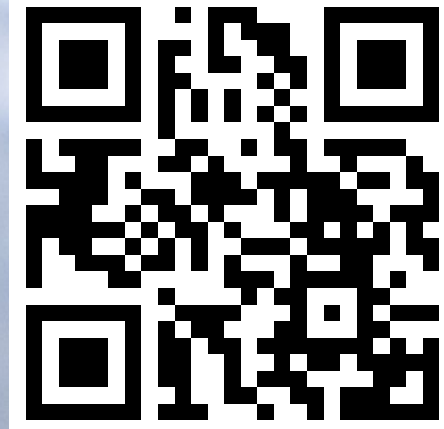


NUS IACUC TOWNHALL

5 Aug 2025

3:00pm	Introduction by A/P Sanjay Khanna (IACUC Chair)
3:15pm	Updates by IACUC Office
3.55pm	Update by IO – Introducing new CM Ag Director and Ag AV
4:00pm	Presentation by Dr Jasmin Wu (Comparative Medicine)
4:30pm	Q&A session (via Vevox)
5:15pm	Closing remarks and end of Townhall



Updates by IACUC Office



1) Updating iRIMS-IACUC form with PI's comments

Instructions given to researchers on responding to reviewers' comments.

Instructions

1. Please copy and paste the reviewers' comments to the rebuttal section. Provide your responses below each comment. Each comment must be responded to.
2. Do save the replies before updating the form.
3. Please update the forms according to the replies if needed and save the changes to the forms.
4. Do note that changes to the rebuttal dialogue boxes and the online forms need to be saved separately.

Gap – iRIMS-IACUC form not updated completely by PI/Researcher. On approval, all comments and responses are removed from the protocol (but archived).

Implications – All necessary information not captured in the approve protocol. Research team members may be misinformed, leading to non-compliances.

Important note: It is the responsibility of the PI/Researcher to ensure that the form is updated with the correct information.

Updating iRIMS-IACUC form with PI's comments

10. Justification for Choice of Species

Justify the choice of species by stating why a species lower on the phylogenic scale

Justification

10.1 - Describe the features of the species (e.g., anatomic, physiologic, genetic, sex, strain, etc.) to justify the choice.

Alternative methods, such as mathematical models, computer simulation and in vitro biological systems, which may replace or complement the use of animals must be considered before embarking on any protocol involving the use of animals.

Please indicate **Not Applicable** here if you are submitting a standalone breeding protocol. *

This set of experiments investigate neural responses to physiological stimulus of pain. The nociceptive response includes not only changes in cellular and neuronal activity but also changes in behavior. Changes in behaviour includes hyper-reflexive responses to innocuous stimuli, guarding of injured limb, increase in anxiety, and reduced performance in cognitive tests. Such responses cannot be recapitulated by non-animal models.

The use of rats in pain research is widely accepted. Rats have similar nociceptive responses in comparison to humans. Furthermore, the hippocampus in rats have been well studied in terms of anatomy and neurophysiology.

☒ Save changes ☐ Cancel changes

2. Save changes

3. Update the protocol form with the information in the rebuttal. Save changes (2).

History View Changes Review Notes

Review Notes

Instructions

1. Please copy and paste the reviewers' comments to the rebuttal section. Provide your response below each comment. Each comment must be responded to.
2. Do save the replies before updating the form.
3. Please update the forms according to the replies if needed and save the changes to the forms.
4. Do note that changes to the rebuttal dialogue boxes and the online forms need to be saved separately.

Reviewer 1

Please describe the behavioral changes in the context of the animal model.

Response:

Review Rebuttal ☒

Reviewer 1

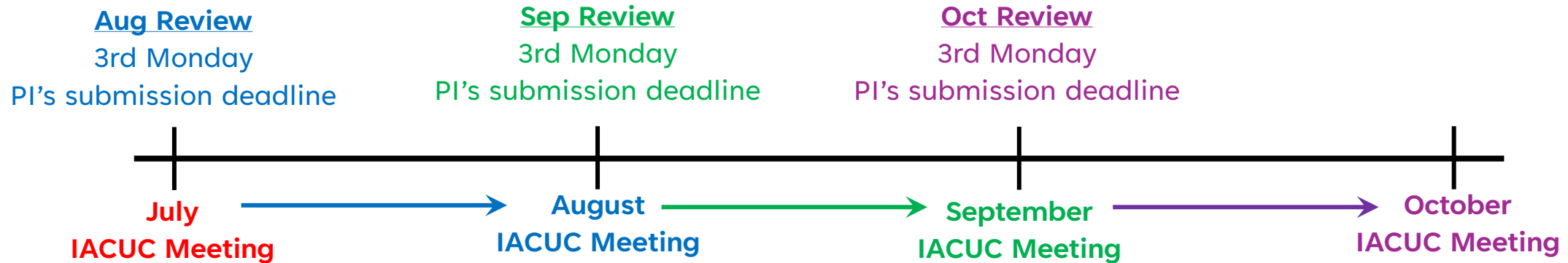
Please describe the behavioral changes in the context of the animal model.

Response: Changes in behaviour includes hyper-reflexive responses to innocuous stimuli, guarding of injured limb, increase in anxiety, and reduced performance in cognitive tests.

1. Copy and paste reviewer's comments into the rebuttal box. Save changes (2).

2) Early-bird Review

Typical review timeline

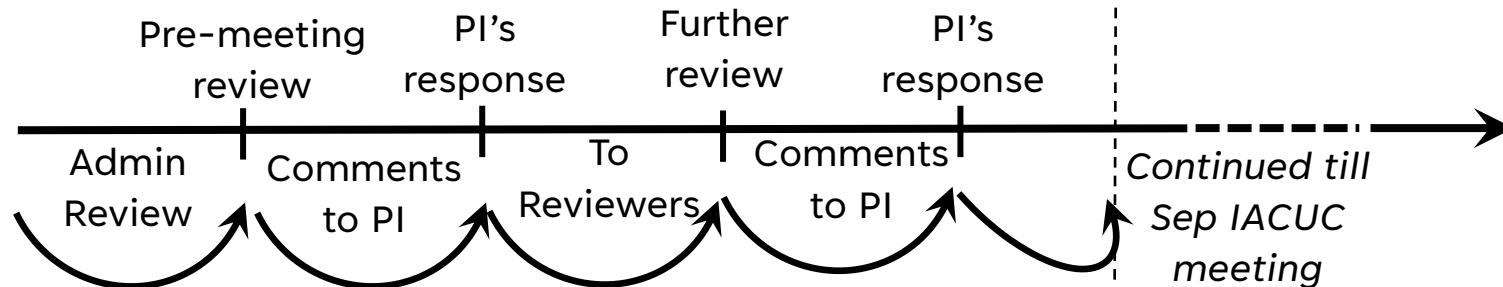


Miss submission deadline for Aug Review

Without early review

After Admin Review, Office hold protocol till Sep review cycle

With early review



- Submitted protocol and amendment start to undergo review process early instead of being held until the next review cycle.
- Reduce post-meeting queries and total time taken

2) Early-bird Review

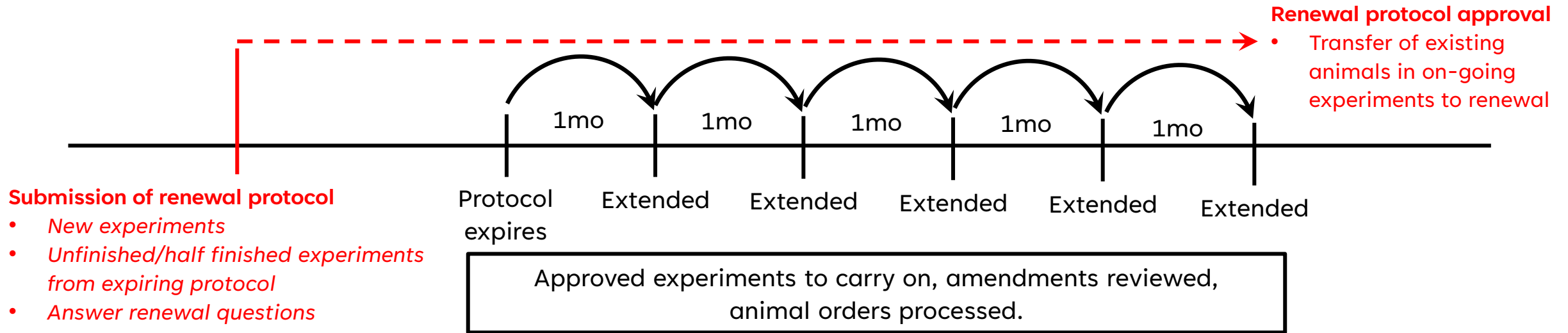
Objective – To avoid delaying the review process by initiating the workflow before the stipulated deadline.

- Submitted protocol and amendment start to undergo review process early instead of being held until the next review cycle.
 - Currently PIs are generally given 3 working days to address premeeting clarifications before the applications are finalized for quorate review.
 - Further queries will be addressed after the IACUC meeting as post-meeting clarifications.
- By initiating the workflow early –
 - Reviewers and PIs have more time to work on the applications before quorate review
 - Reduce post-meeting queries
 - Reduce total time taken from submission to approval
- **Dependent, in part, on speed and accuracy of PI's responses to reviewers' comments. Hence, to avoid delay, it is important for PIs to keep to the reply-by date as provided by the IACUC Office.**

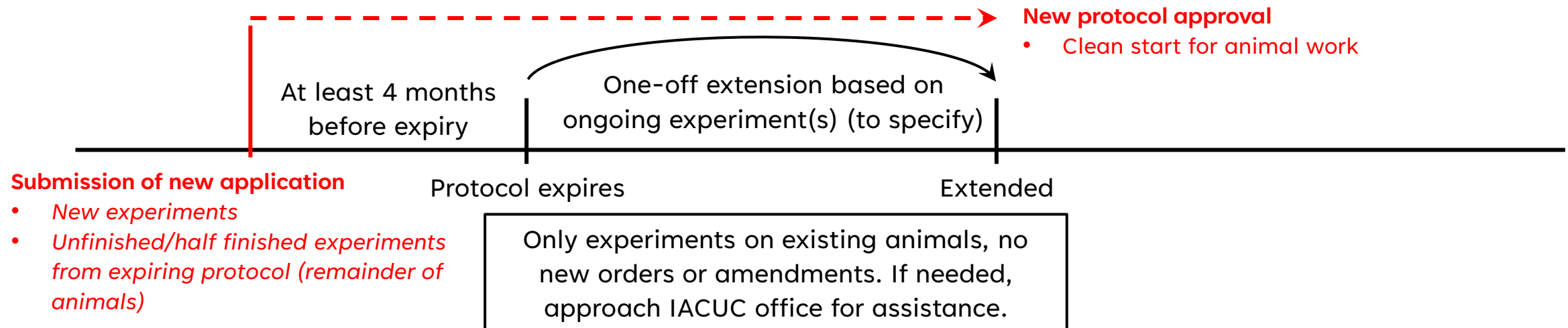
To note: Rolling review does not bring forward the IACUC meeting review. It helps to better prepare the application for the meeting review.

3) Extension of expiring protocols

Previous workflow



Updated workflow



3) Extension of expiring protocols

Important notes for the new workflow of protocol extension

1. To ensure continuity, PIs are encourage **to submit the new protocol at least 4 months before existing protocol expires**. Protocol expiry reminders will be sent 4 months, 2 months and 7 days before expiration.
2. If ongoing experiments pre-empted to end after protocol extension, email IACUC office to notify at least 7 days before the extension expires.
 - Ongoing experiments refers to animals that are already housed and in-use in the vivarium.
 - The ongoing experiment must not last for more than 1 year after protocol expiry.
3. PI may include incomplete experiments in the new application.
 - e.g. the experiment requires 24 animals to complete. Only 10 animals were utilised under the expiring protocol.
 - The unfnished experiment can be included in the new protocol but requesting for 14 animals only. Do not duplicate the entire experiment in the new application.
4. For IACUC reference, PI may include the following information in the new protocol:
 - Replicated procedures from expiring protocol in the new application, indicating corresponding NUS protocol number
 - List of experiments in new application that will be using the replicated procedures.

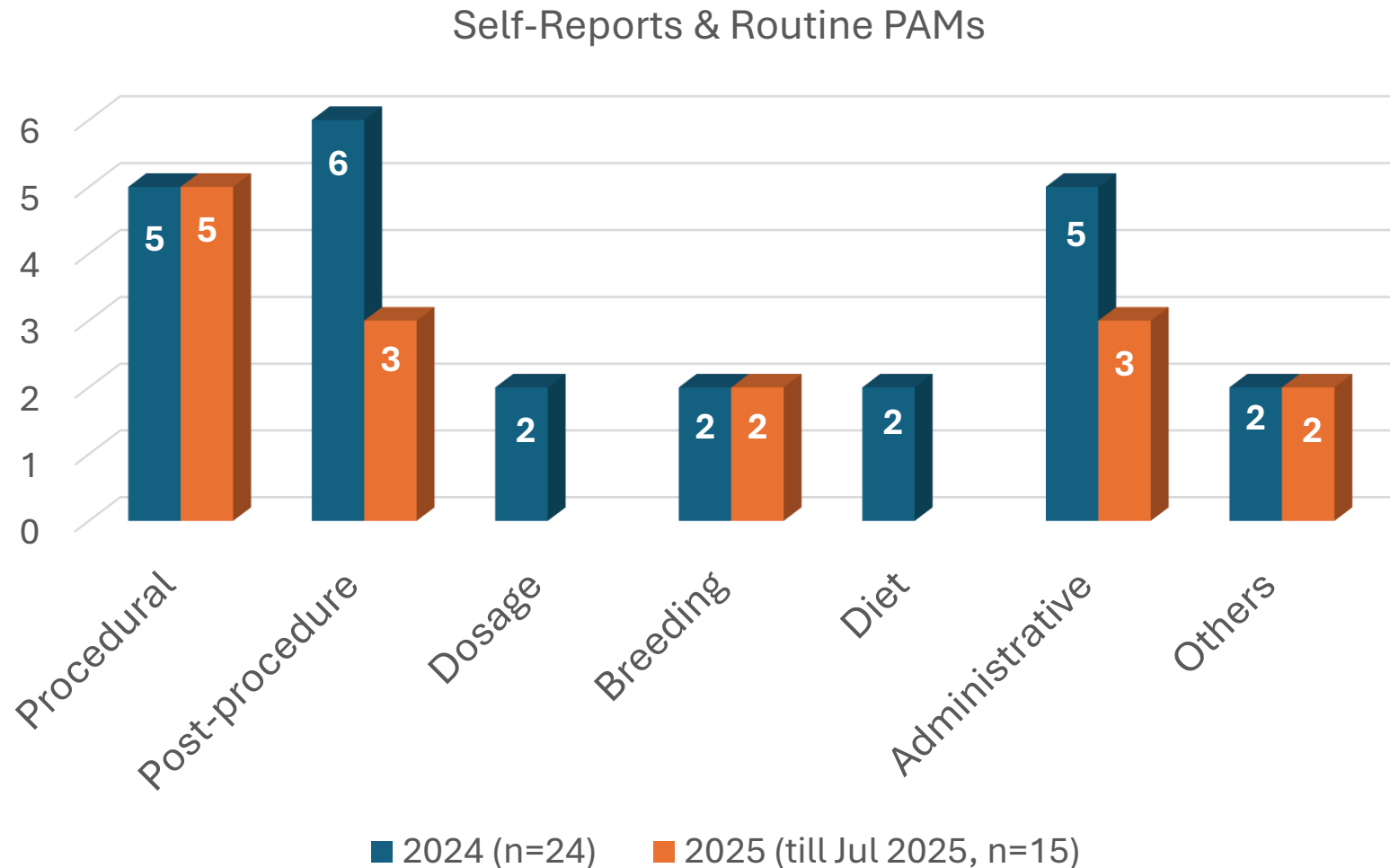
4) Aging animals

- Office was informed of a prolonged maintenance of mice and rats – purchased at 2 months and kept till about 10 months old before utilised for experiments. Not described in the protocol.
- Concern – age-related pathology, possibly affecting multiple organ systems.

Human age	Mice age ¹⁻³	Rats age ⁴⁻⁶	Rodent age groups
1 -30 yrs	10-300d (1-40wks, 0-10mo)	10-300d (1-40wks, 0-10mo)	Juvenile – Mature adult
50yrs	300-420d (40-56wks, 10-14mo)	300-600d (40-80wks, 10-20mo)	Late adult
70yrs	420-720d (56-96wks, 14-24mo)	600-730d (80-96wks, 20-24mo)	Old

- If animals are to be aged from one age group into the next, this must be described and justified in the protocol.
- Animals are to be described in specific age brackets e.g. instead of 6-50 weeks old, to be indicated as 6-10 weeks and 45-50 weeks.
- Information will be disseminated via email to animal users.

5) Post-Approval Monitoring (PAMs)



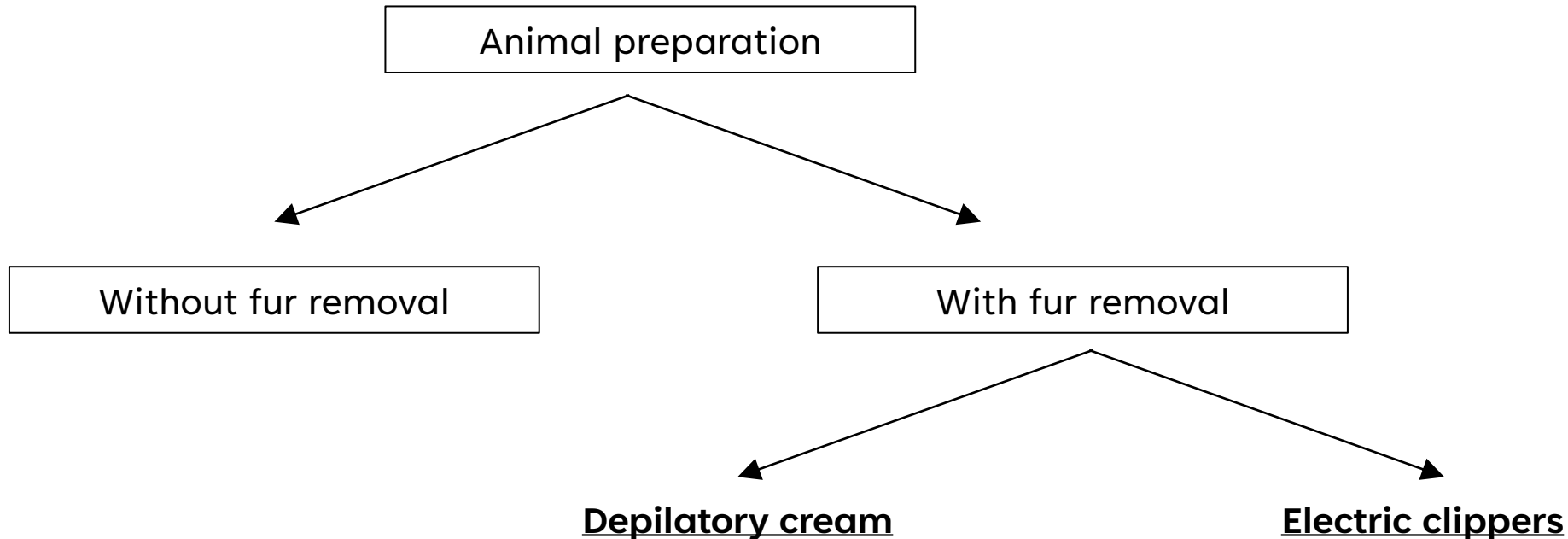
- **Procedural** – deviation from approved protocol, fur removal, inadequate surgical preparation, performing unapproved experiments
- **Post-procedural** – monitoring, post-op care
- **Dosage** – wrong dose
- **Breeding** – overcrowding, not separating breeders
- **Diet** – feeding expired diet
- **Administrative** – unapproved import, no internal transfer, no NOI, no BMT
- **Others** – escaped animal, infrastructural, faulty automations

5) PAMs

➤ Trend update

1) Complications in fur removal

- 3 incidents reported in mice that were prepared for subcutaneous injections
 - i. Unnecessarily large area cleared of fur
 - ii. Chemical burns due to prolonged exposure to hair removal cream, excess cream not sufficiently cleared caused eye injury, euthanised due to poor recovery
 - iii. Full thickness of skin removed exposing underlying muscle layer, fur trimmed with scissors as cream not effective, euthanised.



- Chemical burns with prolonged exposure
- Get into eyes or mouth if excess not cleaned away and animal grooms

- Skin injury



Reminder

- ✓ Disinfect site with alcohol wipes (sterile gauze or cotton ball)
- ✓ One needle/site/animal for inoculation
- ✓ Monitor at the approved frequency

- Please contact CM for further information on the correct fur removal techniques, also for training if necessary.
- Refer to CM SOP 201 'Rodent surgery' on the correct use of fur removal cream (pgs 4 and 5).

2) Acclimatisation of delivered animals [CM SOP 615 'Acclimatisation of Laboratory Animals']

- 3 reported incidents – one requiring euthanasia
- At least 3 days for rodents, 5 days for non-rodents (without quarantine)
- Exempted for animals intended for **only terminal tissue harvest with no other procedures.**
- Consider animal's stress on experimental outcomes

➤ PAM observation

- Compliance Officers will approach researchers, identify themselves, and request to observe the procedure followed by a short conversation
- Engagement with the researchers can be before, during, or after the observation
- In general, the order of events is flexible and at the discretion of the Officers and researcher.
- There is **no opting out** for PAM.

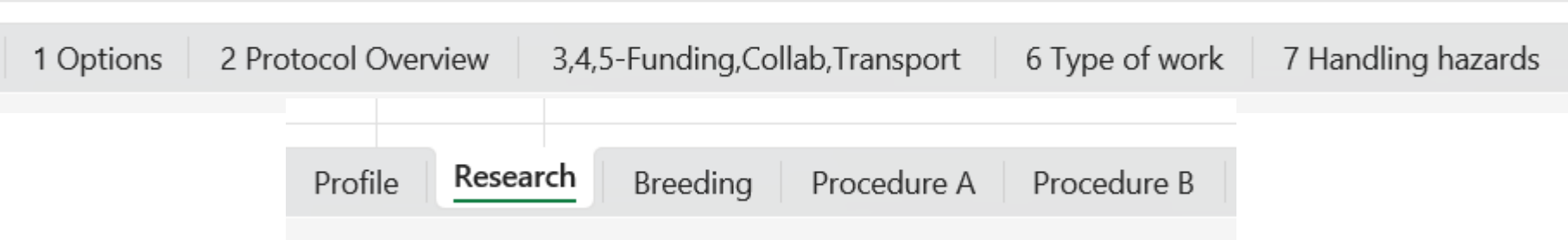
5) Guide to completing IACUC forms

To aid in protocol writing and reducing the volume of pre- and post-meeting queries, two documents (for iORC and iRIMS-IACUC) were created to provide tips and guide protocol applicants.

> Changes will be made to accommodate updated review process, feedback appreciated.

5) Guide to completing IACUC forms

➤ The forms are detailed in worksheet. See tab titles.



➤ Links to relevant CM SOPs

CM SOP 101 Anaesthetic Regimens for Mice, Rats, and Guinea Pigs	CM SOP 102 Pig Anaesthesia	CM SOP 106 Fish Anaesthesia
CM SOP 106 Fish Anaesthesia	CM SOP 103 Rabbit Anaesthesia	CM SOP 107 Frog Anaesthesia and Analgesia
CM SOP 116 Non-Human Primate Anaesthesia	CM SOP 104 Rodent Analgesia	CM SOP 108 Rabbit Analgesia
CM SOP 117 Non-Human Primate Analgesia	CM SOP 201 Rodent Surgery	CM SOP 202 Non-Rodent Surgery
CM SOP 204 Post-Operative care for Large Animals.	CM SOP 105 Handling of Veterinary Pharmaceuticals	CM SOP 109 Soda Lime Maintenance in Anaesthetic Machines
CM SOP 110 Passive Gas Anaesthetic Waste Scavenging		

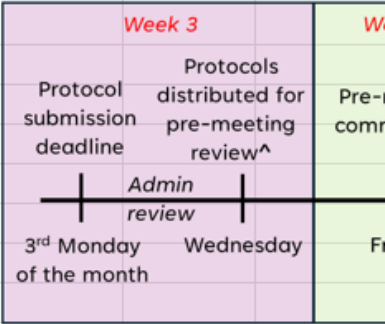
5) Guide to completing IACUC forms

➤ Refer to the pointers on information required for each section

Outline	2.5	Experience with animal models - Pilot studies are encourage for research teams determining optimum drug dose, testing new models, etc. If there is a need for a pilot study, please include the pilot study in your calculation for 'Derivation of animal numbers'.
	2.6	- Provide your IBC application number here. IBC application is made under the Hazard Safety module of iRIMS. - If using a previously approved IBC application, also provide the application number here
	2.7	- All surgical procedures must be listed in Section 17 (Surgery). - Non-surgical information to be indicated in Section 15 (Non-surgical procedures) - <i>physical devises or implant, blood, tissue or fluid collection, immunisation or antibody production, dietary manipulation or fluid restriction, behavioral studies, in vivo imaging.</i> - Make references to Section 17 when mentioning surgical procedures e.g. The cerebral implantation is performed as described in Section 17. - If there are multiple procedures, indicate the number of days between procedures (e.g. 2 weeks after the electrode implantation surgery, mice will be subjected to baseline behavioral observation in the open field task). - Specify the timepoints for repetitive procedures (e.g. blood collection by facial bleeding will be carried out on day 3, 5, and 7 after the last dose of drug ABC; mice will be subjected to the EPM test at 1hr, 4hrs, and 8hrs after injection of drug XYZ) - Specify route of drug administration and blood collection, method of euthanasia and secondary method to confirm death. - If multiple doses, routes, or frequencies used for administration or sampling, state them in this section. This section will be referred to in Section 20 (Experimental Agents). - Please describe your experimental outline in a sequential manner such as in a timeline to aid reviewer's understanding of your work. In more complex scenarios, you can provide a flow chart or diagram that can be attached to the submission. - Behavioral tests; describe the behavioral test, provide the interval (number of days) between observations if multiple observations; provide references to justify parameters if the tests are expected to have a negative impact on animal welfare (e.g. intensity of stimulus in a foot shock experiment)

5) Guide to completing IACUC forms

➤ Additional information for reference

	A	B	C	D	E	F	G
1							
2	Protocol review timeline						
3							
4							
5							
6							
7							
8							
9							
10							
11		^ Pre-meeting review conducted by CM (Vet, Training, Operations, C					
12		* Protocol can be deferred if reviewers find that the protocol is poor					
13		# IACUC may decide that a resubmission is necessary if protocol re					
14							
15							
16	Responding to reviewers' comments						
17	i) Responses to comments are to be provided in the rebuttal box.						
18	ii) The protocol forms must be updated with the amended information						
19							
20	Please follow the steps below when providing responses:						
21							
22							

Documents will be uploaded to
IACUC's website for access.

Meet the Veterinary Team: What We Do and How We Support Protocol Planning

Dr Jasmin Wu, CM

Meet the Veterinary Team:

What We Do and How We Support Protocol Planning

Jasmin Wu, DVM, MPH, MS

- CM veterinary team
- What does the veterinary team do?
- Integrating veterinary support for protocol planning and review
- What can the vets help with protocol planning?
- Reasons for planning ahead with the vets
- Resources

CM Veterinary Team

Veterinarians:

- Dr. Jasmin Wu
- Dr. Cher Ng
- Dr. Shannon Heo [rodent + aquatics]
- Dr. Jonnathan Peneyra [including large animals]
- Dr. Grace Lim*

Training:

- Shawn Tay - *Training Coordinator*
- Shima

Veterinary Technicians:

- James Low– *VT Supervisor*
- Adam
- Deniscia
- Shermaine
- Loreta
- Mafe
- Thipa
- Si Qi
- Ranjit

What does the veterinary team do?

Animal welfare & biosecurity

- Clinical case management
- Daily and monthly rounds
- Health monitoring – all species (quarterly to semi-annual)
- Import/Export review/testing
- Testing of biological materials (BMT)
- On-call: after hours, weekends, and PHs

Diagnostic lab

- Researcher requests (CBC/Chem)
- Health monitoring
- Quarantine testing
- Import/export testing
- Testing for clinical cases
- Process necropsies

Training

- Species specific training (RCULA)
- Aseptic technique training
- Specific technique training
- Competency checks

Specific services

- Pharmacy (consumable and vet drugs)
- Workshop and anesthesiology (large animals)
- Technical procedure service (all species)

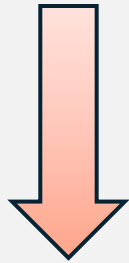
IACUC

- Review of IACUC protocols
- Monthly IACUC meeting
- Program review
- Facility inspection

Integrating veterinary support for protocol planning and review

**Veterinary consultation
early in the protocol
development stage**

Open and continuous communication with vet reviewer as needed



Protocol
submission

Veterinary
Pre-review

Veterinary
review for
IACUC meeting

Post IACUC
meeting
reviews



What can the veterinarians help with protocol planning?

- Address animal health and welfare
- Refinement of surgical / non-surgical procedures
- Selection of anesthetics and analgesics
- Pre-surgical, surgical and post-surgical care
- Humane interventions/ endpoints
- Euthanasia method
- Training and personnel
- Compliance: The NACLAR Guidelines, The Guide, IACUC Policies and Guidelines, and CM SOPs
- And more...

***Procedures/ manipulation that may cause more than momentary/slight pain or distress**

***New experimental procedures/ surgeries**

***Models or procedures that require special handling or housing**

Reasons for planning ahead with the vets

- Protocol optimization
 - Address animal welfare/ regulation compliance before submission
- Reduce administrative burden
 - Fewer revisions during IACUC protocol review process
 - Smoother IACUC protocol approval
- Supportive collaboration with the veterinary team
 - Improved animal welfare
 - Training guidance

Resources

- ✓ The NACLAR Guidelines
- ✓ IACUC Policies and Guidelines
- ✓ CM SOPs
- ✓ The IACUC Office
- ✓ CM veterinarians

Q & A



Suggestion: As existing iORC protocols can't be transferred to iRIMS, to avoid extensive duplication of efforts by IACUC staff, and working with a less efficient platform, can IACUC consider engaging with A.I.KNOW team and A.S.K on campus to systematically convert old approved protocols to the new platform? Imp. to note that it is not treated as a new application but should be done at the backend using IT services. The entire thing can also be a student project in the design engineering course too, if this is elaborate.

Response: It is currently not possible for the iORC forms to be imported into the iRIMS-IACUC platform owing to the disparity between the forms.

Is there a special protocol to import reporter mice from a different country for a new breeding protocol?

Response: There is no specific protocol to import mice from a different country. PI need to indicate in the breeding protocol the source of their animals and include information such as collaborator PI, source institute, number of animals, and their gender.