The University of Newcastle Animal Care and Ethics Committee Methodology Document

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Document Name:	Surgical implants in research animals.	
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Document Contact:	Manager, Animal Welfare and Training	

1. Context/Overview

Animals receiving surgical implants may have a higher risk of complications and these may have significant impact on their wellbeing. This document sets out the expectations of the Animal Care and Ethics Committee (ACEC) for the care and monitoring of animals undergoing recovery implant surgery. The aims are to protect animal wellbeing by:

- a) Minimising the risk of complications occurring.
- b) Where complications do occur, identifying them as early as possible and taking prompt and appropriate actions to safeguard animal wellbeing.

2. Definitions

In the context of this document:

ACEC means Animal Care and Ethics Committee;

implant means insertion of any foreign material into the body of a living animal and includes (but is not limited to) chronic cannulation of blood vessels, gall bladder, lymph ducts, brain etc, insertion of electrodes to record or stimulate specific tissues, and insertion of telemetry probes or osmotic pumps;

surgery means incision of living tissue;

3. Guidelines

3.1 During the acclimatisation period prior to surgery (usually 5-7 days), the animal's normal behaviour and condition should be assessed. This will assist in the assessment and

- monitoring of the animal during the post-operative period. The health and wellbeing of the animal should also be assessed during this period and if problems are detected the animal should be excluded from surgery.
- 3.2 All implant surgery must be carried out under appropriate anaesthesia and with appropriate analgesia unless specifically approved otherwise by the ACEC.
- 3.3 Surgical implantation increases the risk of postoperative infection as the implant may be difficult to sterilise, can become a nidus for infection, or, where the implant exits the skin, may allow microorganisms to track from the skin surface to underlying tissues. To minimise this risk:
 - a) All recover surgery must be carried out in accordance with ACEC19: Aseptic surgical techniques.
 - b) Implants must be sterilised by autoclaving, ethylene oxide gas or irradiation, or where this will damage the implant, receive the highest possible level of disinfection compatible with the device prior to implantation.
 - Aseptic techniques must be used in post-operative handling of partially exposed implants.
- 3.4 Where implants are partially exposed post surgery they may be dislodged by the animal or its cage mates resulting in major haemorrhage (in the case of vascular catheters or implants attached to blood vessels or vascular organs), tissue trauma and pain, exposure of body cavities, septicaemia and possibly shock. To minimise this risk:
 - a) Implants must be designed and inserted so as to minimise the chance of dislodgement.
 - b) Caging must be designed to minimise the risk of catching any part of the implant on the cage or the cage furniture.
 - c) Animals must be monitored closely and frequently post operatively.
 - d) Humane endpoints must be in place to ensure that prompt and appropriate action is taken if implants become dislodged.
 - e) Social isolation must only be used to minimise the risk of dislodgement when there are no other viable options and only with specific approval by the ACEC.
- 3.5 Implants may increase the risk of development of thrombi, which, if detached, may cause damage to other organs. The post-operative monitoring checklist must be sufficiently flexible to monitor for such complications and early and decisive action must be taken.

- 3.6 Implants may cause inflammation of the organ in which they are placed. The post-operative monitoring checklist must be sufficiently flexible to monitor for such complications and early and decisive action must be taken.
- 3.7 The size or weight of the implant may impact on an animal's normal activities. Implants must be designed and the site of implantation chosen to minimise such impact.
- 3.8 Some implants may affect an animal's ability to reach food and water. Provision of food and water in alternate containers, for example on the cage floor, may be necessary.
- 3.9 Emergency contact numbers for personnel involved in the project must be available to veterinary and animal services staff. The contact numbers must be updated as necessary and stored in the red monitoring folders for the affected animals.
- 3.10 If an animal dies unexpectedly or is euthanased due to complications, as post mortem must be carried out by the University veterinarian or person approved by the ACEC. An adverse event report must be submitted to the ACEC.

4. Essential Supporting Documents

- 4.1. Animal Research Policy
- 4.2. Animal Care and Ethics Committee Procedures
- 4.3. Animal Care and Ethics Committee Guidelines

5. Related Documents

- **5.1.** NHMRC Guidelines to promote the wellbeing of animals used for scientific purposes
- **5.2.** ACEC 19: Aseptic surgical techniques in rodents
- **5.3.** ACEC 13: Preferred drugs and regimes for anaesthesia and analgesia
- 5.4. ACEC 20: Monitoring of animals for research and teaching
- **5.5.** ACEC 33: Adverse event reporting

ADDITIONAL DATA REQUIRED

Key Words

Animal, research, surgery, implant, chronic, ACEC.

Positions

Policy Sponsor: Animal Care and Ethics Committee

Policy Owner: Director, Research Services

Policy Contact Position: Manager, Animal Welfare and Training