

Forensic sciences in veterinary medicine: a transdisciplinary subject requiring specialisation

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Abstract

Forensic sciences have multiple applications in the medical sciences, including veterinary medicine, particularly in animal crime and welfare, and food safety inspection. However, there is no formal specialisation for veterinarians working in this field. There is a current need

for formal training and recognition to provide better service to the community, and to ensure suitable basic training for general veterinary professionals working in different fields.

Key words: *education; forensics; formal training; veterinarian*

Introduction

Forensic sciences, or forensics, can be defined as the application of different scientific fields to enforce laws and resolve illegal problems (Hammond, 2013). Crimes against or involving animals require an analysis of the crime scene by someone with a basic knowledge of a number of fields, including animal anatomy, physiology, behaviour, and pathology. A general veterinarian has the necessary concepts to provide valuable perspective in such crime scenes, which may be helpful in answering some essential questions to solve the crime. However, if specialised knowledge in forensic scienc-

es could be created, the contribution of veterinary sciences to this field could be greatly improved.

A Scopus® search with the keywords “(forensics OR forensic sciences OR crime OR criminal OR crime scene) AND (veterinary OR veterinarian OR vet)” found a total of 114 documents (of all types), of which 82 were published after 2015. This indicates that the application of forensic sciences in the medical-veterinary context is quite recent, and suggests the need for its further development.

This paper aims to emphasise the transdisciplinary nature of forensics

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in the context of veterinary sciences, and to raise awareness of the need to develop veterinary forensic sciences as a speciality.

Animals and crimes

Animals can be involved in crimes in three different ways: 1) as the cause – animals that cause injury or financial loss; 2) as the victim – animals that are injured, poached, illegally transported or mistreated, and 3) as crime scene material – animals that provide information about a crime scene where they were present (Cooper and Cooper, 2018).

Even considering the crimes where animals are the primary victims (such as animal abuse or trafficking), the lack of an adequate resolution of the crime affects not only those animals. There are several negative impacts on our society. According to Lockwood and Arkow (2016), acts of domestic violence, child abuse, elder abuse, and animal abuse frequently coexist and are indicators of social pathology. Therefore, the work of a forensic veterinarian implies a responsibility through the rights and welfare of animals, which also have repercussions on society as a whole.

From clinicians to inspectors

Initially, we may tend to restrict veterinary forensics to crimes against animals, namely companion animals that have been mistreated by their owners and, therefore, limit the importance of this subject to veterinarians who have (or want to have) a career in pet practise. However, the applications of forensic sciences in veterinary practice are much wider.

Food safety veterinary inspectors also have a crime scene on their hands

when in the presence of animal product adulteration, i.e., an animal product that includes substances (e.g., meat, milk or hair) from another animal species besides the species in question (Ahmed et al., 2018). This can be applied to several stages of the food production line, but it is a fundamental right before it reaches the consumer, as consumers are susceptible to such fraud.

In recent decades, the illegal wildlife trade industry has intensified and now generates over USD 20 billion every year (Ogden et al., 2009). A significant challenge in crimes against wildlife species is the inability to identify and control the trade of body parts or available biological materials (Kriangwanich et al., 2021). Thus, the role of a veterinarian in wildlife forensic sciences is crucial in resolving such crimes and their adequate sanctioning.

The need for formal education

Until recently, most veterinary students received no theoretical or practical training in forensics. Most did not even know how to identify signs of animal abuse. In 1999, most veterinary students had, on average, less than 76 min of training on animal abuse (Landau, 1999). Almost fifteen years later, in 2013, most veterinary students still felt unready to deal with animal abuse cases in their daily practice (Creedy et al., 2013; Parry and Stoll, 2020).

However, who can properly teach these students if we do not have specialists? Veterinary pathologists, inspectors and toxicologists who often work with forensic cases should also be trained in or able to recognise the subject in order to provide adequate teaching of general forensic concepts to their students. Despite the creation of multiple post-graduation

and master's degree courses in recent years (e.g., Veterinary Forensic Sciences or Wildlife Forensic Sciences by the University of Florida; Parry and Stoll, 2020), there is a need for a formally recognised specialisation that ensures a vital veterinarian contribution. In the end, a forensic veterinarian would secure justice for abused or endangered animals while providing an interface with the criminal justice system to better combat organised crime and improve public health.

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Forenzičke znanosti u veterinarskoj medicini: interdisciplinarni predmet koji treba specijalizaciju

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Forenzičke znanosti imaju višestruke primjene u medicinskim znanostima, uključujući veterinarsku medicinu, tj. u zločinima počinjenima nad životinjama i dobrobiti životinja, kao i kod provjere zdravstvene ispravnosti hrane. Međutim, ne postoji formalna specijalizacija za veterinare koji djeluju na ovom polju.

Trenutačno postoji potreba za formalnom obukom i priznavanjem da bi se pružile bolje usluge zajednici i osigurala prikladna osnovna obuka stručnjacima veterine općenito koji rade na različitim poljima.

Ključne riječi: edukacija, forenzika, formalna obuka, veterinar