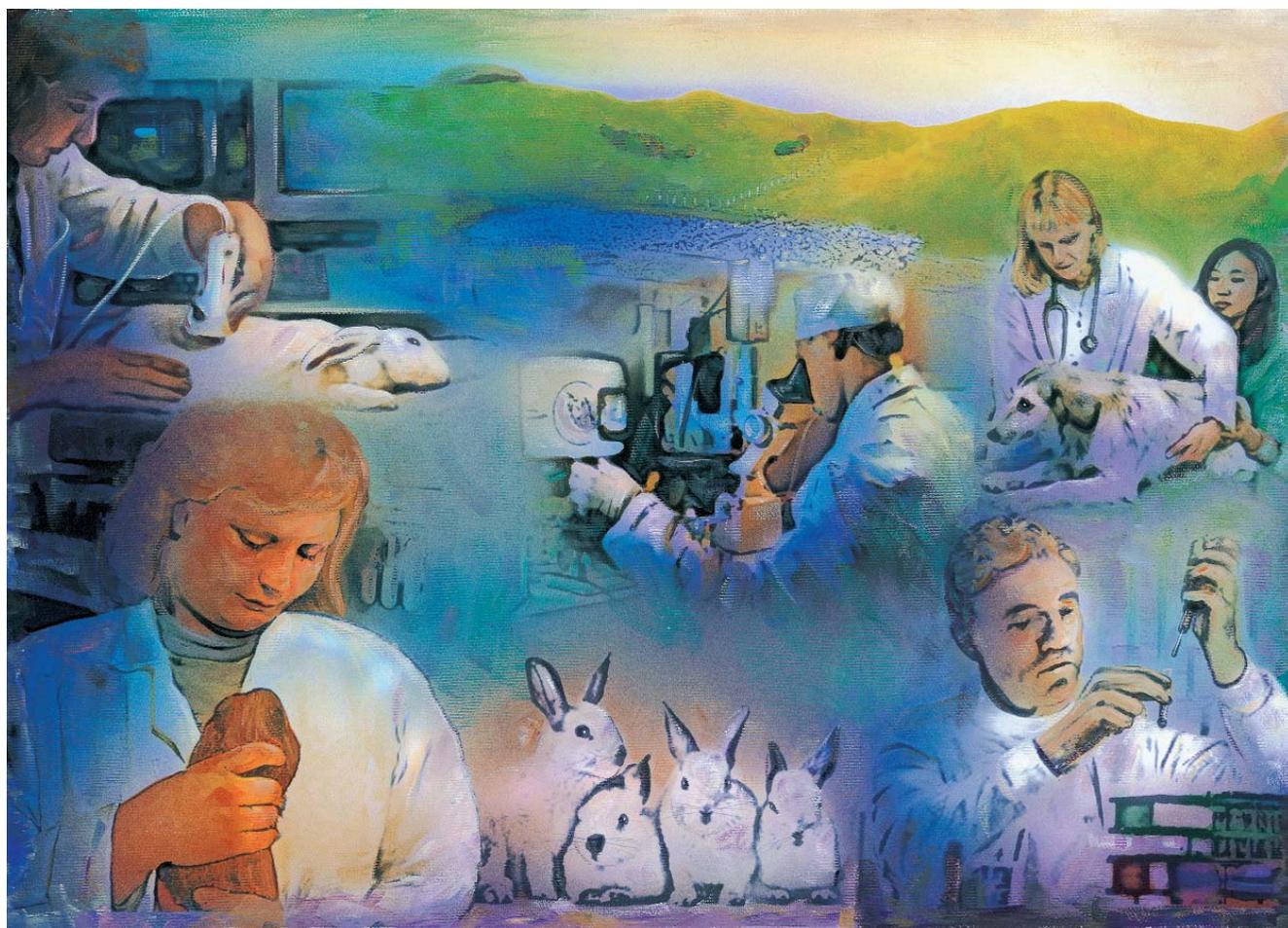


A Culture of Care

A guide for people working with animals
in research, testing and teaching



Anyone responsible for the welfare of animals used in research, testing or teaching has a duty of care, which is defined under the Animal Welfare Act 1999. Discharging this duty involves more than the basics of animal care. It involves a genuine commitment to the welfare of the animals, a respect for the contribution they make to your work, and a desire to enhance their well-being beyond the minimum standards: in short, a culture of care.

This guide is published by the **National Animal Ethics Advisory Committee** (NAEAC) for scientists, technicians and teachers who use animals in their work and are responsible for their welfare.

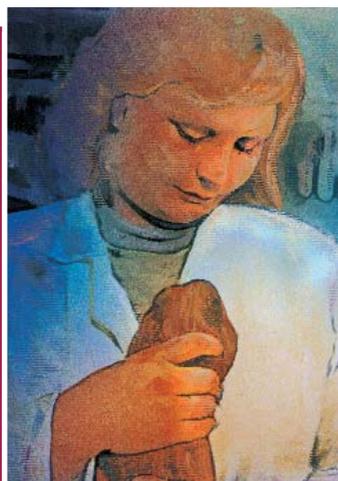
It summarises the legal requirements, but also provides a framework of understanding for going beyond the legal minima. The guidelines are designed to help keep researchers and teachers in touch with, and responsive to, society's rapidly evolving attitudes towards the relationships between people and animals.

Changing attitudes

Scientists, theologians and philosophers have grappled for centuries with the relationship between humankind and other species. Things have come a long way since the 17th century when animals were thought to have no capacity for consciousness. By the 19th century, especially in Britain, public unease about experimentation with animals began to grow. Darwin's work, which placed humankind within the animal kingdom – not above it – gave further impetus to changing attitudes. By the 1870s, the first legislation to prevent cruelty to animals was enacted.

There have been many milestones since then. Not least of these has been the framing, in 1959, of the principles universally accepted as the **Three Rs**. The principles of **replacement, reduction and refinement** are the cornerstone of modern research and teaching practices involving animals.

In the more than 40 years since then, advances in information technology, scientific techniques and understanding of animal behaviour and physiology have further enhanced the ability of researchers and scientists to implement these principles for the benefit of animals.



Relationships between people and animals

From the very earliest records of human civilisation, it is clear that people have always had strong relationships with animals. These relationships are not the preserve of pet lovers or the animal welfare movement. The mutual respect and dependence that develops between humans and other animal species can be felt just as keenly – and is just as valid – in the context of research and teaching.

How animals are used in research, testing and teaching

Use of animals in research has been vital in the development of modern medicine and the battle against infectious diseases. Animal husbandry, veterinary medicine and environmental protection work have also benefited enormously. While the benefits are impressive, they do not confer unlimited rights to use animals.

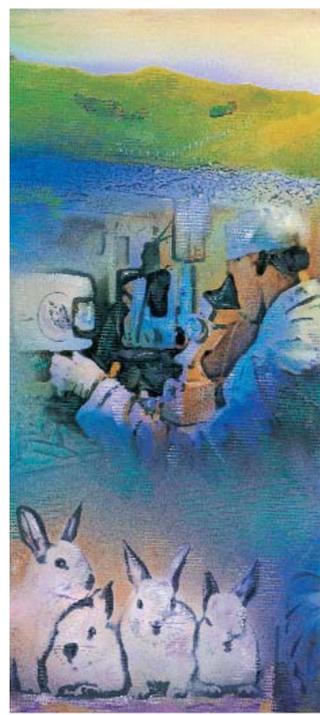
The law in New Zealand allows animals to be used in a research, testing or teaching context, in a way that would not be allowed in other areas of animal use, such as agriculture. This is in recognition of the balance between the benefits to people and other animals, and the animal welfare impact on the research animals involved. This is a privilege which is strictly monitored and regulated to ensure it is not abused.

In New Zealand, the largest single users of animals in research, testing and teaching are Crown Research Institutes, the Universities and the commercial sector. Numbers and types of animals used vary from year to year. Mice, rats, fish, sheep and cattle are the most commonly used animals. Overall about one-third of animals used in research die or are destroyed during or after the process. The majority of these are rodents.

The purpose of research involving animals covers a wide range of activities, including:

- basic biological research
- environmental management and species conservation
- commercial applications
- medical and veterinary research
- animal husbandry; and
- teaching.

The shape of our economy is reflected in the type of research done within New Zealand. Annual statistics on use of animals in research and teaching can be found on the Ministry of Agriculture and Forestry (MAF) website at www.maf.govt.nz/biosecurity/animal-welfare/naeac/



Legal responsibilities for the animals in your care



Your responsibilities are covered in Part 6 of the Animal Welfare Act 1999. This legislation is more prescriptive than its predecessor. It, however, also allows people more flexibility in the way they deliver on their duty of care. But with the legal right to use animals in research, come strict obligations.

The focus of the law is on **prevention** of undue pain or distress, rather than on punishment should this occur. The aim is to ensure:

- physical health and behavioural needs are met; and
- illness or injury is treated to alleviate pain and distress.

Part 6 of the Act covers animals used in research, testing or teaching with the approval of an Animal Ethics Committee and operating under a Code of Ethical Conduct. It covers what happens to animals when they are alive.

Euthanasia or destruction of animals is covered under Part 12(c) of the Act. It requires that whenever an animal is killed, it must be done without causing unreasonable pain or distress.

Who can 'manipulate' animals

This can only be conducted in an institution that holds a Code of Ethical Conduct (CEC).

A CEC is a licence to carry out the work. It does not cover specific procedures or species, but sets out a framework for approval of projects by an Animal Ethics Committee.

A CEC can include policies or procedures that go beyond what is required by the law (e.g. a policy to never kill animals, or use certain species).

These voluntary measures need to be differentiated from mandatory requirements in the Code.

This provision gives code holders the means to constantly improve the welfare of animals in their care, using the principles of the **Three Rs**, the driving force behind New Zealand's animal welfare policy and practice, relating to the use of animals in research.

The Three

R_s

Replacement

Refinement

Reduction

Definitions under the law

Three key sets of definitions influence your responsibilities:

- 1. Animals:** As well as the traditional understanding of 'animal', protection of animals in research, testing and teaching extends to some invertebrates such as octopus, lobster and crabs, mammalian foetuses and unhatched avian young in the second half of gestation or development.
- 2. Manipulation:** This term is used throughout Part 6 of the Act. It means interfering in some way with the normal life of the animal. This can extend from the relatively benign (e.g. grazing trials) to the severe (e.g. research into pain thresholds).
Not covered by 'manipulation' are:
 - normal veterinary therapy such as vaccination
 - killing of animals (as long as it is humane)
 - post-mortem research.

Some practices can eventually become routine, and the Minister has the discretion to remove these from the restrictive definitions of 'manipulation' under the Act.

- 3. Research, testing and teaching:** Essentially this covers any situation where animals are manipulated (as defined above) in some way. This could be for research, product testing, teaching or to produce biological products.

It does not cover normal veterinary work, or routine wildlife management.

Animal Ethics Committees

Every code holder must have an Animal Ethics Committee (AEC). Large institutions may have several AECs to cover different sites or types of operation. At the other end of the scale, very small organisations can choose to enter into an arrangement with another code holder to abide by its code and use its AEC.

AECs must have at least four members. Three of these must be from outside the organisation and include:

- a veterinarian nominated by the New Zealand Veterinary Association
- a nominee from an approved animal welfare organisation (e.g. the RNZSPCA)
- a territorial authority or a regional council nominee.

There must also be at least one senior person from the organisation.

AECs approve specific projects and set detailed conditions. These are appended to the Code of Ethical Conduct. In considering a project application, the committee looks at the balance between harm to the animals involved, and the benefits of the work. Severe pain or suffering cannot be justified merely on the basis of **potential** benefits.

Minor, routine work with animals in teaching (e.g. observations not involving any manipulation) does not require specific approval by an AEC.

For each project, every person using animals should have read the application before it is submitted to the AEC. In some institutions all involved investigators are required to sign the application. Having signed or read the application, however, does not negate the responsibility for investigators to continue to think and act humanely towards the animals in their care. We must always continue to act humanely and think in each situation "is this humane?" rather than simply think, "it's approved so I can do this now".

Some exceptions – where AECs are not involved in approvals

Non-human hominids: chimpanzees, orang utan, gorillas and bonobo (collectively the ‘great apes’) are given special protection under the Animal Welfare Act. Only the Director-General of MAF can approve research using these animals, and approval may only be given if the work will directly benefit the animal or its species.

National interest: The Minister of Agriculture has the discretion to make approvals for research projects without the involvement of an AEC when the work is in the national interest for reasons of:

- biosecurity
- international obligations; and
- the protection of human or animal health.

Adding value to your duty of care

There are many ways you can enhance the welfare of animals in your care beyond the minimum standards required by your code of ethical conduct and the conditions set by your AEC. Because the law under the Animal Welfare Act contains flexibility, it allows people at individual sites to apply their own creativity and innovation in the way they implement minimum standards.

For example, you can develop your own best practice guidelines in areas such as:

- the animals’ environment
- exercise
- handling
- nutrition
- relationship between different species kept at the same site.



Offences in law – the consequences

There are three areas where offences can occur in research, testing or teaching where animals are used:

- working without a code of ethical conduct
- carrying out a project that is not approved by an AEC, or goes against conditions set by an AEC; and
- research using non-human hominids without the approval of the Director-General of MAF.

The maximum penalties are:

For an individual: up to 6 months imprisonment and/or a maximum fine of \$25,000

For an organisation: a fine of up to \$125,000.



The Three Rs – a sound framework for developing a culture of care

The principles of the Three Rs provide an excellent framework for improving the welfare of animals used in research, testing and teaching. These are a few examples.

Replacement

Choice of organism: In some cases it is possible to substitute less- or non-sentient organisms (e.g. worms, insects) in teaching experiments that might otherwise involve vertebrates.

In vitro techniques: Culturing cells or tissues can be used in some situations to study aspects of physiology. For example, cultures can be used to test the impacts of potentially toxic compounds, or to screen for potential anti-viral agents. These techniques also have the advantage of more easily controlled conditions.

Non-biological replacement alternatives: Mathematical modelling and computer simulation can be used to predict impacts on live tissue that would otherwise require live animals. In teaching situations, sophisticated computer simulations, physical models or audio-visual aids can be used in preference to actual dissections or use of live animals.

Human studies: Use of human tissue for cell or tissue culture can obviate the need for animals. Within appropriate ethical guidelines, human volunteers can also play a role in situations such as medical research or pharmaceutical testing, where animals were previously used.

Reduction

Pooling resources: Collaboration and good communication within the scientific community can help eliminate unnecessary duplication of experiments.

Planning and design: Thorough searching of literature and peer review can help avoid the need to repeat experiments, when similar work has been done elsewhere. The design of any research which may involve animals should be subjected to close scrutiny. How many animals, what species, the procedures used, statistical techniques, the potential benefits, the need to use animals at all – all of these questions and more should be considered carefully before a project is submitted to your AEC.

The input of a statistician is especially important in planning research. It is important to avoid using more animals than is necessary for statistical validity. Equally importantly, if too few animals are used the results will not be valid and the experiment will need to be repeated with more animals.

Refinement

Refinement refers to the modifications that can be made to minimise suffering. There are three main areas where you can apply this principle.

Improved animal husbandry: Careful handling and improving the animals' environment can help reduce the stress on animals being held for research work. Exercise, light, ventilation, temperature, diet, bedding, noise, disturbance by visitors, cleaning, the skills of technicians, care during weekends, the presence of other species – all of these factors can make a big impact on the welfare of animals before any particular manipulation even starts.

Analgesia and anaesthesia: Objective measurement of pain in animals is difficult. A precautionary approach is best. There are various signs that an animal is in pain. These include impaired activity, behavioural changes such as aggression, restlessness, changes in food and water intake, abnormal vocalisation or posture, or self mutilation. Tranquillisers, analgesics or anaesthetics should be used, as appropriate, with veterinary advice.

Humane endpoints: If possible, experiments should be ended before pain or distress are caused. Some alternatives are now available, which can avoid the need to take an experiment through to a painful endpoint (e.g. in vitro techniques for testing carcinogenicity or irritancy).

Where this is not possible, every effort should be made to minimise the duration and severity of suffering, using pain relief where possible and euthanasia rather than allowing an animal to die slowly or painfully.

Building a culture of care

Society's expectations about the welfare of animals, and the means for enhancing it, are constantly evolving. It is your job to keep abreast of these changes and help constantly improve the culture of care within your own workplace. This guide has briefly covered your responsibilities and some ideas for developing better animal welfare practices. To find out more, we recommend the following websites:

MAF Animal Welfare

www.maf.govt.nz/animal-welfare

ANZCCART

www.rsnz.govt.nz/advisory/anzccart

National Animal Ethics Advisory Committee,

C/- MAF Biosecurity Authority, PO Box 2526, Wellington.

Phone 04 474 4296, Fax 04 498 9888, Email naeac@maf.govt.nz