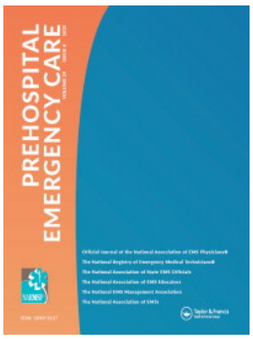

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Care of the Operational Canine in the Prehospital Environment – A Joint Position Statement and Resource Document of NAEMSP, NAVEMS, and VetCOT

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Care of the Operational Canine in the Prehospital Environment – A Joint Position Statement and Resource Document of NAEMSP, NAVEMS, and VetCOT

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ABSTRACT

The National Association of Emergency Medical Services Physicians (NAEMSP), National Association of Veterinary Emergency Medical Services (NAVEMS), and the American College of Veterinary Emergency and Critical Care's Veterinary Committee on Trauma (VetCOT) agree that the operational canine (OpK9) injured in the line of duty should be entitled to safe, efficacious, and ethical treatment and transport by prehospital personnel to higher levels of veterinary care. It remains clear that, in situations involving both human and OpK9 casualties, the priority of care and available medical resources should be directed toward preserving human life. The fact that there is currently no organized preveterinary care system in place to treat or transport the injured OpK9 drives the need for collaboration between the existing emergency medical services (EMS) system and the veterinary community.

- NAEMSP, NAVEMS, and VetCOT recommend:
- Operational canines injured in the line of duty should receive the highest level of resuscitative care, as close to the point of injury as possible, even without trained and licensed veterinary personnel.

Established veterinary and EMS organizations should:

- Create collaboratively-developed consensus-based guidelines, aligned with the EMS clinician's scope of practice, for providing prehospital preveterinary care of ill or injured operational canines.
- Support advocacy for legislation and policy development to ensure that prehospital preveterinary care is more readily available to operational canines.
- Promote increased awareness of the needs and challenges hindering prehospital preveterinary care for ill or injured operational canines.

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Introduction

Throughout history, canines have been used for service, protection, detection, companionship, agriculture, and war. From the very beginnings in 1907 within the New York Police Department, to their current role in the United States (U.S.) Military's involvement in the post-Global War on Terrorism, the public safety working canine is a resource that no sophisticated piece of technology has yet been able to replace (1).

Military canines have been a part of U.S. combat units since the beginning of World War II; however, formal canine medical training as a job requirement, and a standard for medical specialties in the Department of Defense, did not occur until the last decade. Military working dog (MWD) handlers were introduced to Canine Tactical Combat Casualty Care (K9TCCC) through on-the-job training. Standardized initial technical training was not initiated until 2014, when handlers received 40 h of education on the care and treatment of the ill and injured MWD (2,3). Similar to MWDs, civilian operational canines (OpK9s) remain subject to a high risk of preventable deaths, which could be mitigated by providing preveterinary care as close to the time of injury as possible. Baker et al., reported that MWDs who were treated at the point of injury, and survived their gunshot wounds, were able to return to full duty (4). Just as lessons learned from battlefield trauma have been adapted to civilian trauma care, the same has been done for the veterinary care of OpK9s. In 2014, K9 Tactical Emergency Casualty Care (K9TECC) was established to assist those in

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the nonmilitary sector caring for their OpK9s should they become ill or injured in the line of duty (LOD); subsequent guidelines were published in 2017 (5). Despite this progress, civilian handlers still find themselves undertrained to care for their canines in an emergency. For that reason, they may turn to their fellow first responders, including emergency medical services (EMS) clinicians, for assistance should their OpK9 become ill or injured.

For the purposes of this document, the term *operational canine* is defined to identify a specific subset of working canines owned, employed by, or assigned to a public safety entity that performs a public safety or emergency response function. This term is not meant to be used for companion or service animals as defined by the Americans with Disabilities Act or other protected terms by an authority having jurisdiction (6). Preveterinary care refers to medical aid rendered to the OpK9 in the prehospital setting by non-veterinary health care clinicians (e.g., EMS clinicians) trained in veterinary first aid.

In the civilian sector, the OpK9 fills a multitude of roles in public safety which inherently places them at risk for illness or injury while performing their duties (7,8). These roles, along with their potential injuries, are listed in Table 1. The number of OpK9s serving in the U.S. remains unknown, however, estimates indicate that approximately 40,000 to 50,000 are actively in service. The need for them continues to grow due to the Global War on Terrorism, increasing active shooter events, and natural disasters (9–13).

The National Association of Emergency Medical Services Physicians (NAEMSP), National Association of Veterinary Emergency Medical Services (NAVEMS), and the American College of Veterinary Emergency and Critical Care's Veterinary Committee on Trauma (VetCOT) agree that the OpK9 injured in the line of duty should be entitled to safe, efficacious, and ethical treatment and transport by prehospital personnel to higher levels of veterinary care. Whether the EMS clinician is willing to care for an OpK9, is adequately trained, and legally permitted to do so, varies across the country depending upon laws, rules, regulations, training opportunities, and awareness. This position statement and resource document aim to bring together the prehospital and veterinary communities to support bridging the care gap for nonmilitary OpK9s who become ill or injured in the LOD.

Methods

To inform this position statement and resource document, we conducted a search of the relevant literature on the illnesses and injuries sustained by operational canines in the military and civilian sectors. This search was performed in March of 2024, and included the following relevant search terms: operational canine, working dog, military working dog, law enforcement canine, search and rescue canine, veterinary EMS, prehospital veterinary care, pre-veterinary care, canine line-of-duty death, illness or injury. The reference sections of the identified articles were then reviewed for additional resources. We performed narrative reviews of the identified literature. We further reviewed the published best practice guidelines for the care of working dogs, K9TCCC, and K9TECC (3,5,9,14,15). Recommendations were informed by the compiled literature review and based on the consensus of the authors.

Discussion

Operational Canines Injured in the Line of Duty Should Receive the Highest Level of Resuscitative Care, as Close to the Point of Injury as Possible, Even without Trained and Licensed Veterinary Personnel

Like their human counterparts, OpK9s deployed in a tactical or high-threat environment are at a high risk of experiencing

Table 1. The roles of operational canines and their inherent risks.

Law Enforcement[a]				
Role	Description	Examples of Injury Risk		
Patrol/ apprehension	• Less-lethal force to effect arrest or apprehension • Psychologic deterrent to criminal behavior	• Penetrating trauma (gunshot and knife wounds) • Blunt trauma • Biohazards	Motor Vehicle Collision	Environmental Exposure (heat/ cold)
Detection	Illicit substances/drugs Articles of evidence such as shell casings, knives, currency, and electronic storage devices Explosives Accelerants such as gasoline, diesel fuel, lighter fluid, kerosene, and other ignitable liquid accelerants	• Toxic exposures • Penetrating trauma • Blunt trauma • Blast Injuries • Soft tissue injuries • Biohazards		
Tracking	Live find or remains detection			
Search and Rescue[b]				
Urban Wilderness/ Austere	Live find – missing living person Recovery – human remains/cadaver	• Penetrating trauma (sticks, debris) • Paw pad and other soft-tissue injuries • Orthopedic injuries • Environmental stressors • Envenomation		

[a]Police, Fire, Fish & Game/Warden.
[b]Can be professional or volunteer governmental or non-governmental agencies.
Adapted from: Law Enforcement Policy Center. Patrol Canines: May 2015. Virginia: International Association of Chiefs of Police. [accessed 2024 June 13]. https://www.theiacp.org/sites/default/files/2020-06/Patrol%20Canine%20FULL%20-%2006232020.pdf.
and National Police Dog Foundation: K9 training and equipment. [accessed 2024 July 22]. https://www.nationalpolicedogfoundation.org/k9-training-assistance.

LOD injuries and death. There is no nationwide database that captures all OpK9 LOD deaths or injuries. The available evidence comes from retrospective analyses collected from past disaster events, law enforcement memorial websites, and veterinary trauma registries. The best collective data describing causes of LOD deaths for law enforcement OpK9s originates from reports provided on memorial websites such as the Officer Down Memorial Page (16). Since 2013, anywhere from 20 to 34 LOD deaths have been recorded annually (17). This likely underestimates the actual number of OpK9s killed each year.

Leading causes of prehospital mortality in the OpK9 are commonly due to environmental factors such as heat-related illnesses, vehicular trauma, and penetrating injuries. Law enforcement canines, specifically, are at a higher risk of injury and death from motor vehicle collisions, penetrating trauma, and toxic ingestions (18,19). Regardless of their role, heat-related illness remains the leading cause of death for all OpK9s and should be included in all education and training (20). Non-fatal illnesses and injuries are not reported on the memorial websites, but based on the literature, these canines are at risk of soft tissue and orthopedic injuries, exposure to toxins and envenomation, and other environmental threats (21–25).

The burden of on-scene care falls on the OpK9 handler, who often has little to no training in how to care for their ill or injured canine, or who may be injured and unable to render aid themselves. Although there are certainly anatomical and physiologic differences between human and canine casualties, there are enough similarities that allow for the education of EMS clinicians to provide point-of-injury care, within their scope of practice, for life-threatening injuries and illnesses sustained by the OpK9. Examples of potentially life-saving, time-sensitive treatment include management of massive hemorrhage, airway and respiratory emergencies, prevention and management of heat stroke, as well as recognition and treatment of toxic exposures. We know, from our military counterparts, that training non-veterinary paraprofessionals in canine point-of-injury care decreases preventable deaths for military working dogs (4,26). We extrapolate from this that the same could be achieved in the civilian sector, if we appropriately train and allow EMS clinicians to render similar care.

Established Veterinary and EMS Organizations Should Create Collaboratively-Developed, Consensus-Based Guidelines, Aligned with the EMS Clinician's Scope of Practice, for Providing Prehospital Preveterinary Care of Ill or Injured Operational Canines

Emergency medical services systems are already in place to provide emergent medical care on scene to humans. Therefore, it is more feasible to house OpK9 emergency care under the capabilities of these established systems by training EMS clinicians to manage canine emergencies rather than to train veterinary clinicians to work in the prehospital setting, particularly in tactical or high-risk environments. Establishing a partnership between EMS agencies and local veterinary treatment facilities is necessary to achieve a preveterinary system of care. The medical directors of services who routinely work alongside OpK9s, and are interested in providing care, should collaborate with their local veterinarians to develop veterinary-approved guidelines based on the training and resources available to EMS. The term "guidelines" is used to refer to clinical care guidelines, protocols, and similar standards, acknowledging that their definitions may vary from state to state. This will also help create a line of communication between the EMS service and the local veterinary treatment facility to discuss any on-scene care and answer questions while managing an injured OpK9. Additionally, this partnership will encourage and help cultivate training opportunities and continuous education in canine emergency (preveterinary) care, focusing on the most common line-of-duty illnesses and injuries.

The National Association of Emergency Medical Services Physicians, the National Association of Veterinary EMS, and the Veterinary Committee on Trauma recognize the need to partner to address the gap in preveterinary treatment and transport of our valuable OpK9 partners. In support of this, NAVEMS has established a recommended scope of practice for EMS clinicians caring for OpK9s and the core content that should be included in their education (27). The VetCOT continues to work on establishing a trauma system with designated Trauma Centers (Table 2) and creating a Veterinary Advanced Trauma Life Support Course for veterinary clinicians (28). More information regarding NAVEMS and VetCOT can be found in Table 3.

The collaboration between the EMS and veterinary communities can foster common objectives, terminology, and measurements of outcomes to create a *system of care* that both communities can use to improve patient care. Collaboration will also facilitate the further development of evidence- and consensus-based guidelines to advance the care of these canines and further the education of our clinicians. The NAVEMS is committed to developing these standards harmoniously with the current EMS system. Similarly, VetCOT is committed to fostering and supporting the collaboration between the EMS and veterinary communities (Figure 1). Emergency medical services organizations are encouraged to reach out for resources, guidance, and training for EMS professionals.

Established Veterinary and EMS Organizations Should Support Advocacy for Legislation and Policy Development to Ensure That Prehospital Preveterinary Care is More Readily Available to Operational Canines

The ability of EMS to render on-scene care to an OpK9 has been hindered by state laws that regulate veterinary medicine and EMS. Until recently, state EMS practice acts did not include language that legally allowed EMS clinicians to render emergency medical care to animals (29–32). Similarly, each state/territory has an established Veterinary Practice Act (VPA) or legislative code/statute that defines the requirements to practice veterinary medicine. Most states' VPAs prohibit medical care performed on an animal by non-veterinary licensed personnel, otherwise known as "practicing veterinary medicine without a license"; therefore, such acts violate state

Table 2. Veterinary trauma centers.

Level	Responsibilities	Hours
I	• Acute care facility with the ability to provide complete care for every aspect of the management of the small animal trauma patient from emergency stabilization through definitive medical and surgical care, and rehabilitation • Specialists in the field of emergency and critical care, surgery and radiology are on staff and available for consultation 7 days a week • Specialists in anesthesiology, neurology, internal medicine, cardiology, ophthalmology on staff and available during standard business hours • Responsible for providing leadership in education, training veterinarians and veterinary technicians and contributing to research	24 h a day, 365 days a year
II	• Acute care facility that has specialists in emergency and critical care, surgery, and internal medicine on staff • Radiologist available for consultation • Responsible for research contribution	24 h a day, 365 days a year
III	• Stabilizes trauma patients • Manages less severely injured trauma patients • Not required to have veterinarians with specialist qualifications on staff	Varies

https://vetcot.org/veterinary-trauma-center-verification/

Table 3. National association of veterinary EMS and veterinary committee on trauma.

National Association of Veterinary EMS			
About		Resources	Website
501(c)3 nonprofit Membership includes canine handlers, EMS clinicians, physicians, and veterinary medicine professionals	**Vision:** To serve as the unifying organization that provides education fosters advocacy and develops evidence-based, best-practice initiatives for veterinary prehospital care and Veterinary EMS. **Mission:** To foster a collaborative working relationship between the veterinary and human health care prehospital communities to enhance the awareness, knowledge, availability, and advancement of prehospital veterinary care.	• Scope of Practice • Core Content • K9TECC information	https://navems.org/
Veterinary Committee on Trauma			
Subcommittee of the American College of Veterinary Emergency and Critical Care	**Purpose:** To create a network of lead veterinary hospitals that seed the development of trauma systems and education across the nation Defines in-hospital standards of care.	• Verification of Veterinary Trauma Centers • Trauma Registry	https://vetcot.org/

Canine Tactical Emergency Casualty Care (K9TECC).

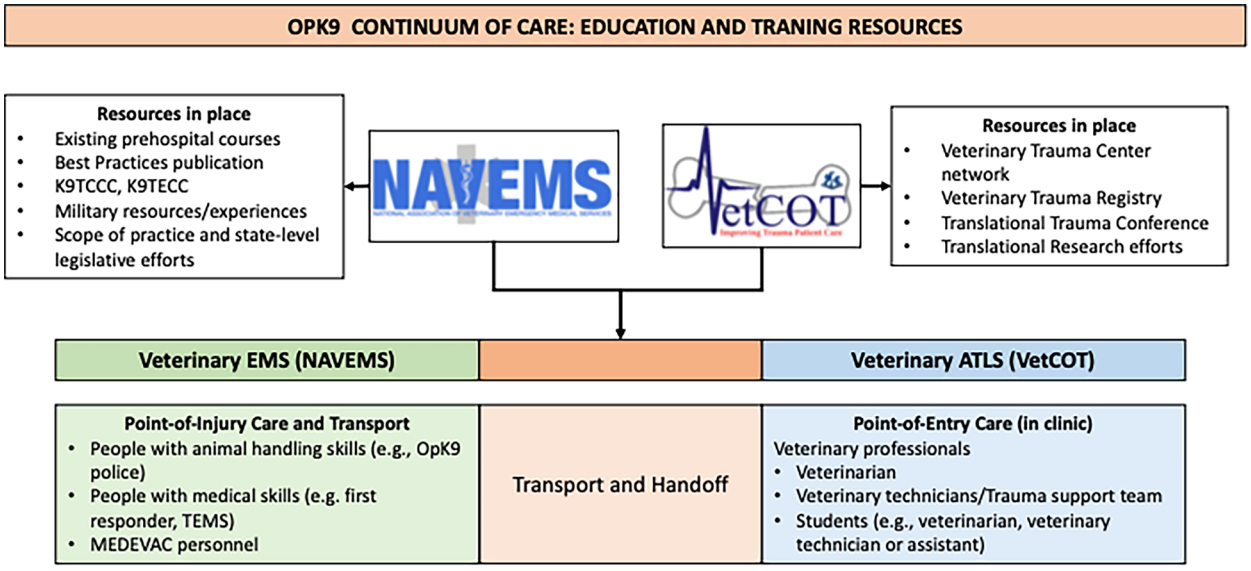

Figure 1. OpK9 Continuum of Care: Education and Training Resources.
National Association of Veterinary EMS (NAVEMS); Veterinary Committee on Trauma (VetCOT); Canine Tactical Combat Casualty Care (K9TCCC); Canine Tactical Emergency Casualty Care (K9TECC); Operational Canine (OpK9); Tactical Emergency Medical Services (TEMS), Air Medical Evacuation (MEDEVAC); Veterinary Advanced Trauma Life Support (VetATLS)

law. Although most states' VPAs outline exemptions to "practice of veterinary medicine without a license," none of the exemptions explicitly outline a provision for non-veterinary paraprofessionals to render lifesaving emergency prehospital care to OpK9s to the level of their scope of practice without the direct or indirect supervision of a licensed veterinarian.

Collaboration between prehospital EMS clinicians and veterinary stakeholders for OpK9 management in the

prehospital environment is necessary for successful, legal, and safe treatment and transport of OpK9s. The passage of the first legislation supporting the treatment and transport of injured OpK9s in the field occurred in 2014 in Colorado (33). According to a study conducted in 2023 by Schoenfeld et al., since 2014, at least 20 states have enacted state-level veterinary EMS legislation, with a handful more states engaged at some level of the legislative process to do the same (31). The fact that numerous veterinary EMS laws have been passed in less than a decade illustrates the national-level importance and need for preveterinary care and a collaborative veterinary EMS working relationship.

The extent of veterinary care allowed by a first responder varies from state to state, however, most allow the provision of care to the scope or level of practice the first responder possesses for human patients. In most states, preveterinary care legislation provides immunity for EMS clinicians to render emergency prehospital care to OpK9s without the direct or indirect supervision of a licensed veterinarian and immunity for veterinary personnel who provide training in veterinary prehospital care to EMS.

Some states have VPAs with an exemption similar to a Good Samaritan Law (GSL) that allows some provision for non-veterinary persons (e.g., EMS clinicians) to render emergency life-saving, prehospital care to animals. The qualifications for the GSL vary from state to state. Not all state VPAs possess a GSL for non-veterinary responders. Therefore, EMS clinicians should not assume that their actions will automatically fall under the protection of a GSL in all states. Without an explicit legal authority defined in the state's legislative codes, the EMS community remains open to liability and legal reprisal risks when and if they choose to render out-of-hospital emergency care to an OpK9.

At the national and state levels, efforts are underway to ensure that EMS clinicians receive the appropriate training to render prehospital veterinary care. For each state, the standard training EMS clinicians receive in the care of the OpK9 should be developed in consultation with a licensed veterinarian and in good standing for that state. An example of this collaboration can be found in Maine. Along with enacting its preveterinary care legislation in 2018 (34), a collaborative multidisciplinary working group in Maine developed a one-day basic and a three-day advanced OpK9 Veterinary EMS course that is open to EMS clinicians, veterinary professionals, OpK9 handlers, and other paraprofessionals across New England. New Hampshire offers similar courses (35). Maine further developed the first official OpK9 veterinary EMS state protocols for EMS clinicians and secured their longevity *via* further legislative efforts (36,37).

It is important to note that, in some states, the enacted legislation has included mandates. For example, the Massachusetts' "Nero's Law" requires all EMS clinicians to receive training in canine basic-level first aid, cardiopulmonary resuscitation, and life-saving interventions. Arizona's Preveterinary Care Act requires the transport of the injured OpK9 with few exceptions (38,39). The repercussions of these mandates should be considered when promoting legislation in your state. The lack of associated funding to support creating and disseminating the education, paying clinicians overtime to obtain the training, and purchasing canine-specific equipment can pose a significant burden on many services. The terms "must" and "shall", though supportive of the cause, can have negative fiscal and operational impacts on services. A term such as "may" allows for flexibility and adaptability in the creation of the training, education, and transport mechanisms and allows the service to foster relationships, not only with handlers and their canines, but with the veterinary community as well. Not every EMS service will routinely work with or transport the OpK9s, hence, this training should be focused on those who do routine work with these canines (e.g., tactical EMS clinicians, wilderness EMS, and urban search-and-rescue teams).

Established Veterinary and EMS Organizations Should Promote Increased Awareness of the Needs and Challenges Hindering Prehospital Preveterinary Care for Ill or Injured Operational Canines

Veterinarians and veterinary organizations should remain cognizant of the relevant EMS demographics within their local, regional, and state EMS organizations. While these details may vary from state to state, they may also vary in each locality. Scope of practice and the ability to transport may vary from one jurisdiction to another. Therefore, veterinarian organizations hoping to develop collaborative relationships with local EMS partners should be aware of the governing bodies that oversee the activities of their EMS agencies. Differences in comparative anatomy and physiology between canines and humans may warrant a deviation from an EMS clinician's scope in order to provide optimal care to an injured OpK9. Changes to allow scope variation require the support and buy-in of EMS medical directors (at the state, regional and/or local level), operational leadership, and clinical supervisory leadership to jointly develop clinical care guidelines and cooperative agreements in case of mutual aid needs.

Access to and funding the initial and continuing education is another challenge facing prehospital care for OpK9s. As mentioned previously, it may be more fiscally appealing to train only the EMS clinicians who are most likely to come into contact with the OpK9s (e.g., tactical, wilderness, and search-and-rescue teams).

The need to treat an OpK9 is a low-frequency, but can be a high-acuity event. Personal safety should be considered when handling injured OpK9s. To mitigate occupational safety hazards while rendering aid, EMS clinicians should train with canine handlers to familiarize themselves with common approaches and practices to low-stress canine handling. Ideally, EMS clinicians should receive training on performing physical exams, obtaining vital signs, performing safe canine handling and restraint, and gaining familiarity with extrication techniques for injured OpK9s. Additionally, it is important that EMS clinicians appreciate the strong bond between a handler and their OpK9 partner. This includes learning about the role the handler serves through the continuum of care for their OpK9. Handlers advocate for their canine, provide pertinent medical information, and help ensure the safety of all clinicians by providing obedience commands, low-stress handling, and muzzling.

States and municipalities should determine whether their existing legislation (if any) regarding prehospital emergency medical treatment of OpK9s allows for transportation in a standard ground or air ambulance. Stakeholders in ambulance services and fire departments are advised to develop standard operating procedures for transporting and treating injured OpK9s in their service area, including identifying and collaborating with dedicated veterinary receiving facilities with whom they will coordinate continuity of care for injured animals. Considerations for receiving facilities include location, resources like blood product availability, 24-h coverage, and familiarity with these specialty-trained canines. It is essential to understand that not all veterinary facilities can provide definitive trauma care support for canines. Failure to identify an appropriate veterinary facility can delay the time to definitive care and decrease the OpK9's chance of survival.

Conclusions

There is increased demand for the use operational canines in the U.S. Their duties come with inherent occupational hazards that place them at high risk for line-of-duty injuries and death. The lack of a veterinary EMS system, uniform preveterinary care legislation, and published standards for training in canine preveterinary care place the ill or injured OpK9 at a higher risk for mortality. Collaborative work between veterinary and EMS organizations to address these gaps will likely decrease the morbidity and mortality of these valuable assets.

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Author Contributions

LP, AY, and KZ conceived the position statement and resource document. KZ, LP, and AY oversaw the writing of the resource document. RM, LP, and KZ drafted the point-of-injury section; Collaboration section drafted by RMH, KH, and EH; Legislation section drafted by KJ and LP; Awareness section drafted by JS, RH, and KJ. All authors contributed to the revision of the manuscript. All authors take responsibility for the manuscript as a whole.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Declaration of Generative AI in Scientific Writing

The authors did not use a generative artificial intelligence (AI) tool or service to assist with the preparation or editing of this work. The author(s) take full responsibility for the content of this publication.

External Review

This document was created by NAEMSP, NAVEMS, and VetCOT.

Updating Procedure

Pursuant to NAEMSP Standards & Clinical Practices Committee procedures and practices, this position statement and resource document will be reviewed and updated five years after its publication. Applicable NAEMSP review and revision practices that are current as of the time of the review will be followed. At a minimum, the review process should include a search and synthesis of any new and relevant evidence published since the printing of this document.

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