

Naturewatch

MP Briefing

EDM 545 – Scientific Procedures on Animals
and the use of Non-animal Alternatives

Summary

Early in 2009, the findings of an opinion survey of project license and personal license holders conducted on behalf of the NC3Rs were released. The findings offer a valuable insight into the views of scientists involved in scientific procedures on animals.

Though 33% of respondents viewed the lack of appropriate scientific or technological innovation as the main obstacle to implementing the 3Rs in their own research, other themes emerge from the survey findings pointing towards non-scientific barriers to the development and implementation of non-animal alternatives. This briefing picks up on some of the findings from this report and from other recent reports including *Toxicity Testing in the 21st Century*.

It is clear there is a continuing need to nurture the right conditions in which researchers are **mindful of the 3Rs, and feel able to make the shifts in perceptions and orientation necessary to move towards non-animal alternatives** – this is vital if the vision of humane scientific research first put forward by Russell and Burch 50 years ago, is to be realised.

Naturewatch urges the government to consider a series of measures to overcome non-scientific barriers to the development and implementation of 3Rs and non-animal alternatives, including:

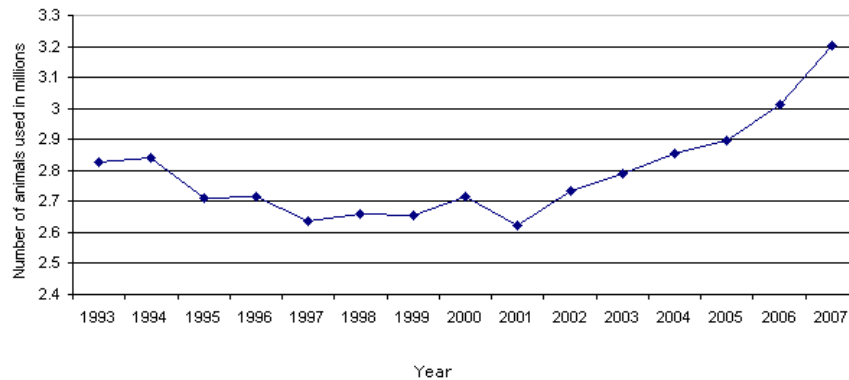
- To continue its support of initiatives promoting the 3Rs throughout the scientific community, through providing a substantial long term financial commitment to The National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs).
- To encourage funding bodies to call specifically for research involving alternatives.
- To review the degree to which experimental design and statistics are included in Higher education life sciences courses, and Home Office training modules.
- To consider a more structured approach to continued professional development for life science researchers involved in designing experiments, which includes an emphasis on the 3Rs, experiment design, and their relevance to high quality scientific research.

Please add your signature to EDM 545 and demonstrate your support for measures that will encourage the use of non-animal alternatives.

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March 2009
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An Overview: 50 years on....

Animal Procedures (1993-2007)



This year, it is 50 years since Russell and Burch published *The Principles of Humane Experimental Technique*¹ outlining the 3R's approach (refinement, reduction and replacement), and yet despite the 3R's being recognised as a model approach, the number of animals continues to peak at levels, not seen since 1991. New hi-tech procedures, that replace the need for animal testing, do offer hope of humane scientific research, yet progress towards implementing the 3R's and non-animal alternatives throughout the scientific research community has been desperately slow.

Opinion surveys of project license holders

From July to October 2007, People Science Policy (PSP) conducted an opinion survey of project license and personal licence holders on behalf of the NC3Rs. The findings *Views on the 3Rs: Survey Report 2008*², offer a valuable insight into the views of scientists involved in scientific procedures on animals.

This follows on the heels of the Nuffield Council on Bioethics³, which in 2005 identified several non-scientific barriers to the developments of non-animal replacement methods, including the conservatism of some researchers to use alternatives.

Time for a Sea change

The findings of the NC3Rs survey reinforce the importance of the mindset of the research community in determining progress towards reduction and replacement methods. The following responses provide an insight into...

Which factors would allow scientists to use fewer animals?

- 45% greater willingness among researchers to change their methods.
- 33% Other researchers being more willing to accept results obtained using non-animal methods.
- 30% Greater willingness from regulators to accept data from non-animal approaches.

In 2007 *"Toxicity testing in the 21st Century: a vision and a strategy"*⁴ outlined the conditions needed to nurture non-animal alternatives. It also recognised the importance of the mindset noting that *"institutional outlooks and orientation.... can determine the pace and degree to which the vision is incorporated into agency culture and practice."* It further noted the importance of attitudes and expectations in realising the vision of non-animal alternatives to toxicity testing *"far reaching shifts in orientation and perception will be critical."*

¹ Russell, W. & Burch, R. 1959, *The Principles of Humane Experimental Technique*.

² The National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3R's), *Views on the 3Rs: Survey Report 2008*.

³ Nuffield Council on Bioethics. 2005, *The ethics of Research involving animals*. [11.30] pp. 196-197.

⁴ National Research Council of the National Academies, 2007, *Toxicity testing in the 21st Century: a vision and a strategy*. p.167 Washington DC.

3Rs - Incentives and added value

While 77% of respondents involved in designing experiments said nothing would allow them to address their research objectives without the use of animals, some respondents did acknowledge that development of alternatives would enable them to address research objectives without the use of animals.⁵

34% of respondents indicated more relevant cell cultures could replace animals in their research.
14% indicated technical advances in tissue engineering could avert use of animals in their research.
10% indicated more predictive computer models could replace animals in their research.

However, only 6% of respondents had applied for external funding to undertake 3Rs research and testing. While 25% of respondents were not familiar with external funding sources available to undertake 3Rs research.

There is a growing awareness in the scientific community regarding the possibilities of non-animal alternatives, however this may be hampered by an apparent lack of awareness of external funding sources.

In 2008, five major funding bodies, produced Guidelines which clearly set out their requirements of those applying for funds. These guidelines stressed that the implementation of the 3R's is an integral part of good research practice.⁶ This approach is warmly welcomed and should be developed further. If government funding bodies were to make specific calls for projects involving alternatives, that would in turn encourage scientists to think about research questions in different ways, possibly averting or reducing animal use.

- ✓ **Secure more funding for projects that use alternatives**
- ✓ **Raise the profile of alternatives in the research community, giving them "added value"**
- ✓ **Promote 3R's as good practice, helping change behaviour and/or attitudes**

Training – a missed opportunity?

For several years now, the need for improved experimental design and its potential for reducing the number of animals used has been highlighted. In 2004, Animal Procedures Committee member Michael Festing wrote of the need for researchers to improve experimental design....*"Better design and analysis would improve the scientific validity of their work and reduce the number of animals needed to obtain a given level of scientific information."*⁷

The successful completion of Home Office training modules is a precondition for those applying for a project or personal licence that permits them to undertake scientific procedures on animals. However, the Home Office training programme for project licence applicants is completed in 1.5 to 2 days, of which only half a day is spent on experimental design and statistics.

Though experimental design and statistics are undoubtedly cornerstones of good practice in scientific research, training in these vital areas can be inadequate. A point born out recently in a paper by Howard et al., who noted that of the students attending two international training schools covering experimental design and statistics, about one third did so because they thought their previous training in these areas was insufficient.⁸

In the light of these concerns, there is a pressing need to review the content of Higher Education life science courses to ensure enough emphasis is being placed on experimental design and statistics.

⁵ The National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3R's), *Views on the 3Rs: Survey Report 2008* .p. 11

⁶ BBSRC, MRC, NC3R's, NERC, Wellcome Trust. May 2008, *Responsibility in the use of animals in bioscience research: Expectations of the major research council and charitable funding bodies*.

⁷ Festing, M.F.W. 2004, Preface, *ATLA* 32, suppl. 2, i-ii

⁸ Howard Bryan, Michelle Hudson and Richard Preziosi, 2009, *More is Less: Reducing Animal Use by Raising Awareness of the Principles of Efficient Study Design and Analysis*. *ATLA Vol. 37 No. 1 February 2009*

Training – a missed opportunity? [cont'd.]

Programmes of Continued Professional Development are available for instance through the Institute of Biology. A more structured approach to continued professional development for all project licence holders could be employed, that includes an emphasis on the 3Rs, experimental design, and their relevance to high quality scientific research.

Conclusion - A way forward

In response to the growing number of animal experiments, and to quicken the pace of progress towards research which uses non-animal alternatives throughout the scientific community, Naturewatch urges the government to consider a series of measures to overcome non-scientific barriers to the development and implementation of 3Rs and non-animal alternatives, including:

- To continue its support of initiatives promoting the 3Rs throughout the scientific community, through providing a substantial long term financial commitment to The National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs).
- To encourage government funding bodies to call specifically for research involving alternatives.
- To review the degree to which experimental design and statistics are included in Higher education life sciences courses, and Home Office training modules, and to ensure coverage of these cornerstones of scientific practice is adequate.
- To consider a more structured approach to continued professional development for researchers involved in scientific procedures on animals, which includes an emphasis on the 3Rs, experimental design, and their relevance to high quality scientific research.

Please add your signature to EDM 545, and demonstrate your support for measure to encourage the use of non-animal alternatives