Research Integrity

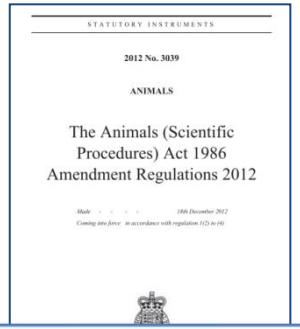
Openness & Transparency:
How organisations and individuals interact with and communicate the conduct of research within the scientific community and to the broader 'public'.

The Research Framework:
Legislation, policies, guidance, ethics, oversight, enforcement/punishment, training and competency…

Research Outputs:
Papers published in print and online, the sharing of data, biological materials, samples, animals, reagents, refinements and good practice….

Research Framework

Legislation

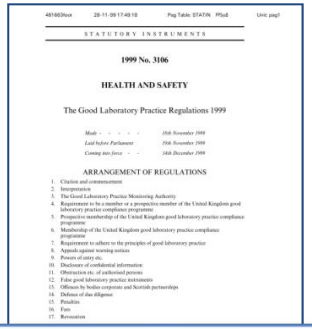


STATUTORY INSTRUMENTS

2012 No. 3039

ANIMALS

The Animals (Scientific Procedures) Act 1986 Amendment Regulations 2012



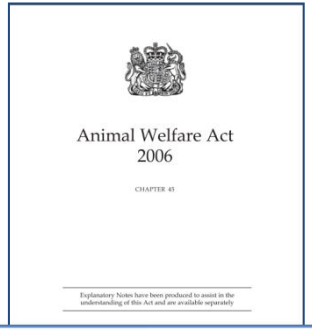
STATUTORY INSTRUMENTS

1999 No. 3106

HEALTH AND SAFETY

The Good Laboratory Practice Regulations 1999

ARRANGEMENT OF REGULATIONS



Animal Welfare Act 2006

CHAPTER 45

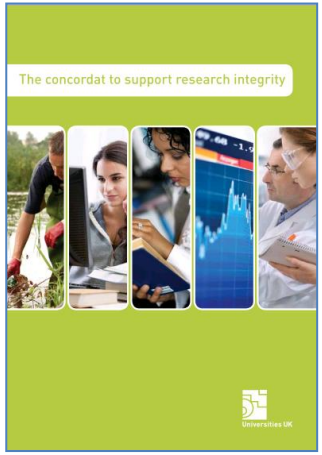
Explanatory Notes have been produced to assist in the understanding of this Act and are available separately

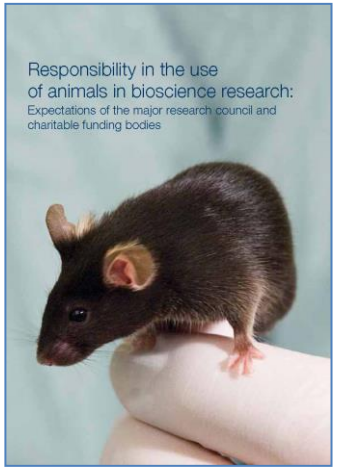
We acknowledge that the UK has the most detailed legislative framework concerning research on animals in the world. But proper attention to the welfare of animals involved in research and the accountability of scientists who conduct research on animals cannot be achieved merely by having detailed regulations. Regulation can act as an emotional screen between the researcher and an animal, possibly encouraging researchers to believe that simply to conform to regulations is to act in a moral way. It is therefore crucial to promote best practice more actively and to improve the culture of care in establishments licensed to conduct experiments on animals.

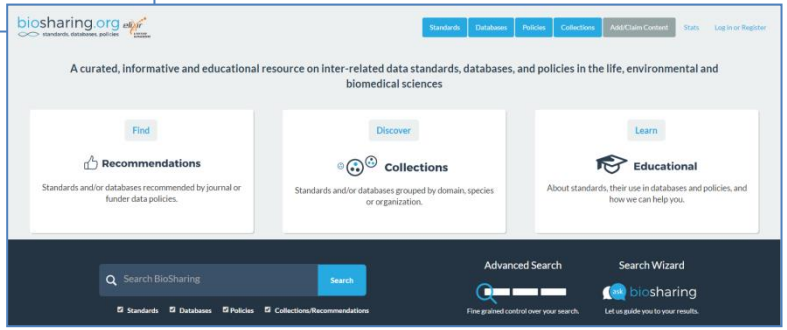
Quote from Nuffield Council on Bioethics 2005 Ethics of research involving animals report.

Research Framework

Policies

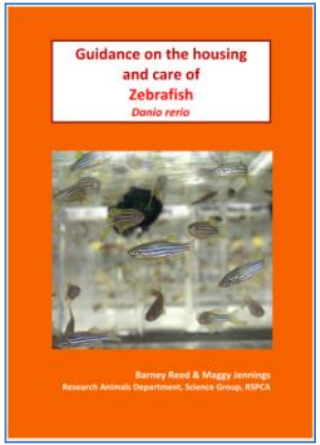


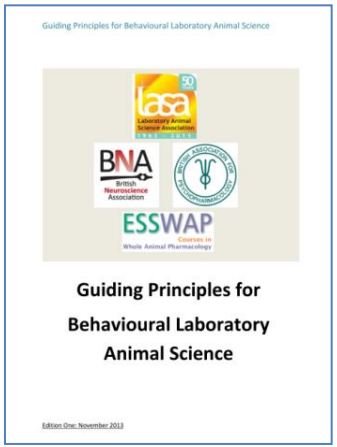


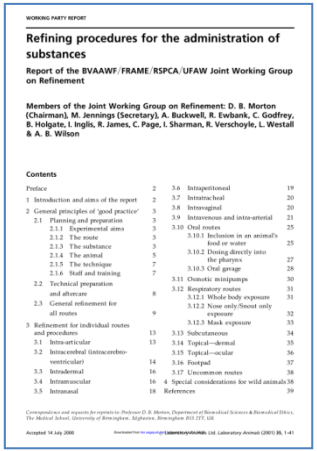


Research Framework

Guidance







Responsible Research In Practice

Research Framework

Others

NC 3Rs National Centre for the Replacement, Refinement & Reduction of Animals in Research

An institutional framework for the 3Rs

Most institutions conducting animal research will have policies on animal research and the 3Rs. Institutional responsibilities for providing a framework and culture for the 3Rs should not be onerous or resource intensive and many organisations will already have the basics in place. The goal should be to ensure that the 3Rs are actively developed and applied at all stages of the research process – from the design and conduct of experiments through to dissemination and reporting.

The NC3Rs is committed to developing a range of resources to support the promotion and implementation of the 3Rs. Here we provide a simple checklist of seven related principles that all research institutions should adopt or consider.

1. Improving access to information and other resources

Providing easy access to online resources and information on events and training courses is essential for equipping all staff involved in animal research with contemporary and comprehensive information on the 3Rs.

Most institutions will have an intranet for project and personal licence holders and animal care staff, setting out internal policies and standard operating procedures. Internal online resources could be strengthened by providing a direct and visible link to the NC3Rs, including its Procedures with Care website, newsletters, free events and funding schemes.

2. Championing the 3Rs

There is a need to move the 3Rs 'out of the animal facility'. Responsibility for the 3Rs should not just be considered to be the domain of the vets and animal care staff. While these staff have a significant role to play on refinement and improving animal welfare, wide scientific engagement is required for the full adoption of the 3Rs. This is particularly the case for replacement and reduction where detailed knowledge of the scientific objectives and experimental design are required.

Divisions (Departments or Schools as appropriate) should be encouraged to have scientific 3Rs champions who can help identify relevant 3Rs opportunities from the NC3Rs website, the scientific literature and conferences to share with colleagues. A programme of regular seminars or journal clubs focusing on the 3Rs should be instigated. The 3Rs should be a regular item on lab meeting agendas.

3. Involving the wider institutional community

Advances in the 3Rs are dependent on challenging existing models and procedures, and scientific and technological innovation. A multi-disciplinary approach is often required, including those not normally involved with animal research.

Many institutions have expertise in a wide range of disciplines from mathematics to material sciences. Providing a framework where biologists and those not directly involved in animal research come together to focus on 3Rs issues can be difficult. Nevertheless, providing opportunities for networking and knowledge exchange can accelerate the development of the 3Rs. Ideas to facilitate this include workshops focusing on a particular theme, for example, "can bioreactors be used for X". Setting ambitious 'blue sky' challenges relevant to Departmental research priorities such as "how could we replace

Pioneering Better Science

PLOS | COMPUTATIONAL BIOLOGY

EDITORIAL

Ten Simple Rules for Effective Statistical Practice

Robert E. Kass[1], Brian S. Caffo[2], Marie Davidian[3], Xiao-Li Meng[4], Bin Yu[5], Nancy Reid[6]*

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OPEN ACCESS

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Introduction

Several months ago, Phil Bourne, the initiator and frequent author of the wildly successful and incredibly useful "Ten Simple Rules" series, suggested that some statisticians put together a Ten Simple Rules article related to statistics. (One of the rules for writing a PLOS Ten Simple Rules article is to be Phil Bourne [1]. In lieu of that, we hope effusive praise for Phil will suffice.)

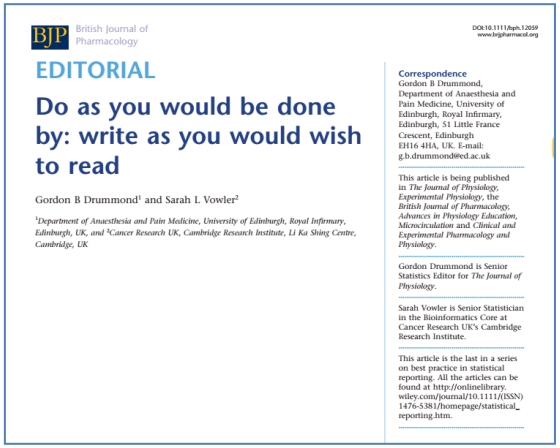
Implicit in the guidelines for writing Ten Simple Rules [1] is "know your audience." We developed our list of rules with researchers in mind: researchers having some knowledge of statistics, possibly with one or more statisticians available in their building, or possibly with a healthy do-it-yourself attitude and a handful of statistical packages on their laptops. We drew on our experience in both collaborative research and teaching, and, it must be said, from our frustration at being asked, more than once, to "take a quick look at my student's thesis/my grant application/my referee's report: it needs some input on the stats, but it should be pretty straightforward."

There are some outstanding resources available that explain many of these concepts clearly and in much more detail than we have been able to do here: among our favorites are Cox and Donnelly [2], Leek [3], Peng [4], Kass et al. [5], Tukey [6], and Yu [7].

Every article on statistics requires at least one caveat. Here is ours: we refer in this article to "science" as a convenient shorthand for investigations using data to study questions of interest. This includes social science, engineering, digital humanities, finance, and so on. Statisticians are not shy about reminding administrators that statistical science has an impact on nearly every part of almost all organizations.

Rule 1: Statistical Methods Should Enable Data to Answer Scientific Questions

A big difference between inexperienced users of statistics and expert statisticians appears as soon as they contemplate the uses of some data. While it is obvious that experiments generate data to answer scientific questions, inexperienced users of statistics tend to take for granted the link between data and scientific issues and, as a result, may jump directly to a technique based on data structure rather than scientific goal. For example, if the data were in



BJP British Journal of Pharmacology

DOI:10.1111/bph.12059
www.brjpharmacol.org

EDITORIAL

Do as you would be done by: write as you would wish to read

Gordon B Drummond[1] and Sarah L Vowler[2]

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This article is being published in *The Journal of Physiology, Experimental Physiology*, the *British Journal of Pharmacology, Advances in Physiology Education, Microcirculation* and *Clinical and Experimental Pharmacology and Physiology*.

Gordon Drummond is Senior Statistics Editor for *The Journal of Physiology*.

Sarah Vowler is Senior Statistician in the Bioinformatics Core at Cancer Research UK's Cambridge Research Institute.

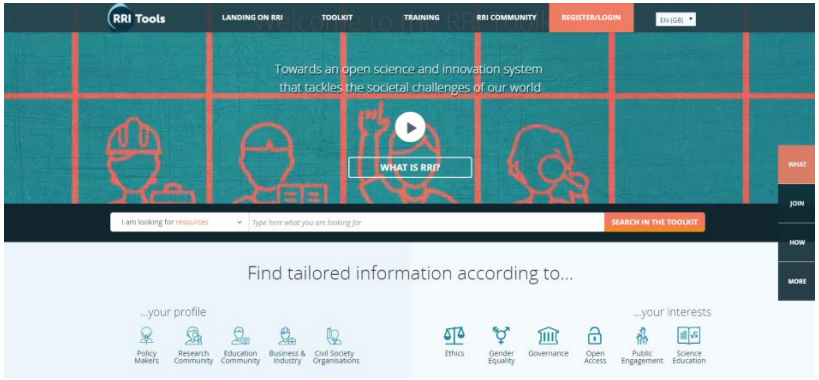
This article is the last in a series on best practice in statistical reporting. All the articles can be found at http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1476-5381/homepage/statistical_reporting.htm.

Responsible Research In Practice

Openness & Transparency

"..the project suggests that public engagement is more firmly embedded in the context of arts, humanities and social sciences than it is among researchers in science, technology, engineering and mathematics."

Openness & Transparency



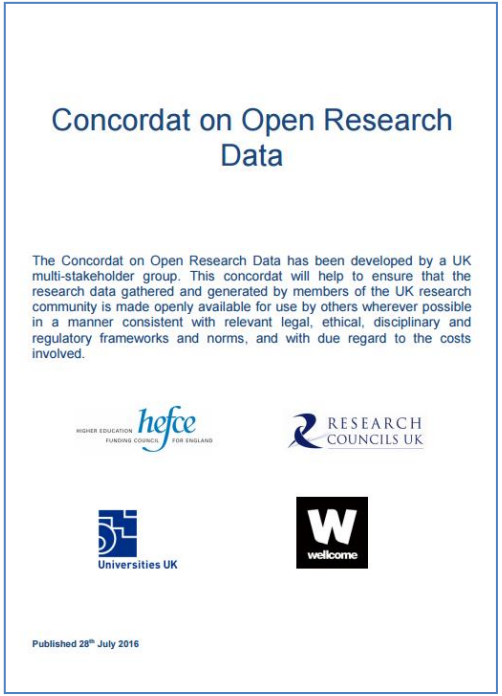
Openness & Transparency

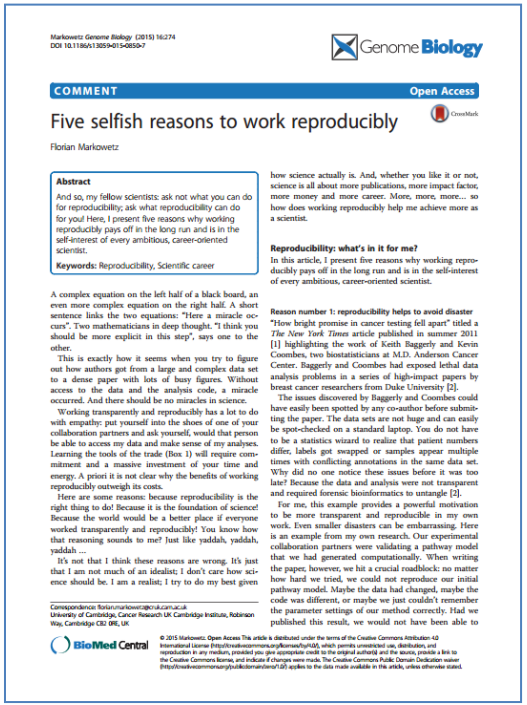
Responsible Research In Practice

Introduction to Responsible Research and Innovation in the ICT Industry Related to Health and Ageing

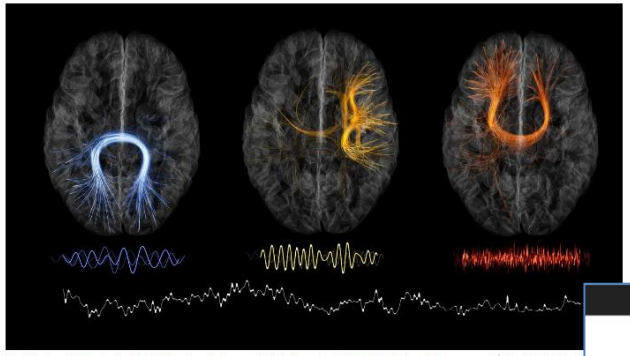
Research Outputs

Research Outputs





Research Outputs



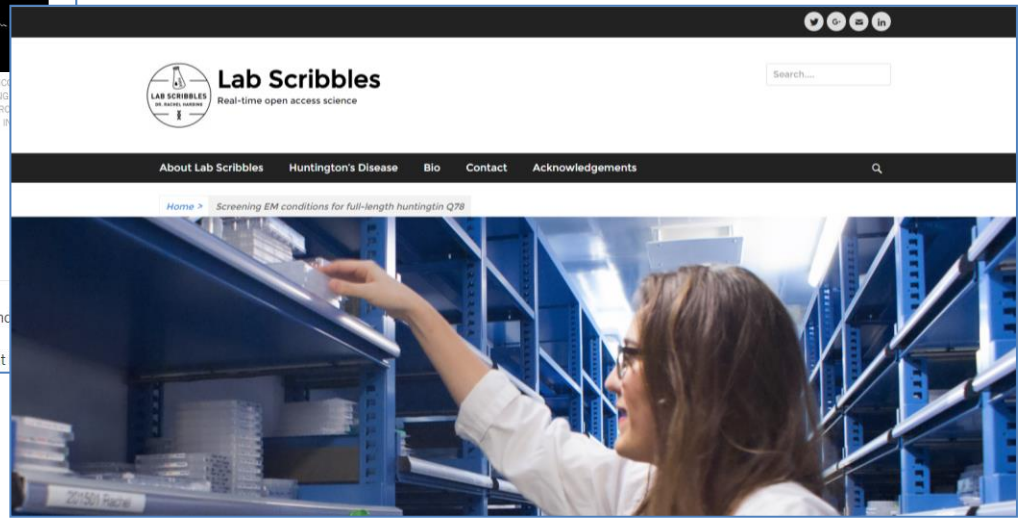
The Montreal Neurological Institute plans to free up its findings, including data that point to connections between brain regions communicating at different neural rhythms.

SÉBASTIEN DERY, MC
BRAIN IMAGING
MONTREAL NEURO

Montreal institute going 'open' to accelerate science

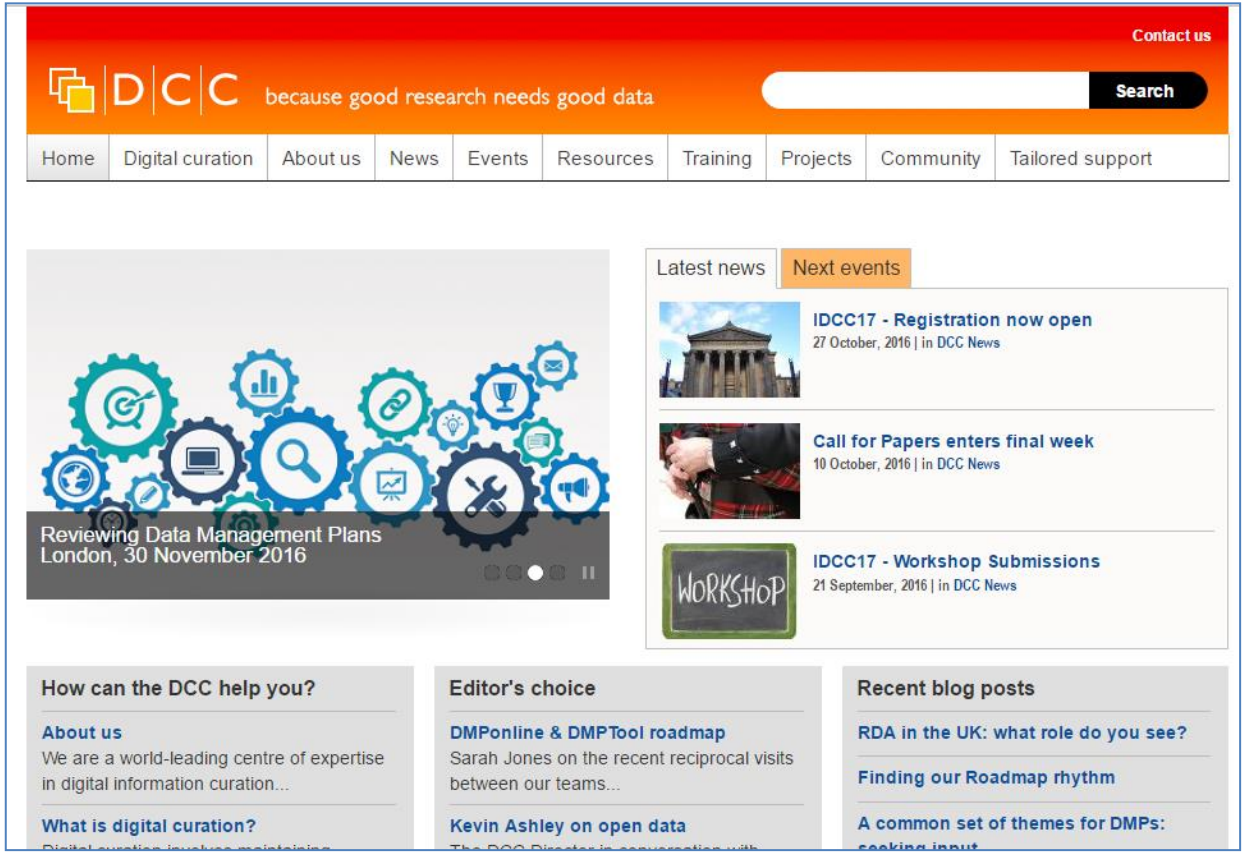
By Brian Owens | Jan. 21, 2016 , 2:00 PM

Guy Rouleau, the director of McGill University's Montreal Neurological Institute (MNI) and Hospital in Canada, is frustrated with how slowly neuroscience research translates into treatments. "We're doing a really shitty job," he says. "It's not because we're not trying; it



Responsible Research In Practice

Research Outputs



ANY QUESTIONS ?

nikki@responsibleresearchinpractice.co.uk

Responsible Research
In Practice

RESPONSIBLE
Ethical
Science that is
Evidence based
AND above all
Reproducible
Challenging and
Honest

"Research that is worth doing, is worth doing properly"

Responsible Research in Practice provides bespoke support, training and advice to enhance the responsible conduct of research in everyday practice. We use practical experience to provide an international service to individuals and organisations working in Bioscience and Laboratory Animal Science sectors.

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