The ethics of research involving animals

CONSULTATION PAPER

NUFFIELD COUNCIL ON BIOETHICS

Deadline for responses: 15 December 2003

Nuffield Council on Bioethics

The terms of reference of the Council are:

1 to identify and define ethical questions raised by recent advances in biological and medical research in order to respond to, and to anticipate, public concern;
2 to make arrangements for examining and reporting on such questions with a view to promoting public understanding and discussion; this may lead, where needed, to the formulation of new guidelines by the appropriate regulatory or other body;
3 in the light of the outcome of its work, to publish reports; and to make representations, as the Council may judge appropriate.

The Nuffield Council on Bioethics is funded jointly by the Medical Research Council, the Nuffield Foundation and the Wellcome Trust

The ethics of research involving animals
Consultation paper

Contents

Membership of Working Party 5

Terms of Reference 6

Introduction 7

1 Background: the use of animals in research 9

2 Genetically modified animals 13

3 Alternatives 17

4 Ethical issues 19

5 The regulations 21

6 Providing information to the public 23

Further sources of information 24

List of questions 25

Responding to the consultation 26

Members of the Working Party on the ethics of research involving animals

Baroness Perry of Southwark (Chairman)
Member of the House of Lords and Pro-Chancellor of the University of Surrey

Professor Kenneth Boyd
Professor of Medical Ethics, University of Edinburgh

Professor Allan Bradley FRS
Director, The Wellcome Trust Sanger Centre, Cambridge

Professor Steve Brown
Director, MRC Mammalian Genetics Unit, MRC Mouse Genome Centre, Medical Research Council, Harwell

Professor Grahame Bulfield
former Director of the Roslin Institute, currently Vice-Principal and Head of College of Science and Engineering, University of Edinburgh

Professor R D Combes
Scientific Director, Fund for the Replacement of Animals in Medical Experiments

Dr Maggy Jennings
Head of Research, Animals Department, Royal Society for the Prevention of Cruelty to Animals

Professor Barry Keverne FRS
Director of sub-department of Animal Behaviour, Department of Zoology, University of Cambridge

Dr Mark Matfield
Executive Director, The Research Defence Society

Dr Judy MacArthur Clark
Chair, Farm Animal Welfare Council

Professor Ian McConnell
Professor of Veterinary Science, Centre for Veterinary Science, Department of Clinical Veterinary Medicine, University of Cambridge

Dr Timothy H Morris
Head of Comparative Medicine and Investigator Support, Laboratory Animal Science (LAS) UK, GlaxoSmithKline

Professor Martin Raff FRS
MRC Laboratory for Molecular Cell Biology, University College London and member of the Nuffield Council

Mr Nick Ross
Broadcaster and member of the Nuffield Council

Dr Lewis Smith
Syngenta CTL

Professor John Spencer
Professor of Law, Selwyn College, University of Cambridge

Ms Michelle Thew
Chief Executive Officer, Animal Protection Institute, Sacramento, USA

Professor Jonathan Wolff
Department of Philosophy, University College London

Terms of reference of the Working Party on the ethics of research involving animals

1 To review recent, current and prospective developments in the scientific use of non-human animals, including genetic modification or cloning;

2 To assess the ethical implications of these developments, and, in doing so, to consider arguments about the differing status of various non-human animals and the implications of such arguments on their use in research;

3 To examine ways of assessing the costs and benefits of the scientific use of non-human animals;

4 To assess ways of regulating and enhancing good practice;

5 To assess the ethical implications of using alternatives to non-human animals in different fields of research;

6 To identify and review developments and differences internationally in the use of non-human animals in research and its regulation;

7 To explore ways of stimulating public debate and providing information and education about the issues involved.

Introduction

Many people are concerned about the use of animals in research. There is also widespread recognition of the need for more medical research. Since much of this currently involves the use of animals, these two views are not easily reconciled. The Nuffield Council on Bioethics, recognising that people feel very deeply about this topic, has set up a Working Party to consider the ethical issues raised by research involving animals. The Council would welcome your comments on these issues.

We would like to invite your views on six questions raised by research involving animals. This document provides some background information. At the end of each section, a question is posed, together with suggestions of a number of points that you might like to consider in your answer. We would encourage you to give your opinions and the reasons behind them. Please also tell us if we have omitted other important issues. You do not need to answer all the questions. Your response will be circulated to the members of the Working Party to inform their deliberations.

Information about how to submit your response, including the facility to respond on-line, is given at the end of this document.

Use of the term 'animal'

Strictly speaking, it would be more appropriate to use the terms 'human animals' and 'non-human animals'. According to biological classification, humans belong to the order of primates and so are not categorically distinct from animals. However, for reasons of simplicity, the term 'animal' is used to refer to 'non-human animals' throughout this document. This distinction should not be taken to imply differences in moral status.

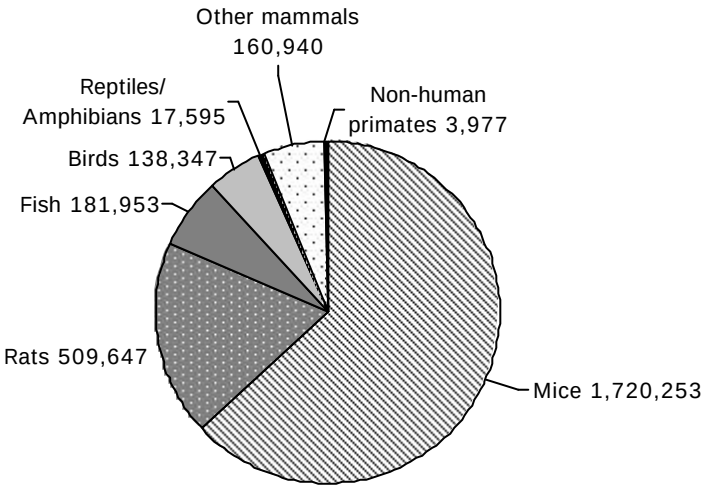
1 Background: the use of animals in research

How many animals are used?

- It is estimated that up to 50 million animals are used in research every year worldwide.
- 2.73 million animals were used for research in the UK in 2002.[1] This number has halved in the last 25 years.
- To compare the use of animals in a different context, approximately 35 million sheep and lambs, 10 million cattle and calves, 5 million pigs and 155 million fowl are kept by farmers in the UK each year.[2]

Which animals are used in the UK?

As the pie-chart shows, the majority of procedures (84%) use mice and rats. Dogs, cats, horses and non-human primates (for example monkeys and marmosets) were used in less than 1% of procedures. The use of Great Apes (gorillas, chimpanzees and orang-utans) has been banned in the UK since 1997.



Other mammals

Dogs	7,964
Rabbits	30,280
Sheep	33,610
Cats	1,395
Other	87,691

NB: statistics refer to vertebrates only. Invertebrates, such as fruit flies and worms, are also used in research, but are not protected under UK law.

The term 'procedures' refers to scientific experiments and also covers the breeding of some animals, such as genetically modified animals.

The majority of animals used are bred specifically for research.

---

[1] Home Office, Statistics of Scientific Procedures on Living Animals 2002. This figure includes animals used both in scientific experiments and for breeding. Unless otherwise specified, statistics throughout the consultation document are taken from the Home Office Statistics, 2002.

[2] Figures from DEFRA Agriculture statistics http://statistics.defra.gov.uk/esg/quick/agri.asp Accessed 25 Sept 2003.

What are the animals used for?

The research and testing of almost every major medical treatment has involved the use of animals at some stage. Approximately one third of animals are used for basic biomedical research, one third for applied research for humans and animals (including medical research and toxicity testing) and one third for breeding.

- *Basic biomedical research*

  This is research to explore how the body develops and functions, in order to advance scientific knowledge. The research does not necessarily have immediate use but the understanding gained may lead to applied research.

  Basic research may be either observational or invasive. Examples include behavioural studies, for example investigating how rats react in a learning maze, and invasive physiological studies, such as measuring activity in the brain of monkeys in order to understand the function of different parts of the brain. Knowledge gained from research on animals has contributed to the foundations for numerous medical developments such as the discovery of insulin to treat diabetes.

- *Applied research*

  - To develop medicines
    New medicines or vaccines are tested on animals in research and development. Potential new medicines are identified by research which uses animal tissue and organs. These compounds are then tested on animals with symptoms of the disease or disorder in question to find out whether they are effective, and how they work. Animal testing has been used in the development of virtually all modern medicines such as vaccines, beta-blockers (for high blood pressure), streptokinase (for heart attacks), immunosuppressants (for organ transplantation) and hormone therapy (for breast and prostate cancers).

  - To understand disease processes: animal 'models' of human disease
    Healthy animals can be given a disease, for example by exposing them to a virus or by genetically modifying them. Researchers then carry out experiments to develop methods of diagnosis and prevention, and ways of treating the disease.

  - To test new medical devices and surgical techniques
    New treatments such as organ transplantation and open-heart surgery were developed on animals before the techniques were transferred to humans.

  - Veterinary research
    Approximately 6% of research using animals is aimed at developing new medicines and treatments for animals. Much of the research relates to the development of new vaccines to protect farm animals and pets from diseases.

- *Toxicity testing*

  All new substances that could come into contact with people, animals or the environment must be tested to check whether they are safe. New medicines, food additives, agricultural and industrial chemicals and new ingredients used in household products such as shampoo or washing powder, must all be tested. Many of these tests involve the use of animals. Under UK law, all new medicines must normally be tested on two different species of animal. One species is usually a rodent and the other is a non-rodent such as a dog or pig. The tests determine safe levels of use, and predict potential harmful effects. There has been a ban on cosmetic testing on animals in the UK since 1997. While some pharmaceutical companies undertake toxicity testing in-house, many others rely on Contract Research Organisations (CROs) to do the work.

What do the experiments actually involve?

In order to categorise and regulate the severity of procedures with animals, four descriptions are used. Most procedures undertaken in 2002 were classified as 'mild' or 'moderate'.

- ***Mild***: this category includes taking a small blood or tissue sample from an animal, or watching how an animal behaves in a maze.
- ***Moderate***: this is a very broad category ranging from injecting substances to produce antibodies to the implantation of a microtransmitter to monitor blood pressure. In general, researchers must ensure that pain is minimised, and animals must be given painkillers. Animals undergoing surgery are given anaesthetics as would be the case for humans.
- ***Substantial***: including major surgery, toxicity testing leading to death, and the use of some animals as disease models.
- ***Unclassified***: animals are anaesthetised before a procedures starts and killed without recovering consciousness.

Can results be transferred from animals to humans?

Although there are many differences between animals and humans, most researchers believe there are enough similarities between them to make research using animals meaningful. Many animals and humans share similarities in their organs and the nerves and hormones which control them. However, in some situations humans and animals are too different to allow the reliable transfer of research results. There is also debate about the transferability of results from toxicity testing. Some argue that it is important to understand the effect of a medicine on a whole organism, which is only possible using a living animal. Others argue that adverse reactions to medicines encountered in humans are the result of the inherent limitations of research on animals.

QUESTION ONE:

What is your view about the use of animals in research?

Points that you might like to consider when answering include:

Information provided by research:

- Do you think that research involving animals provides information that is not available by any other method?
- Can results from research using animals be transferred to humans?

The acceptability of using animals:

- Does the acceptability of using animals depend on the purpose of the research?
- Do different types of research justify the use of different animals?

The suffering of an animal:

- How much do you think animals suffer during research?
- What level of suffering do you think would be unacceptable, whatever the potential benefits of the research?

In answering, specific examples (and references) would be most welcome.

2 Genetically modified animals

Although the total number of animals used in research has been declining recently, the use of genetically modified (GM) animals in research has increased substantially in the last decade. The first GM animal was made in the early 1980s. In 2002, one quarter of all animal procedures (710,000 in total) involved GM animals, a tenfold increase since 1991.[3] The animals mainly used in GM research are mice and rats, but GM flies, worms, fish, sheep and pigs have also been created.

What is genetic modification?

Genetic modification allows researchers to alter the genetic make-up of animals. Researchers use a number of techniques to produce genetic changes in animals:

- A gene or section of DNA from another organism, can be inserted into a fertilised egg to create a 'transgenic' animal;
- A gene can be deleted or 'knocked-out' to produce a 'knock-out' animal;
- A gene or section of DNA can be altered to produce very specific genetic changes.
- Exposing an animal to X-rays, chemicals (ethylnitrosurea, ENU) or viruses may produce random genetic changes.

The last of these techniques is not legally defined as genetic modification. However it is considered here because it also alters the genetic make-up of an animal.

The genetic change can be passed on from generation to generation in a new GM strain. Researchers argue that the technique of GM is only a more powerful way of doing what has previously been done by conventional selective breeding. However, these techniques may also enable the creation of animals that would not exist as natural or induced mutations, and allow the introduction of genes from unrelated species.

[3] The interpretation of figures for GM animals is not straightforward. Two thirds of procedures involving GM animals were solely for the purpose of breeding, in order to develop 'GM lines' and involved no other procedure. The Home Office Statistics require that the breeding of these animals have to be classified as a procedure (see Section 5, Regulations).

Animal cloning

Another new technique is animal cloning. Dolly the sheep was cloned in 1996, and since then mice, rabbits, cats, pigs and cattle have all been cloned. This does not involve genetic modification, but is often grouped with GM because it is regarded as another example of biological engineering. For several decades farm animals have been cloned by splitting the cells of an embryo (to create identical twins). More recently scientists have developed the technique known as cell nuclear transfer where the nucleus from the body cell of an animal is transplanted into an unfertilised egg cell which has had its own nucleus removed. Cloning can also be used in conjunction with genetic modification technology to produce GM animals.

How are GM animals used in research?

GM animals are used both in basic and applied research in the following ways:

- *To understand more about the function of genes*. By deleting or 'knocking-out' individual genes, researchers can find out what the function of a gene is, and learn more about how genes work both individually and together. Researchers can also use GM animals to find out why some genes are faulty.

- *To investigate the way that animals and organs function and develop*. Deleting or changing genes will affect the proteins produced by the genes and thus the functions of those proteins. Researchers use GM animals to study the development and functioning of organs and body-systems in both normal animals and in a wide range of disease models.

- *To create animals that are 'models' of human disease*. For example a mouse has been bred with a gene defect that leads to the same symptoms as in children with cystic fibrosis. These animal models are used to find out more about the disease and to explore the potential of new medicines.

- *'Pharming'*: animals can be created that will produce hormones, antibodies or antigens in their blood or milk. These substances can be harvested and used as a basis for medicines.

- *Xenotransplantation (transplantation of animal organs into humans).* Currently one of the main problems with xenotransplantation is that the human immune system rejects an animal organ as foreign. However, researchers are genetically modifying animals by inserting human genes in order to disguise the organ as 'human' and prevent rejection. There is very little research in this area in UK at the moment.

What are the concerns about genetic modification?

There are two types of concerns: concerns about the consequences, and concerns about the act of genetic modification itself.

Concerns about the consequences (extrinsic concerns):

- Some genetic modification might lead to greater concern about animal welfare. For example, knocking out a specific gene might cause a particularly harmful mutation.

- GM animals can be created to suffer permanently, for example from cancer or a neurodegenerative disease.

- Some of the techniques for producing GM animals are still very inefficient and only a small proportion of implanted embryos develop successfully into GM animals. This may mean that animals are created that are not then used in experiments.

- If a GM animal was accidentally or deliberately released from a research area, there might be some potentially irreversible impacts on the environment, for example if the GM animal interbreeds with a wild animal.

Concerns about the nature of genetic modification itself (intrinsic concerns):

- Some people object to the creation of GM animals because they view them as 'unnatural'. However, it is difficult to define exactly what is meant by 'natural' and 'unnatural'. Nearly every domestic or farm animal, plant and crop has been 'interfered' with in some way by humans over the past centuries. It is also not possible to assume that whatever is 'natural' is good and whatever is 'unnatural' is bad; for example many harmful diseases occur 'naturally'.

- There are concerns about transferring genes between animals that would not normally interbreed in nature as in the case of inserting a gene of a mouse into a pig. Some people take the view that such interferences show a lack of respect for naturally determined species boundaries.

- Another concern is that GM encourages animals to be treated increasingly as commodities.

QUESTION TWO:

What are your views about the use of genetically modified animals in research?

Points that you might like to consider when answering include:

- Do GM animals raise new or different issues?
- Do you think GM animals are 'unnatural' and if so, does this concern you?

Types of animals that may be created:

- Are there some types of animals that should never be created? If so, what are they?
- Some animals may be created to suffer on a long-term basis, for example from neurodegenerative diseases. Do you think this can be justified, and if so, why?

Other areas of research:

- In your view what will be the most controversial area of research involving animals in the future?
- Are there other areas of research which have not been discussed here that should be considered?

In answering, specific examples (and references) would be most welcome.

3 Alternatives

By law in the UK, animals can only be used for research if there is no other way of obtaining the information. The law also encourages the use of alternatives wherever possible, based on the application of a set of principles called the 3Rs. Only one of these, 'Replacement', involves the use of non-animal techniques as an alternative to animal experiments.

- *Reduction*
  Reducing the number of animals used in an experiment or research project, for example by improving the design of the experiments, using different methods of analysing data and increasing the exchange of information between researchers.

- *Refinement*
  Improving either the experiment or the husbandry of the animals to reduce their suffering, for example by using medication for pain, using less invasive techniques such as ultrasound rather than an operation, or even simply by giving animals bigger cages and companion animals.

- *Replacement*
  The use of alternative methods. There are a number of different approaches, for example using computer models to simulate the different systems in a body, or carrying out experiments with cultures of cells or tissues in a test tube. Artificial skins, where cells have been cultured on a scaffold structure, have been developed for toxicity testing, although there are still limits to a wider application of this technique. Another alternative is to increase the number of studies with human volunteers. Epidemiological studies, which track how a disease occurs in a population, can give information about the causes of a disease, such as the relationship between cholesterol and heart disease. Many of these techniques are used widely in medical research as valuable experimental methods in their own right.

The House of Lords Report on Animals in Scientific Procedures of 16 July 2002 urged that more progress should be made to encourage the use of alternatives. It suggested that a national centre for the promotion of the application of the 3Rs should be established. Currently, very little Government funding is directed towards research specifically focused on the development of alternatives. However, the pharmaceutical and chemical industries make considerable investments in this area.

QUESTION THREE:

What is your view about the use of alternatives?

Points that you might like to consider when answering include:

Setting of priorities

- Do you think that there is there a need for more research into alternatives to research involving animals?
- Who should fund research into alternatives?
- In which areas could alternative methods be used more effectively?

Sharing of information:

- How much duplication of animal research is there and would sharing of information reduce it? Which means of sharing information would be most appropriate?
- Do you have concerns about the way research involving animals is reported in scientific journals?

For people working in the field:

- What is the potential of approaches such as *in silico*, *in vitro*, microdosing or neuroimaging?

In answering, specific examples (and references) would be most welcome.

4 Ethical issues

What moral status do different animals have?

The question 'what is the moral status of an animal?' can be rephrased to ask 'How *important* or how *valuable* is an animal?' Are mice and monkeys as important or as valuable as man? Many people believe that humans have the highest moral status, while animals are in some way inferior. However, others disagree and claim that such a view is unjustified discrimination, or 'speciesm'.

The status of humans and animals can be discussed in a number of ways. For example, one characteristic that is sometimes considered is self awareness. Others focus on rationality. Some think that it is more important that an animal shows the ability to reason, to follow rules or to demonstrate preferences. An alternative approach is to consider the capacity to suffer. It is argued that the most important characteristic should be an animal's *sentience,* or how it experiences pain and pleasure. The capacity of animals for social relationships could also be considered. While many animals differ in these characteristics from humans, there are also differences between different types of animals. Therefore, it is necessary to consider whether all animals are of equal value. Some people believe there is a hierarchy, where some animals are more deserving than others.

It is sometimes argued that animals have rights which should not be violated under any circumstances. However, applying the language of rights to animals is controversial, and some commentators suggest it might be preferable to focus on the duties humans have to animals, rather than to attribute rights to animals.

How can we know how much animals suffer?

A recent poll by MORI showed that many people think the amount of pain suffered by animals is more important than the question of which species is being used.[4] However, it is very difficult to know how animals experience pain or suffering. It may be difficult to transfer human concepts and emotions, such as pain, distress, fear, happiness or affection to animals. Even if we can demonstrate that animals have similar brain activity as humans, does this actually mean they experience pain, harm or suffering in the same way as humans?

Can we justify making animals suffer?

Almost everyone believes that it is wrong to make animals suffer without reason. However, some people think that there are some circumstances when the interests of people outweigh the interests of an animal.

[4] MORI, The use of Animals in Medical Research, Research Study conducted for the Coalition for Medical Progress, available at: http://www.mori.co.uk/

The UK regulations take two different approaches. In some cases, it is considered as wrong to use animals for research as it would be to use humans who had not voluntarily consented to take part in research. For example, there is a strict ban on research using the Great Apes, whatever the benefits of such research would be. However, in most cases, the regulations focus on the idea of balance, weighing up the costs and the benefits to decide whether the research can be justified.

In medical research using animals, the costs, in the form of suffering, are largely experienced by the animals while any benefits arising from the research are largely directed to human patients. Is this acceptable? What would happen if we decided that research with animals was unacceptable? Would research be slowed down in different areas of medical research, and if so, would this be accepted by society?

QUESTION FOUR:

What is your view about ethical issues relating to the use of animals in research?

Points that you might like to consider when answering include:

The moral status of animals:

- What moral status do you believe animals have?
- Do you think there are distinctions between the moral status of different animals, such as mosquitoes, mice and monkeys?
- What differences between humans and animals could justify the suffering of animals in research that would benefit humans?

How can we know how much animals suffer?

- Can we reliably extend concepts such as 'pain', 'suffering', 'distress' and 'happiness' from humans to animals?
- Do you think that all animals feel physical or psychological pain?
- How can we assess the suffering of an animal during research?
- Can recordings of activity in the brain of an animal tell us whether it is in pain or whether it suffers?
- Can we know if an animal is self-aware or self-conscious?
- Should more research be undertaken to investigate how animals experience the world? If this research had to be invasive, do you still think it is important?

Can we justify making animals suffer?

- What factors do you think should be the most important when considering whether research involving an animal is justified or not?
- How does the use of animals for medical research compare with the use of animals as pets, for food, clothing or in sport?
- What importance does the environment in which animals are kept have in assessing their wellbeing?

5 The regulations

The UK has the strictest system of regulation on research involving animals worldwide. The main law is the Animals (Scientific Procedures) Act 1986.

Any experiment or other scientific procedure carried out on living protected animals which may cause them "pain, suffering, distress or lasting harm" must be licensed. 'Protected' animals include all vertebrates (mammals, birds, reptiles, amphibians and fish) and also the octopus. All procedures must carry three separate licenses for the premise, the researcher and the project (see Box).

Licences for research involving animals

Premise licence: The place where research is conducted must meet standards of animal housing and care and is regularly subject to inspection by the Animals (Scientific Procedures) Inspectorate. In 1999, there were 296 designated premises in the UK.

Personal licence: Any person conducting animal procedures must be competent to do so and must have completed an accredited training course in order to be awarded a licence. This licence specifies which procedures can be conducted and on which species. In 1999, there were around 13,700 active personal licences in the UK.

Project Licence: This defines the types of animals which may be used, the estimated number to be used, and the procedures that may be carried out. The licence application includes details of the purpose of the project, an initial welfare assessment and a limit of severity for each procedure.

In general, project licences should only be granted if:

- the research cannot be done without animals;
- the likely costs of the research are weighted against the potential benefits in a cost-benefit assessment, and the benefits are deemed to be greater;
- the minimum number of animals will be used;
- researchers and technicians are trained and experienced in animal testing; and
- research premises have facilities for animal care.

Dogs, cats or non-human primates are only used when other species are unsuitable.

Inspectors visit laboratories frequently to assess whether licence holders are complying with the regulations. There are currently 25 inspectors in the UK, who make approximately 2,100 visits each year. Two thirds of these are unannounced. The independent Animal Procedures Committee (APC) was established to advise the Secretary of State on the operation of the 1986 Act and to consider controversial licence applications.

All GM animals that are bred must currently be registered as a scientific procedure, regardless of whether or not they have adverse welfare implications. The House of Lords Report suggested that this was misleading, where animals were not used in regulated experiments and had no adverse welfare implications.[5]

QUESTION FIVE:

What is your view about the UK regulations on research involving animals in the UK?

Points that you might like to consider when answering include:

Welfare of animals:

- In your view, do you think current provisions for the assessment of welfare of animals are appropriate?
- When do you think welfare assessments should be conducted: before, during and/or after a project?
- Can welfare assessments for different animals be adequately captured in regulations?

Regulation of GM animals:

- Should licences be required for the breeding of all GM animals?
- Are current regulations appropriate for assessing the welfare of a new breed of GM animal?

Cost-benefit analysis:

- Do you consider the current provisions to be appropriate?
- At what stages in a procedure should the analysis be undertaken?
- Should it be re-assessed in light of results from the research?
- Should results be published?

If regulation in the UK is increased further, do you think it will impede research or drive researchers abroad?

[5] In a Response to the House of Lords Report on Animals in Scientific Procedures of July 2002, the Government agreed that the current system of classification ought to be reassessed. However, the Government does not intend to exclude GM animals that are used for breeding purposes; rather, it will consider "how best to modify the presentation of the annual statistics to eliminate any scope for misunderstanding".

6 Providing information to the public

In recent surveys, many respondents said they did not feel well informed about research involving animals and would like to be provided with a more balanced picture. Most information is obtained from newspapers and television, but it is felt that the reporting tends to go for 'shock value' and, on the whole, presents the negative side. In quantitative research, six in ten said they would like to know more about animal experimentation before forming any firm opinions.[6] However, many animal researchers argue that a fear of being targeted by animal rights extremists means that they are unwilling to engage in the public debate and are reluctant to be more open.

There has been some discussion about labels on medicines or cosmetic products to inform users whether the development involved research with animals. However, there are questions about the level of information that should be given. For example, should details be included about the use of animals for basic and applied research and toxicity testing? Should there be information about the number and types of animals used during research, and details of their welfare assessment? Additionally, the wording on labels may not always be clear, for example the label 'this product was not tested on animals' may be true, but most or all of the compounds in the product could have been tested on animals at some time in the past.

QUESTION SIX:

What do you think about the information that is available to the public about research involving animals?

Points you might want to consider include:

- What sort of information do you feel you need in order to make judgements about the acceptability of research involving animals?
- What would be suitable methods for informing members of the public about research involving animals and ethical issues surrounding it?
- Which types of people or institutions would you trust, or not trust, to provide you with balanced information about research involving animals?
- Do you think medicines that were developed using research with animals should be labelled to inform people of this fact? If so, what level of information should be given?

[6] MORI, The use of Animals in Medical Research, Research Study conducted for the Coalition for Medical Progress, available at: http://www.mori.co.uk/

Further sources of information

Animal Procedures Committee
www.apc.gov.uk

Association of Medical Research Charities
http://www2.amrc.org.uk/aboutmedicalresearch/

Boyd Group
http://www.boyd-group.demon.co.uk

British Union for the Abolition of Vivisection (BUAV)
http://www.buav.org/

Fund for the Replacement of Animals in Medical Experiments (FRAME)
http://www.frame.org.uk/index.htm

Research Defence Society (RDS)
http://www.rds-online.org.uk/

Royal Society for the Prevention of Cruelty to Animals (RSPCA)
http://www.rspca.org.uk/

Please note:
The Nuffield Council on Bioethics does not endorse the content of these sites

Books

Animal experimentation: good or bad?
Institute of Ideas
Debating matters series, 2002

Animals in research: for and against
Lesley Grayson
The British Library, 2000

Animal Liberation
Peter Singer
New York Review of Books, 1990

Animal Welfare Law in Britain
Mike Radford
Oxford University Press, 2001

The Animals Issue. Moral theory in practice
Peter Carruthers
Cambridge University Press, 1992

The Animal Rights Debate
Carl Cohen and Tom Regan
Rowman & Littlefield, 2001

List of questions

Q1 What is your view about the use of animals in research?

Q2 What are your views about the use of genetically modified animals in research?

Q3 What is your view about the use of alternatives?

Q4 What is your view about ethical issues relating to the use of animals in research?

Q5 What is your view about the UK regulations on research involving animals in the UK?

Q6 What do you think about the information that is available to the public about research involving animals?

Responding to the consultation

Please send completed responses to:

Harald Schmidt
Nuffield Council on Bioethics
28 Bedford Square
London WC1B 3JS
UK

Email: bioethics@nuffieldfoundation.org
Fax: + 44 (0)20 7637 1712

Alternatively, you can submit responses on-line at:

www.nuffieldbioethics.org/animalresearch

Additional copies of this document can be downloaded from the Council's website: www.nuffieldbioethics.org/animalresearch

For printed copies, please contact the Council at the above address.

Closing date for responses: 15 December 2003

The ethics of research involving animals

Details of respondents

Please complete and return with your response by **15 December 2003**

Name: _____

Address (optional)* _____

_____

Email: _____

This response may be included in the list of those who have commented	**Yes / No**
This response may be quoted in the report	**Yes / No/ Anonymous**
This response may be made available to other researchers interested in the topic	**Yes / No**

If you have answered 'yes' to any of the above questions, please indicate your name and/or the title of your organisation as it should appear in print:

_____

Please let us know where you heard about the consultation:

Web site of the Nuffield Council on Bioethics
Sent copy by Nuffield Council on Bioethics
Email mailing list
Other (please state):

_____

- **I would like to be notified about the future work of the Council and give permission for my details to be stored on the Council's database for this purpose**.

* Please note that if we do not have your address, we will not be able to send you a copy of the report when it is published.

Closing date for responses: 15 December 2003

NUFFIELD COUNCIL ON BIOETHICS