

## Viewpoint

# Evidence-based veterinary medicine: a clear and present challenge

If evidence-based veterinary medicine is to become a reality, the veterinary profession must be both prepared and in a position to undertake the necessary research, says **Lance Lanyon**

SINCE its inception in 1791, the modern, educated veterinary profession has been happy to regard its activities as being based on science. Charles Vial de St Bel, the foundation professor of the London Veterinary College (later the Royal Veterinary College), defined veterinary science as 'the science which instructs the veterinary art'. It goes without saying that, in common with other sciences, veterinary science relies upon evidence. This evidence is revealed by research.

The type of evidence and the type of research has, of course, changed in the last 200 years. William Sewell (principal of the RVC from 1839 to 1853) established the reversibility of curare poisoning by maintaining respiration in a single donkey with bellows until it recovered use of its own respiratory muscles. James Simmons (principal of the RVC from 1872 to 1881) established the transmissibility of foot-and-mouth disease by infecting his own herd with hay from the mouth of an infected animal in a nearby farm. These were the days of heroic research establishing major concepts against a background of profound ignorance.

John MacFadyean (principal of the RVC from 1894 to 1927), who famously disputed with Robert Koch the transmissibility of tuberculosis from cattle to humans, was probably the first truly modern veterinary research scientist. He investigated the causes of disease in the laboratories he built, and which still stand, in Camden Town. This



type of research has held centre stage from his time until the present. Now, however, information technology enables the locus for the profession's research effort to change

**'Whereas laboratory-based science relies heavily on the creativity of a few gifted individuals, often creating unique, carefully controlled, circumstances for their experiments, clinical research strives to achieve its consistency through a degree of standardisation across contributing centres. This can only be achieved by the efforts of a large number of individuals in a number of institutions contributing compatible data from a diverse population for a single purpose'**

from a few dedicated professionals, working in laboratories and informing the profession of their findings, to every veterinary professional in the vast majority of clinics being able to contribute their experience to the sum of the profession's knowledge. With this change in origin, the evidence

engendered moves from that produced in the closely controlled situation of the laboratory to that reflecting 'real life' outcomes in the diverse world of the clinical caseload. By opportunistic appropriation of the word, this type of research is called evidence-based medicine.

Evidence-based medicine can be defined as 'the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. It involves integrating individual clinical expertise with the best available clinical evidence from systematic research. As well as basic research this means clinically relevant, especially patient-centred research' (Sackett and others 1996).

In theory, enthusiastic involvement in such research should present no cultural problem for the veterinary profession or its clientele since nothing could be more relevant to clinical practice than relating clinical treatments to clinical outcomes. Unfortunately, this is not the case. The spectre of smoking beagles, two-headed monkeys and other unacceptable aspects of vivisection have poisoned the minds of the public, and the animal charities that they support, not just against unacceptable forms of research but also against animal-based research that comprises moderate, sensible clinical research in veterinary hospitals and practices. This anti-research attitude is unfortunately not confined to the public since, for a number of reasons, it is not uncommon among veterinary surgeons and veterinary nurses.

It is a paradox that while laboratory-based research, in which some isolated instances of vivisection excesses have occurred, is (rightly) held in high regard by most of society and by the institutions in which it is performed, case-based research in the 'real world' of veterinary clinics has no funding base to support it; is seen by many clinicians as an unwelcome challenge

Lance Lanyon has performed research in veterinary schools for 45 years and was formerly Principal of the Royal Veterinary College. This article is based on a lecture he gave at the 2013 BVA Congress.

**L. Lanyon**, CBE, BVSc, PhD, DSc, FMedSci, FRCVS  
Auburn Villa, 5 Cotham Road, Bristol BS6 6DG  
e-mail: [LLanyon@rvc.ac.uk](mailto:LLanyon@rvc.ac.uk)

for which they are ill prepared; is seen by colleagues and practice managers alike as costing money and interfering with the smooth running of their clinics; and, if it involves the slightest extra procedure not benefiting the animal under examination (or its immediate group), is illegal without a Home Office licence.

This situation of legality is a major stumbling block since the current interpretation of present legislation means that no procedure involving the potential for causing pain, suffering or distress (which includes, for instance, taking a blood sample or sedating an animal for a radiograph) can be performed on an animal as an 'act of veterinary practice' if it is not for the direct benefit of the animal (or group) under that particular veterinarian's care. It is obvious that working within these limits is a substantial impediment to much clinical research, particularly in a multicentred context. The 1986 Animals (Scientific Procedures) Act (ASPA) not only sets the parameters of intervention allowed, it even defines the motivation of those taking part.

**'Professional reputation should rest upon verifiable evidence of expertise rather than uninformed assumption or self-advertisement'**

Thus, the same procedure that is acceptable and legal if carried out for the benefit of an individual animal would be illegal (without a licence) if it were carried out for the benefit of the wider population!

These regulations, and the climate of caution, not to say fear, that potentially overstepping them engenders, provide a substantial disincentive for people wishing to conduct meaningful clinical research and a barrier behind which to hide for those who do not. This is unfortunate since there are enough real practical problems in conducting clinical research without the addition of such manmade impediments.

These practical problems include ensuring that each contributing clinic uses the same nomenclature and a standard set of tests and procedures to assess each case and contributes results from these to a universal, hierarchical database that can be interrogated by others in the sort of multicentre effort that can bring the power of numbers to the inevitably varied information that needs to be analysed. These requirements cannot be met by a few isolated enthusiasts working independently of one another with variable data in studies of incompatible design. Instead, they need to be adopted as standard operating procedures used by a large number of clinics contributing data to a centrally organised, professionally designed study with national or international scope. Thus, whereas laboratory-based science relies heavily on the creativity of a few

gifted individuals, often creating unique, carefully controlled, circumstances for their experiments, clinical research strives to achieve its consistency through a degree of standardisation across contributing centres. This can only be achieved by the efforts of a large number of individuals in a number of institutions contributing compatible data from a diverse population for a single purpose. In many cases, those contributing will only be dimly aware of the intricacies of these studies.

While data relating clinical treatments to clinical outcomes will certainly contribute substantially to identifying the best treatments to use, they will also identify differences in the skill, judgement and competence of the veterinarians involved. The profession should not shy away from this, since professional reputation should rest upon verifiable evidence of expertise rather than uninformed assumption or self-advertisement.

The heaviest responsibility to bring about a profession-wide systematic assessment of the relationship between treatment and outcome falls on the RCVS. This should:

- State clearly, and preferably include in the proposed new RCVS charter, that the systematic collection of case data in a standard form that can be interrogated by others and which relates conditions and treatments to outcomes is a requirement of every veterinarian. These same data allow comparison of individuals as well as treatments and can, of course, be the foundation for clinical audit as well as research.
- Define the scope and limits of 'recognised veterinary practice' in a way that supports clinical research and state unambiguously that the collection of clinical data for research to establish best practice is a requirement of every veterinarian as an act of 'recognised veterinary practice', provided that they work within the parameters set by the profession's regulator, the RCVS.
- Regularise the legal situation regarding the ASPA by setting the scope of 'recognised veterinary practice' so that it encompasses the range of procedures necessary for clinically useful analysis of clinical outcomes.

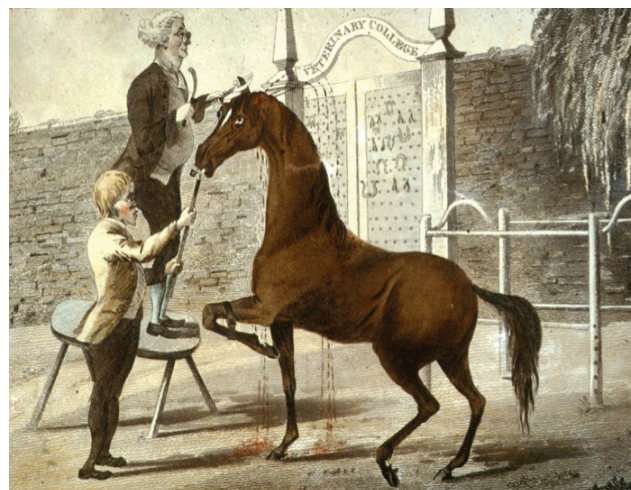


FIG 1: A depiction of veterinarians by farriers on the introduction of the Veterinary College, London in the late 1700s, saw them as over-educated individuals carrying out unnecessary procedures in order to enrich themselves and indulge the fancies of their clients

- Provide a system of ethical (and thus potentially also scientific) approval for those clinical studies which fall within the definition of 'recognised veterinary practice'.
- Make active participation in systematic case-based research a measure of professional esteem both for individuals and organisations and thus a requirement for being a Specialist, Fellow or Veterinary Hospital.
- Define as a 'day 1 requirement' understanding the processes, benefits and limitations of systematic case-based research.
- Educate the public and animal charities on the benefits of clinical research.

While not perhaps bearing the same profession-wide responsibility as the RCVS for changing the environment in favour of clinical research, the veterinary schools are crucial to the success of any national effort in this area. This is because the veterinary schools not only train successive generations of veterinarians, but are also the repository of most of the country's research-minded veterinary clinicians who are best placed to define the clinical questions amenable to resolution and the particular methodology appropriate for answering them. The veterinary schools should therefore:

- Ensure that applicants to veterinary schools realise the scientific as well as clinical responsibilities of the profession and are selected accordingly.
- Embed an understanding of systematic case-based research in their veterinary and veterinary nursing curricula.
- Develop and share the necessary software, coding and standard operating procedures to enable multicentred case-based research.

- Identify suitable targets for study, define the parameters required (and thus the scope of 'recognised veterinary practice'), coordinate, conduct and analyse the data from their own caseload, and contribute to multicentre clinical studies.

- Establish an organisation at national level in which the veterinary schools take collective responsibility for the operation of the national research effort in evidence-based veterinary medicine.

Many animal charities unfortunately appear to have an anti-clinical research attitude. Regardless of whether they do this from personal conviction or because they do not want to oppose the perceived attitude of their potential donors, it is equally damaging. Few of us if asked in hospital to give a blood sample or have a radiograph taken to contribute to a clinical survey would refuse. To prevent a similar contribution from one's pet on the grounds that the animal itself cannot give informed consent is disingenuous. Even if difficulties in communication could be overcome, informed consent from an animal is unlikely to be forthcoming for castration, living alone in a high-rise flat, being bred for an exaggerated phenotype or practically any other aspect of life over which owners exert almost total control. If clinical research is

directed towards the greater good of the greater number then it should be embraced and proselytised by the animal charities, and part of their income used to support it, in the same way as much clinical investigation into human disease is supported by medical charities.

When the Veterinary College, London, was founded in the late 18th century, the farriers, who until then had doubled as veterinarians, produced a series of cartoons portraying the new model veterinarians as over-educated individuals carrying out unnecessary procedures in order to enrich themselves and indulge the fancies of

**'The heaviest responsibility to bring about a profession-wide systematic assessment of the relationship between treatment and outcome falls on the RCVS'**

their clients (Fig 1). It is a portrait we can reject provided that we place central to our operation the use of our experience, and the modern capabilities available to us, to advance understanding of the conditions we encounter in order to reduce the suffering and increase the welfare of the widest possible population, both animal and human.

The advent of computer technology now allows every veterinarian to measure their skill against that of their peers and contribute their experience to establishing the relationship between conditions, treatments and clinical outcomes. The power of numbers enables revelation of nuances and variations between individuals, breeds, treatments and outcomes that would have been inconceivable only 30 years ago. Data on the success rates of individual surgeons are already available to potential patients in human medicine. We also hope that all medical professionals are armed with the best information relating treatments to outcomes. If we do not rise to the challenge of similarly equipping ourselves and our clients then we are in danger of proving the farriers correct. The practical problems are substantial and the rigours of following protocols and recording data both irksome and expensive. However, these are difficulties that can be overcome if the profession is sufficiently motivated to try. That is the question and that is the challenge.

## Reference

SACKETT, D. L., ROSENBERG, W. M., GRAY, J. A., HAYNES, R. B. & RICHARDSON, W. S. (1996) Evidence-based medicine: what it is and what it isn't. *BMJ* 312, 71-72

doi: 10.1136/vr.f7519

# Evidence-based veterinary medicine: a clear and present challenge

L. Lanyon

*Veterinary Record* 2014 174: 173-175  
doi: 10.1136/vr.f7519

---

Updated information and services can be found at:  
<http://veterinaryrecord.bmj.com/content/174/7/173>

---

## References

*These include:*

This article cites 1 articles, 1 of which you can access for free at:  
<http://veterinaryrecord.bmj.com/content/174/7/173#BIBL>

## Email alerting service

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

---

## Notes

---

To request permissions go to:  
<http://group.bmj.com/group/rights-licensing/permissions>

To order reprints go to:  
<http://journals.bmj.com/cgi/reprintform>

To subscribe to BMJ go to:  
<http://group.bmj.com/subscribe/>