

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE
REPORT REGARDING THE STATUS
OF MICHIGAN STATE UNIVERSITY'S ANIMAL CARE PROGRAM
July 2021
(Reporting Period: 01/01/21 - 06/30/21)

The Michigan State University (MSU) Institutional Animal Care and Use Committee (IACUC) conducts semiannual reviews of its animal care and use program and submits reports of the evaluations to the Institutional Official (IO), the Vice President for Research and Innovation. The IACUC manages and evaluates the Animal Care Program in compliance with USDA regulations (9 CFR Parts 1, 2, & 3), the *Public Health Service Policy on Humane Care and Use of Laboratory Animals (PHS Policy)*, the *Guide for the Care and Use of Laboratory Animals, 8th Edition (the Guide)*, and the *Guide for the Care and Use of Agricultural Animals in Research and Teaching, 3rd Edition (Ag Guide)*. MSU is registered with the United States Department of Agriculture as an institution that has USDA-regulated species on its premises. The University has an approved Animal Welfare Assurance (A3955-01) from the NIH Office of Laboratory Animal Welfare (OLAW). In addition, all components of the University are accredited by AAALAC International.

EVALUATION OF THE ANIMAL CARE AND USE PROGRAM

The IACUC uses various methods to perform the Semiannual Program Review to focus on topics of importance and to analyze the program in different manners such as using the OLAW checklist and reviews of our PHS Assurance and AAALAC program Description. Importantly, the IACUC reviews the program on a monthly basis during the IACUC meetings. On June 10, 2021, the IACUC evaluated the Animal Care Program (ACP) through a robust discussion of two recent articles covering topics germane to the role of the IACUC to ensure animal welfare:

- ["Considering sex as a biological variable will require a global shift in science culture"](#) *Nature Neuroscience, Volume 24, April 2021*
- ["Pain Researcher Quits Academia, Takes Lab Home with Him"](#) *The Scientist, May 2021*

The ACP Disaster Plan was also reviewed in terms of effective operation during the pandemic and handling of the recent fire at the Dairy Farm. Environmental Health and Safety (EHS) provided an update on COVID-19 strategies, inspections, and training during the pandemic. Finally, the Research Liaison gave an overview of the Postapproval Monitoring program covering the past six months.

IACUC members concluded that the articles served as an excellent training module and review of the role of the IACUC in animal use and oversight in research and teaching by ensuring ethical, scientifically sound, standardized, and performance based practices. They were confident that our program appropriately addresses these issues and meets or exceeds standards. The broad membership of our IACUC facilitates the ability to review effectively research and teaching procedures that cover a diverse range of biomedical, wildlife, and agricultural topics. The committee continues to be satisfied with the way our institution has handled the pandemic and allowed for continued essential research.

Program Review Conclusion

During the Program Review, no deficiencies in the IACUC practices and procedures were identified and all aspects of the program were found to be consistent with the PHS Policy, the *Guide*, the *Ag Guide*, and applicable Animal Welfare Regulations. The committee concluded that the program is satisfactory.

INSPECTION OF ANIMAL FACILITIES

The IACUC inspected the animal facilities during the month of April, using the *Guide*, *Ag Guide*, and, as applicable, 9 CFR Parts 1, 2, & 3. The IACUC inspects housing facilities in the spring and fall of each year. Laboratories/study areas are inspected every six months on a rotating basis according to the buildings in which they are located. Due to the continuing pandemic safety restrictions in the outlying facilities and a few laboratories, inspections were conducted via Zoom. Personnel from EHS participated in the inspections.

Inspection Conclusions:

The results of the facility inspections revealed minor deficiencies at various animal sites as shown in the attached inspection summary (page 4-7). All deficiencies are monitored until corrected as described in the following paragraph.

Monitoring deficiencies identified during inspections and/or postapproval monitor visits:

Notifications about the deficiencies are sent to the department chairpersons/directors and/or facility supervisors with dates for correction of any deficiencies. Instructions for resolution can include notification in writing to the IACUC indicating that the deficiencies have been corrected or a plan of action for correcting the deficiencies. The Research Liaison (Postapproval Monitor) follows up on all deficiencies, verifies corrections, and reports directly to the IACUC. Should the deficiency be elevated to a significant concern, the Animal Care Program leadership will meet with the investigator and research team involved, and there may be increased visits to the laboratory and facilities to monitor corrective actions through to completion. The IACUC Oversight Committee provides assistance with amendments/changes to protocols and practices for approved animal work.

COMMITTEE MEMBERSHIP

The membership of the committee has not changed since the last semiannual report. The complete IACUC roster is on page 8.

EXCEPTIONS TO THE GUIDE

As required by regulation, a list of IACUC-approved (January-June) exceptions to the Guide are included on page 9.

IACUC RECOMMENDATIONS TO THE IO:

The transition into Click IACUC is complete with no AUFs remaining within the legacy system as of 30 June 2021. There are 448 active Click protocols in the system and to date in 2021 there were 340 amendments made to those protocols.

We acknowledge and appreciate that funds have been allocated toward upgrade and implementation of the Click software maintenance and development efforts. As there continues to be a need for IT support to maintain the software upgrade path for all three Click modules across ORA (IACUC, SAFETY (Radiation, Biosafety, Stem Cell), and IRB), resource planning is underway for the following:

- Click System Upgrade. The current modules have fallen behind with the upgrades offered by the vendor; these upgrades will improve PI use of the system, efficiency of protocol review, and reporting capabilities thereby reducing burden. Definition of additional continuing technical resources to support the next system upgrade are in process. Of note, the upgrade is required prior to pursuing the new Animal Operations module.
- New Click Module, Animal Operations. The Click Animal Operations module will provide significant advantages to efficiency and data management over the existing CARLOS (Campus Animal Resources Laboratory Ordering System). Dedicated investment toward the transition will be required from ORA, CAR, and MSU Information Technology Services (ITS) to ensure project success. To date, coordination with ITS (Leadership, Purchasing, Project Management) and the software vendor has been initiated.

As you are aware, there are upcoming critical staffing changes occurring within the ACP: the planned retirements of the Assistant VP Office of Regulatory Affairs and IACUC Administrator and the departure of the Attending Veterinarian. To address these significant changes along with the aforementioned software projects and potential impacts from the pending institutional collaboration with the Henry Ford Health System, a defined plan with dedicated resourcing efforts will be needed to ensure continued efficiency within the existing ACP. For example, continued consulting hours across positions or additional support to existing business office staff may be required.

COVID-19 has challenged the ACP but the animals in our charge have received excellent care due to the commitment of our animal care staff, veterinary staff, and facility managers. The IACUC office has been successfully working remotely and the monthly IACUC meetings have occurred via ZOOM.

The IACUC recognizes that the needs of an animal care program are constantly changing and require a great deal of effort and persistence to implement. Further, the IACUC and the Oversight Committee are committed to providing excellence and transparency in our program to the biomedical and agricultural communities at MSU. We appreciate all the support that the administration has given to the Animal Care Program.

MINORITY VIEWS

There are no minority views submitted at this time.

Michigan State University
IACUC Semiannual Spring 2021
Facility Inspections

Building Number	Species	Date	Inspection findings	Deficiency: Acceptable=A Minor=M Significant=S	Room Location	Date to be Corrected	Correction Confirmation Date	Comments, EHS, PAM
■	Rodents	4/6/2021	Expired tao found in veterinary box and disposed.	M	■	10/30/2021	4/6/2021	
■	Rodents	4/6/2021	Opened bag of diet gel found in bag labeled 1-21, and another was not labeled. Both were disposed.	M	■	10/30/2021	4/6/2021	
■	Rodents	4/6/2021	Expired hydrogel and antibiotic ointment found in cabinet. Both were disposed.	M	■	10/30/2021	4/6/2021	
■	Rodents	4/5/2021	Expired diets located in ■ room.	M	■	10/30/2021	4/6/2021	
■	Fish	4/5/2021	Expired larval diets, and improper labeling of MS222. Proper labeling would include name of substance, date, initials of person mixing, and an expiration date.	M	■	10/30/2021	5/28/2021	
■	Rodents	4/6/2021	Meloxicam was found with no expiration date. It may have been inadvertently left off as we spoke with ■ who just obtained it from CAR vets. Also found expired transport gel which was disposed. Unlabeled conical tubes in refrigerator. All labels must include substance, date, initials of person mixing substance and expiration date. Plastic bin contained many Ziploc bags which appeared to be diet? The bin should be cleaned and disinfected as it appeared dirty with rodent bedding.	M	■	10/30/2021	4/6/2021	

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█	Dairy Cattle	4/12/2021	There was a container of sodium chloride with a date of "2018" found in the █ room, which was disposed of by manager. An open bag of calf milk replacer was located in the █ room. Any opened bag of feed must be stored in a secondary container.	M	█ █ █	10/30/2021	4/12/2021	
█	Rodents	4/22/2021	Overcrowded mouse cage with 2 females and 2 litters. Could not count all pups, but appeared to be 15-20.	M	█	10/30/2021	4/22/2021	
█	Rodents	4/22/2021	Found expired food 04-21-21 found in plastic container supervisor promptly disposed of.	M	█	10/30/2021	4/22/2021	
█	Rodents	4/5/2021	Expired meloxicam and Metacam were found in veterinary drug box. All expired drugs were discarded.	M	█	10/30/2021	4/5/2021	
█	Rodents	4/5/2021	Expired diet gel found in veterinary drug box and was discarded.	M	█	10/30/2021	4/5/2021	
█	Rodents	4/5/2021	A jar with clear liquid was found with no label.	M	█	10/30/2021	4/5/2021	
█	Rodents	4/5/2021	Expired diet gel, hydrogel, and Metacam found in veterinary drug box. All were discarded.	M	█	10/30/2021	4/5/2021	
█	Rodents	4/5/2021	Expired isoflurane found and discarded.	M	█	10/30/2021	4/5/2021	

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■	Rodents	4/5/2021	Expired TKXm Ketamine, etc. All drugs that are controlled substances must be stored in a secure location. Any mixed drugs must have the proper labeling to include drug name, date of mixing, initials of person mixing the drug, and an expiration date. https://animalcare.msu.edu/guidelines/IGo08.pdf	M	■	10/30/2021	5/13/2021	
■	Rodents	4/5/2021	Expired meloxicam, puralube, triple antibiotic ointment. Also a conical tube with clear substance and no proper labeling which would include name of substance, date, initials of person mixing, and an expiration date.	M	■	10/30/2021	5/11/2021	
■	Rodents	4/5/2021	Expired or improper labeling on conical tubes, eye lubricant. proper labeling which would include name of substance, date, initials of person mixing, and an expiration date.	M	■	10/30/2021	5/18/2021	
■	Axoltyl, Salamanders	4/26/2021	Found expired Furan and Intrafungal. Inspectors labeled as expired and do not use. PI was alerted with need for disposal.	M	I	10/30/2021	4/28/2021	
■	Sheep	4/12/2021	Premixed levamisole was found in the refrigerator with no expiration date. It did have a date of 10-2020 on the label. Also found expired urine keto-stix.	M		10/30/2021	4/12/2021	
■	Aquatics	4/26/2021	Found expired feed, laboratory disposed of immediately.	M		10/30/2021	04/26/20216	

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Building Number	Species	Date	Inspection findings	Deficiency: Acceptable=A Minor=M Significant=S	Room Location	Date to be Corrected	Correction Confirmation Date	Comments, EHS, PAM
■	Small/Large Animal	4/21/2021	Found expired lubricant which was promptly disposed of by manager.	M	■	10/30/2021	4/21/2021	
■	Rodents	1/20/2021	Found expired 10ml bottles of saline. Liaison will contact laboratory for disposal.	M	■	6/30/2021	1/21/2021	
■	Rodents	1/20/2021	Found expired Isoflurane. Laboratory will dispose following EHS guidance. No animal imaging work has been done.	M	■	6/30/2021	1/21/2021	
■	Rodents	3/3/2021	Expired drugs found in lock box. The drugs must be labeled as expired, not to be used on live animals. Investigator is waiting for controlled substance disposal. Will amend current protocol to list euthanasia agent currently used.	M	■	9/30/2021	4/16/2021	
■	Rodent	4/7/2021	Found expired xylazine which was disposed of immediately.	M	■	10/30/2021	4/7/2021	
■	Rodents	5/26/2021	Found expired isoflurane, labeled as expired.	M	■	11/30/2021	6/30/2021	
■	Rodents	6/21/2021	Found expired diets in refrigerator and discarded. This has not been given as an experimental diet.	M	■	12/30/2021	6/22/2021	

IACUC Membership Roster

IACUC Membership July 2021

IACUC Chairperson [REDACTED]			
Name of Member/ Code*	Degree/ Credentials	Position Title	PHS Policy Membership Requirements***
7	DVM, MS	Clinical Veterinarian	Scientist
8	M.Div	Minister	Non-scientist, Nonaffiliated
9	Ph.D	Associate Professor / Food Science & Human Nutrition	Scientist
13	MAB	Industry President	Nonaffiliated
19	LVT	Research Liaison	Scientist
24	DVM, Ph.D	Associate Professor / Veterinarian	Scientist
AV F. Claire Hankenson	DVM, MS, DACLAM	Attending Veterinarian	Veterinarian, Scientist
33	Ph.D	Professor / Pathobiology & Diagnostic Investigation	Scientist
35	DVM	Clinical Veterinarian (Alternate)	Scientist
40	[REDACTED] Ph.D,	Assistant Professor/Farm Veterinarian	Scientist
41	[REDACTED]	Librarian	Scientist
43	BS	Research Assistant / Animal Science	Scientist
44	Ph.D	Professor / Translational Science & Molecular Medicine	Scientist
46	Ph.D	Associate Professor / Neuroscience	Scientist
47	Ph.D	Professor / Animal Science	Scientist
48	BS, MS	Community Member	Scientist, Nonaffiliated
50	Ph.D	Associate Professor / Animal Science	Scientist
51	Ph.D	Assistant Professor / Radiology	Scientist
52	Ph.D	Assistant Professor / Fisheries & Wildlife	Scientist
53	Ph.D	Senior Specialist / Animal Science	Scientist
E1	MS	Animal Handler Safety Officer / EHS (alternate)	Scientist

*** [PHS Policy](#) Membership Requirements:

Veterinarian veterinarian with training or experience in laboratory animal science and medicine or in the use of the species at the institution, who has direct or delegated program authority and responsibility for activities involving animals at the institution.

Scientist practicing scientist experienced in research involving animals.

Nonscientist member whose primary concerns are in a nonscientific area (for example, ethicist, lawyer, member of the clergy).

Nonaffiliated individual who is not affiliated with the institution in any way other than as a member of the IACUC, and is not a member of the immediate family of a person who is affiliated with the institution. This member is expected to represent general community interests in the proper care and use of animals and should not be a laboratory animal user. A consulting veterinarian may not be considered nonaffiliated.

MICHIGAN STATE UNIVERSITY
CURRENTLY APPROVED EXCEPTIONS

PROTOCOL / AUF #	SPECIES	Exception to...					EXCEPTION	APPROVAL DATE
		AWA	Guide	Ag Guide	MSU Guide	N/A		
202100003	Chicken			x			Approved an exception for lighting. The S birds (slow lighting group) will follow a gradual decline in light hours beginning with 20 hours of light at 2 weeks of age and reaching a 10-hour photoperiod by 16 weeks of age (as described by Hester et al. 2011). Hours of light will not be increased until 19 weeks of age delaying onset of egg lay by 2 weeks. At 17 weeks, pullets will be transferred to the laying hen aviary system. Hens will be distributed among 4 sections of an aviary room (4 total rooms) with stocking density of 144 birds per section (144 sq. in. per bird). Lighting in the Slow(S) treatment will be held at 1 to 0.5 FTC (10 to 5 lux) for 8 hours/day until 20 weeks of age. Standard lighting would increase to 10 hours per week at 16 weeks of age and then increase an additional amount each week. We aim to delay the onset of egg-lay by modifying the lighting program during the pullet phase. The hypothesis is that delaying the onset of egg-lay may improve bone density and reduce prevalence of keel fractures.	2/9/2021
202100007	Mouse		x				Approved an exception for lighting and cage changes. Mice will be maintained the minimal amount of time in constant darkness possible. When the phenotype of the transgenic mouse studied is strong, 3-4 weeks in constant darkness is sufficient to conclude the study. However, in some cases it takes longer to reveal a phenotype, in some cases as long as 7-10 weeks. To obtain meaning full circadian wheel running data, it is important the mice are disturbed as little as possible. Cage changes can entrain wheel-running activity, and thus interfere with the study. When mice are singly housed with the running wheel, cage changes will be done every 21 days. If the cages become excessively dirtied or animal health issues arise, the CAR veterinary staff have the authority to request an earlier cage change date.	3/15/2021