

This bulletin is based predominantly on a review of systematic reviews conducted by the Complementary Medicine Field of the Cochrane Collaboration.[13] Individual randomised controlled trials (RCTs) published subsequent to the reviews are also included. See appendix for further details of methods.

The areas that have been researched are not representative of a typical practitioner's workload. For instance, there are a number of studies on nausea, vomiting, and postoperative pain that are well managed by conventional methods. More chronic and intransigent problems that are less responsive to or not well managed by conventional treatment have had little investigation. This results directly from the lack of a research infrastructure for acupuncture. Research has taken place where researchers tend to work – in hospitals rather than primary care – and has studied conditions most amenable to research, those of short duration and with a high throughput of patients. There are numerous examples of pilot projects that are not taken forward to the definitive RCT, and of poorly presented studies that appear to have been conducted by practitioners without appropriate research skills, or researchers with little knowledge of acupuncture.

D. Effectiveness

D1. Acute pain

Pain after dental surgery provides a good model of acupuncture analgesia due to its limited and predictable course. In a typical RCT, patients undergoing third molar extraction were randomised to acupuncture or placebo on a double-blind basis. Mean duration of the pain-free interval following surgery was 181 minutes in acupuncture patients versus 71 minutes in controls, a statistically significant difference.[14] A systematic review of 16 such studies concluded that acupuncture was probably effective for pain after dental surgery and that future research should concentrate on defining 'the optimal acupuncture technique'.[15] Whilst this research does seem to demonstrate an effect of acupuncture not attributable to placebo, its clinical importance is not fully clear. Two additional RCTs found similar results.[16,17]

Studies investigating acupuncture for other forms of postoperative pain used widely diverse treatment techniques, studied small samples of patients and have had inconsistent findings.[18-26]

D2. Chronic pain

Several systematic reviews have evaluated the effectiveness of acupuncture for the treatment of chronic pain (see Table 1).[27-45] Some systematic reviews have examined particular diagnoses, such as headache or back pain, whereas others have included studies across a range of chronic pain conditions. Though reviews vary in their conclusions, acupuncture was found to be superior to no treatment or waiting list control in most studies. RCTs comparing acupuncture to a sham technique were more evenly balanced between those that did and those that did not find statistically significant differences between groups.

A number of additional RCTs have been published subsequently and have yet to be reviewed systematically.[46-70] These RCTs are of variable quality and provide conflicting evidence for the effectiveness of acupuncture across a range of chronic pain conditions. Tables providing more detail on each of these trials are available via the CRD website (www.york.ac.uk/inst/crd/ehcb.htm).

Quality was related to study outcomes with lower quality studies being more likely to favour acupuncture. There are several important caveats to these findings. Firstly, the finding that 'quality' predicts study outcome may be explained by the absence of a comparison between acupuncture and placebo or sham acupuncture. A number of RCTs comparing acupuncture to no treatment have been conducted in order to answer pragmatic questions about the overall effects of an acupuncture referral. Such RCTs cannot be blinded, and therefore will be rated as lower quality. Assuming that acupuncture, like any other form of treatment, has a placebo element as well as a specific effect, RCTs comparing acupuncture to no treatment will have a larger difference between groups than RCTs comparing acupuncture to placebo.

Secondly, most RCTs of acupuncture in chronic pain have been underpowered. Table 2 shows the median and maximum number of patients per RCT in three systematic reviews of acupuncture for back pain, headache and osteoarthritis.[33,38,43] For comparison, it also shows the target sample sizes for three ongoing RCTs of acupuncture.[71-73] For each of these conditions an estimate has been given of the size necessary for an adequately powered RCT.

Thirdly, both the active acupuncture and sham techniques used in many chronic pain studies have been criticised as inadequate. In one study of chronic low back pain, for example, only three points were needled on two occasions.[74] The number of points and treatment sessions used in RCTs of acupuncture for back and neck pain have been systematically compared to recommendations in acupuncture textbooks.[75] Almost all RCTs were said to have used an inadequate number of points and over half were said to have involved fewer treatment sessions than recommended.[75] There is also evidence that the choice of sham needling points (supposedly inactive for the pain condition under investigation) in some RCTs may have been inappropriate.[76] Improvements from baseline greater than 35% were seen in the sham group of 24 of 30 studies in which placebo needling was in the same segment of the body as active needling. In RCTs where the sham needles were placed in a different segment of the body to the active needles, patients receiving the sham procedure improved by 35% or more in only six of 30 RCTs.[76]

Finally, advocates of acupuncture have pointed to the findings of several high quality studies that have shown statistically and clinically significant differences between acupuncture and sham.[54,77,78] However, each of these findings should not be viewed in isolation from the more extensive body of evidence on chronic pain.

D3. Addiction

Acupuncture is widely promoted as an aid to smoking cessation. A systematic review of 21 trials suggested that, at best, acupuncture may have a small benefit over a sham acupuncture procedure for short-term abstinence rates.[79] Acupuncture is not more effective than placebo techniques for long-term abstinence.[79] Quit rates for acupuncture appear slightly lower than those for nicotine replacement.[80]

Acupuncture has been used to treat cocaine addiction in several hundred drug treatment programmes in the United States.[81] Several RCTs have been conducted,[82-86] but these have not been subjected to systematic review. Acupuncture is favoured in some analyses, but some RCTs were complicated by multiple statistical comparisons: this increases the likelihood of a false-positive result. The most rigorous RCT reported that patients assigned to acupuncture were significantly more likely to provide cocaine-negative urine samples, the pre-specified primary outcome measure, than those in both the control and sham acupuncture groups.[86]

Table 1 Systematic reviews of acupuncture for chronic pain

Author,year	Indication	Comparisons	Studies	Features	Results	Conclusion
Chronic pain						
Ezzo 2000[27]	chronic pain	sham, placebo, no treatment, standard	51 RCT	y/y/y/y/n	Positive results in 21 RCTs, negative in 3, and inconclusive in 27. Better studies more often negative or inconclusive	Limited evidence that acupuncture is more effective than no treatment, inconclusive evidence regarding placebo, sham and standard care
Patel 1989[28]	chronic pain	sham, no treatment, standard	14 RCT	n/y/n/y/y	Overall patients receiving acupuncture were 18% (p<0.01) more likely to experience improvement	Available evidence positive but definitive conclusions difficult due to various potential sources of bias
ter Riet 1990[29]	chronic pain	sham, no treatment, standard, other acupunctures	51 CCT	y/y/y/y/n	RCTs small and of low quality. 24 with positive and 27 with negative results. Better studies more often negative	The efficacy of acupuncture in the treatment of chronic pain remains doubtful
Back & neck pain						
van Tulder 2001[30]	low back pain	sham, other, no treatment	11 RCT	y/y/y/y/n	Conflicting evidence for acupuncture v. no treatment. Acupuncture not more effective than trigger point injection or transcutaneous electrical nerve stimulation. Acupuncture not more effective than placebo or sham acupuncture in most trials. Methodological quality judged as low	Acupuncture not recommended as regular treatment for low back pain. High quality trials needed
Smith 2000[31]	back & neck pain	inactive (sham, other, no treatment)	13 RCT	y/y/y/y/n	5 studies positive, 8 studies negative; better studies reported more often negative results	No convincing evidence for the analgesic efficacy of acupuncture for back and neck pain
White 1999[32]	neck pain	sham, other, no treatment	14 RCT	y/y/y/y/n	7 studies positive, 7 negative. Of the 8 better studies 5 negative, 3 positive	No convincing evidence for the effectiveness of acupuncture for neck pain
van Tulder 1999[33]	low back pain	sham, other, no treatment	11 RCT	y/y/y/y/n	Conclusions of primary authors positive in 8 studies, by reviewers for 2 studies. Methodological quality judged as low	Acupuncture not recommended as regular treatment for low back pain. High quality RCTs needed
Ernst 1998[34]	back pain	sham, other, no treatment	12 RCT	y/y/y/y/y	OR for improvement compared with all control interventions 2.30 (95%CI 1.28-4.13), with sham 1.37 (0.84-2.25). Majority of studies good quality	Acupuncture superior to various control interventions although insufficient evidence whether superior to sham
Longworth 1997[35]	sciatica	unclear	1 RCT, 6 CCT, 31 UCS	n/p/n/y/n	Most studies of poor quality; a large number of patients seem to have benefited	There may be a role for acupuncture treatment of lumbar disk protrusions and sciatica
ter Riet 1989[36]	neck and back pain	unclear	16 RCT, 6 CCT	y/p/y/n/n	Study design was generally poor. Results only discussed for a few better quality studies	Due to the low methodological quality no definitive conclusions can be drawn
Headache						
Linde 2001[37]	idiopathic headaches	sham, other, no treatment	26 RCT	y/y/y/y/n	Majority of 16 sham controlled trials with at least a trend in favour of acupuncture. Trials vs. other treatments contradictory	Existing evidence suggests the value of acupuncture for the treatment of headache. However, quality and amount of evidence not fully convincing
Melchart 1999[38]	recurrent headaches	sham, other, no treatment	22 RCT	y/y/y/y/y	Majority of 14 sham RCTs with at least a trend in favour of acupuncture. RCTs vs. other treatments contradictory	Existing evidence suggests that acupuncture has a role in headache treatment. However, quality and amount of evidence not fully convincing
ter Riet 1989[40]	tension type headache	sham, other treatment	7 RCT, 1 CCT	y/p/y/n/n	Small study size and methodological problems make the available RCTs uninterpretable	No definitive conclusions on the effectiveness of acupuncture for headache can be drawn
ter Riet 1989[39]	facial pain	sham	2 RCT	y/p/y/y/n	Methodological quality poor	No definitive conclusions possible

Table 1 Systematic reviews of acupuncture for chronic pain cont.

Author,year	Indication	Comparisons	Studies	Features	Results	Conclusion
Rheumatic diseases						
Ezzo 2001[41]	knee osteoarthritis	sham, other, no treatment	7 RCT	y/y/y/n/n	Strong evidence that acupuncture is more effective than sham acupuncture for pain. Limited evidence that acupuncture better than usual treatment; insufficient evidence v. other treatments.	Evidence suggests that acupuncture may play a role in the treatment of knee osteoarthritis, particularly for the treatment of pain.
Berman 1999[42]	fibromyalgia	sham, other treatments	3 RCT, 4 CS	y/y/y/y/n	Acupuncture more effective than sham for symptoms and global ratings	Limited amount of positive evidence. Further research needed
Ernst 1997[43]	osteoarthritis	sham, other, no treatment	7 RCT, 4 RCT/CCT, 2 RCT	y/p/n/y/n	Both sham and true acupuncture improve symptoms but better RCTs suggest no difference between the two	The notion that acupuncture is superior to sham-needling is not supported by data from controlled clinical RCTs
Lautenschläger 1997[44]	inflammatory rheumatoid disease	sham, no treatment, different acupuncture	2 RCT, 7 CCT, 9 CS	n/p/n/y/n	Controlled RCTs contradictory, quality often low	Acupuncture cannot be recommended for rheumatoid arthritis, spondarthropathy, lupus eryth or scleroderma
ter Riet 1989[45]	rheumatoid arthritis	sham	1 RCT, 2CCT	y/p/y/n/n	Only 1 RCT summarised; this found positive effects on pain but not on inflammation	No definitive conclusions possible

Features: 1 = comprehensive search, 2 = explicit inclusion criteria, 3 = formal quality assessment, 4 = summary of each single studies result, 5 = meta-analysis; y = yes, p = partly, n = no, RCT = randomised controlled trials, CCT = non-randomised controlled trials, CS = cohort studies, UCS = uncontrolled studies; OR = odds ratio

No systematic reviews evaluating the use of acupuncture to treat alcoholism or opiate addiction were identified. The number, size, quality and strength of findings of RCTs studying acupuncture for alcoholism and opiate addiction is insufficient to guide clinical decisions.[87-93]

D4. Asthma

Systematic reviews of acupuncture for asthma have concluded that there is little evidence on which to base clinical decisions.[94,95] A number of the included RCTs have examined acupuncture for asthma and chronic obstructive pulmonary disease. The RCTs are heterogenous with respect to patients, acupuncture techniques, outcome measures and controls. They have also been small: the median sample size is 25; the largest RCT accrued only 39 patients. Some RCTs have used models of induced asthma so as to allow good experimental control.[96,97] Whilst appearing to show a physiological benefit of acupuncture on lung function, these studies have not been replicated and provide limited insight into the clinical utility of acupuncture for asthma. Two small RCTs have recently been published but also provide limited insight into the clinical effectiveness of acupuncture for asthma.[98,99]

D5. Nausea and vomiting

Two systematic reviews have examined acupuncture for nausea and vomiting.[100,101] The first included RCTs on nausea related to surgery, pregnancy and chemotherapy.[100] Though acupuncture was not an effective technique when administered under anaesthetic, it was superior to sham in 11 of 12 of the studies rated as high-quality. The reviewed RCTs showed consistent results across different investigators, different groups of patients and different forms of acupuncture point stimulation. Allocation concealment was not included in the quality assessment and two studies with unconcealed allocation were included in the principal analysis. The second review, which concentrated on postoperative emesis, improved on the original review by excluding studies with unconcealed allocation and reported a meta-analysis.[101] Data from 19 studies including 1,679 patients were analysed. For adults, acupuncture reduced both nausea (relative risk compared to placebo control 0.4; 95% CI 0.2 – 0.7; 5 RCTs) and vomiting (relative risk compared to placebo control 0.5; 95% CI 0.35 – 0.65; 8 RCTs) in the immediate postoperative period.

These findings were reasonably robust to sensitivity analyses of study size and quality. Of four additional RCTs on postoperative emesis, two reported less nausea and vomiting,[102,103] and two reported no differences between acupuncture, acupressure and sham treatment.[104,105]

In the case of chemotherapy nausea, one of the findings of the early review was that the data were weaker for this indication than for postoperative vomiting.[100] A subsequent high quality RCT (n=104) which included concealed allocation, sham control and careful blinding, found clinically and statistically significant differences in vomiting between acupuncture and control.[106] An additional small trial (n=17) of women undergoing chemotherapy for breast cancer found significantly less nausea in the group receiving acupressure.[107]

In the case of pregnancy-related nausea, the early review indicated that acupuncture might have a prophylactic effect but there were no data on acupuncture for the treatment of severe vomiting.[100] More recently, a randomised, blinded, crossover trial of 33 pregnant women with hyperemesis reported

Table 2 Sample size of published RCTs of acupuncture compared to on-going studies

	Back pain[33]	Headache[38]	Osteoarthritis[43]
Median sample size of RCTs included in systematic review	50	37	31
Maximum sample size in systematic review	100	150	67
Planned sample size of RCT in progress	240[71,143]	300[72]	570[73] (three groups)

large clinical improvements from acupuncture and statistically significant differences between acupuncture and sham.[108] One other RCT (n=55) found no effect for acupuncture on pregnancy-related nausea.[109]

A small number of paediatric studies reported in the later review did not find differences between acupuncture and control.[101] Two subsequent double-blind, sham-controlled, RCTs used acupuncture points specially chosen for the paediatric population.[110,111] The two RCTs included a combined total of 115 children and had similar results; rates of vomiting in the first 24 hours after surgery were approximately 20% in the acupuncture treated patients compared to about 60% in controls. Three additional RCTs (including a combined total of 224 children) involved stimulation of the acupuncture point P6. Two of the three trials found no effect for acupuncture on postoperative vomiting.[112,113] The third trial found significantly less vomiting in the children receiving laser acupuncture.[114]

D6. Obesity

A systematic review of four RCTs of acupuncture for weight loss concluded that there was no clear evidence for its effectiveness.[115] Two RCTs have been published subsequently: one reported that active acupuncture suppressed appetite and led to greater weight loss than a placebo device[116]; the second reported no effect on weight loss.[117]

D7. Stroke rehabilitation

One poorly reported systematic review of acupuncture for stroke rehabilitation has been conducted.[118] Four RCTs have been published subsequent to the review.[119-122] Of these, the two more recent studies both with good methodology failed to find acupuncture effective.[121,122] There is currently insufficient evidence of good quality for the use of acupuncture in stroke rehabilitation.

D8. Tinnitus

Two systematic reviews have included RCTs of acupuncture for tinnitus.[123,124] With one possible exception – an RCT that found a significant but short-term benefit[125] – results have been broadly negative. Although it is possible that the RCTs have been under-powered and/or the acupuncture administered inadequately, current evidence suggests that the effectiveness of acupuncture on tinnitus is doubtful.

D9. Other conditions

RCTs of acupuncture and related techniques have been conducted in a wide variety of other conditions including depression,[126] urinary incontinence,[127] induction of uterine contractions,[128] breech presentation,[129] hot flushes[130] xerostomia,[131] irritable bowel syndrome,[132] hyperactivity,[133] male subfertility,[134] urinary tract infection,[135] and hay fever.[136] Though generally tending to support the effectiveness of acupuncture or the related technique for the condition concerned, such RCTs have rarely been reproduced and therefore do not constitute a sufficient basis for clinical recommendations.

E. Safety of acupuncture

Serious adverse effects, including pneumothorax, spinal lesions and hepatitis B transmission, have been reported in the literature, but these are rare and are generally associated with poorly trained, unlicensed acupuncturists.[137] A systematic review of prospective studies of acupuncture safety found only two cases of pneumothorax and two cases of broken needles in a quarter of a million treatments.[138] A prospective survey of Japanese acupuncture practitioners recorded only 94 minor adverse events, the most common being forgotten needles and faintness, but no serious adverse events across 65,000 treatments.[139] A study of Swedish physiotherapists practising acupuncture prospectively recorded side-effects during over 9,000 episodes of care. Though minor bleeding or haematoma were reported following nearly one in five treatments, other minor adverse effects, such as fatigue or sweating, were rare. There were no serious complications.[140] More recently, a UK study involving 574 acupuncturists has reported adverse events and treatment reactions associated with 34,407 treatments.[7] No serious adverse events were reported though there were 43 minor adverse events, about a quarter of which were for severe nausea and fainting. In addition, a recent prospective UK survey of 31,822 consultations with 78 doctors and physiotherapists who performed acupuncture reported a rate of 14 minor but significant adverse events (such as headache or fainting) per 10,000 acupuncture consultations.[141]

F. Interpreting the findings

Acupuncture appears to be effective for postoperative nausea and vomiting, chemotherapy related nausea and vomiting and for postoperative dental pain. Current evidence suggests that acupuncture is unlikely to be of benefit for obesity, smoking cessation and tinnitus. For most other areas, the available evidence is clearly insufficient to guide clinical decisions. The most problematic area is chronic pain, where there is a large body of data open to conflicting interpretations.

Where evidence is not compelling, and open to differing interpretations, it can be instructive to link levels of evidence to practical decisions. For example, stronger levels of evidence are needed for interventions that involve considerable cost or risk of harm than for less expensive and safer treatments. Similarly, it could be argued that more evidence is required to recommend an intervention as a regular first-line treatment than as adjunctive treatment for refractory patients.

Acupuncture is most often used in the NHS as a second or third-line treatment for chronic pain. A typical patient has arthritis, back pain or headache and is not responding to conventional management, is not tolerating medication or is experiencing recurrent pain. Current levels of evidence from RCTs of acupuncture for chronic pain are probably sufficient to justify this practice. However, there is insufficient evidence to warrant first-line treatment of chronic pain; similarly, there is enough evidence to suggest that attempts to curtail acupuncture would be unjustified.

G. Implications

- Acupuncture appears to be effective for postoperative nausea and vomiting, chemotherapy related nausea and vomiting and for postoperative dental pain.
- Current evidence suggests that acupuncture is unlikely to be of benefit for obesity, smoking cessation and tinnitus.
- In the West, acupuncture is most commonly used for the treatment of chronic pain. Whilst there are a large number of RCTs, the majority are of low methodological quality and provide conflicting evidence. Current provision should not be significantly expanded or curtailed until the results of better quality RCTs become available.
- The evidence cited in this bulletin provides an overview of the methodological limitations of previous research conducted in this area. Any future research evaluating acupuncture should be carried out with appropriate methodology so as to improve the quality of the existing evidence base.

Appendix – review methods

Systematic reviews on acupuncture were located as part of an attempt by the Cochrane Complementary Medicine Field to locate all reviews on acupuncture, herbal medicine and homeopathy.[13] The field registry is a specialised complementary medicine database compiled from searches of other databases including Embase, AMED and Medline. Approximately 4,700 RCTs of complementary medicine are included on the database. Another 5,700 controlled trials have been identified for which the randomization status is unknown. RCTs have also been identified through handsearching of 31 alternative medicine journals. In addition to searches of the field registry, the following searches were conducted:

1) Medline 1989 to July 2000 using a standard strategy to identify systematic reviews;

2) The Cochrane Library Issue 2 2000;

3) Bibliographies of articles obtained and relevant textbooks were screened for further potentially relevant articles.

A search of Medline and the Cochrane Library (2001:1) was made in March 2001 to find further reviews and RCTs published subsequently to each review. All searches used strategies developed by the Complementary Medicine Field of the Cochrane Collaboration and published on the Cochrane Library.[142] Where no review was available, all RCTs on that topic were included.

To be included, systematic reviews had to meet the following criteria: included clinical trials of acupuncture; describe review methods explicitly; had to be published; had to focus on treatment effects.

Quality assessment was undertaken by two reviewers working independently for the systematic reviews. Data extraction and assessment of methodological quality of the additional RCTs were undertaken by one reviewer and checked by a second reviewer.

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