



Australian Government
National Health and
Medical Research Council

N H M R C

NHMRC Guidelines ON THE CARE OF CATS USED FOR SCIENTIFIC PURPOSES

© Commonwealth of Australia 2009

Electronic documents

This work is copyright. You may download, display, print and reproduce this material in unaltered form only (retaining this notice) for your personal, non-commercial use, or use within your organisation. Apart from any use as permitted under the *Copyright Act 1968*, all other rights are reserved.

Requests for further authorisation should be directed to the Commonwealth Copyright Administration, Attorney-General's Department, Robert Garran Offices, National Circuit, Canberra ACT 2600 or posted at: <http://www.ag.gov.au/cca>

ISBN Online: 1864964138

NHMRC Reference for this publication: EA24

To obtain information regarding NHMRC publications contact:

Email: nhmrc.publications@nhmrc.gov.au

Telephone: toll free 13 000 NHMRC (13 000 64672) or call (02) 6217 9000

Published November 2009

NHMRC Guidelines

ON THE CARE OF CATS USED FOR SCIENTIFIC PURPOSES

To be used in conjunction with the *Australian code of practice for the care and use of animals for scientific purposes (2004)*. *Scientific Purposes* are defined as: ‘All those purposes which aim to acquire, develop or demonstrate knowledge or techniques in any science, including activities for the purposes of teaching, field trials, environmental studies, research, diagnosis, product testing, and the production of biological products.’

Introduction

These guidelines have been developed by the NHMRC’s Animal Welfare Committee and complement other policy and guideline documents including the *Australian code of practice for the care and use of animals for scientific purposes (2004)* and *Guidelines on the care of dogs used for scientific purposes (2009)*. They aim at enhancing a culture of continual improvement regarding the welfare of cats (*Felis catus*) that are used for scientific purposes in laboratories and elsewhere, including feral and wild cats in the outside environment.

The guidelines address the social and legal issues associated with the use of cats for scientific purposes. They also outline general principles for the husbandry of cats, but without being comprehensive in detail. There is extensive and accessible literature on the biology, care and housing of cats and minimum standards have been set by some State regulators. In this regard, investigators, teachers, animal technicians and institutions are expected to act at that level of competency which will allow them to apply and extend the existing body of knowledge, share their practical experience and make innovations based on an understanding of the physical and behavioural needs of cats.

The guidelines are intended to assist institutional Animal Ethics Committees (AECs) in considering applications for the use of cats for scientific purposes. They also aim at assisting AECs in the development of their own terms of reference as described in section 2.2.1 of the *Australian code of practice for the care and use of animals for scientific purposes (2004)* (the Code). This includes an AEC’s provisions for approving guidelines for the care of animals that are bred, held and used for scientific purposes on behalf of the institution (Section 2.2.1 (i) of the Code) and facilitating the development of standard operating procedures that may apply to cats (Section 2.2.17 of the Code).

Background

The historical record demonstrates the power of comparative anatomy, physiology and pathology in providing the body of biomedical knowledge that underpins healthcare. For example, investigations with cats have been instrumental in understanding the function of nerve cells and the nervous system, and the development of anticoagulant therapy. Cats share about 33 infectious diseases with humans and research into FIV – feline AIDS, has assisted the understanding of HIV-AIDS.

Research with cats has also distinctly benefited the health and welfare of cats themselves thus enhancing enhanced their value as companions. Cats are also kept for rodent control. Research into wild and feral cats provides knowledge for action to maintain biodiversity and protect the environment.

Companion animals such as cats, however, have a special intrinsic value for a large proportion of the general public. Consequently, their use in biomedical and scientific research and teaching is a sensitive matter requiring sympathetic and insightful management. A notorious example of a pet animal ending up in a research institution occurred in the USA during the 1960s and raised a general anxiety around the world that continues to resonate. Accordingly, research institutions and investigators must be scrupulous in their acquisition of cats to prevent similar occurrences and must demonstrate high and species-specific standards for their care.

The pattern of usage of cats for research has changed over time and cats must only be used when no suitable alternative can be found. Clinical experience with cats is likely to identify disorders that can only be studied in cats in order to realise benefits for both cats and people where similar disorders may occur.

Responsibility of investigators and teachers

(Refer to 2004 Code section 3)

There is a chain of responsibility for the health and well-being of cats used for experimental purposes but paramount responsibility lies with investigators and teachers.

Investigators and teachers must ensure that they and their staff are competent to handle cats and provide a high standard of care and that their staff have an informed acceptance of the proposed treatment and euthanasia of cats according to ethical practice. Investigators and teachers are advised to consult specialists (e.g. veterinarians or those skilled in handling cats in particular experimental circumstances) whenever necessary.

Investigators and teachers are responsible for ensuring that projects have been approved by the institutional AEC and comply both with the *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes (2004)* and relevant legislation before commencing the project.

The use of cats must be justified and the principles of replacement, reduction and refinement must be applied.

Responsibilities of institutions

(Refer to 2004 Code section 2.1.1).

Institutions have an essential responsibility for the welfare of cats used for scientific purposes. Accordingly, institutions in which cats are used are required to develop written guidelines for the acquisition and care of cats. These guidelines are to be developed in conjunction with research, teaching and animal care staff, and be approved by the institutional AEC. Specific requirements regarding, for example, cage and pen sizes and transport, should be indicated in these guidelines and should be consistent with the requirements of State and local governments.

The chain of responsibility for animals must be clearly defined in written guidelines. The ultimate responsibility for cats in research and teaching lies with the investigators and teachers leading a given program. However, institutions are obliged to foster the conditions, competencies and culture that allow the proper execution of this responsibility. For example, the employment of well-trained, caring and motivated staff is critically important for the welfare of cats. Professionalism is required for the proper application of the principles of replacement, reduction and refinement when programs are in the design stage.

If teaching institutions such as veterinary schools are to use cats, they must have processes in place to ensure that students make informed decisions about their use of cats in learning and are introduced to the concepts and practices of ethical decision-making as part of their total professional education. There must be guidelines in place as per 6.1.4 of the Code to respond to any concerns that are raised.

Selection and acquisition of cats

(Refer to 2004 Code section 4.3)

The nature of the research or teaching project will determine whether the cats involved will be purpose-bred or not. Currently, most cats used for research and teaching in Australia are purpose-bred.

In this connection, the use of the term 'pound' and 'shelter' appears to be inconsistent around Australia. The term pound generally refers to establishments maintained by local authorities where stray and unwanted animals are held for a statutory holding time until disposed of by re-sale, re-homing or euthanasia. Some local authorities, however, have chosen to use the term 'shelter'; a term usually restricted to establishments run by community-based organisations which take in and look after lost or unwanted animals, mainly companion animals. Basically, a pound is run for legal purposes to hold stray cats for a statutory time period. Some shelters also undertake pound activities and seek to rehouse suitable animals from the owned animals that have come into their care and from stray animals after a statutory holding period has elapsed.

Suitability

Selection of suitable cats as experimental or teaching animals is critical to the success of the program and good welfare, and requires specific competencies. Cats should be selected by a veterinarian or person experienced in the selection of cats for experimental purposes. The key suitability factor will be the temperament of the cat – cats that have been well socialized as kittens will adjust more readily to the research environment than wild cats which have not previously been confined and/or handled. Wild or unhandleable cats pose a risk of cat bite and are an occupational health and safety hazard. Confinement can cause significant stress which suppresses the immune system and can lead to the development of disease or the activation of latent disease, particularly the respiratory viruses.

It is also important to consider the desexing status of the cat if being kept for long periods – entire cats that are not being bred undergo significant stress and generally are difficult to house together. Desexed cats generally can be housed in groups.

Health status

Many cats derived from pounds will be unsuitable for scientific purposes because of poor health, behavioural problems and an unknown disease history, which will include zoonotic diseases. Accordingly, all cats entering the institutional supply unit must be given a clinical examination by a veterinarian experienced in small animal medicine and receive any appropriate treatment before entering the unit. The clinical examination should include an assessment of behavioural suitability. In addition, the assessment of specific behaviours may be relevant to some types of research.

Social issues and ethics

The ethics of all proposed research or teaching must be considered by the relevant AECs, and may only proceed if ethics approval has been received. AECs and researchers are advised that some views are strongly held in relation to research with cats, and particularly pound-sourced cats.

Australia's National Consultative Committee on Animal Welfare (NCCAW), which advises the Federal Government on the national implications of welfare issues affecting animals, prepared a position statement on the use of pound-sourced animals for scientific purposes in 1993. This position statement summarised the opinion of NCCAW as to the issues. The statement was retained un-amended in 2008 (see <http://www.daff.gov.au/animal-plant-health/welfare/nccaw/guidelines/research/pound>). Extracts from it are reproduced in Box 1. They illustrate the range of perceived community concerns and attitudes about pound-sourced animals that are real feature of the social climate in which research and teaching occurs.

Box 1 National Consultative Committee on Animal Welfare (NCCAW) Position Statement – pound-sourced animals

The use of dogs and cats from pounds for scientific research is one of the most controversial issues in the debate over animal experimentation. The views for and against their use are both set out below.

Animal welfare groups

Animal welfare groups oppose the use of pound-sourced domestic animals in research. Their opposition is based on a number of grounds including:

- The use of animals from pounds or shelter for research further obscures the huge community problem of overbreeding and irresponsible treatment of companion animals.
- Pounds and shelters should operate for the benefit of discarded or lost pets. If the use of pound animals for research continues the community may be discouraged from bringing animals to the pounds or shelters where it is perceived that they may suffer further if transferred for research.
- Animals which are accustomed to a domestic family situation may suffer simply through the confinement and possible social isolation of a laboratory environment.
- The continued use of 'cheap' pound-sourced animals contradicts the expressed purpose of government to reduce the number of animals used in research.

Scientific view

The scientific community supports the use of pound-sourced animals on the following grounds:

- Research using pound-sourced animals have lead to many advances in medicine and surgery.
- It is wasteful to destroy tens of thousands of dogs and cats in pounds each year, and then breed additional animals for research. It is better to use pound animals for the benefit of society in medical research than simply to destroy them.

Each AEC should be able to consider competing ethical stances and social and contextual issues in reaching their decision.

Legal issues relating to pound-sourced cats

Legislation relating to the ownership and statutory holding periods for pound cats varies considerably among Australia's States and Territories. It is essential that institutions know and observe local government and State laws relating to the holding and use of pound cats in biomedical research.

Legislation covers the following areas:

1. The capacity of pounds/shelters to supply cats for research. Legislation in some States bans this supply.
2. Codes of Practice/Guidelines covering requirements for supply if this is allowed. Such codes may also include:
 - (a) A requirement for pound animals used in research to be held for a further seven days, over and above the period required in the pound itself, before the animals can be used for research. This provides greater opportunity for retrieval than for normal pound animals which are destroyed after the statutory holding period if unclaimed.
 - (b) Institutional maintenance of full records of every cat obtained from a pound and these records must indicate the identification number given to the animal by the pound.
 - (c) There are also Codes of Practice for transportation of animals from the pound to the institution.
3. Ownership status i.e. the transference of ownership of the animal to the pound if the cat is unclaimed after the statutory holding period. It should be noted that in most States and Territories, cats must be held for a statutory period and if unclaimed at the end of this time, ownership of the cat transfers to the pound. The pound then determines the fate of the cat as the owner. However, the situation for cats is not as uniform as for dogs and varies from a requirement to hold for a statutory period as with dogs, to no legislation at all. The latter situation leaves ownership issues unclear and the potential for legal action to arise should the owner appear.

NHMRC recommendations regarding pound-sourced cats

In view of these legal and ethical considerations, the NHMRC recommends, for scientific purposes (both research and teaching) where there is no suitable alternative on scientific grounds to the use of the cat that:

1. Where legislation permits, pound-sourced cats with evidence of ownership may only be used in biomedical research and teaching where written permission is obtained from the owner.
2. Where legislation permits, pound-sourced cats that are stray or otherwise without evidence of ownership, and which have fulfilled the legislative holding requirements, may be made available for non-recovery experiments conducted under full surgical anaesthesia. It is recommended that pound-sourced cats only be used if ownership transfers to the pound after the statutory holding period.
3. Cadavers of cats euthanased at pounds can be made available for research and teaching. In this instance, the pounds have become the owners of the cats and the extra statutory holding period that operates in some cases does not apply.

Guidelines for acquisition of pound-sourced cats

1. Be aware of the legislative requirements that apply to pound-sourced cats within the jurisdiction that applies.
2. On entry to the pound, cats should be thoroughly checked for identification, including scanning for microchip. If identification is found, owners must be immediately notified.
3. Cats must have completed their statutory holding time, have been thoroughly checked for identification and be clearly owned by the pound.

4. At the end of the statutory holding time, if unclaimed and unsuitable for rehousing, cats should be assessed by a veterinarian or person experienced in the selection of cats for experimental purposes for:
 - (a) health, general condition, disease status
 - (b) behaviour – captivity can impose significant stress and to extend time held in captivity can result in distress
 - (c) suitability for research purpose.
5. There is no point in transferring unsuitable animals to the institution and exposing them to the stress of transportation.
6. Cats are to be transported according to accepted standards/codes of practice for the humane transportation of research animals.
7. Unless conducted beforehand, each cat should receive a comprehensive clinical examination by a veterinarian experienced in small animal medicine on entry to the institution and receive any appropriate treatment.
8. Cats must be held within an institution for a further seven days before use and in an area where they can be returned to the owner if reclaimed. The total time of holding should be as short as possible as extended periods of holding can cause significant behavioural problems in cats unused to confinement. Isolation should be avoided if possible and conditions which apply in other areas should be duplicated in quarantine.
9. Comprehensive records of every cat obtained from the pound, including full description and the results of clinical examination and subsequent history must be maintained by the institution. Records must contain the identification number given to the cat by the pound. After issue by the institution, the continuing maintenance of adequate records becomes the responsibility of the investigator or teacher after they receive the cat into their care.
10. Cats used in non-recovery experiments must be under full surgical anaesthesia.
11. Appropriate AEC approval for all research must be obtained.

Use of feral cats for scientific purposes

A feral cat is defined as:

- feral cats are those that live and reproduce in the wild (eg. forests, woodlands, grasslands, wetlands) and survive by hunting or scavenging; none of their needs are satisfied intentionally by humans. Further information can be found at: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/cats08.html>).

In the study of the impacts of feral cats on the Australian environment and to develop humane methods to manage these populations, it may be necessary to capture and confine feral cats. Special considerations include:

1. AEC approval must be obtained with particular attention paid to the availability of alternatives, the resources available for handling and managing these cats and the OHS hazards posed for staff.
2. The investigator must be aware and comply with legislative requirements or codes of practice for the capture and transportation of feral cats – in particular:
 - (a) Only capture/trapping cages may be used and may require permits in some jurisdictions. Cages that are operated by a bait on a hook are not recommended as they may cause injury to the cat once caught – the pressure plate activation is recommended.

- (b) Trapping must not occur in breeding season to avoid capturing queens and leaving orphaned kittens. If a lactating female is captured, every attempt must be made to locate her kittens.
- (c) Traps should be set in sheltered areas to avoid exposure to extreme weather. In hot weather, water must be provided in the cage; in cold weather bedding must be provided in the cage. Trapping is generally most successful at dusk and dawn as cats are crepuscular.
- (d) Traps must be inspected twice daily to prevent suffering and minimize stress and once caught transported immediately to their destination.
- (e) The location of traps must be recorded and the information available to others in case the trapper is unable to return.
- (f) When approaching a trapped cat, this must be done quietly to avoid further stress, panic and possible injury. Covering the trap with a blanket, sheet etc will help reduce stress and also provide protection from sun, rain etc.
- (g) Cats must not be transported in car boots. Transportation should be according to the Code of Practice for the jurisdiction with particular care to keep the environment quiet and should occur via the most direct route.
- (h) Cats should not be handled unless absolutely necessary – they may be run between cages via the back-plate of the cage.
- (i) Non-target species must be considered in the trapping program and every attempt made to avoid their capture. If caught accidentally, they may be released if uninjured; if injured they must be assessed for treatment or euthanasia as required by the jurisdiction.
- (j) Staff must be appropriately skilled in the handling of these cats and have the appropriate immunizations and equipment for handling.
- (k) All cats caught must be scanned for a microchip and the Regain requirements of the jurisdiction followed as per pound-sourced cats.
- (l) On arrival at the institution, facilities available to cater for these cats must be available, in particular the ability to clean, feed and transfer if necessary the cat with minimal handling.
- (m) Cats must be kept for the minimum length of time possible.
- (n) At the end of the project, most jurisdictions require feral cats to be humanely euthanased – release back to the wild and rehousing is not recommended.

Use of owned cats in scientific procedures

There is increasing use of owned cats for observational and non-invasive behavioural studies, particularly in investigating the human-animal bond. These projects must have the appropriate AEC approval and owner consent.

Care of cats used for scientific purposes

(Refer to 2004 Code sections 4.4.14, 4.4.15, 4.4.16, 4.4.17 and 4.4.18)

Breeding

Genetic disease and inbreeding depression are hazards for the breeding of all animals and require monitoring in cat breeding colonies.

Feeding

(Refer to 2004 Code sections 4.4.24, 4.4.25, 4.4.26 and 4.4.27)

Cats should be given a palatable diet adequate in amount and composition for a given life stage (pregnancy, lactation, growth etc) and in line with accepted nutritional standards. If the standard diet is not suitable for the research program, special dietary arrangements should be made, and approved by the institutional AEC.

Importantly, cats are obligate carnivores and require animal protein to remain healthy – vegetables do not contain all of their dietary requirements. Equally they should not be fed a fresh meat only diet as this does not contain their entire nutritional requirement. Two feeds a day are preferable.

Cats should be weighed on admission to the institution and thereafter they should be weighed weekly. Increases and decrease in weight are important indicators of a cat's response to a new environment or research protocol. Weight records are an informative component of the health records of cats required by AECs and can be a convenient starting point for these records. The weighing of cats provides an additional opportunity for social contact with people and other cats and the maintenance of their mental wellbeing.

Cool potable water must always be available.

Greater detail on the feeding of cats is found in the first instance in references listed under Further Reading.

Housing

(Refer to 2004 Code section 4.4)

Housing should provide cats with a clean, dry environment, within contact or sight of other cats. Attention must be given to reducing disturbing noise that may be within a cat's auditory range, such as vibrations. Lighting levels, temperature and humidity levels should all be appropriate for the comfort of cats. If water is used to hose down enclosed areas, humidity management becomes important and residual water should be removed.

Areas holding cats should not be adjacent to areas holding other species which might cause stress to cats by sight or sound. All housing should meet and preferably exceed State or local government requirements for housing cats in pounds and shelters. Cats may be group-housed if desexed – groups of 6-8 are ideal though they should be observed closely initially to ensure they are compatible.

Indoor housing should provide:

- clean water in an unspillable container
- separate eating area with several feeding stations
- enclosed, dry and warm sleeping area e.g. igloo – needs to be cleanable and disinfectable between occupants and not contain any protrusions that may injure the cat
- soft bedding within the sleeping area that is disposable or washable
- at least one litter tray away from the sleeping and eating area – there are enclosed trays available which give privacy, decrease smell and mess (these must be cleaned at least daily)
- opportunity to see, hear and smell other cats, except that females in oestrus should be housed separately to males, entire males should not be housed together
- an appropriate environment which protects the animal from excessive and unpleasant noise that may be outside the human audible range

- good ventilation to prevent build up of diseases such as respiratory viruses
- several floor levels – cats like vertical as well as horizontal space – these should be connected by ramps
- toys which can be safely played with – these should not include ingestible parts that may cause bowel obstructions
- scratching pole
- area for sunbaking – cage should be light and airy.

Cages should be cleaned at least once a day and this should include the litter tray, feeding utensils etc. Care must be taken in selection of disinfectants as cats are particularly sensitive to some (e.g. phenols should never be used). Special attention should be paid to, and special facilities provided for, sick cats, breeding animals and kittens less than 16 weeks of age. For instance, queening boxes lined with nesting material should be made available for these animals.

Outside housing should:

- meet local government or state regulations for cat pounds and shelters
- have clean water in an unspillable container
- be fully enclosed i.e. walls and a roof to prevent escape
- provide a dry raised enclosed sleeping area with soft bedding that is disposable or washable
- provide shade and shelter from wind and rain, taking into account prevailing weather conditions
- be well drained and ventilated and able to be easily cleaned and disinfected
- have at least one litter tray provided
- provide several levels connected by suitable ramps
- provide an eating area with several feeding stations away from the litter tray and under shelter
- allow for group housing of cats where possible – 6-8 cats per group is ideal as long as they are desexed and compatible
- contain toys which can be safely played with – these should not include ingestible parts that may cause bowel obstructions
- contain a scratching pole
- provide an area for sunbaking – cage should be light and airy
- provide a sheltered eating area away from litter tray.

As for indoor housing, outside pens should be cleaned daily and provide special facilities for sick cats, breeding animals and kittens under 16 weeks of age.

Greater detail on housing and the ideal parameters of the physical environment for cats can be found in the first instance in references listed under Further Reading. Good housing for cats also requires design and engineering that allows for easy and efficient operation by animal care staff, efficient and hygienic workflows from ‘clean’ to ‘dirty’, and efficient use of water and energy.

Long-term planning must consider that animal facilities require regular refurbishment or replacement to take account of evolving standards as knowledge and experience accumulates. New cat facilities should be informed by the good features of the best existing facilities and should attempt to rectify the defects of the best existing facilities.

Mental wellbeing

Specific details on the maintenance of mental wellbeing in cats can be found in the first instance in references listed under Further Reading.

Social environment

Cats are now recognized to be social animals and contact with people is crucial for their general well-being. This is especially important for animals used in research. Cats used for medical research are generally better adapted to their holding conditions if they receive frequent and regular contact with people. The experience and skill of the attendants is of particular importance in reducing anxiety in new admissions.

Planning must allow for at least 20-30 minutes of daily contact between cats and at least one attendant, even when cats are group-housed. Contact as result of feeding, cleaning and routine husbandry is important but should be regarded additional to this planned contact. Some cats will demand more attention than others and some cats may require less than 20 minutes contact. The length of time spent with each animal will depend on individual needs.

Cats held at institutions for more than seven days should also have regular contact with members of research teams to allow for habituation learning, unless such contact is contraindicated by the research protocol. If members of research teams become familiar, friendly sources of contact, cats will be less anxious in experimental situations. The need for contact is crucial for young cats where social development is incomplete and for all cats entering an institution where it will act to reduce distress arising from anxiety and fear.

Change of environment and time out of cages

Cats held in cages for long periods of time may become stressed. If held for longer than seven days within the institution, particular attention must be given to providing access to an outside enclosed run. This should contain raised areas to allow sunbaking and resting, may contain flora to climb (care with toxic plants) and areas in which to retreat. Several levels of platforms increase the floor space available and encourage jumping and exercise – cats like vertical as well as horizontal space. It may be connected to the indoor cage via wire tunnels. The outside run should be secure to prevent escape, risk of disease or entry by predators and be able to be cleaned and disinfected.

Environmental enrichment

Environmental enrichment refers to factors in an animal's environment that are mentally stimulating and enhance an animal's quality of life. Forms of environmental enrichment include novel objects ('toys') that may elicit activity to manipulate them and the hiding of food to encourage foraging behaviour. There is evidence to support the benefit of these forms of environmental enrichment. Any form of enrichment, however, has to be applied critically and monitored to ensure that it actually operates in the circumstances in which it is used.

Transportation

The transportation of cats must meet or exceed standards set out in references listed under Further Reading. Professional transporters operate according to industry codes of practice and are recommended for their practical experience.

Health care

(Refer to 2004 Code sections 4.5.8, 4.5.9, 4.5.10 and 4.6.1)

Health records are required for cats held in breeding and holding facilities. Records of weekly weighing provide a useful starting point for these records.

All cats used for scientific purposes should be clinically examined by a veterinarian at a frequency and with reporting requirements determined by the institutional AEC and according to assessed need. Reliable clinical examinations require assessment of health records. Additional health surveillance and care should be directed to those animals that require it because of exposure to hazards as part of project design.

The health program for cats not undergoing acute surgery or experimentation and kept for longer than seven to ten days should include vaccination, treatment and prophylaxis for internal and external parasites and regular grooming. It should also consider desexing as entire cats are difficult to house and may become stressed if not mated.

Anaesthesia and analgesia

The need for adequate competencies is a principle for humane animal experimentation that precedes the three Rs of replacement, reduction and refinement. For this reason, investigators and teachers involved with projects that entail surgery or other possible hazards for pain and distress are expected to have appropriate competencies. Specific details on anaesthesia and analgesia in cats can be found in the first instance in references listed under further reading, particularly the *NHMRC Guidelines to promote the wellbeing of animals used for scientific purposes*.

Mortalities

(Refer to 2004 Code section 4.5.4)

All deaths in cats other than planned euthanasia at the end of the protocol must be the subject of a competent post mortem examination to a standard acceptable for the advancement of knowledge and with support from additional laboratory tests where required. The AEC must be notified of the death and, if practicable, before the post mortem examination. Efforts should be made to benefit from the presence of investigators or teachers at post mortems.

If the death of an animal is unexpected and has resulted from experimental methods or mismanagement, the investigator or teacher and animal care staff must take immediate action to prevent further deaths from the same cause.

A report of the likely immediate and predisposing causes of death and any remedial action taken by the investigator should be forwarded to the AEC promptly.

Euthanasia and disposal

(Refer to 2004 Code sections 3.3.18-3.3.23 and 4.8.1)

When euthanasia is required it should be induced quickly and painlessly with an intravenous overdose of barbiturate. Cats' carcasses should be disposed on-site in a sanitary and environmentally acceptable manner (for example, by incineration). Where this is not possible,

carcasses should be disposed of in a similarly appropriate manner by a competent waste management operator.

Inappropriate respect for the cats, management of their death and manner of disposal can lead to considerable distress in those involved in an institution and should be avoided strenuously. Cat handlers, veterinary students and researchers should be prepared for the emotional difficulties that may result from their use of the cats. Access to trained counsellors or mentors should be available (but optional) before, during and after the euthanasia event.

The adoption and rehoming of cats used for scientific purposes is not endorsed as general good practice because the risk of irresponsible animal ownership may create new animal welfare problems. Accordingly, appropriate policies and protocols must be developed for the adoption of cats where this is regarded as a disposal option by institutions using cats for research. Key issues for the adoption of cats are the nature and temperament of cats and the circumstances, competency and motivation of those seeking adoption. All cats adopted should be microchipped, desexed, registered with the local municipality if required and vaccinated, dewormed etc. before leaving the institution – this ensures that ownership has transferred to the new owner.

Further reading

Codes and guidelines

Bureau of Animal Welfare, Victorian Government Department of Primary Industries (2007) *Code of Practice for the Private Keeping of Cats* (accessed at <http://www.dpi.vic.gov.au/animalwelfare> on 27 June 2008).

Bureau of Animal Welfare, Victoria Department of Primary Industries (2002) *Code of practice for the management of dogs and cats in shelters and pounds AG1009* (accessed at <http://www.dpi.vic.gov.au/>).

Canadian Council on Animal Care (1984) *Guide to the Care and Use of Experimental Animals*. Vol 2 Chapter IX. Canadian Council on Animal Care, Ottawa Canada.

National Health and Medical Research Council (2004) *The Australian Code of Practice for the Care and Use of Animals for Scientific Purposes*. 7th edition. Published by the National Health and Medical Research Council in conjunction with CSIRO, the Australian Research Council and the Australian Vice-Chancellors' Committee.

General information

Case L.P., Helms K. and MacAllister B. (2003) *The cat: its behavior, nutrition and health*. Wiley-Blackwell, Oxford.

James A.E. (1995) *The laboratory cat*. ANZCCART Facts Sheet. Australia and New Zealand Council for Care of Animals in Research and Training (accessed at http://www.adelaide.edu.au/ANZCCART/publications/fs13_Cat.pdf).

Leyhausen P. (1979) *Cat Behavior: The Predatory and Social Behavior of Domestic and Wild Cats*. Garland STPM Press, New York.

Pedersen Niels C [1991] *Feline Husbandry: Diseases and Management in the Multiple Cat Environment* American Veterinary Publications

Rochlitz I. (Editor) (2005) *The Welfare Of Cats*. Springer, Berlin.

Scholfield D. and Adams K.M. (2007) AWIC Resource Series No. 39 April 2007 Updates *The Cat*. Animal Welfare Information Center, U. S. Department of Agriculture, Agricultural Research Service, National Agricultural Library (accessed at <http://www.nal.usda.gov/awic/pubs/Cats/cat.shtml>).

Turner D.C. and Bateson P.P.G. (Editors) (2000) *The Domestic Cat: The Biology of Its Behaviour*. Cambridge University Press, Cambridge, UK.

Breeding

Vella C.M., Roy Robinson R., Shelton L. and McGonagle J. (1999) *Robinson's genetics for cat breeders and veterinarians*. Butterworth-Heinemann, Oxford 1999.

Feeding

National Research Council (2006) *Nutrient Requirements of Cats and Cats*. National Academy Press, Washington DC.

Zoran D.L. (2002) The carnivore connection to nutrition in cats. *Journal of the American Veterinary Medical Association* 221: 1559-1567.

Housing

Rochlitz I. (2002). *Comfortable Quarters for Cats in Research Institutions*. In *Comfortable Quarters for Laboratory Animals, 9th Edition* (V. Reinhardt and A. Reinhardt, eds). Animal Welfare Institute, Washington. (accessed at <http://www.awionline.org/pubs/cq02/Cq-cats.html>).

Mental wellbeing, behaviour and handling

Crowell-Davis S.L., Curtis T.M. and Knowles R.J. (2004) *Social organization in the cat: a modern understanding*. *Journal of Feline Medicine and Surgery* 6: 19-28.

Curtis T.M. (2008) Human-directed aggression in the cat. *Veterinary Clinics of North America Small Animal Practice* 38: 1131-1143.

Beaver B.V. (2004) Fractious cats and feline aggression. *Journal of Feline Medicine and Surgery* 6: 13-18.

Houpt K.A. (2004) *Domestic animal behavior for veterinarians and animal scientists*. Wiley-Blackwell, Ames Iowa.

Kulpa-Eddy J.A., Taylor S. and Adams K.M. (2005) *USDA perspective on environmental enrichment for animals*. *ILAR Journal* 46: 83-94.

McCune S. (1995) Enriching the Environment of the Laboratory Cat. In *Environmental Enrichment Information Resources for Laboratory Animals: 1965 - 1995: Birds, Cats, Dogs, Farm Animals, Ferrets, Rabbits, and Rodents*. (Eds: Smith C.P. and V. Taylor). AWIC Resource Series No. 2. U.S. Department of Agriculture, Beltsville, MD and Universities Federation for Animal Welfare (UFAW), Potters Bar, Herts, UK (accessed at <http://www.nal.usda.gov/awic/pubs/enrich/labcat.htm>).

Overall K.L. and Dyer D. (2005) *Enrichment strategies for laboratory animals from the viewpoint of veterinary behavioral medicine: emphasis on cats on dogs*. *ILAR Journal* 46: 202-215.

Transportation

National Research Council (2006) *Guidelines for the Humane Transportation of Research Animals*. National Academy Press, Washington, D.C. USA.

Alleviation of pain and distress

National Health and Medical Research Council (2008) *Guidelines to promote the wellbeing of animals used for scientific purposes: The assessment and alleviation of pain and distress in research animals*. (accessed at <http://www.nhmrc.gov.au>).

National Research Council (2009) *Recognition and Alleviation of Pain in Laboratory Animals*. National Academy Press, Washington DC.