

REPORT of the meeting to discuss



a National Centre for the Replacement of Animals in Experiments

18th November 2003 at Portcullis House, Westminster, London

Organised by the Lord Dowding Fund and the Dr Hadwen Trust

NCRAE Meeting Report

A meeting to discuss: A National Centre for the Replacement of Animals in Experiments

organised by the Dr Hadwen Trust and
the Lord Dowding Fund

9.30am - 3pm Tuesday 18 November 2003

The Attlee Suite, House of Commons, London

Arrivals and welcome from Joanna Lumley OBE

Opening by: Ian Cawsey MP, Dr Gill Langley (Dr Hadwen Trust), Jan Creamer (Lord Dowding Fund)

Session 1:
Political arguments for a National Centre

Ian Cawsey MP

Norman Baker MP

Session 2:
Scientific perspectives on the need for a National Centre
Prof. Haroun Shah (Head, Molecular Identification Services,
Health Protection Agency)

Prof. Paul Tofts

Session 3:
Organisation and funding of a National Centre
Dr Samantha Orr (Director, UK Human Tissue Bank)
Dr Paul Furlong (Neuroimaging Research Group, Aston
University)

Session 4:
Training and economic benefits of a National Centre
Dr David Dewhurst (Founder, Sheffield Biosciences &
Director, Learning Technology, Edinburgh University).
Andrew Davidson (Chair, Xceleron Ltd, York University)

Photographs:

1. Joanna Lumley OBE;
2. Ian Cawsey MP;
3. Jan Creamer (Lord Dowding Fund);
4. Dr Gill Langley (Dr Hadwen Trust);
5. Norman Baker MP;
6. Prof. Haroun Shah (Head, Molecular Identification Services, Health Protection Agency);
7. Dr Samantha Orr (Director, UK Human Tissue Bank);
8. Dr Paul Furlong (Neuroimaging Research Group, Aston University);
9. Dr David Dewhurst (Founder, Sheffield Biosciences & Director, Learning Technology, Edinburgh University). ;
10. Andrew Davidson (Chair, Xceleron Ltd, York University).



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Background

Following the publication of their joint proposal for a National Centre for the Replacement of Animals in Experiments in 2002, the Dr Hadwen Trust and the Lord Dowding Fund held a meeting in London to discuss the concept further. A one-page summary of their proposal is attached as an appendix and full copies are available from the Lord Dowding Fund and the Dr Hadwen Trust.

The meeting aimed to discuss the need to stimulate and promote research to replace animal experiments by means of a National Centre (a co-ordinating body), and how this should be established and funded. Participants, numbering about 80 in total, included politicians (national and European), government officials, scientists, funding bodies and animal welfare representatives.

This report is a summary of the issues raised by speakers and other participants at the meeting.

Introduction

Humane research organisations such as the Dr Hadwen Trust and the Lord Dowding Fund support a wide range of high-quality non-animal research, which aims to benefit both people and animals. Despite an overall trend away from animal use, Home Office statistics show an increase in animal experiments in universities and non-profit-making laboratories, where much medical research is conducted. Without a national initiative, this increase threatens to reverse the long-term decline in animal procedures in the UK.

In general, the public is uncomfortable with the idea of animal experimentation and public opinion polls show that some 90% would like to see more funding of non-animal alternatives. It is the replacement of animal experiments, rather than just reduction or refinement of experiments, that the public expects and which needs to be the focus of a concerted effort.

A National Centre for the Replacement of Animals, primarily in medical research rather than toxicity testing, would bring scientific, medical, economic and animal welfare benefits. By drawing together scientists across different disciplines, it could encourage collaborations and cross fertilisation of ideas necessary to speed the pace of progress. It would operate with transparency and promote the free sharing of ideas, helping to minimise delays in the acceptance and use of alternatives to animal experiments.

Political issues

Public concerns, as well as legislative requirements, have persuaded the Government to look more seriously at alternatives to animal experiments. An initiative to establish a National Centre would be likely to receive enormous public support.

A report by the House of Lords Select Committee on Animals in Scientific Procedures, published in June 2002, recommended the formation of a centre for the 3Rs (replacement, reduction and refinement of animal experiments). As the meeting heard, the Government has broadly accepted this recommendation, although its response has been slow and lacked any sense of urgency, especially within the Home Office.

The meeting agreed that more effort needs to be made to replace animal experiments and develop alternatives. A National Centre would provide an opportunity for the UK to lead the way in this field, in line with the Prime Minister's wish for the country to be at the forefront of scientific development. It would raise the status of replacement research that currently tends to be undervalued by mainstream scientists and funders.

A National Centre could also promote the concept of alternatives at a European level, liaising with ECVAM and other initiatives, and providing a political voice for faster change in the European Union.

A Centre for one R or 3Rs?

The Lord Dowding Fund and Dr Hadwen Trust proposal envisages a centre for funding and developing replacements to animal experiments. This is partly because a centre which attempted to develop all 3Rs would be taking on an enormous, possibly impractical, challenge; and partly because the Centre for Best Practice in Animal Research is already addressing refinement and reduction, and duplication of effort should be avoided.

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Some participants felt that a centre for all 3Rs involving leading academic researchers would promote good practice in animal research. Some concerns were expressed that a Centre for replacement could become isolated from work into refinement and reduction methods, but the Centre would, of course, liaise closely with initiatives for refinement and reduction.

Replacement is the most challenging of the 3Rs in terms of the technical and strategic nature of the research that is needed – one reason why a National Centre for replacement must have its own research budget. As replacing animals is a long-term aim, to have an impact in the foreseeable future an initiative should be kick-started now. Moreover, of all the 3Rs, replacement methods require the closest collaboration of scientists from different disciplines, which a National Centre would facilitate.

Others pointed out that a new 3Rs centre would exclude participation by organisations whose remit precluded support for reduction and refinement projects. Furthermore, it was felt that whilst the refinement and reduction concepts sit well together, replacement techniques require new thinking and success is dependent upon input from outside animal research.

The scientific perspective

A number of scientists attending the meeting spoke of the difficulties they had encountered progressing research into alternatives, and how a National Centre would remedy this situation.

Many experimental models using animals were established centuries ago, and changes to develop alternatives have been largely left to individuals and serendipity. Successful change requires a strategic national initiative, such as the establishment of a centre, to assist the move away from whole animal studies to new advanced technologies.

Diagnostic services, such as the Health Protection Agency, suffer from a lack of funding to undertake research in addition to their routine services. In some cases they had access to appropriate research equipment but were ineligible to apply for funding to the major grant-giving bodies.

Neuroscientists using imaging techniques to replace animal experiments had experienced difficulty in raising funding for their work. A National Centre that made funding new research techniques a priority could be of strategic importance for UK research. For example it had taken 15 years to secure funding for the MEG brain imaging facility at Aston University, Birmingham, the only one of its kind in the country. In comparison, Japan has some 20 MEG laboratories.

Current research-funding strategies tend not to encourage change, and developing new techniques to replace animals is viewed as a fringe activity. Delays in developing new technology results in slower medical progress. For example the imaging tool fMRI has an increasing variety of applications, and can now be used to study quantitative changes in the blood-brain barrier in patients with multiple sclerosis or tumours. Human studies with fMRI can help speed up drug development, cutting costs and reducing animal use.

Techniques such as MRI or MEG are not alternatives *per se*, but become so if their application allows the replacement of animal procedures.

A shortage of human tissue was highlighted as a problem. Human tissues are vital for research, for example to calibrate magnetic resonance techniques, or in pre-clinical studies where they can eliminate inappropriate animal use. Scientists would like to avoid animal use, but increasing restrictions on the experimental use of human tissues (even on existing collections of patients' tissues) is limiting access to them. Consequently researchers are often forced to resort to using animal tissues, which are far easier to obtain, but of less relevance to human conditions.

A National Centre could help to co-ordinate supply of and access to human tissues, to make the best possible use of this valuable resource. It could also provide guidance and training in the special techniques needed for handling human tissues.

Many researchers would like to use sophisticated imaging equipment such as MRI, which would allow them to study humans rather than animals, but they do not have access to these state-of-the-art technologies. A National Centre could enable wider access to these facilities, as well as providing or co-ordinating the training needed to use them.

Mental illness is now a leading cause of disability in the UK, making research into brain and behaviour of strategic importance. Neuroimaging techniques represent valuable substitutes to animal experiments. Progress in neuroscience has been achieved by the integration of non-invasive human imaging techniques with molecular and cellular approaches. A Wellcome Trust audit of neuroscience (Strategies for Action 1999) concluded that more funding was needed for interdisciplinary research.

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A National Centre would help to promote interdisciplinary research, for example through workshops, and provide a budget to encourage this.

Scientists will use advanced humane techniques if they have access to them, but without the funds to do this they will continue to use the techniques they already have. There is both the scientific expertise and the public interest to establish a National Centre for replacement of animals in experiments in the UK.

Education

Teachers need to be made aware of the existence of alternatives to animals in education, given evidence of their usefulness in teaching, and advice on how to integrate them into classes. There is currently no national co-ordination of these activities. A National Centre would improve the acceptability of alternatives and raise awareness; provide practical support to teachers and developers; and promote critical thinking and ethical awareness among students.

It was suggested that a National Centre could even act as a repository for non-animal teaching resources and make them available to educators. It could also hold a database of the evidence base for using alternatives, set standards and identify national needs. It could provide advice on finding and using alternatives, and give access to the currently available resource databases.

Industry issues

The meeting heard that although animal testing is a key stage of drug development, it is a poor predictor of human responses: around one third of drug candidates fail in the first human trials. There is a need for more relevant testing and the public wants safer drugs, although industry and regulators are inherently resistant to changes in the established system.

Accelerator mass spectrometry (AMS) is an analytical tool of unprecedented sensitivity. It can be used to study samples from human volunteers given harmless ultra-low doses of drug candidates at an early stage of development.

Obtaining early metabolism data from the relevant species (humans) can reduce subsequent animal use; as well as avoiding the unnecessary exposure of volunteers in phase I clinical trials to potentially toxic drug candidates. Such emerging technologies as AMS have many advantages for industry, including speeding the development process and improving safety.

Lack of funding for alternatives to animals in drug testing is seen as a problem. At present there is only one AMS machine being used to study biosamples in the UK, whilst Japan has invested in many of them. Furthermore, validation of AMS would benefit from the provision of industry data on marketed drugs.

A National Centre could help to inform industry about alternatives; report on new technologies from around the globe and improve access to them; advise employees and shareholders and educate regulators. It could also act as 'honest broker' in obtaining industry data to help validate non-animal methods.

Further discussion points

It was suggested that learned scientific societies, who have so far demonstrated little interest in replacing animal research, should be involved further with the concept of a National Centre for replacement. The status of humane research needs to be raised on a national scale among all stakeholders, including Government, industry, academia, funding bodies and policy-makers.

Medical research charities play an influential role in funding strategies, but do not see replacing animal experiments at their responsibility. All sectors should be responsible for replacing animal use – as the Government suggested – and it would be helpful to have more input from the major research charities.

Some scientists perceive the replacement of animal experiments as a threat to research. A National Centre could do much to improve the reputation of alternatives science and enhance its status. The onus on animal protection groups as the main driving force behind alternatives should be shared more by the mainstream scientific and funding communities.

Academics need to be persuaded to 'think outside the box' in innovative ways when considering alternatives to animal experiments. Industry needs to be persuaded of the ethical value of investing in a National Centre for replacement.

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Conclusions

There is continuing public concern about animal experiments and support for alternatives, and this makes the UK an ideal location for a National Centre to replace animals in research, irrespective of the motivation (animal welfare, relevance to humans, scientific superiority, speed and economics). Faster development of non-animal methods can improve progress in medical research.

Hurdles to be overcome include inertia in the scientific community, a lack of government leadership in this field, and lack of funding.

Alternatives to animal experiments are not a threat but an opportunity to develop new and better scientific tools, to access human data and to give animals the respect they deserve.

A UK-based centre would not preclude a European centre, as European legislation requires all nations to encourage research to develop alternatives to animals. There are already many models to study of centres that focus on a particular area of research. The concept of a national centre focusing on a particular area of research is not new - only its application to non-animal research - and there are many models to study.

In summary, the meeting considered that a National Centre to replace animal experiments could have the following functions:

- give scientists a wider range of options to choose from;
- conduct horizon-scanning, to identify upcoming methods which could be applied to replacement;
- give a status to scientists who are developing replacement methods, and attract other mainstream scientists to do so;
- develop a new research culture so that the scientific community is on the alert to maximise opportunities and is more open to humane approaches;
- develop dialogue and collaborations with a range of expertise;
- promote new expertise (e.g. how to handle and use human tissue, which has different requirements to animal tissue);
- integrate human studies with cellular and molecular approaches, essential for replacing whole animal research;
- develop a national strategy for replacement and provide funds to develop new methods, especially pump-priming funds;
- help train scientists with skills in more than one discipline (e.g. mathematics and clinical skills for imaging studies), and support young scientists interested in non-animal methods;
- strengthen funding partnerships between government, charities and industry; and
- provide guidance on how non-animal methods can be integrated into research and testing.

The meeting aired a number of issues and helped tease out a range of views. Taking these into account, there was considerable support for a centre of the kind envisaged in the proposal by the the Dr Hadwen Trust and Lord Dowding Fund.

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APPENDIX

A NATIONAL CENTRE FOR THE REPLACEMENT OF ANIMALS IN EXPERIMENTS

A Summary Proposal from the Lord Dowding Fund and the Dr Hadwen Trust

National and European legislation regulating animal experimentation demands that non-animal methods be sought or used before recourse to animals, whenever possible. In the UK project licence applications require full consideration of replacement, refinement and reduction (the Three Rs) of animal use.

Public opinion in the UK and across Europe strongly favours non-animal approaches to research. The government now acknowledges that such approaches can overcome some of the limitations of animal experiments.

One of the recommendations of the House of Lords Select Committee on Animals in Scientific Procedures last year was that a “*Centre for the Three Rs be set up, consisting of a small administrative hub which co-ordinates research units embedded in existing centres of scientific excellence*”. The government has agreed to consult further on the idea.

The Dr Hadwen Trust for Humane Research and the Lord Dowding Fund for Humane Research strongly support the concept of an independent national centre for replacement, in order to stimulate, fund and communicate non-animal approaches to pressing research questions, primarily in medical research.

A major feature of the Centre, as we see it, would be its transdisciplinarity – bringing to biomedical questions a suite of relevant approaches from recognised research groups, without recourse to animal experiments.

The objectives and mission of our concept of a Centre are, in summary:

- To encourage, fund and stimulate high-quality research in the UK with the aim of finding replacements for animals in research.
- To provide a 'critical mass' or 'energy of activation' for this field, to facilitate the necessary collaborations and to attract researchers.
- To train in, advance and disseminate knowledge of, research without the use of animal experiments.

The proposed Centre is not a laboratory, it would comprise a ‘hub’ and constituent ‘spokes’. We recommend that the hub could consist of a Director with a small, qualified staff, with strategic advice provided by an expert advisory body or council. This would help steer the Centre's activities, especially the funding of research undertaken in the spokes. The spokes would comprise laboratories or research groups having a nationally recognised level of expertise, within relevant biomedical specialities or methodologies, which would collaborate across disciplines. Funding could come from stakeholders including Government departments, medical research charities, humane research organisations and other interested partners. A Centre focused on replacement would facilitate participation by organisations whose remit precludes support of reduction and refinement projects.

**This is a one-page summary of the full proposal, which can be obtained from:
info@ldf.org.uk or info@drhadwentrust.org.uk**

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