The challenge of teaching undergraduates evidence-based veterinary medicine

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Viewpoint

The challenge of teaching undergraduates evidence-based veterinary medicine

The Royal College of Veterinary Surgeons now lists 'How to evaluate evidence' as a day one competence for newly qualified vets. In this article, representatives from each of the veterinary schools in the UK discuss how the challenge of delivering and assessing the concepts of evidence-based veterinary medicine in a crowded undergraduate curriculum can be met.

IN order to be able to understand and engage with the principles of evidence-based veterinary medicine (EBVM), a key concept that veterinary undergraduates must grasp is uncertainty. Students may find the concept of uncertainty difficult to accept, particularly in a fact-driven course. EBVM is about using the current best evidence available, but in some cases current evidence may not exist, may be contradictory or may contradict what is locally recognised as best practice. Such conflicts can give rise to cognitive dissonance. Therefore, uncertainty surrounding clinical decision-making in veterinary practice needs to be acknowledged, embraced and accepted for EBVM to be successfully incorporated in the undergraduate curriculum. A realisation that EBVM is about the interpretation and application of science and that the amount and quality of evidence varies across veterinary species and disciplines is a good initial step in understanding uncertainty.

In terms of teaching EBVM, and incorporating the 'evaluating evidence' day one competency, at the end of a veterinary degree course graduates should be able to:

- Form structured, answerable patient-centred questions;
- Navigate and effectively search the literature databases relevant to clinical veterinary medicine;
- Critically appraise literature taking into account different types of studies and the quality of evidence they provide;
- Summarise evidence and generate an output (eg, in the form of a critically appraised topic/knowledge summary/BestBET, etc);
- Advocate integration of EBVM into routine clinical activities through clinical reasoning and decision-making, despite the challenges faced when attempting to do so.

Key professional skills, including patient advocacy, safeguarding of animal welfare and communication skills are also vital to equip a new graduate to undertake EBVM in their professional lives.

Existing methods for EBVM teaching

A number of existing methods of delivering EBVM teaching in veterinary curricula in the UK could be developed and adopted more widely. These include: didactic teaching methods to deliver theoretical concepts; problem-based/self-directed learning to develop key skills; case-based examples of applying EBVM; clear demonstration of the clinical application of EBVM during clinical teaching; recording the EBVM learning journey through an EBVM skills diary; and comparing claims made in company brochures with data presented in scientific articles.

'Barriers to teaching EBVM include incorporating it into already crowded curricula. However, veterinary curricula are regularly reviewed, meaning change to existing teaching frameworks is possible'

There are now numerous resources available to help inform the teaching of EBVM, such as BestBETs for Vets (www.bestbetsforvets.org), VetSRev (www.nottingham.ac.uk/cevm) and RCVS Knowledge (http://knowledge.rcvs.org.uk/evidence-based-veterinary-medicine). As a result of some of these early discussions about EBVM within the undergraduate curriculum, an international consortium of educators developed the EBVM Learning tutorial (www.ebvmlearning.org).

As EBVM is a relatively new concept to both veterinary teachers and veterinary students, an enthusiastic 'can do' approach is needed to successfully deliver teaching. This would necessitate engagement from both veterinary and non-veterinary teaching staff and those responsible for curriculum development.

The principles of EBVM should be introduced early in the curriculum and

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An interactive small group teaching session, as part of the undergraduate veterinary degree, about how to find evidence in the literature

developed throughout the course. This 'drip feed', clinically applied approach from the start would mean the application of EBVM skills to clinical cases was familiar to students before they undertake clinical management of cases.

It is generally acknowledged that assessment drives learning and it is therefore important to assess key EBVM skills. Engagement in the process (eg, rotation assessments via presentation of cases from an EBVM perspective) may be sufficient for demonstrating competency in later stages of the course. Examining components of EBVM may be easier than assessing an understanding of the holistic concepts of EBVM. A formalised examination process could include specific assessments in relation to EBVM, including open-book exams, critical appraisal-based assessments, portfolios of reflective pieces, or a record of learning about EBVM. Ideally, the EBVM approach should be implicit within all types of assessment across the curriculum and the skills examined as part of clinical skills and not examined in isolation.

Barriers and facilitators to EBVM teaching

One of the barriers to teaching EBVM is incorporating the teaching of these skills into an already crowded curricula. However, veterinary curricula are regularly reviewed, meaning change to existing teaching frameworks is possible. Contextualising EBVM so that it is presented as an integral part of clinical decision-making and not just a theoretical concept is a key to success. The teaching should be integrated into all disciplines and species areas regardless of the way in which curricula are currently designed (eg, preclinical/clinical or vertically integrated body system models). Understanding how to align knowledge with 'unknowns' is a challenge for teachers as well as students.

The application of EBVM within clinical teachings needs to be more overtly delivered than it may currently be. The acquisition of knowledge in 'real-time' when dealing with difficult clinical cases potentially needs to be done more formally. This can be achieved by encouraging clinicians to be transparent as to whether decisions are informed directly by peer-reviewed evidence or not, and for it to be made apparent to students when and how evidence is sought. Potential resistance from colleagues with limited time and different priorities for teaching delivery may also be significant barriers, although there are advocates enthusiastic about delivering EBVM and keen to share teaching resources in all of the UK's veterinary schools.

Conclusion

It is important for future veterinary graduates to develop the skills that are crucial for practising EBVM. Growing pressure from the public, professional bodies, the profession and students themselves to ensure we are a science-driven profession will help support the integration of EBVM teaching within the undergraduate curriculum.

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This article was developed as a result of a workshop hosted by the Centre for Evidence-based Veterinary Medicine at the University of Nottingham's School of Veterinary Medicine and Science in 2013, which was attended by a committed group of educators from each of the veterinary schools established in the UK at the time. The aim of the workshop was to share current practices in teaching evidence-based veterinary medicine (EBVM) within the undergraduate curriculum, and identify day one competencies required to adequately equip veterinary graduates to implement EBVM in their practice.