

# Why Homeopathy Matters to U.S. Healthcare

Homeopathy is a greater than 200-year-old system of medicine, used by nearly 250 thousand physicians and over 500 million people worldwide<sup>1</sup> - making it one of the most popular forms of complementary, alternative and integrative medicine (CAIM). It is based on the concept of 'treating like with like' (in Latin *similia similibus curentur*). Homeopathic medicines appear to stimulate and direct the body's own self-healing mechanisms, or homeostasis.

Scientific skepticism toward homeopathy frequently arises from its use of highly dilute medicines, but there is a substantial body of research defending it. The methods used to prepare homeopathic medicines are remarkably like cutting-edge nanotechnology and there is growing evidence that nanoparticles play a crucial role in the actions of homeopathic medicines. (Nanoparticles are extremely small particles that range between 1 to 100 nanometers, are only detectable by electron microscopy, and exhibit significantly different physical and chemical properties from their larger material counterparts.)

# Why does homeopathy matter to America?

Data from the federal National Health Interview Survey analyzed by a team at Harvard University show that around 7 million Americans use homeopathy, with steady growth. Users tend to be highly educated females who pursue healthy lifestyles. They use homeopathy for many ailments, but primarily for upper respiratory infections and ear problems, considering it more effective than herbs or nutritional supplements.<sup>2</sup> The demographics of users in France and Germany follows a similar pattern, although use of homeopathy is more widespread in most European countries.<sup>3</sup> A 2022 (October) Marist Poll found that 61% of U.S. households use supplements and other natural and homeopathic medicines daily, while 75% use them at least monthly. The poll also showed overwhelming support for political candidates who support access to these products.<sup>4</sup>

Polypharmacy (the use of multiple drugs), particularly in the elderly is a major challenge to modern physicians. Opiate analgesics (painkillers), psychotropic drugs (including tranquilizers, antidepressants and sleeping tablets) and antibiotics are widely overprescribed and overused, (the overuse of antibiotics has already caused a massive global crisis of antimicrobial resistance, not

<sup>1</sup> Bell IR, Schwartz GE. Adaptive network nanomedicine: an integrated model for homeopathic medicine. Frontiers in Bioscience (Scholar Ed.). 2013;5(2):685-708.

<sup>2</sup> Dossett, M., Davis, R.B., Kaptchuk, T.J., and Yeh, G.Y. Homeopathy use by US adults: results of a national survey. American J Public Health. 2016; 106: 743–745DOI: http://dx.doi.org/10.2105/AJPH.2015.303025

<sup>3</sup> Lert F, Grimaldi-Bensouda L, Rouillon F et al. Characteristics of patients consulting their regular primary care physician according to their prescribing preferences for homeopathy and complementary medicine. Homeopathy (2014);103: 51-57 <a href="https://www.ncbi.nlm.nih.gov/pubmed/24439455">https://www.ncbi.nlm.nih.gov/pubmed/24439455</a>

<sup>4</sup> https://www.npanational.org/news/new-national-survey-shows-strong-public-support-for-natural-health-options/

to mention disturbances in the human microbiome that lead to dysbiosis and chronic inflammatory conditions) and there is strong research evidence suggesting that the adjunctive use of homeopathy in medical practice would reduce the need for many of these hazardous drugs while simultaneously improving clinical outcome.<sup>5,6</sup>

#### Homeopathic Research

The research literature offers significant preclinical and clinical evidence in support of the effectiveness of homeopathic medicines in treating individuals with a wide range of common conditions. Homeopathy shows historical, observational, and randomized clinical trial evidence of good outcomes, greater safety, patient acceptance and satisfaction, accessibility, and cost-savings. Homeopathy is often cited as a method "to treat the patient, not the disease," since it appears to work by strengthening the body's host defenses and resilience rather than by killing microbes or blocking pathophysiological processes with toxic ingredients.

## **Comparative Effectiveness Research**

Comparative effectiveness research examines the results of treatments in real-world situations, as opposed to the artificial conditions often imposed in randomized controlled trials. It compares outcomes in cohorts of patients receiving different treatments. There are several such studies comparing outcomes of patients attending conventional family physicians with family physicians who integrate homeopathy into their practices, including those below.

A study was published in 2020 looking at data from several German statutory health insurance companies offering reimbursement for homeopathic care. In this comparative, prospective, observational study participants in the ICCH (Homeopathy group) were compared with diagnosis, sex, and age matched insured individuals (Conventional group) who received standard medical care without homeopathy. When data from 2,524 participants (1,543 in the homeopathy group) was analyzed the primary effectiveness outcomes (after six months) were statistically significant in favor of homeopathy for migraine or headache, asthma, atopic dermatitis, and depression.<sup>7</sup>

Another study was conducted in Germany that looked at data from more than 15,700 SECURVITA (a German health insurer) insured persons who had been treated with homeopathy for at least three years. In this study, the researchers compared the homeopathy group to an equally large control group that did not receive homeopathic care—only conventional medicines. They found that those receiving homeopathic medicine fared significantly better and needed fewer conventional drugs than those not receiving homeopathic care. This fact was true for children and adults suffering from a very wide array of medical problems.<sup>8</sup>

<sup>&</sup>lt;sup>5</sup> Frass M, Lechleitner P, Gründling C, et al. Homeopathic Treatment as an Add-On Therapy May Improve Quality of Life and Prolong Survival in Patients with Non-Small Cell Lung Cancer: A Prospective, Randomized, Placebo-Controlled, Double-Blind, Three-Arm, Multicenter Study. Oncologist. 2020 Dec;25(12):e1930-e1955.

<sup>&</sup>lt;sup>6</sup> Frass M, Linkesch M, Banyai S, et al. Adjunctive homeopathic treatment in patients with severe sepsis: a randomized, double-blind, placebo-controlled trial in an intensive care unit. Homeopathy. 2005 Apr;94(2):75-80.

<sup>7</sup> Kass, B. et al., Effectiveness and cost-effectiveness of treatment with additional enrollment to a homeopathic integrated care contract in Germany. BMC Health Serv Res 2020 Sep 15:20(1):872.

<sup>&</sup>lt;sup>8</sup>https://www.securvita.de/fileadmin/inhalt/dokumente/auszuege\_SECURVITAL/202004/securvital\_0420\_6-

<sup>11.</sup>pdf?fbclid=IwAR0h1r24c9IMBoneQ7S7kF2aNVwGPDaM4zHdoFLt2Q\_eU\_UNd3qbI9fG380

A multinational comparative effectiveness study led by the American physician David Riley, MD involved 30 doctors, at six clinical sites in four countries, treating patients with acute respiratory illnesses. <u>Response at 14 days was 82.6% favourable for homeopathy compared to</u> <u>68% for conventional treatment. The rate of adverse reactions to conventional treatment was</u> <u>22.3%, versus 7.8% for homeopathy</u>. A replication of this study included 1,577 patients, of whom 857 received homeopathic and 720 conventional treatments: improvement was significantly faster when homeopathy was used.<sup>9,10</sup>

Trichard *et al* compared a 'homeopathic strategy' against an 'antibiotic strategy' in routine medical practice in the management of recurrent acute rhino-pharyngitis in 499 children aged 18 months to 4 years old.<sup>11, 12</sup> <u>Family physicians using homeopathy had significantly better</u> <u>outcomes in terms of clinical effectiveness, lower complications, increased parental quality of life, less time lost from work, and reduced cost.</u>

Witt et al. compared homeopathic and conventional family physician's outcomes in the treatment of chronic conditions commonly encountered in general practice (headache, low back pain, depression, insomnia, and sinusitis in adults; atopic asthma, dermatitis, and rhinitis in children).<sup>13,14</sup> Nearly 500 patients were treated by 101 homeopathic and 59 conventional family physicians. The patients treated by the two groups of physicians were generally similar, but the *"patients who sought homeopathic treatment had better outcomes at similar cost."* 

The largest comparative effectiveness study of homeopathy published to date is the EPI3 study. It was a nationwide study in France, coordinated by the Department of Pharmacoepidemiology at the University of Bordeaux. It included 6,379 patients from 804 medical practices comparing treatment outcomes for patients attending conventional, homeopathic, and mixed practice family physicians for musculoskeletal conditions, upper respiratory tract infections, sleep disorders, anxiety, and depression. Patients in the two groups were similar in most respects except that the homeopathic group tended to have more longstanding chronic illness. *The authors concluded that patients treated by homeopathic physicians showed a similar clinical progression, used about half the amount of non-steroidal anti-inflammatory drugs (NSAIDs) compared with conventionally-treated patients, had fewer NSAID-related adverse events, and experienced no loss of therapeutic opportunity.*<sup>15</sup>

Another study in the EPI3 series yielded an analogous result, showing that patients who consult

<sup>9</sup> Riley D, Fischer M, Singh B, et al. (2001). Homeopathy and Conventional Medicine: An Outcomes Study Comparing Effectiveness in a Primary Care Setting. Journal of Alternative and Complementary Medicine, 7:149–159.

<sup>10</sup> Haidvogl M Riley D, Heger M et al. Homeopathic and conventional treatment for acute respiratory and ear complaints: A comparative study on outcome in the primary care setting BMC Complement Altern Med. 2007; 7: 7. doi:

<sup>11</sup> Trichard M, Chaufferin G Nicoloyannis N (2005). Pharmacoeconomic comparison between homeopathic and antibiotic treatment strategies in recurrent acute rhinopharyngitis in children. *Homeopathy*. 94:3–9.

<sup>12</sup> Trichard M, Chaufferin G (2004). Effectiveness, quality of life, and cost of caring for children in France with recurrent acute rhinopharyngitis managed by homeopathic or nonhomeopathic General Practitioners. *Disease Management and Health Outcomes*, 12:419–427.

<sup>13</sup> Witt C, Keil T, Selim D, et al. (2005). Outcome and costs of homeopathic and conventional treatment strategies: a comparative cohort study in patients with chronic disorders. *Complementary Therapies in Medicine*, 13:79-86.

<sup>14</sup> Witt CM, Lüdtke R, Baur R, Willich SN (2005). Homeopathic medical practice: long-term results of a cohort study with 3,981 patients. BMC Public Health, 5:115.

<sup>15</sup> Rossignol M, Begaud B, Engel P, et al. Impact of physician preferences for homeopathic or conventional medicines on patients with musculoskeletal disorders: results from the EPI3-MSD cohort. Pharmacopepidemiol. Drug Saf. 2012, 21:1093-101.

family physicians certified in homeopathy tended to use significantly less antibiotics and antipyretic/anti-inflammatory drugs for upper respiratory tract infections than those who attended family physicians who prescribe only conventional medications, with similar outcomes. <u>This finding is of considerable public health importance since antimicrobial resistance is now a major global problem, and one of the leading reasons is the overuse of antibiotics for upper respiratory tract infections.<sup>16</sup></u>

# **Cost-effectiveness**

Economic analysis of EPI3 data looked at three types of cost: consultation, prescription, and total costs. **Overall health expenditure was 20% less for patients consulting homeopathic family physicians in France compared to conventional family physicians** (\$78.70 US vs. \$98.91 US). The lower cost of medical prescriptions for homeopathic family physicians was partially offset by higher consultation costs. Homeopathic physicians prescribed far fewer potentially hazardous pharmaceutical drugs including psychotropics, antibiotics and non-steroidal anti-inflammatory drugs.<sup>17</sup>

A recent Swiss study analyzed the basic health insurance costs of complementary and conventional medicine, finding that total practice costs for most complimentary and conventional medicine (COM) were similar, *but that homeopathy* costs were 15.4% less than COM.<sup>18</sup>

<u>In all comparative effectiveness studies of homeopathy, integrating it into health care resulted</u> <u>in better outcomes for patients and improved safety</u>. Those studies that included costeffectiveness analysis either showed reduced costs or no additional costs.

# Safety of homeopathy

Physician and consumer confidence in the safety of homeopathy is justified. **There is no** evidence that homeopathic medicines cause serious or long-lasting harm. A systematic review of the safety of homeopathy, which included a comprehensive search of the Englishlanguage literature and enquiries with regulatory authorities, including FDA, concluded: "Homeopathic medicines may provoke adverse effects, but these are generally mild and transient; there continue to be frequent cases of 'mistaken identity' where herbal medicines are [erroneously] misclassified as homeopathic, thus artificially raising numbers of adverse events.

13. Studor, H. et al., Comparison of Swiss Basic Health Insurance Costs of Complementary and Conventional Medicine. Complementary Medicine Research. 2011, Vol.18

<sup>16</sup> Grimaldi-Bensouda L, Begaud B, Rossignol M, Avouac B, Lert F, et al. (2014) Management of Upper Respiratory Tract Infections by Different Medical Practices, Including Homeopathy, and Consumption of Antibiotics in Primary Care: The EPI3 Cohort Study in France 2007–2008. PLoS ONE 9(3): e89990. doi:10.1371/journal.pone.0089990

<sup>17</sup> Colas A, Danno K, Tabar C, Ehreth J, Duru G. Economic Impact of Homeopathic Practice in General Medicine In France. Health Economics Review (2015) 5:18. DOI 10.1186/s13561-015-0055-5

The main risks associated with homeopathy are indirect, relating to the prescriber rather than the medicine, which can be a problem no matter what modality is used."<sup>19</sup>

In 2022 Stub et al analyzed 18 studies in a meta-analysis that made an overall comparison between the side effects from homeopathic medicines, conventional medicines, and herbs. "Analysis of sub-groups indicated that, compared to homeopathy, the number of adverse effects was significantly higher for conventional medicine (P = 0.0001), as well as other complementary therapies (P = 0.05)."<sup>20</sup>

## **Basic research: physical and chemical methods**

Homeopathic medicines are manufactured from botanical, animal and mineral sources. Raw ingredients are serially diluted and vigorously agitated during the homeopathic manufacturing process. Twelve independent research laboratories in the U.S., France, Italy, Russia, and India found that homeopathic medicines contain various nanostructures, including source material, silica, and gas nanobubbles heterogeneously dispersed throughout the colloidal solutions. <sup>21, 22, 23, 24</sup> This work suggests that homeopathic medicines may act like modern engineered nanoparticles, modulating the allostatic stress response network through effects on cytokines, oxidative stress and heat shock protein responses. (Allostasis is the physiologic process of restoring a stable internal environment.)

Investigators from different laboratories demonstrated that homeopathic medicines emit unique electromagnetic and optical signals that distinguish them from placebo control materials.<sup>25, 26, 27, 28, 29, 30, 31, 32, 33,</sup> Low doses of nanoparticles appear to initiate the systemic biological adaptive

<sup>19</sup> Dantas F, Rampes H (2000). Do homeopathic medicines provoke adverse effects? A systematic review. Br Homeopath J. 89:S35–38.

<sup>&</sup>lt;sup>20</sup>Stub T, Kristoffersen AE, Overvåg G, et al. Adverse effects in homeopathy. A systematic review and meta-analysis of observational studies. EXPLORE 2022;18(1):114-128. 21 Bhattacharyya SS, Mandal SK, Biswas R, Paul S, Pathak S, Boujedaini N, Belon P, Khuda-Bukhsh AR: In vitro studies demonstrate anticancer activity of an alkaloid of the plant Gelsemium sempervirens. Exp Biol Med (Maywood) 2008, 233(12):1591–1601.

<sup>22</sup> Chikramane PS, Suresh AK, Bellare JR, Kane SG: Extreme homeopathic dilutions retain starting materials: A nanoparticulate perspective. Homeopathy 2010, 99(4):231–242. 23 Upadhyay RP, Nayak C: Homeopathy emerging as nanomedicine. International Journal of High Dilution Research 2011, 10(37):299–310.

<sup>24</sup> lves JA, Moffett JR, Arun P, Lam D, Todorov TI, Brothers AB, Anick DJ, Centeno J, Namboodiri MA, Jonas WB: Enzyme stabilization by glass-derived silicates in glassexposed aqueous solutions. Homeopathy 2010, 99(1):15–24

<sup>25</sup> Lenger K, Bajpai RP, Spielmann M. Identification of Unknown Homeopathic Remedies by Delayed Luminescence. Cell Biochem Biophys. 2013;68(2):321-334

<sup>26</sup> Belon P, Elia V, Elia L, Montanino M, Napoli E, Niccolli M. Conductometric and calorimetric studies of the serially diluted and agitated solutions. Journal of Thermal Analysis & Calorimetry. 2008;93(2):459-469.

<sup>27</sup> Elia V, Marrari LA, Napoli E. Aqueous nanostructures in water induced by electromagnetic fields emitted by EDS. Journal of Thermal Analysis and Calorimetry. 2012;107(2):843-851

<sup>28</sup> Cartwright SJ. Degree of Response to Homeopathic Potencies Correlates with Dipole Moment Size in Molecular Detectors: Implications for Understanding the Fundamental Nature of Serially Diluted and Succussed Solutions. Homeopathy. 2018;107(1):19-31.

<sup>29</sup> Cartwright SJ. Homeopathic Potencies May Possess an Electric Field(-like) Component: Evidence from the Use of Encapsulated Solvatochromic Dyes. Homeopathy. 2020;109(1):14-22.

<sup>30</sup> Cartwright SJ. Immobilization of Solvatochromic Dyes on Transparent Cellulose Films: an Improved Method for the Study of Homeopathic Potencies. Homeopathy. 2022.

<sup>31</sup> Rey L. Thermoluminescence of ultra-high dilutions of lithium chloride and sodium chloride. Physica A: Statistical mechanics and its applications. 2003;323:67-74.

<sup>32</sup> Montagnier L, Aissa J, Ferris S, Montagnier J-L, Lavallee C. Electromagnetic signals are produced by aqueous nanostructures derived from bacterial DNA sequences. Interdisciplinary Sci Comput Life Sci. 2009;1:81-90.

<sup>33</sup> Montagnier L, Del Giudice E, Aïssa J, Lavallee C, Motschwiller S, Capolupo A, Polcari A, Romano P, Tedeschi A, Vitiello G. Transduction of DNA information through water and electromagnetic waves. Electromagnetic Biology and Medicine. 2015;34(2):106-112.

response process known as hormesis. <sup>34,35,36</sup> (Hormesis is the biphasic response pattern seen in all living biologic systems: low doses of a salient stressor agent induce stimulatory effects, while high doses of the same agent induce paradoxically inhibitory and toxic effects. <sup>37,38</sup>) Further research demonstrates that hormesis effects are also generated in animals exposed to low frequency magnetic fields,<sup>39</sup> suggesting that a more complicated, multiphasic mechanism may be working when homeopathic medicines interact with living systems.

#### **Basic research: biological models**

There is a substantial body of research in homeopathy using different animal models, human cells, plants, and other living organisms. Animals were the most often used model system (371), followed by plants (201), human material (92), bacteria and viruses (37), and fungi (32).<sup>40</sup> Of these studies, 89% reported at least one positive result from using homeopathy.

One of the hallmarks of high-quality science involves the capacity to replicate experiments performed by independent researchers. A recent review of biochemical, immunological, botanical, cell biological and zoological experiments using homeopathic dilutions found 98 replicated experiments with over 70% demonstrating positive results.<sup>41, 42</sup>

The mechanisms through which hormesis modulates biological cell defense stress response networks<sup>43,44, 45, 46</sup> includes changes in patterns of gene activation networks and release of immune system mediators and modulators such as cytokines, reactive oxygen species (ROS),

35 lavicoli I, Leso V, Fontana L, Calabrese EJ. Nanoparticle Exposure and Hormetic Dose-Responses: An Update. Int J Mol Sci. 2018;19(3).

<sup>34</sup> Iavicoli I, Fontana L, Leso V, Calabrese EJ. Hormetic dose-responses in nanotechnology studies. Sci Total Environ. 2014;487:361-374.

<sup>36</sup> Iavicoli I, Leso V, Fontana L, Calabrese EJ. Nanoparticle Exposure and Hormetic Dose-Responses: An Update. Int J Mol Sci. 2018;19(3).

<sup>37</sup> Chikramane PS, Suresh AK, Kane SG, Bellare JR. Metal nanoparticle induced hormetic activation: a novel mechanism of homeopathic medicines. Homeopathy. 2017;106(3):135-144.

<sup>38</sup> Malarczyk E, Pazdzioch-Czochra M, Graz M, Kochmanska-Rdest J, Jarosz-Wilkolazka A. Nonlinear changes in the activity of the oxygen-dependent demethylase system in Rhodococcus erythropolis cells in the presence of low and very low doses of formaldehyde. Nonlinear Biomed Phys. 2011;5(1):9.

<sup>39</sup> Klimek A, Kletkiewicz H, Siejka A, Wyszkowska J, Maliszewska J, Klimiuk M, Jankowska M, Seckl J, Rogalska J. New view on the impact of the low-frequency electromagnetic field (50 Hz) on stress responses - hormesis effect. Neuroendocrinology. 2022.

<sup>40</sup> Clausen J, van Wijk R, Albrecht H. Review of the use of high potencies in basic research on homeopathy. Homeopathy (2011) 100, 288-292.

<sup>41</sup> Endler PC, Bellavite P, Bonamin L, Jäger T, Mazon S. Replications of fundamental research models in ultra high dilutions 1994 and 2015. Homeopathy (2015):104 ;234 - 245

<sup>42</sup> Endler, PC., et al., "Ultra High Dilution 1994" revisited 2015---the state of follow-up research. Homeopathy. 2015 Oct;104(4):223-6.

<sup>43</sup> Gallo PM, Gallucci S. The dendritic cell response to classic, emerging, and homeostatic danger signals. Implications for autoimmunity. Front Immunol. 2013;4:138.

<sup>44</sup> Karatsoreos IN, McEwen BS. Psychobiological allostasis: resistance, resilience and vulnerability. Trends Cogn Sci. 2011;15(12):576-584.

<sup>45</sup> McEwen BS. Central effects of stress hormones in health and disease: Understanding the protective and damaging effects of stress and stress mediators. Eur J Pharmacol. 2008;583(2-3):174-185..

<sup>46</sup> Naviaux RK. Metabolic features of the cell danger response. Mitochondrion. 2014;16:7-17..

oxidative stress, and heat shock proteins. <sup>47, 48, 49, 50, 51, 52</sup> Many studies indicate that homeopathically prepared materials initiate changes in all these endogenous mediators.

Hormesis initiated by low dose exposures to various agents also augments wound healing,<sup>53</sup> and studies have demonstrated that certain homeopathically prepared medicines mobilize the same processes.<sup>54</sup> Other physiological studies have demonstrated effects on sleeping and waking quantitative electroencephalographic (EEG) patterns in both animals and human subjects<sup>55, 56, 57</sup> suggesting that homeopathic medicines could affect the entire body by producing physical and psychological benefits, which is what has been observed in clinical practice.

#### **Clinical trials of homeopathy**

There are more than 1,223 published clinical trials of homeopathy in the English language literature alone<sup>58</sup>, including seven systematic review/meta-analyses.<sup>59,60,61, 62,63, 64</sup> Four of these meta-analyses reached the positive conclusion that there is good evidence that homeopathy is clinically effective; two were inconclusive, and one review by Shang et al. <sup>46</sup> found no benefit. The review by Mathie et al.<sup>65</sup> found that the higher the quality of the homeopathic study (i.e., when there was less risk of bias), the greater the likelihood that the study would show positive results.

The single outlier study by Shang *et al.* based its claims on only eight clinical trials whose identity was withheld until several months after publication, which precluded any informed

<sup>47</sup> Wiegant FA, Prins HA, Van Wijk R. Postconditioning hormesis put in perspective: an overview of experimental and clinical studies. Dose Response. 2011;9(2):209-224. 48 Wiegant FA, Spieker N, van Wijk R. Stressor-specific enhancement of hsp induction by low doses of stressors in conditions of self- and cross-sensitization. Toxicology. 1998;127(1-3):107-119.

<sup>49</sup> Van Wijk R, Wiegant FA. Postconditioning hormesis and the homeopathic Similia principle: molecular aspects. Hum Exp Toxicol. 2010;29(7):561-565

<sup>50</sup> Bigagli E, Luceri C, Bernardini S, Dei A, Filippini A, Dolara P. Exploring the effects of homeopathic Apis mellifica preparations on human gene expression profiles. Homeopathy. 2014;103(2):127-132.

<sup>51</sup> Mayer J, Williams RJ, Oppenheimer VA, He B, Tuckfield C, Koslowski E, Gogal RM, Jr. The immunomodulatory effects of a commercial antiviral homeopathic compound in C57BL/6 mice, pre and post vaccine challenge. Int Immunopharmacol. 2016;39:389-396.

<sup>52</sup> Manchanda RK, Gupta A, Haselen RV. The Clinical and Biological Effects of Homeopathically Prepared Signaling Molecules: A Scoping Review. Homeopathy. 2022;111(1):10-21..

<sup>53</sup> Calabrese EJ, Dhawan G, Kapoor R, Agathokleous E, V. C. Hormesis: wound healing and fibroblasts. Pharmacol Res. 2022.

<sup>54</sup> Hostanska K, Rostock M, Melzer J, Baumgartner S, Saller R. A homeopathic remedy from arnica, marigold, St. John's wort and comfrey accelerates in vitro wound scratch closure of NIH 3T3 fibroblasts. BMC Complement Altern Med. 2012;12:100..

<sup>55</sup> Bell IR, Lewis DA, 2nd, Lewis SE, Schwartz GE, Brooks AJ, Scott A, Baldwin CM. EEG alpha sensitization in individualized homeopathic treatment of fibromyalgia. International Journal of Neuroscience. 2004;114(9):1195-1220.

<sup>56</sup> Ruiz-Vega G, Perez-Ordaz L, Cortes-Galvan L, Juarez GF. A kinetic approach to caffeine--Coffea cruda interaction. Homeopathy. 2003;92(1):19-29.

<sup>57</sup> Bell IR, Howerter A, Jackson N, Aickin M, Baldwin CM, Bootzin RR. Effects of homeopathic medicines on polysomnographic sleep of young adults with histories of coffee-related insomnia. Sleep Med. 2011;12(5):505-511.

<sup>58</sup> http://archiv.carstens-stiftung.de/core-hom/login.php

<sup>59</sup> Kleijnen J, Knipschild P, ter Riet G (1991). Clinical trials of homoeopathy British Medical Journal, 302:316–323.

<sup>60</sup> Linde K, Clausius N, Ramirez G et al. Are the clinical effects of homeopathy placebo effects? Lancet 2005; 366:2081–2082.

<sup>61</sup> Shang A, Huwiler-Muntener K, Nartey L, et al. (2005). Are the clinical effects of homeopathy placebo effects? Comparative study of placebo-controlled trials of homeopathy and allonathy. Lancet. 366:726–732.

<sup>62</sup> Mathie, R.T. et al., Systematic Review and Meta-Analysis of Randomised, Other-than-Placebo Controlled, Trials of Individualised Homeopathic Treatment. Homeopathy 2018; 107(04): 229-243

<sup>63</sup> Mathie, R.T. et. al., Systematic Review and Meta-Analysis of Randomised, Other-than-Placebo Controlled, Trials of Non-Individualised Homeopathic Treatment. Homeopathy 2019; 108(02): 088-101

<sup>64</sup> Mathie, R.T. et al. "Randomised placebo-controlled trials of individualised homeopathic treatment: systematic review and meta-analysis." Syst Rev 3(1): 142. 2014 65 Ibid

examination or scientific discourse of the conclusions. The one undisputed conclusion that was achieved by Shang and colleagues was that clinical trials of homeopathy were generally of higher quality than matched trials of conventional medicine: of the 110 clinical trials identified before elimination, 21 trials of homeopathy and only 9 trials of conventional medicine were found to be of high quality.<sup>66,67</sup>

A leading Swedish medical researcher who reviewed the Shang study noted that: "*To conclude that homeopathy lacks clinical effect, more than 90% of the available clinical trials had to be disregarded.* Alternatively, flawed statistical methods had to be applied."<sup>68</sup>

In March 2015, the Australian National Health and Medical Research Council (NHMRC) published an Information Paper titled "*Evidence on the effectiveness of homeopathy for treating health conditions*."<sup>69</sup> The paper concluded that "there are no health conditions for which there is reliable evidence that homeopathy is effective." A Freedom of Information Act request resulted in the revelation that the NHMRC had commissioned an earlier report by a different author, but when the results favored a beneficial role of homeopathy for several health conditions, the report was buried, and its author was fired.

To save face amid claims of gross misconduct, the NHMRC CEO Anne Kelso publicly remarked that, "Contrary to some claims, the [2015] review did not conclude that homeopathy was ineffective." (sic)

The NHMRC controversy, which remains unresolved to this day, suggests that the stakes against homeopathy may have permeated all levels of society, including academic, scientific, and regulatory communities. This opposition has always been intense, ever since inception, but until recently, the battle had never been waged on clinical or scientific grounds, only on the concepts of implausibility, and the defense of orthodoxy.

Micozzi found that: "Investigations of claims of complementary medicine, all too often, take on the character and tone of 'debunking' expeditions rather than scientific experiments... A willingness to report negative findings far exceeds the acceptance of positive findings and there is clear evidence of bias against CAM [complementary and alternative medicine] research."<sup>70</sup>

## **Conclusion**

Use of homeopathy is geographically widespread and increasing in popularity on both national and international levels. Most independent clinical research and metanalyses demonstrate that homeopathy is superior (looking at both safety and efficacy) when compared with conventional medicine over a wide range of medical conditions. Integrating homeopathy into public health care is associated with many benefits including improved outcome, less use of risky pharmaceutical drugs, including antibiotics and NSAIDs, and significant cost savings,<sup>71</sup> but

<sup>66</sup> Fisher P, Berman B, Davidson J, Reilly D, Thompson T et al. Meta-analysis of homeopathy. Lancet 2005; 366:2083-4.

<sup>67</sup> LÜdtke R, Rutten AL. The conclusions on the effectiveness of homeopathy highly depend on the set of analyzed trials. J Clin Epidemiol 2008; 61:1197–1204.

<sup>68</sup> Hahn RG. Homeopathy: Meta-Analyses of Pooled Clinical Data. Forsch Komplementmed 2013;20:376-381.

<sup>&</sup>lt;sup>69</sup> https://www.hri-research.org/wp-content/uploads/2015/07/NHMRC-Information-Paper-Mar2015.pdf

<sup>&</sup>lt;sup>70</sup> Micozzi MS. Double Standards and Double Jeopardy for CAM Research. J Alternative and Complementary Medicine 2001,7(1):13-14.

<sup>71</sup> Dr. Peter Fisher (author) is Director of Research and Consultant Physician at the Royal London Hospital for Integrated Medicine (RLHIM) in London, England. He is accredited (Board Certified) in homeopathy and rheumatology. He is a member of the World Health Organization's Expert Advisory Panel on Traditional and Complementary Medicine,

overcoming deeply entrenched political and scientific bias is an ongoing challenge, but not because of a lack of proven efficacy, safety or benefit.

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