

UNDERSTANDING THE HOMEOPATHY DEBATE

The evidence base for homeopathy is a controversial topic, with scientists on both sides of the debate drawing different conclusions from the existing data.

It is often reported that there is no evidence homeopathy works or that the current evidence base shows that homeopathy is no better than placebo. **Neither statement is correct.**

Such misconceptions stem largely from two documents – the UK House of Commons **Science and Technology Committee Evidence Check 2: Homeopathy report (EC2)**¹ and the more recent Information Paper on Homeopathy produced by the Australian National Health and Medical Research Council (the **“Australian Report”**)².

Reliability of the Evidence Check 2 report

As the EC2 report, published in 2010, continues to be widely referred to, its reliability needs to be considered objectively. Although described by some as a ‘comprehensive review’ of the evidence, the EC2 report is **not a scientific document** – it is a report compiled by a committee of 14 Members of Parliament (MPs). No systematic scientific method was applied, it was not carried out by expert academics in the field and it was not peer reviewed. As such it cannot be considered part of the scientific literature.

Furthermore, the choice of evidence included in this Evidence Check showed a disturbing bias – both in terms of written submissions and the choice of witnesses permitted to give oral evidence.

The EC2 report was criticised by MPs and dismissed by Government

The multiple flaws in the EC2 report were significant enough to draw **widespread criticism from fellow politicians** who are familiar with how such Evidence Checks should be conducted.

An independent critique by Earl Baldwin of Bewdley concluded that the report was **“an unreliable source of evidence about homeopathy”**³. Earl Baldwin’s opinion is of particular interest as he served on the House of Lords Science and Technology Sub-Committee that inquired into complementary and alternative medicine in 1999-2000, giving him first-hand knowledge of both correct Committee procedure and the topic in question.

From the committee of 14 MPs, **only 3 MPs voted to endorse the final EC2 report and one Member** (Ian Stewart MP) **voted against the report** due to his concern over the “balance of witnesses”. After publication, **70 MPs opposed the report**, signing an Early Day Motion (EDM 908) to formally criticise the approach taken and the report’s conclusions.

Most importantly, **the Government’s response**⁴ **rejected the recommendations of the report** and endorsed a patient’s right to continue to access homeopathy on the NHS. These facts can be verified in more detail at www.homeopathyevidencecheck.org.

The EC2 report only considered a fraction of the evidence base

The EC2 report only considered clinical evidence – it excluded all laboratory studies testing homeopathy on plants and animal models, fundamental research into properties of homeopathic medicines and veterinary studies.

The Committee also excluded all studies testing clinical *effectiveness* i.e. observational studies and pragmatic randomised controlled trials which test how homeopathy performs in real world clinical settings.

The only evidence considered was on the efficacy of homeopathy i.e. how homeopathy performs against placebo under tightly controlled trial conditions. Five systematic reviews of randomised controlled trials (RCTs) were considered by the committee^{5,6,7,8,9}. From this evidence, the four which reached broadly positive findings in favour of homeopathy were dismissed,^{5,6,7,8} based entirely on the testimony of Prof Edzard Ernst¹⁰ who stated that, in his opinion, three were out of date and one should actually be considered negative. The only study which Ernst did not criticise at all was 'The Lancet study' by Shang et al.⁹ which he described as reaching a "devastatingly negative overall conclusion".

As the EC2 report's conclusion was effectively based solely on the Shang et al. study, once again the quality and reliability of this evidence becomes of paramount importance.

Multiple concerns have been raised about the Shang et al. study, particularly the fact that **its conclusions were based on only 8 trials** out of the 110 available to the authors at the time and that it fails a 'sensitivity analysis'¹¹ i.e. **if you change just one of the 8 trials they chose to include in their analysis, the result is reversed, showing that homeopathy works beyond placebo**. This completely undermines the paper's findings. It is highly surprising that Prof Ernst did not make the Committee aware of this fundamental flaw with the paper.

The EC2 report is now woefully out of date

Although the Evidence Check was published in 2010, the report based its conclusions on systematic reviews published up to 2005. Prof Ernst also states in his submission that his arguments (against homeopathy) were based on evidence published up to 2005¹². That means that **the evidence discussed in 2010 was already at least five years old**.

As we take a fresh look at the evidence base for homeopathy in 2017, it is clear that the field of homeopathy research has progressed significantly since the Evidence Check 2, including publication of more recent systematic reviews.

For example, a review by Mathie et al. published in 2014 found that **homeopathic medicines, when prescribed during individualised treatment, are 1.5 to 2.0 times more likely to have a beneficial effect than placebo**.¹³ This study includes 151 placebo-controlled randomised trials – 41 more than Shang's team identified, but which would have met their inclusion criteria if they had been available at the time.

This demonstrates the extent to which the now-12 year-old Shang et al. paper, which covers only 73% of eligible trials, has been superseded by the Mathie et al. 2014 paper – evidence of the highest academic quality which did not even exist at the time of the Evidence Check 2.

An even more recent systematic review (Mathie et al. 2017) included 75 double blind, randomised placebo controlled clinical trials of non-individualised homeopathic treatment

for a broad range of conditions. Mathie et al. found a **small beneficial effect for non-individualised homeopathic treatment that was statistically significantly different from placebo**. However, this pooled overall result only partially withstood rigorous sensitivity analysis, where meta-analyses were performed on 18 different sub-groups of trials including sample size, potency, acute/chronic conditions etc. The overall quality of the evidence prevented decisive conclusions, while the results' positive trend indicates the need for more and higher-quality trials.

Reliability of the 2015 Australian Report on Homeopathy

In March 2015, the Australian National Health and Medical Research Council (NHMRC) published an Information Paper on homeopathy, commonly referred to as 'The Australian Report'². This document concludes that *"...there are no health conditions for which there is reliable evidence that homeopathy is effective"*.

This report triggered headlines around the world suggesting NHMRC had found that homeopathy doesn't work for any condition¹⁴. An extensive detailed investigation by the Australian Homeopathic Association (AHA) into NHMRC's conduct, combined with an in-depth scientific analysis of the report by HRI, revealed evidence of serious procedural and scientific misconduct, drastically reducing the credibility and reliability of this report.

These failures include **NHMRC hiding the fact that they carried out the homeopathy review twice**. Since the existence of a first review was discovered, NHMRC have continued to refuse to release this document into the public domain.

The second time the NHMRC did the review they used an arbitrary method to assess the evidence on homeopathy **that has never been used in any other review**, before or since. NHMRC decided that for trials to be 'reliable' they had to have at least 150 participants and reach an unusually high threshold for quality.

In August 2016 a submission of complaint was made to the Commonwealth Ombudsman, who is currently investigating NHMRC's conduct in producing their report on Homeopathy.

For more detailed information visit www.hri-research.org/Australian-Report

Moving beyond the debate

Having identified the reasons why the EC2 report and Australian Report cannot be used by decision-makers, it is useful to consider what evidence can and should be used to identify the potential clinical benefits of homeopathy and inform healthcare policy.

Research in homeopathy is a complex and rapidly evolving field. At HRI we would encourage those wishing to truly understand the scientific basis of homeopathy to **consider the entire evidence base objectively** – from laboratory studies to observational studies and randomised controlled trials – so long as the studies are of high quality and relate directly to the question in hand.

Information on such studies can be found at www.hri-research.org.

Short summaries of the most frequently requested evidence can be found under the following sections:

Essential Evidence <https://www.hri-research.org/resources/essentialevidence/>
Homeopathy FAQs <https://www.hri-research.org/resources/homeopathy-faqs/>
Research to go <https://www.hri-research.org/resources/research-to-go/>

The **CORE-Hom database** containing information on **1015 clinical trials** on homeopathy can also be accessed free of charge here:

<https://www.hri-research.org/resources/research-databases/core-hom/>

These resources demonstrate clearly that there *is* good quality scientific evidence demonstrating that homeopathic medicines are not ‘just water’ and that homeopathic treatment can have an effect beyond placebo. However, to move us beyond the current situation of intense debate, more high quality research is essential, to provide more definitive answers to the key questions – how do homeopathic medicines work and what can they treat?

For further information contact info@hri-research.org

References

1. House of Commons Science and Technology Committee - Evidence Check 2: Homeopathy, Fourth Report of Session 2009-10 (February, 2010)
2. NHMRC Information Paper: Evidence on the effectiveness of homeopathy for treating health conditions, March 2015
3. Earl Baldwin of Bewdley, June 2010: Observations on the report *Evidence Check 2: Homeopathy* by the House of Commons Science and Technology Committee, February 2010
4. <http://www.parliament.uk/edm/2009-10/908>
5. Kleijnen, J., Knipschild, P. & ter Riet, G. Trials of homeopathy. *BMJ* **302**, 960 (1991).
6. Linde, K. *et al.* Are the clinical effects of homeopathy placebo effects? A meta-analysis of placebo-controlled trials. *Lancet* **350**, 834–843 (1997).
7. Linde, K. *et al.* Impact of study quality on outcome in placebo-controlled trials of homeopathy. *J. Clin. Epidemiol.* **52**, 631–636 (1999).
8. Cucherat, M., Haugh, M. C., Gooch, M. & Boissel, J. P. Evidence of clinical efficacy of homeopathy. A meta-analysis of clinical trials. HMRAG. Homeopathic Medicines Research Advisory Group. *Eur. J. Clin. Pharmacol.* **56**, 27–33 (2000).
9. Shang A, Huwiler-Muntener K, Nartey L, *et al.* Are the clinical effects of homeopathy placebo effects? Comparative study of placebo-controlled trials of homeopathy and allopathy. *Lancet*, 2005; **366**: 726–32
10. House of Commons Science and Technology Committee - Evidence Check 2: Homeopathy, Fourth Report of Session 2009-10. (February, 2010) Page 18, Point 65 to 69 (p.22 of PDF)
11. Lüdtke, R. & Rutten, A. L. B. The conclusions on the effectiveness of homeopathy highly depend on the set of analyzed trials. *J. Clin. Epidemiol.* **61**, 1197–1204 (2008).
12. House of Commons Science and Technology Committee - Evidence Check 2: Homeopathy, Fourth Report of Session 2009-10. (February, 2010) Memorandum submitted by Professor Edzard Ernst (HO 16), Evidence Ev 26 (p.85 of PDF)
13. Mathie RT, *et al.* Randomised placebo-controlled trials of individualised homeopathic treatment: systematic review and meta-analysis. *Systematic Reviews*, 2014; **3**:142.
14. Homeopathy is bunk, study says. The Guardian, 8 April 2014