



**Animal Welfare
Information
Center**

U.S. DEPARTMENT OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

Food Security Act of 1985

Subtitle F, Animal Welfare, Public Law 99-198
Improved Standards for Laboratory Animals Act

- Principal investigator must consider alternatives to any procedure likely to cause pain or distress.
- Establishment of the Institutional Animal Care and Use Committee (IACUC).
- Formation of an information service (e.g. the Animal Welfare Information Center) at the National Agricultural Library.

Information Requirements of the Animal Welfare Act

Auth. 9 CFR 2.31 (d)

[The] IACUC shall determine that...

(ii) 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;

(iii) The principal investigator has provided written assurance that the activities do not unnecessarily duplicate previous experiments.

Animal Care Policy #12 Consideration of Alternatives to Painful/Distressful Procedures

Principal Investigators are required to:

- Consider alternatives to procedures that cause more than momentary or slight pain or distress to the animals;
- Provide a written narrative of the methods used and sources consulted to determine the availability of alternatives, including refinements, reductions, and replacements.




Search Evaluation: The PI and IACUC Roles

- Check terminology, strategy, database sources, and dates of search.
- Need to review the search before completing the protocol.
- Assess and evaluate the alternative possibilities.
- Be prepared to support the use or non-use of any alternatives in writing.
- Keep a copy of strategy, databases searched, and years of search for future use.
- IACUC reviews above stated points.
- Have an information provider on the IACUC committee as a resource.

Search Evaluation RED FLAGS



- Only 1 database searched
- Terms only for painful aspects
- The term "alternative" used alone with no other alternative terms
- Keywords listed not relevant to protocol
- Keywords and concepts linked in an incorrect manner
- Search doesn't cover adequate time period (5-10 years)



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<http://www.nal.usda.gov/awic>



Alternatives and the Animal Welfare Act

"...the farm bill contains legislation dealing with the humane treatment of animals. The main thrust of the bill is to minimize pain and distress suffered by animals used for experiments and tests. In so doing, biomedical research will gain in accuracy and humanity. We owe much to laboratory animals and that debt can best be repaid by good treatment and keeping painful experiments to a minimum."

Sen. R. Dole, *Congressional Record*,
House, Dec. 17, 1985

3 R's of Alternatives

- **Reduction** - Minimize the number of animals used.
- **Refinement** - Techniques and procedures to reduce pain and distress.
- **Replacement** - Substitute animal with non-animal methods or lower organisms.

Russell, WMS and RL Burch (1959, 1992) *The Principles of Humane Experimental Technique*. Universities Federation for Animal Welfare: England, 238p. http://altweb.jhsph.edu/publications/humane_exp/het-toc.htm

AWIC Tips for Searching for Alternatives

- Description of protocol and area of study
- Species being used
- Organ systems involved
- Acronyms (CNS, BSE, MAb)
- Spelling (behavior, behaviour)
- Names of hormones, enzymes, CAS#, trade names (xylazine = rompun), etc.
- Authors in the field including the investigator
- Is the investigator aware of any possible alternatives?
- Previous searches and keywords searched



Selected Alternatives

animal model?	mannequin? (manikin)
animal testing alternative?	mathematical model?
alternative?	cadaver?
artificial?	anesthe?, anasthe?, anaesthe?
vitro (method, model, technique)	analges?, sedative, anxiolytic
culture (cell, tissue, organ)	euthanas?, euthaniz?
isolated (cell, tissue, organ)	handl? (handling)
model?	housing, facility?, caging
plastinat?	train?, educat?, teach?
invertebrate?	welfare, pain, stress, distress
fish?, cephalopod?	assay?, technique?
amphibian?, reptile?	method?, behav?
simulate? (simulation(s))	environ?, enrich?
simulator?	
computer?	
software	
interactive	
digital image?	
virtual (surgery, reality)	
video? (disc, display)	

Note: Refinement & Reduction alternatives are found using terms relevant to the area of study. This sample terminology is only meant as a place to begin - it is not an all inclusive list.

Alternatives Searching: Dialog Commands

b begin	b 10,155,5,7 = begin database 10 (Agricola), 155 (Medline), etc.
s select	s dog = select citations with the word "dog"
t type	t s2/6/1-5 = type search set #2, title format only, citations 1-5
ds display sets	shows the entire search strategy
show files	lists databases you are using and years covered
logoff	ends the session

Databases for Searching for Alternatives

Vendors

- Dialog- <http://www.dialog.com>
- NLM's Databases- <http://www.nlm.nih.gov/databases>
- OVID - <http://www.ovid.com>
- Primate Info Net - <http://www.primat.wisc.edu/pin>

Databases Available on Dialog (indicated by Dialog file number):

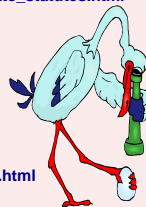
- | | |
|--|---|
| <p>Biomedical & Biological</p> <ul style="list-style-type: none"> • AGRICOLA - file 10
http://www.nal.usda.gov/ag98/ • CAB - file 50 • MEDLINE - file 155
http://www.ncbi.nlm.nih.gov/pubmed • TOXLINE - file 156 • EMBASE - file 73 • BIOSIS - file 5 • Zoological Record - file 185 • Life Sciences • PSYCHINFO - file 11 • ASFA - file 44 • Pascal - file 144 • SciSearch - file 434 • Current Contents - file 440 | <p>Pharmaceutical & Technological</p> <ul style="list-style-type: none"> • Pharmaceutical News Index - file 42 • Intern'l. Pharmaceut. Abstracts - file 74 • NTIS - file 6 • INSPEC - file 2 • Compendex Plus - file 8 • Japanese Science and Technology - file 94 • Micro Software Guide - file 278 • Gale Group Computer Database - file 275 |
|--|---|

Federally-Funded Research

- CRIS - file 60
<http://cris.csrees.usda.gov/>
- CRISP
<http://crisp.cit.nih.gov/>
- NTIS - file 6
- Fed. Research in Progress - file 266

Education

- Microcomputer Software Guide - file 278
- AV Online - file 46
- ERIC - file 1
- Philosopher's Index - file 57
- BIOETHICSLINE
http://www.nlm.nih.gov/databases/databases_bioethics.html
- AVAR <http://www.avar.org>
- Norwegian Reference Centre for Laboratory Animal Science & Alternatives <http://oslovet.veths.no/NORINA>
<http://oslovet.veths.no/teaching/materials.html> <http://oslovet.veths.no/textbase/>



Searching for Information on the Web



- **Choose Your Words Wisely**
Improve your search results by being specific
- **Consider International Spellings:** behavior, behaviour, tumor, tumour, estrogen, oestrogen, anaesthesia, anesthesia, anasthesia
- **Bookmark Search Results:** Once you've created a Web search that's giving you great results, use your browser's standard functions for bookmarking the URL.
- **Know Where to Look**

• **Boolean operators include AND, OR, AND NOT, and parentheses.** To work, these operators must appear in ALL CAPS and with a space on each side.

- **AND** - Similar to the plus sign, AND indicates that the documents found must contain all the words joined by the AND operator. **breeding AND wildlife**
- **OR** - Documents found must contain at least one of the words joined by OR. **dog OR puppy**
- **AND NOT** - Similar to the minus sign, using AND NOT indicates that the documents found cannot contain the word that follows the term AND NOT. **pets AND NOT dogs**
- **Parentheses** - Parentheses are used to group portions of Boolean queries together for more complicated queries. **(cat OR dog) AND "animal welfare"**



Please note that not all databases utilize the same searching language (e.g. Boolean operators, Dialog commands, etc.); therefore, be sure to check the proper search language for the database you are using before searching.

Additional Web-Based Databases

- Defense Technical Information Center (DTIC)
<http://www.dtic.mil/>
- Scientific and Technical Information Network (STINET) Service <http://stinet.dtic.mil/>
- Alternatives to Skin Irritation Testing in Animals
<http://www.invitroderm.com/>
- Altweb <http://altweb.jhsph.edu/>
- Compilation of Literature on the Assessment of Animal Welfare and Animal Distress
<http://www.vetinfo.demon.nl/aw/index.html>
- DoD Biomedical Research Database
<http://www.scitechweb.com/acau/brd/>
- Norwegian Reference Centre Alternatives Database
<http://oslovet.veths.no/databasesintro.html>
- **MethodsFinder by BIOSIS**
http://www.biosis.org.uk/products_services/methodsfinder.html
- Scirus - scientific information search engine developed by Elsevier Science <http://www.scirus.com/>