Evidence-Based Veterinary Medicine

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Over time, evidence-based veterinary medicine (EBVM) should integrate with normal clinical practice. Also, clinical knowledge increases with EBVM, reducing the need for information in one area and allowing veterinarians to explore new areas of specialty or cutting-edge advances in the profession. Textbooks, journals, veterinary conferences, and web sites provide nearly unlimited information about EBVM for the practicing veterinarian to help with the transition to EBVM use in daily practice life. EBVM should continue to change and improve how we, as veterinarians, provide the best available care to our clients and patients.

Refining the Clinical Question: The First Step in Evidence-Based Veterinary Medicine  419
Stanley R. Robertson

The ability to translate a clinical problem seen in practice into a focused and well-formed answerable clinical question is one of the hardest steps in practicing evidence-based veterinary medicine (EBVM). Asking answerable clinical questions that relate to your patient is the first evidence-based skill a veterinarian needs to learn, and it forms the cornerstone of the practice of EBVM. Like other clinical skills, the more you practice and work on refining clinical questions, the more precise these questions are and the easier the EBVM process becomes. This article reviews the different aspects of an answerable clinical question, its structure, and how to formulate questions better to get needed answers to clinical problems.

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Sarah Anne Murphy

This article offers information regarding selected veterinary information resources, along with basic search strategies for locating clinical evidence within these resources. No one database provides adequate indexing and abstracting to all literature relevant to the veterinary clinical question. An understanding of a database’s syntax and field
structure is necessary to formulate a functional search strategy and evaluate the outcome of search results. Flexibility when identifying, selecting, and combining search terms is also required to avoid overlimiting a search.

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Evaluating the evidence describes the scientific basis of evidence as presented in papers describing the results of clinical research. The types of errors that may lead to misinterpretation of evidence are discussed. This article includes descriptions of the main types of research performed in veterinary clinical research and notes on their advantages and disadvantages.

**A Small Animal Clinician’s Guide to Critical Appraisal of the Evidence in Scientific Literature** 463
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There is a tremendous amount of medical literature available to the clinician. The challenge is to identify information that is useful and relevant for the patient population of interest. This article provides an overview of important considerations when critically appraising a report, such as selection of the study population, features of the study design used, potential sources of bias, and evaluation of the statistical evidence.

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Evidence-based veterinary medicine relies critically on the scientific validity of research. A component of validity is the statistical design and subsequent analysis of data collected during the study. Correct statistical design reduces bias and improves generalizability, and correct analysis leads to appropriate inferences. Inference is the art and science of making correct decisions based on data. Because veterinarians are responsible for the medical care of their patients, it is also their responsibility to understand inferences about treatments presented in papers. This article is designed to assist veterinarians with the interpretation and understanding of statistics presented in papers.

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Annette O’Connor and Richard B. Evans

Studies that report the sensitivity and specificity of diagnostic tests are susceptible to flaws that can introduce bias and lead to incorrect estimates. This article uses the quality assessment of diagnostic accuracy
studies checklist to describe how to appraise a study reporting diagnostic test comparisons critically. The article also contains a glossary of terms that are useful in discussions about diagnostic tests.

**Clinical Reasoning and Decision Analysis**
Peter D. Cockcroft

Decision analysis enables outstanding information needs to be correctly identified and ensures that all the options are accurately represented so that appropriate decisions can be made. The aim of this article is to provide an introduction to the use of decision analysis in the practice of evidence-based veterinary medicine. Decision trees using utilities and economic outcomes are presented. The diagnostic process, including the critical appraisal of clinical decision support systems that may be used in this process, is described.

**The Power of Practice: Harnessing Patient Outcomes for Clinical Decision Making**
Karen Faunt, Elizabeth Lund, and Will Novak

The practice of evidence-based medicine (EBM) relies on the ability of veterinarians to evaluate clinical outcomes. Evaluation of clinical outcomes optimizes the patient care process by transforming what is learned about a population of patients and applying it to an individual patient. Veterinarians’ ability to summarize and record relevant information from each pet encounter enables outcomes analysis, thereby transforming clinical data into medical knowledge. This article describes the multiple integrated processes required to evaluate outcomes and practice EBM. As a result of the aggregation and analysis of patient outcomes, knowledge is derived that has the potential to enhance clinical decision making and client communication.

**Evidence-Based Management of Feline Lower Urinary Tract Disease**
S. Dru Forrester and Philip Roudebush

Many treatments have been recommended for managing cats with feline urinary tract disease (FLUTD). Veterinarians making therapeutic decisions should consider the quality of evidence supporting a recommendation to use (or not use) a particular treatment for cats with FLUTD. Whenever possible, recommendations should be based on results of randomized and well-controlled scientific studies performed in clinical patients with the spontaneously occurring disease of interest. In the absence of such studies, one is left to make the best recommendation possible with consideration of all information, including the quality of the evidence. At this time, additional studies are needed to evaluate evidence for many currently recommended treatments for cats with FLUTD.
Evidence-Based Wound Management:  
A Systematic Review of Therapeutic Agents to Enhance Granulation and Epithelialization 559
Maria A. Fahie and Donna Shettko

Successful management of open wounds in dogs requires knowledge of the physiology of wound healing and application of that knowledge to choose appropriate therapeutic intervention. The authors’ objective was to investigate whether or not there are any available therapeutic agents that enhance granulation or epithelialization of open wounds in dogs. Based on the literature identified in the authors’ review, there is insufficient evidence to make a recommendation for or against any of the topical wound agents or procedures studied.

Thromboembolic Therapies in Dogs and Cats:  
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Kari V. Lunsford and Andrew J. Mackin

In veterinary medicine, we are forced to make use of less than ideal “evidence,” such as extrapolation from experimental studies in dogs and cats without naturally occurring diseases and from clinical trials in other species (particularly human clinical trials), as well as limited information gained from veterinary clinical experience, small clinical trials, case studies, and anecdotal reports. In this article, specific treatment recommendations are made for each of the common thromboembolic conditions seen in dogs and cats. These recommendations are made with the important caveat that, to date, such suggested therapeutic approaches are based on limited evidence.

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