

HM³ Initiative: Expert meeting on Homeopathy Mechanism, Methods & Measurement, September 2019

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Introduction

The Homeopathy Research Institute (HRI) and the Samueli Foundation were proud to co-host an international meeting on 'Homeopathy Mechanism, Methods and Measurement' in Paris in September 2019. The 'HM³ Initiative' brought together experts in fundamental homeopathy research and related external scientific fields (e.g. water research and nanopharmacology) for two days of deep discussion on the topic of the mode of action of homeopathy.

This intensive collaboration between experts from six countries aimed to clarify the best way forward to answer the key question facing homeopathy: how do homeopathic remedies work? Discussion focused around both experiments to investigate existing theories and those which may introduce entirely new hypotheses.

Here we provide a brief overview of the event, which will be followed in due course by a scientific publication to report on the specific outcomes regarding the status of the field today and priorities for further research into the mode of action of homeopathic medicines.

Background

As the body of clinical evidence in homeopathy grows, it has become increasingly difficult to claim that '*there is no evidence*', or that '*homeopathy is no better than placebo*'. Yet these claims persist, fuelled by the lack of a recognised theory of how homeopathic medicines work. Some sceptics repeatedly fall back on the argument that '*it can't work, so it doesn't work*'. This position fails to acknowledge the existence of several working hypotheses, supported by a growing body of research into what exactly homeopathic remedies are, what their physicochemical properties are, and how they might interact with biological systems to cause detectable effects. However, further work is needed if the field is to reach an agreed consensus on the most likely mode of action and ultimately understand how homeopathic medicines produce biological effects.

The need for significant funding and research efforts in this field, especially with a co-ordinated international approach, was recognised by the late Dr Peter Fisher, Prof Iris Bell and Peter Gold, who first proposed the idea of an expert meeting to the Samueli Foundation. HRI was delighted to accept the invitation which followed from the Samueli Foundation to coordinate this valuable process and co-host the event.

The HM³ Initiative

The “HM³ Initiative: Homeopathy Mechanism, Methods and Measurement” was held in Paris on 20-21 September 2019. The intense two-day meeting was chaired by Rachel Roberts, HRI’s Chief Executive, and Dr Wayne Jonas, representing the Samueli Foundation. Together they led a panel of ten invited experts, including Dr Stephan Baumgartner (*Switzerland*), Prof Iris Bell (*USA*), Prof Jayesh Bellare (*India*), Dr Steven Cartwright (*UK*), Prof Martin Chaplin (*UK*), Dr John Ives (*USA*), Dr Walter von Lucadou (*Germany*) and Dr Alexander Tournier (*Germany*). Written contributions from Prof Vittorio Elia (*Italy*), who was unable to attend at the last moment, were incorporated into the discussion process.

The concept was to provide an opportunity for leading researchers in the field worldwide to establish the following points: What do we agree on? What do we disagree on? And most importantly, to establish the best way forward for fundamental research in homeopathy.

The group aimed to generate a set of experimental priorities which, by investigating questions at the heart of divergent opinions, have the potential to move the field forward towards a robust comprehensive working theory of the mode of action of homeopathic medicines.

The first three sessions focused around specific existing theories, followed by further sessions comprising discussion of more general topics.

Session 1: Non-local models

The first session, considering potential non-local modes of action of homeopathy, was opened by Dr Wayne Jonas (*USA*) and Dr Walter von Lucadou (*Germany*) who presented on the Placebo Effect¹ and Generalized Quantum Theory (GQT) entanglement², respectively.

The ensuing discussion centred on the clinical evidence in homeopathy, how this evidence supports or refutes the placebo effect theory and the issues associated with ascertaining causality from experimental correlations. In this context, the 2014 meta-analysis by Mathie et al. was presented as a key piece of evidence as its rigorous analysis found that individualised homeopathy shows distinct benefits over the placebo effect³.

Although the need for a greater number of high-quality, independently replicated clinical trials focusing on individual named conditions was acknowledged, the placebo hypothesis was considered insufficient to fully explain homeopathy’s observed biological effects and current clinical data.

The question was then asked whether biological experiments would be better suited to settle the issue of causation. Although more robust statistics can be obtained when performing such laboratory studies, ultimately it was agreed that only a testable mode of action could satisfactorily answer the question of causality. As it is particularly challenging to devise conclusive experiments to test the GQT theory, it was decided it would be put aside in the subsequent considerations.

Session 2: Local models

In the second session, discussion turned to the physicochemical properties of homeopathic remedies. Prof Jayesh Bellare (*India*) presented on the Nanoparticle Theory of homeopathy, where a Nanoparticle is defined as an aggregate or particle ca 100nm in diameter. Such nanoparticles are formed during the trituration and succussion (the process by which homeopathic drugs are produced) and carried through the dilution steps by froth flotation. In this way nanoparticles attach

to the surface of nanobubbles and become concentrated in the top layer of the medium⁴. Prof Bellare concluded that he was confident the debate about homeopathy had moved on from claims that there is nothing in the medicine, to demonstrating that there is indeed something there, which he believes are nanoparticles containing the starting substance; we now need to decipher details.

Dr Alexander Tournier (*Germany*) followed with a presentation on water structures and Quantum Coherence Domains (QCD) – a theoretical construct, originally proposed by Drs Preparata and Del Giudice⁵. The QCD model predicts that dipolar systems such as water will form quantum superstructures or domains of ca 10-100nm in diameter. These domains would have the capacity to cluster together and record information in the form of electromagnetic frequencies. These superstructures could replicate themselves during the succussion process thus passing on the information from dilution to dilution. For homeopathy, the theory can be used to propose that coherence domains contain ‘frequencies’ specific to the original substance and are able to act back on biological systems⁶.

Through critical discussion of both theories, participants agreed that the two were not necessarily mutually exclusive: the *primary* mode of action of homeopathic medicines might vary depending on whether they fall within the ‘high or low potency’ range (being diluted to a point below or above Avogadro’s constant). Both theories may be involved in lower potencies in particular.

Session 3: Interactions with biological systems

In the third session, discussions moved away from what is in a homeopathic medicine, to what happens in the person, or indeed, any complex biological system, in response to taking that medicine. Prof Iris Bell (USA) focused the session with a presentation on Complex Adaptive Systems: defined as ‘a group of multiple semi-autonomous agents that interact in inter-dependent ways to produce system-wide emergent patterns of behaviour’⁷.

From Prof Bell’s presentation emerged the question of how one defines simple or complex experimental systems. For example, is a single cell, such as a bacterium, sufficiently complex to respond to a remedy in an adaptive way, or does it require multi-cellular organisms, like plants? All participants agreed that to answer such questions and to fully appreciate the potential bioactivity of remedies, the most pressing need is to prioritise further development of bio-assays.

The ‘pros and cons’ of experimental systems that have already been assessed for replicability were explored (e.g. wheat seedlings, frog metamorphosis, basophil degranulation, rat hepatitis and atropine-treated rat intestine)⁸ as well as alternative, as yet untested, biological systems which may be better suited to address these fundamental issues.

Session 4: Matters arising

The first three discussion sessions were structured around theories that are driving experimental approaches, but in an open session, the expert panel also discussed the merits of a ‘theory-free’, complementary approach. That is, should researchers use experimental data to build a hypothesis rather than use experiments to test pre-defined hypotheses? For example, Dr Steven Cartwright (*UK*) described his approach using solvatochromic dyes to identify the physicochemical properties of a homeopathic potency and empirically build a picture of what a remedy is⁹. This could, in turn, tell us how a remedy works without the need to propose – and test – multiple working hypotheses.

Session 5: Synthesising outcomes

Despite the somewhat limited time available for such a vast topic, as hoped, the insightful input from all members of the panel led to an agreed list of proposed experiments considered to be high priorities for moving the field forward. These experiments fell into two main categories: developing and/or testing specific elements of existing theories; or pursuing non-theory driven avenues towards a better understanding of the characteristics of homeopathic preparations.

Conclusions

The HM³ Initiative confirmed the depth and complexity of the issues that need to be explored to fully understand the mode of action of homeopathic medicines. In a research field with limited funding opportunities, it is crucial that the right questions are posed to generate the most useful answers. This can only be achieved through open minded and critical discussion between international colleagues. We were delighted that the HM³ Initiative fulfilled this need.

The HRI, Samueli Foundation and panel members came away from the meeting committed to maintaining the collaborative spirit established in Paris. The next step will be to produce a scientific publication reporting on the Paris meeting. We hope that a formalised synthesis of the outcomes of the meeting will inform novel research for years to come, bringing us closer to a robust and comprehensive theoretical model of the mode of action of homeopathic medicines.

Acknowledgments

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