

Operational K9 Tactical Emergency Casualty Care (K9-TECC) Training and K9 Individual First Aid Kits (K9-IFAK) White Paper

In June 2015, the Interagency Board (IAB), Health, Medical and Responder Safety Subgroup published a White Paper describing the mission-appropriateness of having tactical emergency casualty care (TECC) and the use of individual first aid kits (IFAK) incorporated into the basic training and equipment issued for all local emergency responders. (www.iab.gov) The K9-TECC working group advocates the same recommendations for all K9 Handlers and all EMS agencies that support Operational K9 teams.

Operational K9s (OpK9s) consists of Police canines, Military Working Dogs, Force Protection canines, and Search and Rescue (SAR) canines. These animals have continuously proven to be a force multiplier in the success of many military, law enforcement, SAR, and humanitarian operations. The Operational K9 selflessly dedicates their lives to protect us, defend us, and lead the way in times of danger. Current active shooter, military operations, and disaster events over the past couple of decades, and even more recently, have increased the demand for these invaluable operators. The increased utilization of these operational working animals across the globe has also subjected them to an increase in risk of injury and death while in the line of duty. Similar to their human counterparts, working animals deployed in a tactical or high threat environment also remain at high risk for suffering life-threatening traumatic injuries.

As of August 2015, the K9 Officer Down Memorial Page (ODMP) (<http://www.odmp.org/k9>), has reported nineteen Line of Duty Operational K9 deaths for 2015. These causes of K9 deaths were classified into: Animal related: 2; Automobile accident: 1; Drowned: 1; Fire: 2; Gunfire: 3; Heat exhaustion: 8; Poisoned: 1; and Struck by vehicle: 1. The most recently reported was on 12 Aug 2015 when Falko, a Toledo Police Department K9, was shot and killed in the line of duty while chasing down a pair of suspected car thieves into a vacant house in Ohio. On the same day, Wix a Brown County Sheriff's Office Police K9 succumbed to heat stroke after the air conditioning unit and heat monitoring alarm failed inside the patrol car. These are just a few of the Op-K9 deaths that have been reported on the K9 ODMP; no doubt, there are more Op-K9 deaths that have not been recorded on the K9 ODMP. Stojasih et al. conducted an analyses on the causes of death of civilian law enforcement canines from 2002 to 2012 as reported on two working dog and law enforcement officer memorial websites. Their analyses revealed 36.7% (318/867) of reported canine deaths were categorized as traumatic in nature. The three leading reported causes of traumatic canine deaths included: vehicular trauma, 25.8% (82/318); heatstroke, 24.8% (79/318); and penetrating ballistic trauma, 23.0% (73/318). Despite the limitations of this review (e.g., retrospective in nature, inability to validate the data, etc.), the analyses does provide some insight into the nature and risk of injury OpK9s are exposed too while in the Line of Duty.

Veterinary personnel and resources for provision of out-of-hospital, point of injury care for injured K9s remains grossly lacking as veterinary personnel do not deploy with a K9 team or as part of a rapid Tactical EMS response.

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Dedicated civilian EMS systems and evacuation assets do not currently exist for injured animals, nor are most civilian EMS personnel trained to render emergency medical aid to injured animals. This combined lack of readily available point of injury care and high-risk of traumatic injury are a recipe for high mortality rates for these invaluable K9s. As an invaluable member of our team, OpK9s require access to the same out-of-hospital care equal to the best human pre-hospital trauma care standards available in order to ensure their continued survival and value to our society.

Another major hindrance for providing timely and appropriate prehospital care to injured OpK9s, lies in that lack of knowledge and training K9 Handlers and EMS providers have in K9 first responder care. In the field, the handler, TEMS medic, or other LE Officer or Tier-1 operator assumes the roles of a K9 First Responder. Unfortunately, civilian K9 Handler courses dedicate very little, if any, time towards teaching K9 health and welfare, anatomy, or first aid to Handlers. Many civilian handlers are not even taught how to perform a basic physical examination or assess the basic vital parameters (pulse rate, respiratory rate, capillary refill time, etc.) on their K9 partner. Without this basic knowledge, it becomes impossible for handlers to delineate normal from abnormal or know when or how to intervene when their partner is in trouble.

Similarly, EMS providers receive little to no training in basic K9 first aid, let alone emergency trauma care. When EMS providers are faced with providing prehospital care to K9s, they have to fall back on their medical knowledge of humans; however, distinct anatomic and physiologic differences (e.g., sites for venous access, insertion sites for needle decompression, technique for endotracheal tube intubation, etc.) between the two species prohibits the direct extrapolation of human medicine to Op-K9s. Some of the issue surrounding the lack of training for EMS providers falls upon the controversies surrounding the: EMS scope of practice for non-human patients; what each state's Veterinary Practice Acts (VPA) constitutes as "*practice of veterinary medicine without a license*"; and the potential concern for the transmission of zoonotic pathogens when handling animals. The scope of practice for each EMS provider level is defined on a State by State basis and is further defined by the medical director for each EMS organization. Currently only Colorado has approved a bill (Senate Bill 14-039) granting limited authority to state EMS personnel for rendering voluntarily emergency preveterinary care to dogs (to include Operational K9s) and cats. The exemptions for practicing veterinary medicine without a license is governed by each state's VPA. At present, no state VPA has language that specifically allows or prohibits the administration of emergency prehospital care to injured Operational K9s by non-licensed veterinary personnel; however, many of the State's VPAs has language that could be subjectively interpreted as allowing prehospital care by non-licensed veterinary personnel. Further discussion regarding the current issues surrounding EMS scope of practice and stipulations cited by current VPAs that limit EMS agencies from providing injured Op-K9s prehospital care are addressed in the White paper entitled, "*Challenges Facing Prehospital Care for Operational K9s Injured in the Line of Duty*"

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Advanced medical interventions and knowledge are not required to save K9 lives in the field. Similar to human trauma casualties, the majority of life-threats in OpK9s may be mitigated with implementing basic first aid techniques that can be taught to all first responders (e.g., hemorrhage control via direct pressure and pressure dressing, needle decompression, etc.) On the battlefield, a retrospective analysis by Baker et al. revealed that MWDs suffering gunshot wounds were successfully treated for life-threatening injuries at the point of injury by non-veterinary, paraprofessionals. Similarly, accounts of other OpK9s injured in the line of duty being provided life-saving medical care in the field by non-veterinary personnel have also been reported from other non-military organizations. It remains intuitive that without these basic life-saving first aid interventions, many of these K9s would have succumbed to their injuries before making it to a veterinary treatment facility. Once again, considering the invaluable role OpK9s play as a force multiplier, it remains imperative that K9 units as well as veterinary and EMS communities partner together to ensure emergency prehospital care is readily available for OpK9s injured in the line of duty.

It is known that the time elapsed between the point of injury (POI) and reception of definitive care plays a critical role towards influencing overall survival; this period of time has become known as the “Golden Period”. During this time, interventions to mitigate circulatory shock and traumatic injuries take priority to ensure the best survival potential for the casualty. For severely injured trauma patients (e.g., severe head injury, massive internal hemorrhage), it is imperative to limit scene time to as short as possible and direct efforts to hasten transport and evacuation to definitive care. As cited in the IAB white paper, “*The window of opportunity for critical, live-saving interventions can be lost with even short delays in care after penetrating trauma*”. On the human side, steps have been taken to provide LE Officers with basic medical training and equipment (e.g., tourniquets, hemostatic gauze, etc.) to provide self- and buddy-aid to injured officers at the POI. Various accredited courses [Tactical Combat (or Emergency) Casualty Care (TCCC / TECC) and Law Enforcement First Responder (LEFR)] have been developed to train and certify LE and EMS/Fire personnel to provide POI care while under a high threat situation.

Unlike in human EMS, standardized training programs or guidelines [e.g., Prehospital Trauma Life Support (PHTLS)] specific to veterinary casualties do not currently exist. The American College of Veterinary Emergency and Critical Care, Veterinary Committee on Trauma, is currently developing best practice, veterinary prehospital care guidelines; however, these guidelines were developed with a non-tactical environment in mind.

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Although Canine-TCCC guidelines are available, these are military based and have significant limitations when trying to apply these guidelines to the civilian Operational K9 serving in a civilian tactical environment. (e.g., available resources, occupational hazards, injury risks, etc.) (Palmer *et al.*, JSOM 2015)

Considering their significant contribution to achieving mission success and their high risk for sustaining life-threatening injuries, it is evident that standardized prehospital trauma care principles for OpK9s need to be developed and taught to any first responder (handlers, EMS/Fire, TacMeds, etc.). Standardization of prehospital guidelines, medical training and equipment supplied to handlers and EMS personnel is necessary to enhance pre-hospital care and improve survivability for Operational K9s injured in the Line of Duty.

The K9 TECC working group was formed in 2014 under the auspice of Committee of Tactical Emergency Casualty Care (www.c-tecc.org) with the goal of developing the best practice prehospital care recommendations for Operational Canines injured in the Line of Duty. The working group consists of experts in the field from veterinary medicine, human EMS/Fire, tactical medicine, military Special Operations, local and federal law enforcement, and search and rescue. A draft of the initial K9 TECC best practice recommendations should be available by early 2016. The K9 TECC working group also takes on the role of evaluating best practice recommendations for field equipment and first aid kits, defining prolonged field care best practice recommendations, and fostering scientific research towards improving Operational K9 performance and health.

The K9 TECC working group recommends all K9 Handlers and EMS personnel that support Operational K9 Teams receive at least four hours of basic K9 medical training. The training, at minimum, should include:

- Basic K9 Anatomy & Physiology
- How to approach, restrain, and work around K9s
- How to Conduct a Systematic Thorough Physical Examination
- How to Obtain and Monitor Vital Parameters

Additional mandatory training should include four to eight hours specifically-related to the concepts of K9 TECC and the appropriate non-veterinary first responder application of K9 TECC in relation to active threats. The skills trained will depend upon the scope of practice and level of training of the responder (*e.g., certified paramedics may be trained in advance techniques such as IV/IO catheterizations and cricothyrotomy*)

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K9 TECC training should include both didactic and scenario-based practical applications of the following concepts:

- Phases of Care (Direct Threat, Indirect Threat, Evacuation)
- Hemostasis / Hemorrhage control
- Airway management (+/- Advanced Airway Procedures)
- Respiration - Open Chest Wound, Needle Decompression
- Circulation + Shock Management
 - Prevent hypothermia
 - IV + IO Catheterization
 - Fluid therapy
- Stabilization of Head / Spine Trauma in the field environment
- Gastric Dilatation & Volvulus (GDV) (aka. “Bloat”)
- Heat & Cold Injuries
- Expedient lifts/moves/carries

Additional consideration for expanded training should be given to the following, depending on the missions of the K9 team(s) and EMS agencies:

- Non-Tactical Related Injuries / Techniques
 - Environmental Injuries
 - Altitude
 - Bites and stings
 - Field Management of Wounds and Fracture & Bandaging
 - Burn Wounds and Ocular Injuries
 - K9 Decontamination procedures
- Basic concepts of triage and mass casualty management
- Pre-Mission Threat Analyses
 - Identifying locations and capabilities of local Veterinary Treatment Facilities
 - Identifying evacuation routes and assets for injured K9s
 - Traditional fire/EMS transportation versus rapid transport via police or other non-medical vehicles
- Scene Size-up – Scene Safety
- Standard precautions/principles of body substance isolation (BSI)
- Scenario-based practical applications

★**REFRESHER TRAINING:** it is highly recommended that K9 Handlers and non-veterinary paraprofessionals receive at least four to eight hours of refresher or continuing education training in K9 FIRST RESPONDER care on an annual basis ★

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K9-IFAK

On a final note, care for the K9 casualty may be hampered by lack of evacuation resources and / or medical supplies as these resources may be allocated too and exhausted by the concurrent presence of mass human casualties. The IAB also recommended that an individual first aid kit (IFAK) be issued to each LEO trained in POI medical care. The recommendation for all K9 Handlers to obtain and carry an IFAK specifically for their K9 (K9-IFAK) is also a recommendation made by the K9 TECC working group.

The K9-IFAK should be solely dedicated to the K9 and not be incorporated or considered the same as the Handler's personal IFAK. In other words, the Handler should carry two IFAKs, one for their personal use and one for their K9. The contents of the K9 IFAK do not need to meet any specific military or TCCC specifications; however, prior to purchasing equipment and stocking the K9 IFAK consultation with a veterinarian versed in prehospital trauma care is recommended to ensure selection of the most applicable contents for the K9-IFAK.

The K9-IFAK should be carried during all missions in order to meet immediate needs under the **Direct Threat Care** Phase of K9 TECC. At minimum, the K9 IFAK should include equipment necessary to mitigate the following life threats at the point of wounding:

- Massive hemorrhage
- Tension pneumothorax
- Open chest wound
- Gastric decompression (GDV)

Consider stocking the K9-IFAK with:

- Muzzle, quick release, 1 each
- Non-latex Glove, 1 pair
- Gauze, hemostatic impregnated, 1 packs [or Compressed cotton gauze, 1 roll]
- Pressure Bandage, elastic (Olaes®, Ace®, Coban®, or VetWrap®), (1 each)
- Tourniquet – SWAT-T or Cravat bandage for improvised tourniquet
 - *Use as a last resort for uncontrolled extremity hemorrhage in K9's*
 - *Avoid human commercial windlass-style tourniquets, not effective in K9s*
- Dressing, occlusive, (e.g., Vented Chest Seal or Plastic Sheet / Saran Wrap), 1 each
- Lubricant, sterile water soluble, 5 gram packets, 5 packets
 - *Used for sealing chest seal when covering open chest wounds (fur may prevent adequate seal)*
- Adhesive water-proof tape, medical, 1 inch width, 1 roll
- Needle Decompression Device, 14 gauge x 3.25 inch, 2 each
- Digital Thermometer, 10 second, 1 each

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Additional K9 IFAK items for consideration:

- Surgical tissue adhesive, 1 tube
- Adhesive tape (Elastikon® or Duct Tape), 3 inch width, 1 roll
- Shears, trauma, 7 inch length, 1 each
- Small Mylar reflective thermal blanket, 1 each
- Zippered bag with compartments or elastic straps holding IFAK contents in place. The exterior of the bag should have multiple attachment points, allowing it to be mounted in a vehicle, on a backpack or on a duty belt.

** Please contact the chair of the K9 TECC working group at lee@uwsoc4.us with any comments, feedback, and questions.

**Law Enforcement Tactical Emergency Casualty Care (TECC) Training and
Individual First Aid Kits (IFAK) White Paper**

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