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Systematic Reviews: How they are different from narrative reviews and how can you do one!

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Systematic Reviews v. Narrative Reviews, what's the difference?

Before 2005, the secondary literature was a monodominant landscape in veterinary medicine composed of the narrative review. The narrative review is the summary of knowledge and literature from an expert in the field. A clever analogy is to think of narrative reviews as “free-floating book chapters” (Personal Communication, Luis Arroyo). After the adoption of Evidence-based Medicine (EBM) and subsequently Evidence-based Veterinary Medicine (EBVM or EVM), the narrative reviews were perceived by many to be removed from the hierarchy of secondary literature as being biased and without the rigor and information that can be offered by a systematic review¹. Secondary evidence synthesis has become a very broad landscape with more and more types of reviews being described which can range in number from 14 – 38^{3,4}. It may be important to appreciate that many of these review types overlap and can be complementary of each other. For instance, a scoping review or narrative review are not trying to do accomplish the same things as a systematic review. Understanding the type of research question will reflect on which review is most useful. For an overview or answering background questions on a topic, a narrative review should probably be the first stop. To address foreground or specific clinical questions, systematic reviews are best⁵. Of the fourteen review types mentioned, this author feels these are the most common in veterinary medicine (see Chart One):

Narrative Review:: These are usually considered to be literature reviews or state of the art reviews, but are unified by usually being written by an expert in the field with salient selection of articles that are influencing the field today. These have been increasingly expected to be performed by journal invitation (or solicitation). Usually no methods are available because this is an expert sharing the state of the field in their opinion^{1,3,4}.

Critically Appraised Topic (Rapid Review, Knowledge Summary, Best Bet) - these can be written by an expert or group of experts, many elements of a systematic review are here: an answerable question in PICO format (Patient, Intervention, Comparison, Outcome), reported search strategy (although more specific in design to yield only relevant articles), inclusion and exclusion criteria, Some degree of critical appraisal of articles ability to answer the research question and a final bottom line of clinical applicability based on this evidence^{3,6,7}.

Integrative Review (systematized review) – Much deeper research with a systematized search that should be sensitive and broad (like include other languages and grey literature like PhD theses or conference proceedings). Clear inclusion/exclusion criteria and often some critical appraisal tool to summarize content. This is an approach often undertaken by graduate students^{3,4,8-14}.

Scoping Review - should have 3 authors, two screeners and an arbiter. A published Protocol on [SYREAF](#) or [OSF](#), a sensitive search strategy across at least 3 databases , inclusion or exclusion criteria +/- risk of bias assessment of included studies. Data is *characterized* versus *extracted* since this is describing the body of research, not necessarily making statements about the results^{3,15}.

Systematic Review - considered the gold standard of evidence synthesis where it answers a specific clinical question (PICO). Should have a published protocol on [SYREAF](#) or [OSF](#), Three authors (Two screeners and arbiter), sensitive and complete search - minimum three databases, a risk of bias tool to evaluate study quality, may include statistical summary or *meta-analysis*^{3,15}.

Umbrella Review – This is a systematic review of systematic review studies. While present in human medical literature, virtually non-existent in veterinary³.

| Study Type | Narrative review | Rapid Review (CAT) | Integrative Review | Scoping Review | Systematic review |
|--|------------------|--------------------|--------------------|----------------|-------------------|
| Question type? | Background | Foreground | Foreground | Foreground | Foreground |
| Critical Appraisal Tool? | No | Yes | Maybe | No | Yes |
| Reproducible search strategy (multiple databases)? | No | Yes | Yes | Yes | Yes |
| # of authors | 1 | 1 | 1 | 3 | 3 |
| Protocol needed? | No | No | Maybe | Yes | Yes |
| Specific recommendation/ summarizes findings | No | Yes | Maybe | No | Yes |

Chart One: Examples of requirements for each main review type: Narrative, Rapid, Integrative, Scoping and Systematic.

Systematic Reviews for the Reader

The goal of systematic reviews is to provide a summary of the body of evidence rather than just one study. Systematic reviews play a large role in being able to reduce cost, reduce bias and identify limitations of studies to answer the research question^{15,16}. Systematic reviews, when done well, should be transparent and done by multiple screeners who are experts in the field. Systematic reviews have rigorous methodology to examine the primary research and make useful recommendations based on the validity of all included studies. A recommended Evidence-based Practice Core Competency is for clinicians to incorporate quality evidence synthesis over reading primary studies¹⁷. Systematic reviews will also ideally inform clinical guidelines¹⁸.

Human medicine has many quality evidence synthesis studies, particularly resources like Cochrane’s Database of Systematic Reviews, but veterinary medicine does not quite have the infrastructure and a great deal of heterogeneity and poor quality in veterinary systematic review content and reporting^{19–21}. Any member of a veterinary practice that is incorporating evidence syntheses are advised to make sure they critically appraise the systematic review they are looking at. One of the best tools for critical appraisal is called [AMSTAR 2](#), a convenient online checklist that, based on how the reviewer answers, will provide a score for the systematic review’s quality²².

How to conduct a systematic review

Conducting quality systematic reviews is vital to answer clinical research questions. A systematic review will often take at least one year to complete but often take as long as two years to publish and usually has a team of 5 authors^{23,24}. There are many steps in a systematic review to consider. A good starting place is to identify the reporting guidelines to be used, often [PRISMA](#)^{25,26}. There is also a useful [flow chart](#) for identifying if a systematic review is an appropriate review type was created by the Cornell University Evidence Synthesis Team. There are also a number of tools to track what steps should be taken to conduct a systematic review²⁷.

A systematic review benefits from building a strong multi-disciplinary team. A perfect blend is academic and private practice members. Many veterinary school libraries have a systematic review service that can help educate and guide researchers into the steps of a systematic review. Creating the research question and building the research question is the first step. Consulting with a librarian at the beginning helps in development of clinical questions (PICOs) and identifying if any evidence synthesis has already been done on the topic^{24,28–30}.

The following steps are consistently in any Process of doing a systematic review:

1. Create the research question
2. Get the team together (at least three – two independent screeners and an arbiter)
3. Develop inclusion and exclusion criteria
4. Identify where and how to search
5. Register a protocol
6. Two people will independently screen title/abstract
7. One person arbitrates disagreements

8. Retrieve full text of included articles from title/abstract screening.
9. Full text screening by two independent reviewers
10. Risk of Bias assessment should be independently done or minimally peer reviewed. [Duke University](#) has an exhaustive list of the best risk of bias tools based on study type.
11. Data extraction by two independent reviewers

Just as reporting guidelines are important for Systematic Reviews, it is, perhaps, even more important for primary research. A systematic review can only be as good as the primary research it is summarizing. Many primary studies need to improve what they report in studies. Journals are encouraged to give more guidance to reviewers to identify important reporting items³¹⁻³³. [The Meridian Network](#) offers the most important reporting guidelines for primary or synthesis research in veterinary medicine. It is also important to identify any changes in your Systematic Review from your protocol in the body of the paper^{34,35}.

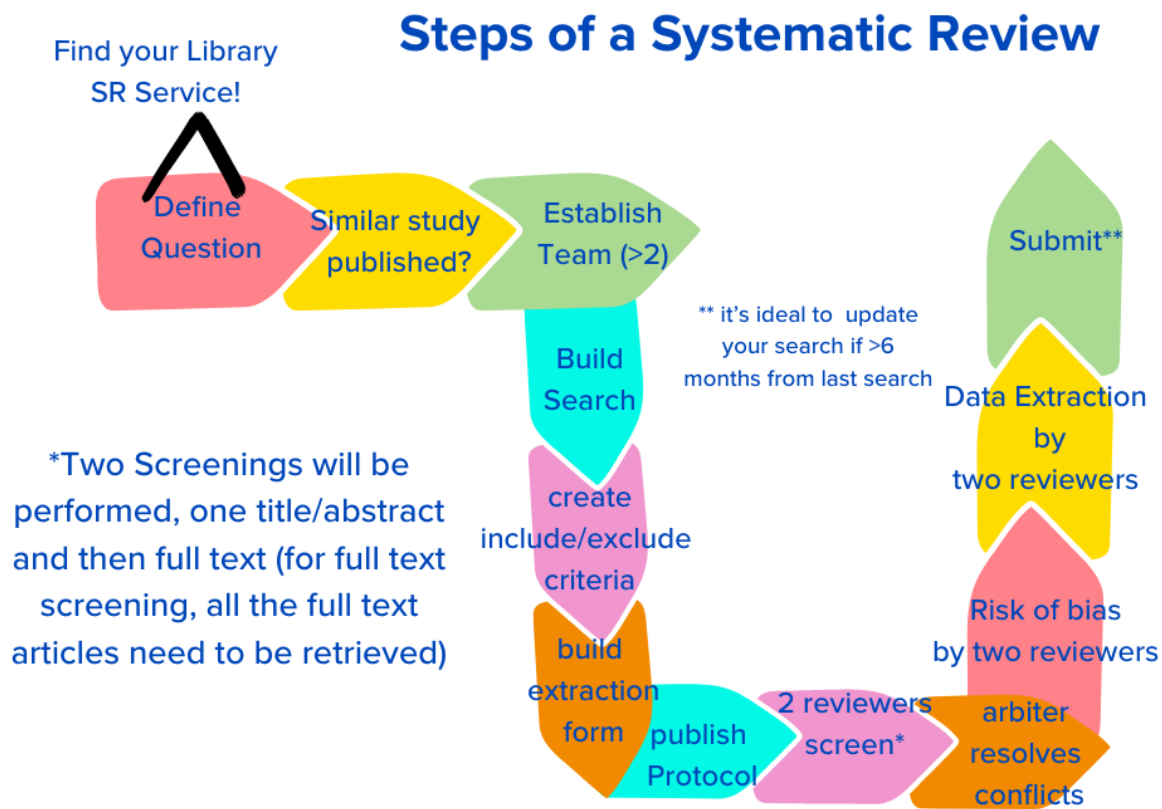


Chart 2: steps of conducting a systematic review.

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Links to resources from talk: <https://linktr.ee/edfausak>

Keywords: Systematic Review, Methodology, Narrative Reviews, Review Types