

New Hampshire Department of Safety
Division of Fire Standards and Training &
Emergency Medical Services

Prerequisite Protocol
Operational K9
Administrative Packet
2024





NH Department of Safety
Division of Fire Standards and Training &
Emergency Medical Services
Prerequisite Protocol
Application Form

EMS Unit Information

EMS Unit Name:

Address:

Head of Unit:

Title:

Email:

Telephone:

Fax:

Clinical Coordinator (PIFT):

Email:

Telephone:

Medical Direction

Medical Resource Hospital:

Medical Director:

Email:

Telephone:

Prerequisite Protocols (Select all that apply)

- | | |
|---|---|
| <input type="radio"/> Advanced Sepsis, 7.0 | <input type="radio"/> Operational K9, 7.5 |
| <input type="radio"/> Critical Care Transport, 7.1 | <input type="radio"/> Pilot, 7.6 |
| <input type="radio"/> Immunization, 7.2 | <input type="radio"/> Point of Care Ultrasound (POCUS), 7.7 |
| <input type="radio"/> Interfacility Transport (PIFT), 7.3 | <input type="radio"/> Rapid Sequence Intubation (RSI), 7.8 |
| <input type="radio"/> Mobile Integrated Healthcare (MIH), 7.4 | |

Required Documents

1. Written recommendation from the Medical Director.
2. Written recommendation from the EMS Unit leader and testament that the providers completed the required training.
3. Provide list of eligible providers.
4. Provide copy of your Quality Management plan as it pertains to the prerequisite protocol(s) applying for.
5. Any additional documentation required specific to the individual prerequisite protocol.

Unit Head's Signature: _____ Date: _____

Medical Director's Signature: _____ Date: _____

Operational K9 Prerequisite Protocol

LICENSURE:

- NH EMS Licensed Provider.

EXPERIENCE:

- None.

EDUCATION:

- Education that meets or exceeds the requirements outlined in this prerequisite protocol.

MEDICAL DIRECTION:

- Medical Director approval.

RECOMMENDATIONS:

- The Medical Director and the EMS Unit leader must mutually agree to participate in the program.
- Written recommendation from the Medical Director.
- Written recommendation from the EMS Unit leader and testament that the providers completed the required training.

QUALITY MANAGEMENT:

- The QM program will incorporate all the components of an EMS QM program as specified in Administrative Rule Saf-C 5921.

REPORTING:

- The EMS Unit will participate in electronic data collection as required by the FSTEMS and as specified in Administrative Rule Saf-C 5902.08.
- Canine reporting should be the first name of the animal and the last name identified as "K9".

RESOURCES:

- Provide an outline of the Units proposed use of and need for the Operational Canine Prerequisite Protocols.
- Provide documentation supporting the Units:
 - Establishment of a relationship with an Operational Canine Unit
 - OR
 - Efforts to coordinate with Operational Canine Units likely to be active in the Units response area.

- Provide a plan for accessing 24/hr emergency veterinary care, including local stabilization and/or ICU care.
 - This must include documentation supporting the establishment of a relationship with any partnering Operational Canines veterinarian.

EXPIRATION:

- 2 years to coincide with the Unit license.

INITIAL Operational K9 Prerequisites Checklist

- _____ 1. APPLICATION
Attach a completed prerequisite application signed by both Medical Director and EMS Unit leader.

- _____ 2. RECOMMENDATIONS:
Attach letters of recommendation from Medical Director and Head of EMS Unit.
Provide list of eligible providers and attestation of competencies.

- _____ 3. EDUCATION
Attach unit training plan and attestation that course meets all educational and training requirements.

- _____ 4. QUALITY MANAGEMENT
Provide a copy of your Operational Canine Quality Management Plan.

- _____ 5. REPORTING REQUIREMENTS
Complete NHESR report for each canine encounter including reporting the first name of the animal and the last name identified as "K9".

- _____ 6. EQUIPMENT AND STAFF SUPPORT RESOURCES NECESSARY
Provide an outline of the Units proposed use of and need for the Operational Canine Prerequisite Protocols.

Provide documentation supporting the Units establishment of a relationship with an Operational Canine Unit or efforts to coordinate with Operational Canine Units likely to be active in the Units response area.

Provide a plan for accessing 24/hr emergency veterinary care, including local stabilization and/or ICU care. This must include documentation supporting the establishment of a relationship with any partnering Operational Canines veterinarian.

Questions and completed applications should be directed to clinicalsystems@dos.nh.gov

RENEWAL Operation K9 Prerequisite Checklist

- _____ 1. APPLICATION:
Attach a completed prerequisite application signed by both Medical Director and EMS Unit leader.

- _____ 2. RECOMMENDATIONS
Attach letters of recommendation from Medical Director and Head of EMS Unit.
Provide list of eligible providers and attestation of competencies.

- _____ 3. EDUCATION
Attach unit training plan and attestation that course meets all educational and training requirements. Must include a continuing education plan.

- _____ 4. QUALITY MANAGEMENT
Provide a copy of your Quality Management Plan.

Provide examples of quality management performed for Operational K9 in the most recent cycle.

- _____ 5. REPORTING REQUIREMENTS
Attach a listing of all incidents utilizing the Operational K9 Protocol in the most recent cycle.

- _____ 6. EQUIPMENT AND STAFF SUPPORT RESOURCES NECESSARY:
Provide an outline of the Units proposed use of and need for the Operational Canine Prerequisite Protocols.

Provide documentation supporting the Units establishment of a relationship with an Operational Canine Unit or efforts to coordinate with Operational Canine Units likely to be active in the Units response area.

Provide a plan for accessing 24/hr emergency veterinary care, including local stabilization and/or ICU care. This must include documentation supporting the establishment of a relationship with any partnering Operational Canines veterinarian.

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Operational K9 Training and Education Requirements

OVERVIEW:

- The purpose of this training is to increase participant knowledge and comfort in treating and transporting operational canines.
- All educational objectives must be incorporated into the training program.
- Training and education for the treatment of the operational canine is not specific to a single course or program but must include all of the following components.

RESOURCES:

- Large (40 – 60 pound) canine that is not in operational use and has been previously used for training purposes.
- Canine mannequin capable of demonstrating CPR landmarking and delivering ventilations.

INSTRUCTIONAL PERSONNEL:

- The didactic portion of the program must be taught by a licensed veterinarian with a minimum of five (5) years of experience in emergency and critical care and/or tactical medicine, or a qualified/credentialed designee under the direct supervision of a licensed veterinarian. It is highly recommended that an operational canine and handler also be present.
- The practical portion of the program must be taught by a licensed veterinarian or a certified (licensed or registered) veterinary technician under the direct supervision of a licensed veterinarian, both of which should have a minimum of five (5) years of experience in emergency and critical care and/or tactical medicine. No other veterinary technician is authorized to teach this course. Additionally, an operational canine and handler must also be present.

EVALUATION:

- Students must be evaluated on their comprehension of both didact materials and skills/procedures taught as it pertains to the appropriate treatment of the operational canine.

PROGRAM DURATION:

- BLS minimum eight (8) hours in length.
- ALS minimum sixteen (16) hours in length.

EDUCATION OBJECTIVES:

- Anatomy
 - Describe the differences between human and canine anatomy and physiology.
- Restraint
 - Demonstrate how to safely approach and restrain a canine using appropriate techniques and equipment.
- Assessment
 - Demonstrate how to perform a head to tail primary and secondary assessment on a canine.
- Airway Management
 - Demonstrate how to properly open a canine's airway, treat airway obstructions and administer oxygen.
 - *Paramedics must demonstrate how to:
 - Perform intubation.
- Shock & IV Fluid Therapy:
 - Describe and demonstrate how to treat a canine in shock.
 - *AEMT and Paramedics must demonstrate how to:
 - Gain IV and IO access.
 - Demonstrate how to treat shock with traditional fluid therapy.
 - Describe and demonstrate appropriate uses and how to administer subcutaneous fluid therapy.
- Neurological Emergencies
 - Describe and demonstrate how to treat for neurological emergencies.
- Thoracic Injuries
 - Describe and demonstrate how to treat thoracic injuries.
 - Demonstrate how to treat open chest wounds with commercial (preferred) or occlusive dressings.
 - *Paramedics must demonstrate how to:
 - Perform needle decompression.
- Hemorrhage Control
 - Differentiate between minor and major bleeding.
 - Demonstrate how to control hemorrhage by:
 - Applying a dressing/bandage to an operational canine.
 - Applying a canine appropriate tourniquet.
 - Packing an operational canine wound cavity.

- Anaphylaxis Emergencies
 - Recognize and treat anaphylaxis emergencies.

- Musculoskeletal Injuries
 - Describe and demonstrate how to splint a canine extremity.

- Environmental Emergencies
 - Describe hydration, evaporation, conduction, convection and radiation.
 - Describe and demonstrate treatment for hyperthermia.
 - Describe and demonstrate treatment for hypothermia.

- Burns
 - Describe and demonstrate the treatment of thermal burn, chemical burn, electrical burn and lightning injuries.

- Poisons, Toxicity and Overdose
 - Describe the signs and demonstrate the treatment for toxic poisonings and overdoses.

- Cardiac Arrest
 - Demonstrate canine cardiopulmonary resuscitation (CPR).

Insert Protocols



Operational K9

7.5

This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.

These canine guidelines are reserved for use only on Operational K9s (OpK9) who are injured or become ill while on duty.
Ill or injured humans always take priority over canines.

Operational Canine Definition

According to SB 268, operational canine means a canine owned or used by a law enforcement department or agency and fire departments in the course of the department or agency's work, including a police canine, search and rescue canine, accelerant detection canine, comfort canine, or other canine that is in use by a county, municipal, or state law enforcement agency.

This law allows ambulances to transport operational canines to a veterinary care facility if the canine is ill or has been injured in the course of their official duties and no human needs transport or treatment.

These protocols do not apply to service canines as defined by the Americans with Disabilities Act (ADA) or to emotional support canines. Service dogs as defined by the ADA are canines specifically trained to do work or perform tasks directly related to the disability of an individual (i.e. guide dogs, medic alert dogs, etc). Emotional support canines are canines whose sole function is to provide comfort or emotional support; these canines do not qualify as service animals under the ADA.

Parameter	Normal Value
RR	10 - 40 breaths/minute
HR	60 - 80 bpm (up to 130 post exercise)
Capillary Refill	less than 2 sec.
Rectal Temp	100 -102.5 F (103-106 F post exercise)
LOC	Bright, alert, responsive (BAR)
BP	120/75 mmHg
Blood Glucose	70 - 120 mg/dL
SpO2	greater than 94%
EtCO2	35 - 45 mmHg



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EMR/EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

The goal is to *safely* provide the canine's initial medical evaluation, treatment and transport to definitive care. Injured and ill canines may pose an unintentional threat to clinicians, therefore it is imperative that the canine be secured prior to medical evaluation. This is best done by the canine's handler. It is preferable that the handler stay with their canine throughout all phases of care, evacuation, and transport unless they, themselves, are injured or required for threat neutralization. If the primary handler is not available, attempt to locate another handler or person that is familiar with handling OpK9s to secure and stay with the injured canine.

All injured canines should be muzzled before handling.

The following are relative contraindications to muzzling:

- Unconsciousness.
- Upper airway obstruction.
- Vomiting.
- Severe facial trauma.

Heat-related injury (need to allow evaporative cooling via panting). If these canines need to be muzzled, a Cage or Basket-type muzzle is preferred.

Muzzling:

- The type of muzzle used depends on the size of the canine, available material, type of injury and desired canine access.
- The canine should be restrained in a position of comfort, which may include sitting or standing. Do not restrain the canine in such a manner that its ability to breathe or pant is impeded.
- Slide the appropriately-sized muzzle over the canine's snout from the rostral (anterior) to caudal (posterior) aspect. Be sure that the lower jaw is captured in the muzzle and not free.
- Be sure to frequently check the security of the muzzle and make sure that it is not impeding the canine's ability to breathe.



It is important that the clinician be adequately trained to restrain the OpK9 in order to safely apply a muzzle. A stressed canine may not only bite the EMS clinician or others, but may bite its handler as well.**

Muzzle Type	Required Material	Suggested Use
Cage or Basket	Manufactured cage/basket muzzle (Preferably made out of rubber)	"All-purpose" "Preferred muzzle: allows for open-mouth breathing" "Suggested if oxygen delivery is indicated"
Fabric	Manufactured, pre-sized muzzle	All - purpose
Quick Muzzle	Any available, broad-width (greater than 1-2 inches) tape, leash, webbing, gauze, etc.	...use only if fabric or cage/basket muzzle is unavailable "Narrow tape/gauze etc. can cause injury"



Operational K9

Intravenous & Intramuscular Therapies

7.5

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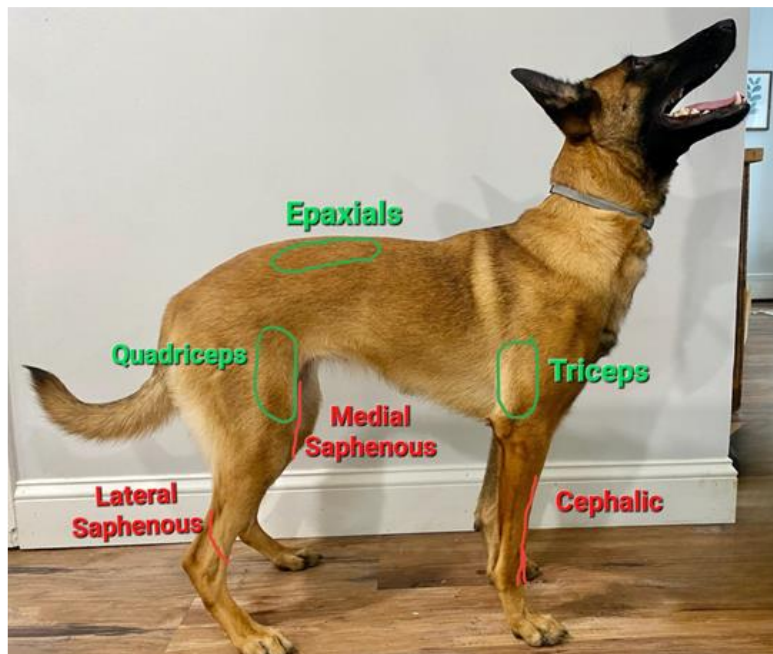
Intravenous Access

- Peripheral intravenous catheters (20g and 18g preferred) placement and intravenous injections are most commonly performed in the cephalic or lateral saphenous veins, less commonly the medial saphenous.



Intramuscular Injections

- Intramuscular injections (needle size 22g, 20g or 18g preferred) are most commonly performed in the epaxials or quadriceps. The triceps can be used but is less common.



Operational K9 7.5



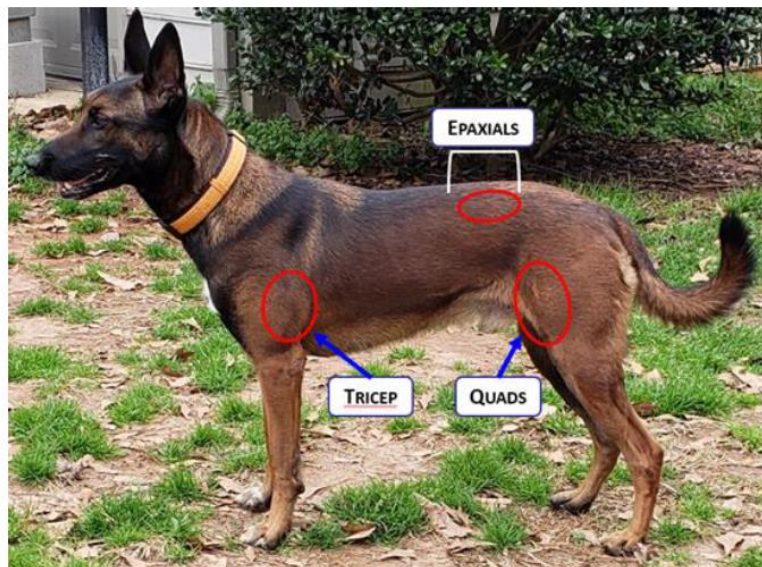
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EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

- Secure OpK9 see [OpK9 Restraint Protocol](#).
- Allow OpK9 to assume position of comfort.
- Manage airway see [Operation K9 Airway Management Protocol](#).
- Administer epinephrine via auto-injector:
 - Pediatric epinephrine autoinjector (EpiPen Jr) 0.15 mg IM for OpK9 < 25 kg,
 - Adult epinephrine autoinjector (EpiPen) 0.3 mg IM if OpK9 > 25 kg **OR**
- Administer epinephrine IM using Ready, Check and Inject:
 - If OpK9 < 25 kg, epinephrine (1 mg/mL) 0.15 mg (0.15 mL) IM*,
 - If OpK9 > 25 kg, epinephrine (1 mg/mL) 0.3 mg (0.3 mL)IM*.
- If signs and symptoms do not resolve may repeat in 5 minutes.

E/
A/
P

*EMTs must have completed the Ready, Check & Inject training.



Adapted from NAVEMS Training, used with permission

PEARLS

In allergic reactions with progression to anaphylaxis, clinical signs are most often associated with the cardiovascular (CV) and gastrointestinal (GI) systems.

Respiratory signs may also develop, along with seizures and anxiousness, progressing to weakness and collapse.

Signs include:

- CV: tachycardia, weakness, weak pulses, mucous membrane color changes
- GI/GU: urinating, vomiting, and diarrhea that is often bloody
- Respiratory: increased respiratory effort, wheezes, and crackles



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- OpK9s do not sweat. Their predominant cooling mechanism is by panting.
- The progression of heat injury in the Police K9 can be quite rapid and requires immediate intervention.
- Hyperthermia can be caused by environmental or exertional factors or a combination of the two.
- Avoid muzzles unless required for safety reasons; an open basket muzzle is the preferred muzzle in this case to allow for panting.

	Core Temp (F)*	Heart Rate	Mucous Membranes	LOC	Panting	Behavior Performance
Mild Heat Stress	Varies 105° - 106°	Fast, Strong	Moist/Pink	Alert	Heavily Controlled**	Excessive thirst, discomfort with physical activity, slightly decreased performance
Moderate Heat Exhaustion	106° - 108°	Fast, Strong or Weak	Tachy or Dry Bright Red	Alert	Uncontrolled*** Failure to Salivate	Weakness, anxiety, unwillingness to work, acts tired, unresponsive to handler commands
Severe Heat Stroke	> 108°	Weak	Dry Pale	Altered	Maybe	Vomiting, diarrhea, ataxia, head tremors, seizures, blindness, abnormal pupil size

****Controlled panting:** the OpK9 may stop panting when an alcohol-soaked gauze is put in front of the nose or when the OpK9 becomes interested in or distracted by something (i.e. toy, reward, noxious stimulus, verbal command).

*****Uncontrolled panting:** the OpK9 cannot stop panting even when offered a treat or reward or when exposed to alcohol-soaked gauze or other noxious stimuli.

EMR/EMT STANDING ORDERS

Treatment for all stages of hyperthermia:

- Secure OpK9 see [OpK9 Restraint Protocol](#).
- Remove OpK9 from the heat source and stop their work/exercise.
- Begin cooling.
- Monitor temperature (rectal or axilla) if equipped. Axillary temps are approximately 1 - 2 degrees F° less than rectal. (EMT only)
- Monitor for changes in mentation.

R/E

Mild (Heat Stress)

- Cool by bringing to a shaded or lightly air-conditioned area. If no A/C available use circulating fan to blow a light breeze by the OpK9.
- As feasible, remove muzzles, harnesses, tactical gear etc.
- Place on a cool surface to promote conductive cooling.
- Offer cool water and encouraging drinking.
- Monitor vital signs every 5 minutes; if able to measure temperature, discontinue cooling efforts when core temperature is 104°F or less. (EMT only)





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Protocol Continued

EMR/EMT STANDING ORDERS

Moderate (Heat Exhaustion)

- Follow guidelines above to start active external cooling.
 - Use air conditioning or cooling fans, if available, to reduce core body temperature.
 - Avoid placing ice packs on the limbs as this causes vasoconstriction and slows the effects of conductive cooling and decreases heat loss ability.
 - Douse or spray body with water, soak hair to skin with water and use fans or A/C to cool further.
- Monitor vital signs every 5 minutes; if able to measure temperature, discontinue cooling efforts when core temperature is 104° F or less. (EMT only)
- Dry OpK9 off, place on a dry surface if possible, and avoid direct application of air from circulating fans or A/C.
- If able to monitor temperature and if body temperature drops below 100° F (rebound hypothermia) consider passive warming by covering with blankets. (EMT only)

R/E

Severe (Heat Stroke)

This is a life-threatening condition

- If able to monitor temperature (EMT only), rapid cooling to a body temperature of 103.5° - 104° F should be performed:
 - Use water (do not submerge in ice bath).
 - Soaking the OpK9 to the skin with water. Soak the entire OpK9 as rapidly as possible through the hair, soaking the skin thoroughly and implement convective cooling with fans or A/C.
- When temperature reaches 104° F (EMT only):
 - Discontinue cooling
 - Dry hair and
- Continue to monitor temperature for rebound hypothermia. (EMT only)

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- IV enroute.
- If shock present, administer 20 mL/kg fluid bolus (lactated ringers preferred).



NOTE: No single core temperature value defines heat-related illness for all OpK9s in all circumstances. Well - conditioned, acclimated OpK9 may reach peak core temperatures as high 106° - 108° F while working, yet display no behavioral or clinical signs of heat stress. Base clinical assessment on presence and progression of clinical signs over core temperature.



Operational K9 Nerve Agent/ Organophosphate Exposure

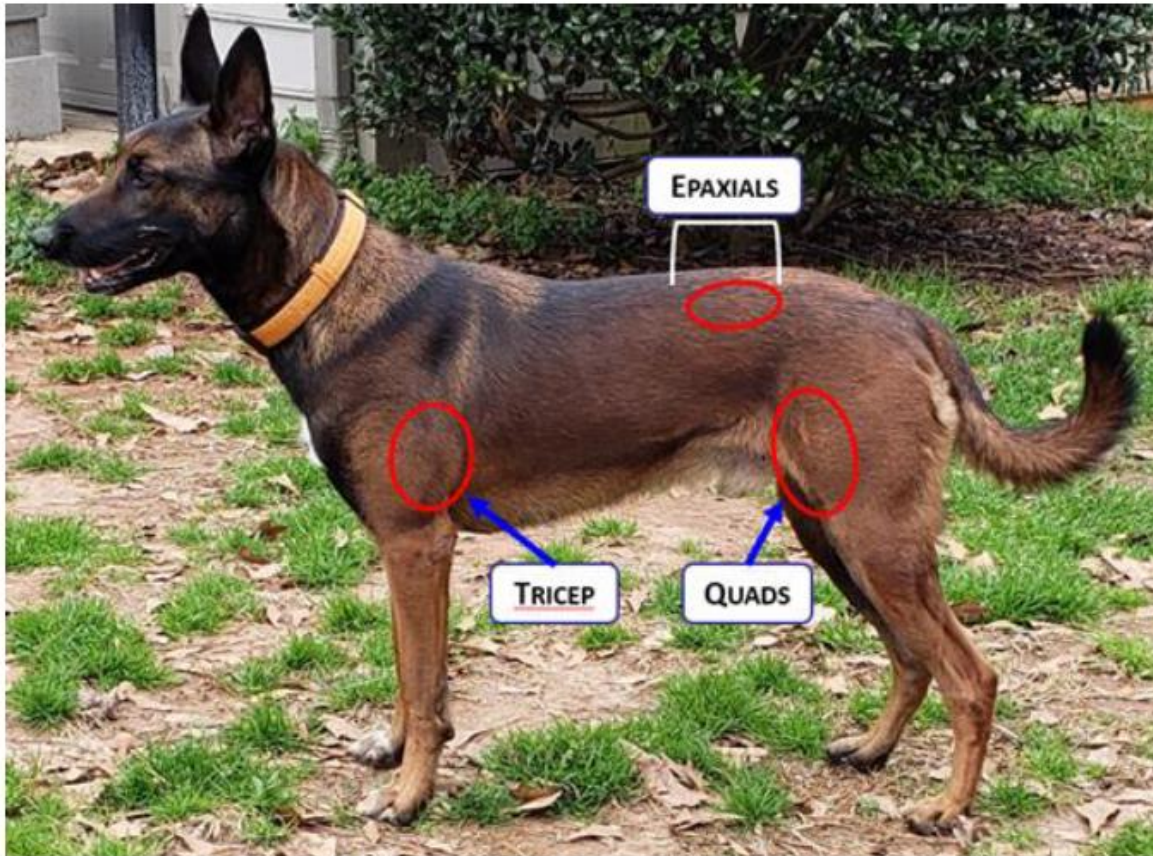
7.5

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EMR/EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

R
/E
/A
/P

- Secure OpK9 see [OpK9 Restraint Protocol](#).
- Assess for SLUDGEM [Salivation, Lacrimation, Urination, Defecation, Gastric upset, Emesis, Muscle twitching/Miosis (constricted pupils) and KILLER Bs (Bradycardia, Bronchorrhea, Bronchospasm)].
- Remove from contaminated area and consider decontamination as needed.
- Manage airway as appropriate; see [OpK9 Airway Management Protocol](#).
- Vigorous suctioning may be necessary.
- Administer atropine/pralidoxime auto-injectors:
 - 18 – 27 kg (40 – 60 pounds): 2 atropine/pralidoxime auto-injectors.
 - 32 – 36 kg (70 – 80 pounds): 3 atropine/pralidoxime auto-injectors.
 - \geq 41 kg (90 pounds): 4 atropine/pralidoxime auto-injectors.



Adapted from NAVEMS Training, used with permission

PEARLS:

- Transport canine with all windows of ambulance open.
- Decontaminate entire ambulance after canine transport.
- All providers who contacted the canine require decontamination.



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EMR/EMT STANDING ORDERS

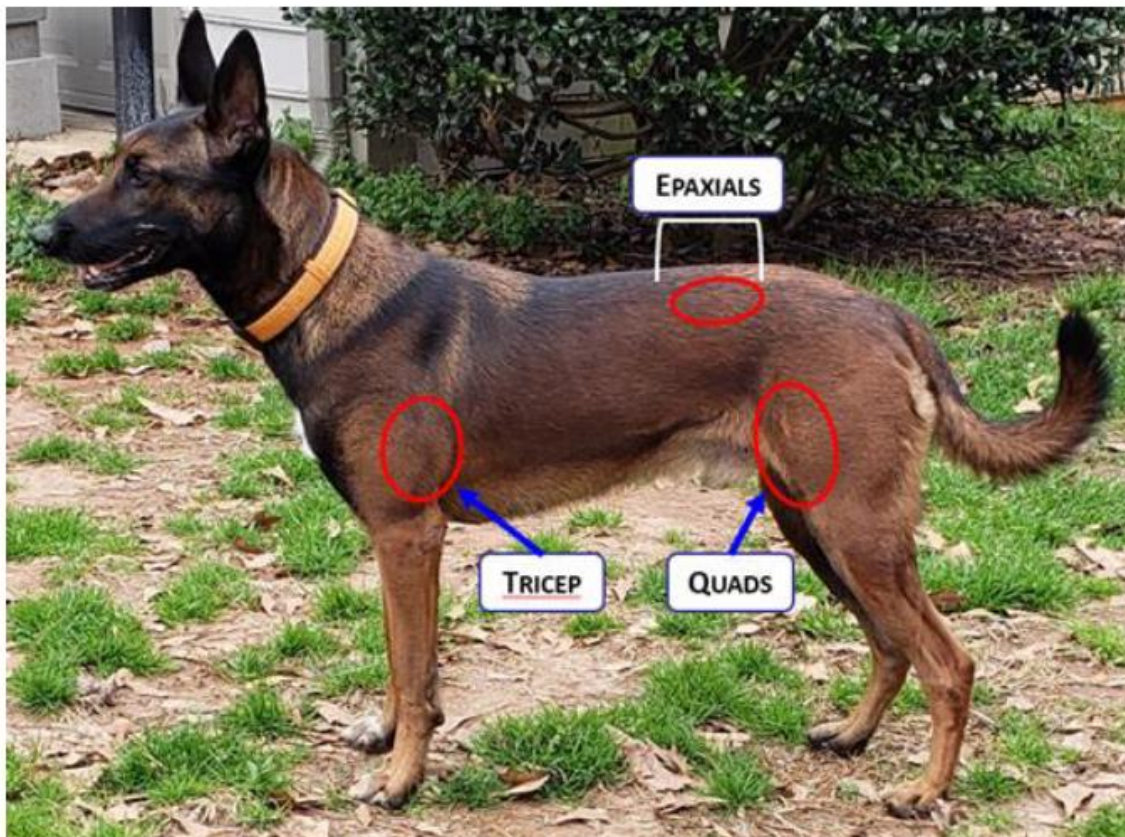
R/E

- Manage airway as appropriate; see [OpK9 Airway Management Protocol](#).
- Consider securing canine with muzzle in anticipation of reversal of opioid.
- For suspect opioid overdose administer:
 - Naloxone 2 – 4 mg IN, may repeat every 2 – 5 minutes **OR**
 - Naloxone 2 – 4 mg IM via auto – injector, may repeat every 2 – 5 minutes.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Establish IV.
- Alternative route for Naloxone 2 - 4 mg IV, may repeat every 2 – 5 minutes.
- If hypotensive, administer 20 mL/kg (lactated ringers preferred).



Adapted from NAVEMS Training, used with permission

PEARLS:

- Common signs of opioid overdose include: excessive sedation, bradycardia, mydriasis, and hypothermia.



Operational K9 CO/CN Exposure/Smoke Inhalation

7.5

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EMR/EMT STANDING ORDERS

R/E

- Secure canine, [see OpK9 Restraint Protocol](#).
- Manage airway as appropriate; see [OpK9 Airway Management Protocol](#).
- Administer high-flow oxygen.

ADVANCED EMT & PARAMEDIC STANDING ORDER

A/P

- Establish IV.
- If hypotensive, administer 20 mL/kg (lactated ringers preferred).

Operational K9 7.5

7.5

Operational K9 Cardiac Arrest ROSC & Post - Resuscitation Care



This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.

EMR/EMT STANDING ORDERS

R/E

- Place canine in lateral recumbency for narrow chested dogs and in dorsal recumbency for barrel/round-chested dogs.
- Initiate chest compressions at a ration of 30:2.
 - Compression rate of 100 - 120 compressions/minute.
 - Depth of 1/2 -1/3 of chest width.
 - End-tidal of > 15 mmHg indicates good compressions.
- Administer high-flow oxygen with BVM ventilation.
 - 1 breath every 10 chest compressions during recoil and without interrupting compressions.
 - Continue 2-minute cycles of chest compressions with pulse checks.
 - If ROSC occurs, see [OpK9 Post-Resuscitation Care Protocol](#).
- If no ROSC in 20 minutes and ALS-trained K9 care clinician not on scene, terminate resuscitation.

ADVANCED EMT STANDING ORDERS

A

- Establish IV without interrupting chest compressions.
- Secure airway, see [OpK9 Airway Management Protocol](#)
- If ROSC is achieved and shock or hypotension present:
 - Administer 10 – 20 mL/kg fluid bolus (lactated ringers preferred), repeat within 15 – 30 minutes, as needed, up to 2 times in order to achieve palpable femoral pulse and improved mentation.

PARAMEDIC STANDING ORDERS

P

- Epinephrine 0.01 mg/kg of 1mg/10mL IV every 3 - 5 minutes.

Ventricular Tachycardia/Ventricular Fibrillation

- Amiodarone 5 mg/kg IV **OR**
- Lidocaine 2 mg/kg IV.

Asystole/PEA

- Atropine 0.04 mg/kg IV push at the initiation of CPR, re-dose every other 2 - minute cycle of compressions.

Consider Causes

- Suspected hypovolemia: 20 mL/kg fluid bolus.
- Suspected hypoxia: high-flow oxygen and manage airway see [OpK9 Airway Management Protocol](#)
- Suspected pneumothorax: perform bilateral needle decompressions, see [OpK9 Chest Trauma Protocol](#).

		Weight (kg)	25	30	35	40	45	50
		Weight (lb)	50	60	70	80	90	100
Drug		Dose	mL	mL	mL	mL	mL	mL
Arrest	Epi 1mg/10mL every other BLS cycle	0.01 mg/kg	2.5	3	3.5	4	4.5	5
	Atropine (0.54 mg/mL)	0.04 mg/kg	1.9	2.2	2.6	3	3.3	3.7
Anti-Arrhyth	Amiodarone (50 mg/mL)	5 mg/kg	2.5	3	3.5	4	4.5	5
	Lidocaine (20 mg/mL)	2 mg/kg	2.5	3	3.5	4	4.5	5
Reversal	Naloxone (0.4 mg/mL)	0.04 mg/kg	2.5	3	3.5	4	4.5	5

Operational K9 7.5



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EMR/EMT STANDING ORDERS

R/E

- Remove collar/harness/vest/booties, etc. Avoid pulling away any gear that is melted in the skin/coat.
- Manage airway as appropriate see [OpK9 Airway Management Protocol](#).
- Give highest priority to airway problems and major bleeding.
- Burns < 15% TBSA, consider cooling with cool water (sterile/saline, if available).
- Cover burns with dry sterile dressing/sheets.
- Prevent heat loss/hypothermia.
- If suspect CO/CN poisoning see [OpK9 CO/CN Exposure/Smoke Inhalation Protocol](#).

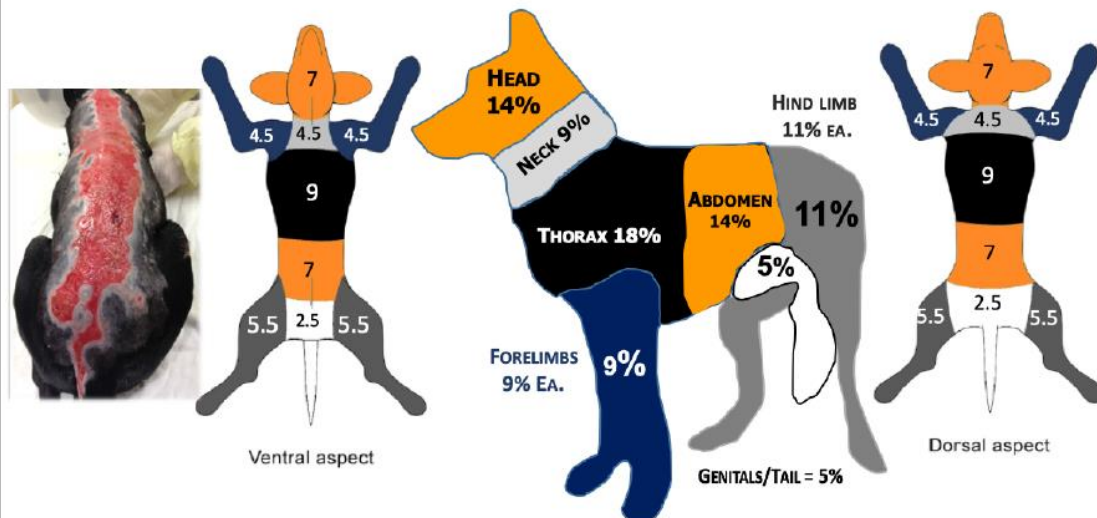
ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- IV enroute.
- If shock present, administer 20 mL/kg (lactated ringers preferred).

BODY SURFACE AREA IN K9s – “K9 RULE OF 9’s”

HENRIKSSON A, KUO K, GERKEN K, CLINE K, ET AL. J VET EMERG CRIT CARE, 2021 (PENDING PUBLICATION)





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EMR/EMT STANDING ORDERS

R/E

- Manage airway as appropriate see [OpK9 Airway Management Protocol](#).

Impaled Object

- Secure in place with bulky dressing.

Open Chest Wounds

- Cover with vented or non-vented occlusive dressing.
- If shock present, consider tension pneumothorax and burp/vent the chest seal.

Flail Segment with paradoxical movement and respiratory distress

- Consider positive pressure ventilations.

ADVANCED EMT STANDING ORDERS

A

- IV enroute.
- If shock present, administer 20 mL/kg (lactated ringers preferred).

PARAMEDIC STANDING ORDER

P

- For suspected tension pneumothorax, perform chest decompression using 14 - 18 gauge or other approved decompression device.

Landmark:

- 7th – 9th intercostal space (canines have 13 ribs) OR
- Midpoint between shoulder and last rib/widest point on rib cage.
 - Go over tope (cranial) aspect of rib.
 - Aspirate and consider decompressing the other side of the chest as well.
 - Remember the canine mediastinum is fenestrated.
 - DO NOT leave decompression catheters(s) in place.

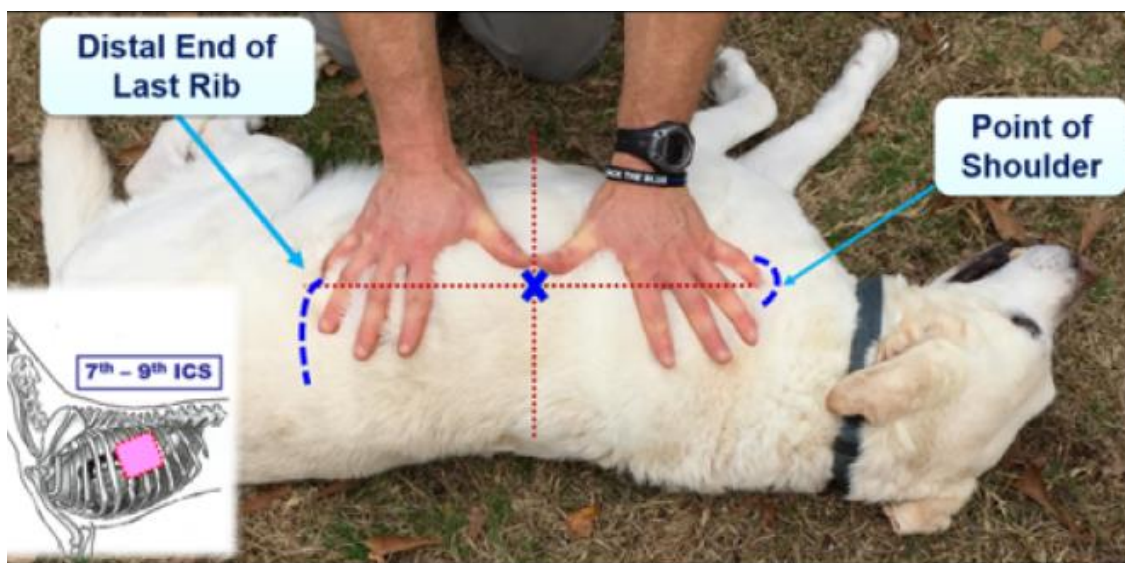


Photo used with permission from K9 TCCC Quick Reference Guide



Operational K9 Hemorrhage Control

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EMR/EMT STANDING ORDERS

- Ascertain all sites of bleeding and control with direct pressure
- Extremity: apply an elastic wrap/pressure bandage, or Stretch Wrap and Tuck Tourniquet (SWAT-T).



Commercially made windlass tourniquets are not effective on canines due to the tapered shape of their extremities.

R/E

- For deep wounds in junctional areas or areas containing large muscle bellies (neck, thigh, shoulder/triceps area) control bleeding by applying hemostatic agent and packing the agent in the wound and applying/maintaining pressure over the agent for a minimum of 5 minutes.
- Check for ongoing bleeding. If bleeding has stopped, apply appropriate pressure bandage over the top of the dressing; if bleeding continues, reapply manual pressure for a minimum of 5 minutes.
- If bleeding continues, remove the initial hemostatic agent and repeat with a new hemostatic agent. Remember, for these agents to have maximum effectiveness, they must be packed inside the wound as close to the bleeding source as possible.
- Treat for shock, if indicated, see [OpK9 Shock Protocol](#).
- Manage airway as appropriate, see [OpK9 Airway Management Protocol](#).

ADVANCED EMT/PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

A/P

- IV enroute.
- Administer 20 mL/kg fluid bolus (lactated ringers preferred), repeat every 15 - 30 min to achieve palpable femoral pulse and improved mentation, with typical maximum volume of 500 – 600 mL; maximum total dose 60 mL/kg.

Operational K9 7.5

7.5 Operational K9 Hemorrhagic Shock



This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.

EMR/EMT STANDING ORDERS

R/E

If history of illness or mechanism of injury consistent with signs/symptoms of shock (elevated pulse, elevated respiratory rate, pale mucous membranes, altered LOC, or lowered BP) transport as soon and as efficiently as possible.

- Control bleeding, refer to Hemorrhage protocol, see [OpK9 Hemorrhage Control Protocol](#).
- Manage airway as appropriate; see [OpK9 Airway Management Protocol](#).

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- IV enroute.
- Administer 20 mL/kg fluid bolus (lactated ringers preferred), repeat every 15 - 30 min to achieve palpable femoral pulse and improved mentation, with typical maximum volume of 500 – 600 mL; maximum total dose 60mL/kg.

Operational K9 7.5

Stage of Shock	Heart Rate	Capillary Refill	Mucous Membranes	Mentation	Pulse Quality	Systolic BP
Normal (at rest)	< 120	< 2 sec	Pink	Bright Alert	Strong	> 90
Acute Compensatory	> 120	< 1 sec	Red	Alert	Fair	> 90
Early Decompensatory	> 140	> 2 sec	Pale	Depressed	Weak	< 90
Terminal/ Irreversible	< 80	Absent	Pale	Stupor Comatose	Absent	Low



Operational K9 Airway Management 7.5

This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.

EMR/EMT/ADVANCED EMT STANDING ORDERS

R/E/A

- Place the canine in the sternal (prone) position.
- Open airway.
- Tilt head and slightly extend the neck.
- If foreign body suspected, see [OpK9 Airway Obstruction Protocol](#)
- Provide oxygen to maintain SpO₂ > 94%*.
- Provide oxygen via BVM (with canine mask) with goal respiratory rate of 10 - 12 breaths/minute. Pediatric or Adult BVMs can be used, targeting goal tidal volume on seeing chest rise.
 - If positive pressure ventilations are not required, supplemental oxygen may be administered by holding a NRB near the nose, taping oxygen tubing to the muzzle or holding a canine mask near the nose (without tight seal).

PEARLS*

- Pulse oximetry is most reliable in unconscious, sedated, or anesthetized canines.
- Finger probes used for people do not work well in canines.
- If possible, obtain and use a flat ear probe attachment. Place the probe on the tongue or non-pigmented portion of the lip.
- In conscious dogs, use the ear pinna, lip fold, inguinal skin fold or prepuce/vulva; although not optimal for oximetry, these alternate sites generally yield reliable results in most instances.
- Alternatively, a neonatal or disposable pulse oximetry adhesive sensor attached to the base of the canine's tail provides an alternative and very reliable site.

PARAMEDIC STANDING ORDERS

If unable to ventilate with basic airway maneuvers, proceed with intubation (only if canine is unconscious).

Prepare

- Suction.
- Light source (flashlight/headlamp/laryngoscope).
- ET tube ready with lubricant, bougie and syringe.
- Measure ETT from incisor to thoracic inlet (typical ETT size is 9-11mm).
- Tube-securing device ready (umbilical tape, roll gauze).
- Continuous end-tidal CO₂ monitor ready, if available.

Position

- Sternal/prone position.
- Assistant to help open mouth.
- Second rescuer may use gauze/leash and place behind upper canines to hold mouth/airway open.

Protocol Continues

7.5 Operational K9 Airway Management



This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.

Protocol Continued

PARAMEDIC STANDING ORDERS

Pass the Tube

- Pull tongue straight out and over mandible.
- Visualize vocal cords.
- Directly visualize ETT passing through cords to pre-measured depth.
- Inflate cuff.

P

Check Tube Placement

- Breath sounds/chest rise.
- End-tidal CO₂, if available (35 - 45 mmHg).

Secure ETI

- Consider using a mouth-gag to keep mouth open and prevent damage to the ETT. This can be achieved with a 1 – 2 wide inch roll of tape. Do not force mouth open beyond 1 – 2 inches for any significant length of time as it can cause damage to TMJ, muscles and nerves and result in altered maxillary blood flow.



Operational K9 Airway Obstruction 7.5

This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.

EMR/EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

Clinical signs of airway obstruction include the following:

- Gagging.
- Pawing at the mouth.
- Excessive drooling.
- Frequent swallowing motions.
- Extension of the head and neck.
- Tripod position.
- Reluctance to lie down.
- Cyanosis (late sign).

Similar to a person who can speak clearly without any respiratory distress, consider a canine that is barking, growling, or whining without any clinical signs of respiratory distress to have a patent airway.

1. Allow for position of comfort (sit or stand, sternal helps with gravity).
2. Secure canine with leash/rope.
3. Avoid putting hands in canine's mouth (serious injury to clinician can occur).
4. Attempt Heimlich maneuver (avoid if sharp object involved).
 - "Bear hug" or lay canine on side and place fist just below sternum or behind ribs.
 - Five (5) quick and upward abdominal thrusts followed by airway check.
 - If not successful, repeat 1 – 2 times.
5. Palpate throat/trachea - you may be able to dislodge a supraglottic foreign body cephalad out of the pharynx.
 - Palpate the object at the supraglottic region (ventral mandible).
 - From caudal aspect of object, squeeze/push cranially.
 - Two-handed with both thumbs, or
 - Single-handed with thumb and index or middle finger.

R
/E
/A
/P



Protocol Continues

7.5 Operational K9 Airway Obstruction



This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.

Protocol Continued

EMR/EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

6. In an unconscious canine, open the airway by extending the head and neck, and pull the tongue forward. A second rescuer may use gauze/leash looped behind upper canine teeth to keep the mouth open. You may use a second length of gauze/leash for the lower jaw as well.



E/
A/
P

7. In an unconscious canine, if the obstruction is:

- VISIBLE: attempt to manually remove; do not push foreign body further back in airway.
- NOT VISIBLE: do not attempt a blind finger sweep due to risk of pushing the foreign body further down the airway.

8. If object is not removed and canine collapses, provide chest compressions and mouth-to-snout or BVM (with a canine mask). If unable to get chest rise, see [OpK9 Airway Management Protocol](#) and/or [OpK9 Cardiac Arrest Protocol](#).