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TOP TIPS FOR SUCCESS IN
ANIMAL ETHICS APPLICATIONS

UQ RESEARCH ETHICS AND INTEGRITY





UQ’s innovations have made, and continue to make, life-changing advances. The University is committed to maintaining the highest standards of ethical decision-making for animal husbandry and care as a contribution to achieving quality research and teaching outcomes.

For research that involves the study of animals in the wild or in agriculture, or the use of animal models of human disease, the University’s Animal Ethics Committees review proposals to ensure that animal welfare is fully considered before the commencement of any project activities.

Similarly, the Committees must consider teaching activities that directly involve animals, such as veterinary science or marine biology.

As part of Top Tips Series produced by UQ Research Ethics and Integrity (UQ REI), this document provides applicants with helpful advice for ensuring high-quality applications to maximise success in the Animal Ethics Committee review process.

Contents

BEFORE YOU COMMENCE 4
KNOW YOUR RESPONSIBILITIES 4
PROVIDE THE RIGHT INFORMATION 5
WRITE PLAINLY AND ACCESSIBLY 6
INCLUDE TIMELINES AND FLOW CHARTS 7
JUSTIFY AND MINIMISE ANIMAL NUMBERS 8
PROVIDE ALL DETAILS OF PROCEDURES 9
USE PRE-APPROVED UQ STANDARD OPERATING PROCEDURES 10
INCLUDE APPROPRIATE SCORE SHEETS 11
REPLICATES AND REPEATS 12
BE CONSISTENT 13
USE THE HINTS PROVIDED WHEN FILLING OUT APPLICATIONS 14
COMMON PROBLEMS WITH APPLICATIONS 15
REFERENCES & CONTACTS 16



INTRODUCTION

The University of Queensland (UQ) has six Animal Ethics Committees (AECs) that review ethics submissions from UQ staff and students, as well as some external organisations. Timely approval of applications depends on providing the information needed by the AEC to reach a consensus decision. If an AEC requires more information, that additional detail is often reviewed at their next meeting - one month later.

Delays in AEC approval are not usually related to poor experimental design or concerns that animal welfare is not being considered, but because the information required by the Committee to evaluate and approve an application is either not provided or not clearly presented. AEC meetings often last many hours; therefore, increasing the number of approved applications at first review by the Committee benefits both researchers and the AECs, whilst simultaneously maintaining the highest commitment to the humane care and use of animals at the University.

This Top Tips document provides advice to researchers preparing ethics applications and is based on common application errors and/or omissions UQ AECs have encountered.

BEFORE YOU COMMENCE

It is highly recommended that prior to submission you discuss your application with your Faculty/Institutional or Centre Research Ethics Advisor and/or with the REI Veterinary Officer or your UQ AEC Secretary.

All researchers should inform themselves of the requirements in The Australian Code for the Care and use of animals for scientific purposes (current edition) [the Code] as well as UQ policy and guidelines.

Wildlife researchers should read, Section 3 (Wildlife and Field Techniques) of the Code which refers to free-living vertebrates and those captured from free-living populations, including native, non-indigenous and vertebrate pest species. It should be read in conjunction with the rest of the Code, and in conjunction with any other relevant legislation, especially the Nature Conservation Act (1992). if work is being conducted in Queensland.

KNOW YOUR RESPONSIBILITIES

To work with animals, in addition to obtaining approval from an Animal Ethics Committee, you must be registered/licensed in the State/Territory of Australia where animal work will be conducted. All UQ staff and students are automatically covered to work with animals in all States and Territories of Australia, excluding NSW.

When collaborating with external entities, you have an obligation to ensure they are also independently or via their employer, registered to work with animals. This information must be included in your application to the AEC.

PROVIDE THE RIGHT INFORMATION

The animal ethics applications are designed to inform the AEC of the reasons for animal use and for consideration of the wellbeing of animals during a project. It is important that questions and all help text in the application is read and considered before you answer the question. Its core function is to enable the AEC to determine if the use of animals is justified and outcomes of the project outweigh the potential impact on animals. This is called the 'cost versus benefit' consideration, that is, the cost to the animal versus the benefit to other animals or to humans.

Providing the right information in the right format to enable decision making, is vital. For example, cutting and pasting text verbatim from other documents, such as grant proposals can introduce unnecessary information that detracts from what the AEC needs to consider. Documents such as grant proposals also have a very different purpose to an animal ethics application.

Ensure your application clearly and concisely informs the AEC:

- Why the work is necessary
- Why the use of animals for the work is necessary (addresses the 3Rs - Replacement, Reduction, Refinement)
- What will happen to the individual or groups of animals over the course of the project
- What impact will the project have on the wellbeing of animals
- How animals will be monitored for pain and distress
- How will pain and distress be avoided or minimised
- Why your assembled team is the right one, with the right experience, for the project

If you are working within a UQ facility, the appropriate Facility Manager should be part of your team, named on your application and be consulted before submission of any application

Generative Artificial Intelligence (Gen AI) can play a role in improving the quality, clarity, and completeness of animal ethics applications. However, AI should assist, not replace, human judgement.

Animal ethics applications require a nuanced understanding of animal welfare, scientific justification, husbandry, regulatory requirements, and the principles of Replacement, Reduction and Refinement (the 3Rs).

When GenAI is used in the development of an application, you will be required to identify this and outline how it was used.





WRITE PLAINLY AND ACCESSIBLY

The AECs are comprised of four categories of membership:

- Category A (veterinarian)
- Category B (senior scientist)
- Category C (external animal welfare advocate)
- Category D (external independent/layperson)

Note that Category D and most Category C members are not likely to have a scientific background. Each member is responsible for making their own judgement on matters that come before the Committee.

This means that when writing applications the language should be plain, avoid scientific jargon and complex descriptions, and avoid using abbreviations or acronyms. Committee members should not need an 'acronym buster' to understand your proposal.

All sections of the application form must be written using language that will be understood by lay people on the Committees to ensure they are able to make their own judgement on the application.

Using ambiguous language should be avoided. For example, terms such as 'should' and 'might' are better replaced with definitive terms such as 'will' or 'will not'. Lengths of time should be exact (e.g. blood will be collected several days later, should be written as blood will be collected three days later). Exact volume doses, sites and frequency of any substances injected should be given rather than approximate values, or ranges.

The use of approved SOPs and timelines can be very useful for the AEC when reviewing your application. Your application will not be rejected by an AEC for incorrect spelling and grammar; however, both may lead to misunderstanding and/or ambiguity, sometimes resulting in an inability for the AEC to understand and (hence) approve the application.

Ensure that you are using the correct terms; for example, an error commonly found in applications is use of 'anaesthesia' when the researcher really means 'analgesia'.

Always read through your applications, use spelling and grammar checkers where possible, and get others (particularly those named on the application) to read through and make corrections before submission.



INCLUDE TIMELINES AND FLOW CHARTS

To determine the effect of the proposed project on animal wellbeing all information about the use and care of animals from the beginning of the experiment until the end must be clear to the Committee. This includes

- Where the animals will come from (their source)
- Transport
- Acclimatisation procedures
- Details of experimental procedures
- The number of procedures conducted on any animal
- The time between any procedures
- The potential effect on the animal after each procedure
- How pain will be monitored and, where necessary, relieved over the course of the project
- What will happen to the animal at the conclusion of the project (their fate)

The AECs find the use of timelines and/or flow charts exceptionally helpful in understanding the impacts on animals, especially for projects where animals undergo several procedures and/or may be used for more extended periods.

Timelines and flow charts are also useful when submitting amendments to projects, so that the Committee can clearly see how the amendment relates to the original, approved application as well as to any other amendment that has been made (ensuring the primary aims of the application remain clear to the AEC).

The use of timelines and flow charts will enhance your applications: they are a highly effective tool to provide an overarching structure, to avoid inadvertent omissions in the detailed description of project activities, and to ensure consistency across the various sections of the application.



JUSTIFY AND MINIMISE ANIMAL NUMBERS

This aspect of the application is vital to get right but often may be unclear to Committee members in reading your proposal. If you have fully justified the need for using the animals and have justified the number of animals you need for the project, the Committee will not ask you to use less animals than you request. However, the strength of your defence and reasoning is important.

Where possible, use appropriate statistical power analysis; consult a statistician if possible. Justify the number of animals required in terms of the experiment, not in terms of how many people are available to work on the project or its economics. For example, when killing animals to collect tissue for culture, the number of animals requested should be based on the number of cells obtained from each animal, and how many cells are required for each assay. Requesting a certain number of animals to produce enough cells for 5 students to use each week, is not justifying the number of animals in the terms required by the Committee and does not consider animal welfare impacts.

Also consider a pilot study. In some cases, it is not possible to determine how many animals should be in an experimental group because it is not yet known. Instead of submitting a full application, in the first instance you could Request a pilot study using a smaller number of animals. A pilot study can be used to determine the effects of the research on animal wellbeing when it may otherwise be unknown. Use of pilot studies is a valuable approach when planning projects, by helping to refine the protocol, and to reduce potential impact on animals before a larger study is performed.

Pilot studies may be used to determine the variation in results from animals after a particular procedure or in a test. This can then be deployed in statistical justifications making it easier to justify the number requested per experimental group for the full study, once the pilot study is complete. Pilot studies can be one experiment that is part of a larger application, or the pilot study can be a stand-alone ethics application.

The ‘3Rs’ (Refinement, Replacement and Reduction) are at the heart of the animal ethics processes. It is important to let the Committee know that you have considered the 3Rs. Progress in areas of work that do not use animals is of interest to the Committee, as well as the reasons why those methods will not address the research question at hand. Discuss ways in which you have modified procedures to either replace animal use, or improve outcomes for animals, or have refined procedures to reduce the number of animals required.

PROVIDE ALL DETAILS OF PROCEDURES

All AECs encounter applications where a lack of detail in methods or inconsistencies in methods across the application makes it impossible for the Committee to approve a project. This is often the case for administration of drugs and for blood sampling. The following information must be provided to the AEC for each drug used unless an approved standard operating procedure (SOP) is being utilised.

- Route of administration
- Site of administration
- Dose rate
- Infusion rate where appropriate
- Frequency of administration
- Volume
- Needle gauge
- A brief, lay description of the mechanism of action
- A brief description of the anticipated effect on the animal
- For new compounds, the class of the compound type and a description of quality control in their production that will avoid adverse side effects.

These details also need to be justified in terms of best practice. For example, volumes injected intraperitoneally may be too large for the animal and could be reduced. Needle gauges should be the most appropriate for use with the species of animals or in specific circumstances (such as injection of cells where a larger needle gauge may be required to limit cell damage).

Similarly, information related to drawing blood samples is often incomplete. The AEC requires the following information:

- The site from which blood is taken/the method used
- The volume of blood sampled. Volumes must not exceed the recommended amount that considers the species from which blood is taken
- The time between sampling, if multiple samples are taken
- If animals have already undergone other experimental procedures, how long after these procedures is blood sampled?
- Who is taking the blood samples and are they appropriately trained for generic or highly specialised techniques?
- Is fluid replacement required and how will it be provided?
- Is anaesthesia required? If so, provide the details.

Also explain why the volumes and number of samples requested are appropriate for the project and necessary for downstream analysis and interpretation.

Where there is doubt about current best practice, seek advice from the UQ REI Veterinary Officer and/or the Welfare Advisor, who are there to help you.





USE PRE-APPROVED UQ STANDARD OPERATING PROCEDURES

The Animal Ethics website has several preapproved UQ standard operating procedures (SOPs) for commonly used protocols/procedures. Before being made available as a resource, the relevant AEC/s consider and approve the SOPs, which are then reviewed every three years. Use of SOPs can streamline your application by reducing the amount of information to enter, and by using procedures that the AECs are familiar with and which are already endorsed in a standard format.

When using SOPs:

Provide both the number and full name of the SOP (e.g. LAB_026 Intranasal Delivery in Mice and Rats (Expiry: May 2028). The full title includes the SOP expiry date.

- Read the SOP and make sure that no other information is required. For example, if the SOP uses an 'anaesthetic of choice' provide details of the anaesthetic including dose, route, volume, gauge needle and frequency of administration.
- If your requirements are very similar to the SOP but you need to make minor modifications, provide the SOP number and title, but also
- If the SOP states 'operator must be experienced', outline the person/people performing the procedures and their experience. If further training is required, then state who will provide the training.

Please note that the use of SOPs in this manner only refers to those approved by UQ AECs and published on the UQ REI website. SOPs from your own laboratory do not fall into this category. Each application is stand alone, and even if you use the same protocol on more than one application, unless they are University SOPs, the full procedural details will need to be provided on each application you make. You are encouraged to contribute to UQ SOPs if you use generic protocols and procedures and would like for these to be added to the University's approved SOP website.

Please contact the REI Veterinary Officer for help in preparing SOPs for submission to the AEC for approval.

UQ's standard operating procedures can be found on the UQ REI website.

INCLUDE APPROPRIATE SCORE SHEETS

Monitoring score sheets are an important element for the ethical treatment of animals during their use for scientific and teaching purposes. Appropriate monitoring provides a means to recognise signs of pain and distress and to apply criteria for deciding when intervention or euthanasia is applicable.

Template monitoring score sheets are available from the UQ REI website.

It is recommended that you seek assistance from the REI Welfare Team prior to submission, to ensure these are adapted to the specifics of each individual project. Score sheets should also include the frequency of monitoring. AECs frequently receive non-customised scoresheets that are not fit for the specific purpose, or applications without any score sheets or appropriate information about the intended monitoring procedures. All information regarding monitoring of animals should be described within the experimental methodology component of the application, so that it is clear when and how often the animals are monitored, and by whom. For experiments, where pain relief in controls is not possible ensure the minimisation of their pain and suffering is also addressed.

Monitoring should also be identified as an experimental procedure within each application, with appropriate details provided. The animal ethics application requires the score sheets used for monitoring be attached to the application for approval by the AEC.

For those using genetically modified organisms (GMOs) consider how the genetic modification affects the wellbeing of the animal. Many animal models of human diseases produce that disease in the model organism. These animals should not be left to suffer unnecessarily and score sheets should be tailored to monitor for the specific symptoms. For new GMOs monitoring should include screening newborns for neonatal lethality. A scoresheet for a genetically modified organism should include the age at which monitoring for symptoms of the disease occur, the types of symptoms likely to occur, and clear points at which intervention or euthanasia will occur. When GMOs undergo experimental procedures, the effect of the genetic modification should also be considered and be reflected in the score sheet by appropriate monitoring.

For newly created GMOs appropriate monitoring is essential for identifying expected as well as unexpected phenotypes. It is a requirement of the Code that records of monitoring are maintained, and both regular reports on the monitoring of a new line and a final report be submitted to the AEC.

The UQ REI Animal Welfare Team are available to give advice on all issues relating to monitoring arrangements and documentation.





REPLICATES AND REPEATS

A common challenge with animal ethics applications is in using the terms ‘replicates’ and ‘repeats’. Using these terms interchangeably and ambiguously makes it impossible for the AEC to follow the application. The Code, states:

1.23 Activities involving the use of animals must not be repeated within a project or between projects unless such repetition is essential for the purpose or design of the project (e.g. sound experimental design, statistical analysis, corroboration by the same or another investigator).

‘Replicates’ should be used to describe multiple animals within an experiment for the purpose of sound experimental design. The number of replicates should be expressed as n=3, n=10 etc.

For some non-quantitative experiments, a minimum of duplicate observations (e.g. n=2) or triplicate (n=3) is required. The number of animals used should, of course, be justified as described above.

‘Repeats’ on the other hand are a second, third or subsequent conduct of an entire experiment, or part of an experiment. According to the Code repeats are permitted when:

it is necessary that the same investigator confirm a result (e.g. where biological variability imposes a requirement to ensure a result is not a ‘one-off’); or

it is necessary to confirm a result by another investigator (e.g. where it is important to ensure that a result is genuine or does not rely on a specific researcher or participant).

If repeats are requested in your application, the request should be accompanied by a suitable justification mindful of the requirements of the Code. In cases where a third repeat is requested, the investigator will be asked to provide strong justification for the need.

BE CONSISTENT

Consistency across all key elements of your application is a key factor in facilitating the work of an AEC.

Ensure that when you enter the total numbers of animals you are requesting that the number is the same as you have justified. Where there are inconsistencies, the AEC will need to clarify if your justification needs reworking, or if you just made a typo. The AEC cannot make interpretations of inconsistencies on your behalf.

Inconsistencies in applications have been observed by AECs where incorrect numbers, strain names or even species are 'copied and pasted' that do not make sense with the rest of the application. If copying and pasting from other applications, it is recommended that you exercise caution and make sure all the details are relevant to the current application.

If you use animals with strain names, keep the naming consistent throughout your application, with the naming terminology sourced from Mosaic. All mouse strain names must be added to Mosaic before theyt can be selected in your application to an AEC. This ensures nomenclature requirements are maintained by subject matter experts.

The application form has a drop-down list. Select the correct strains from this list, and check-in with UQ Biological Resources before you request a new strain name.

If you are consistent

- The chance the Committee will get confused is reduced
- Your approval certificate will make more sense
- You will reduce confusion when preparing your annual reports

Furthermore, if you are working with laboratory animals it is encouraged that you utilise Mosaic to keep track of your animals.

The strain names selected in your application form are derived from the strain names approved in Mosaic. By keeping this strain information consistent, then when it comes to generating annual reports, the information exported will be clear and writing your annual report will be a breeze!

Of course this doesn't only apply to laboratory animals; naming fish, production animals or other species can have similar problems. If you ensure you are keeping consistent nomenclature and consistency across all applications and records. you will have greater clarity for yourself, project participants, the Animal Facility Staff, The AEC and UQ REI Animal Ethics staff.





USE THE HINTS PROVIDED WHEN FILLING OUT APPLICATIONS

The University's online Animal Ethics Application form, available within UQ Research Data Manager (UQRDM), contains many functions aimed at helping you complete your application successfully.

Based upon the responses you provide to questions, the form will pre-fill required categories and reportable classifications, to ensure compliance obligations are upheld.

There are also tips, examples and help text embedded within the online form, at most of the key questions, along with links to references and guides.

Utilising these functions will assist you in ensuring all elements of your application are correct from a compliance perspective and could speed up the approval process



COMMON PROBLEMS WITH APPLICATIONS

Following is a list of common issues identified in applications to an AEC:

- Required participants are missing – All projects must have a Chief Investigator, Alternative Investigator, Facility Manager (if animal work is being undertaken in a facility) and Emergency Contact.
- If the project is a collaboration and involves participants from several institutes, or overseas participants, then the type of collaboration must be outlined, and registration of any other institutes or AECs identified in the application.
- It is a requirement that the application be written in plain English. If this is not done, then clarification may be required. Ensure all specialist language is replaced or explained.
- The use of unexplained acronyms. Where an acronym is to be used, ensure it is explained at its first use.
- The use of animals is not adequately justified, or the statistical justification is poorly addressed. You may require a biometrician to provide justifications for the numbers proposed, if a statistical justification is provided.
- It is also important to ensure that the correct type of justification is provided. Ensure you read the information available at this question in the application.
- Ensure you appropriately address each of the 3Rs. It is also imperative that the 3Rs are addressed at all stages of your application.
- The severity of the procedures is not adequately justified.
- The use of non-animal alternatives is not adequately addressed.
- Answers are not provided to ALL required questions.
- There is inadequate or insufficient information, especially with respect to procedures, dose rates and monitoring - provide full details of procedures.
- When referring to SOPs, indicate the SOP number and title. Ensure the SOP information you are providing is the most up to date available from the Animal Ethics website. When varying an existing SOP, ensure you outline the whole variation.
- There is a discrepancy between the numbers of animals requested and the description of the experiment(s) in the text of the application.



REFERENCES

The Research Ethics and Integrity website includes many resources to support and guide you in writing your application: https://www.uq.edu.au/research/research-support/ethics-integrity-and-compliance/animal-ethics

Animal Ethics Procedure: Animal Ethics in Teaching and Research Procedure

UQBR website: https://biological-resources.uq.edu.au/

UQ RDM: https://rdm.uq.edu.au/

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