A Revised Evidence Pyramid for Veterinary Clinical Resources

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Introduction: Purpose

As veterinarians are increasingly called to support clinical decisions with evidence in an imperfect information environment, new types of resources are emerging. This study provides an educational framework for clinicians and students tasked with critically analyzing and categorizing new and future resources for clinical application.
Introduction: Veterinary Evidence

• **Ask:**
  - **Formulate a question** (Cockcroft P, Holmes M. Evidence-based veterinary medicine 2. Identifying information needs and finding the evidence. *In Practice* 2004;26(2):96.)

• **Acquire:**
  - **Search strategy** (Cockcroft P, Holmes M. Evidence-based veterinary medicine 2. Identifying information needs and finding the evidence. *In Practice* 2004;26(2):96.)
Introduction: Veterinary Evidence

• **Appraise:**

• **Apply:**

• **Assess:** ? Does EBVM improve patient outcomes ?
Background: Traditional evidence pyramid

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Systematic Review
Meta-analysis
RCT
Cohort Study, Cross-Sectional Study w/ control
Case-Control
Survey/Case Series/Case Report w/ out control
Expert Opinion, Review Article, Textbook
Comparative Species Research
In Vitro Research
Background: Traditional evidence pyramid

Under the pyramid: Trade publications, blogs, vendor publications, association websites, veterinary consumer websites, discussion boards, social media, Wikipedia
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Background: 4S Pyramid

Studies

Syntheses

Synopses

Systems

Background: The drive for systems

“But Cochrane did not go far enough: such summaries, indeed all medical discoveries, are of no use to patients and clinicians if they remain buried in the literature. It is surely an equally great criticism that the medical profession has not developed an effective, efficient system for finding relevant clinical information, extracting it, and delivering it when and where it is needed into the hands of everyone who makes medical decisions.”

Methods: 5S and 6S Pyramid

- Evidence Based Medicine Resources, Dartmouth Biomedical Libraries [http://www.dartmouth.edu/~biomed/resources.htmld/guides/ebm_resources.shtml](http://www.dartmouth.edu/~biomed/resources.htmld/guides/ebm_resources.shtml)
Methods: Assumptions

- Every study is perfect
- The pyramid will forever be in beta
- Clinical relevance trumps everything
Results

Systems

- Computerized Decision Support – evidence combined with EHR patient data using standard data structure and terminology (HL7/SNOMED CT)

Summaries

- Clinical Guidelines/Consensus Statements\(^1\) - AVMA, ACVIM, VECCS, AAEP, ASVCP, AAHA, CAPC, AVSAB, AAFP, AHS, ISCAID, ISFM, NASPHV, ASV

Synopses of Syntheses

- Systematic Reviews(qualitative)/ Meta-analysis(quantitative)\(^2\)

Syntheses

- Knowledge Summary\(^3\) Critically Appraised Topic(CAT)\(^4\) Best Evidence Topic (BET)\(^5\)

Synopses of Studies

- A review article is not the same thing as a systematic review

Studies

- RCT
- Cohort/Cross-sect
- Case Control
- Survey/Case Series
- Case Report w/out Control

Expert Opinion/ Review articles/Textbooks

Comparative Species/In Vitro Studies

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\(^2\) [VetSRev Database of Veterinary Systematic Reviews](http://webapps.nottingham.ac.uk/refbase/)

\(^3\) [RCVS Knowledge](http://knowledge.rcvs.org.uk/evidence-based-veterinary-medicine/knowledge-summaries/)

\(^4\) [Criteria for Critical Appraisal](http://www.cebm.net/?o=1040)

\(^5\) [BestBETS for Vets](http://bestbetsforvets.org/)

Note level of evidence varies with quality and types of studies

Discussion: Evidence pyramid as educational framework

• Tool for lifelong active learning

• Information Comparison and identification of gaps

• Terminology Disambiguation –
  – CAT vs. Knowledge Summary, Review vs. Systematic Review

• Translational Medicine
  – clinically focused evidence pyramid lowers the barrier between research and practice
Discussion: Lessons learned from project

- Consistent Indexing for evidence level/strength of recommendation (GRADE, CEBM, SORT)

- Incorporate peer-review into CATS/Knowledge Summaries/BETS (could be crowdsourced)

- Make CATS/Knowledge Summaries/BETS searchable within the broader scope and down to level of item

- Clinical Guidelines database
Conclusion

Appraisal of the literature requires revisiting the evidence pyramid