

Animal research at Yale: how librarians are improving IACUC literature searches

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Background

Investigators using animals in research must consider alternatives to procedures that cause more than momentary or slight pain or distress (category D and E procedures). Alternatives are framed within the context of the 3 R's: Replacement, Reduction, and Refinement.

Regulations require a written narrative to describe the search and why alternatives were not appropriate. Investigators must submit search documentation to the IACUC in order for the protocol to be approved and pass federal guidelines.

Objectives

To provide researchers with guidance on how to conduct searches for alternatives in order to meet IACUC approval and federal guidelines.

To collaborate with researchers as expert partners to complete comprehensive searches and provide documentation for IACUC approval.

How librarians add value

- Provide search support to researchers doing literature searches for alternatives
- Design, run, and document mediated searches based on researchers' IACUC protocols
- Teach library workshops to prepare researchers to perform their own search for alternatives
- Share search advice – useful keywords, subject headings, relevant databases, and more – on a LibGuide so researchers have a resource to refer to when doing their search for alternatives
- Serve on the Yale IACUC Committee

3 R's Building Blocks: Developing the Search for Alternatives

Yale librarians developed the simplified search algorithm below to standardize their own searches, and to make it easier to teach these concepts. Searchers can build out each concept, or "building block," with relevant controlled vocabulary and keywords, using appropriate syntax and operators.

Reduction

- Can I reduce the number of animals in my experiment?
Is this experiment truly novel, or will it duplicate work already published?
Researchers should consult with statisticians about their research design to ensure they use *enough* animals for statistical significance but not *far more than enough*¹



Replacement

- Can I replace the animals with simulations or in vitro methods?



- Can I replace the animals with a different, phylogenetically lower animal?



Refinement

- Can I refine my protocol by making procedures less painful?

- If your question is about a specific procedure, search



- If your question is about appropriate drug choices or dosage, search



- Can I refine my protocol by providing a humane endpoint if necessary?



"The (USDA) inspector was especially enthusiastic about the work you have done establishing a formal library program to assist investigators in seeking alternative procedures. This is terrific and in addition to being a good thing in and of itself, reflects well on Yale's dedication to the humane care and use of animals".
Steve Girvan, Deputy Provost for Research

"Thank you so much for your meticulous and thorough work. We are quite amazed at the depth and clarity of these searches and we will certainly use them for guidance in the future"
Researcher

"The IACUC accepted our search! We are approved. Thanks so much for your invaluable help, Holly!"
Researcher

Great class. Very informative, thank you!!"
-Participant in an IACUC search workshop designed and delivered by Melissa Funaro and Kate Nyhan

Results

- Medical librarians have a higher profile, as information experts, and new relationships in the community of basic sciences researchers.
- The IACUC can approve researchers' protocols more quickly, thanks to better searching, better documentation, and in some cases less distressing procedures.
- Researchers learn search skills they can apply to non-IACUC literature searches.
- Animals are used for research only when this use is necessary.
- Yale University complies with the Animal Welfare Act.

Future Developments

- Create and develop Search Hedges using the 3 R's building blocks, for librarians and researchers to use for efficient and "comprehensive alternatives searches."
- Update the IACUC LibGuide with more guidance, examples, and hedges – based on feedback from users and expert searchers.
- Hold IACUC searching workshops in departments in the basic sciences.

References

- Festing MF. Reduction of animal use: experimental design and quality of experiments. *Lab Anim.* 1994;28(3):212-21.
- USDA. Animal Care Policy Manual October 16, 2015. Available from: https://www.aphis.usda.gov/animal_welfare/downloads/Animal%20Care%20Policy%20Manual.pdf.