NUS-IACUC Townhall
23 Jan 2025, 3pm
CeLS Auditorium

AGENDA

3:00pm	Welcome and Introduction by A/P Sanjay Khanna (IACUC Chair)
3:15pm	Presentation by IACUC Office
	i) Post-Approval Monitoring
	ii) iRIMS-IACUC and FAQ
3:45pm	Presentation by Dr Leslie Retnam (AV; Director, CM)
	- Getting it right for our animals
4:15pm	IACUC Office highlights
4:30pm	Responses to earlier submitted questions (via Vevox)
4:45pm	Q&A session
5:15pm	Closing remarks and end of Townhall

Introduction
A/P Sanjay Khanna
IACUC Chair

Oversight: through protocol reviews, post monitoring (PAM), laboratory inspection , report to AVS and uphold standards for accreditation

Relatively faster review

Category	Number of submissions reviewed and approved by quorate				
	2024	2023	2022	2021	Total
Protocols reviewed by IACUC Reviewers	105	83	95	102	385
→ Protocols reviewed by Management Committee (MC)	12	17	14	31	74
Amendments reviewed by IACUC Reviewers	138	118	131	119	506
→ Amendments reviewed by MC	37	36	28	28	125
→ Amendments reviewed by DR	32	43	40	43	158
→ Amendments reviewed under Miscellaneous	11	7	6	21	45
Total	331	304	314	344	1,293

Others:

1. APR/APBR: 140 (2021), 335 (2022), 211 (2023), **163** (2024). Total = 849
2. PAM: 17 (2021), 18 (2022), 42 (2023), **37** (2024). Total = 114
3. Laboratory/vivarium inspections: 30 (2021), 35 (2022), 37 (2023), **34** (2024). Total = 136
4. Reports for AVS: 1 (2021), 1 (2022), 1 (2023), **1** (2024)
5. Program review: 2 (2021), 1 (2022), 1 (2023), **1**(2024)
6. AAALAC: 1 (2021), 1 (2022), 1 (2023), **1** (2024) , Program description (PD) every 3 years

Managed by IACUC Secretariat of 7 officers who work closely with reviewers (Vets, Scientists, non-Scientists, Public members) in Quorate and the IACUC Chair

Issue	Changes in 2024
Structural issues - Reviewers: **Load on the Reviewers, including Veterinarians**	**New Hire**: CM hired a veterinarian to add to the pool of veterinarian reviewers.
PI related: **Poorly written protocols (44% of writers are non-PIs)** **Delay in responding by PIs**	1. **Education outreach to PIs**: town hall, handholding' PIs (building templates), frequently asked questions (FAQs)
	2. **Proactive approach**: We have adopted a proactive approach whereby we reach out to PIs after preliminary review to help them modify protocol to pre-empt issues. Likewise, we have made it mandatory that the Reviewer and the writer **meet after 2 rounds** of post-meeting clarifications to bring the review to a closure
	3. **Changed style of questions**: the reviewers were suggested to provide a rational for their questions and, furthermore, change the style from open-ended to that which helps with closure
	4. **Introduced new software (iRIMS**): we worked with the vendors to add innovations such as providing relevant information with in-built drop boxes to help PIs make appropriate choices. We also worked to add links to our SOPs.

Challenges and new initiatives

- **Challenges**:
- PI buy in
  - PIs to promote writing of good protocols
  - Protocols be concise as far as possible
  - Respond promptly to queries by IACUC
  - Setting of clear guidelines, communication channels, and monitoring in laboratories

- **New initiatives**:
- Changes at IACUC:
  - Document to be shared with PI: ‘Guide to completing IACUC protocols’
- DMR: selected new protocols and major amendments can be reviewed and approved outside of Quorate review

Thank you!

Post-Approval Monitoring (PAMs)

What is Post-Approval Monitoring?

Post-approval monitoring is a process to ensure that all animal procedures carried out in NUS IACUC approved premises are as described in the protocol and performed by qualified and experienced personnel as approved in the protocol.

Regulations

Rules in Animals and Birds Act & NACLAR Guidelines states…

IACUC functions include:

- conduct continuing reviews of activities involving the use of animals for any scientific purposes [8(1)i of Act, III.1.2.8 of Guidelines]

- Review and investigate any concern, complaints, or report of non-compliance with any guideline involving the care and use of any animal at the research facility [8(1)d of Act, III.1.2.4 of Guidelines]

❑ These functions are executed through mechanisms such as APRs/ABPRs (annual review of activities conducted under each protocol, including the report on the number of animals bred and used experimentally), and post-approval monitoring (PAMs).

- Objectives of PAMs
  - ✓ Continuing oversight on procedures in approved protocols
  - ✓ Researchers comply with all animal research work guidelines
  - ✓ Educate and inculcate a culture of compliance
  - ✓ Safeguard animal welfare and refine procedures

- PAM approaches = annual reviews (APRs, ABPRs), reporting of adverse events, tracking of animal acquisition, animal facility inspection, observation of laboratory practices and procedures and comparison with approved protocols, observations of animals, review of records (monitoring, surgical, controlled drugs, breeding, etc)

- PAM locations = Vivarium (CM vivarium and satellite facilities), Procedure rooms

Observation of procedures and practices

Vivarium procedure rooms

PAMs

Announced

1) The research team will be contacted and potential procedures enquired.

2) Compliance Officers will then set a date with the research team to observe said procedure.

3) Proceed with observation. Depending on the complexity, CM veterinarian may be asked to also be present.

Unannounced

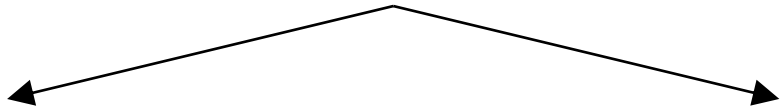
1) Compliance Officers will make random checks in the procedure rooms.

2) If there are researchers performing any procedures, Compliance Officers will be silent observers so as not to disrupt the procedure. Opting out of PAM during the visit by IACUC Officers is not an option. While we will minimize any disruption, your cooperation will be appreciated.

3) While observing the procedure and/or after the procedure is completed, Officers will engage the researchers in a brief conversation to gather more information on the procedures *e.g. protocol number, treatments, type of surgery, monitoring frequency, endpoints, drugs administered, treatment*.

Follow-up and Outcomes

1) Officers will compare observations and information provided with the latest version of the approved protocol.
2) When required, there will be follow-up questions. Records might be requested for review.
3) A summary of the observation will be sent to the researcher(s) to verify and edit if necessary.



Compliance

No further action required.

Non-Compliance

1) The non-compliance(s) will be presented to the IACUC for discussion and recommendations.
2) Researchers involved may be asked to undergo retraining (online modules, hands on sessions with CM).
3) Depending on the severity of the non-compliance, researchers will receive a reminder email or letter.

A Feedback form will be shared with the PI at the end of the process. Your response would be much appreciated.

In summary.....

- ❑ PAMs are to ensure alignment between practice and protocol. They are not a fault-finding exercise.
- ❑ Refinement of procedures.
- ❑ Reiteration of concepts in animal welfare.
- ❑ Opportunity to reexamine compliance culture in the laboratory.
- ❑ Two-way communication between Researchers and Compliance Officers; chance to clarify any concerns.

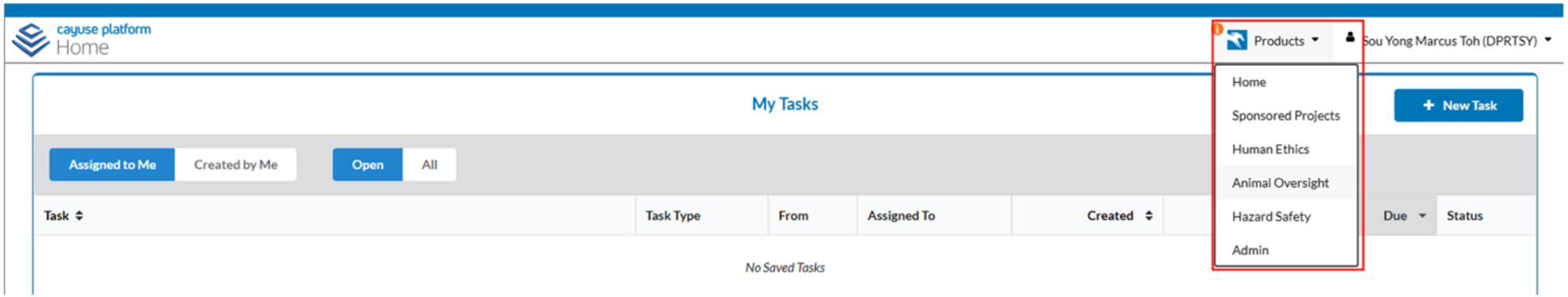
iRIMS-IACUC and FAQ

Integrated Research Information Management Suite (iRIMS)

Objective

A one stop platform to serve the needs of researchers.

1. **Submit IACUC application (Animal Oversight)**
2. Submit IRB application (Human Ethics)
3. Submit IBC application (Hazard Safety)
4. Access proposals and project records (Sponsored Project)
5. View project financials for budget management and monitoring (Fund Manager)

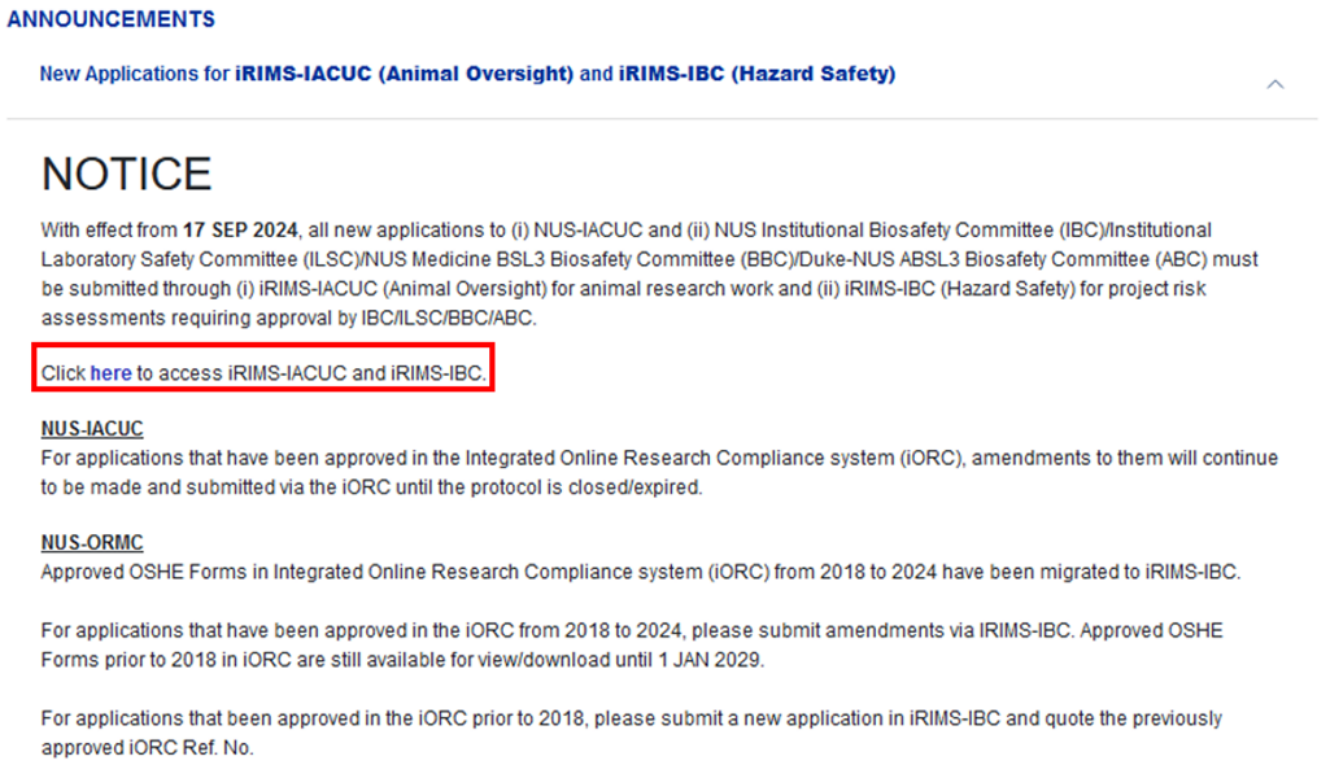


iRIMS-IACUC (Animal Oversight) module

- **Objective**
- Allows Principal Investigators (PIs) to manage their IACUC applications including new submissions, amendments, renewals and closure of applications. It also allows PIs to submit the Annual Protocol Review (APR) form.

How to access

- Via Integrated Online Research Compliance system (iORC) login page https://wws.nus.edu.sg/iorc/login.aspx



ANNOUNCEMENTS

New Applications for **iRIMS-IACUC (Animal Oversight)** and **iRIMS-IBC (Hazard Safety)**

NOTICE

With effect from **17 SEP 2024**, all new applications to (i) NUS-IACUC and (ii) NUS Institutional Biosafety Committee (IBC)/Institutional Laboratory Safety Committee (ILSC)/NUS Medicine BSL3 Biosafety Committee (BBC)/Duke-NUS ABSL3 Biosafety Committee (ABC) must be submitted through (i) iRIMS-IACUC (Animal Oversight) for animal research work and (ii) iRIMS-IBC (Hazard Safety) for project risk assessments requiring approval by IBC/ILSC/BBC/ABC.

Click here to access iRIMS-IACUC and iRIMS-IBC.

NUS-IACUC

For applications that have been approved in the Integrated Online Research Compliance system (iORC), amendments to them will continue to be made and submitted via the iORC until the protocol is closed/expired.

NUS-ORMC

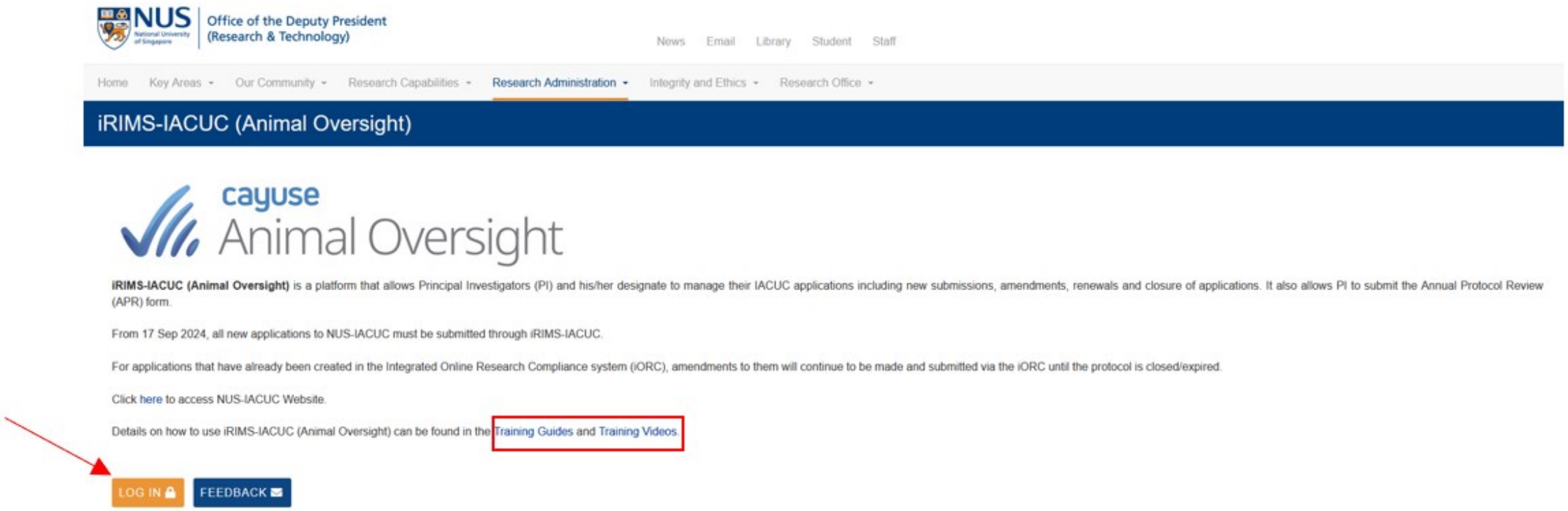
Approved OSHE Forms in Integrated Online Research Compliance system (iORC) from 2018 to 2024 have been migrated to iRIMS-IBC.

For applications that have been approved in the iORC from 2018 to 2024, please submit amendments via IRIMS-IBC. Approved OSHE Forms prior to 2018 in iORC are still available for view/download until 1 JAN 2029.

For applications that been approved in the iORC prior to 2018, please submit a new application in iRIMS-IBC and quote the previously approved iORC Ref. No.

How to access

- Via ODPRT website https://nus.edu.sg/research/research-administration-and-shared-services/irims/irims-iacuc



New Dashboard

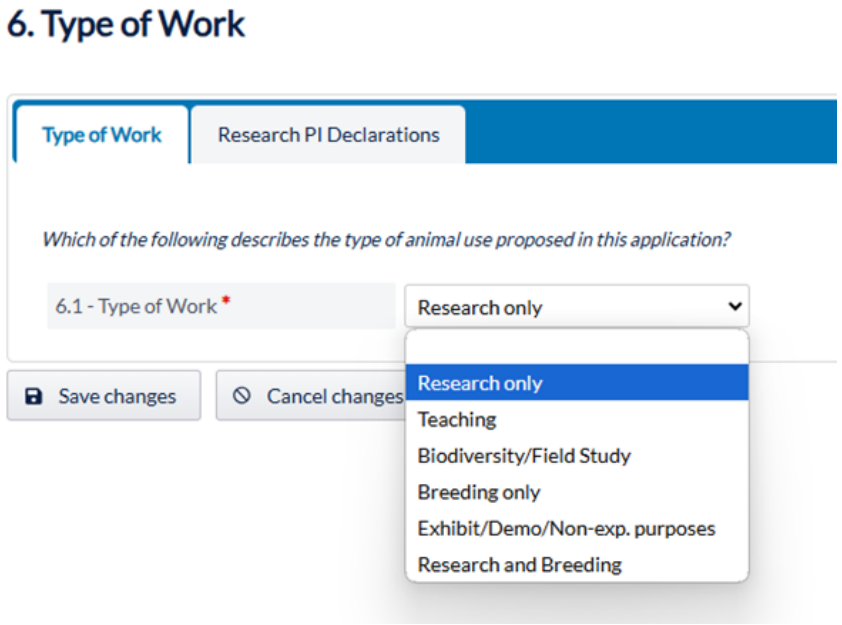
- Allow real time monitoring of the review progress for the IACUC application

Find

Submitted	PI	Protocol #	Assignee	Date Sent	Time Sent	Title	From	To	Action
New - 3 Protocol(s) Submitted									
06/15/2023	*Toh, Sou Yong Marcus*	*2023-0326*	*Tan, Yuen Peng*	*06/19/2023*	*21:44:34*	*Test protocol to put protocol on meeting agenda*	*IACUC Office*	*Meeting*	*Placed on Meeting Agenda*
03/14/2023	*Toh, Sou Yong Marcus*	*2022-0004*	*Pillai01, Lava02 Test03*	*06/06/2023*	*02:46:13*	*Test project title for IACUC proposal*	*IACUC Office*	*Member(s)*	*Quorate Review*
02/16/2023	*Toh, Sou Yong Marcus*	*2023-0231*	*Siew, Ee Yan*	*03/10/2023*	*01:08:54*	*test protocol 2*	*IACUC Office*	*Member(s)*	*Post Meeting Review*

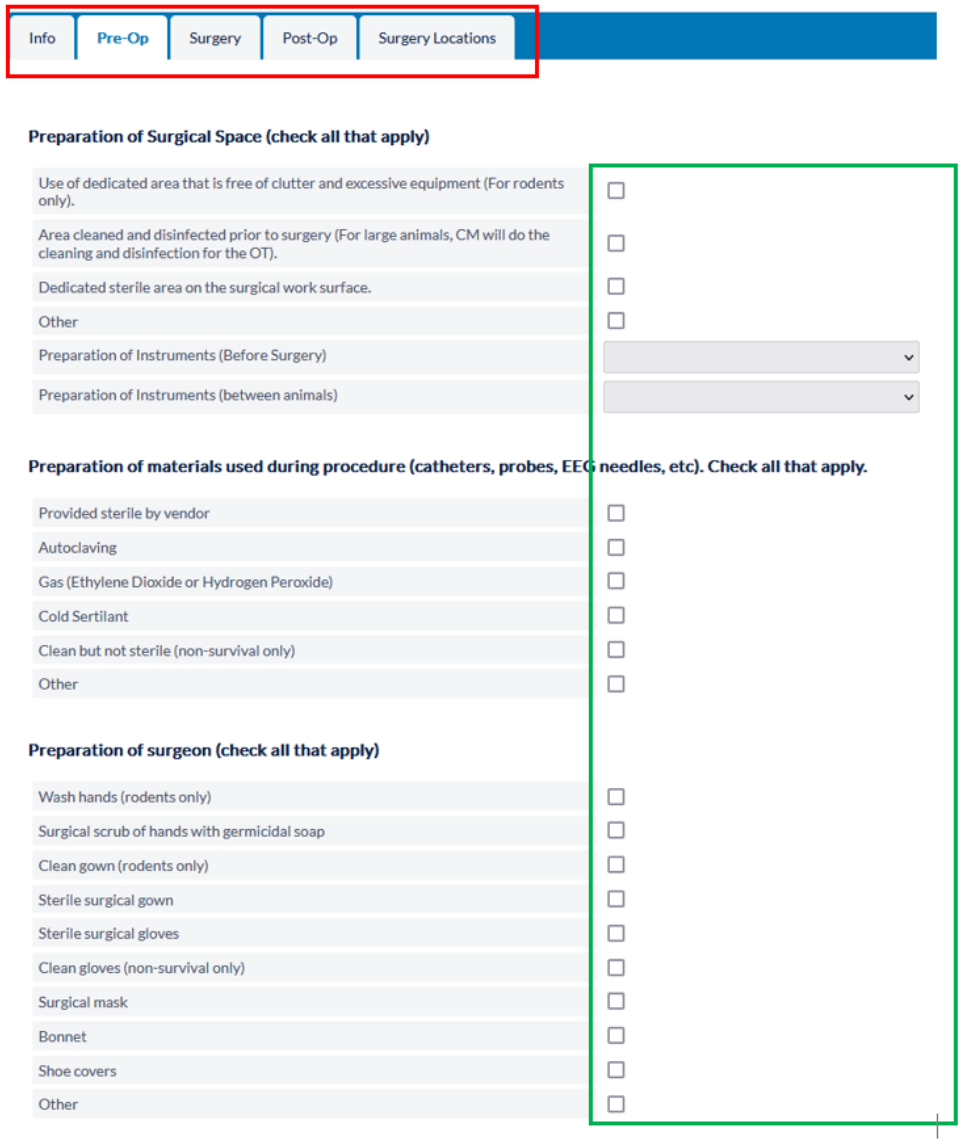
“One” IACUC form

- No more different type of main forms (e.g Animal Research, Classroom Teaching) and procedure forms (e.g A, B, C etc). Questions from the main form and procedure forms are now found in the various sections of the IACUC form.
- Default form is the Animal Research form. Questions pertaining to Classroom Teaching, and Exhibition and Demonstration will appear only if the option is selected in the ‘Type of Work’ section.
- Option to combine research and breeding within the same application.



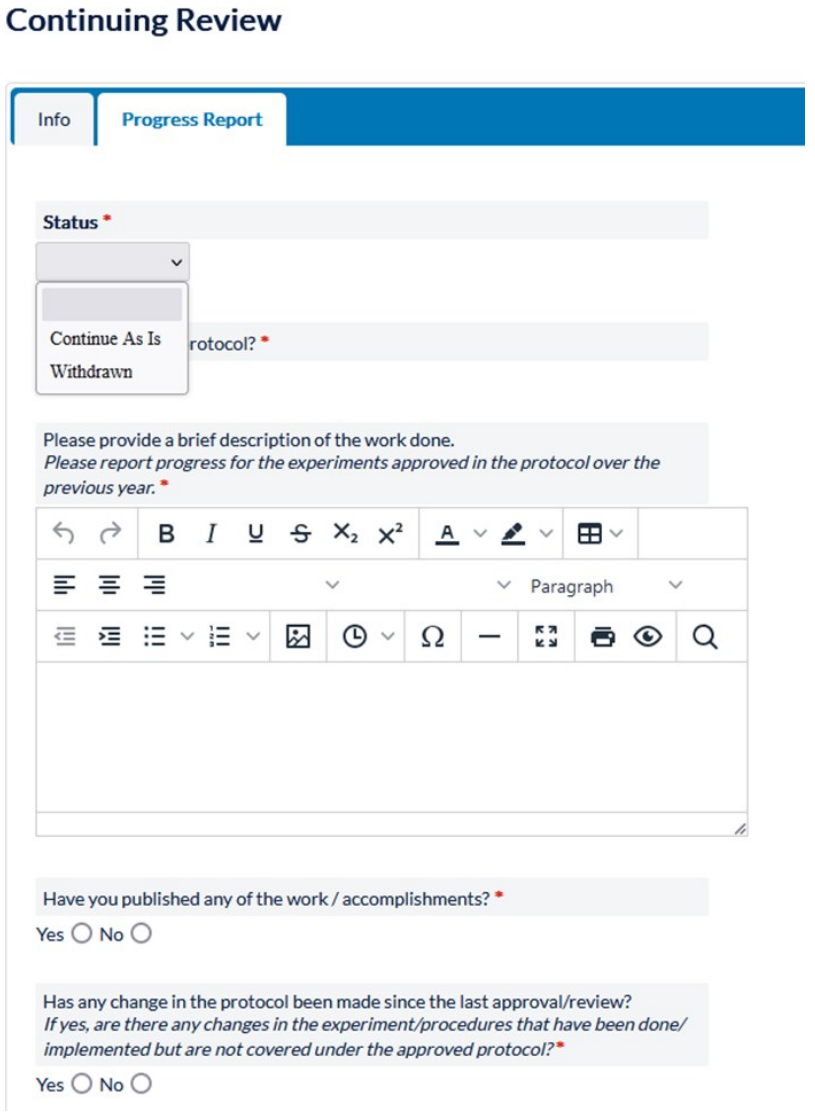
Checkboxes and Drop-down menus

- More checkboxes and drop-down menus
- Tabs



Continuing Review (Annual Protocol Review)

- Reminders will be sent at stipulated dates



FAQ

Q: **Do I need to connect to nVPN to access iRIMS?**
A: No. Unlike the iORC, you can access iRIMS as long as you are connected to internet.

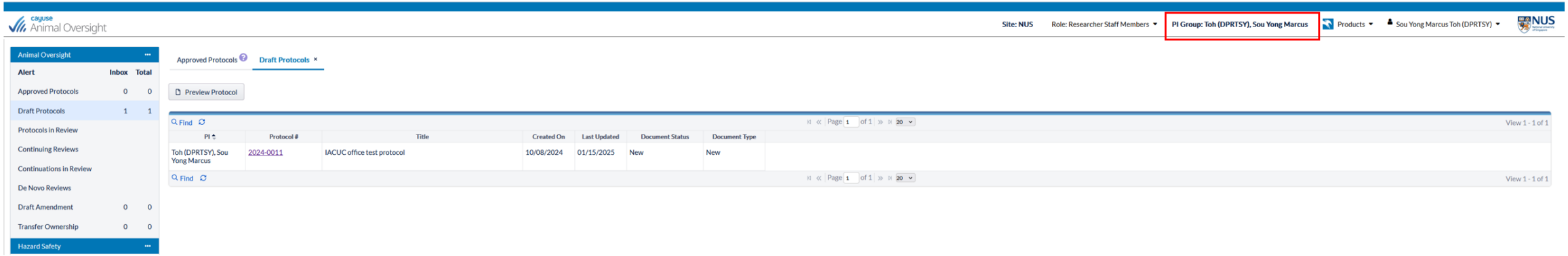
Q: **Who can access the iRIMS-IACUC module?**
A: All staff and graduate students will have access. Please write to the IACUC office (General enquiries mailbox) if you need undergraduate students or personnel with NUS visitor account to access the module.

Q: **I am a staff/graduate student. Why am I unable to access iRIMS-IACUC module?**
A: This can happen when the system is not synchronised with the database. Please write to the IACUC office (General enquiries mailbox) if you are unable to access the IACUC module and we will help you gain access to the module.

FAQ

Q: **Can my staff/student draft/edit an application?**

A: Yes. Please ensure however, that the application is drafted under your PI's group. Please contact the IACUC office if your staff/student is unable to find your name in the PI's group.



Q: **Can my staff/student submit the application?**

A: No, only the PI can submit the application. Your staff or student can only submit the application to you for you to submit it to IACUC. However, either you or your staff/student (with you copied) can write to the IACUC office to authorise a team member to submit the application. This can be done even if the application is in the draft state. The personnel will then be able to submit the application.

Getting it right for our animals

Getting it right for our animals

IACUC Townhall

Thursday, 23rd January 2025

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NUS National University of Singapore | Comparative Medicine

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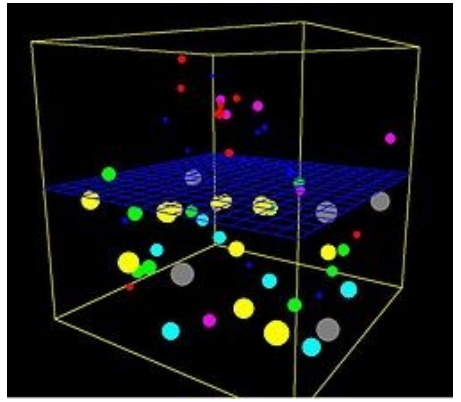
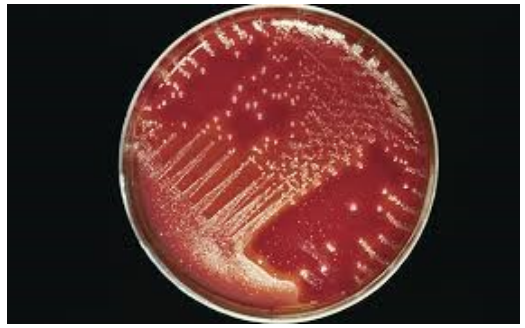


The Right Choices



IACUC

Right choices for our animals

SPF BMT

Facilities and Animal Care

CM SOPs

IACUC Policies and Guidelines

Veterinary Care

From: CM Vet Team <clinicalcase@nus.edu.sg>
Date: Wednesday, 15 January 2025 at 12:31
To:
Subject: [Clinical case] MD2

Dear Researchers,

During routine daily health checks today, CM staff noted a health concern in the following animals:

Animal Room	: MD2 #03-35
Rack/Tank#	: Rack x Row x Tank x
Animal Species	: Zebrafish
IACUC #	: xxxxxxx

Signs observed : 2 zebrafishes presented with enlarged abdomen and possibly egg bound. They were otherwise active and exhibit normal swimming behaviour.

Recommendation : **May we know what is your plan for the affected fishes?**

Please proceed to spawn the affected fish or manually express for eggs should you intend to keep it. Kindly update us with the date of the procedure should you be spawning these fishes. **If unsuccessful, euthanasia is recommended.** Please let us know if this is not possible, or if you would like us to do this on your behalf.

Thank you.

From:
Sent: Wednesday, 15 January 2025 12:54 pm
To: CM Vet Team <clinicalcase@nus.edu.sg>;
Subject: Re: [Clinical case] MD2

Hi,
Noted. Thank you for your recommendation. These fish were just released. We will initiate spawning them.
Best wishes,

From: CM Vet Team <clinicalcase@nus.edu.sg>
Date: Wednesday, 15 January 2025 at 12:31
To:
Subject: [Clinical case] MD2

Dear Researchers,

During routine daily health checks today, CM staff noted a health concern in the following animals:

Animal Room	: MD2 #03-35
Rack/Tank#	: Rack x Row x Tank x
Animal Species	: Zebrafish
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Thank you.

From: CM Vet Team <clinicalcase@nus.edu.sg>
Sent: Wednesday, January 15, 2025 11:44 AM
To:
Subject: [Clinical case] MD1

Dear Researchers,

During routine daily health checks today, CM staff noted a health concern in the following animal(s):

Case 2

Animal Room	: MD1 Pod 1D
Rack/ Cage#	: 8A/9J
Animal Species	: Mice
IACUC #	: xxxxx
Other info	: Strain: CB6 D.O.B/ Age: 25/11/24 Source: NUS
Signs observed	: Singly housed female mouse noted with hard firm mass on its right abdomen region measuring at ~1.0cm. The affected mouse is hunched and less active. The affected mouse is quiet but otherwise, alert and responsive with moderate body condition score.
Recommendation	: As spoken on the phone with Natalie, **Kindly euthanize this animal by 4pm today, 15th January 2025** and drop us an email once you have done so. Please reply to this email if this is not possible.

Thank you.

From:
Sent: Wednesday, 15 January 2025 3:07 pm
To: CM Vet Team <clinicalcase@nus.edu.sg>;
Subject: Re: [Clinical case] MD1

Dear

The mice have been euthanized.
Thank you.

Best regards,

From: CM Vet Team <clinicalcase@nus.edu.sg>
Sent: Wednesday, January 15, 2025 11:44 AM
To:
Subject: [Clinical case] MD1

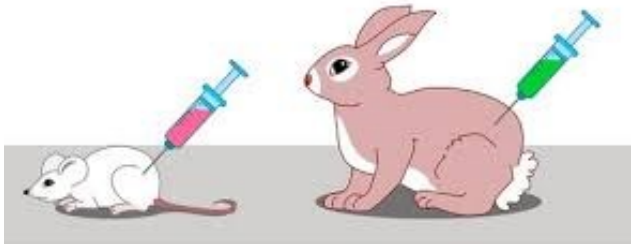
Dear Researchers,

During routine daily health checks today, CM staff noted a health concern in the following animal(s):

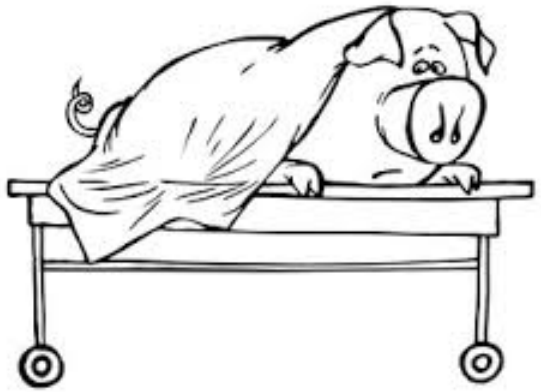
Case 2

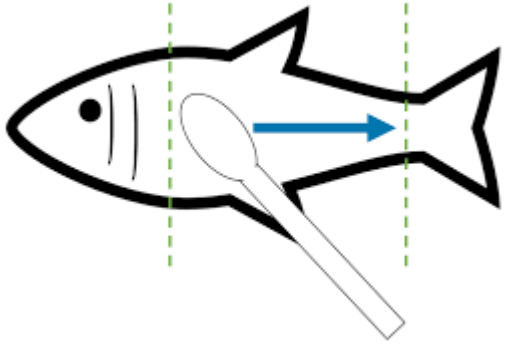
Animal Room	: MD1 Pod 1D
Rack/ Cage#	: 8A/9J
Animal Species	: Mice
IACUC #	: xxxxx
Other info	: Strain: CB6 D.O.B/ Age: 25/11/24 Source: NUS
Signs observed	: Singly housed female mouse noted with hard firm mass on its right abdomen region measuring at ~1.0cm. The affected mouse is hunched and less active. The affected mouse is quiet but otherwise, alert and responsive with moderate body condition score.
Recommendation	: As spoken on the phone with Natalie, **Kindly euthanize this animal by 4pm today, 15th January 2025** and drop us an email once you have done so. Please reply to this email if this is not possible.

Thank you.



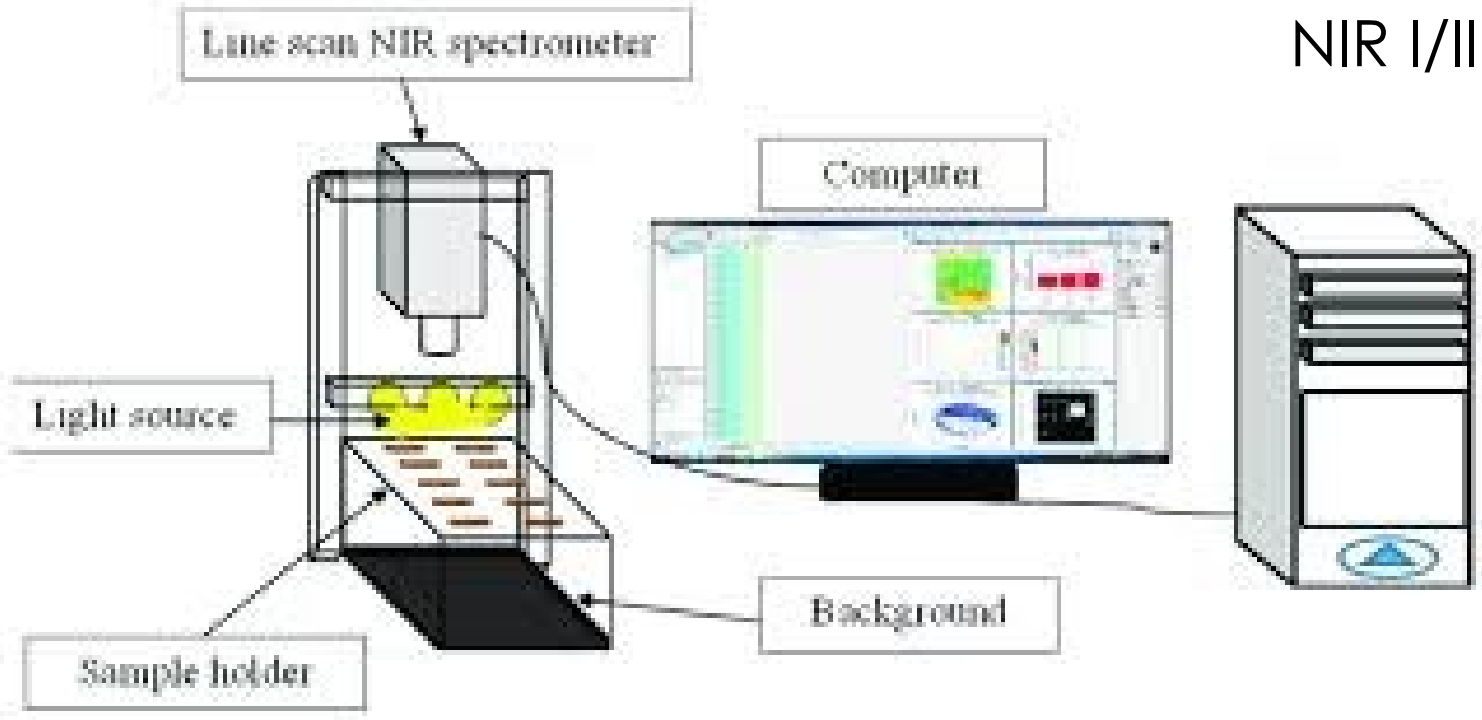
Training and Education





Imaging Capabilities at CMIF

NIR I/II



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BIOBEAM 8000 IRRADIATOR AND ACCESSORIES

Biobeam 8000 Irradiator

Irradiation Chamber

Mice container with filter and partition inside (max 4 animals per container)

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Visual Sonics high frequency ultrasound system

Visual Sonics Vevo 2100 Ultrasound Imaging System

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IVIS Spectrum for Optical Imaging

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Quantum FX microCT scanner.

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7T ClinScan MRI - Photographer: John Wong

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3 Tesla MRI (Magnetom Skyra)

CMIF offers a range of advance MRI techniques and protocols using the 3-Tesla MAGNETOM Skyra. It is equipped with the 4th generation of TIM (Total Imaging Matrix), which provides up to 204 coils elements with up to 128 independent radiofrequency channels for a much faster and more accurate imaging. Its 70 cm open bore can accommodate a wide variety of large animal sizes, shapes and conditions.

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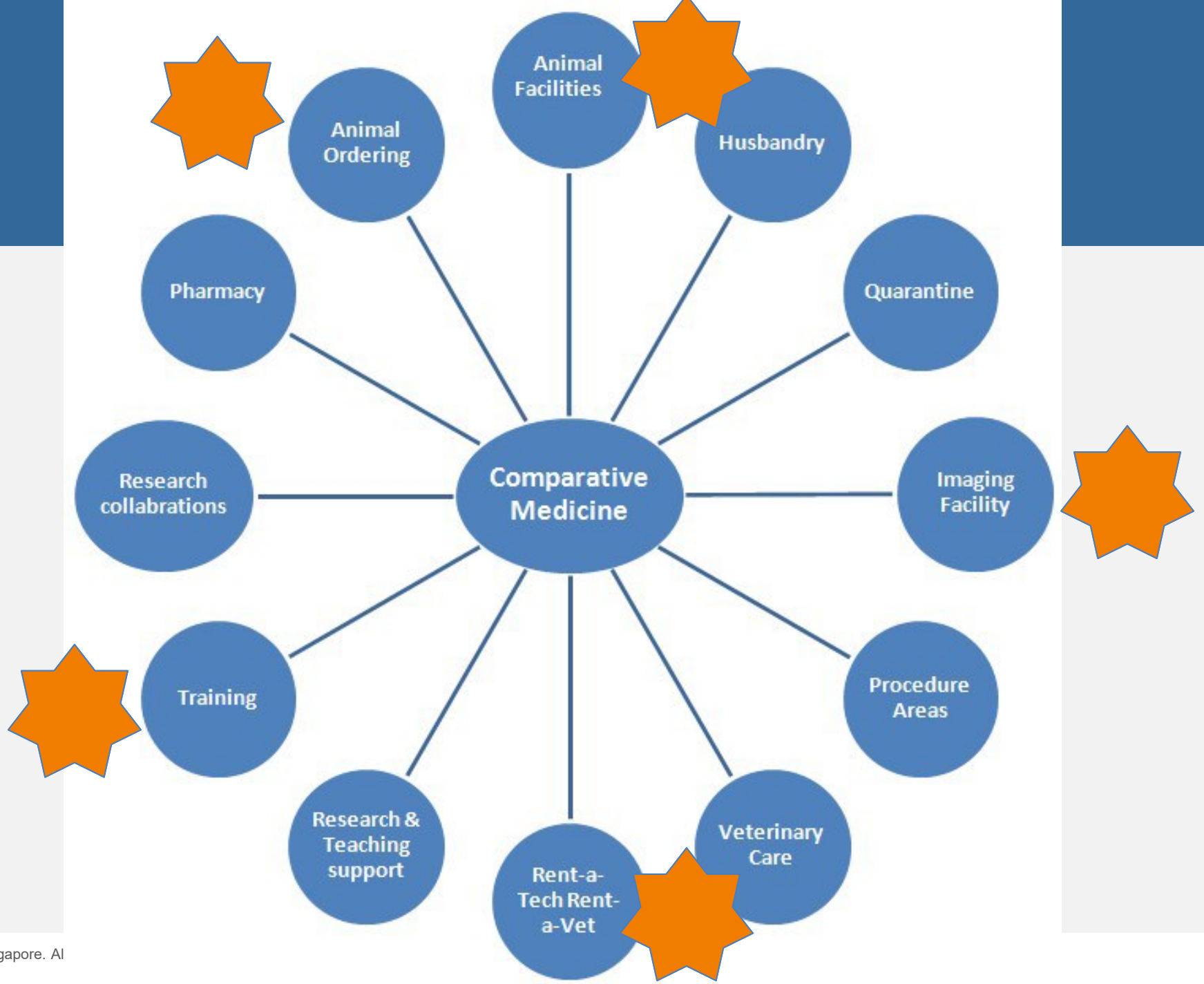

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Thank you

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IACUC Office Highlights

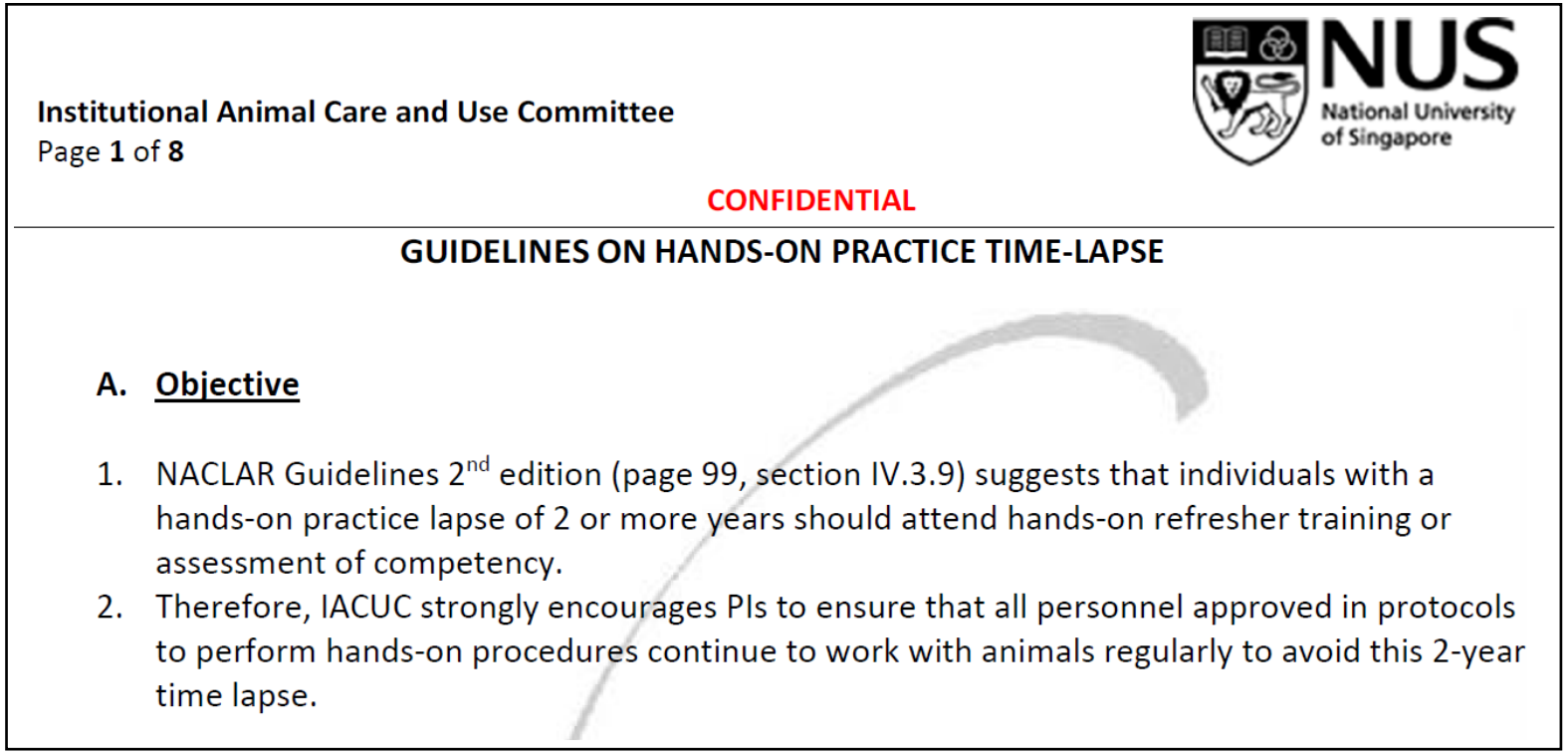
1 Guidelines on Hands-On Practice Time-Lapse

✓ Email sent to PIs on 10 Dec 2024 with Guidelines attached.

> PIs to ensure that all research staff are up to date with the necessary training.

> Take effect from **9 Feb 2025**

> Refer to Guidelines for further details



Institutional Animal Care and Use Committee
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GUIDELINES ON HANDS-ON PRACTICE TIME-LAPSE

A. Objective

1. NACLAR Guidelines 2nd edition (page 99, section IV.3.9) suggests that individuals with a hands-on practice lapse of 2 or more years should attend hands-on refresher training or assessment of competency.
2. Therefore, IACUC strongly encourages PIs to ensure that all personnel approved in protocols to perform hands-on procedures continue to work with animals regularly to avoid this 2-year time lapse.

Please see attachment 'IACUC202411 Implementation of IACUC Guidelines on Hands-on Practice Time-lapse.msg'

2 Intra-operative surgical form

A suggestion to improve intra-operative monitoring of rodents was made by the AAALAC site visitors

There are two new forms – **Rodent Surgical Record Checklist** & **NUS CM_Rodent Surgical Record**

✓ Documents circulated to all PIs via email on 4 Dec 2024.

Rodent Surgical Record -
https://cm.nus.edu.sg/corp/attachments/NUS_CM_Rodent_Surgical_Record.docx

Rodent Surgical Record Checklist
https://cm.nus.edu.sg/corp/attachments/Rodent_Surgical_Record_Checklist.docx

Please refer to the attachment 'Mandatory use of Rodent Surgery and Post-Surgery Monitoring Form.msg'

PIs can use CM's surgical form or the lab's own (must include parameters listed in the Checklist). Records to be kept for a minimum of 3 years after completion of the protocol.

Must be produced when requested.

The use of intra-operative monitoring forms is now **mandatory** when performing rodent surgeries.

3 Transfer of animals in RBR protocols

iRIMS-IACUC gives the option of combining research and breeding **(RBR)** protocols.

Caution :

- Animals undergoing research procedures must be clearly differentiated from the breeding animals.
- The breeding portion under RBRs should only serve research work approved in the same protocol. A standalone breeding protocol should be submitted if the intention is to breed and supply to more than one research protocols.
- For the monitoring and documentation of the number of animals used for research, an internal transfer form **must be submitted** for RBR protocols (and standalone breeding protocols) to use animals bred under the protocol for approved research procedures.

5 Protocol clinics

Are you planning to submit a protocol and don't know where to start?

Drafted a protocol but not sure if its sufficient?

Run into problems while drafting?

The IACUC Office is offering Protocol Clinics for PIs and Researchers. This is an opportunity for a discussion to iron out any issues you may have.

One-on-One or in a Group. In-Person or Virtual.

Please contact md.zacky@nus.edu.sg to arrange for a session.

Q & A

Follow-up from previous Townhall…

1) Questions received on the use of a document template for review comments instead of in email bodies.

- ✓ Implemented the use of a response template for amendments of iORC protocols (new protocols under iRIMS-IACUC).
- ✓ PIs/Researchers to provide responses to comments in attached document(s) **AND** to make the necessary updates on the iORC form(s), before returning the response template(s) and iORC form(s) to the Office.

2) Quality control on reviewing methods,

On the quality of reviewing methods, reviewers have been directed to avoid open ended questions that can be subjected to misinterpretation. Reviewers' comments and questions should come with a rationale and, where possible, suggested options are provided from which PIs/Researchers can choose to make their response.

Collation of pointers on the information required by the reviewers is being prepared. Document will be shared with researchers when ready.

Received questions

Can IACUC simplify view process if the protocol in a new project will use the same CM facility with similar method without adding any new hazard? For instance, internal checking and review may be more than enough

No two protocols will exactly be the same. Hence, every protocol is a unique and standalone document.

The NACLAR Guidelines require IACUC to review and approve all proposed protocols and all changes/amendments to an IACUC-approved protocol. It is IACUC responsibility to exercise due diligence and conduct independent review of all applications.

For methods approved in previous protocols, to facilitate IACUC review, PIs are advised to include past clarifications and conditions in the new applications for IACUC's review and consideration. Do not include reference statements e.g. 'as in protocol R19-1234'.

CONTACT US

If you have any queries or concerns, please feel free to drop IACUC Office an email at dprbox33@nus.edu.sg.

Additional contact information can be found at https://www.nus.edu.sg/research/iacuc/contact-us

Broad information on IACUC meeting schedule, it's policies and guidelines, and links to animal research related organisations such as AVS, AAALAC International can be found on our home page at https://nus.edu.sg/research/iacuc.

See you at the next Townhall!

[Link to feedback form will be emailed to attendees]