Systematic Reviews in Veterinary Medicine: Resources and Tools to find, appraise, & conduct reviews

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Overview

- Steps to determine feasibility of a review question
- Tools for conducting reviews
Trends in Veterinary SRs

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Previous Issue | Next Issue

All medical, Scopus 1995-2013

Vet only, 2005-2015
Managing reviews

- Project management: Managing resources & activities to reach specific goals while predicting potential risks
- Review methods provide “ready made phased structure for planning and conducting a review”

Piehl et al, 2002
- 36% financial support
- 80% time
- 23% method issues
- 10% group dynamics
- Communication can also be difficult


### FINER

<table>
<thead>
<tr>
<th>Feasible</th>
<th>Interesting</th>
<th>Novel</th>
<th>Ethical</th>
<th>Relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate # of studies</td>
<td>Who will be interested in the answer?</td>
<td>Confirms/refutes previous findings</td>
<td>Time &amp; money spent on project appropriate use?</td>
<td>To advance scientific knowledge</td>
</tr>
<tr>
<td>Adequate skills within team members or consultants</td>
<td>Potential stakeholders/funders?</td>
<td>Extends previous findings</td>
<td></td>
<td>To policy, practitioners, others?</td>
</tr>
<tr>
<td>Affordable in time and money</td>
<td></td>
<td>Provides new findings</td>
<td></td>
<td>To future research directions</td>
</tr>
<tr>
<td>Manageable scope</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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1. Determine scope of review
2. Locate and analyze relevant reviews
3. Conduct preliminary search
Step 1: Scope of review
Frame question

- **Health**
  - PICO(T)
  - PHICOC

- **Social sciences**
  - SPICE
  - PIECE*

- **Interdisciplinary**
  - WWH
  - PRoPheT

*my own focusing on education

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**Setting**
- Awaiting surgery

**Perspective**
- Owners

**Intervention/Interest**
- In person education about surgery

**Comparison**
- Video

**Evaluation**
- Level of uncertainty/anxiety
Step 1: Scope of review
List eligibility criteria

- Describe criteria
- Include definitions and citations as appropriate
- Determine if it will be used in the search or screening
- For exclusions, provide reasons, consider biases against Grey Literature, English
- Goal is to be as specific as necessary
Step 2: Analyze related reviews
Searching for reviews

- **Databases of reviews**
  - VetSRev

- **Subject databases**
  - Pubmed
  - Cab Abstracts
  - Agricola

- **Dissertations/theses**

- **Protocols**
  - *Animal Health Research Reviews*
  - Systematic Reviews for Animals and Food (http://www.syreaf.org/)

- **Critically appraised Topics (CATs)**
  - BestBets for Vets
  - Knowledge Summaries

- Keep the terms very broad
- Searching smaller group of articles
- Looking for anything related
Step 2: Analyze related reviews
Free dissertation/theses

- PQDT Open: pqdtopen.proquest.com
- Open Access Theses and Dissertations https://oatd.org
- OpenThesis www.openthesis.org
Step 2: Analyze related reviews  
Results of review search

Search for related SRs

- Found related
  - Consider references, search, data abstraction
  - Report methods and results from related reviews
  - Determine how to incorporate
  - Summarize gaps in review lit, discuss any related reviews

- None found
  - Broaden search

Step 2: Analyze related reviews
Appraisal of SRs

<table>
<thead>
<tr>
<th>Citation</th>
<th>Review</th>
<th>Search</th>
<th>Findings</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author (year)</td>
<td>Type of review question Eligibility criteria</td>
<td>Databases Years covered Other searches</td>
<td>Main findings</td>
<td>Overall quality; relevance to your review</td>
</tr>
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</table>

- **AMSTAR**
  - 11 item checklist (available online as pdf or interactive form), focuses more on meta-analysis (working on new one for reviews included non-randomized trials)

- **ROBIS**
  - 4 domains: eligibility criteria, identification and selection, data collection and study appraisal, and synthesis and findings (5-6 subquestions in each domain)
Step 3: Scoping search

1. Select most relevant database
2. Select concepts from research question
3. Conduct a quick search

Quickly evaluate results
- Is there enough on the topic?
- How much time it will take to go through relevant literature?
- There is no “right” number
## Tools

### Project management

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting planning</td>
<td>Doodle, meet-o-matic</td>
</tr>
<tr>
<td>Voice/video communication</td>
<td>Skype, Google talk</td>
</tr>
<tr>
<td>Sharing files</td>
<td>Dropbox, Google Sites (project wiki template)</td>
</tr>
<tr>
<td>Citation management</td>
<td>Refworks, Endnote, Zotero, Mendeley</td>
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Citation management - Refworks
Project documentation

- Google Sites - Project Wiki template
- Excel - PIECES template
- My own way of tracking methods and results
## Assistance with search: Yale MeSH Analyzer

<table>
<thead>
<tr>
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<th>Title</th>
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<tr>
<td>23708961</td>
<td>Effect of topical administration of 0.8% nalbuphine on the corn...</td>
<td>Lee CH</td>
<td>2013</td>
<td>Administration, Topical Animals, Anti-Inflammatory Agents / administration &amp; dosage, Anti-Inflammatory Agents / therapeutic use</td>
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<td>Effects of one-week versus one-day preoperative treatment with ...</td>
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<td>2012</td>
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<td>Topical KINOSTAT™ ameliorates the clinical development and prob...</td>
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### Example:

Searched for articles on cataract surgery for dogs.

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PMIDs: 23708961, 22332625, 21182720, 18241027, 17014334

### MeSH Headings:

- Administration, Topical
- Animals
- Anti-Inflammatory Agents / administration & dosage
- Anti-Inflammatory Agents / therapeutic use
- Cataract / therapy
- Cataract / veterinary
- Dogs
- Dog Diseases / therapy
- Dog Diseases / surgery
- Drug Administration Schedule
- Diabetes Complications / prevention & control
- Diabetes Complications / veterinary
- Enzyme Inhibitors / therapeutic use
- Eye / anatomy & histology
- Eye / pathology
- Enzyme Inhibitors/pharmacology
- Lens Implantation, Intraocular / veterinary
- Pain, Postoperative / drug therapy
- Pain, Postoperative/ veterinary
- Phacoemulsification / adverse effects
- Phacoemulsification/ veterinary
- Prednisolone / administration & dosage
- Prednisolone / adverse effects
- Prednisolone / analogs & derivatives
- Prednisolone / therapeutic use
- Phacoemulsification / veterinary
- Prednisolone / therapeutic use
- Prednisolone / analogs & derivatives
Appraisal tools

- List of validated appraisal checklists from AMSTAR
- Robot Reviewer
  - Detects Risk of Bias in Randomized Controlled Trials (pdfs)
  - JAMIA article
Entire process: Covidence

- Steps covered:
  - Screening
  - Full text
  - Appraisal
  - Extraction

- 1 free review, unlimited for $20 a month

http://www.covidence.org
Meta Analysis tools

- Forest Plot Generator by Evidence Partners
- NetMetaXL
- OpenMeta [Analyst]

https://distillercer.com/resources/forest-plot-generator
Systematic Review Data Repository
By: AHRQ
Used for data extraction and data repository

Coding: SRDR

srdr.ahrq.gov
Add up to 26 sources
Edit #s and text
Export into wide variety of formats

Reporting: PRISMA flowchart generator

http://prisma.thetacollaborative.ca/
Questions?

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Samwise, resource for encouragement to complete review