

The process of evidence-based medicine

Evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.

References

- 1 Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't. *BMJ* 1996; **312**: 71–2.
- 2 Schmidt PL. Evidence-based veterinary medicine: evolution, revolution or repackaging of veterinary practice? *Vet Clin North Am Small Anim Pract* 2007; **37**: 409–17.
- 3 Roudebush P, Allen TA, Dodd CE, Novotny BJ. Application of evidence-based medicine to veterinary clinical nutrition. *J Am Vet Med Assoc* 2004; **224**: 1765–71.

Evidence-based medicine, or EBM, is a relatively new concept – to veterinary medicine – that was created in the 1970s in the field of human medicine. It aims to emphasise the importance of randomised clinical trials in making clinical decisions. It is defined as a process of clinical decision-making that allows physicians and veterinarians to find, appraise and integrate the current best evidence with individual clinical expertise, client wishes and patient needs. Indeed, although evidence-based decisions look for the strongest evidence in the scientific literature, clinical expertise should not be neglected, especially when the degree of evidence is intermediate or weak.

Evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.¹ One of the key principles is that scientific evidence should be ranked or classified during the process of appraisal of the literature.

Systematic reviews, meta-analyses and double-blind, randomised, placebo-controlled clinical trials have the strongest levels of evidence. Non-randomised, well-designed clinical trials, cohort studies, case control studies, cross-sectional studies, dramatic results in uncontrolled studies and case series have an intermediate degree of evidence. Single case reports, editorials, opinions, consensus reports, comparative research and in vitro research have the weakest degree of evidence (Fig 1).

One widely used classification of the levels of evidence in veterinary medicine grades the scientific information available from I to IV.³

- ❖ **Grade I** (the best evidence) is based on data obtained from at least one properly designed randomised clinical trial in the same animal species.
- ❖ **Grade II** is based on evidence from properly designed, randomised controlled studies in animals of the target species with spontaneous disease in a research or laboratory setting.
- ❖ **Grade III** is based on clinical trials without randomisation, cohort or case controlled analytical studies, studies using acceptable laboratory models or simulations in the



FIG 1 'Pyramid of evidence' used to rank evidence during critical appraisal of the literature. The top of the pyramid represents the highest level of evidence. RCTs = randomised controlled trials. Adapted from Schmidt (2007)²

target species (preferably from more than one centre), multiple case series or dramatic results in uncontrolled studies. (This implies that experimental studies, however well designed, can never achieve a level higher than III.)

- ❖ **Grade IV** (the weakest evidence) is based on opinions of respected experts derived from clinical experience, descriptive studies, uncontrolled studies, studies in other species, pathophysiological justification or reports of expert committees.

This kind of scoring system recognises the quality of evidence supporting a recommendation, and may be extremely helpful to clinicians faced with clinical or therapeutic decisions.

In the guidelines presented in this special issue of the *Journal of Feline Medicine and Surgery*, members of the European Advisory Board on Cat Diseases (ABCD) have attempted to formulate consensus viewpoints, using EBM, with references for most statements. Specific statements and recommendations are validated according to the strength of evidence assigned (grades I–IV). Where no grades are given, the EBM level should be assumed to be grade IV.

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