Animals in research: "can they suffer?"

Home Office figures showing a rise in the number of animal experiments in the UK in 2010 should be of interest to all involved in medical research and treatment. Even *The Lancet*, whose primary concern is clinical research, must attend to them. Many of the advances published in these pages have their origins in animal models; furthermore, it is the duty of all involved in medical research to ensure that this research is undertaken, in every area, within a clear ethical framework. Whether animals have "rights" or not, we must not forget the responsibilities we hold both towards them and towards the patients whose treatments are informed by the experimental process.

Many hope that in the long term the advance of biotechnology will eliminate the use of animals in research. In the short term, it is likely to present us with new and troubling ethical questions. These are bravely addressed in a new report from the Academy of Medical Sciences, *Animals Containing Human Material*. The report defines "animals containing human material" (ACHM) as animal entities that have either had their DNA sequences modified to resemble those found in human beings, or animals that have human cells incorporated into them. This technology, which can improve the congruence between the animal model and its human counterpart, is widely used when computer models or cell cultures do not provide sufficient accuracy, or when human experiments would be unethical. Yet there has been little dialogue on the subject between scientists and the public.

If researchers have been reluctant to engage with the public for fear of provoking a negative response, the ACHM report suggests that these worries have been ill-founded. A public dialogue undertaken by Ipsos MORI as part of the study showed that people would accept ACHM research that was well regulated and could be justified in terms of benefit to medical progress. Participants, the report states, "did not regard ACHM research as being significantly different from other research involving animals". The most common reason why ACHM was thought unacceptable was not religious or philosophical in nature: it was simply concern about animal welfare.

The report also looks ahead to types of experiment that might arise in the future. For example, it is feasible that one day research might be proposed involving the creation of animals modified to display distinctly human-like features or characteristics; if this process extended to neural tissue, one might imagine creatures with human cognitive processes or patterns of behaviour. Whether or not this comes to pass, it does not substantially alter the core issue raised by philosopher Jeremy Bentham over 200 years ago regarding the treatment of animals: "the question is not, can they reason? Nor, can they talk? But, can they suffer?"

The report's recommendations are therefore welcome, in as much as they promise to minimise suffering, to promote high-quality research, and to open an inclusive and ongoing conversation about ACHM. It is proposed that the Home Office should establish a national expert body to provide specific guidance on ACHM use in research. The level of regulation would depend on which of three proposed divisions the research falls into: experiments that present no issues beyond the ordinary use of animals; those that should be restricted subject to scrutiny; and those that should not be undertaken pending further understanding of the potential consequences.

There is a lesson in this approach for all those who are concerned about animal use in medical research, on both sides of the debate. Those who advocate its benefits must endeavour to keep their own house in order. Publication of data in *PLoS One* in 2009, suggesting a low level of quality in the design and reporting of many animal experiments rightly alarmed many, and there is simply no other solution than for researchers, funders, and publishers to demand transparency and the highest possible scientific and ethical standards, as set out in the ARRIVE guidelines. It is clear, however, that this cannot be done in an atmosphere of fear and intimidation. It is doubtful whether those who hold the belief that all animal experimentation is an absolute moral wrong will change their minds; yet they would do well to consider that mutual respect and an open channel for dialogue could do much to further their aims. The use of animals in medical research is a practical and ethical issue that will not go away—nor should it. Only through a constant, dynamic process of scientific and moral scrutiny can one be sure that the correct balance—however fine, however tentative—is being struck.

■ *The Lancet*

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For the **Home Office figures on animal research** see http://www.homeoffice.gov.uk/publications/science-research-statistics/research-statistics/science-research/spanimals10/

For the **Academy of Medical Sciences report** see http://www.acmedsci.ac.uk/publications

For the ***PLoS* paper on the quality of animal experiments** see http://www.plosone.org/article/info:doi/10.1371/journal.pone.0007824

For the **ARRIVE guidelines for reporting animal research** see http://www.nc3rs.org.uk/page.asp?id=1357