The response reproduced below was submitted to the consultation held by the Nuffield Council on Bioethics on the ethics of research involving animals during October-December 2003. The views expressed are solely those of the respondent(s) and not those of the Council.

Medical Research Council, UK

1. Introduction

1.1 The Medical Research Council (MRC) is the UK's main body for the public funding of basic and applied medical research and research training, with a spend of £430 million in 2002/3. We support research through Institutes and Units (mostly embedded within University campuses), and through grants to Universities and NHS bodies.

1.2 Most of our work does not involve any use of animals. Roughly 30% of the research projects and programmes we support depend in some way on the use of vertebrate animals. However, in some cases the research involves tissues taken from dead animals, and will not be licensed under the Animals (Scientific Procedures) Act 1986 (ASPA), and in others the use of animals represents only a small part of the work. Research in our own Institutes and Units accounted for about 218,000 animal procedures in 2002, including 211,000 procedures involving mice, 3500 involving rats, and nearly 200 involving primates. We support roughly the same amount of research again in universities and hospitals.

1.3 Most MRC research is concerned with exploring the basic functions of the body in health and disease, and exploring opportunities for new treatments. The actual development of new medical products usually takes place in industry: MRC is rarely involved in the use of animals to test the efficacy and safety of new treatments. Testing the safety of other new (non-medical) chemicals also falls outside MRC's remit. However, MRC does have a role in developing the fundamental scientific knowledge on which safety testing practices are based, through research on basic processes by which chemicals can damage body systems (e.g. the reproductive system), injure cells, or cause mutations in DNA.

1.4 This submission thus concentrates on the ethics of research involving animals that falls in the MRC's remit. The application of the same or similar ethical principles to other research involving animals, for example on the safety of products such as cosmetics, household cleaners or other chemicals, may lead to different conclusions about acceptability.

2. MRC Policy

2.1 The MRC strongly agrees with the statements in the 2002 House of Lords' Report[1] that: i) "it is morally acceptable for human beings to use other

[1] http://www.parliament.the-stationery-office.co.uk/pa/ld200102/ldselect/ldanimal/150/150.pdf

animals, but it is morally wrong to cause them unnecessary or avoidable suffering"; and ii) "there is at present a continued need for animal experiments both in applied research and in research aimed purely at extending knowledge". The MRC considers that the use of animals in scientific procedures will remain an essential part of medical research for the foreseeable future. Indeed, the scale of research in mouse genetics, and some other more specialised areas, will increase over the next ten or fifteen years.

2.2 The MRC aims to set high ethical standards in all its research work, involving patients, volunteers, or animals. In 1993, MRC was one of the first UK bodies to establish a corporate policy on the use of animals, to underline that an ethical approach demands more than mere passive compliance with regulations. The core principles from MRC's 1993 ethics guidance "Responsibility in the Use of Animals in Medical Research"[2] are summarised below:

MRC Standards in animal research

The MRC supports only scientific studies that are well designed and likely to provide new information on important questions relevant to human health.

All experimental programmes supported by MRC must avoid using animals wherever possible. The researcher must give sound scientific reasons for their use, and explain why there are no realistic alternatives.

Animal experiments must use the simplest possible, or least sentient, species of animal.

MRC expects researchers who use animals to consider the ethical issues associated with:

- keeping animals in captivity
- killing animals
- causing animals distress or pain.

Experiments should use the smallest number of animals that can answer the question posed, and take every practical step to avoid distress or suffering.

All staff involved in animal research, and in the breeding, housing and care of animals, must be properly trained and supervised.

By law, all research must be scrutinised by a local ethical review process and by the Home Office Inspectorate before work begins. In addition, MRC's scientific committees have a responsibility to scrutinise scientific plans for animal experiments to ensure they are worthy of support.

[2] http://www.mrc.ac.uk/pdf-animals_ethics_booklet_1993.pdf)

MRC actively supports the development and dissemination of techniques that reduce, refine, or replace animal experiments.

Researchers collaborating with laboratories in other countries must ensure that standards there are consistent with standards in the UK.

These principles are adapted from MRC's ethics guidance "Responsibility in the Use of Animals in Medical Research (1993)".

2.3 While the Home Office has the prime responsibility for legislating the use of animals in research in the UK, MRC considers that it too has a responsibility to work actively to keep the numbers of animals used in medical research to a minimum, to minimise suffering or stress, and to use non-animal techniques wherever possible:

- Scientific and medical experts reviewing applications from universities or MRC establishments for new research funding also assess the scientific case for any animal studies proposed, taking account of the species - especially any use of primates, cats, or dogs - and the nature of the procedures involved.

- Applications that propose the use of primates are reviewed in addition by the Centre for Best Practice for Animals in Research (CBPAR) and, where appropriate, additional referees with expertise in animal welfare are consulted.

- Scientists in MRC Units and Institutes must, in addition, provide retrospective reports on their use of animals at each five-yearly review.

- Five-year programmes that involve the use of non-human primates are assessed mid-term to confirm that the use of primates remains justified.

- Research and methods development work on non-animal techniques is an integral part of many MRC research programmes. From 2000, we have also been encouraging stand-alone applications for research relevant to the replacement reduction, or refinement of animal procedures[3].

- MRC established, in May 2001, a new Centre for Best Practice for Animals in Research[4] to develop and disseminate information and guidance on the 3Rs, co-ordinating with the other organisations already working in this area.

[3] See http://www.mrc.ac.uk/index/strategy-strategy/strategy-science_strategy/strategy-strategy_implementation/strategy-highlight_notices_new/strategy-use_of_animals.htm

[4] More details at http://www.mrc.ac.uk/index/public-interest/public-ethics_and_best_practice/public-use_of_animals_in_research/public-cbpar.htm

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Question 1: What is your view about the use of animals in research?

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?*

Some people and organisations have suggested that information derived from procedures on animals cannot be extended to humans or other species. These views do not reflect the consensus in the wider scientific community. There are certainly anatomical, physiological and bio-chemical differences between species, but there are far greater similarities. The fact that approximately 99% of mouse genes have a homologue in the human genome is an interesting illustration. Species differences are taken into account within the design of projects, and the results of testing a new drug or technique, for example, on animals can be used to predict the effect on humans. One example is the development of surgery and deep brain stimulation in alleviating the symptoms of Parkinson's Disease[5].

There can be no doubt that animal experiments have, over at least the past century, given humankind important medical insights and information which could not have been obtained in other ways, and have allowed medicine to reduce dramatically human suffering and premature death. Examples of advances based substantially on UK non-profit research using animals include:

- the development of penicillin and other antibiotics;
- the use of insulin in treating diabetes;
- introduction of transplant surgery, and ways of protecting transplants from rejection;
- discovery of monoclonal antibody technology, and its widespread use in diagnostics (1980s) and treatments (nearly one-third of all new biopharmaceutical treatments are based on this technology).

Other examples are given in MRC's booklet "Mice and Medicine"[6], along with descriptions of some MRC research in progress.

[5] See for example: Limousin P, Pollak P, Benazzouz A, Hofmann D, Le Bas JF, Broussolle E, Perret JE and Benabid AL (1995). Effect of Parkinsonian signs and symptoms of bilateral subthalamic nucleus stimulation. Lancet 345 (8942), 91-95

[6] http://www.mrc.ac.uk/pdf-mice_and_medicine.pdf

Of course, there are also examples of where animal research has been misleading; instances include drugs which have been tested in animals that have unforeseen effects in humans. No drug is likely to be safe in everyone, but that does not mean that a drug should not be offered where it is the best available, or is suitable for a particular patient. It is never assumed that animals are perfect models. In the case of medicines, systems are in place to identify adverse events when they are taken by large numbers of people (larger numbers than could ever be justified in an animal experiment).

The fact is that until one does the research, one will not always know in a particular circumstance whether the animal is a good model or not. This is therefore not an argument for not doing research on animals. Even where a species may not be a good model for human physiology or disease, there may be good reasons for using the animals in research, including as a basis for developing veterinary medicines. Much physiology and pathology can also be learnt from the differences between animals and 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?*

Yes. Indeed this is written into the ASPA in the requirement for the Home Office Inspectorate to undertake a cost-benefit analysis. This is applied to all proposed animal research in a project licence, and is defined as "the likely adverse effects on the animals concerned against the benefits likely to accrue". The MRC, as part of the peer review process, also makes its own assessment as to whether the use of animals (including numbers and species) is acceptable in the context of the purposes of the proposed research.

It is MRC policy that animal experiments must use the simplest possible, or least sentient, species of animal. There are of course cases where higher order species need to be used because of the purposes of the experiment. Most notably (and controversially), this applies to primates where the similarities with humans (eg in their cognitive systems, reproductive systems and susceptibility to certain infections) make them the only feasible model.

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?*

MRC believes that minimising any pain, suffering or distress is not only important for legal and ethical reasons but also from a scientific perspective. 'Happy and healthy' animals are more likely to be better research models, thereby increasing the quality and the reproducibility of the data obtained[7].

Clearly, the degree of any suffering will depend on the nature of the procedure and other factors such as confinement and handling. It is a good basic premise to assume that what is "unpleasant" to humans will also be to animals. The difficulty is understanding the nature and level of suffering and it is important that our knowledge of animal behaviour, motivation, and environmental requirements continues to increase to ensure that research is conducted as humanely as possible. To reflect this, in 2001 MRC launched its 3Rs funding scheme to support research into the 3Rs and laboratory animal welfare (see footnote 3).

One aspect of reducing suffering is to minimise the pain animals might experience. This is particularly important given that most research is conducted in rodents, where the concealment of pain is an important evolutionary adaptation. MRC is currently funding research at the University of Newcastle into behavioural indicators of pain in rats. Increasingly, however, it is recognised that pain is not the only issue of concern and that animals may experience "psychological" stress such as frustration or boredom from inappropriate housing and husbandry which may manifest as for example stereotypical behaviour. Indeed, given the number of animals involved, stress from inappropriate housing and husbandry has the potential to cause more suffering than that arising from procedures.

In the last decade significant improvements have been made in housing and husbandry with increasing recognition of the need to cater for species-specific needs. MRC has and continues to make a contribution in this area. For example, animal care staff at the MRC National Institute for Medical Research have developed the 'Mouse House' a cage insert which provides the animals with shelter and privacy[8]. Moreover, MRC is funding research at the University of Oxford to investigate cage cleaning regimes as a husbandry refinement for mice.

The first question above is difficult to answer specifically in any global way. A large proportion of procedures involve little suffering. From the 2002 Home Office statistics, for example:

- Genetically modified animals were used in 710,000 regulated procedures representing 26 per cent of all procedures. Two-thirds of procedures

[7] For example, Hockly E, Cordery PM, Woodman B, Mahal A, van Dellen A, Blakemore C, Lewis CM, Hannan AJ and Bates GP (2002). Environmental enrichment slows disease progression in R6/2 Huntington's disease mice. Annals of Neurology 51, 235-42

[8] Key D and Hewett A (2002) Developing and testing a novel cage insert, the Mouse House, designed to enrich the lives of laboratory mice without adversely affecting the science. Animal Technology and Welfare 1, 55-64

involving genetically modified animals were solely for the purpose of breeding and involved no other regulated procedure.

- About 40 per cent of all procedures used some form of anaesthesia to alleviate the severity of the interventions. For many of the remaining procedures, the use of anaesthesia would have increased the animal welfare cost of the procedure.

The answer to the second question above is covered by the cost-benefit analysis. It is difficult to define limits as these would be hypothetical. The MRC supports the statement in the ASPA: "The Secretary of State will not license any procedure likely to cause severe pain or distress that cannot be alleviated".

Question 2: What are your views about the use of genetically modified animals in research?

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

In the post-genomics era, biomedical research will increasingly depend on the use of genetically modified animals, and in particular mice, to determine gene function. The genomes of mice and humans are very similar with virtually all human genes having a mouse equivalent. Studies in mice can therefore be used to infer gene function in humans and this has potential implications for understanding human health and physiology, and for developing much needed treatments for many diseases (for animals as well as humans).

Clearly, such research will have an impact on the number of mice used under the ASPA. While this is of course a concern the issue should not only be the number of animals used but also the level of suffering caused. Being genetically-modified *per se* is not a welfare issue; what is important is the effect the modification has on the phenotype of the animal. While there are examples of suffering, evidence suggests that the vast majority of genetically-modified mice are unaffected. Clearly, it is important the effects of genetic modification are systematically assessed and reported so that husbandry, care and humane endpoints can be tailored accordingly. In 2001, the Animal Procedures Committee Report on Biotechnology[9] made various recommendations related to the welfare assessment of GM mice. To progress this, the main UK funders of academic research (MRC, BBSRC, Wellcome Trust and CRUK) have, through the Centre for Best Practice for Animals in Research (CBPAR), convened a working group to make

[9] http://www.apc.gov.uk/reference/biorec.pdf

recommendations of contemporary best practice for welfare assessments for GM mice. The working group will report its recommendations in spring 2004.

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*

Both these questions can best be answered in the context of the cost-benefit analysis. Animals should not be created if it can be predicted that they would suffer to an extent that could not be justified by the expected benefits. (This could apply equally to the practice of conventional breeding of, say, dogs)

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?*

We have responded to these two questions broadly, not solely in relation to genetic modification:

i) In the foreseeable future, the use of primates in research will continue to be particularly contentious.[MRC has recently strengthened its peer review of research involving primates and will shortly issue guidelines on best practice in the accommodation and care of primates used in scientific procedures].

ii) If the EU Chemicals Directive is passed, this will also be controversial. The MRC's view is that while no one doubts the need to ensure that chemicals are used safely and that the risks posed to humans and the environment are minimised, MRC would be greatly concerned if the new legislation required many animal tests on existing chemical substances - many of which have been in use for years. This could inflict suffering on a large number of animals without scientific justification. There is absolutely no need at present to use animals to test chemicals that are in widespread use. Large numbers of people are already exposed to these chemicals with no noticeable adverse effects. Thus if there are any risks to human health, these are exceedingly small. If any indications emerge that a particular chemical may be harmful, further work may be required. In that case if, and only if, there is no alternative, may the use of animals be justified.

Question 3: What is your view about the use of alternatives?

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?*

The quick answer to the first question is yes; but the issue is not straightforward. Most MRC research projects and programmes rely exclusively on non-animal research methods, and MRC invests substantial sums in developing and refining these research methods and the infrastructure they need. For example, MRC funded the sequencing of the genome of the nematode worm, C.elegans, which has opened up its potential as a model organism. We also recently committed £8.3 million to establish 14 human DNA banks to enable detailed analysis of the root causes of common diseases such as heart disease, diabetes, cancer and mental health, where genetic predisposition is likely to be a significant contributing factor. Investments such as these help ensure that, over the coming decades, animals are only used where other ways of gaining knowledge are clearly impossible, but one cannot identify a specific group of current animal experiments which will be made unnecessary. It is also important to remember that over the longer term, the more progress we make in basic medical research, the more demand there will be potentially for applied Research & Development using animals to develop and test new treatments.

At present, many MRC research programmes using animals also use non-animal methods in parallel, and many are involved in developing non-animal techniques, such as cell culture systems, or ways of making animal experiments more refined or productive. The time and expense needed for animal experiments, as well as ethical reluctance to use animals, mean that most researchers have strong motives to explore potential alternatives. Nevertheless, it would be unrealistic to expect very substantial reductions in animal use in the short or medium term. In vitro systems are becoming more and more sophisticated as our knowledge of cell and developmental biology grows, but the best cell culture methods are still far too crude to replicate the more advanced functions of the immune system, endocrine system, or brain. Tools for non-invasive clinical studies are advancing too, but in many cases the only way to confirm how a body system operates is to interfere with it, and it is rarely acceptable to do such research in humans.

In MRC's experience, the new methods are best developed by leading edge research teams as an integral part of their programmes. Some of the most important new ways of avoiding animal use (such as in vitro large-scale manufacture of antibodies, or the ability to generate new antibodies without using animals) have emerged in this way, after substantial MRC investment in the area.

To supplement this way of working, MRC also has an initiative for new stand-alone proposals for work on refinement, reduction and replacement. So far, three awards have been made totalling about £600k.

We see this call for proposals as complementing, not replacing, the normal ways in which new research methods emerge through ordinary research funding. Specifically, the scheme:

- Can appeal to experts (e.g. in animal welfare) who might not normally consider applying to MRC. This in turn allows MRC to foster multidisciplinary approaches, for example, by "bolting on" a piece of animal welfare work alongside leading edge research.
- Can be used flexibly to seize opportunities whose scale and type might not fit well with the normal expectations for MRC grants.
- Will allow MRC to target priority areas for 3Rs research. The Centre for Best Practice in Animal Research has begun to identify priorities and gaps in knowledge, and we will continue this.

The MRC scheme is complementary to the funding provided by the Home Office for awards by the Animal Procedures Committee. These are usually small, short-term grants, with a total spend of less than £250,000 each year, whereas the applications to MRC have often been for several hundreds of thousands of pounds, over two or three years or more.

As to who should fund (and manage) research in this area, we consider that most (though not all) stand-alone projects are best viewed as applied research. That is to say, they benefit from more "hands-on" management than fundamental research, with more clearly defined deliverables, rigorous comparisons between expected short-term benefits and costs, and careful consideration of the likelihood that users' needs may change by the time the work is complete. Thus, most research should be led by organisations or teams close to the end-user of the technology - whether in academia, industry, or agencies/departments with regulatory responsibilities.

Some research in the area is more fundamental in nature - for example some work in mathematical modelling and statistics, or work on the nature of animal consciousness and pain - and other research is an inseparable part of fundamental work on medical research. This longer-term work should normally lie in the domain of the Research Councils, and relevant medical, veterinary, and animal welfare charities.

It has been suggested that research could be encouraged more effectively if MRC and other funding bodies earmarked specific funds for it. We would not support this suggestion: strict earmarking can tie up funds for which uses never materialise, or can stifle justified growth; and can lead to funding for scientific plans which are unlikely to deliver. At present we have no pre-determined limit on

the scale of support for 3Rs research; decisions are based only on the quality of the proposals we receive. Judgement on the balance of our overall 3Rs portfolio might be needed later, as the scheme develops. Discussions with potential applicants about whether they should apply or not have tended to focus on the criteria against which MRC would judge their work, and the breadth of work eligible for funding - availability of funds has not been an issue. MRC recognises that proposals for research into alternatives would not necessarily rate highly against the normal criteria for high scientific merit, especially where new or multidisciplinary lines of work are being developed. However, the quality of the proposal is the main criterion for the funding decision. We also take the nature of the field, and the strategic importance of developing the area into account during the peer review.

In addition, there is work on improving animal welfare being undertaken as part of existing projects, for which separate funding is not required. Where such work is funded by the MRC, the researchers are encouraged to publish it in a suitable journal.

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?*

It is not known how much duplication of animal research there is. As with all research proposals submitted to MRC, the assessment criteria used by peer reviewers include:

- How original are the proposals? Do they address novel or innovative concepts, approaches or methods? And
- Has the work already been done or is it being done elsewhere? How persuasive is the case that earlier work needs to be replicated or extended to another system?

This is intended to ensure that there is no unnecessary duplication of research, and hence (also) no unnecessary and unethical use of animals.

The MRC does have concerns about the way research involving animals is reported in scientific journals. These concerns fall into three categories, but the evidence for them is largely anecdotal.

i) There may be insufficient detail of the research methodology (including the numbers and species used) to enable others to assess the validity of the findings, or to repeat the research if this is deemed necessary.

ii) Some papers have been published reporting poor experimental design and statistical approaches. Thus either too few or too many animals may have been used to justify the reported conclusions.
iii) It is not easy to publish research in prestigious and widely-read journals which primarily report on one or more of the 3Rs. Where such findings are a small component of a publication, they may not be identified clearly in the key words or abstract; such publications are thus not readily traceable through hand or electronic searches.

Through CBPAR, MRC is working with other stakeholders to address these issues.

For people working in the field:

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

There definitely is potential in these approaches, but the extent and timescales depend on the scientific questions being addressed and are therefore best addressed by those active in the field.

Question 4: What is your view about ethical issues relating to the use of animals in research?

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?*

Taking the term "moral status" to mean "How important or how valuable is an animal?", the MRC does believe that animals are important and that some species are more important than others. MRC also believes that man is more important than all the other animals; hence that "it is morally acceptable for human beings to use other animals" This is also enshrined in UK law, in that the ASPA applies only to vertebrates (and Octopus vulgaris). That is not to say that non-vertebrates have no importance. They are of course important in the sense that they are part of the ecosystem of which man is also a part. Within vertebrates, the MRC is of the view that some animals are more important (not more equal!) than others. This is reflected in the MRC's policy that animal experiments must use the simplest possible, or least sentient, species of animal. The distinction is thus based on sentience. While this is not a perfect discriminator as it is difficult to define precisely, it generally works well in practice (between the small number of species generally used in medical research).

Animals do not have intrinsic rights; any rights that they have would be those conferred on them by people. We therefore agree with the Consultation Document that this is not a useful concept.

Some of the main differences between humans and animals are listed in the document. They are matters of degree in, for example: self-awareness, rationality, capacity to suffer, sentience, capacity for social relationships. In addition, humans use language which is important as the means by which they may give consent for experimentation. Most of these are dificult to measure in any objective or quantitative way that can then be used to discriminate. Thus whether these then "justify the suffering of animals in research that could potentially benefit humans" is a question of personal belief. Most people believe that they do. A MORI survey[10] commissioned by the Coalition for Medical Progress in 2002 found that about 90 per cent of those surveyed would accept the use of animals in research as long as certain conditions were met: no unnecessary suffering, it is for medical research purposes, no alternative is available and the research is for life-threatening diseases. (See also Chapter 2 of the House of Lords' Committee Report)

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?*

These two sets of questions have been addressed in part in the answer to Question 1. In addition:

[10] See http://www.medicalprogress.org/CMP_MORI_2002_Final_Rpt.PDF

Using sentient animals in scientific procedures which have the capacity to cause pain, suffering, distress or lasting harm raises ethical issues. There is an inevitable conflict between the needs of humans and science and those of animal welfare. Responsibility for addressing this conflict lies with all involved in the use of animals including funders, researchers and regulators. General guidance to MRC researchers and Board members is contained in the MRC's 1993 booklet referred to above. This will be updated in 2004.

Ethical consideration can be sub-divided into not only whether it is acceptable to use animals but also how they are used. MRC includes ethical issues in its peer review process of research involving the use of animals. Broadly speaking, the focus of this assessment is on the necessity and scientific justification for the research (i.e. the whether it should be done), while the Animals (Scientific Procedures) Inspectorate and ethical review processes are responsible for considering how numbers and suffering can be minimised (i.e. the how the research is carried out). Of course inevitably there is overlap between these considerations – for example, the Home Office Inspectorate also considers replacement alternatives and, as described in paragraph 2.3, MRC has recently strengthened its peer review of involving primates to include referees with specific expertise in primate welfare. In addition, all MRC-funded research programmes involving primates now undergo a mid-point review to ensure the use of primates is still necessary and valid.

Question 5: What is your view about the UK regulations on research involving animals in the UK?

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?*

Broadly, we believe that current provisions for the assessment of welfare of animals are appropriate, but please note our comments about GM animals in Question 2 and below. As with all legislation, it is important that the ASPA is applied not only to the letter of the law but also in the spirit which it is intended. Welfare assessments should be conducted before, during and after a project. The ERPs are the most appropriate routine mechanism for this as they have the local

knowledge. The Inspectorate of course also has a role before the project starts as part of the cost-benefit analysis, and during the project to ensure that severity limits are not breached.

Welfare assessments for different animals can be adequately captured in regulations to a large extent, but fine detail is best left to accompanying guidelines which can be updated more easily.

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?*

The fact that an animal is genetically modified should not be the sole determinant of any special consideration. What matters is the phenotype (or the predicted phenotype). See answer to Question 2, above.

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?*

The cost-benefit analysis is key to the UK legislation but will always contain a subjective element. The more objectivity that can be brought to bear the better. There is always likely to be room for improvement. One element is the categories of level of suffering, which is currently being reviewed by the APC and the Boyd Group. The analysis should be done (as now) before a project licence is issued. There may be a case also for reviewing it during the course of the work. However, we would argue that this could be unnecessarily burdensome and would recommend that if this were to be done it should only happen through "dip-sticking" a small percentage of projects or for a very small number of cases where the original analysis may have been particularly difficult. The Ethical Review Process is responsible for retrospective review of projects which may assess cost-benefit retrospectively.

In the interests of openness, we would support the principle of publishing as much as possible, but there may be practical problems with publishing cost-benefit analyses, such as identification of individuals, premature release of intellectual property etc.

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

It could certainly do both of these. This would be detrimental to UK science and to the UK economy (especially in relation to the private sector), as well as possibly compromising animal welfare if the research was exported to countries with less stringent legislation or different standards of animal welfare to those in the UK.

Question 6: What do you think about the information that is available to the public about research involving animals?

MRC is an active member of the Coalition for Medical Progress (CMP) which is an alliance of organisations whose role is to help explain – using a variety of communication and public relations tools – the need to use animals in medical research and the benefits brought about by animal research.

The MORI survey commissioned by the Coalition in 2002 found that about 90 per cent of those surveyed would accept the use of animals in research as long as certain conditions were met: no unnecessary suffering, it is for medical research purposes, no alternative is available and the research is for life-threatening diseases.

The survey found that few people (by their own admission) knew anything about the rules and regulations that govern the use of animals in research (93 per cent said they knew not very much or nothing at all). MORI suggested that this was likely to be due to a lack of easily accessible, factual, information. The MRC aims to do provide such information whenever a suitable opportunity arises, usually in reporting the results of MRC-funded research or in responding to enquiries.

The MORI survey also found that 76 per cent of those surveyed said they would like to know more about research using animals before forming an opinion on the matter.

MRC agrees with the views of the House of Lords Committee on "Public Information" (Chapter 9). In particular, we would welcome publication of a lay summary of each project licence, and indeed as much as possible of the licence being made public as is consistent with the need to maintain confidentiality. We are aware that the Home Office is currently considering this issue which is not as straightforward as it may seem.

- *What sort of information do you feel you need in order to make judgements about the acceptability of research involving animals?*

The CMP's communication strategy addresses the areas of concern identified by the public – welfare, medical necessity, alternatives and regulation. The Coalition

hosted a meeting on the 3Rs on 8 October 2003, and has plans for various approaches to provide more detailed information to the public. These will be included shortly on the CMP website.

- *What would be suitable methods for informing members of the public about research involving animals and ethical issues surrounding it?*

The CMP uses a variety of communication methods to inform the public about animals in research: a website (under development), press statements, letters to the editor, information brochure, speaking events etc. Individual members of the Coalition also produce their own material including publications, information packs, and websites.

- *Which types of people or institutions would you trust, or not trust, to provide you with balanced information about research involving animals?*

The MORI survey shows that animal welfare groups and vets are the most trusted sources for honest and balanced information about animal experimentation. Each is mentioned by about half of the respondents. Third on the list of those most trusted was the MRC (33 per cent). The MRC would look critically at all information about animal experimentation, but would not expect to see balanced information from anti-vivisection organisations, nor from some sections of the written media.

- *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?*

This has been discussed by the Coalition, but no conclusion reached. On the face of it, this would appear to be a good idea, as it would be one method to help educate the public (or more specifically patients in primary care and people buying over-the-counter medicines) about the role of animals in research and in toxicity testing. However, there is a risk (probably small) that some people would not take their medicines if this knowledge were made explicit to them. Thus, while the MRC is supportive of this suggestion, in principle, we would recommend that some pilot or survey work should be undertaken to assess its possible impacts. It would be difficult to provide information that would be accurate and concise beyond simply stating the fact that animals were used in a) understanding the condition for which the product is being offered, and b) developing and testing the product.