Abstract

The regulations of the United States Animal Welfare Act require investigators using animals in research to consider alternatives to procedures that may cause more than momentary pain or distress and to demonstrate that proposed activities do not unnecessarily duplicate previous experiments. A comprehensive literature search is an acceptable method of meeting this mandate, and when properly constructed, identifies literature references containing information that has the potential to replace the species with a lower species or non-animal alternative, reduce the numbers of animals used, or refine the experimental procedures to minimize pain or distress (the 3Rs). This poster describes a process used at Pfizer for generating literature searches which enable investigators to develop adequate animal use protocols focused on the 3Rs.

Methods

Comparative Medicine regulatory colleagues collaborated with Information & Library Science information analysts to create a semi-automated system for running literature searches, based on a search building strategy developed to standardize search criteria across species.

Information analysts developed a comprehensive string of Boolean search terms focused on terminology to address the 3Rs and alternatives to animal use (jumpstart) using a number of different databases such as Medline, Embase and Biosis. Search strings are created for procedures in the protocols requiring consideration for alternatives known as hedges. The jumpstart and hedges are combined, the search is run, and scientific literature citations relevant to the search strategy are then provided to the PI for their review. The search is then stored in an Access database, and the PI can rerun the search as needed from a Literature Search Repository that contains all the saved search strategies.

Discussion

The creation of a customized literature search with the aid of an experienced information analyst enables the PI to have a high level of confidence that the published information retrieved can be used to:
- Determine if alternatives are available for procedures that have the potential to cause pain and/or distress
- Assure procedures are not being duplicated
- Retrieve information on the 3Rs in general

The process we developed is semi-automated to the extent that once a search for a specific protocol is created, the PI can re-run the search as needed. The jumpstarts and hedges are reviewed and updated on a regular basis.

The benefits of this literature search and retrieval process include:
- Standardized search criteria across all species
- Scientific consistency using controlled vocabulary
- Information scientist expertise provides a level of assurance that quality information is being retrieved
- Sharing of literature search strategies among investigators doing similar work
- Meets agency regulatory compliance criteria
- Allows for portability across multiple sites
- Integrity & uniqueness of each animal use protocol is maintained
- Resource conservation of information analyst time

Conclusions

We successfully implemented a semi-automated literature search request process that has resulted in positive investigator feedback. Using information analysts in this process has given us a high degree of confidence that literature searches retrieved for alternatives searches are comprehensive as we look for alternatives to the use of animals for in vivo procedures.

References

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