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Pain & Distress Report

From the Pain & Distress Campaign of The Humane Society of the United States

POLICIES+PERSPECTIVES

Australian Guidelines on Pain and Distress

Australia's National Health and Medical Research Council recently released *Guidelines to Promote the Well-Being of Animals Used for Scientific Purposes: The Assessment and Alleviation of Pain and Distress in Research Animals 2008*. The guidelines are to be used in conjunction with the Australian code of practice for the care and use of animals for scientific purposes. Part I provides information on well-being; how it is affected by stress, distress, and pain; and the resulting effects on science. Part II discusses strategies for planning, con-

ducting, and reviewing research protocols in order to identify and minimize pain and distress. Part III provides fact sheets with guidelines on minimizing pain and distress in specific research protocols, including blood collection, euthanasia, polyclonal antibody production, and surgical procedures. The guidelines also include numerous tables, such as species-specific signs of pain and distress. The document is available at nhmrc.gov.au/publications/synopses/ea18syn.htm.

Welfare Aspects of Phenotyping Genetically Engineered Mice

Brown and Murray (2006, *ILAR Journal*, 47(2): 118–123) discuss the importance of predicting, to the extent possible, all phenotypic aspects of genetically engineered animals—aspects not only relevant to the research program but affecting animal welfare as well—so that studies can be planned accordingly and

adverse outcomes minimized. The authors recommend that scientific publications regarding the use of genetically engineered mice include information on all aspects of phenotype, such as descriptions of special care needs, environmental parameters, and husbandry practices.

Statement on Fetal Calf Serum

The European Scientific Advisory Committee of the European Centre for the Validation of Alternative Methods recently endorsed a statement recommending the use of nonanimal serum substitutes for fetal calf serum and other ani-

mal-derived supplements whenever possible. The statement also specifies that test methods forwarded to ECVAM for validation must provide justification for not using nonanimal supplements. For more information, go to ecvam.jrc.it.

Ocular Testing Alternatives Accepted

The Consumer Product Safety Commission, Environmental Protection Agency, and Food and Drug Administration have accepted the recommendations of the Interagency Coordinating Committee on the Validation of Alternative Methods to validate both

the isolated chicken eye assay and the bovine corneal opacity and permeability assay as nonanimal alternatives for testing ocular safety. A positive result from either method results in labeling the product as one that causes irreversible eye damage. Products yielding a negative

The Pain & Distress Report is available online at humanesociety.org/pain_distress_report.



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NOTEWORTHY

Campuses Take Pain and Distress Pledge

The Humane Society of the United States has begun asking U.S. colleges and universities to pledge to ensure that no animals at their institutions experience severe, unrelieved pain and/or distress during any aspect of their care and use. So far, 25 schools have signed the pledge, demonstrating their commitment

to go beyond the letter of the law in addressing research animal suffering.

The HSUS recognizes that the majority of animal-based protocols do not result in severe pain and/or distress. However, the pledge gives colleges and universities that conduct animal research an opportunity to focus attention on

and better address pain and distress, regardless of their levels. When not alleviated, pain and distress can harm an animal's physiological and psychological state, confounding experimental results. For more information and a list of schools that have signed the pledge, visit humanesociety.org/campuspledge.

Pain in Infants Often Goes Untreated

Carbajal et al. (2008, *JAMA*, 300: 60–70) found in a large observational study conducted in Paris that infants in intensive care often underwent painful procedures without analgesia. Co-author Anand states that this trend also occurs in the U.S. The researchers believe that repeated, prolonged exposure to pain

impacts long-term development and pain processing in neonates. Notably, the authors said that the common use of facial expressions alone to determine whether infants are in discomfort may underestimate pain.

The underuse of analgesics in human infants raises issues about the use of

analgesics in other animals. Pain assessment in nonhumans can be difficult, particularly if carried out exclusively through the use of behavioral observations in species that typically conceal injury and pain. This is another reason to rigorously tackle pain and distress assessment in animals used for research purposes.

FROM THE TECHNICAL LITERATURE

Measuring Postoperative Pain

Richardson et al. (2007, *Laboratory Animals*, 41: 46–54) examined the effectiveness of the Pain Gauge, a device that measures electrodermal activity (EDA). Postoperative pain was assessed in 67 laboratory rats who received laparotomy, craniotomy, or sham surgery, along with, for analgesia, either meloxicam or one of three doses of parecoxib. Pain Gauge scores were obtained from each animal before the procedure and at one, two, three, and

four hours after.

Contrary to what might be expected, scores did not increase overall postoperatively in the groups receiving low doses of analgesics and surgery in comparison to rats receiving no surgery. Consequently, in this study, the Pain Gauge was found to be ineffective in assessing rats' postoperative pain.

The authors attribute this ineffectiveness to the influence of outside factors on EDA, such as ambient

humidity and temperature, the animal's level of hydration, and the size of the contact area on the mouse pad—a device connected to the Pain Gauge where the rat's forepaws are placed. Because EDA measures sympathetic nerve activity, and autonomic responses to acute pain usually form rapidly, EDA may not be an appropriate measure of acute pain.

'Living Apart Together' during Postoperative Recovery

Van Loo et al. (2007, *Laboratory Animals*, 41: 441–455) studied whether housing a mouse with a cagemate on the other side of a metal grid partition—a housing situation known as “living apart together”—counters the negative behavioral and physiological effects of individual housing on postoperative recovery. Heart rate, body temperature, activity, body weight, food and water

intake, wound healing, ease of handling, nest building, and behavior were measured for one week prior to, and three weeks after, surgical implantation of a telemetry transmitter.

The nine mice in LAT housing showed increased heart rates and behavior differences compared to the nine mice housed socially and the 10 housed individually, suggesting that LAT may

be the most stressful of the three housing situations for mice postoperatively. Socially housed mice were least affected by abdominal surgery as indicated by heart rate and behavior. The authors suggest that social housing is optimal for housing mice post-surgery; however, when social housing is not possible, individual housing is preferable to LAT housing.

POLICIES+PERSPECTIVES

continued from page 1

result would be tested on an animal to confirm no irreversible eye damage. To further reduce animal use, ICCVAM will seek adoption of these methods interna-

tionally by the Organisation for Economic Cooperation and Development.

Refining Rabbit Care

The Rabbit Behavior and Welfare Group of the Universities Federation for Animal Welfare and the Royal Society for the Prevention of Cruelty to Animals recently published a new report, *Refining Rabbit Care: A Resource for Those Working with Rabbits in Research*. The report surveys current literature for definitions of rabbits' welfare needs; provides information on optimal enclosures, housing, flooring and substrate, enrichment, and human interaction; and includes a rabbit ethogram. E-mail rabbits@rspca.org.uk for a free copy of the report.

NC3Rs Research Published

Research on advances in the Three Rs, supported by the National Centre for the Replacement, Refinement and Reduction of Animals in Research, is now being published in mainstream, high-impact science journals. The abstracts of articles published so far are available at www.nc3rs.org.uk/news.asp?id=919.

Dog Welfare Resources

The Animal Welfare Information Center of the U.S. Department of Agriculture recently updated its bibliography on the care and welfare of dogs. The bibliography is divided into 15 subsections, including anesthesia and analgesia, behavior, housing, and husbandry. To view, go to nal.usda.gov/awic/pubs/Dogs/dogs.shtml.

STATISTICS ON ANIMAL USE+PAIN & DISTRESS

New Zealand Animal Use Statistics for 2007

New Zealand's National Animal Ethics Advisory Committee recently reported the country's 2007 animal research, testing, and teaching statistics. The total number of animals used was 246,667, a 23% decrease from 2006. Mice, sheep, cattle, rats, and fish were among the most commonly used species. Since 2006, the number of reptiles, birds, sheep, and cattle used decreased, respectively, by 97%, 90%, 34%, and 28%, while the number of fish, mice, dogs, and rats used

increased, respectively, by 61%, 58%, 57%, and 19%. New Zealand grades manipulations from "no suffering" to "very severe suffering"; 22% of the research animals experienced moderate (14%), severe (1%), or very severe (7%) suffering. As in previous years, mice made up the vast majority of animals in the "very severe suffering" category. View the report at biosecurity.govt.nz/files/regs/animal-welfare/pubs/naeac/naeac-ar-07.pdf.

British Animal Use Statistics for 2007

The British Home Office recently released *Statistics on Scientific Procedures on Living Animals: Great Britain 2007*. The total number of animals used during 2007 was 3,125,826, an increase of 6% from 2006. Similar to 2006, 61% of procedures were performed with no anesthesia, 20% with general anesthesia with recovery, 9% with local anesthesia, 8% with general anesthesia at end of

procedure without recovery, and 2% with general anesthesia throughout without recovery. Mice, rats, and "other rodents" were used in approximately 83% of procedures, followed by fish (10%), birds (4%), and sheep (1%), as well as a variety of other mammals, amphibians, and reptiles. Breeding procedures accounted for 37% of animals used, followed by fundamental biological

UPCOMING CONFERENCES

Creating a Humane and Efficient Approach to Developmental Neurotoxicology Testing

Hosted by the Johns Hopkins University Center for Alternatives to Animal Testing
Nov. 12–14, 2008
Reston, Va.

caat.jhsph.edu/dnt2

SCAW Winter Conference Animal Behavior, Welfare and Science: IACUC Roles

Hosted by the Scientists Center For Animal Welfare
Dec. 8–9, 2008
San Antonio, Texas

scaw.com/conference.htm

ATOP VI: Assessment and Treatment of Animal Pain and Distress 2009

Beyond Buprenorphine: 21st Century Pain Medicine for Laboratory Animal Veterinarians

Hosted by The AWEN Group
Feb. 9–10, 2009
Tempe, Ariz.

theawengroup.com/pdo.html

research (31%), applied research, including human and veterinary pharmaceutical development and testing (26%), "protection of man, animals, or the environment" (5%), and direct diagnosis (0.48%). The full text of the report is at www.homeoffice.gov.uk/rds/pdfs08/spanimals07.pdf.

Pain & Distress Report

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Swedish Opinions on Animals in Research

In a January 2008 poll of a little more than 1,000 Swedes ages 16 and up, 71% of respondents indicated that the use of animals is acceptable for medical research aimed at finding cures for diseases, 21% found this use unacceptable, and 8% were undecided. However, more than half (56%) of individuals younger than 23 years responded that using ani-

mals in disease research is unacceptable, showing a different trend in younger groups. Also, women were slightly less supportive than men, with 26% of women surveyed finding it unacceptable versus 16% of men. Vetenskap & Allmänhet (Public and Science) conducted the poll on behalf of the Swedish Research Council.

To view the poll, go to v-a.se/downloads/rappport-8-2008.pdf.

While this poll shows that the majority of Swedes support animal research in general, multiple studies have shown that public support decreases substantially as the amount of pain, distress, or suffering increases.

Helpful Websites

The Royal Society for the Prevention of Cruelty to Animals has revised the section of its website on ethical review processes to provide more information and resources for a range of participants in the U.K. and abroad. Some resources available include a manual for an ERP training course and a report from the Federation of European Laboratory Animal Science Associations on ethical review in Europe. Visit the site at rspca.org.uk/ethicalreview.

SABRE Research UK's new website—research-methodology.org.uk—provides a neutral forum for scientists and the public to discuss scientific questions about animal research and contains a database of full text references.

Recent Publications

ACLAM Task Force Members. (2007). Guidelines for the assessment and management of pain in rodents and rabbits. *Journal of the American Association for Laboratory Animal Science*, 46(2): 97–108.

American Animal Hospital Association/American Association of Feline Practitioners Pain Management Guidelines Task Force Members, Hellyer, P., Rodan, I., Brunt, J., Downing, R., Hagedorn, J. E., and Robertson, S. A. (2007). AAHA/AAFP pain management guidelines for dogs & cats. *Journal of the American Animal Hospital Association*, 43(5): 235–248.

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Krueger, K. L., and Fujiwara, Y. (2008). The use of buprenorphine as an analgesic after rodent embryo transfer. *Lab Animal*, 37(2): 87–90.

THIS IS THE Last Issue of P&D

With this issue, The HSUS is discontinuing production of the Pain & Distress Report. Over its nine-year run, subscribers have recommended the report as a valuable resource. If any individuals or organizations are interested in taking over production of the Pain & Distress Report in some form, please contact us at ari@humaneociety.org.



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