

American College of Laboratory Animal Medicine
Committee for Evidence-Based Performance Standards

Guidance Document on Evaluation of Laboratory Animal Care Standards
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All standards of laboratory animal care, whether they adhere to performance, practice, or engineering principles, should be periodically reviewed for appropriateness with respect to evolving knowledge and technology. Standards that impact animal health and welfare, worker safety, capital costs, energy consumption, regulatory compliance, security or other essential factors should require occasional reassessment to ensure that new knowledge and other changes are considered in order to advance the field. Such a philosophy is recognized as both desirable and inevitable in the *Guide for the Care and Use of Laboratory Animals*¹ and fundamental to continuously improving how we provide care for animals used in research, testing, and education. The purpose of this guidance document is to advise Diplomates of the College and other interested parties on how to compare the characteristics and consequences of an established standard versus possible modifications to that standard.

Evaluating changes in standards of laboratory animal care must employ the scientific method so the results of those evaluations are reproducible and more acceptable to others. Defined simply, the scientific method involves “the collection of data through observation and experimentation, and the formulation and testing of hypotheses”². Thus, a hypothesis should be generated with respect to the merits of a current (control) standard matched against an alternative approach. The circumstances in which each task is performed should be controlled to minimize unintended variation between the control and the alternatives. Observations should be quantitative in nature and of sufficient multiples to allow appropriate statistical tests to determine if significant differences exist between the current standard and the alternative under study. Because animals or personnel are likely to be impacted by any change in a standard, additional components beyond merely quantified differences need to be included in any final conclusions to avoid making one critical dimension (e.g., animal welfare, occupational safety) possibly worse while aiming to improve another.

A good way to get started is to first identify a problem associated with a current standard or possible ways to improve that standard. Initial information and calculations can be gathered to determine if the possible improvements are even feasible, and a search of the published literature performed to determine if similar changes to the standard have been already considered and what were the results. If this exploratory phase is encouraging, a hypothesis can be constructed, the experiment designed and conducted, and results assessed utilizing appropriate statistical analysis when appropriate to determine if the hypothesis was true or false. Finally, confirmatory results should be published in a peer-reviewed journal or other appropriate medium so others are more likely to become aware of these findings and may consider their adoption or further exploration.

References

1. Institute of Laboratory Animal Resources (U.S.). Guide for the care and use of laboratory animals. 8th ed. , Washington, D.C.: National Academies Press, 2010.
2. <http://www.merriam-webster.com/dictionary/scientific%20method>, accessed 20 April 2010