

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.

Canadians for Health Research

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

- Research involving animals is used to further our understanding of how our bodies work, to study disease, and to test all potential forms of therapy when this information cannot be obtained from other methods.
- Significant advances in technology have provided researchers with very focused information that does not involve the use of live animals. For example, high throughput screening in drug development allows researchers to identify the most likely candidate, so that only promising substances are tested on an animal model. Also, monoclonal antibodies are produced in bioreactors and only those that cannot be made this way use mice.

There is a perception that alternative methodologies eliminate the need to use animals in drug development. This is unlikely, at least into the foreseeable future. For example, a new a treatment may focus on a specific tissue or receptor, but since there are other body systems with receptors that might also be affected, the impact of the treatment on the entire body must be assessed. These findings, commonly seen as side effects, can only be determined from testing in a live animal model.

There is much debate about our ability to extrapolate animal research results to humans. Generally, there are more similarities than differences. For example, we share more than 250 common diseases with various animals. The most appropriate animal model must be used for these studies or the data is questionable. In cases where there is no direct correlation, animals can still provide a valuable indication of how human systems will be affected.

- In addition to finding improved treatments for diseases that affect human and animal health, the public must be assured that all consumer products they use are safe and effective. It would be unacceptable to eliminate the use of animals for research and testing purposes if no valid alternative exists.
- Significant efforts are made to minimize animal suffering. This includes the replacement and/or refinement of some animal tests, more alternatives to invasive studies, and the use of analgesics. In addition, there is considerable

oversight of research studies, greater involvement of veterinarians with expertise in laboratory animal medicine, and better-educated animal health technicians.

Most invasive studies now must be conducted under anesthetic or are non-survival. Guidelines on the use of humane endpoints are in place in Canada and Europe. Oversight committees (animal care and use committees), whose primary responsibility is to ensure that the welfare of experimental animals is considered, are in the best position to determine research protocols that are unacceptable.

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

- The production of GM animals is not a perfect science and there are often many animals produced to develop the specific modifications that are required to meet research objectives. This results in a large number of mice required to be bred and many to be culled that do not have the specific genetic manipulation. Some of the GM animals may exhibit different characteristics than their background strain. Occasionally some strains of mice have females who are poor mothers and result in infant mortalities. There may also be situations where the offspring demonstrate physical deformities and premature deaths. Many of these issues can be addressed through good husbandry practices.

By the true definition of the word, GM animals are unnatural. Some argue that GM animals are just accelerated evolution but in many cases the genes are not natural to the species. This should not be a cause for concern as the production process is very well monitored.

- Animals should not be created in situations where the mutation results in the production of offspring experiencing excessive pain and suffering, or when the animals are unable to exhibit natural behaviour characteristics (i.e. paralysis).
- There are many debilitating illnesses for which there is no cure or treatment, including neurodegenerative diseases. The latter is an example of

where there is a real need for animal models that will allow researchers to study the causes and develop appropriate treatments. No other option currently exists. Much of the animal's discomfort can be minimized through special housing and good husbandry practices. This is also a case for the use of well-defined study endpoints.

- The most controversial areas in research are those where death may have to be the end point, such as infectious disease studies or regulatory vaccine efficacy studies. There are, however, several other areas of concern such as gene therapy, pain research, and tumour research where it is extremely important to develop humane endpoints that must be monitored.

QUESTION THREE:

What is your view about the use of alternatives?

- There is always a need for more research into alternatives to animal research. This will continue to be a challenge. These alternatives must be validated to ensure that the results are accurate and representative of the results in the animal model. This is not well-understood by the public, which is also unaware that the search for alternatives involves research on animals or that in some cases there will be no alternative to the use of experimental animals.

Industry continues to play a significant role in the development of alternatives. Government can and must play a greater role in the funding of research into alternatives. Well endowed animal welfare/rights organizations should also be contributors to this research.

There are a number of organizations that are devoted to the search for alternatives, such as the Johns Hopkins Center for Alternatives to Animal testing and The Netherlands Centre for Alternatives to Animal Use. To our knowledge a cost/benefit study of this research has never been conducted. This information would perhaps be helpful in determining if the infusion of considerable financial resources would significantly change current outcomes.

- Testing is one area where there could be greater use of alternatives. There is a significant challenge in identifying an alternative test, validating it

and then having it accepted by all the agencies around the world. To date pharmaceutical companies and regulatory agencies have played a substantial role in standardizing toxicity testing (ICH process). The biologics continue to lag behind in the development of alternatives in this respect.

- There does not appear to be a great deal of duplication of animal research. There is often competition between labs but the cost of this type of research is too high to have duplication. More often there is collaboration between laboratories. Meetings, web sites, and peer reviewed journals are all used to share information.

Scientific journals reporting on alternatives should include more information on the methods used. The description included in most journals is too vague to be able to replicate, making it necessary for further work to be done before these methods can be used anywhere else.

- The potential of approaches such as *in silico*, *in vitro*, microdosing or neuroimaging are considered promising by the experts on our board of directors. It is believed these methodologies will all play an important role in the future.

QUESTION FOUR:

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

- Animals are distinct from humans because they do not have the capacity to act rationally and as moral agents in a civil society and therefore can never have “interests” or “rights”. Humans do, however, have a moral responsibility to ensure that all animals are treated humanely and with respect.

Most people, at least in industrialized countries, believe that there is a distinction between higher mammals, especially dogs, cats and non-human primates, and mice or mosquitoes. This distinction is also evident in the types of species historically used for experimental purposes, but for far more complex reasons.

Reducing our overall reliance on experimental animals is a value shared by the vast majority of scientists. Most would probably agree that because there is scientific evidence that humans share some similarities with Great Apes, their use for experimental purposes should be extremely restricted.

- Current research suggests that humans are distinct from animals in ways that scientists are just beginning to understand. To that end, it would be difficult to comprehend how any suffering that an animal would endure would outweigh the benefits that would be derived from improving our understanding of and development treatments for diseases such as AIDS.
- Much of our knowledge and interpretation of animal pain appears to be derived from human experience. The article, “Ethical issues regarding pain in animals” by Alexander Livingston, BVetMed, PhD (JAVMA, Vol 221, No 2, July 15, 2002) provides some excellent background on the complexities involved.
- A cost benefit analysis based upon an ethical scoring system can provide some insight regarding the use of animals in specific projects. Animal research is well monitored by the institutional animal care and use

committee. These committees are charged with the responsibility to review all research, teaching and testing protocols involving animals. Further oversight is provided by regulatory review by the Canadian Council on Animal Care in Canada.

There is a higher degree of regulatory oversight in animals used in medical research than other areas where animals are used.

The environment in which animals are maintained has an integral role in the well being of the animals used in research. All attempts are made to provide animals used in research with an environment that will allow the animals to demonstrate their species-specific behaviors. Enrichment devices provide animals with the opportunity to forage, nest, burrow, or interact with conspecifics in animals that are social.

QUESTION FIVE:

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

- There are always means of improving the assessment of animal welfare in animals used in research. There is much research currently being conducted in the field of animal welfare and assessment of pain that can only provide the tools for improvement.
- Animal welfare assessment must be conducted throughout the protocol. The concept of a wellness assessment is an interesting approach which may be considered.

Welfare assessments for different animals can be adequately captured as long as the regulations provide some latitude for professional judgment. If the regulations are too restrictive it makes it difficult to allow for scientific ingenuity.

- There are strong ethical and scientific arguments to support the licensing of all laboratories producing GM animals. A committee comprised of all stakeholders to review and develop GM regulations would be appropriate.

QUESTION SIX:

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

- Public understanding of science, including its benefits and limitations is poor. This has led to some of the misconceptions that currently exist regarding the role of animals in the research process.

The scientific community must place a high priority on communicating with the public. In addition to speaking at public forums, and at schools in particular, there can be far greater utilization of the Internet and through media correspondence (i.e., letters to the editor, editorials/op-eds).

Scientists should explain what their research involves, what they hope to achieve, and why this information is needed. Many scientists are not good communicators and find it difficult to explain their work in terms that the public can readily understand. University public relations officers can provide assistance in these matters and, in our opinion, are underutilized. Universities should also consider providing scientists with media training.

Many scientists in Canada and elsewhere are reluctant to speak about their research involving animals. They fear that they, their colleagues or their families will be targeted for harassment and intimidation if this becomes known. Unfortunately, there is some justification for this concern. Public forums on animal experimentation are also not particularly helpful since most of the people attending have very strong views for or against this process and the dialogue is not productive. Several Canadian medical schools have sponsored public lectures on research being conducted at their facilities, which may involve animal experimentation. These are well attended and the dialogue productive.

- The media is the primary source of public information on research issues. In Canada, the coverage of contentious issues in the print media is fairly well balanced, particularly if submitted by a science writer. Television coverage tends to be more sensationalistic with information provided in sound bites. These programs rarely provide the viewer with enough information to make an informed decision on a research issue.

It would be helpful to establish some liaison between scientists and journalists. For example, programs that would foster greater understanding of the mechanisms of scientific pursuit and how a laboratory functions could

improve the overall quality of research coverage by journalists. Scientists would also benefit from learning some of the constraints journalists work under. We are currently exploring two programs that will help address these issues.

- It is also appropriate for the government to participate in public discourse surrounding the care and use of experimental animals. For example, the public should be aware that some animal testing is required by law.
- In our opinion, it is impractical to include on labels that medicines were developed using research with animals. Instead, the government should consider banning the use of labels that suggest that a product was not animal tested since this is in fact patently untrue.