Why veterinary anesthesiologists are important for the wellbeing of both the patients and clients.

A shift on the paradigm of an antiquated system.

The field of anesthesiology dates back hundreds of years to the first anesthetic performed by William Morton at the Massachusetts General Hospital during which ether was used to allow the surgical removal of a tumor from the neck of Mr. Edward Abbott. Since the mid to late 1800s, the field of anesthesiology has drastically evolved with the invention of newer and safer anesthetics, analgesic drugs, and high tech monitoring devices. Alongside the evolution of drugs and monitors, the education of anesthesia providers and anesthesiologists continues to expand and become more specialized. It is interesting to note that the history of human and veterinary anesthesia is both parallel and intertwined. Often anesthetic research is developed and performed on animals first and then implemented in human medicine, while principles and developments made in human anesthesia are incorporated into veterinary medicine. Unfortunately, despite the parallels and similarities between human and veterinary medicine, the peri-operative and anesthetic mortality rates remain up to 100-fold higher in veterinary medicine.¹ This article examines the potential reasons why mortality rates are higher in veterinary medicine and how a more widespread use of veterinary anesthesiologists may help to decrease these numbers.
Anesthetic mortality rates in human medicine have drastically improved over the past few decades, especially in developed countries such as the United States, Canada, and much of Western Europe, with many studies quoting mortality rates of 0.05 to 10 per 10,000 administered anesthetics (0.0005 to 0.1%).\(^2\)\(^,\)\(^3\)\(^,\)\(^4\)\(^,\)\(^5\) Factors associated with increased mortality include airway management issues, anesthetics occurring during emergency hours, anesthetic and drug administration errors, blood transfusion delays, and anesthetics that occurred without medical direction by an anesthesiologist.\(^2\)\(^,\)\(^3\) All of these factors and more contribute to the increased anesthetic mortality rate, 0.17% in dogs, 0.25% in cats, 1.4% in rabbits (a few studies reported an overall death rate of 1.35%), noted by several studies in veterinary medicine.\(^6\)\(^,\)\(^7\)\(^,\)\(^8\)\(^,\)\(^9\) Risk factors associated with anesthetic deaths in veterinary medicine include increasing age, increasing ASA status (sicker patients), extremes of weight, procedures performed during emergency hours, endotracheal intubation in cats, and the use of injectable drugs vs. isoflurane for maintenance of anesthesia.\(^7\)\(^,\)\(^8\)

There are no veterinary studies to date that evaluate mortality rates for cases performed under direct supervision by an anesthesiologist vs. those performed by non-anesthesiologist practitioners.

There are many economic and environmental factors that make the involvement of anesthesiologists difficult for many clients and patients, including the extra cost of a specialty center, no availability of anesthesiologists in many regions of the country, and the fact that the vast majority of routine procedures are performed by primary care veterinarians in non-specialty centers. Due to these reasons, it is not realistic to think that veterinary medicine will ever follow the same path as human medicine in which anesthesia is administered for the most part by well-trained, boarded anesthesiologists or nurse anesthetists. But, this does not mean that veterinary medicine cannot improve upon its high anesthetic death rate as compared to humans. One way to start decreasing anesthetic mortality and providing safer anesthetics for small animals is to refer higher risk cases such as the ones listed above to centers with an anesthesiologist and well-trained anesthesia nurses or to educate clients on the option of having an anesthesiologist involved in their case.

A veterinary anesthesiologist is required to complete an internship year followed by a three-year residency focusing on all species. Anesthesiologists spend the three-year residency focusing on the various physiologic systems of the body and how anesthesia affects these systems. They also are highly specialized in the pharmacology of anesthetic and analgesic drugs and how these agents affect the cardiovascular, respiratory, renal, and neurologic systems. An anesthesiologist has been rigorously trained in how to design a careful, safe and patient-specific anesthetic protocol focused on the patient as a whole, from the time prior to arrival at the hospital into the recovery period. Often times, the anesthesiologist is the true patient advocate as they tend to be sheltered from the client’s requests and demands or other
factors that may bias decision-making. A patient under an anesthesiologist’s supervision will be monitored closely and continuously throughout the entire anesthetic event. This may vary in locations in which anesthesiologists are not present or in situations where the nurse involved in monitoring the patient is also responsible for the surgeon’s needs. In human anesthesia, pulse oximetry and capnography became standard required monitoring equipment in 1994, drastically reducing complications associated with the respiratory and cardiovascular systems.10 Unfortunately, this type of monitoring is often absent in veterinary medicine allowing subtle changes and clues to the patient’s respiratory and cardiovascular status to go unnoticed leading to increased rate of complications. Any patient under the care of an anesthesiologist will have complete monitoring of all body systems throughout the anesthetic period including pulse oximetry, capnography, ECG, blood pressure measurement (indirect or direct), and in many occasions anesthetic agent analysis. Anesthesiologists are also well trained in how to promptly and properly respond to changes in any of these variables, thereby reducing the chances of the occurrence of severe complications and/or death. Often times, veterinarians not well trained in anesthesia do not know how to respond or do not have the proper tools to respond appropriately to difficulties under anesthesia.

As veterinary medicine continues to evolve, procedures become more complex, and clients become more aware of the field of specialty medicine, anesthesiologists will play an increasingly important role in the care of both the clients and the patients. There most likely will never come a time in which veterinary medicine parallels human medicine exactly and patients will continue to undergo anesthesia without the oversight of an anesthesiologist due to the nature of veterinary medicine. Hopefully, in the future, referral centers will continue to realize the benefits of having anesthesiologists on staff, thereby providing a well-trained anesthesia staff and a safer anesthetic experience for the patient. Anesthesiologists will also continue to play a central role in the training of veterinary students, interns, veterinary technicians, and primary care veterinarians.
References:


