Evidence-Based Veterinary Medicine

A Global Perspective

Brennen McKenzie, VMD

University of Pennsylvania, 2001

Small Animal General Practice
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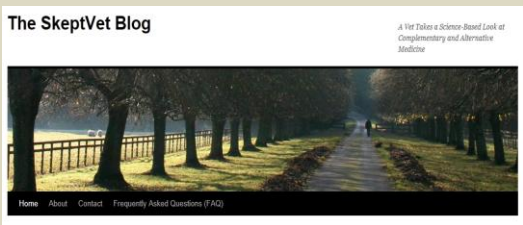
SkeptVet

SkeptVet.com/Blog

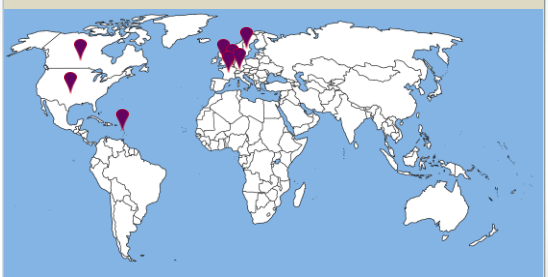


EBVMA

www.ebvma.org

EBVMA
Evidence-Based Veterinary Medicine Association

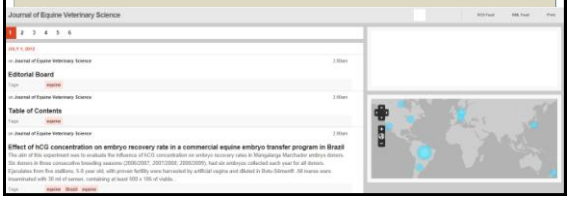
Global EBVM



EBVMA

www.ebvma.org
- EBVM Bibliography
- Literature Feeds

- Veterinary Information Network (VIN)
- Facebook, LinkedIn, Twitter, etc.



EBVMA

- EBVMA/Banfield Student CAT Competition

EBVMA

- EBVMA Research Grant
  - Support research that furthers EBVM
  - $1,500 USD
- CONSORT/REFLECT Statements
- Veterinary Cochrane
- Biennial Symposium (2014)

Why Do We Need EBVM?

Information We Use

- Uncontrolled Individual Observation (aka Clinical Experience)

Why Do We Need EBVM?

Information We Use

- Uncontrolled Individual Observation (aka Clinical Experience)
- Tradition
- Expert Opinion
- Extrapolation from Basic Principles

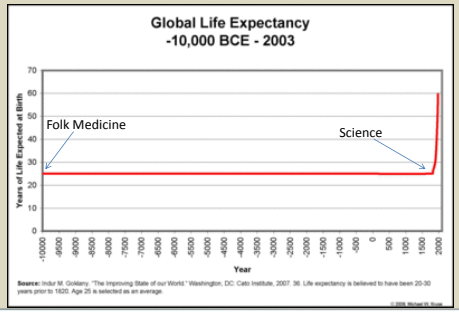
Information We Should Use

- Scientific Research Evidence
  - Integrated with experience, expertise, resources, client values, circumstances

Why Do We Need EBVM?

- Better Information
  - Controlled research generates most reliable knowledge
- Better Outcomes
  - Using this knowledge to guide clinical decisions leads to better outcomes
- Informed Consent
  - Client choice isn't meaningful without accurate information and full disclosure

Why Do We Need EBVM?



Why Do We Need EBVM?

Information Management

- Explosive Growth in Published Information
  - What do we need to know?
  - How do we find it?
  - How can it be made more useful?
    - Already Summarized
    - Already Critically Appraised
      - Systematic Reviews, Clinical Practice Guidelines
- "Just in Case" vs "Just in Time"

Why Do We Need EBVM?

Better Patient Care

- Better information means better care:

Outcomes of evidence-based clinical practice guidelines: a systematic review.
Bahtsevani C, Udén G, Willman A. Int J Technol Assess Health Care. 2004 Fall;20(4):427-33.

There is a tendency toward support for the idea that outcomes improve for patients, personnel, or organizations if clinical practice in health care is evidence-based, that is, if evidence-based clinical practice guidelines are used

- Better information management reduces errors and leads to better outcomes:

Clinical information technologies and inpatient outcomes: a multiple hospital study.
Amarasingham R, Plantinga L, Diener-West M, Gaskin DJ, Powe NR. Arch Intern Med. 2009 Jan 26;169(2):108-14

Hospitals with automated notes and records, order entry, and clinical decision support had fewer complications, lower mortality rates, and lower costs.

Challenges

- Veterinarians Not Seeing the Need

As a veterinarian now practicing homeopathy and chiropractic almost exclusively, I have all the proof I need every day in my practice to justify these modalities.

Gail Jewell, DVM (letter) Can Vet J, May, 2010

The EBM approach was never mentioned in any of the interviews, with occasional isolated opinions such as ''The information from research is not important and does not influence decision.''

Understanding veterinary practitioners' decision-making process: implications for veterinary medical education.
Vandeweerd JM, Vandeweerd S, Gustin C, Keesemaecker G, Cambier C, Clegg P, Saegerman C, Reda A, Perrenoud P, Gustin P. J Vet Med Educ. 2012 Summer;39(2):142-51.

Challenges

- Myths & Misconceptions
  - EBVM is impossible due to lack of research and resources
  - EBVM means doing nothing without high-level evidence
  - Our clients don't want to hear "I don't know"
  - Studies give an average but don't tell us anything useful about individual patients
  - Evidence is nice, but it is usually clear if a treatment is working so we don't really need studies
  - EBVM is just ivory tower academics telling regular clinicians what to do. In the real world these idealistic recommendations aren't practical/affordable/etc.

Challenges

- Limited Evidence
  - Research evidence for oral glucosamine in treatment of osteoarthritis
    - Humans- 2009 Cochrane Review included 25 studies with 4,963 patients, some studies lasted up to 2 years
    - Dogs- 2010 search yielded 2 RCTs lasting 2 months with a total of 113 dogs

Challenges

- Limited Access to Evidence

The information infrastructure supporting evidence-based veterinary medicine…is significantly underdeveloped in relation to the corresponding information infrastructure in human medicine. This lack of development creates barriers to the timely translation of veterinary medicine research into clinical practice and also to the conduct of both primary clinical intervention research and synthesis research.

The information infrastructure that supports evidence-based veterinary medicine: a comparison with human medicine.
Toews L. J Vet Med Educ. 2011;38(2):123-34.

Challenges

- Limited Resources
  - Generating Research
  - Disseminating Research
  - Making Research Useful
  - Implementing Research Results
  - Teaching EBVM

EBVM in Action!

Systematic review of efficacy of nutraceuticals to alleviate clinical signs of osteoarthritis.
Vandeweerd JM, Coisnon C, Clegg P, Cambier C, Pierson A, Hontoir F, Saegerman C, Gustin P, Buczinski S. J Vet Intern Med. 2012;26(3):448-56

Authors from: Belgium, England, Canada

Treatment of canine atopic dermatitis: 2010 clinical practice guidelines from the International Task Force on Canine Atopic Dermatitis.
Olivry T, DeBoer DJ, Favrot C, Jackson HA, Mueller RS, Nuttall T, Prélaud P; International Task Force on Canine Atopic Dermatitis. Veterinary Dermatology. 2010;21(3):233-48.

Authors from: U.S., Switzerland, Scotland, Germany, England, France

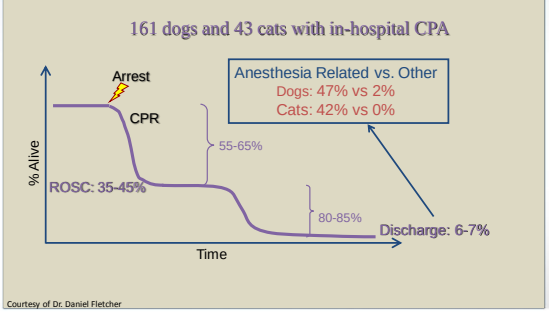
EBVM in Action!

RECOVER (Reassessment Campaign on Veterinary Resuscitation)

Dr. Daniel Fletcher, Cornell University (EBVMA)
Dr. Manuel Boller, University of Pennsylvania (trained in Switzerland)

Generate evidence-based consensus guidelines for veterinary CPR

EBVM in Action!



Courtesy of Dr. Daniel Fletcher

EBVM in Action!

Impact of advanced cardiac life support training program on the outcome of cardiopulmonary resuscitation in a tertiary care hospital

Kanwalpreet Sodhi, Manender Kumar Singla[1], Anupam Shrivastava[2]

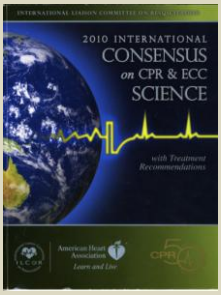
Table 2: Outcomes of cardiopulmonary resuscitation

	Pre-ACLS training period	Post-ACLS training period	P-value
Total number of code blues	284	343	
ROSC	n = 52 (18.3%)	n = 97 (28.3%)	0.003 (<0.005)
S → D	n = 12 (23.07%)	n = 67 (69.07%)	<0.0001

ROSC, Return of spontaneous circulation; S → D, Survival to hospital discharge

EBVM in Action!

- Modeled on ILCOR



EBVM in Action!

- Develop focused clinical questions

PICO
- Patient
- Intervention
- Comparison
- Outcome

EBVM in Action!

- Identify and appraise relevant research literature

LOE 1	Randomized Controlled Clinical Trials (RCTs) in target species or meta-analyses of RCTs
LOE 2	Prospective clinical studies in target species with concurrent controls, but without randomization
LOE 3	Experimental laboratory studies in target species
LOE 4	Retrospective clinical studies in target species
LOE 5	Case series and case reports in target species
LOE 6	Studies not directly related to the specific patient/population (eg., different patient population, different species, mechanical models etc.)

EBVM in Action!

- Identify and appraise relevant research literature

Good	Most or all of the quality items
Fair	Some of the quality items
Poor	Few to none of the quality items

Randomized Controlled Trials	• Group assignment was randomized and blinded • All patients enrolled were accounted for • Intent-to-treat analysis • Baseline characteristics were similar between groups
Experimental Studies	• Randomized controls • Question posed was of high relevance • Size of the effect of the intervention was clinically relevant
Retrospective Studies	• Clearly defined comparison groups • Outcomes measured in same, objective way between groups • Sufficiently long and relevant follow-up time

EBVM in Action!

- Develop guidelines

I	Benefit >>> Risk	**Should** be performed, is **recommended**
IIa	Benefit >> Risk	Is **reasonable** to perform
IIb	Benefit ≥ Risk	**May be considered**
III	Risk > Benefit	**Should not** be performed

A	• Multiple high quality or high LOE studies
B	• Multiple low quality or low LOE studies • Few to no high quality of high LOE studies
C	• No strong evidence in the literature • Consensus opinion, expert opinion, or standard of care

EBVM in Action!

- Disseminate guidelines

JVECC special issue June 2012
- Overview of the process
- Clinical guidelines
- Summary of the evidence for each domain
- Free download

EBVM in Action!

- Training Materials
- Registry for Outcomes Assessment
- Regular Review and Updates

•Serve as a Model!

What Can We Do?

- Practice EBVM
- Inform and Educate Colleagues
  - Why do we need EBVM?
  - How do we practice EBVM?
- Improve the Evidence Base
- Create EBVM Tools
- Make Evidence Accessible and Useful

Get Excited!

EBVM Resources

- Evidence-Based Veterinary Medicine Association

EBVMA
Evidence-Based Veterinary Medicine Association

- Centre for Evidence-Based Veterinary Medicine

CENTRE FOR EVIDENCE-BASED VETERINARY MEDICINE
Putting research into practice

EBVM Resources

Any Questions?