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Legal implications of zoonoses for clinical veterinarians

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As human and animal populations increase, the need for veterinarians to serve as leaders in the prevention of and response to zoonotic diseases has never been greater. Zoonoses are defined as diseases that may be directly or indirectly transmitted from wild or domestic animals to humans.[1,2] Of the 1,461 diseases now recognized in humans, approximately 60% are caused by pathogens classified as zoonotic on the basis of their ability to move across species lines.[3] Over the past 30 years, approximately 75% of new emerging infectious diseases have been zoonotic.[4] Recognition by the public that infectious disease outbreaks in people can often be attributed to animal contact reinforces the need to educate veterinarians on zoonotic diseases, the role veterinarians play in preventing zoonoses, and the legal liabilities associated with these roles and responsibilities. The role veterinarians play in public health issues associated with zoonotic agents and human health is evolving, necessitating a closer look at the ethical and legal responsibilities of veterinarians in regard to zoonotic diseases, as well as the legal repercussions that may be associated with a failure to act. The present report provides an introduction to some of the challenging issues veterinary practitioners may face in this regard.

The Veterinarian's Role in Zoonosis Prevention

Veterinarians have long served to promote public health and zoonotic disease control. A 1939 Missouri statute,[5] which is still enforceable, enables 10 residents to demand the presence and services of a veterinary surgeon to aid in the "inspection of such infectious or contagious diseases as are transmissible to the human family." Veterinarians have a role in public health, despite the movement of the profession away from primarily agricultural animal medicine into companion animal and specialty medicine. Diseases such as measles, smallpox, influenza, and tuberculosis likely evolved from animal diseases as a result of the advent of agriculture and the domestication of animals about 8,000 to 10,000 years ago, and zoonotic diseases continue to be an important consideration in all areas of veterinary medicine, including companion animal, wildlife, and production animal medicine.[6]

Recently, the US companion animal industry experienced outbreaks of monkeypox in prairie dogs; lymphocytic choriomeningitis virus in pet rodents; salmonellosis in hamsters, kittens, baby chicks, aquarium fish, and turtles; tularemia in hamsters and rabbits; psittacosis in pet birds; *Escherichia coli* O157:H7 infection among animals in petting zoos; and rat bite fever in pet rats.[a] The threat of infection with avian influenza virus H5N1 in animals and the fear of human infection suggest that veterinarians should take precautions to prevent zoonotic diseases and should be involved in a wide range of public health issues.[7] Zoonotic diseases represent the leading biological threats to human health, and there is great potential for veterinarians to aid in surveillance for potential risks to human health.[8] Although the profession is well suited to address zoonotic risks and new educational programs are expanding in the area of public health, there needs to be greater recognition by the veterinary profession of what their legal and ethical requirements are to protect the public from these diseases.

Whose Duty?

The convergence of animal and human disease threats mandates a parallel convergence between veterinary and human medical professionals. Because human physicians are minimally concerned with animal disease and veterinarians are minimally concerned with human disease, there is a gap in the effective control of zoonotic diseases. This gap is further widened by disagreements over who has primary responsibility in advising the public of the risk of disease, insufficient knowledge about zoonotic disease issues among in-

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dividuals in both professions, and the failure of the 2 professions to communicate and collaborate. Recently, there have been many successful efforts by the veterinary profession to address these issues and improve public health. But as recently as 2006, the National Pet Zoonoses Coalition: A Partnership for Education meeting identified this disconnect between professions as a top problem regarding zoonotic disease control.

Results of a Connecticut survey[9] illustrated the disconnect between the veterinary and human medical professions, with 41% of participating veterinarians and 60% of participating pediatricians indicating that they had never consulted their counterparts regarding zoonotic diseases. In addition, when respondents were asked to rank the relative importance of 4 occupations (animal control officer, physician, public health officer, and veterinarian) with respect to their duty to inform the general public about zoonotic disease prevention, veterinarians generally indicated that physicians had the primary responsibility when it came to educating the public, with public health officers ranked second. In contrast, pediatricians most frequently indicated that public health officers had the highest responsibility, with veterinarians ranked next most important.[9] When participants were asked to rate their comfort level in advising clients about preventing transmission of zoonotic helminths, veterinarians overall felt more comfortable than pediatricians in advising clients, with 45% of veterinarians but only 6% of pediatricians feeling very comfortable advising clients on the risks of zoonotic diseases.[9] A Wisconsin survey of veterinarians and physicians reported similar results.[10]

The amount of training medical professionals receive regarding the public health threats of zoonotic diseases varies. In general, however, students in the human health professions receive little didactic instruction on the topic of parasitic diseases and typically no laboratory instruction. In a 2001 study,[11] an average of 1.1 parasitology courses were required for graduation by 12 veterinary schools, with 33% of the schools offering at least 1 elective course. In that same study,[11] parasitology was not a requirement for graduation at 51.3% of medical schools, with 35.6% offering no courses in parasitology at all.

The lack of parasitology training in the medical school curriculum helps explain the lack of knowledge of public health concerns among human health-care practitioners entering the field. In contrast, veterinarians are trained in comparative medicine, parasitology, and population medicine. While there are currently only 3 accredited schools of public health on the same campuses as schools or colleges of veterinary medicine, many schools and colleges of veterinary medicine are reaching out to form unique public health training partnerships.[12–27] In addition, schools and colleges of veterinary medicine are key partners in several proposals for new schools of public health, and currently more than half of the schools and colleges of veterinary medicine in the United States have created dual DVM-MPH degree programs. These innovative programs offer opportunities for improved communication and understanding between the veterinary and human medical professions.

Leaders in the area of public health and veterinary medicine are also building coalitions with local health-care professionals to help encourage the rapid detection and treatment of zoonotic diseases in humans and animals. Faculty at several schools are working with state and federal departments of agriculture, health, and natural resources to share information and design collaborative approaches for responding to zoonotic diseases.[b]

On the national level, the AVMA established a One Health Initiative Task Force charged with articulating a vision of one health that will enhance the integration of animal, human, and environmental health for the mutual benefit of all.[28] Task force members included individuals from the AVMA, American Medical Association, and American Public Health Association. The AVMA One Health Initiative Task Force recently published a report[29] of its findings, which recommends an emphasis on newly designed educational programs to meet this vision. Interestingly, several current academic programs include unique collaborations with law and business schools.

In sum, veterinarians are generally better prepared to offer education regarding zoonotic diseases to pet owners than are physicians. Unfortunately, they are limited in these efforts because they are not licensed to provide medical advice to humans. Veterinarians must use caution not to exceed the scope of their veterinary license while fulfilling their public health responsibilities.

Duties of Veterinarians

Legal and ethical duties are not always easily separated, and both are important considerations when it comes to the role veterinarians have in preventing and treating zoonotic diseases. Although not all inclusive, the legal duties that veterinarians have are created and determined by the state veterinary medical boards where they are licensed, the standard of care that veterinary professionals must follow to avoid claims of professional negligence or malpractice, and applicable state laws and regulations. Additionally, there may be other legal duties under general tort law that are applicable to veterinarians and nonveterinarians alike, such as those that are imposed on employers to provide appropriate worker safety or on businesses open to the public. For example, in a case in Kansas,[30] a veterinary clinic was declared a public nuisance because of unsanitary conditions, with the city claiming, among other things, that the veterinarian permitted diseased tissue from sick animals to remain on the premises. Legal duties created under general tort law are potential sources of liability but are not the focus of the present report.

In addition to the legal duties they must fulfill as a matter of law, veterinarians also have ethical duties they must fulfill as a matter of membership in the veterinary profession. These ethical duties are embodied in the veterinarian's oath and the principles of veterinary medical ethics.[31] The existence of these ethical duties may provide the basis for an administrative action taken by a state veterinary medical board and could result in a license disciplinary action.

Veterinary License Discipline

A state veterinary medical board may discipline a veterinarian for failure to maintain a level of integrity and conduct as established by state statutes or regulations of the licensing body. The practice of veterinary medicine is based on each state's practice act and is governed by each state's veterinary medical board. Increasingly, state veterinary medical boards are referring to the AVMA guidelines as the basis for determining the appropriate conduct for veterinarians. Therefore, to the extent that the veterinarian's oath and principles of veterinary medical ethics outline the ethical duties of veterinarians related to public health,[31] it becomes clear that veterinarians have a duty to promote public health. Specifically, the veterinarian's oath states, "I solemnly swear to use my scientific knowledge and skills for the benefit of society, […] the promotion of public health, and advancement of medical knowledge." Thus, there is an ethical duty imposed by the oath for veterinarians to appreciate their role in promoting public health, which may be interpreted to include minimizing the transmission of zoonotic diseases. However, a legal duty is not likely breached unless written laws are violated or actions fall below the appropriate standard of care.

Veterinary Malpractice

The increasing interdependence between humans and animals raises the potential for zoonotic disease transmission and, with it, an expansion in the number and variety of related legal claims. To date, most claims related to zoonotic diseases have arisen in conjunction with animal attacks and exposure or potential exposure to rabies. In 2007, 7% of veterinarians insured by the AVMA Professional Liability Insurance Trust submitted claims, of which 2.7% involved a human injury.[c] Unfortunately, information on the number of claims related to zoonotic diseases was not available because these claims were grouped with other claims related to human injury.

The following 4 elements must be present to sustain a claim of malpractice: duty, a breach of the applicable professional standard of care, causation, and damages. Establishment of a veterinarian-client-patient relationship creates a duty for the veterinarian to provide a certain standard of care for the patient. If there is no relationship, the veterinarian owes no duty to the patient. Therefore, for an owner to prevail in a malpractice claim based on a violation of the duty of care, the animal owner generally must prove that "the veterinarian failed to use such reasonable skill, diligence, and attention as may ordinarily be expected of careful, skillful and trustworthy persons in the profession."[32] Testimony from an expert who can attest to what persons of similar training and expertise would do under similar circumstances is required to establish what is reasonable under a certain set of circumstances.[33] Importantly, a veterinarian who holds himself or herself out as an expert may be expected to adhere to a higher level of care, as at least 1 court has found that a veterinary specialist will be held to a higher standard of care than an ordinary practitioner. On the other hand, a veterinarian will not ordinarily be held liable merely because there was some unfavorable result of treatment. Rather, liability requires proof of tortuous conduct,[34] and a claim of malpractice must prove that a legal duty existed and was breached. As an example, in a case in which a veterinarian was sued for malpractice for allegedly failing to warn owners of the dangerous conditions that a puppy suspected of rabies posed to the owners, the court ruled that the plaintiff did not prove that the defendant veterinarian failed to exercise the degree of care that would have been exercised by an ordinary and prudent veterinarian under the same or similar circumstances.[35] Although there is no legal precedent to date, an argument may be made that veterinarians' responsibilities to their clients include a legal duty to exercise reasonable care to protect clients from injury caused by zoonotic diseases.[36] This duty may be inferred by the requirement for veterinarians to report some zoonotic diseases and the fact that the scope of veterinary practice includes public health. Thus, veterinary conduct that falls below the standard of care with regard to public health may result in claims of malpractice.

Standard of Care: Pitfalls to Avoid

With regard to the detection, treatment, and prevention of zoonotic diseases, there are several scenarios that involve a veterinarian potentially breaching the applicable professional duty of care. These include negligent failure to diagnose a zoonotic disease in an animal, failure to recommend preventive measures for common zoonotic diseases such as those caused by parasites, failure to advise clients with respect to dangers of keeping certain wild animals as pets, failure to refer the owner to a specialist for diagnosis or treatment of a species or condition that was not within the practitioner's expertise, and failure to advise a client to seek care from a physician in the case of potential zoonotic disease transmission.

Failure to recommend preventive measures— Many veterinarians fail to recommend preventive measures for common zoonotic diseases on the basis of a belief that such diseases carry minimal risk or that owners may refuse the recommended preventive measures.[37–39] The risk of zoonotic diseases may appear negligible because the incidence of such diseases in humans is low. In a legal context, however, risk is calculated by considering both the frequency and the severity of the harm. Thus, even for zoonotic diseases that are uncommon, the risk may be considered great if the potential damage associated with the disease is high. Similarly, courts may use a cost-benefit analysis to determine whether a veterinarian is liable for harm to a pet or owner. Thus, when minimal expenditure of resources by the veterinarian or staff could have prevented severe harm, the court may be more inclined to find the veterinarian at fault and liable for any resulting damages. This argument proved successful in bringing a product liability suit against a pet store for selling a parasitized puppy.[40,41] Product liability and veterinary malpractice are different legal claims. Nevertheless, a veterinarian may find it difficult to persuade a court that he or she should not be held liable for blindness in a child resulting from

ocular larval migrans associated with *Toxocara canis* transmitted by the family dog, when a short duration of time spent on educating the owner and providing an inexpensive parasiticide could potentially have prevented the child's condition. A 2008 CDC study[42] found that overall age-adjusted *Toxocara* seroprevalence in the US human population was 14%, and a California study[43] reported a 1% incidence of ocular toxocariasis in human patients examined at a referral clinic between 1977 and 1996 because of uveitis, with age of affected patients ranging from 1 to 37 years.

When a client declines preventive measures after a thoughtful discussion with the veterinarian, it is essential that this refusal be documented. In this way, the veterinarian negates the initial elements required for a negligence claim by documenting that there was no breach of duty or omission of required action to prevent unreasonable risk of harm. Ultimately, it is the client who provides treatment consent after receiving adequate warnings and information about the risk.

Importantly, if the duty to warn is not considered a veterinary function, it may not be covered by veterinary malpractice insurance. The AVMA Practice Liability Insurance Trust reviews each claim for malpractice insurance coverage on its own merits and does not have a general policy on whether counseling clients on potential exposure to infectious agents is considered the practice of veterinary medicine.[d]

Failure to advise clients on the dangers of exotic pets—The increase in popularity of exotic rodents and other pocket pets has resulted in importation of live foreign wildlife into the United States.[44] Because these species are commonly unregulated and caught in the wild, these pets may pose various health threats to their owners.[45] According to the 2007–2008 National Pet Owners Survey,[46] 63% of US households, or 71.1 million households, own a pet, with approximately 20 million households owning at least 1 exotic animal. Wild animals distributed through the commercial pet trade have been associated with outbreaks of human infections, and these nontraditional pet animal species may serve as a reservoir or a vector for the introduction of new pathogens.[47] The most recent example is the 2003 outbreak of monkeypox in the United States that was linked to prairie dogs and African rodents sold as pets. A lack of familiarity with exotic species may limit a veterinarian's ability to detect health threats in exotic pets or make appropriate health recommendations. Thus, it is important for veterinarians to refer clients who own any species that is outside the scope of their expertise. Failure to do so may be considered a breach of duty and create legal and administrative liability.

Educating clients on the potential risks of owning exotic pets and helping clients make an educated decision regarding ownership is arguably a veterinarian's ethical duty. Additionally, veterinarians need to be aware that some states have outlawed ownership of certain species and breeds on the basis of risks to public health or agriculture interests of the state. For example, ownership of prairie dogs and ferrets without an authorized permit is illegal in California,[48] even though ferrets can be legally owned without any special permits in many other states.

Failure to advise clients to seek care from a physician—It is important for veterinarians to provide clients with information regarding suspected zoonotic disease and advise them to seek medical attention. As previously discussed, successful zoonotic disease prevention and treatment is a collaborative effort. The failure to recommend that a client seek care from his or her physician may legally be viewed as a breach of the standard of care when a reasonable veterinary professional would recognize the need for making such a recommendation. As an example, in the case of *Helling v Carey*,[49] the plaintiff contended that she had lost her eyesight because the defendant ophthalmologist did not administer a simple test to determine that she had glaucoma. The defendant argued that failure to administer the test was not a breach of the standard of care because, at that time, intraocular pressure was not routinely measured in people who were < 40 years old because glaucoma was so rare in younger individuals. In contrast, the court found, as a matter of law, that a reasonable prudence standard should have been followed, which would have required performing a pressure test, and that in failing to do so, the ophthalmologist was negligent, which resulted in the patient's blindness. In the decision, the Washington Supreme Court concurring majority stated that

> a greater duty of care could be imposed on the defendants than was established by their profession. The duty could be imposed when a disease, such as glaucoma, can be detected by a simple, well-known harmless test whose results are definitive and the disease can be successfully arrested by early detection, but where the effects of the disease are irreversible if undetected over a substantial period of time.[49]

Causation

The third essential element in a claim for malpractice is causation. Importantly, determining causation involves determining whether the alleged negligent conduct was the actual cause of the injuries and whether the conduct was the proximate cause (also referred to as the legal cause). Proximate cause is a policy determination whereby the court may deem it unfair to hold an individual liable for all consequences that might result from an initial breach of duty. Generally, foreseeability of the injury is an important part of the proximate cause analysis. Some veterinary practitioners believe that the risk of a malpractice claim associated with zoonotic diseases is low because these diseases are relatively common in animals, and it would be nearly impossible to show that any particular animal was the cause of infection in a person. New technologies, however, permit the specific animal sources of certain infectious agents to be determined with a high degree of accuracy.[50] Use of these technologies could help support a claim of breach of duty as the proximate cause of injury and damages.

Damages

Damage awards for negligence consist almost exclusively of compensatory money paid to the injured party. Attorney fees can be awarded if provided for un-

der statute. The primary purpose of awarding compensatory damages in negligence cases is to restore the injured party and not punish the negligent actor, although punitive damages are sometimes allowed if the actions were intentional or reckless. Thus, for an animal that is injured through the negligent actions of a veterinarian, compensatory damages would include the fair market value of the animal and the value of any veterinary bills incurred because of the veterinarian's negligence. In contrast, compensatory damages for actions that result in an injury to humans would include general damages for pain and suffering and special (economic) damages related to past and future medical bills, lost wages, and loss of future earning capacity.

Requirements to Report Zoonotic Diseases

Some states impose a legal requirement to report certain zoonotic diseases to the appropriate authority. However, the requirements vary greatly among jurisdictions. Thus, the burden is on veterinarians to be familiar with the requirements in the states where they are practicing.

Liability Potential in the Workplace

To avoid liability, veterinary practices should consider what preventive measures need to be taken to provide safe work conditions.[51] Veterinarians may be held liable for harm to employees who contract zoonotic diseases in the course of their employment. For example, leptospirosis can be transmitted to people from animals through direct contact with contaminated urine, and dogs with leptospirosis usually shed the organism in the urine. Thus, animal caretakers and veterinarians are at risk for acquiring leptospirosis.[52] Most often, leptospirosis in veterinary personnel results from the collection or handling of urine without taking basic precautions, such as wearing latex gloves, or from the cleaning of contaminated cages or other fomites. In a 1986 New Jersey case,[53] a kennel employee died after contracting leptospirosis at a veterinary facility, and the veterinarian was sued for failure to provide a safe workplace. The parties reached a confidential settlement for an unknown sum midway through trial. More recently, the University of California, Davis, Veterinary Medical Teaching Hospital was sued by a former employee, with the court record including a statement, which was not disputed by the university, that the former employee had contracted leptospirosis.[54]

Under the Occupational Safety and Hazards Act, a business should take precautions to protect employees in the workplace who are exposed to blood or other potentially infectious material that could cause a zoonotic disease. Veterinarian practice owners therefore should consider implementing appropriate infection control practices. However, there are multiple common law defenses available to a veterinary employer that an employee would have to overcome to have a successful claim for a workplace-acquired zoonotic disease. In *Oliver v Scamps Pet Center*,[55] the court found that there was evidence to support a claim that psittacosis was an occupational disease under workers' compensation law. Similarly, an employee may be barred from suing his or her veterinary employer for injuries associated with a workplace-acquired disease if the parties were subject to workers' compensation laws.[56]

Practical Tips

Veterinarians should advise clients of the risks and benefits of specific courses of action related to the prevention and treatment of zoonotic diseases in their pets. Veterinarians have an ethical duty to advise animal owners to seek information from their own physician regarding the risks to human health. Additionally, it would be beneficial to offer to communicate with the physician if questions arose. Veterinarians should always record any public health advice provided to clients in their medical records. Information provided by veterinarians and staff should be documented in the medical record, along with the client's consent to or refusal of diagnostic testing and treatment of pets with potential zoonotic diseases. Veterinarians should obtain signed waivers from clients who refuse diagnostic testing or treatment. For example, written documentation should be obtained when clients have declined a fecal examination or parasiticide administration. This can be as simple as attaching a preprinted form to the medical record or including a signed notation in the medical record. Consent forms that can aid veterinarians in documenting clients' decisions are available.[57] However, any generic form should be reviewed by an attorney licensed to practice in the state where the form is being used. Documenting details of the interaction should be standard practice whenever clients refuse any recommended treatment but is even more important when the health of clients and their family is at risk.

Veterinarians can also decrease their liability by protecting employees from exposure to zoonotic agents. Infection control practices should be enforced, and staff should be provided and required to use personal protective equipment (eg, gloves, mask, and goggles) when handling any animals suspected to have a zoonotic disease, not just those animals in which infection has been confirmed. Many veterinarians are aware of the danger of human infection from animal diseases and parasites but fail to properly educate and document training of their staff regarding the dangers of these agents. General cleanliness practices such as hand washing and disinfection of the premises go a long way in preventing transmission of zoonotic diseases in the workplace. Online courses can provide a flexible, practical method of providing staff members information on zoonotic diseases.[58]

Conclusion

Zoonotic diseases are important both from a public health point of view and because of the effects they may have on veterinary license discipline and litigation. The increase in concerns about zoonotic diseases will have legal implications for veterinarians who fail to diagnose, prevent, or treat zoonotic diseases in animals or fail to advise their clients who potentially have been exposed to consult their physician. The requirement to report some zoonotic diseases to the appropriate authority places a legal duty on veterinarians with respect

to public health, and zoonotic diseases will remain an issue for workplace safety.

Veterinarians have an ethical duty to promote public health and should aim to achieve a higher standard of practice than is mandated by the law. Veterinarians may serve as leaders in the development of integrated strategies for the control and prevention of zoonotic threats posed by the convergence of humans, animals, and the environment. Veterinarians play a paramount role in public health and in developing cooperative partnerships designed to deal with some of the zoonotic threats we are facing. Veterinarians have the benefit of cutting-edge research and educational opportunities that provide them with the skills to excel and take leadership roles in the prevention of zoonotic diseases. By acknowledging this professional responsibility and continuing to strive for excellence in discharging their professional duties, veterinarians will prevent a breach in the standard of care and exposure to legal liability.

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