

OLAW Online Webinar
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Meeting Requirements for Alternatives Searches: Information for IACUCs and Investigators

Kathleen Gregory, MLIS, MA
University Libraries
University of Denver

Why perform a literature search?



- Save time and money (and improve results)
- Public Health Service Policy, Animal Welfare Act
- Policy #12 of Animal Care and Resource Guide recommends literature search as most effective method

The IACUC's Role

- "[The] **IACUC shall determine** that... The principal investigator has **considered alternatives** to procedures that may cause more than momentary or slight pain or distress to the animals, and has **provided a written narrative** description of the methods and sources, e.g., the Animal Welfare Information Center, used to determine that alternatives were not available."

-Title 9 of the Code of Federal Regulations (9CFR, Part 2, Sec. 2.31 (d)(1)(ii))

The Narrative

- Names of databases
- Date search performed
- Time period covered
- Search strategy

Timing of the Literature Search



Library before Laboratory

A Scientific Approach

To transform this:



frog alternative

Into this:



US National Library of Medicine
National Institutes of Health

Query Translation:

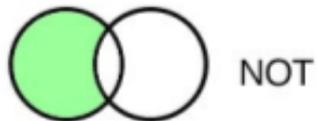
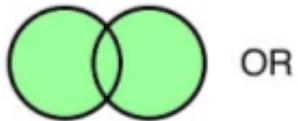
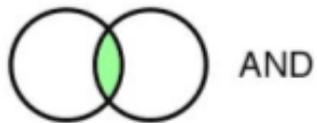
```
"Parkinson disease"[MeSH Terms] AND (("Models, Theoretical"  
[Mesh] NOT "Disease Models, Animal"[Mesh]) OR "Computer  
Simulation"[Mesh] OR "Cadaver"[Mesh] OR "Culture Techniques"  
[Mesh] OR "Cells, Cultured"[Mesh] OR "In Vitro "[Publication  
Type])
```

The Overall Strategy



General Strategies

Boolean Searching



Phrase Searching

"tissue culture"

Truncation Searching

handl*

Keywords vs. Subject Headings



See the webinar recording for a demonstration of searching the PubMed literature database.

View the recording at

<https://www.youtube.com/watch?v=I-I-3ZG1e0w>

Challenge: Managing Databases

Free Databases

AGRICOLA	PubMed	TOXNET	Google Scholar
Agriculture	Biological & Life Sciences	Toxicology	Interdisciplinary
Animal & Veterinary Science	Chemistry & Biochemistry	Hazardous Chemicals	
Aquaculture	Medicine	Environmental Health	
Fisheries	Veterinary Medicine		
Entomology	Psychology & Behavioral Sciences		
Environmental Science	Pharmacology		
Citations; some links to full text	Citations, links to full text of articles in PubMed Central	Collection of toxicology databases	Journal articles
Journal articles	Journal articles		Books
Books, chapters	Some online books		Full text available through library
Short reports			
Keywords best	Keywords	Keywords	Keywords
Subject headings/thesaurus	MeSH terms	More options in individual DBs	No truncation
? for truncation			Use - instead of NOT
			Citation searching

Fee-based Databases

Web of Science	Biological Abstracts	PsycInfo	SciFinder
Multidisciplinary	Biological & Life Sciences	Psychology	Chemistry & Biochemistry
Strongest in sciences and social sciences	Chemistry & Biochemistry	Behavioral Sciences	
	Medicine	Medicine	
	Environmental Science	Social Sciences	
	Pharmacology	Education	
Journal articles	Journal articles	Journal articles	Journal articles
Book chapters			Chemical data
Conference Proceedings			
Depends on institution			
Keywords	Keywords	Keywords	Keywords
Broad subject headings	Subject headings	Subject headings (descriptors)	Chemical info
Citation searching		Some citation searching	Subject headings

Databases by Subject

Topic	Biology & Multidisciplinary DBs	Alternatives Databases
Biomedical Research (i.e. ALS, Down's syndrome, etc.)	PubMed/Medline	ALTBIB
	Biological Abstracts	@LT WEB
	Web of Science	CCAC 3R's Mircrosite
	Google Scholar	Go3R.org eMICE
Field Research	AGRICOLA	CCAC 3R's Mircrosite
	Web of Science	ALTBIB
	Biological Abstracts	
	PubMed/Medline	
	Google Scholar	
Behavioral Research	PubMed/Medline	ALTBIB @LT WEB
	PsycInfo	
	Web of Science	
	Google Scholar	
Pain & Distress Reduction	PubMed	@LT WEB
	Biological Abstracts	CCAC 3R's Mircrosite
	Web of Science	

Other Databases

- EMBASE, BIOSIS, Zoological Record, Reaxys
- <http://www.lib.ucdavis.edu/dept/animalalternatives/databaseapproach.php>

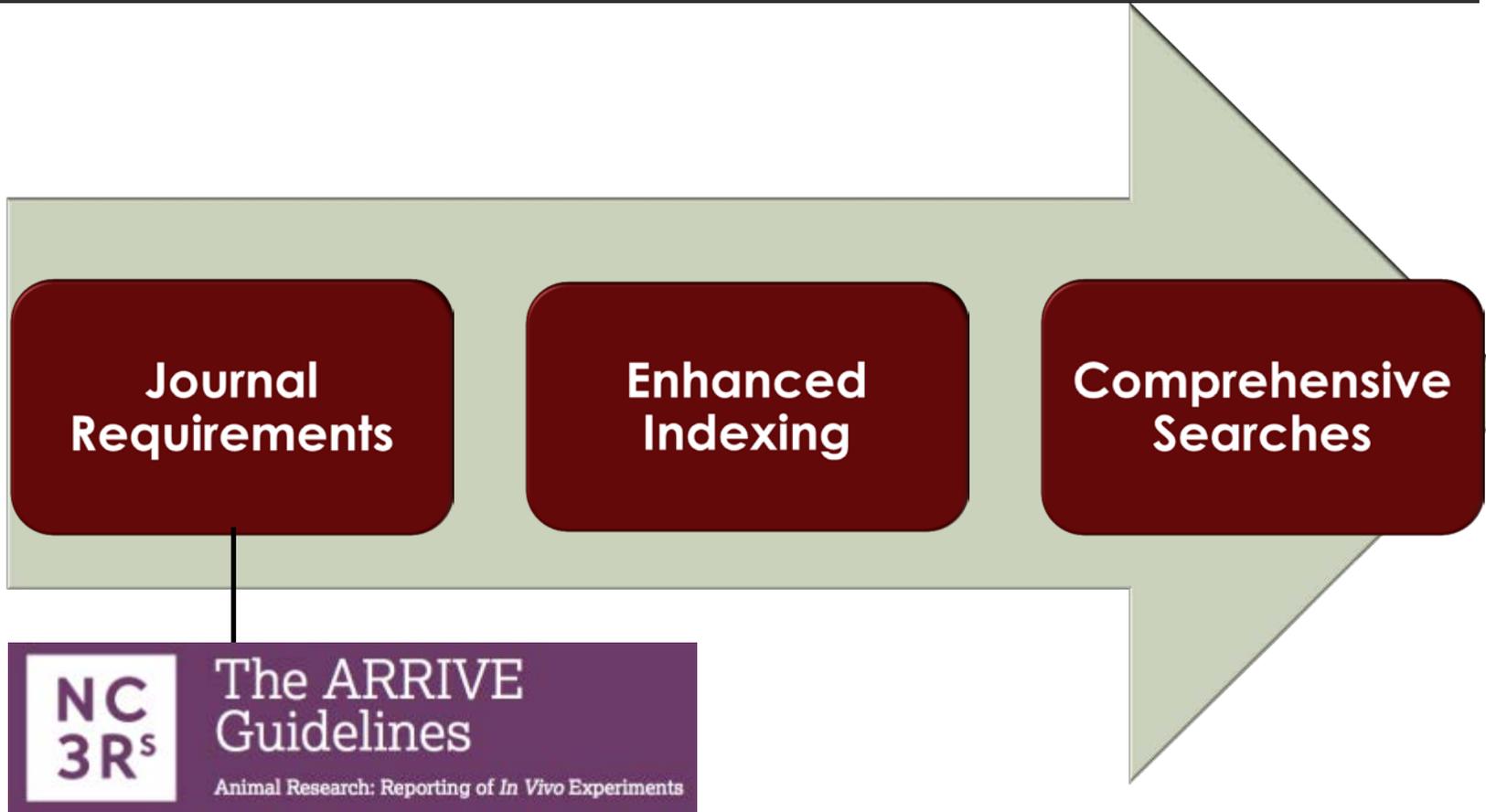
Challenge: Refinement Searches

- Not comprehensively reported in literature
- Remember tips:
 - Consider the end result of the technique; use the desired result as a potential keyword
 - Search broadly:
 - Search techniques separately
 - Don't begin by limiting to particular species or discipline

Challenge: Identifying Potentially Painful Procedures

- List all procedures in protocol; some recommend searching on all procedures
- Utilize pain assessment and recognition tools
- Consult your veterinarian

Improved Reporting?



Challenge: Evaluation

Questions to Ask

- **Are they searching in the right place?**
Which databases? Do these make sense?
- **What keywords and subject headings are used?**
Combination of 3 R's and project-specific
- **What search strategies are used?**
Boolean? Phrase? Truncation?
- **What is the time period covered in the search?**
- **When was the search performed?**

Evaluation Red Flags

-  Search conducted at the last minute
-  Only searched one database
-  Relevance of keywords to search
-  Incorrect use of Boolean operators
-  Search is too specific
-  Inadequate date range

-Animal Welfare Information Center

<http://www.nal.usda.gov/awic/awicworkshops/webslides.pdf>

References & Resources

Animal Welfare Information Center. (2013). AWIC tips for searching for alternatives to animal research and testing. Available at: <http://awic.nal.usda.gov/awic-tips-searching-alternatives-animal-research-and-testing-0>

Animal Welfare Information Center. (2012). Meeting the information requirements of the Animal Welfare Act. Available at <http://www.nal.usda.gov/awic/awicworkshops/webslides.pdf>

Duke University Animal Care & Use Program. 2011. Guidelines for alternatives searching. Available at: <http://vetmed.duhs.duke.edu/GuidelinesforAlternativeSearching.html>

Gregory, K. (2013). Animal Testing Alternatives: Effective Literature Searching. Available at <http://libguides.du.edu/animaltesting>

John Hopkins Bloomberg School of Public Health. (2014). Search for alternatives: A step-by-step approach to an alternatives search. Available at: <http://altweb.jhsph.edu/resources/searchalt/index.html#models>

National Centre for the Replacement Refinement & Reduction of Animals in Research. (2010). The ARRIVE guidelines. Available at: <http://www.nc3rs.org.uk/downloaddoc.asp?id=1206&page=1357&skin=0>

Philpotts, L.; Vaughn K.T. (2013). Searching the Literature for Animal Testing Alternatives. Available at <http://guides.lib.unc.edu/content.php?pid=149221&sid=1267572>

Title 9, Code of Federal Regulations. (1996). Chapter 1, Subchapter A, Animal Welfare.

USDA/APHIS/AC. (2011). Policy #12: Consideration of Alternatives to Painful/Distressful Procedures. In: Animal Care Policies. Available from USDA/APHIS/AC, 4700 River Rd., Unit 84, Riverdale, MD 20737-4981.

Questions?

Kathleen Gregory, MLIS, MA

kathleen.gregory@du.edu

University Libraries

University of Denver

Question 1

It is not obvious to me what details are considered adequate for documenting the consideration of alternatives. I think there are four items to include in the search: databases, date of search, range of search, and key words.

However, for consideration of alternative searches to, for example, intracranial injections of tumor cells into adult mice under anesthesia, there are many kinds of alternatives: alternative models, alternative species, alternative technical procedures, alternative ways to set up the experiments, alternative anesthetics and analgesics and more.

Our researchers are leaders in their fields and are aware of the best models to answer their scientific questions. They also know the resources and expertise we possess and get technical guidance from our vet staff.

I think the kinds of searches that are required are unlikely to produce useful references, so we want to strike the best balance between burden and benefit. Our IACUC prefers that the requirement would have the potential for producing something useful, rather than be a meaningless regulatory exercise.

Question 2

If the point of alternatives to reduce the potential for pain in animal subjects, should "pain" be included as a keyword?

Question 3

If the institutional librarian does the alternative search instead of the PI, what is the estimated average length of time required for a skilled medical librarian to handle this and send in the search results to the investigator?

Do you know if librarian-conducted searches have been shown to produce more useful information to researchers or to IACUCs?

Question 4

What is the appropriate range of dates that should be included in the literature search?

Question 5

It takes time to index an article with medical subject headings in PubMed. What is the best way to search the newest information before it is indexed?

Question 6

The search for alternatives to pain and distress is a USDA requirement. Does OLAW require an alternatives search?

Question 7

Does OLAW expect investigators to conduct alternatives searches for non regulated species?

Upcoming OLAW Webinars 2014

- September 18 – Topic and Speaker TBA
- December 4 – IACUC Review of Aquatics

http://grants.nih.gov/grants/olaw/educational_resources.htm

- Recording of this webinar, transcript, and slides will be posted on the OLAW website.
- Previous webinars can be reviewed on the OLAW website