



ORIGINAL RESEARCH

Professional training in veterinary forensic sciences accessible within the curricula of 30 veterinary medical colleges in the United States: why training must increase

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ABSTRACT: A study was performed on the extent to which veterinary forensic sciences were offered in the veterinary medical college curricula in the United States. Veterinary forensic sciences use a veterinarian's expertise to gather and interpret evidence associated with animal crime (i.e., animal abuse and neglect). This study collected data from 30 US veterinary medical colleges regarding curricula accessible to students specific to veterinary forensic sciences. Each school provided any mention and characterization of the topic available to students throughout the 4 years of veterinary education, including lectures in core or elective courses or separate elective courses. Completing this study revealed the inconsistencies of training in the veterinary forensic sciences found at the colleges surveyed. There are no current standards on this topic required for the education of veterinary professionals. Of the 30 colleges included in the study, 13 (43%) provided some mention of the topic in their course work, 7 (23%) provided a specific elective course, while 10 (33%) offered no training in the veterinary forensic sciences. With mandated reporting in 18 of the 50 states, new graduates are expected to recognize and report suspected animal abuse or neglect cases; however, many veterinarians have no exposure to the veterinary forensic sciences during their education.

KEYWORDS: veterinary forensic sciences, curriculum, college, education

Cases of nonaccidental injury present to veterinary practices across the United States every day, but many veterinarians do not feel confident in identifying patterns of nonaccidental injury nor think to include this as a possible differential diagnosis. Even with a significant lack of training in the veterinary forensic sciences or exposure to the concept, veterinarians are still expected to recognize suspected animal crime cases and know their rights and responsibilities on reporting. A survey of US general practitioners in 1999 (Sharpe) found that only 8% of the 368 respondents felt they received adequate training in recognizing and reporting animal abuse and understood the applicable laws. Less than 44% of these respondents understood their rights and responsibilities in suspected abuse or neglect cases.

Veterinary professionals are responsible for recognizing the presence and patterns of nonaccidental injury found in their patients and reporting to appropriate authorities. Veterinarians are not responsible for proving a crime has occurred but instead are responsible for informing law enforcement of the suspicion and providing written documentation regarding findings so that law enforcement may decide whether to open an investigation. The American Veterinary Medical Association's (AVMA) policy on Animal Abuse and Animal Neglect (c2012–19) states, "The AVMA encourages veterinarians to educate clients, recognize the signs of animal abuse and neglect, and familiarize themselves with relevant laws and the appropriate authorities to whom they should report suspected cases of animal abuse or neglect within their jurisdiction."

Over the past decade, the field of veterinary forensic sciences has expanded from the occasional hoarding or dogfighting case to encompass a substantial part of a veterinarian's career. A 2017 survey (Kogan et al. 2017) of US general practitioners found that 87.0% of 1,155 respondents encountered at least one case of suspected animal abuse, cruelty, or neglect while practicing, but only 55.8% of these individuals reported their findings to authorities. Most veterinarians did not report due to various levels of uncertainty around recognition and reporting cases of suspected abuse or neglect. Despite past studies, it still holds today that most veterinarians had little to no training in veterinary forensic sciences and do not understand their responsibilities to recognize and report a suspected animal crime (Woolf 2015).

Materials and Methods

A survey of veterinary schools was performed to determine the formal coursework available to veterinary students enrolled in 30 colleges of veterinary medicine in the United States. The results of this survey will inform the veterinary community of current educational opportunities at each college and identify areas that need to be addressed for future educational opportunities. The director of academic affairs at each veterinary college was contacted via email to obtain the information pertinent to this study. Individuals were asked to describe all forms of training in veterinary forensic sciences within the 4 years of the veterinary curriculum. Specifically, contacts were asked: if veterinary forensics was discussed as lecture(s) in core classwork, discussed as lecture(s) in elective classwork (and if so, which courses), and if an elective course specific to veterinary forensic science was offered. In most instances, this information was provided by the director of academic affairs; however, in several instances, the email was redirected to a specific clinician or professor that taught the topic to elaborate on the course work available. This research focused on forensic education within the 4-year curricula of US veterinary colleges as of December 2019 and did not reflect external or after-hours opportunities that students pursue independently. Individuals sent an email with

written permission allowing this information to be published and for their name to be listed as the reference source.

Results and Discussion

The data on the accessible curriculum on veterinary forensic sciences at each college, presented in **TABLE 1** for comparison, reflect the inconsistency and variability between veterinary colleges. The colleges included in this study vary in their delivery of this training: from no formal curriculum or mention of the topic to the inclusion of the topic in ethical core discussions to the inclusion in numerous lectures incorporated into an elective course.

These data show that of the 30 US colleges of veterinary medicine included in the study, 13 colleges (43%) provide some mention of the topic in their core course work, 7 colleges (23%) provide at least one specific elective course, while 10 colleges (33%) offer no training in the veterinary forensic sciences. The variability in accessible education is also evident in the curriculum details that each college could provide. Several colleges could specifically list the number of topic hours or which course in which veterinary forensics was discussed; however, most colleges could only specify that the topic was mentioned in core courses or shelter medicine courses.

This study concludes that there are notable inconsistencies within the 4-year curricula at veterinary colleges on the instruction of veterinary forensic sciences. Based on each college, a broad spectrum of different material and number of lecture hours provided to students, ranging from no formal education to elective courses and numerous lecture hours, was found. This study shows that 33% of 30 US colleges of veterinary medicine offer no formal training in veterinary forensic science. With mandatory reporting of suspected animal crime by veterinarians in 18 of the 50 states (36%) and regular efforts to constantly improve animal law nationally, veterinarians should be able to recognize animal cruelty, abuse, and neglect, as well as understand their responsibilities on when and how to

TABLE 1—Survey of veterinary forensic educational opportunities within the 4-year curricula of 30 US veterinary colleges as of December 2019. The director of academic affairs at each veterinary college was asked: if veterinary forensics was discussed as lecture(s) in core classwork, discussed as lecture(s) in elective classwork (and if so, which courses), and if an elective course specific to veterinary forensic sciences was offered. Data did not reflect external or after-hours opportunities that students pursue independently.

Veterinary college	Lecture material in core courses	Lecture material in elective courses	Formal elective course	None
Auburn University	✓ forensic topics mentioned in a few core courses	✓ forensic topics mentioned in a few elective courses		
University of California Davis				✓
Colorado State University	✓ discussed in animal welfare course			
Cornell University	✓ forensic topics mentioned in a few core courses	✓ forensic topics mentioned in shelter medicine elective courses		
University of Florida	✓ forensic topics mentioned in a few core courses	✓ forensic topics mentioned in shelter medicine elective courses	✓ 1-credit elective course with wet lab	
University of Georgia			✓ 1-credit elective course	
University of Illinois			✓ 1-credit elective course	
Iowa State University				✓
Kansas State University	✓ forensic topics mentioned in a required ethics course	✓ forensic topics mentioned in shelter medicine elective courses		
Louisiana State	✓ required lecture on addressing cruelty and neglect cases	✓ forensic topics mentioned in shelter medicine elective courses		
Lincoln Memorial University		✓ forensic topics mentioned in critical patient management elective course		
Michigan State University				✓
Midwestern University	✓ lectured on mandatory reporting and animal abuse before clinical rotations	✓ forensic topics mentioned in a few elective courses	✓ 2-credit elective course	
University of Minnesota	✓ abuse reporting mentioned in professional development courses			
Mississippi State University				✓
University of Missouri				✓
North Carolina State University		✓ forensic topics mentioned in shelter medicine elective courses		
The Ohio State University	✓ forensic topics mentioned in a few core courses	✓ forensic topics mentioned in shelter medicine elective courses	✓ 2-credit elective course	
Oklahoma State University				✓
Oregon State University	✓ forensic topics mentioned in a few core courses			
University of Pennsylvania		✓ forensic topics mentioned in shelter medicine elective courses		
Purdue University			✓ 1-credit elective course	

TABLE 1—continued.

Veterinary college	Lecture material in core courses	Lecture material in elective courses	Formal elective course	None
University of Tennessee				✓
Tuskegee University				✓
Texas A&M University				✓
Tufts University	✓ forensic topics mentioned in a few core courses	✓ forensic topics mentioned in a few elective courses	✓ 2-credit elective course	
Virginia-Maryland	✓ forensic topics mentioned in a few core courses			
Washington State University				✓
Western University of Health Sciences	✓ 2-hour required lecture	✓ forensic topics mentioned in shelter medicine elective courses		
University of Wisconsin-Madison	✓ forensic topics mentioned in a few core courses			

report suspicious cases (AVMA DSA 2021). Due to the lack of specificity, there is much left open for interpretation, as some educational opportunities could involve several hours on the topic. In contrast, others may only mention recognizing and reporting an animal crime when discussing the ethics of veterinary medicine. These conclusions shed light on potential solutions for expanding training opportunities by targeting shelter medicine courses or basic training in the core curriculum. These insights are helpful to educators working on future curriculum or specialized field tracking. This study was not designed to record additional opportunities extended to veterinary students, based on the college, to pursue externships, attend guest lectures, or participate in after-hours workshops on veterinary forensic sciences. While there may be additional available resources to explore for educational opportunities, the inconsistencies across veterinary colleges and the current need for students to find ways to gain knowledge and experience in this field strongly indicate the need for a more consistent and broad approach to training within the veterinary curriculum.

Over the past 10 years, the field of veterinary forensic sciences has grown exponentially to include numerous educational opportunities from online course work, a master's degree through the University

of Florida, conference proceedings through the International Veterinary Forensic Sciences Association (IVFSA), and others. IVFSA is a professional organization founded in 2008 to advance global knowledge and expertise relating to the fight against animal cruelty and neglect, emphasizing the veterinary forensic sciences. IVFSA is an example of an organization that is developing opportunities for the advancement of the field while at the same time creating training that could benefit the veterinary curriculum. Research in the connection between animal and human crime, referred to as the Link, has verified and explored the association between animal cruelty, domestic violence, and child and elder abuse (National Link Coalition c2008). Forensic investigation regarding wildlife crime has also been documented throughout history as many federal laws involve protecting endangered species, species by location, migratory birds, and more (Wilson-Wilde 2010). As with the link between animal violence and human violence, crime has been associated with illegal wildlife trade and housing, drug trade, and terrorist organization, often leading to global impacts (Van Uhm and Nijman 2020). The harsh realities of associated crimes against humans and animals span decades and continue to happen today (Phillips 2014). In 2016 the Federal Bureau of Investigation began tracking animal crime, no longer

as a minor or miscellaneous crime, but categorized explicitly through the Uniform Crime Reporting Program. In doing so, they have been able to track animal crime by state and in association with other violent crimes, in the hopes of establishing patterns and other associations to intervene sooner and decrease the current escalation through various violent acts (Tracking Animal Cruelty 2016).

As new connections are found every day between animal and human crime, it is more imperative than ever to focus on the education of those trusted to recognize, track, and stop criminal acts. Veterinarians are at the forefront of addressing suspected animal crime cases, yet they may have minimal access to a formal curriculum to educate each new graduate. Recognizing and reporting suspected cruelty, abuse, and neglect towards humans is a widely accepted standard and expected from human physicians and nurses, teachers, and social workers. With what is now known about the link between human and animal crime, it is time that the profession of veterinary medical educators and practitioners pushes for standardized formal training in the veterinary forensic sciences at all veterinary colleges.

Conclusion

With increasing awareness of veterinary forensic sciences and the constant need for veterinary practitioners to have the training and skills necessary to empower them to recognize and report cases of concern, veterinary forensic sciences must be a staple in the curricula of all veterinary colleges. Each student should receive the same opportunity for minimum exposure to veterinary forensic sciences, including

animal law, and their role in recognizing and reporting abuse. **TABLE 1** highlights the variations or lack of curriculum offered in veterinary colleges and guides students who seek a college equipped with veterinary forensic training.

Establishing a forensic medicine course syllabus that meets the minimum curriculum taught to all veterinary professionals is imperative. The Primary Care Veterinary Educators group, which works to prepare veterinary students through primary care programs, alongside the AVMA Council of Education, should consider reviewing minimum veterinary education requirements. This collaboration would allow experts to weigh in on training opportunities, areas of improvement within the current curricula, and the integration of forensic education standards. Until said education becomes readily accessible, experts in the veterinary forensic sciences should seek to deliver continuing education opportunities to veterinary graduates.

Advocating for animal welfare is the duty of veterinarians, and this encompasses caring for and treating patients and speaking up for them when they cannot speak for themselves. In 2010 (Nolan), the AVMA revised the veterinarian's oath to include the subject of animal welfare, stating, "Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health and welfare, the prevention and relief of animal suffering..." With a responsibility to uphold this oath, education in the veterinary forensic sciences should be standardized across veterinary medical colleges.

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