

Goldberg is a Laboratory Animal Anesthesia Specialist in the Departments of Physical Therapy and Anatomy and Neurobiology and IACUC member at Virginia Commonwealth University/Medical College of Virginia (Richmond, VA).

## Battle of the “Rs”—Reduction versus Refinement?

Cindy M. Hoorn, DVM, PhD and Terri L. VandeGiessen, BS

In all research situations involving the re-use of animals, our ultimate concerns are first and foremost the health and well-being of the animal, and second, how well that animal will be able to fulfill

its intended research use. Although the scientist can best address the latter concern, the IACUC often relies on the professional judgment of the laboratory animal veterinarian to decide the appropriateness of re-use from the standpoint of the animal. Because there is no clear regulatory guidance available on this subject, it is also helpful to have in place institutional standards on the re-use or sharing of animals, providing guidance on determining when to terminate use of the animal.

In this scenario, the IACUC should first meet with the AV to discuss the concerns with regard to re-use of these animals. Knowing the quality of the Great Eastern animal care and use program and the rigor of the IACUC, we assume that both surgeons are well trained and competent, and that all procedures involve the appropriate use of analgesics both before and after the surgeries. Presumably, the AV would be familiar with the specific procedures involved and could provide the IACUC with information on the actual impact on the animals, both short and longer term. If the AV believes that this combination of procedures is inappropriate, considering the actual physical condition of the animals and knowledge about the surgical procedures and their potential impact on the dogs, the IACUC should respect and abide by this decision. However, if this issue remains somewhat ambiguous, the IACUC may want to explore the situation further.

Most people would agree that our goal should be to minimize pain and distress in our research animals to the greatest extent possible, while still achieving our research aims. If the choice were between inflicting substantial pain and distress on a few animals or minimal pain and distress on a larger number of animals, most would opt to use more animals. However, as the impact on the animals decreases, the pendulum would likely swing in the opposite direction, and the preference would be to reduce numbers as much as possible.

In this case, the decision should be based on the impact on the individual animals. If the procedures are in fact minimally invasive (“easy”), do not cause any adverse aftereffects, and result in truly minimal pain and distress to the animals, then the IACUC and the AV may be comfortable in approving the re-use of a small number of animals by Johnson on a trial basis. The AV should be involved in determining which dogs would be the most appropriate candidates for re-use and, with an IACUC representative, should then assess the impact of the second study on the dogs. If, in the view of the AV and the IACUC, the dogs are not affected adversely by the combination of procedures, then this joint use of animals could be expanded to accommodate Johnson’s needs. Alternatively, some additional conditions could be added as appropriate, such as a more extended rest period between the studies, or requiring that Johnson conduct his second surgery as a terminal procedure.

Finally, although we applaud Great Eastern’s efforts to offer “retired” research animals for adoption, the IACUC should take this opportunity to revisit the institution’s adoption policy to ensure that it is being used as intended and poses no undue risk to the institution. Presumably, the IACUC has reviewed the administration of radiolabeled compounds to Brown’s dogs and found that this procedure poses no risk to either dogs destined to become pets or their adoptive human companions. But does the institution’s adoption policy also require Brown to try to identify other possible research uses for the dogs before they are released for adoption? And are there “aesthetic guidelines” limiting the adoption of dogs with visible surgical alterations, such as the removal of part of the pinna?

**Hoorn is the Corporate Animal Welfare Officer and IACUC Officer and VandeGiessen is a Pre-Clinical Resource Laboratory Team Leader in Drug Metabolism Research and a member of the IACUC at Pharmacia Corporation (Kalamazoo, MI).**