

# Researchers protest against minimum cage sizes for breeding rodents

Costs of animal housing could grow dramatically under revised US guidelines.

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US researchers are concerned that revised guidelines that recommend a minimum size for breeding lab rodents' cages will substantially increase the cost of animal work.

The eighth edition of the *Guide for the Care and Use of Laboratory Animals*, published last year by the US National Academies in Washington DC, is the first to recommend minimum cage sizes for female rats and mice and their litters. The guide recommends 330 square centimetres (51 square inches) of floor space for a single female mouse plus her litter, and 97 square centimetres for each adult mouse weighing more than 25 grams. A female rat plus her litter would get 800 square centimetres of space under the rules, whereas each adult in a group would get 450 square centimetres. These guidelines come from a combination of current practice and existing standards in the European Union.

This is the first new edition of the *Guide* since 1996. Since then, the number of laboratory rodents has soared owing largely to a steep rise in the breeding of transgenic mice. The US National Institutes of Health (NIH) in Bethesda, Maryland, officially adopted the guidelines in December; they came into effect for all its researchers on 1 January. The Association for Assessment and Accreditation of Laboratory Animal Care International in Frederick, Maryland, which inspects research institutions around the world, has also adopted the guide.

## Cage costs

Bob Adams, interim associate provost for animal research and resources at Johns Hopkins University in Baltimore, Maryland, estimates that to comply with the minimum space requirements for breeding mice, he would have to purchase at least 15 extra racks of 70 cages each, at a total cost of some US\$300,000. He keeps many of his breeding animals in groups of a male, two females and their litters for reasons of breeding efficiency, and so that if one mother is neglectful, the other female can nurse her pups. These groups inhabit cages with 485 square centimetres of floor space, which would often not be enough under the new rules.

Joseph Thulin, director of the Biomedical Resource Center at the Medical College of Wisconsin in Milwaukee, one of the largest rat-housing facilities in the United States, calculates that it would cost his institution between \$500,000 and \$750,000 to buy the caging and associated equipment that would be required to re-house the institution's 2,000 pairs of breeding rats. The animals and their litters currently inhabit cages with 900 square centimetres of floor space, rather than the 1,250 square centimetres that he thinks are needed under the guidelines.

But Janet Garber, a research-management consultant based in Pinehurst, North Carolina, who chaired the National Academies committee that revised the guidebook, says that it is untrue that the space requirements for additional individual adults should be arithmetically added to the floor space requirements for a female and her litter. The guide, she says, "is not saying, for example, that if I have two females with two litters that I double the space required for a single female with a litter. It says that if I add another female with her litter I may need more than 51 square inches of space."

## Room for interpretation

The authors of the guidebook and officials at the NIH's Office of Laboratory Animal Welfare (OLAW) all say that there is room for interpretation in the application of the recommendations, and that they can and should be individualized to each institution's situation.

Patricia Brown, the director of OLAW, says that her office "expects institutions to use the guide's space recommendations as a starting point", using performance indices such as health, growth and activity to assess whether cages are big enough. Institutions may present



*Arco Images GmbH/Alamy*

A female mouse with a litter of pups would get roomier accommodation under revised rules.

written justifications for departing from the guide's standards — although not in a 'blanket' way that would cover all their rodents.

Researchers are sceptical that the rules will be bent in their favour. “The guide says 'recommended minimum space' and OLAW says 'starting point'. So how do you come up with this not being the new minimum standard?” asks Adams.

Some researchers add that there is not enough evidence that the guidelines are necessary. “If we are going to make drastic changes in the way we care for [rodents], we want good evidence” that the changes will improve their welfare, says Thulin. In his opinion, that evidence is lacking.

Garber takes issue with this. The literature on the subject is decidedly mixed, she says, and more work is required. But she feels that on balance, the evidence supports the recommended cage sizes.

OLAW is accepting comments on its interpretations of the *Guide* until 30 January.

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