

Target Article

Journal Editorial Policies, Animal Welfare, and the 3Rs

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This study evaluates the editorial policies of a randomized sample of English language peer-reviewed journals that publish original research involving the use of animals. The aim is to identify whether journals have editorial policies relating to the use of animals in the research that they are prepared to publish and whether any policies are likely to promote animal welfare and dissemination of information on the 3Rs (reduction, refinement, replacement) within the scientific community. The results demonstrate that a significant proportion of journals publishing original research involving animals do not have any editorial policy relating to the use of animals. Of those journals that do have policies the majority simply request that the research be carried out in accordance with standard regulatory requirements. This paper aims to provide editors and publishers with the information they need to review their own editorial policies to ensure they are fulfilling their potential to promote animal welfare and dissemination of the 3Rs.

Keywords: 3Rs, animal welfare, peer-reviewed journals, ethics of animal use

There are currently approximately 12,000 scientific peer-reviewed journals in circulation, of which approximately one-eighth publish some research involving the use of animals. Given that publication of research is very important for all researchers in any scientific field, journals are in an ideal position to influence scientific conduct through their editorial policies (variously described by journals as ‘publication policies’, ‘guidelines’ and/or ‘instructions to authors’). Journals can also play a very important role in disseminating information on good practice in animal research by encouraging authors to include information on animal welfare and the 3Rs—reduction, refinement, replacement (Russell 1959)—in the studies they publish. The importance of this has been highlighted in the United Kingdom (UK) by a number of organizations, including the Royal Society for the Prevention of Cruelty to Animals (RSPCA 2005), Nuffield Council on Bioethics (Nuffield Council 2005.) and the Government’s Animals Procedures Committee (APC 2003). The latter argued that “publication of the results of animal studies throws the work open to wider ethical scrutiny” (72), and that “it is vital that animal procedures are reported in sufficient detail . . . to allow advances in application of the three Rs (to be) documented and highlighted” (72). Similarly, proposals on how animal use should be reported in scientific articles have been produced (Alfaro 2005; FRAME 1999), and guidelines for journals on how manuscripts of studies involving live animals should be reviewed have been proposed (Festing et al. 1998). The issue has also been raised at international meetings such as the World Congress

on Alternatives (Festing and van Zutphen 1997; 1999). Most recently, a number of letters published in journals such as *Nature* have also sought to promote the inclusion of animal welfare and 3Rs information in the ‘methods’ sections of research articles involving the use of animals (Wurbel 2007; Buck 2007).

With increased focus on ethical issues in science, the roles and responsibilities that scientific journals have when reviewing the research they publish has become more important. However, there are currently no statistics available regarding whether journals have editorial policies relating to the use of animals in experiments, and if so, whether they fulfill the functions of promoting animal welfare and/or disseminating information on the 3Rs. This is surprising given that good animal welfare is broadly acknowledged to go hand in hand with good science. Thus, this study investigates the editorial policies of a representative sample of English-language journals that publish research involving the use of animals. The aims were twofold. The first aim was to determine what proportion of journals had any editorial policies relating to animal use, and whether these would encourage good practice with respect to animal welfare and dissemination of information on the 3Rs. The second aim was to record baseline information against which progress in this area could be assessed.

A PubMed search was performed using selective criteria (as noted in the “Materials and Methods” section). This search brought up a total of 62,337 relevant research article records from 1,691 different English-language peer

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Table 1. Scoring Criteria. The editorial policies of all journals sampled in our study were evaluated using this scoring scheme.

Criteria	Score
• Mentioning the use of animals in research and testing.	1
• Referring the author(s) to national or international guidelines, codes of conduct or legislation relating to research involving animals (Table 2)	1
• Making adherence to the policy a condition of publication	1
• A specific statement on the research the journal is prepared/not prepared to publish, or other 'significant' animal welfare positive statement	1
• The journal policy should include statements requiring that:	—
• The 3R's are implemented: humane alternatives used wherever possible, animal numbers and suffering reduced, and welfare improved	1
• Animal housing and care follows good practice (and improve on minimum standards set out in the relevant legislation)	1
• Discomfort, distress and pain is minimized using appropriate anesthesia <u>and</u> analgesia	1
• Humane endpoints are defined and implemented	1
• Protocols involving animal use undergo ethical review	1
• Investigators and all personnel who handle and use animals are appropriately trained and qualified	1
• Euthanasia is carried out according to good practice	1
• Information that is suitable for publication such as species, animal numbers and other pertinent details including refinements in husbandry and procedure, is included in each manuscript	1
Maximum Score	12

reviewed journals publishing original research involving animals between July 2005 and June 2006. The editorial policies of a randomized sample of 288 journals were examined. Where a policy existed, we were also interested in whether it included aspects likely to promote animal welfare and dissemination of the 3Rs, so each journal's editorial policy was assessed using the scoring criteria set out in Table 1. Points were awarded for statements fulfilling the criteria that we considered important for influencing authors with respect to animal welfare and reporting of the 3Rs.

No relevant information could be found for 52 of the journals, either on the journal's website or from the editor or publisher of each journal (noted in Figure 1 as "no response"). It was therefore not possible to confirm whether or not these journals had a relevant editorial policy. Of the remaining 236 journals, 83 did not have any relevant editorial policies; and so scored 0 points in our assessment. Thus, only 153 journals (53%) in our sample were found to have an editorial policy relating to the use of animals.

Further analysis showed that 42 journals scored only 1 point (Figure 1). This indicates that the journal mentioned animals somewhere in the editorial policy, but did not give any specific guidance relating to the use of animals in research submitted for publication. For example, some journals simply state that they implement the Committee on Publication Ethics (COPE) guidelines on good publication practice (COPE 1999). These guidelines state that: "Animal experiments require full compliance with local, national, ethical and regulatory principles, and local licensing arrangements" (43). This statement merely asks

that the standard regulatory requirements for animal research are fulfilled and so such statements were awarded only 1 point, unless there were additional specific links or information provided. Comments such as "papers including animal experiments must be conducted with approval by the local animal care committee" also scored only 1 point. This is because animal care committees differ widely both locally and nationally with respect to the issues they cover, and adherence to this statement would provide no confirmation that research has undergone a full ethical review including harm/benefit analysis.

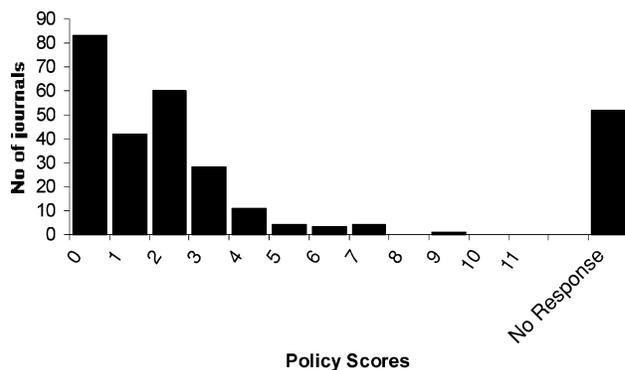


Figure 1. Journal policy scores. The number of journals that achieved a score of between 0 and 12, or for which we could not confirm the existence of an editorial policy relating to the use of animals in research.

The remaining 111 journals in our sample had editorial policies that provided authors with more specific guidance, for example, referring authors to specific local or legal guidelines. Note: We did not review any of the individual guidelines referred to in editorial policies for animal welfare or 3Rs content, but have included a summary of them for interest in Table 2. Journals were awarded an additional point for stating that adherence to the editorial policy was a requirement of publication. This is important given that Boisvert (1997) found that journals published a significant number of articles that did not comply with their editorial policies. Clearly, if strict adherence to the editorial policy is not a condition of publication, then the policy will be rendered meaningless.

The maximum possible score using our criteria was 12, but the highest score achieved was 9 (achieved by only 1

journal). Twenty-three scored between 4 and 9 points, 28 scored 3 points, and 60 scored 2 points. Just more than 50% of the journals responding to our study (125/236) had either no editorial policy or no meaningful editorial policy relating to the use of animals in the research they publish (a score ≤ 1), despite publishing over 4,000 relevant articles between them (Figure 2). The average score, taking all 236 journals into account, was only 1.51. This is surprising given the existence of COPE, which suggests that within the industry there is recognition that it is important for journals to have editorial policies on ethical issues such as animal use.

This study highlights the fact that journal editors and publishers need to revisit and update their editorial policies. Journals need to acknowledge the importance of publishing a clear ethical statement regarding the nature of the animal research that they are prepared to publish, and recognize

Table 2. Local and Legal Guidelines Specifically Mentioned by Journals. This table summarizes the frequency with which local or legal guidelines were cited in the journals analyzed in this study.

Guidelines	Frequency
Institute for Laboratory Animal Resources (ILAR) <i>Guide for the Care and Use of Laboratory Animals</i> (ILAR 1996)	41
European Communities Council Directive 86/609/EEC (European Commission 1986)	13
Council for the International Organizations of Medical Research (CIOMR) <i>International Guiding Principles for Biomedical Research Involving Animals</i> (CIOMR 1985)	4
United Kingdom (UK) <i>Animals Scientific Procedures Act</i> (Home Office 1986)	3
UK Coordinating Committee on Cancer Research (UKCCCR) <i>Guidelines for the Welfare of Animals in Experimental Neoplasia</i> (UKCCCR 1997)	3
American Physiological Society (APS) <i>Guiding Principles in the Care and Use of Animals</i> (APS 2000)	2
European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes (Council of Europe 2007)	2
Federation of Animal Science Societies (FASS) <i>Guide for the Care and Use of Agriculture Animals in Agricultural Research and Teaching</i> (FASS 1988)	2
UK Biological Council's <i>Guidelines on the Use of Living Animals in Scientific Investigations</i> (UK Biological Council 1984)	2
American Heart Association (AHA) <i>Guidelines of Research Involving Animal Use</i> (AHA 2005)	1
<i>Australian Code of Practice for the Care and Use of Animals for Scientific Purposes</i> (Perry 1988)	1
Canadian Council of Animal Care (CCAC) <i>Guide to the Care and Use of Experimental Animals</i> (CCAC 1993)	1
FRAME <i>Proposed Guidelines for Scientific Journals Publishing Papers Involving the Use of Laboratory Animals</i> (FRAME 1999)	1
International Association for the Study of Pain (IASP) <i>Ethical Guidelines for Investigations of Experimental Pain in Conscious Animals</i> (IASP 1982)	1
<i>Animal Experiments in Universities</i> (guidelines of the Science and International Affairs Bureau of the Japanese Ministry of Education Culture, Sports, Science and Technology (Japanese Ministry 1987)	1
<i>Guiding Principles for Animal Experiments Using Non-human Primates</i> , Primate Society of Japan (Primate Society of Japan 1986)	1
Society for Neuroscience <i>Handbook for the Use of Animals in Neuroscience Research</i> (Society for Neuroscience 1991)	1
Society for Toxicology <i>Guiding Principles in the Use of Animals in Toxicology</i> (Society for Toxicology 1999)	1
Universities Federation for Animal Welfare (UFAW) <i>Handbook on the Care and Management of Laboratory Animals</i> (UFAW 1999)	1
Office of Laboratory Animal Welfare (OLAW) Public Health Service (PHS) <i>Policy on the Humane Care and Use of Laboratory Animals</i> (OLAW 2002)	1

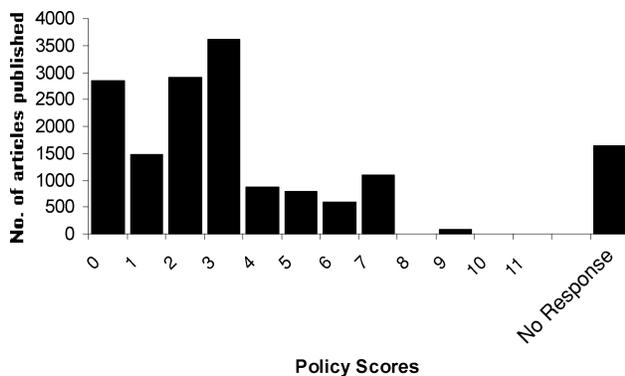


Figure 2. The number of articles published by journals between July 2005 and June 2006 that either had no policy, achieved a score of between 1 and 12, or for which we could not confirm the existence of an editorial policy relating to the use of animals in research.

that they have a valuable role to play in encouraging authors to include animal welfare and 3Rs information in articles submitted for publication. The scoring criteria we used provide editors and publishers of journals with the information they need to start writing or reviewing their editorial policies. By promoting animal welfare and disseminating information on the 3Rs, journals will help improve animal welfare standards and the quality of scientific research around the world.

MATERIAL AND METHODS

Journal Identification

In order to identify journals that published research involving the use of animals between July 1, 2005 and June 30, 2006 we performed a series of PubMed online searches for 'year/month [edat] NOT review [pt]'. The limits applied for this search were: *Humans or animals*: animals; *Languages*: English; *Type of article*: clinical trial, randomized controlled trial, case reports, clinical trial phase I-IV, comment, congresses, controlled clinical trial, corrected and republished article, duplicate publication, evaluation studies, journal article, multi-center study, published erratum, retracted publication, retraction of publication, technical report, twin study or validation studies. The records generated by this search were downloaded and used to create a list of journals with the total number of articles they each published within the search period that fulfilled our search criteria.

Sample Selection

The list of journals was sorted according to article frequency (highest to lowest) and all journals publishing less than four articles within the search period were deleted resulting in a population size of 1,152. To determine the sample size we used the Creative Research Systems online sample size calculator (available at: <http://www.surveysystem.com/sscalc.htm>). This software gave us a sample size of 288 based

on a 95% confidence level, with a confidence interval of 5. A randomized selection of journals for analysis in this study was made using an Excel formula and spreadsheet.

Policy Identification and Scoring

The websites of the selected journals were searched to identify whether the instructions to authors, journal policy or guideline pages contained any information relating to the publication of research involving the use of animals in research. When such information could not be found, an email message and letter were sent to the journal editor or publisher requesting the required information or confirmation that the information was not available for that journal. ■

REFERENCES

Alfaro, V. 2005. Specification of laboratory animal use in scientific articles: Current low detail in the journals' instructions for authors and some proposals. *Methods and Findings in Experimental and Clinical Pharmacology* 27(7): 495–502.

American Heart Association (AHA). 2005. *Guidelines of Research Involving Animal Use*. Dallas, TX: AHA.

American Physiological Society (APS). 2000. *Guiding Principles in the Care and Use of Animals*. Bethesda, MD: APS.

Animal Procedures Committee (APC). 2003. *Review of the Cost-Benefit Assessment in the Use of Animals in Research*, ed. Communications Directorate Home Office, Report of the Cost-Benefit Working Group of the Animals Procedures Committee. London, UK: APC.

Boisvert, D. P. J. 1997. Editorial policies and animal welfare. In *Animal Alternatives, Welfare and Ethics*, eds. L. F. M van Zutphen and M. Balls. Amsterdam, Netherlands: Elsevier Science, 399–404.

Buck, V. 2007. Who will start the 3Rs ball rolling for animal welfare? *Nature* 446: 856.

Canadian Council of Animal Care (CCAC). 1993. *Guide to the Care and Use of Experimental Animals*. Ontario, Canada: CCAC.

Committee on Publication Ethics (COPE). 1999. *Guidelines on Good Publication Practice*, COPE Report 2003, 1999. Ontario, Canada: COPE.

Council of Europe. 2007. *European Convention for the Protection of Vertebrate Animals used for Experimental and Other Scientific Purposes* (ETS No 123). Strasbourg, CEDEX: Council of Europe.

Council for the International Organizations of Medical Research (CIOMR). 1985. *International Guiding Principles for Biomedical Research Involving Animals*. Geneva, Switzerland: CIOMR.

European Commission. 1986. *European Communities Council Directive 86/609/Eec. Official Journal of the European Commission L358, 18/12/1986, p. 0001–0028*.

Federation of Animal Science Societies (FASS). 1988. *Guide for the Care and Use of Agriculture Animals in Agricultural Research and Teaching*. Savoy, IL: FASS.

Festing, M. F. W, V. Baumans, R. D. Combes. et al. 1998. Reducing the use of laboratory animals in biomedical research: Problems and

- possible solutions—The report and recommendations of ECVAM Workshop 29. *Atla-Alternatives to Laboratory Animals* 26(3): 283–301.
- Festing, M. F. W., and B. van Zutphen. 1999. Workshop 15: Update on policies of journals. In *Proceedings of the Third World Congress on Alternatives and Animal Use in the Life Sciences* 27(special issue July 1999): 203.
- Festing, M. F. W., and L. F. M. van Zutphen. 1997. Guidelines for reviewing manuscripts on studies involving live animals. Synopsis of the workshop. In *Animal Alternatives, Welfare and Ethics*, eds. L. F. M. van Zutphen and M. Balls. Amsterdam, Netherlands: Elsevier Science, 405–410.
- FRAME Reduction Committee. 1999. *Proposed Guidelines for Scientific Journals Publishing Papers Involving the Use of Laboratory Animals*. Nottingham, UK: FRAME.
- Home Office. 1986. *UK Animals Scientific Procedures Act*.
- Institute for Laboratory Animal Resources (ILAR). 1996. *Guide for the Care and Use of Laboratory Animals*. Washington DC: National Academy Press.
- International Association for the Study of Pain (IASP). 1982. *Ethical Guidelines for Investigations of Experimental Pain in Conscious Animals*. Seattle, WA: IASP.
- Japanese Ministry of Education Culture Sports Science and Technology, Science and International Affairs Bureau. 1987. *Animal Experiments in Universities* (Notification No. 141). Japan. Japanese Ministry of Education Culture Sports Science and Technology.
- Nuffield Council on Bioethics. 2005. *The Ethics of Research Involving Animals*. London, UK: Nuffield Council on Bioethics.
- Office of Laboratory Animal Welfare (OLAW) Public Health Service (PHS). 2002. *Policy on the Humane Care and Use of Laboratory Animals*. OLAW PHS. Bethesda, MD: NIH.
- Perry, M. 1988. Revised Australian code of practice for the care and use of animals for scientific purposes. *Australian Veterinary Journal* 76: 286.
- Primate Society of Japan. 1986. Guiding principles for animal experiments using non-human primates. *Primate Research* 2: 111–113.
- Royal Society for the Prevention of Cruelty to Animals (RSPCA). 2005. *The State of Animal Welfare in the UK*. Southwater, UK: RSPCA.
- Russell, W. M. S., and R. L. Burch. 1959. *The Principles of Humane Experimental Technique*, 1st ed., ed. Universities Federation for Animal Welfare. London, UK: Methuen & Co Ltd.
- Society for Neuroscience. 1991. *Handbook for the Use of Animals in Neuroscience Research*. Washington DC: SFN.
- Society for Toxicology. 1999. *Guiding Principles in the Use of Animals in Toxicology*. Reston, VA: Society for Toxicology.
- United Kingdom (UK) Biological Council. 1984. *Guidelines on the Use of Living Animals in Scientific Investigations*. London, UK: Biological Council, Institute of Biology.
- UK Coordinating Committee on Cancer Research (UKCCCR). 1997. *Guidelines for the Welfare of Animals in Experimental Neoplasia*. London, UK: UKCCCR.
- Universities Federation for Animal Welfare (UFAW). 1999. *Handbook on the Care and Management of Laboratory Animals*, 7th ed., vol. 1., eds. T. Poole and P. English. Oxford, UK: Blackwell Science Ltd.
- Wurbel, H. 2007. Publications should include an animal-welfare section. *Nature* 446: 257.