Anaesthesia – Supplementary Training Material

Anaesthesia Training Requirements

Pre requisite training

- Introduction to mouse care and handling (ANML02)

To complete anaesthesia at the ANU you must complete the following training

- Online training modules as delivered by the ANZCCART ComPass Program, prior to attending ANML22 (with completion certificate submitted to APF training)
    - Anaesthesia for Minor Procedures
    - Anaesthesia for Major Procedures or Those of Longer Duration
- Introduction to anaesthesia (ANML22 – Introduction to Animal Anaesthesia-Mouse)
    - Face to face course delivered by the APF (or ANU veterinarians where required).
- Training in your own laboratory environment
    - To be delivered by a competent lab member who understands and can demonstrate how to use your lab's own anaesthetic equipment in the context of your approved animal ethics protocol.
- Competency assessment by the ANU veterinarians
    - To be undertaken within 6 months of your introductory training. This will be completed at your laboratory or with the equipment you will be using for your research work.

Australian Legislation and The Code

Each of the online training modules deliver important information on the theoretical knowledge that underpins good anaesthetic practices. The Australian Code for the care and use of animals for scientific purposes 8th Edition ("The Code") states;

3.3.8 The use of local and general anaesthetics, analgesics and sedatives must be considered as part of a plan to manage pain and distress, and such use should at least parallel their use in current veterinary or medical practice.

3.3.9 When anaesthetics, analgesics and sedatives are used, the choice of agent and its administration must:

i) be appropriate for the species, age, developmental stage and physiological status of the animal

ii) be compatible with the purpose and aims of the project or activity, and appropriate for the type of procedure.

3.3.10 Unless there is evidence to the contrary, it must be assumed that fetuses have comparable requirements for anaesthesia and analgesia as adult animals of the species. Approaches to avoid or minimise pain and distress in the fetus must be designed accordingly.

3.3.11 Regardless of their mechanism of action, the effectiveness of all anaesthetics must be monitored throughout anaesthesia.

3.3.12 When general anaesthesia is used, procedures must conform with current veterinary or medical practice and ensure that:

i) induction is smooth, with minimum distress to the animal

ii) the animal and the effectiveness of the anaesthetic are monitored to maintain an adequate plane of anaesthesia, minimise physiological disturbances, and monitor and manage potential complications (e.g. hypothermia, and cardiovascular and respiratory depression)

iii) when an animal is to recover from an anaesthetic, the animal is monitored and cared for to avoid and manage complications during the post-anaesthetic period (e.g. airway obstruction, hypothermia, cardiovascular and respiratory compromise, injury from uncoordinated movements or other animals)

iv) records are maintained of the use of anaesthetics and other drugs, monitoring of the animal, and the management of complications.

Australian and ANU Drug Availability

The most commonly used drug combinations for general anaesthesia at the ANU include:

- Isoflurane (there are currently no other types of vaporisers on campus at the ANU and all inhalational anaesthetics must be delivered by a controlled vaporiser).
- Ketamine/Xylazine mix (this requires a Schedule 8 drug licence to be held by the primary investigator). The xylazine component of this mix is able to be reversed to speed up recovery.

Other drug combinations may be suitable depending on whether the procedure is terminal or survival and the purpose of the procedure. For further drug options, consult with the ANU veterinarians.

The ANU does not support the use of non-pharmaceutical grade compounds (NPGCs) e.g. avertin and urethane, for survival anaesthesia. For further information on the University's position on the use of NPGCs please see the animal ethics website.

Anaesthesia Machines

Each anaesthetic set up, vaporiser and oxygen/air in flow, will likely vary in some way. It is important that you become familiar with the particular set up you will be using in the lab.

The use of dual flow anaesthetic machines can be complicated and you should not use the dual flow set up unless you are familiar with the requirements and how to manage the dose required to the face mask and induction chamber.

The APF can provide introductory training on the basic mechanisms of anaesthesia, however, you must then ensure that you have local training in your laboratory by experienced and competent members of your lab group. If you are setting up a new unit for the first time, or there is no one in the lab available to provide training, you should reach out to the ANU veterinarians who can provide further training and advice.

Competency

The ANU veterinary services team are available to provide a competency assessment of your use of anaesthesia in your laboratory setting. They must be provided a minimum of one weeks' notice - sometimes more time will be required depending on workload.

You will be assessed on the requirements as per your approved animal ethics protocol. The vets are also available at this time to provide general advice on anaesthetic set up, surgical approach and appropriate pain relief.

Any newly trained individuals from October 2020 are expected to have a competency assessment completed by the ANU vets. Those trained before this date are expected to be deemed competent by their supervisor and/or the Primary Investigator on the approved animal ethics protocol. If you would like additional assessment of competency for training completed prior to October 2020 please contact the ANU veterinarians.

Resources and References

ANZCCART ComPass website: https://anzccart.adelaide.edu.au/compass

ANU policies & guidelines governing animal research, including:

- Unexpected Adverse Event Procedure
- 034_Standards_Animal Analgesia Anaesthesia and Surgery
- 013_Animal Anaesthesia and Surgery Monitoring Template – Mammals
- Position Papers on the Use of Non-Pharmaceutical Grade Compounds

Can be found at:

https://services.anu.edu.au/research-support/ethics-integrity/animal-ethics-policies-procedures-and-guidelines