

MOUSE CAGE DENSITY GUIDELINES

Table of Contents

1. [Background](#)
 2. [Purpose](#)
 3. [Definitions](#)
 4. [Procedures](#)
 5. [References](#)
-

Background

According to the *Guide for the Care and Use of Laboratory Animals (Guide)*, up to five adult mice may be housed in either static or individually ventilated mouse cages (≥ 15 square inches of floor space per animal). For breeding purposes, the size of the standard mouse cage is designed to accommodate one adult female mouse, one adult male mouse, and their litter (51 square inches of floor space). Mice 21 days and older are considered to be adults and thus each individual count as 1 mouse unless justified in the Animal Use Protocol (AUP) and approved by the Animal Care and Use Committee (ACUC). Animal overcrowding compromises humane animal care and goes against the principles of the *Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals*.

Purpose

These guidelines were established to assist Principal Investigators (PIs), their staff, and personnel from the Office of Laboratory Animal Care (OLAC) in identifying an overcrowded mouse cage. Additionally, these guidelines will define what an overcrowded cage is and how incidents of overcrowding will be rectified. Any deviation or exception to these guidelines must be described and justified in the PI's approved AUP.

Definitions

1. Overcrowded Cage

- a. Greater than 5 adult (post-weaning) mice of the same sex in a standard mouse cage
- b. Harem breeding (aka-Trio breeding cages) with 2 litters with either litter being greater than 7 days of age
- c. Adult female with a litter 21 days of age or older

Procedures

1. OLAC staff monitors animal health daily (e.g., food, water, health concerns) but is not responsible for the management of rodent breeding colonies. When overcrowded cages are identified by OLAC staff during morning health checks, an Overcrowded “Post-it” tag will be placed on those cages at the time they are identified. These “post-its” will have the date and the initials of the OLAC staff member who tagged the cage.
 - a. Any tagged cages that have not been addressed by the associated PI lab by 8 am on the following workday will be separated by OLAC staff.
 - b. A per-cage charge will be levied for each cage created to house animals at appropriate densities.
2. The PI and Lab members are responsible for checking for pregnancies and births daily (including weekends and holidays) and for recording these events on the appropriate cage card(s). When a litter is born, the date of birth (DOB), number of pups, and date the pups are weaned *must be documented on the card for that cage*.
 - a. OLAC personnel *are not* responsible for contacting lab members to inform them of pregnant females or to separate pregnant females, new litters or the need to wean a litter.
 - b. The date of birth for a new litter *may* be recorded on the cage card by OLAC staff, but this would be done as an aid to the investigator, not as a required OLAC staff duty.
3. All litters *must* be weaned by 21 days of age. The day of birth is counted as day zero. OLAC staff will tag cages with 21-day-old pups during morning health rounds and the animals will be separated the following day after 8 am by OLAC staff if not done so by the PI’s lab personnel.
 - a. Cages that do not have birth dates noted on the cage card may be tagged as overcrowded and animals may be weaned prematurely based on visual assessment made by OLAC staff.
 - b. OLAC facility supervisors and veterinary staff can approve an immediate separation if the litters are disparate.
4. Delayed wean *must* be approved in the AUP.
 - a. Any litter that requires weaning later than the 21-day standard must be described and justified in the PI’s approved AUP.

- b. Investigators will need to submit a “Request for Special Services” on the OLAC website to ensure that OLAC staff is aware of this deviation from standard mouse husbandry.
5. Delayed cage change:
 - a. When a new litter is present a delayed change must be clearly identified with a “New Litter” tag with the date (no more than three (3) days) and initials of the responsible person who will change the cage within the three (3) days.
 - b. Cages will be changed regardless of litter age if a cage is flooded or heavily soiled. The determination to clean that cage will be made by the OLAC area supervisor based on animal welfare concerns.
6. Harem breeding (aka-Trio breeding, 2 or more females and one male per cage) *must be* described and justified in the PI’s approved AUP.
 - a. Lab members are *strongly recommended* to check for pregnancies and litters daily (including weekends and holidays).
 - b. Any visibly pregnant dam *should* be moved to her own cage prior to giving birth.
 - c. Breeding males should be removed from the cage so that the post-partum estrus does not result in additional pregnancies (one male and one female).
 - d. Lab members are *strongly recommended* to genotype pups as early as possible and cull those that do not meet the desired genetic profile.
 - e. Allowing a 3-week-old litter to stay in the cage with a lactating female who also has a newborn litter *is not permitted*.
7. Investigators may request additional training and breeding colony consultations via the OLAC Training Coordinator and Veterinary Staff.

References

- Bayne K and Turner PV eds. Laboratory Animal Welfare. 2013. Chapter 12, Rodent and Rabbit Welfare in the Research Environment (pp. 184-185).
- Office of Laboratory Animal Welfare. (2002). [Public Health Service Policy on Humane Care and Use of Laboratory Animals](#).
- UC Berkeley ACUC Guideline on [Cage Card Notification System Guidelines](#)
- UC Berkeley OLAC Guideline on [Quick Reference: Improving Mouse Breeding Success](#)