

## Homeopathy: In God we trust, all others must bring data

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Effectiveness of homeopathic remedies continues to be a question of concern for public, policy makers and the other involved stakeholders. A recent systematic review of studies by Australian National Health and Medical Research Council (NHMRC)<sup>1</sup> heightened further the concerns about the perception of effectiveness of homeopathic treatments in general. After an exhaustive review, the authors found no good quality, or well-designed studies with adequate sample size to support claims made by homeopathic practitioners. They concluded that the homeopathic remedies are no better than a placebo. Authors of the report cited concerns about the designs of the most of the studies especially the ones that showed any beneficial effect. Authors noted that such studies either had smaller sample sizes, were conducted poorly and/or were insufficiently powered to detect a statistically significant outcome. NHMRC concluded that there is no evidence from systematic reviews regarding the effectiveness of homeopathy as a treatment for any clinical condition in humans. The NHMRC identified “claiming benefits for human health not based on evidence”<sup>1</sup> as a major health issue in Australia.

NHRMC’s report comes as no surprise as many other exhaustive reviews had failed to show any objective benefits of such remedies. Authors of a 2009-10 UK report titled as Evidence Check 2: Homeopathy<sup>2</sup>, reached to a similar conclusion. They questioned the lack of homeopathic treatment trials and cited that there is plenty of evidence showing that it is not efficacious. Their conclusion was no different from NHRMC’s and proposed that “systematic reviews and meta-analyses conclusively demonstrate that homeopathic products perform no better than placebo”<sup>2</sup>. They further recommended stopping any public funding of Homeopathic remedies in UK. Although a Swiss report<sup>3</sup> argued otherwise claiming that homeopathy is a “valuable addition to the conventional medical landscape”<sup>3</sup>; however its methodology was considered to be flawed, biased, misinterpreting and discrediting the current science based study methodologies<sup>4</sup>.

The homeopathic notion of successive dilution of its products in water increasing the potency of the final product and “like cures like” doesn’t only defy any science based medicine logic, it is also in contrast to other alternative systems of medicine. The paucity of good-quality studies of sufficient size that examine the effectiveness of homeopathy as a treatment for any clinical condition in humans does no favors to this notion either. As

cited by many reports referenced above, the available evidence is not compelling and fails to demonstrate that homeopathy is an effective treatment for any of the reported clinical conditions in humans. In spite of these significant concerns about the legitimacy and efficacy of homeopathy, the industry continues to benefit from public’s increasingly favorable attitudes toward homeopathy. The National Institutes of Health<sup>5</sup> in the United States, reports that there is little evidence to support homeopathy as an effective treatment for any specific condition however millions of American adults and thousands of children use homeopathy. Even in UK<sup>6</sup> where there is no legal regulation of homeopathic practitioners, The National Institute of Health and Care Excellence (NICE)-that advises the NHS on proper use of treatments, doesn’t recommend that homeopathy should be used in the treatment of any health condition. However homeopathy has seen a significant increase in its market share not only in UK but many other European countries too<sup>7</sup>.

With its market share in USA and rest of the world markets reaching in billions of dollars with yearly incremental increase, its claims for its remedial effects albeit lacking any generally acceptable evidence, raises concern that a vulnerable person may choose an ineffective remedy that may actually worsen their clinical status. There is a clash between patient autonomy and informed consent in decision making by a vulnerable patient about the appropriateness of homeopathic remedies. The ethical and policy debate on the appropriate balance between public’s access to different remedies (autonomy) and government institutional duty of public’s protection from potentially harmful or ineffective medicines is a delicate balance. An objective and thorough evaluation of homeopathic remedies is needed however how to decide what is an objective and accurate way to assess homeopathic research continues to be the bone of contention. Although from a science based medicine perspective, homeopathic remedies have no scientific explanation, its advocates<sup>3, 4</sup> don’t agree that it has to fall or go through same process of research methodology for its effectiveness as do allopathic remedies. Though it is a valid logic that reasoning directly from data that is gathered by controlled structure, as is true of science based trials in allopathy, is not always accurate as it’s with many biases and confounders, however the statistical testing helps to get beyond mere correlation to cause-and-effect and eliminate most of these concerns. These trials also help to formulate conclusions that

can be further validated or refuted by gathering real world data. The mainstream science considers the homeopathic notion of ultra-dilutions, particle leaving imprint of itself on water, and “likes cures like” to be scientifically implausible. Even though this notion of scientists may be considered as a bias towards evaluating any homeopathic remedy, the public health institutions have an ethical obligation to educate public especially the vulnerable ones, not to substitute a proven and effective treatment for the ones whose effectiveness has not been scientifically proven.

As the saying goes, “change the rule and you will get a new number”, the onus is on homeopathic advocates not only to design trials, gather data, and publish papers but also to collect real world data to further study the impact of treatments on outcomes. The real world data can further help to understand the effects of treatments on patient outcomes that was not generated from a clinical trial. It is also an obligation of the homeopathic practitioners and organizations to seek to create standards of medical treatment, that are objective, replicable, and that will be made broadly available to physicians, researchers, parents, policy makers, and others who want to improve the care of individuals. As recommended by many exhaustive reviews<sup>1,2</sup>, these studies should recruit larger samples of patients, utilize methodologies that eliminate the bias, better discoverable record keeping for proper reporting and follow up, an objective analysis of outcomes data and how they were measured, and better discussion of potential confounders or biases. Besides they have to adequately and accurately report study details including treatment regimens, length of follow up, outcomes studied and the clinical and statistical significance of results.

Going by the logic of famous words attributed to the noted statistician and management scientist, W Edwards Deming, “*In God we trust; all others must bring data,*” the ball is in their court.

#### Competing Interests

None declared

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