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Policies & Perspectives

ATTENTION TO ANIMAL WELFARE

Signs indicate that pain, distress, and environmental enrichment in research animals are receiving increased attention (see the April 2004 *Pain & Distress Report* 4(1); http://files.hsus.org/web-files/PDF/P_and_D_Report_Apr04.pdf) but that much work remains to be done. An article in *The Scientist* (MacNeil, April 26, 2004; www.the-scientist.com/yr2004/apr/tech2_040426.html) noted a recent decrease in reporting of research that causes unrelieved pain and distress in the United States and Canada. However, the author questions whether pain relief is adequate and applied consistently in different research institutions. She points out that international harmonization of research practices and standards has considerable potential to improve pain and distress management and environmental enrichment.

Carlsson et al. (2004, *Veterinary Record*, 154: 467-470) also found some hopeful signs of increased attention to animal pain, distress, and overall welfare. The authors assessed the degree to which the replacement, reduction, and refinement of animal use (Three Rs) have been implemented over time by analyzing more than 2,800 articles published by 14 major biomedical journals between 1970 and 2000. During that time the number of articles per journal per year doubled while the proportion of published studies using animals decreased by 30%. When the

authors extracted the first 50 articles involving the use of animals in a laboratory setting for the years 1970, 1980, 1990, and 2000, the number of animals mentioned in each article decreased by an average of 50% from 1970 to 2000, and the number of chronic animal studies and the number of animals used in them gradually decreased. Proper descriptions of housing, husbandry, and experimental techniques—all of which could assist in judging animal welfare and results—increased significantly from 1970 to 2000. This could be an indication of refinement of animal use. Such descriptions, however, still remain relatively low overall.

Regarding a decrease in reporting of research that causes unrelieved pain and distress, The Humane Society of the United States (HSUS) has found examples of apparent misreporting of animal pain and distress by research institutions. Consequently, the reported decrease may be misleading.

Noteworthy

GLOBAL DAY AGAINST PAIN

On October 11, 2004, the International Association for the Study of Pain (IASP), the European Federation of IASP Chapters (EFIC), and the World Health Organization cosponsored the inaugural Global Day Against Pain in order to highlight the

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worldwide need—in developed nations as well as in low- and middle-income countries—to recognize pain as a pressing problem, to take action to alleviate suffering, and to change overall attitudes about pain. IASP and EFIC released statistics related to human pain, and their press release emphasized the pain associated with HIV/AIDS and cancer. The groups held an international conference in Geneva, Switzerland, to discuss these issues; the information from the conference is available at www.painreliefhumanright.com.

Although the Global Day Against Pain focused on human pain, it is important to acknowledge that large numbers of nonhuman animals are used in research on HIV/AIDS, cancer, and similar maladies. We should strive to recognize, assess, and alleviate the pain, distress, and discomfort associated with this research, because these adverse effects can negatively affect research results as well as animal welfare.

KOKO COMMUNICATES HER PAIN TO HER CARETAKERS

Koko, the gorilla famous for her American Sign Language (ASL) abilities, recently let her caretakers know that she was experiencing tooth pain. Koko used the ASL sign for pain and pointed to her mouth. Her caretakers then constructed a pain scale of 1–10, and when Koko indicated higher levels of pain, 12 specialists conducted a thorough exam. Koko ultimately had to have the tooth extracted, but is otherwise in good health.

Unfortunately, most animals cannot convey their pain so readily to their human caretakers. We are usually forced to rely on more subtle signs that an animal is in pain. That great apes like Koko can, when suitably trained, convey their pain makes one seriously question the continued use of chimpanzees in biomedical research. The HSUS would like to see a worldwide end to biomedical research on chimpanzees.

USDA FARM ANIMAL BEHAVIOR AND WELL-BEING LABORATORY

Recently opened by the U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS), the Farm Animal Behavior and Well-Being Laboratory is a new 2,300-square-foot facility in West Lafayette, Indiana. The laboratory will focus largely on stress indicators in livestock as well as the relationship between stress and the establishment of pathogenic bacteria in animals. The work at the new facility will complement research at the adjoining ARS Livestock Behavior Research Unit, which studies swine, cattle, and poultry behavior. While not directly related to biomedical research, the results from the new laboratory's studies could assist in the study of stress in research animals, particularly farm animal species.

Resources & Services

FREE COPIES OF JAVMA ARTICLE

The HSUS is giving away copies of “The Need for a Cross-Species Approach to the Study of Pain in Animals,” published in the *Journal*

of the American Veterinary Medical Association (Paul-Murphy et al., 2004, 224(5): 692–697; see the October 2004 *Pain & Distress Report*, 4(3); http://65.61.158.165/web-files/PDF/ARI/P_and_D_Report_Oct04.pdf). The article is the result of a workshop convened to discuss gaps in current knowledge of animal pain and to develop action plans to bridge these gaps. For a free copy, contact The HSUS at ari@hsus.org or call 301-258-3041.

NEW HUMANE ENDPOINTS DATABASE

The Johns Hopkins Center for Alternatives to Animal Testing (CAAT) has established an accessible database to assist investigators in finding “humane endpoints” suitable for the scientific objectives of their research. Humane endpoints are indicators (e.g., tumor size) of the earliest point at which an experiment can be terminated to reduce animal suffering, without loss of scientific information. CAAT has created a comprehensive database, despite the fact that research articles rarely include “humane endpoints” in their list of key words, which makes locating relevant articles difficult. The humane endpoints database can be accessed on Altweb, the Alternatives to Animal Testing website, at <http://apps1.jhsph.edu/altweb/humane>.

Recent Publications

Chandoo, K. P., Duncan, I. J. H., & Moccia, R. D. (2004). Can fish suffer?: Perspectives on sentience, pain, fear and stress. *Applied Animal Behaviour Science*, 86, 225–250.

Flecknell, P. A., & Roughan, J. V. (2004). Behaviour-based assessment of the duration of laparotomy-induced abdominal pain and the analgesic effects of carprofen and buprenorphine in rats. *Behavioural Pharmacology*, 15(7): 461–472.

Goldberg, A. M., & Locke, P. A. (2004, July/August). To 3R is humane. *The Environmental Forum*, 18–26.

Institute for Laboratory Animal Research. (Ed.). (2004). Animal models and experimental design considerations for endocrine disruptor research and testing. *ILAR Journal*, 45(4).

Roughan, J. V., Flecknell, P. A., & Davies, B. R. (2004). Behavioural assessment of the effects of tumour growth in rats and the influence of the analgesics carprofen and meloxicam. *Laboratory Animals*, 38(2): 286–296.

FOURTH WORLD CONGRESS PROCEEDINGS AVAILABLE ONLINE

Proceedings of the Fourth World Congress on Alternatives and Animal Use in the Life Sciences, held in August 2002 in New Orleans, are now available online at www.worldcongress.net/2002/proceedings/proceedings.htm. The World Congresses are the largest international conferences on alternatives to animal use in biomedical research, testing, and education. The triennial conferences focus on the Three Rs. The Fifth World Congress will be held August 21–25, 2005, in Berlin; visit www.ctw-congress.de/act2005 for periodic updates.

From the Technical Literature

MICE: MOTIVATION FOR ADDITIONAL SPACE

A study by Sherwin (2004, *Animal Behaviour*, 67: 711–717) examines the motivation laboratory mice have for gaining access to additional space. One mouse in each group of four cage mates (the “trained” mouse) was trained to perform the operant task—or incur a “cost”—by pressing a switch a certain number of times to gain access to the additional space while still being able to gain full physical and social contact with cage mates. Each trained mouse was tested at five different costs of access for three different sizes of additional space. The trained mice continued to work to gain access to additional space regardless of the amount of space available and despite increased costs of gaining access. The trained mice had to move away from a start cage containing conspecifics, food, and water—suggesting that the visits were not for essential resources or social contact and that the mice were highly

motivated for additional space. The author recommends that to avoid reduced quality of science and animal welfare, laboratory mice should be provided with additional space.

AWARENESS OF COMMON HUSBANDRY-RELATED VARIABLES IS IMPORTANT

Reinhart (2004, *Laboratory Animals*, 38, 213–235) reviews common, but often overlooked, husbandry-related variables that can negatively impact research results by inducing animal pain, stress, and fear. He discusses the negative effects associated with social deprivation, restraint, multitiered caging, harsh or insufficient lighting, and other variables. For example, Reinhardt references studies that found that social deprivation can influence behavior, sensitivity to drugs, pain threshold, and learning ability in a wide variety of species. Viable options for reducing or eliminating negative effects are described, such as social housing; environmental enrichment; the presence of companions during procedures; positive reinforcement training and telemetry instead of restraint; and housing in single-tiered cages to make lighting uniform and provide all animals with a similar sense of security. Reinhardt also emphasizes the importance of a positive relationship between personnel and the animals in order to minimize stress. The article provides a wealth of useful references.

Statistics on Animal Use Pain & Distress

DUTCH ANIMAL USE STATISTICS FOR 2003

The Netherlands recently issued its 2003 animal research statistics. The total number of animals used during 2003 was 600,104—a 7.7% decrease

Upcoming Conferences

Annual IACUC Conference

- ▶ Sponsored by Public Responsibility in Medicine & Research (PRIM&R) and Applied Research Ethics National Association (ARENA)
- ▶ March 12–15, 2005
- ▶ San Diego, California
- ▶ For more information, go to www.primr.org

International Consensus Meeting on “The Harmonisation of the Care and Use of Fish in Research”

- ▶ Sponsored by the Federation of European Laboratory Animal Science Associations
- ▶ May 23–26, 2005
- ▶ Oslo, Norway
- ▶ For more information, go to www.felasa.org

Fifth World Congress on Alternatives and Animal Use in the Life Sciences

- ▶ Sponsored by the Alternatives Congress Trust
- ▶ August 21–25, 2005
- ▶ Berlin, Germany
- ▶ For more information, go to www.ctw-congress.de/act2005

since 2002. This includes animals killed without any previous intervention. According to the Dutch pain and distress classification system, animals’ experiences are classified under six categories of discomfort (minor, minor/moderate,

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Pain & Distress Report

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moderate, moderate/severe, severe, and very severe). In 2003, 39.6% of the animals experienced minor, 28.0% experienced moderate, 18.5% experienced moderate/severe, 8.5% experienced severe, and 0.1% experienced very severe discomfort. Genetically modified animals were used in 15.9% of the total number of experiments, and 23.2% fewer animals were used in 2003 to create transgenic animals than in 2002. Animals were used primarily in fundamental studies (52%), followed by medicine (40%), toxicology (5%), education (2%), and diagnosis (1%). To view all the results, visit www.nca-nl.org/English/index.html.

NEW ZEALAND ANIMAL USE STATISTICS FOR 2003

New Zealand recently issued its 2003 animal research statistics. The total number of animals used in research was 320,911 in 2003, up 18% from the numbers reported in 2002. Animals used in long-term projects are reported only every three years and when the projects are completed, which may account for the large increase from the previous year; animal numbers were comparable in 2000. The most common species used in 2003 were mice (26%), fish (22%), cattle (18%), and sheep (16%).

Pain and distress in New Zealand is graded on a five-point scale that ranges from “no suffering” to “very severe

suffering.” In 2003, 1.3% of all animals used experienced severe suffering and 3.6% experienced very severe suffering. The total number of animals experiencing severe or very severe suffering decreased by 1.1% since 2002 and decreased by 9.8% since 2000. Mice, guinea pigs, and rats were the species most often used in the severe and very severe suffering categories in 2003. To review the report, visit www.maf.govt.nz/biosecurity/animal-welfare/naea/annual-report/naeac-ar-03.pdf.

Attitudes & Public Opinion

GALLUP POLL EXAMINES ANIMAL TESTING AND CLONING

A Gallup Poll of 1,000 randomly selected American adults (18 and older) was conducted in May 2004 to examine the moral acceptability of certain social issues, including medical testing on animals and animal cloning (Gallup News Service, June 22, 2004). Overall, 62% of those polled found medical testing on animals to be morally acceptable. However, there were differences based on age, political ideology, and gender. Animal testing was considered to be morally acceptable by 58% of adults 65 years of age and older but only by 47% of adults aged 18–29. Liberals found animal testing to be less acceptable, at 54%,

Helpful Websites

The World Society for the Protection of Animals and the School of Clinical Veterinary Science at the University of Bristol have created 30 teaching modules on animal welfare issues for veterinary students. To obtain a CD-ROM or for more information, go to www.wspa-international.org/site/index.php?page=273.

The Laboratory Animal Management Association, supported by the National Institutes of Health Office of Laboratory Animal Welfare, has created a web-based resource for disaster planning and management in laboratory animal research facilities at www.lama-online.org/OLAW-1.html.

in comparison to conservatives at 68%. Finally, men were 20% more likely to find animal testing acceptable compared with women; this was also the case in regard to animal cloning. Overall, the majority of Americans (64%) believed that animal cloning is “morally wrong”; however, liberals were 10% more likely to find it morally acceptable.

Pain & Distress Report

The *Pain & Distress Report* provides laboratory animal veterinarians, technicians, oversight committees, and others with up-to-date information on issues regarding pain and distress in laboratory animals.

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