

Veterinary Medical Writing

SECTION EDITORS



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Editorial

This edition of Veterinary Medical Writing signals a changing of the guard as Karim Montasser passes on the reins, having guided this section of *Medical Writing* with a steady hand during his tenure. And it is mindful of those auspicious shoes to fill that we thank

Karim for his hard work and take up those reins. In this first issue, we thought we would ease you in gently; by introducing first ourselves and then our regular feature for the Veterinary Medical Writing section, From the horse's mouth. Here we offer MEW readers a window into what is making news in the veterinary world. Also,

Louisa Marcombes reflects on comparative medicine, which will likely be a hot topic at the EMWA Spring 2021 conference, and what it means from the veterinarian's perspective.

**Louisa Marcombes and
Jennifer Bell**

Meet the new veterinary section editors!

Hello! I am **Louisa Marcombes**, a freelance medical and veterinary writer based in Auvergne, France. After qualifying with a degree in Veterinary Medicine in 2001, I spent 20 years in small animal veterinary practice, mainly in London, UK. I worked in shelter medicine for ten years at Battersea Dogs & Cats Home, which gave me valuable experience communicating with the public. I even enjoyed a brief career as a TV vet! After Battersea, I was fortunate enough to spend 5 years teaching first opinion veterinary practice to final year vet students at the Royal Veterinary College. There I explored my interest in the effective communication of complex, evidence-based concepts. As well as my freelance work, I am currently a member of the clinical review



team of *inFOCUS*, an online veterinary journal watch published by the Royal College of Veterinary Surgeons.

And I am **Jennifer Bell**. I am a freelance medical writer based in Dundalk, Ireland, and I am not a vet. I have spent a lifetime loving animals and the natural history of our planet.

I have a life science education where I learned about animals, microorganisms, and various global environments. I have a PhD in Molecular Microbiology, BSc (Hons) in Animal Biology and an HND in Horse Studies. I concluded this education while living in the UK.



I returned to Ireland in 2010 and worked in human pharmaceutical and medical device industry quality departments between 2010 and 2018. During this time, I completed an MSc Pharmaceutical Manufacturing Technology course for professionals – an approved European pharmaceutical industry Qualified Person course. I have been a freelance medical writer since 2018.

As co-editors of the Veterinary Medical Writing Section of *Medical Writing*, we are delighted to have the opportunity to team up together and look forward to exploring the world of veterinary writing and helping to strengthen links between the veterinary and medical writing professions.

Comparative medicine: A view from the veterinary clinic

A *cat is not a small dog* is a phrase that all veterinarians are familiar with and is a mantra they will repeat to themselves throughout their clinical career. And for a good reason. It is a reminder that the anatomy, physiology, pharmacology, and pathology of the two species are not equivalent; that the clinical management of the cat for most conditions is unique from the dog's. Comparative medicine is central to veterinary science, and veterinarians in their daily practice

focus more on the differences between species than their similarities. So, how would the veterinarian in clinical practice view translational medicine – the use of clinical trial data from pets to advance both human and veterinary medicine – and its current renaissance as part of the One Health paradigm?

In his presentation at the opening session of the 2021 EMWA Spring conference, Dr Craig Woods, DVM, of the Institute of Healthcare

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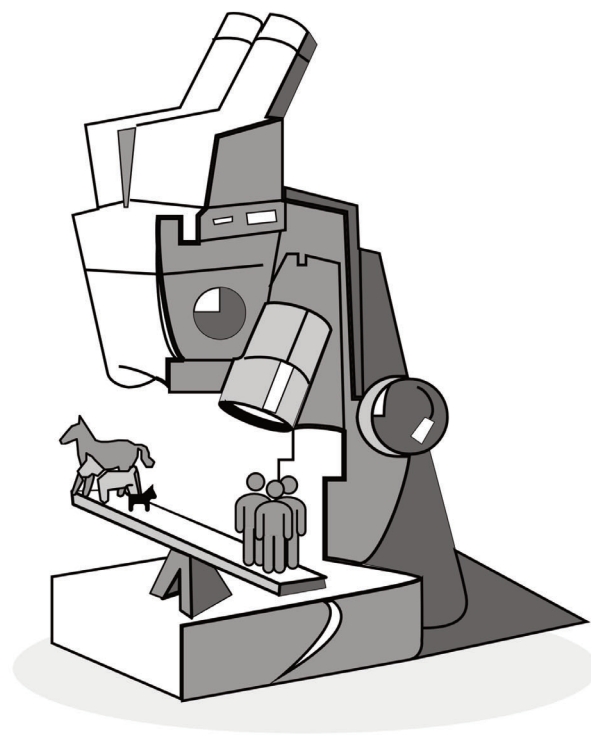
Innovation at Midwestern University, Arizona, US, discussed the increasing importance of translational medicine in pharmaceutical research and development. With only 10% of compounds

entering phase 1 trial eventually reaching the market¹ and the estimated average cost (\$1.3 billion/1.07 billion euros)² to develop a human pharmaceutical therapy, the consensus is that the current drug development model is unsustainable. Dr Woods explained that existing research and development, which uses data from laboratory animals to select therapies for human clinical trials, was a major reason for the high attrition rate of phase 1 compounds. In other words, a mouse is not a small human. Researchers are now exploring the potential of owned pets, with their spontaneous disease and quasi-human lifestyles, to bridge the gulf between the laboratory and the real world. Dr Woods gave the example of work carried out by Ohio State University Veterinary School in partnership with the Nationwide Children's Hospital in the US.³ This collaboration has been the driver behind the research effort to identify the biologic pathways that govern metastasis in osteosarcoma. The goal is to develop a screening modality that not only identifies canine patients with osteosarcoma at elevated risk of metastases but also use this new technology in paediatric patients.³

The translational medicine paradigm signals a move away from the traditional professional silos that have been a barrier to academic and clinical collaboration between vets and doctors.⁴ As a medical writer with a veterinary clinical background, these are my reflections on what comparative medicine looks like from the veterinary clinic. Given the “cat is not a small dog” dogma, how easy will it be to persuade the veterinary professional that the cat is a small human, albeit in very specific and clearly defined circumstances?

Comparative medicine: A shot in the arm for veterinary clinical research

The premise of translational medicine is that it harnesses the research potential of companion animals. However, it is fair to state that much of the narrative focuses on the potential gains for human healthcare. Non-human healthcare is often an afterthought, if it is mentioned at all. Veterinarians, for obvious reasons, have much invested



in the advancement of human medicine. However, they also spend their entire professional lives focused on animal health and welfare, and this will always be their first consideration in dialogue about comparative medicine. Therefore, when writing about translational medicine, remember to emphasise the potential gains to non-human patients as well as the human ones, particularly when addressing a veterinary audience.

Vets want more drugs for their patients. The high cost of drug development and the smaller pharmaceutical market means that veterinarians have access to relatively few licensed medications in their practice. Comparative medicine can accelerate veterinary drug development and has already been credited with bringing several novel therapies closer to clinical usage. The Bruton Kinase inhibitor ibrutinib (Imbruvica, Janssen-Cilag Ltd), used to treat B-cell malignancies in humans (based on data from a spontaneous lymphoma canine model), has been investigated as a possible treatment for canine mast cell tumours after it was observed to block IgE activation in human mast cells.⁵ Cognitive dysfunction in geriatric cats has attracted interest as a model for Alzheimer's in people, and cannabidiol has been flagged as a possible treatment for cognitive decline in both species.⁶ Mavacamten, a first-in-class allosteric

modulator of cardiac myosin, should soon be the first authorised targeted therapy of hypertrophic cardiomyopathy (HCM) in humans.⁷ Data on the efficacy and safety of cats with HCM were central to the development of mavacamten.⁸ As a result of this translational research, physicians and perhaps veterinarians will have an effective, targeted treatment for this common disease.

Conflicts and challenges: Where aims and objectives diverge

There are significant obstacles to bridging the gap between veterinary and human clinical research, which are yet to be fully addressed by the scientific community. During her talk at the EMWA 2021 spring symposium, Dr Rachel Dean, Director of Clinical Research and Excellence in Practice at

Vet Partners, UK, discussed how the quality of veterinary clinical trials compares negatively with human clinical trial standards. Dr Dean characterised veterinary clinical trials as often asking the wrong research question and being hampered by poor study design. For example, a 2016 study showed that 87% of the papers assessing treatment efficacy in medical journals are based on a randomised controlled design.⁹ This proportion drops to only 52% of comparable trials in veterinary journals. Although in the long-term translational medicine offers veterinary clinical research an opportunity to level up, these discrepancies in clinical trial quality can't fail to be a limitation at present.

And how about the pet version of the declaration of Helsinki? Experiments on animals in the laboratory setting are regulated in the EU under the Directive 2010/63/EU and built on the 3Rs principles of reduction, replacement, and refinement. But what about client-owned pets? In the UK, the veterinarian must determine whether a proposed treatment is a legitimate act of veterinary surgery (as a “recognised veterinary practice”) or whether it is a scientific study, in which case it falls under the auspices of The Animals (Scientific Procedures) Act 1986¹⁰ with accompanying licensure. The difficulty is that there is a sizeable grey area in clinical practice where this judgement can be hard to make, and avoidable harms have occurred as a result.¹¹ Despite this, there are calls to relax the existing regulation to make the use of pets in clinical trials easier to carry out.¹²

Finally, there is the pet's owner to consider.

A recent study compared the priorities of the main stakeholders in research in canine epilepsy research¹³ and found that the priorities of clinicians and owners were not aligned. Clinicians were found to place more importance on clinical outcomes and long-term implications for managing or preventing idiopathic epilepsy. In contrast, pet owners were more concerned about immediate impacts on their pet's quality of life, adverse effects, and comorbidities. This highlights the risk of mismatched expectations between clinicians and owners. Prioritising owner-reported outcomes in comparative medicine takes on extra importance when we are reminded that euthanasia is a treatment option in veterinary medicine. Translational research should, above all other considerations, never make this outcome more likely.

What's in a word? Comparative or translational?

Dear reader, you may have noticed that the terms “comparative” and “translational” have been used interchangeably in this article. This is partly deliberate, but I also have tried to mirror their use in the literature. The semantics, arguably, are important. Here is the definition of translational medicine provided by the European Society of Translational Medicine:

“...an interdisciplinary branch of the biomedical field supported by three main pillars: bench side, bedside and community”.¹⁴

Note there is no mention here of animal health in this definition. Furthermore, the word “veterinary” does not appear once in this citation. A definition of comparative medicine is equally

esoteric: “‘Comparative Medicine’ may be defined as a field of study concentrating on similarities and differences between human and veterinary medicine.”¹⁵ At least here animal health is explicitly referenced. The term “reverse translation” has been proposed elsewhere^{6,16} to signify a benefit for veterinary species. Indeed, the definitions of and distinction between “translational medicine” and “comparative medicine” are woolly and need refining.

It is reasonable to state that, at present, comparative medicine does not have the visibility it warrants within the veterinary profession, and most vets in practice would struggle to define it.

Perhaps that is not surprising as a universally accepted definition appears not to exist. Indeed, there is, in my view, a need for terminology that clearly distinguishes research that is based on laboratory animals who happen to be a companion animal species from that derived from client-owned companion animals. The cats used in the HCM study mentioned above, for example, were unowned, purpose-bred colony cats that underwent an experimental procedure and not a clinical trial. Few veterinarians

would recognise them as real-world veterinary patients. The use of current terminology in the literature makes it very hard to make this vital distinction.

Comparative medicine has the potential to advance human and animal healthcare in the One Health framework. However, there needs to be a shift from the status quo through closer integration of medical and veterinary professions. From improving the geographic and intellectual proximity of the respective faculties

This can only be brought about with terminology that is unambiguous and accessible not just to biomedical professionals but also to society.

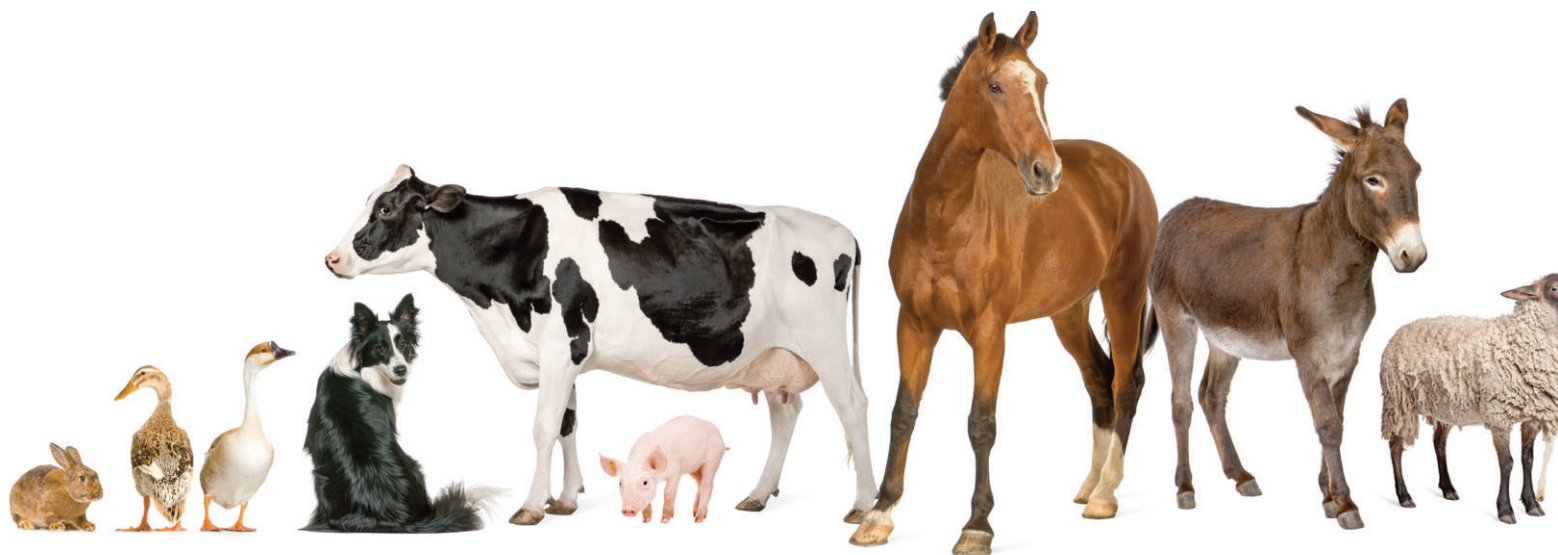
at academic institutions to elevating literature databases from their silos by creating a One Literature.⁴ This can only be brought about with terminology that is unambiguous and accessible not just to biomedical professionals but also to society. Medical communications professionals are exceptionally well placed to lead with this.

Disclosures and conflicts of interest

The author declares no conflicts of interest.

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From the horse's mouth



The quarterly pick of the news from the veterinary world

An increased incidence of pancytopenia (low counts of red and white blood cells and platelets) in cats in the UK has resulted in a pet food manufacturer recalling its products, it was reported by the *Veterinary Times* in June 2021. Since May 2021, veterinarians across the UK have reported an increase in pet cats presenting with pancytopenia. The Royal Veterinary College, London, had recorded at least 539 cases by August 9, with a mortality of 63%. Epidemiological analysis of confirmed cases has pointed to a possible dietary factor that has prompted the Food Standards Authority in the UK to issue a product recall of hypoallergenic cat food manufactured by Fold Hill Foods, including products from their “Applaws” and “AVA” ranges. Studies on this “Feline Pancytopenia Syndrome” by the Royal Veterinary College are ongoing to identify the underlying cause of this phenomenon. Meanwhile, veterinarians up and down the UK have experienced an increased volume of calls from worried owners since the Food Standards Authority announcement was made.

Goa has become the first Indian state to declare state-wide control of rabies, hailed as a breakthrough in the global fight against the disease, the UK-based charity Mission Rabies has reported on June 23, 2021. Mission Rabies has been working with the state since 2013, when one rabid dog was being collected every 3 days. The success of this rabies control programme has been attributed to an aggressive canine vaccination programme, where at one point, 61,143 dogs were vaccinated in 30 days, the provision of rabies education to 1 million people, and the implementation of a rapid-response surveillance team. As a result, there have been no human deaths from rabies reported in the state since 2018. With statewide rabies control declared, the Goan government has the authority to enforce dog vaccination, and unvaccinated dogs are now prevented from entering the state.

Boehringer Ingelheim has announced a partnership with Lifebit Biotech Ltd, a London-based company specialising in the development of genomics and bioinformatics platforms, as reported in the *Veterinary Times* on June 9, 2021. The Lifebit REAL platform uses AI technology to analyse real-world data obtained from scientific publications and other open-source sites to detect animal disease outbreaks. By assimilating vast amounts of data in a time scale that has, until now, not been possible, it is hoped that this technology will not only enable faster detection of disease events but also be a valuable tool for targeting R&D efforts.

