

Guiding Principles for Behavioural Laboratory Animal Science: A New Resource for Better Science and Animal Welfare

P. Hawkins¹ on behalf of BAP, BNA, ESSWAP Foundation and LASA

¹Research Animals Department, Royal Society for the Prevention of Cruelty to Animals (RSPCA), Southwater, U.K.
penny.hawkins@rspca.org.uk

Introduction

A new resource setting out *Guiding Principles for Behavioural Laboratory Animal Science* was published in November 2013, with input from over 50 experts representing a wide range of stakeholders: researchers, animal technologists and veterinarians from industry and academia, statisticians, laboratory animal breeders, scientific animal welfare organisations and regulators [1]. The project was supported and funded by the British Association for Psychopharmacology (BAP), British Neuroscience Association (BNA), the ESSWAP Foundation and the UK Laboratory Animal Science Association (LASA), all of which were represented on the Steering Panel.

The Guiding Principles are designed to help make informed decisions about the best way to carry out studies of animal behaviour in biomedical experiments, with respect to ensuring that work is justified, implementing the Three Rs (replacement, reduction and refinement) and improving scientific validity. They are intended to be useful to anyone with an interest in behavioural laboratory animal science, including researchers (as both an introduction to those new to the field, and as a refresher to those who have already gained experience) and members of ethical or animal care and use committees.

Content of the Guiding Principles

The Steering Panel recognised that it would be impossible to produce detailed recommendations for individual procedures, because so many different types of procedure are undertaken, in varying experimental contexts, to study a wide range of species at different stages of development. Instead, the document sets out generic Principles, most of which apply to all species, in some cases dealing specifically with mice and rats as these are particularly commonly used. The main focus is on laboratory research, although many recommendations also apply to ethological research in the field, and the recommendations are intended to have worldwide relevance, rather than focusing on any particular country or legislation.

The Guiding Principles are divided into seven sections, which highlight important questions that should be resolved before, during and after studying the behaviour of laboratory animals.

1. **The 3Rs and Ethical Evaluation** advises on factors to consider at the project design stage, to ensure that the work will meet high scientific and animal welfare standards. It defines the 3Rs, includes guidance on assessing both harms and benefits, and addresses record-keeping and (of special relevance to those working within the European Union, EU) retrospective assessment of projects and assessment of actual harms.
2. **Justifying studies of Laboratory Animal Behaviour** discusses how to assess scientific validity, distinguishing between translational, predictive, construct and face validity. It also outlines ways of dealing with complicating factors such as co-morbidity.
3. **Choosing the Procedure** incorporates a list of questions that aim to prompt a critical appraisal of the proposed work, including practical factors and a focus on each of the 3Rs.
4. **Training** provides guidance on ensuring that the experimental work is carried out by competent investigators. Basic legal requirements for training and competence (e.g. as set out in the EU Directive

2010/63/EU) address generic skills, but evaluation of animal behaviour often requires more specialist skills and the document offers suggestions on how to ensure competence in these.

5. **The Animal** explains how differences in animal behaviour due to species (including whether inbred or outbred), strain, age, sex and the source of the animal can lead to variation that could undermine validity. This section gives examples and discusses how to consider these when choosing the most appropriate animal to achieve the objectives.
6. **The Environment** gives examples of environmental factors that can affect animal behaviour. These include housing, stocking density, cage environment (e.g. position in the rack, enrichment) and the facility environment (e.g. noise levels, light). It discusses whether and how control for environmental factors, taking both animal welfare and science into account.
7. **The Experiment & Analysis of the Data** re-emphasises the need to plan the statistical analysis of the data and the experimental design simultaneously – i.e. before starting the experiment. It also suggests ways of avoiding subjective or systematic bias when gathering or interpreting the data and warns the reader not to make unjustified assumptions about causes and consequences of changes in animal behaviour.

How to Obtain a Copy

Guiding Principles for Laboratory Animal Science is free to download from the ESSWAP website (www.esswap.org) at <http://www.esswap.org/guiding-principles-for-behavioural-laboratory-animal-science.html> and is also available from the BAP, BNA and LASA websites.

The Steering Panel is especially keen to receive feedback about the *Guiding Principles* and also intends that the document should be reviewed and revised periodically – this version is regarded merely as a first edition. The Panel would welcome your comments and suggestions at info@lasa.co.uk (please put ‘Guiding Principles for Behavioural LAS’ in the subject line).

Reference

1. BAP, BNA, ESSWAP, LASA (2013). *Guiding Principles for Behavioural Laboratory Animal Science, 1st edition*, November 2013, 61 pp. Available at <<http://www.esswap.org/guiding-principles-for-behavioural-laboratory-animal-science.html>>. Accessed 6 March 2014.