British health care regulation moves away from science

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On 1 September 2006, UK regulations came into force which permit homeopathic medicines to carry indications on their labels[1]. Hitherto, only such products on the market before 1971, when the 1968 *Medicines Act* came into force, could carry such claims under a 'licence of right' (in common with all other medicines at the time). All homeopathic products marketed after 1971 are not allowed to carry indications for the diseases they claim to treat. There are currently about 3,000 homeopathic licences, and it is no surprise that the vast majority are licences of right. This contrasts rather sharply with the situation of orthodox medicines, for which virtually no pre-1971 licences exist today.

The new regulations stem from a desire to resolve this obviously anomalous situation, driven by a European Directive. The Medicines and Healthcare products Regulatory Agency (MHRA) quietly issued a consultation on its proposals in February 2005. Four options were offered. Essentially these were: (1) to do nothing; (2) to revoke all licences of right; (3) to allow efficacy claims based on non-clinical trial data; and (4) to do the same as 3 but also to review all licences of right on a voluntary basis.

The MHRA states that the consultation responses were in favour of the last option[2] and this is now embodied in Statutory Instrument 2006 number 1952. Significantly, the new regulations were laid before Parliament four days before the summer recess, and came into force on 1 September 2006, over five weeks before the new session. There was thus no opportunity for debate. Interestingly, the MHRA says that there were no strong public health reasons for taking any action, and that the only reason for rejecting the first option was the expectation of agitation by the homeopathy companies.

It appears that one purpose of the regulations was to encourage manufacturers to drop claims to treat more serious conditions, and to transfer claims to minor conditions only. Sadly, a by-product is to allow claims of efficacy without the need to provide any supporting evidence. Instead, the MHRA will accept what it calls "non-scientific data" (its own words). So the departure from science is official.

In its explanatory notes, the MHRA admits that homeopathic products "have difficulty in demonstrating efficacy in clinical trials". Surely this is just another way of saying they do not work? Acceptable data can now come from homeopathic 'provings'. It cannot be over-emphasised that 'provings' have nothing at all to do with efficacy. For those not initiated into this arcane field, provings are carried out by giving healthy people undiluted substances called homeopathic stocks. These may be of plant, animal, or mineral origin. The symptoms elicited by this process are imagined to indicate the diseases which the ultra-dilute finished product is able to treat, on the principle of 'like cures like'.

Box 1. Key principles of homeopathy

* The 'law of similars': "To treat a symptom, you need to administer a substance that produces the same symptom". Although paradoxical effects are known in conventional therapeutics, and even some modern biological response modifiers depend on agonist effects, these are not the same thing and there is no scientific evidence for this 'law'. It is not a law, it is a theory.

* The 'law of infinitesimals': "Medicines become more potent the more they are diluted". When homeopathy was invented by Hahnemann some 200 years ago, the Avogadro number had not been discovered. Now, homeopaths have to admit that in typical dilutions there is unlikely to be a single molecule of the original substance left. They claim that water 'remembers' the original solute, but do not explain how this can be selective, i.e. why does the water not remember everything ever dissolved in it? The idea has been tested *in vitro*. One celebrated experiment was discredited and withdrawn from publication, and subsequent tests lack verification by replication. Essentially, for the 'memory of water' claim to be accepted, the textbooks on physics and chemistry would have to be rewritten. It is among the most implausible theories ever postulated.

This, the so-called 'law of similars', is not supported by any scientific evidence (Box 1).

In addition, the new regulations accept as evidence, proof that the product has been used for the claimed indication "within the homeopathic tradition". Readers will immediately recognise that neither this requirement, nor 'provings', is anywhere near a definitive test of efficacy. The regulations do not list any other types of evidence as acceptable. Potential sources of data were listed as including homeopathic pharmacopoeiae and materiae medicae, and bibliographies, such that they would be accepted by homeopathic practitioners. In other words, all that is necessary is to convince homeopaths, and it is not necessary to win over anyone with a more scientific view of medicine.

It is not the purpose of this article to consider the clinical trial results for homeopathy. The fundamental point here is that the MHRA prefaced its consultation by stating quite clearly that clinical trial evidence was lacking. Interestingly, not one of the homeopathy organisations which responded enthusiastically to the consultation even suggested that such a view might not be correct. They were only too pleased to be let off the hook. This might reflect that, despite two centuries of use, the clinical evidence for homeopathy actually gets weaker over time[3]. The key question which any scientist, and the MHRA in particular, should ask is: "After 200 years, why are we still arguing about the efficacy of homeopathy?"

In the full text of consultation responses, obtained under a Freedom of Information Act request, the MHRA lists 234 organisations and individuals invited to the consultation. Twenty-seven responses were received. Of these, the majority comprised invited consultees, with six coming from uninvited consultees. Fourteen responses were clearly in favour, with no reservations. It should be noted that four organisations replied with "no comment". These are not included in the 27 reported here, although the MHRA does include them. Three respondents strongly objected to the proposals. All other respondents provided mainly supportive but qualified comments.

Forty-two organisations with an interest in complementary and alternative medicine were invited. These comprised common interest groups, manufacturers, and trade associations. Eight such organisations responded, all in favour. Eighteen Royal Colleges of medicine and allied professions were invited, of which seven medical colleges responded. Four supported Option 4 without reservations, while three strongly criticised homeopathy. For example, the Royal College of Physicians stated that "it is important that unsubstantiated or false claims of efficacy are absolutely prohibited". Certain other groups, such as the National Eczema Society, voiced very similar objections. None of these objections was mentioned by the MHRA in its analysis of responses[2]. In stark contrast, the Royal College of Radiologists very warmly supported Option 4, while all along mistaking homeopathy for herbal medicine. The Royal College of Nursing was even more enthusiastic, but the response was written by a homeopath.

The Institute of Biology was not invited to comment on the consultation, but a statement was issued objecting to the regulations[4]. Several other organisations issued critical statements, including the Royal Society, The Academy of Medical Sciences, the Biosciences Federation, the Medical Research Council, and the Royal Society. The British Pharmacological Society said:

> *The British Pharmacological Society believes that any claim made for a medicine must be based on evidence, and that it is the duty of the regulatory authorities, in particular the MHRA, to ensure that no claims can be made for the efficacy of any form of medicine unless there is good evidence that the claim is true. Despite many years of investigation, we have no convincing scientific evidence that homeopathic remedies work any better than placebo. Pharmacologists have noted frequently that most homeopathic products are diluted to the extent that they contain no molecule of active ingredient, that is, no medicine, which is highly misleading to consumers who are unlikely to recognise the expression "30C" for example. Furthermore, there are serious concerns, even in cases where they are used for minor ailments, that officially endorsed use of such remedies may put patients at risk of delayed diagnosis. The Society is therefore surprised that the national rules scheme for licensing homeopathic products, which came into force on 1 September (Statutory Instrument 2006 1952), will regard non-scientific data as evidence of efficacy.*

Both Professor Kent Woods, chief executive of the MHRA, and Professor Alasdair Breckenridge, chairman of the board of directors, are members of the British Pharmacological Society.

The Physiological Society, whose 2500 members include 14 Nobel laureates, said this:

> *It is our view that "alternative medicine" has, with very few exceptions, no scientific foundation, either empirical or theoretical. As an extreme example, many homeopathic medicines contain no molecules of their ingredient, so they can have no effect (beyond that of a placebo). To claim otherwise it would be necessary to abandon the entire molecular basis of chemistry. The Society believes that any claim made for a medicine must be based on evidence, and that it is a duty of the regulatory authorities to ensure that this is done.*

These were among about 700 signatories to a statement of objection[5], which helped to secure a debate in the House of Lords on 26 October. This threw the issue into the public arena.

The issue is one of giving correct information to patients, for which there is clearly a need. In 2005 *Complementary Healthcare: a Guide for Patients* was issued by The Prince's Foundation for Integrated Health[6], partly funded by the Department of Health. Evidence for efficacy was excluded from this guide, and advice on evidence was refused[7]. It is now clear that, instead of funding non-partisan and objective guidance, the Government prefers to create a double standard (it has still not referred homeopathy, or any other alternative therapy, to NICE – see Box 2).

By now, readers may be wondering what is driving such a bizarre move. The answer might be found in the MHRA's own Regulatory Impact Assessment[8]. It is stated there that not to act thus would "inhibit the expansion of the homeopathic industry". This is the first time that the MHRA has admitted to a commercial remit. It is not in its mission statement – but this is:

> *We enhance and safeguard the health of the public by ensuring that medicines and medical devices work and are acceptably safe. No product is risk-free. Underpinning all our work lie robust and fact-based judgements to ensure that the benefits to patients and the public justify the risks.*

How it will rebuild its credibility remains to be seen. If we are scientists, we should stand up for science and oppose anti-science, even if it has official endorsement.

Box 2. Medicines regulation in a nutshell

* The Medicines and Healthcare products Regulatory Agency (MHRA) is an executive agency of the Department of Health. It is not directly funded by the Government, but relies entirely on licence fees paid by manufacturers. Not only does it assess the evidence provided by orthodox manufacturers in support of a product licence application, it is responsible for ensuring the competence of those submitting the data. This is done via a programme of inspections, in compliance with international standards and EU legislation. Regulation does not only happen at the end of drug development; all clinical trials require approval by the MHRA.
* The issue of a product licence does not automatically mean uptake of the product by the NHS. The National Institute for health and Clinical Excellence (NICE) was created by the present Government to evaluate medical technologies on the basis of cost-effectiveness. NICE does not 'approve' any products, it issues guidance. It is not a pro-active organisation and can only carry out technology appraisals on request. Machinery is now in place for the public to suggest topics for appraisals, but the actual request can only come from the Government. A parliamentary report in 2000 asked the Government to request NICE to appraise complementary and alternative medicines, but no such request has been issued to date.

Footnotes

[1]MHRA Press Release. www.mhra.gov.uk/home/idcplg?IdcService=SS_GET_PAGE&useSecondary=true&ssDocName=CON2024653&ssTargetNodeId=389. Accessed 5 December 2006.

[2]MLX312 Summary of Responses. www.mhra.gov.uk/home/idcplg?IdcService=SS_GET_PAGE&useSecondary=true&ssDocName=CON1004429&ssTargetNodeId=373 Accessed 5 December 2006.

[3]Editorial: The end of homoeopathy. *The Lancet* 2005; 366:690

[4]*Biologist* 53(6) 325

[5]www.senseaboutscience.org.uk/pdf/EvidenceBasedMedicine&TheMedicinesForHumanUseRegulations2006.pdf Accessed 6 December 2006.

[6]www.fih.org.uk/NR/rdonlyres/75C60D68-A115-42E5-A523-C3DF7AC96D72/0/ComplementaryHealthcareaguideforpatients.pdfhttp://www.fih.org.uk/NR/rdonlyres/75C60D68-A115-42E5-A523-C3DF7AC96D72/0/ComplementaryHealthcareaguideforpatients.pdf. Accesseed 15 January 2007.

[7]Ernst E. Personal communication.

[8]MLX312 Full Regulatory Impact Assessment. www.mhra.gov.uk/home/idcplg?IdcService=SS_GET_PAGE&useSecondary=true&ssDocName=CON1004429&ssTargetNodeId=373 Accessed 5 December 2006.

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