Theme I – Ethics

Coordinators
Adam Shriver, University of Pennsylvania, Philadelphia, PA, United States
Catherine E. Willett, The Humane Society of the United States, Washington, DC, United States
Dan Weary, Department of Animal Welfare Program, Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Canada
Kathrin Herrman, Free University of Berlin, Berlin, Germany

Oral Presentations

Session I-1: Harm-Benefit and Beyond

Co-Chairs
Jeff Sebo, New York University, New York, NY, United States
Judy MacArthur Clark, JMC Consultancy, Sandwich, United Kingdom

I-1-750

Narrow and wide harm-benefit analysis

Jeff Sebo
New York University, New York, NY, United States
jeffsebo@gmail.com

In this talk I make a distinction between what I call narrow and wide harm-benefit analysis, and I explore the implications of this distinction for animal research. I begin by summarizing what I call narrow harm-benefit analysis, which focuses on the relatively direct effects of animal research. These effects include animal suffering and scientific setbacks due to false positives and negatives, as well as human happiness and scientific progress due to true positives and negatives. I then summarize what I call wide harm-benefit analysis, which focuses on direct as well as indirect effects of animal research. These effects include the impact that animal research has on medical research more generally, as well as the impact that it has on our relationships with and treatment of nonhuman animals more generally. I conclude that wide harm-benefit analysis likely tells against animal research more decisively than narrow harm-benefit analysis does, and that wide harm-benefit analysis should be informing our activism, advocacy, and politics around this issue whether or not it should also be informing our institutional review discussions around this issue.

I-1-663

Harm benefit analysis: The UK experience 1986-2017

Kate Chandler
Animals in Science Regulation Unit, UK Home Office, United Kingdom
Kate.Chandler@homeoffice.gsi.gov.uk

The UK Inspectorate, part of the Animals in Science Regulation Unit (ASRU) of the UK Government, has undertaken harm-benefit analysis (HBA) as the cornerstone of project licence evaluation since 1986. HBA is required by law, under the Animals (Scientific Procedures) Act. Views on evaluation of harms and benefit continue to evolve, and are informed by scientific evidence and societal concerns. Where projects raise issues requiring more detailed consideration (e.g. matters of particular public concern), additional advice may be sought by Inspectors or the Secretary of State. Applications may be referred within the Inspectorate, to officials or Ministers, to our independent advisory committee (the Animals in Science Committee: the ASC), and/or to external subject-expert assessors. Since the transposition of 2010/63/EU, we have published detailed Guidance on how HBA is undertaken in the UK.

Reference

I-1-388

Harm-benefit analysis – How can and should it contribute to the assessment of animal experiments?

Peter Sandøe¹, Herwig Grimm² and I. Anna S. Olsson³
¹Dept. of Food and Resource Economics and Dept. of Veterinary and Animal Sciences, University of Copenhagen, Frederiksborg C, Denmark; ²Messerli Research Institute, University of Veterinary Medicine, Vienna, Austria; ³Laboratory Animal Science, i3S – Instituto de Investigação e Inovação em Saúde, Porto, Portugal
pes@sund.ku.dk

That an animal experiment can be justified by a favourable balance between harms to the animals directly affected, and likely benefits to humans, is the rationale behind much current legislation requiring that experiments comply with the 3Rs and serve certain specified purposes. However, there has been a movement towards adding so-called harm-benefit analysis as an additional requirement in assessing experiments. Here we analyse and discuss the content and role of such a requirement. Either the requirement is understood as imposing a metric that, assuming that harms and benefits fit on the same scale, will generate absolute and rather restrictive verdicts, or as a checklist the aim of which is to ensure that the final assessment happens on a properly informed basis. We argue that a system based on the first interpretation is unfeasible, whereas a system based on the second interpretation may serve as an important addition to the 3Rs in ensuring sound assessments of animal experiments.
The number of animals used for experimental purposes worldwide is now the same as it was in the 1980s, even though society demands that more should be done to replace animals in research. Debates about the continuing high use of animals in research are regularly held at the expense of scientists. This article argues that the failure is primarily a regulatory one, caused by a misdesign of harm-benefit analyses.

To meet societal claims for better animal protection, I explore the 3Rs’ potential to mature into a more viable concept for the future of animal law. I first suggest a reverse hierarchical understanding of the 3Rs on the basis of the legal interpretation and the proportionality and precautionary principles. Second, I propose a balance of interests in qualitative terms, which is increasingly demanded by animal law experts. Third, I explore whether rights to life and bodily and mental integrity of animals would render cost-benefit analyses less structurally biased and whether they would be feasible from a political perspective.

References


The potential role of assessing study quality in harm-benefit analysis

Emily Sena
University of Edinburgh, Edinburgh, United Kingdom
sena.emily@gmail.com

A harm-benefit analysis (HBA) seeks to quantify the potential benefit of a research project and determines whether this outweighs likely harm to animals. Currently, this decision-making process does not take into account measures by researchers to reduce the introduction of potential sources of bias in their experimental design. An important factor in the rigorous design of an experiment is ensuring the internal validity of an experiment; that is to instil confidence in the cause-effect relationship by actions such as randomisation and blinding. Systematic review of the in vivo literature suggests that only about a third of studies report taking these measures to reduce the risk of bias. Studies at high risk of bias are associated with reporting inflated effects that likely contributes to the reproducibility crisis.

If the purpose of a HBA is to quantify potential benefit, assessment of the experimental design and the measures taken to reduce risks of bias are pertinent to assessing the likelihood of a study realising its potential benefit.

Harm benefit analysis (HBA): Making good decisions

Judy MacArthur Clark
JMC Consultancy, Sandwich, United Kingdom
judymacarthurclark@gmail.com

Exercising a harm-benefit analysis (HBA) requires an individual or group to make a decision based upon an apparent systematic approach to estimating the strengths and weaknesses of alternative options. However, this calculation is surrounded by much uncertainty, not least the difficulty in assessing potential benefit as well as potential harms. Furthermore, individuals operating independently may reach decisions based largely on prior experience whereas those deciding in a group will tend to be influenced either by “groupthink” or by the strength of views expressed by different members. In both cases, “palsylysis by analysis” can prevail so that a decision is very protracted or never taken leading to frustration on all sides.

In this paper, I will critically consider different models by which committees and individuals address HBA decision making. There may be no perfect method – but awareness of the strengths, weaknesses and pitfalls of diverse approaches may help to improve outcomes.

As session co-chair, I will also summarise key points made in the earlier papers and related posters leading into a guided discussion.
I-2-809

**Ethical evaluation of animal experiments: Mandate and lessons from the past**

*Roman Kolar, Kristina Wagner and Irmela Ruhdel*

Animal Welfare Academy, German Animal Welfare Federation, Neubiberg, Germany

roman.kolar@tierschutzakademie.de

The regulation of animal experiments has a long history. Its origins stem from public debate about the question when and to which extent animal suffering can be justified in the context of research, testing, and education. That public discourse has led to various legislative acts that have aimed at providing for a regulatory framework for the practical performance of animal experiments, and the underlying theoretical, including ethical, considerations. Some of the systems in place have been functioning for decades, others are relatively new. Some have proved to function properly concerning specific aspects whereas others have not. The analysis of the problems that have been encountered can and should serve as a basis for the way forward. This refers mainly to a common understanding of the issues and the process with regard to the cost-benefit analysis, i.e. weighing animal suffering against the supposed benefit. Concerns raised in this context also include the lacking expert knowledge on ethics, the 3Rs or the specific scientific problems discussed in individual ethics committees, the insufficient existing approaches for regulatory demanded tests, and others.

References


I-2-807

**Unalleviated pain and distress: How can ethics committees and IACUCs best evaluate the justification?**

*Larry Carbone*

Inst. Animal Care and Use Program, University of California San Francisco, San Francisco, CA, United States

larry.carbone@ucsf.edu

Laboratory animal regulations and guidelines in most countries call for managing, preventing and minimizing animal pain and distress, so far as analgesics and other refinements will not interfere with the quality of the data. Since the early 1970s, the United States *Animal Welfare Act* has recognized this departure from maximizing animal welfare, requiring animals on such protocols to be listed separately in Column E of the facility’s annual report. This presentation will discuss the challenges for researchers, veterinarians and oversight committees in deciding when analgesics and other refinements might lower the quality of the data. It covers the need to further recognize what unalleviated pain and distress might do to the data, and to weigh the relative impacts of pain and pain management, and the unfortunate reality that little of the necessary scientific information for most models is established and published.

References


IACUC review of the justification of proposed research – What can be learned from IRBs?

Jeffrey Kahn
Johns Hopkins Berman Institute of Bioethics, Baltimore, MD,
United States
jeffkahn@jhu.edu

As in the review of proposed research involving human subjects by Institutional Review Boards (IRBs), the prospective review of animal research by IACUCs must assess whether regulatory requirements are met, intended to protect research subjects and assure that research is ethically performed. The extent to which scientific justification of research can and should be considered in prospective review by IRBs and IACUCs is a point of debate.

This presentation will discuss arguments about whether scientific review should be included in ethics oversight of research on human or animal subjects, what the IACUC community can learn from experience on the part of IRBs, and will explore what the application of a necessity framework has to offer to the debate.
I-3-753

Ethical consideration of the use of different species in experimentation

Jeffrey Kahn¹, Peter Sandøe² and Dan Weary³

¹Johns Hopkins Berman Institute of Bioethics, Baltimore, MD, United States; ²Dept. of Food and Resource Economics and Dept. of Veterinary and Animal Sciences, University of Copenhagen, Frederiksberg C, Denmark; ³Department of Animal Welfare Program, Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada

jeffkahn@jhu.edu

Public support for animal research in the United States has been declining slowly but steadily since the 1950s. Various surveys around the globe have demonstrated similar trends and also indicate that the level of public support for animal research varies substantially (10 percentage points or more in some surveys) by the type of animal (e.g. mouse, dog or primate) that the question specifies and even more dramatically by the level of suffering the animals are perceived to experience. In general, there is less public opposition to the use of mice than to the use of dogs or primates and less opposition where the research is viewed as causing little harm to the animals. These issue (the ethics of using different types of animals in research and testing and the different perceptions of harm and benefit by members of the public and by scientists) that are intended to be the focus of the round-table discussion. While public concern tends to focus on the level of perceived harm to the animals, research scientists tend to emphasize the expected benefit to humans. The session will be chaired by Andrew Rowan who will provide a brief introductory overview. The three panelists will then set up some of the ethical issues relating to primates (Jeffrey Kahn), other animals used in research (Daniel Weary) and rodents versus dogs (Peter Sandøe) in short presentations. Others present at the Round Table will then be invited to comment on these three presentations and to introduce new arguments and ideas that may not have been raised already. It is anticipated that there will be many who will want to participate so presenters (7 minutes) and audience participants (3 minutes) will be strictly limited as to the amount of time that they will have to speak.
Session I-4: Beyond Refinement – Can We Provide Animals Used in Research with a Good Life Experience

Co-Chairs
Kathrin Herrmann, Free University Berlin, Berlin, Germany
Adam Shriver, University of Pennsylvania, Philadelphia, PA, United States

I-4-755
A suffering-centric account of the importance of positive emotions
Adam Shriver
Animal Welfare Program and Centre for Applied Ethics, University of British Columbia, Vancouver, BC, Canada
ashriver@mail.med.upenn.edu

It is often suggested that ethical perspectives prioritizing the disvalue of suffering are at odds with approaches that emphasize positive states of welfare. In this presentation, I will argue that even on ethical approaches that hold that the prevention of suffering should be the most important aim of welfare protections, the promotion of positive emotions is critically important. I present two primary forms of evidence in favor of this conclusion. First, I review the literature on the role of anhedonia in humans, where a lack of the capacity to feel positive emotions leads to an intensely negative subjective experience. Second, I highlight a wide range of research from the neurosciences that demonstrates that feelings of pleasure have an inhibitory effect on neural pathways involved in pain and anxiety. From this evidence, it follows that the facilitation of positive emotions is one of the best ways to minimize suffering in laboratory animals, and perhaps is a necessary condition for a true absence of suffering. As such, the need to ensure positive states of welfare through enrichment is not dependent upon any particular commitment about how to weigh positive emotions against negative emotions, but instead should be regarded as a priority for all.

I-4-623
Taking animals used in research seriously: At a crossroads between ethics and animal welfare
Walter Sanchez-Suarez
School of Psychology/Sackler Centre for Consciousness Science, University of Sussex, Villamayor, Spain
w.sanchez-suarez@sussex.ac.uk

It is not possible to come up with an accurate estimation of the number of nonhuman animals used in research worldwide, but – even when not taking invertebrates into account – most sources (e.g., RSPCA) agree with overwhelming figures above 100 million animals per year. Importantly, many of these research practices involve invasive procedures. Within this context, the label “ethical” is often used to describe these practices; but do they actually qualify as ethical from a normative viewpoint? And are we taking advantage of the words “ethical” and “humane” in order to prevent society from grasping a real notion of what we are doing to these animals? I will first focus on these questions by evaluating whether research involving animals in general, and invasive procedures in particular, can be regarded as ethical according the most relevant ethical theories. Finally, even if some of these practices were to qualify as ethical, could they be compatible with providing those animals involved with good welfare? In order to elucidate whether this is the case, the second part of the talk will deal with this question in the light of the most thorough concepts of animal welfare.

Reference
https://www.rspca.org.uk/es/adviceandwelfare/laboratory

I-4-455
Is refinement enough to promote psychological well-being?
Stacy Lopresti-Goodman
Psychology, Marymount University, Arlington, VA, United States
stacy.lopresti-goodman@marymount.edu

Refinement is aimed at improving the welfare of animals in laboratories by modifying experimental procedures and husbandry practices to minimize pain and distress (Russell and Burch, 1959; Fenwick et al., 2009). Despite the goal of yielding more humane science, animals in laboratories still experience negative welfare. This talk will focus on behavioral abnormalities and psychological distress resulting from standard laboratory practices (Lopresti-Goodman, 2016; Chandna et al., 2015). It will also highlight persistent problems that have been documented in animals who have been released from laboratories and retired to sanctuaries (e.g. chimpanzees) (Lopresti-Goodman, 2015), or adopted into private homes (e.g. dogs) (Lopresti-Goodman, submitted).

References

References
A better life for research animals by fostering a culture of compassion amongst researchers

Catherine Schuppli¹, Andrea Walterhouse², Vivian Chew², Nevene Hammoud², Lara Kolody², Bee-Li Tan², Joanna Makowska², Sarah Menamara², Joyce Sato-Reinhold², Venessa Wong² and Daniel Weary³

¹Animal Welfare Program, and Animal Care Services, University of British Columbia, Vancouver, BC, Canada; ²Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada; ³Animal Welfare Program, and Animal Care Services, University of British Columbia, Vancouver, BC, Canada
cathy.schuppli@ubc.ca

This study used a novel educational intervention to test if exposure to socialized rats that demonstrated complex mental and behavioural abilities, promoted compassion amongst animal researchers. Six rats were trained using positive reinforcement techniques to participate in tasks such as jumping onto a scale, entering a restraining tube, and fetching and lifting objects. Researchers who enrolled in a rodent handling course observed these rats perform and handled them for practice. After the class, researchers participated in focus groups to discuss their impressions of the rats. Using qualitative analyses, key findings include that all participants were “amazed” by the rat’s performance and the personal relationship with their handlers. All believed socializing rats with humans reduced stress but views differed on the potential effects on data. There was concern about the emotional burden on researchers of “sacrificing” their subjects after developing similar relationships.

Thinking “inside” the box: Housing essential for a good life

Joanna Makowska

Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada
inez.joanna.makowska@gmail.com

Housing is the most pervasive element of research animals’ lives, largely dictating the limits of their behaviour and experiences. Conventional laboratory cages do not allow rodents to perform many natural behaviours. When rats were housed in semi-naturalistic cages, they burrowed, climbed, and stood upright approximately 30, 75 and 180 times per day, respectively. Control standard-housed rats, unable to perform these behaviours, performed nine times more lateral stretches than rats in the semi-naturalistic cages, likely to alleviate stiffness caused by low mobility. A follow-up study on anticipatory behaviour indicated that these standard-housed rats were experiencing poorer welfare than the semi-naturalistic-housed rats. A study on housing mice in three interconnected cages found that mice prefer to nest far from where they eliminate, and cover their waste with spare bedding. These studies show how providing research animals with appropriate, species-specific housing that allows for natural behaviors is important to good welfare.

Refinement and the culture of care: What is in it for the animals?

Kathrin Herrmann

Dahlem Research School for Biomedical Sciences, Free University Berlin, Berlin, Germany
Kathrin.Herrmann@fu-berlin.de

As a consequence of changes in legislation and increased public discontent about the use of animals for experimentation, Refinement, the 3rd R, has taken center stage in the laboratory animal science community in recent years. The first large-scale retrospective assessment of research applications was carried out, which involved recovery surgical procedures with rats and mice, to evaluate practices in anesthesia, analgesia, post-operative monitoring, humane endpoints and killing methods in Germany before the implementation of Directive 2010/63/EU for the protection of animals used for scientific purposes. Over 500 applications from 2010 were reviewed. The goal was to determine if legal requirements regarding Refinement were met or overfulfilled, as a true culture of care would give reason to expect.

In this paper, the principal findings will be presented and discussed and recommendations for best practice approaches will be given. Furthermore, the question will be posed whether an optimal culture of care could ever provide a good life for animals who live in a laboratory environment and are used in invasive experiments.

References

Theme I, Oral Presentations

Session I-5: Ethical Considerations for New Technologies Using Animals – Round Table

Chair
Adam Shriver, University of Pennsylvania, Philadelphia, PA, United States

I-5-746

Chimera troubles: On a better ethics of human-animal chimera research

Andrew Fenton
Philosophy, Dalhousie University, Halifax, NS, Canada
atf@dal.ca

The NIH is changing its guidelines on funding studies of human-animal chimeras. I will highlight several critical bioethical issues in chimera research with a particular eye to the kind of animal studies the NIH is interested in funding. I argue that (i) the creation of these human-animal chimeras raise thorny ethical questions that the regulatory frameworks currently governing animal research are ill-equipped to answer (especially questions concerning the welfare and wellbeing of modified socially and cognitively complex animals, such as pigs or macaques), and (ii) the justification typically offered for this research – that such research is “necessary” for advancing knowledge of human diseases – is insufficient in these cases. My objective is to raise awareness about the potential harms associated with the creation of such chimeric beings as well as to challenge the adequacy of some current ethical and legal frameworks that regulate animal research.

I-5-652

Creating transgenic pigs to grow organs: A high tech solution to a low tech problem?

L. Syd Johnson
Humanities, Michigan Technological University, Houghton, MI, United States
lsjohnso@mtu.edu

The use of CRISPR to remove PERV DNA from pig cells, and research to create transgenic pigs, have led to speculation about porcine-to-human xenotransplantation. The potential suffering and killing of sensitive, intelligent animals for human benefit requires ethical justification. It’s not obvious that using pigs for xenografts would pass ethical muster, and expanding research to develop new ways of using animals warrants careful consideration.

Many patients die while waiting for an organ transplant because too few people choose to donate their organs after death. That problem can be solved by low tech, social engineering rather than the genetic engineering of pigs. Ethical concerns about animal and human welfare in xenotransplantation research are heightened because the organ shortage is a problem that can be solved without it. While the research to grow human-compatible organs in pigs is in its infancy, it is time to consider its ethical implications.

I-5-817

Biotechnology and animal welfare

Bernard Rollin
Colorado State University, Fort Collins, CO, United States
bernard.rollin@colostate.edu

In one of the great ironies of human history, husbandry made domestication of animals possible, which in turn created the possibility of stable civilization, including the development of science and technology. Yet as soon as the technology of the Industrial Revolution was developed, thousands of years of husbandry as ideal and practice were overthrown, and the ancient contract with animals was broken with the development of high technological agriculture that was inimical to fundamental aspects of animal welfare.

If this is true in agriculture, it is a fortiori true of animal use in science, where there is no tradition of animal welfare, and even animal welfare considerations such as control of pain and distress, presuppositional to good science, were ignored historically. Uncontrolled pain can deform numerous physiological, metabolic, and psychological variables.

This is equally true of biotechnology. As I have demonstrated elsewhere, the advent of biotechnology in agriculture had nothing to do with animal welfare; rather with increasing productivity and profit. We have no reason to believe that biotechnology in science would be any different. Therefore, I would argue, that there needs to be significant regulation of such use to avoid heedlessness to animal suffering.