Homeopathy research at Barcelona 2013: At last, the fat lady sings

by Lionel Milgrom PhD CChem FRSC LCH MARH

The problem with any conference is how best to utilise the all-too-brief time available to pack in as much material and satisfy the many diverse interests of its attendees. ‘Easy,’ homeopathy’s detractors might say, ‘as homeopathy and its research are clearly bunk and so the conference shouldn’t last more than half an hour, so why waste your money?’ etc, etc.

Such casual arrogance was obliterated by one simple reality: the Homeopathy Research Institute (HRI) and its sponsors just about managed to stuff the increasingly buxom figure of homeopathic research into three days of informative talks, illuminating posters, and animated conversations during breaks for lunch or over coffee and lots of nice little sticky buns (see http://www.hribarcelona2013.org/conference-seminar-agenda/).

I felt like a kid let loose in a toy shop, and there simply isn’t enough room here to do justice to everything that was said at the conference so, entirely idiosyncratically, here are some of the highlights – and not necessarily in the order they appeared.

Overture

Busy, working homeopaths might consider research into homeopathy in terms of practice audit, clinical research and remedy provings; their tally of successfully treated patients being for them evidence enough that homeopathy ‘works’. Such a view of homeopathy research is, however, decidedly parochial in an age when whatever one thinks of it, Evidence-Based Medicine (EBM) now rules the roost in conventional healthcare (Sackett et al; 1996, 2000).

Homeopaths are now expected to explain how homeopathy works and demonstrate a credible mechanism for its action, all in terms of the dominant scientific / biomedical paradigm. This is never going to be easy when the only evidence considered acceptable is that based purely on scientific trials – which, even in conventional medicine, can be of highly dubious provenance (Cartright & Munro, 2010) – and when the general antipathy towards homeopathy (mainly from precisely those who have most to lose should that paradigm be found wanting) is now reaching pogrom-like proportions. The true horror of this situation is revealed whenever one attempts dialogue with any of the current crop of so-called ‘sceptics’ (conversation.which.co.uk). It is rather like discussing the merits of Shia Islam with a Sunni (and vice-versa) in the Levant, or revealing the message of Christmas to turkeys (though I admit never having attempted either).

So, homeopathy research, Janus-like, has to face in two seemingly opposite directions at the same time: outwards, towards the conventional world of biomedicine (and what that means in terms of how to prove it in scientific trials), and inwards towards how to improve the practice of homeopathy via clinical investigations of remedies and provings, economics, and ethics. In Barcelona 2013, the organisers managed to pull off successful coverage of both.

Homeopaths have much to gain from learning how to use the tools of modern biomedical research in order to help organise and conduct their own projects. Which is why it was such a good idea for the conference proper to be preceded by a program of workshops on research skills for beginners, given by four experts in the field.

Kate Chatfield (MSc Course Leader Integrated Health, School of Health at the University of Central Lancashire UK) kicked off the proceedings by showing delegates how to make sense of research papers, especially assessing for quality, bias, statistics and, ultimately, meaning. Next, Dr Clare Relton (Research Fellow, School for Health and Related Research, University of Sheffield UK) shared her experience of how to write fundable, workable research protocols that can help produce meaningful results.

Dr Elizabeth Thompson (Lead Clinician / Consultant Homeopathic Physician and Honorary Senior Lecturer in Palliative Medicine, Bristol Homeopathic Hospital, UK) then spoke on how...
Homeopathy research, Janus-like, has to face in two seemingly opposite directions at the same time

You see, since the 1990s Evidence-based Medicine (EBM) has so ‘colonised’ conventional medicine (Holmes et al, 2006) that the only evidence for the effectiveness of a therapeutic procedure now considered acceptable is that garnered solely from randomised controlled trials (RCTs) and meta-analyses. As sources of evidence, the judgment of clinicians and the experience of patients have been downgraded if not ignored altogether.

What I hadn’t contemplated till Dr Davins’ address was the full extent to which health providers, ministries, and governments have bought into this ideology. And it is worth remembering that this is an ideology which, via lobbying, kickbacks, price hikes, and sheer skulduggery (Fanelli, 2009; Garfield, 2002; Stayton, 2002; Argus, 2008; Angell, 2009; Kondro & Sibbald, 2004; bbc.co.uk; www.guardian.co.uk) to protect market share, ultimately profits the globalised pharmaceutical industry (‘Big Pharma’) to the detriment of other forms of health care the public might expect to be entitled. But more on that later ...

**Opera buffa**

The conference proper got under way with a plenary session on ‘Homeopathy Research – State of the Art and the Way Forward’.

Who better to get the party started than Dr Peter Fisher, Clinical Director and Director of Research at the Royal London Hospital for Integrated Medicine (nee, the Royal London Homeopathic Hospital)? Peter spoke with his usual enthusiasm and gusto on ‘Cutting edge to clinical effectiveness: the implications of recent theoretical and research findings in homeopathy’. I for one was particularly pleased as he mentioned my pet subject – entanglement in the therapeutic process (Milgrom, 2005). It appears this could be an idea whose time might have come (Fisher, 2013) and it was hugely gratifying to learn that various researchers were actively pursuing experimental ways to investigate it (Beauvais, 2013; Almirantis, 2013).

As an introduction to basic research, Peter tore through how homeopathy’s vitalistic language is 150 years out of date; that experimental work seems to confirm the idea of hormesis, and how the Benveniste story at last has a happy ending because of independent experimental repetition. He also managed to touch on:

- two decades-worth of nuclear magnetic resonance (NMR) experiments by Demangeat (2013) revealing nano-sized solvent superstructures generated by succession
- Iris Bell’s related research into the extremely violent, silica-releasing (from glassware) effects of potentisation at the molecular level, leading possibly to the production of nanoparticles (Bell et al, 2013) that could explain the homeopathic effect, and
- repetition of Christian Endler’s experiments on the use of *Thyroxine* to hinder tadpole development (Harrer, 2013).

Undoubtedly a great PR exercise for the journal he edits (and in which much of this groundbreaking work has been published), Peter unfortunately ran out of time before he could say more about basic research in homeopathy. However, he had laid down an enviable marker for the rest of the conference to follow, and was the topic the next speaker, Dr Stephan Baumgartner (fresh from the previous afternoon’s research skills workshop, and clearly being kept busy) and many others spoke about.

**Opera serie**

According to Stephan, homeopathy’s two basic tenets – the simile principle and potentisation – are not understood scientifically. Although this doesn’t stop successful homeopathic practice, lack of basic research hinders homeopathy’s...
legal recognition, its integration into public healthcare, reimbursement by health insurance providers, and hampers its development and optimisation as a therapy.

Also, there is a problem with the reproducibility of much basic homeopathy research, as hardly any of the experimental models developed so far yield identical results when independently reproduced. This is important, as it is one of the main criteria for anything to be accepted as scientifically viable. You say you have a unicorn? Well then, show me!

The simile principle has been researched far less (however, see Bellavite et al, 2007) than the effects of potentisation. Here Stephan referred to his and others’ work (mentioned later in the conference by Dr Tim Jäger) on the effects of potentised remedies on stressed plants, particularly Arsenicum album with arsenic-poisoned duckweed (the arsenic stresses the duckweed so that the number of leaves it produces and leaf area are reduced; something the homeopathic remedy Arsenicum album – in the range 17x-33x – seems to reverse [Jager et al, 2011]).

This pointed up a tantalising possibility, touched on during Stephan’s talk and continued later on in small huddled informal groups. Stephan’s experimental set-up and his results seemed to suggest the homeopathic effect might be describable in terms of some kind of a ‘field effect’, rather like electro-magnetism. Indeed, the next day, Dr Alex Tournier provided the possibility of a connection between this idea and the burgeoning field of nanoparticles and nanomedicine (Harrer, 2013), which Dr Iris Bell’s talk had previously introduced.

Exciting as the research possibilities opened up by these connections doubtlessly are, there is some way to go before any of it can be successfully put to the experimental test. But then that is the true beauty and value of conferences and meeting one’s colleagues face to face: it provides ample opportunities for such creativity. Back to Stephan’s opening talk …

Like Peter before him, but in more detail, he mentioned the groundbreaking work of Prof Christian Endler, on the use of Thyroxine to slow down the metamorphosis of tadpoles into frogs. The interesting thing about this experimental model of the effects of potentised substances is that it has been reproduced several times by other research groups (Oberbaum, 2013) and so is rightly considered ‘a new cornerstone in fundamental research on high dilutions’. (The next day, Christian Endler gave a full account of these fascinating experiments.)

Intermezzo I
Scene set, the conference then divided into two parallel sessions:
Having been a scientist in my previous life my heart lies with basic homeopathic research

Arsenicum, then develop water-droplet evaporation patterns of polycrystalline nanoparticles with a higher degree of symmetry. Thompson and her team from the UK’s Bristol Homeopathic Hospital and the other on talks from poster presenters, followed by an ebulliently bibulous poster session – completed the first day at the conference (not before the excellent work of Dr Elizabeth Thompson and her team from the UK’s Bristol Homeopathic Hospital).

Scherzo

Dr Robert Mathie from the British Homeopathic Association opened the second-day’s proceedings with a discussion of central importance to whether homeopathy will ever be accepted within the conventional scientific / biomedical paradigm, and that is the question of the validity of homeopathic RCTs (Mathie et al, 2013). These were:

**Rationale:** would a significant body of homeopaths support the rationale for the intervention used in the study?

**Principles:** is the specific intervention used consistent with homeopathic principles?

**Practitioner:** does the study have suitably qualified and experienced homeopathic practitioner input?

**Outcome measure:** does the main outcome measure reflect the main effect expected of the intervention?

**Sensitivity:** is the main outcome measure capable of detecting change?

**Follow-up:** is the length of follow-up for the main outcome measure appropriate to detect the intended effect of the intervention?

After exhaustively searching the homeopathic literature, only 31 RCTs of individualised homeopathy could be found that satisfied the inclusion criteria for this study.
What the pie-chart above shows is just how stringent Matie et al’s assessment of the quality of these trials were, with only 26% being found to be acceptable, i.e. ‘Yes’ in ALL six domains.

The reason I have perhaps laboured this point is that when one looks at RCTs of conventional medicine, it turns out many of them are just not very good (Cartwright & Munro, 2010) especially for informing clinical practice (Abernathy, 2009). Even though it is still at a preliminary stage, what struck me about this work is that we could fast be approaching the day when, because of the kind of exacting criteria applied by Robert and his colleagues, the quality of homeopathic research might begin to outstrip that of conventional medical research. It’s quite a thought …

Opera buffa … encore!

Later on Day 2 of the conference, there were two fascinating presentations on veterinary homeopathy. The first from farmer David Eyles – using homeopathic Aconite, Hypericum and Arnica (all at 200c) in a triple-blind trial of pain relief in his lambs during tail docking (see box below) – showed a reduction of approximately one-third in distress caused to his animals: an excellent piece of compassionate down-to-earth ‘welly-level’ research.

Tail docking in new-born lambs markedly reduces incidence of blow-fly strike, a disease that in essence eats the creature alive. Docking is achieved by using a small light rubber ring applied near the base of the tail, to cut off the blood supply. This causes varying degrees of short-term pain and discomfort to the lambs, which is evidenced through their movements and behaviour.

Dr Delny Britton’s presentation (Homeopathic research in animals: the case for cutting edge ethics), however, (and through no fault of her own) ended up being far more controversial, and demonstrated the gulf that still persists between medical and professional branches of homeopathy in the UK.

Animal-based research is an integral part of modern drug development in conventional medicine, but there are real problems extrapolating findings in animals to humans. One would think that homeopathy, being based on provings and clinical confirmation of the Law of Similars in humans, escapes this shortcoming. Actually no, as a search of homeopathic and medical databases shows that animal-based homeopathic research encompasses a range of physical and psychological conditions that can involve procedures which cause moderate to severe suffering to experimental animals.

Delny’s talk examined the scientific, ethical, and political imperatives regarding the use of animals in homeopathic research, especially as there is growing societal pressure to replace animal experiments in drug research. Under the circumstances, it could be argued that it doesn’t do much for the image of homeopathy if we are found stealing Big Pharma’s animal experimenting clothes.

This led to an interesting Q&A exchange after Delny’s talk, with one delegate (a medical homeopath) playing Devil’s Advocate to her genuinely held anti-animal experimentation views. Unfortunately, this so struck such a chord with another delegate (a professional homeopath) that, after the session, this delegate ripped into the questioner – whom (mistakenly, as it turned out) she perceived to be pro-animal experimentation – with badly misjudged, deeply hurtful and actually quite uncalled for ad-hominem comments.

For me, the take-home message of this little episode (which fortunately was out of ear-shot of the rest of the conference) is that homeopathics can be just as narrow-minded, unfeeling and rude as the so-called sceptics of homeopathy we complain about so much. In this day and age, we really need to exercise far more wit and emotional intelligence, as well as being much more caring of our colleagues. Not to put too fine a point on it, the very survival of homeopathy in the UK might well depend on it. Anyway, moving on …

Intermezzo II

Day 2 was rounded off by another session on basic research with, as I have already mentioned, Drs Iris Bell and Alex Tournier – the former talking to the conference via video-link-up from Arizona, such that the screen made her look like some kindly giant grandmother.

Finishing the session was Dr Steve Cartwright who, like me, is a chemist. He gave a fascinating presentation on his HRI-funded research project into the use of dyes as molecular probes of ultra-diluted succussed solutions. Using a special dye which has positive and negative charges at opposite ends of its molecules (called zwitter ions), Steve’s work suggests that homeopathic potencies appear to increase the affinity of certain positively charged ions in the solution for the negative ends of the dye molecules. The homeopathic effect, Steve reckons, is carried not by the water solvent but by ions in solution (and silica in the glassware).

This could have huge implications for what we know of the body’s cellular biochemistry, and the way ions carry information across cell membranes. Having spent my entire chemistry research career working with dyes, listening to Steve felt like I’d come home.

Rondo

Speaking of which, on the last day of the conference I was distracted by having to leave early to catch a plane. The morning session was highlighted by Prof Gustavo Bracho – he of the huge and hugely successful Cuban leptospirosis homoeoprophylaxis trial back in 2007-2008 (Bracho et al, 2010) – and his team’s excellent work at the Finlay Institute in Havana. They had performed a five-year…

---

Homeopathy in practice Autumn 2013

19
follow-up on their trial, which seems to indicate that, thanks to homeoprophylaxis, leptospirosis is now under control in Cuba. In fact, the number of people receiving the conventional vaccine for leptospirosis has so declined, it is causing economic problems for the Finlay Institute in Havana!

Gustavo Bracho also presented a study of homeopathic dilutions of a plant extract with anti-tumoural properties. At specific potencies, the homeopathic remedy seemed to have a toxic effect on tumour cells. By chance, however, he also found that storing the water for his control group experiments next to a homeopathically prepared dilution of the plant extract seemed to cause the water to magically acquire the same properties as the remedy. If, on the other hand, the water was stored at a distance from the remedy, it did not demonstrate the same effect.

Coming so late in the conference, and with previous discussions of a possible homeopathic ‘field effect’ still fresh in people’s minds, it didn’t take us long to join up the dots with Professor Luc Montagnier’s earlier research which similarly seems to demonstrate transfer of an effect ‘across space’ (Montagnier, 2009). It also raises the thorny but fascinating issue whether, if that is the case, could this be affecting other homeopathic research by similar ‘leakage’ between placebo and control groups, mentioned at the beginning of the conference by Peter Fisher?

This is the second time I have had the privilege of sharing a conference with Gustavo, and not just because it is great to hear him talk about homeoprophylaxis and now ‘leakage’. Gustavo comes fully equipped with some of the best tobacco in the world, and this time he brought with him some genuine – yes, genuine – Havana cigars! For a tobacco head like me this was complete bliss! We spent many wonderful breaks outside the conference venue surrounded in a haze of blue smoke.

So, back to the ‘revelation’ I mentioned earlier which, I suppose, like all revelations are obvious when you think about them. The problem is this: EBM originally was... an approach to health care that promotes the collection, interpretation, and integration of valid, important and applicable i) patient-reported, ii) clinician-observed and iii) research-derived evidence. The best
available evidence, moderated by patient circumstances and preferences, is to be applied to improve the quality of clinical judgments.’ (my emphasis) (Sackett et al, 1996)

However, only research-derived evidence is now considered important, effectively defenestrating the other two from this originally conceived ‘three-legged stool’ of evidence. This has resulted in a situation in which, as French physician and philosopher of medicine the late George Canguilhem put it, where medicine is now, ‘... the science of the limits of the powers that the other sciences claim to confer upon it ...’ (1994).

Canguilhem was more interested in developing holistic concepts of disease, rather than today’s exclusive pursuit of scientific data gathering (Altman, 1994). Lancet editor Richard Horton (yes, the self-same editor who published the highly flawed Shang et al ‘meta-analysis’ and proclaimed ‘The Death of Homeopathy’) writing about Canguilhem after his death in 1995, remarked:

To allow our conceptions about a ‘disease’ to be governed only by the amount of objective data that can account for that condition is to undermine the project of medicine ... We seek biological meaning, but that end point may not be what our patients seek: indeed, it may be what they fear. (1995)

Thus, is it always inevitable that a generalised quantitative scientific approach to disease is superior to an individual clinician’s qualitative judgment or a patient’s experience? Canguilhem, perhaps uncomfortably, reminds conventional medics that, although a disease can be diagnosed via its generalised symptom picture, it happens to an individual who also responds in his/her own way. As we know, homeopathy and other so-called ‘complex’ therapies aim to treat the individual. So testing them via generalised procedures like the RCT might be considered inappropriate (which is why such therapies are called ‘complex’).

Indeed, the very idea of this kind of homeopathy research raises several related issues.

Will it ever be possible for homeopathy to be explained or even accepted within the current biomedical / scientific paradigm?

Of course, detractors say homeopathy never will be so explained, and that scientific trials that purport to show homeopathy has any effect above and beyond placebo must therefore be a sham. These self-same detractors seem to forget that the mechanism of action of one of the world’s best-selling painkillers – Paracetamol – is still largely unknown, and that the efficacy of another top-selling drug – Prozac – has been shown to be no better than placebo (Kirsch et al, 2008).

Nevertheless, none of this exonerates those who would embark on homeopathy research (as Dr Robert Mathie’s work points out) ensuring their trials are planned and executed perhaps to a standard more exacting than is generally accepted within conventional medicine. In homeopathy research, Caesar’s wife must be – and must be seen to be – above suspicion.

There is disagreement over the effects of homeopathic medicines and how ultra-high dilutions work
Who is homeopathy research for?

Many practitioners (especially ‘lay’ or professional homeopaths) no doubt reckon they know the why and the wherefore of how homeopathy works. They consider their successfully treated patients (who will certainly need no convincing) ‘proof’ enough, so what is the point in trying to ‘prove’ homeopathy, especially to those who will never believe it anyway?

How much confidence should we have in the experimental tools used to investigate homeopathy, when they have been shown to be of dubious reliability within conventional medicine? These tools are the randomised controlled trial (RCT) and meta-analyses of those trials. However, there must be something fundamentally wrong with the RCT (and those who claim it to be a ‘gold standard’ [Cartwright & Munro, 2010]), when around 50% of ALL of them (be they testing conventional medicine or homeopathy) fail to deliver a clear result (british-homeopathic.org; El Dib et al, 2007). Objectively speaking the scientific evidence suggests that, at best, there is disagreement over the effects of homeopathic medicines and how ultra-high dilutions work, and not the usual bluster one hears about homeopathic remedies failing every randomised, evidence-based scientific study under the sun, etc, etc. Indeed, all we can conclude at the moment is that, as with many conventional procedures, the scientific evidence so far can only indicate homeopathy is of uncertain efficacy. So, unless we find a better way of testing that presumably is also applicable outside of homeopathy, is this situation likely to improve? For better or worse, these questions were at the back of my mind during much of the conference.

Finale

So what did I learn from this first HRIC conference on homeopathy research? First, there is a hell of a lot of it going on. Second, those conducting it are becoming ever more mindful of the necessity to ensure their planning, protocols, and procedures are unimpeachable. Indeed, and third, the day is fast approaching when the quality of homeopathy research may soon surpass that of conventional drug trials.

In truth this will not be too difficult a milestone to reach, given the parlous state of many conventional trials (Cartwright & Munro, 2010), and the fact that of the nearly 18,000+ RCTs done every year:

Because of the paucity of high quality evidence, the data available – though voluminous – may have little meaning or value for informing clinical practice. (Abernathy, 2009)

But the ramifications of what we heard in Barcelona go far deeper than that. For researchers are beginning to zero in on possible mechanisms for how homeopathy could work in scientific terms. Ideas being broached included various forms of quantum-style ‘entanglement’, homeopathic ‘field effects’, nanoparticles, and the possibility that they might all be interconnected. All require much more work before definitive answers can be broached, but then that is the nature of research and the true value of conferences like this for the sparking and sharing of ideas.

Again, detractors may (in fact, I can guarantee they will) scoff at these suggestions, but it is becoming abundantly clear that these ideas will be testable in the not too distant future. Not even physicists can boast that when it comes to...
finding out which of their abundance of string theories best explains the universe, and whether ‘dark matter’ really exists or not.

In fact, given various global crises, for example new strains of drug-resistant diseases, and the increasing scarcity and cost of Big Pharma’s products, finding out how homeopathy works might well turn out to be of much greater value to the world than what might have happened before the Big Bang. In which case Barcelona 2013 could well prove to be a watershed; the place and time when the increasingly Fat Lady of homeopathy research really started to sing her heart out ... BARCELONA!!!

Acknowledgement
I am grateful to Dr Robert Mathie for permission to reproduce one of the slides from his presentation. I am also grateful to Rachel Roberts, Alex Tournier and the organisers of the conference for the opportunity to speak about and present my posters, and to Dr Claire Haresnape for sitting in on parallel sessions I couldn’t attend. Lionel Milgrom can be contacted at milgrom127412@gmail.com.

REFERENCES
Sackett D (2000) Evidence-Based Medicine: How to Practice and Teach EB M. New York; Churchill-Livingstone
http://www.guardian.co.uk/media/2012/jul/16/london-2012-olympics-marlon-devinson (Accessed 23rd July 2012)
El DiB RP, Atallah AN, Andriolo RB (2007) ‘Mapping the Cochrane network of company experts advised staff to