

# Temporary housing for hamsters

Jeanie Cooley was collecting fluid samples from catheterized hamsters that were housed in the Great Eastern University animal facility. It took her about 15 minutes to collect the samples, 10 minutes to transport the samples to her lab and another 15 minutes to prepare the samples for freezing. An hour later she began the entire process again. After four days of 12-hour cycles of running back and forth, she was exhausted and submitted a protocol amendment to the IACUC.

The amendment stated that three hamsters would be housed in Cooley's lab for no more than four days, the maximum needed sample collection time. The animals would be kept in three separate cages, all placed inside a large, custom-made, transparent plastic box that she had brought from her former institution. The box had a small ventilation fan that worked with a thermostat, ventilation holes, a 15-watt bulb with an automatically controlled light

cycle and a small humidifier to be used only if needed. Cooley said she would open the box a few times a day to observe the animals and collect samples. At night, the lab lights would be turned off but a red task light was available for her to use.

The IACUC reviewed Cooley's written request, but before making a final decision, the committee sent an IACUC member and an animal facility supervisor to observe Cooley's lab and the box and report on their findings. The lab was a typical research lab used by multiple investigators, with Cooley's bench located toward the middle of the lab. The animal holding box was placed on a table in a work alcove of the lab. The alcove was separated from the main lab by a floor-to-ceiling light-proof curtain. Emergency power was available in the alcove. The lab's heat was lowered to 68 °F at night, and its air flow was reduced to six changes per hour. Animal facility personnel would observe the animals daily.

The report sent back to the IACUC indicated that no potential regulatory problems were found. But when the amendment went to designated member review, one of the reviewers thought that the proposed changes were more for convenience than for scientific necessity. He implied that if Cooley did not have the resources to do the study in the animal facility, then it should not be done at all. Furthermore, the IACUC office was unsure if the proposed amendment would create a new animal facility or if it constituted an IACUC-approved deviation from the recommendations of the *Guide for the Care and Use of Laboratory Animals*<sup>1</sup> that had to be included in the semiannual report. What are your opinions on this problem facing the Great Eastern IACUC?

1. Institute for Laboratory Animal Research. *Guide for the Care and Use of Laboratory Animals* 8th edn. (National Academies Press, Washington, DC, 2011).

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## RESPONSE

### A new facility and a deviation

Randy Parsons, AAS, RLAT

It's both a new animal facility and a deviation from the recommendations of the *Guide for the Care and Use of Laboratory Animals* (the *Guide*)<sup>1</sup>. Hamsters are a USDA-regulated species, and housing them in Cooley's lab for up to four days would create an animal study area as defined by the Animal Welfare Act and Regulations (AWARs)<sup>2</sup>. As such, the Great Eastern University IACUC would be responsible for inspecting the area, as is required for all animal areas, during the semiannual facility inspection. The scenario states that

an IACUC member and an animal facility supervisor were sent to observe Cooley's lab and describe their findings. If the animal facility supervisor isn't a member of the Great Eastern University IACUC, then this inspection would not meet the requirements of the AWARs for conducting evaluations of the research facility. This requirement states, "The IACUC may use subcommittees composed of at least two Committee members and may invite ad hoc consultants to assist in conducting the evaluations..."<sup>2</sup>. The scenario provides some details of the inspection's findings but doesn't address certain requirements of an animal area such as food storage, water, temperature control (to prevent over-heating), documentation of temperature and humidity levels, cage space requirements, documentation of husbandry procedures or sanitization of the area including the animal caging. Reducing

the air flow to six changes per hour is a deviation from the recommendations of the *Guide*, which lists an acceptable range of 10–15 fresh air changes per hour in animal housing rooms<sup>1</sup>.

The limited information provided in this scenario creates additional questions that the Great Eastern University IACUC must address before it can provide approval for this protocol amendment. Would the small ventilation fan used in the box create a noise issue for the animals? Is the number of hours of light provided by the 15-watt bulb appropriate for hamsters? Does the light bulb provide sufficient illumination (lux) for hamsters? Does the floor-to-ceiling light-proof curtain used to separate the hamsters from the main lab also reduce noises from the main lab? What is the temperature setting during the day, and is this within the acceptable

## A word from USDA and OLAW

In response to the questions posed in this scenario, the United States Department of Agriculture, Animal and Plant Health Inspection Service, Animal Care (USDA, APHIS, AC) and the Office of Laboratory Animal Welfare (OLAW) offer the following guidance:

This scenario deals with two important issues: designation of animal study areas and satellite facilities and IACUC inspections. An area that houses animals for greater than 12 hours is considered a study area under the Animal Welfare Act and Regulations (AWARs)<sup>1</sup>, and one that houses animals for greater than 24 hours is considered a satellite facility under the Public Health Service *Policy on Humane Care and Use of Laboratory Animals* (PHS Policy)<sup>2</sup>. As a result, this lab is subject to inspection by the IACUC at least once every six months or as often as it deems necessary to monitor animal well-being<sup>1,2</sup>. The AWARs (9 CFR 2.31(c)(3)) allow the IACUC to use subcommittees comprising at least two IACUC members to conduct inspections. The PHS Policy<sup>2</sup> requires that IACUC inspections use the *Guide for the Care and Use of Laboratory Animals* (the *Guide*)<sup>3</sup> as a basis for evaluation. The inspection in this scenario should review whether the requirements for hamsters under Part 3 Subpart B of the AWARs are met and whether the standards in the *Guide* for environment, housing and veterinary care are appropriately addressed<sup>1,3</sup>. The OLAW Semiannual Facility Inspection Checklist may prove a valuable resource in determining the adequacy of the lab location and operating procedures<sup>4</sup>. The *Guide* allows for laboratory housing if the purpose meets scientific aims. If the designated member is unsatisfied with the investigator's rationale for the satellite facility, then the amendment must be modified to the reviewer's satisfaction or returned for full committee review. Specialized equipment is often a deciding factor in justifying laboratory housing. The housing should be limited to the period during which it is required, and occupational hazards and transportation issues should be addressed prior to final approval of the new location<sup>3</sup>.

1. Animal Welfare Act and Regulations. Code of Federal Regulations. Title 9. Sections 1.1, 2.31.c 2, 3.
2. Public Health Service. *Policy on Humane Care and Use of Laboratory Animals* (US Department of Health and Human Services, Washington, DC, 1986; amended 2002).
3. Institute for Laboratory Animal Research. *Guide for the Care and Use of Laboratory Animals* 8th edn. (National Academies Press, Washington, DC, 2011).
4. Public Health Service. *Semiannual Program Review and Facility Inspection Checklist* (US Department of Health and Human Services, Washington, DC, 2012).

### Chester Gipson, DVM

Deputy Administrator  
USDA, APHIS, AC

### Patricia Brown, VMD, MS, DACLAM

Director  
OLAW, OER, OD, NIH, HHS

ranges for hamsters listed in the *Guide* (68–79 °F)<sup>1</sup>? Finally, what is done with the animals after the four days of fluid collections? The proposed amendment should address these questions; if it does not, the IACUC should ask for clarifications during its review of the amendment.

In conclusion and on the basis of the information provided in this scenario, the Great Eastern University IACUC should not approve this amendment as the standards of animal care recommended by the *Guide* have not been met. The IACUC member who had questions about the rationale for the amendment submission always has the option of requesting full committee review.

1. Institute for Laboratory Animal Research. *Guide for the Care and Use of Laboratory Animals* 8th edn. (National Academies Press, Washington, DC, 2011).
2. Animal Welfare Act and Regulations. Code of Federal Regulations. Title 9. Section 2.31.c 2, 3.

Parsons is IACUC Coordinator at St. Jude Children's Research Hospital, Memphis, TN.

## RESPONSE

### Need scientific justification

Antonio Valero, DVM, LATG, CPIA,  
Walter Jeske, PhD & Cheryl Paulus

The Great Eastern IACUC must request Jeanie Cooley to provide scientific justification in her amendment submission in order for the IACUC to completely review and approve the amendment. The IACUC must meet with the IACUC member and animal facility supervisor that observed Cooley's lab to explain the finding of no potential regulatory problems; with the designated reviewer to address his or her concern; and with the IACUC office staff to discuss the possible deviations from the recommendations of the *Guide for the Care and Use of Laboratory Animals* (the *Guide*)<sup>1</sup>.

The *Guide*<sup>1</sup> recommends that hamsters be housed in appropriate cages, maintained in a controlled environment, with an air flow rate of at least of 10–15 changes per

hour. Hamsters are nocturnal; if housed in the lab, they would be shielded from light but noise and possibly instrument vibration may be disruptive to their sleep–wake cycle. The lab must be secure to prevent other staff members from entering the animal location. Standard operating procedures should describe the husbandry procedures outside the main facility and indicate who will perform the procedures.

The Animal Welfare Act (AWA)<sup>2</sup> states that innovative primary enclosures that do not precisely meet the space requirements but that do provide hamsters with a sufficient volume of space and the opportunity to express species-typical behavior may be used at research facilities when approved by the IACUC.

The IACUC must discuss the scientific justification that explains the need to house the hamsters in Cooley's lab. The IACUC must review the justification and approve the departures from the recommendations of the *Guide*. IACUC approval of departures from these recommendations must be based on scientific, veterinary medical or animal welfare issues.

If the amendment is approved as submitted, the IACUC along with the IACUC office must include it in the semiannual report to the Institutional Official listing all the IACUC-approved deviations from the *Guide* and the reason for each departure. Cooley's lab must be designated as a new animal facility and requires IACUC inspection as it will house USDA-covered species for up to 4 days, which exceeds both the 12-hour limit given in the AWA (§1.1)<sup>2,3</sup> and the 24-hour limit given in the Public Health Service *Policy on Humane Care and Use of Laboratory Animals* 23:20; 25:1<sup>3,4</sup>.

We concur with the designated member reviewer that the proposed changes were more for convenience than for scientific necessity. Blanket, program-wide departures from the recommendations of the *Guide* for reasons of convenience, cost or other non-animal welfare considerations are not acceptable.

The IACUC must disapprove the amendment. The IACUC can instead recommend that Cooley add more staff, make arrangements with the animal facility supervisor to use a room in the facility to process the samples, or move the animals to her lab during the collection of fluid samples but return them to their home cages in between collection cycles.

1. Institute for Laboratory Animal Research. *Guide for the Care and Use of Laboratory Animals* 8th edn. (National Academies Press, Washington, DC, 2011).
2. Animal Welfare Act and Regulations. Code of Federal Regulations. Title 9, Chapter 1. Section 3.28 (c)(3).
3. Silverman, J., Suckow, M.A. & Murthy, S. *The IACUC Handbook* 2nd edn. 430 (CRC Press, Boca Raton, FL, 2007).
4. Public Health Service. *Policy on Humane Care and Use of Laboratory Animals* Section IV.A.3. (US Department of Health and Human Services, Washington, DC, 1986; amended 2002).

Valero is IACUC Director, Jeske is IACUC Vice-Chair and Paulus is IACUC Administrative Secretary, Health Sciences Division, Loyola University Chicago, Health Sciences Campus, Maywood, IL.

## RESPONSE

### Inappropriate animal housing

Chandra D. Williams, DVM, DACLAM, CPIA, Yvette Huet, PhD & Dixie Airey

The animal facility environment must provide for the health, safety, comfort and wellbeing of the animals no matter where it is located. Housing hamsters (a USDA-covered species) outside of the Great Eastern University animal facility undoubtedly would entail the creation of a satellite animal facility, in accordance with the Public Health Service *Policy on Humane Care and Use of Laboratory Animals*<sup>1</sup> and the USDA Animal Welfare Act and Regulations<sup>2</sup>.

Although an IACUC preliminary inspection of the area identified no potential regulatory problems, satellite facilities should provide appropriate functional space and environmental conditions to maintain optimum health and regulatory compliance.

Animal facility environmental specifications are constant, whereas external laboratory and teaching spaces are often on energy conservation programs and set environmental parameters at levels similar to the conditions stated in the scenario. Reduced air flow rate in a shared laboratory space could result in air stagnation, cage gas build-up and disease. The floor-to-ceiling light-proof curtain provides no guarantee against disturbance in circadian rhythm, and there is no indication of what other procedures are ongoing in the shared laboratory space. Nearby chemical reactions could negatively affect the wellbeing of the animals, as there is no indication that the box has filters built into the ventilation system to protect the animals from noxious fumes. In addition, noise and vibrations from laboratory

equipment and additional people in the laboratory could affect the animals.

One piece of information that the IACUC needs is the justification for moving the animals. The IACUC should determine whether the necessary equipment could be housed within the animal facility or whether accommodations for sample preparation prior to freezing are available within the animal facility. Either of these options would allow Cooley more research time and less travel time.

Cooley has also requested single housing for the three hamsters. Single housing of animals specific to experimental reasons is an established exception to the housing recommendations in the *Guide for the Care and Use of Laboratory Animals* (the *Guide*)<sup>3</sup>. The IACUC can approve this housing for scientific purposes but it does not have to be reported to the Institutional Official in the semiannual report.

Finally, there is no discussion of environmental monitoring that could raise an alarm if the environmental parameters in the box exceed those found in the *Guide*. With no monitoring or alarm system, temperature, air flow or other environmental parameters could reach unacceptable levels and could result in animal morbidity and mortality.

1. Public Health Service. *Policy on Humane Care and Use of Laboratory Animals* Section IV.B.1-8. (US Department of Health and Human Services, Washington, DC, 1986; amended 2002).
2. Animal Welfare Act and Regulations. 9 CFR, Chapter 1, Subchapter A, Subpart C, Section 2.31.
3. Institute for Laboratory Animal Research. *Guide for the Care and Use of Laboratory Animals* 8th edn. (National Academies Press, Washington, DC, 2011).

Williams is University Veterinarian; Huet is Professor of Kinesiology, Director of ADVANCE Faculty Affairs and Diversity Office and IACUC Chair; and Airey is Director, Office of Research Compliance, University of North Carolina at Charlotte, Charlotte, NC.