



NERO'S LAW

The Commonwealth of Massachusetts has enacted Chapter 23 of the Acts of 2022, thereby initiating a standing order by which Emergency Medical Services are required to assess, treat, and transport Law Enforcement K9s injured in the line of duty.

Pre-Hospital
Guidelines
Lori E. Gordon, DVM



In memorandum
Sargeant Sean Gannon

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Nero's Law
Basic Life Support for Law Enforcement K9 Emergencies
Massachusetts Department of Public Health
Office of Emergency Medical Services



Lori E. Gordon, BS, DVM

History

S. 2573: An Act allowing humane transportation of K9 partners aka Nero's law

The town of Yarmouth suffered an incredible tragedy in April of 2018 when Sergeant Sean Gannon was killed in the line of duty. Also injured in this vicious attack was Gannon's canine partner, Nero. Nero suffered life-threatening injuries and was unable to be treated by emergency medical personnel due to existing state law that prohibits working animals from being treated or transported by emergency personnel.

This legislation will:

- Allow emergency personnel to treat injured police dogs.
- Allow emergency personnel to transport injured police dogs.
- Require any emergency personnel that would render care to a police dog to have completed training consistent with standards approved by the Office of Emergency Medical Services

Source Content: https://www.mspca.org/animal_protection/neros-bills/

Chapter 23 of the Acts of 2022: Nero's Law

STANDING ORDER: EMS is required to assess, treat, transport police K9s injured in the line of duty

- Does not apply if inhibits ability to address injured humans
- Injured or ill humans always take priority **unless human stable/K9 critical – transport K9 first**
- EMS safety must be ensured before approaching
 - K9 Handler – first choice
 - Backup Handler – if Handler unable to assist
 - Animal Control – restraint, treat, transport capabilities may vary
- BLS-level first aid only, CPR, life-saving intervention
- EMS personnel liability protected and not practicing veterinary medicine
- Alert and transport under Statewide Point-Of-Entry Plan for Police K9s
- Document all responses on patient care report (PCR)

The Exception Principle

ALS Intervention

- Some medical first responders may be capable of ALS
- Direct communication with a veterinarian for medical directive
- A short-term solution until ALS can be approved

Didactic Course Objectives

- MA statute for EMS treatment and transport of LE K9s
 - Scope of practice, liability, treatments, documentation
 - PPE, decontamination
- K9 Protocols, Point of Entry, Transportation
- Environmental Emergency Care
 - Anaphylaxis, hypothermia, hyperthermia
 - Burns, smoke inhalation
 - Drowning, water emergencies
- Toxin and Drug Exposures Care
 - Opioid, CO, cyanide, nerve agent

Practical Course Objectives

- Restraint and handling of injured K9
- Relevant human and K9 anatomical similarities and differences
- Examination, primary survey, and trauma identification of K9
- K9 patient vitals and monitoring
- Stop the bleed
- Emergency identification and management of trauma
 - Airway
 - Thoracic
 - Shock
 - Cardiac Arrest CPR and post resuscitation care

DIDACTIC PROGRAM

- **'You can teach a person all you know, but only experience will convince them that what you say is true.'** –Richelle E. Goodrich

You Know Much Already

- 90 % of what you do as medical first responders are what veterinary first responders do
- The other 10% in BLS care is what you will discover today

The Police K9

- The Working K9 - driven, focused, athletic
- Personality – friendly, aloof, do not touch me
- Handler Relationship – close, bonded

Illness and Injury Requiring EMS Transport

- Anaphylaxis
- Blunt Force trauma – hit, high fall
- Burn Injury, Smoke Inhalation
- Cardiac Arrest
- Collapse
- Gastric Dilatation Volvulus - Bloat
- Hemorrhage – external, internal (shock)
- Hyperthermia, Hypothermia
- Ocular Trauma
- Penetrating Wounding
- Respiratory Distress
- Seizure, Head or Spinal Trauma

EMS Personnel Safety

Personal Protective Equipment (PPE) options

- Eye Protection: K9 exposed to harmful substance may shake, disperse substance
- Hand Protection: Gloves protect you if K9 contaminated
- Gloves also protect K9 from your bacteria
- Patient Muzzling: Protection from patient bite

K9s do not transmit HIV/Aids, Hepatitis, or Covid

Zoonoses of concern: Rabies, Leptospirosis

EMS Transport Sanitation – APPENDIX G

- Cleaning Solutions
 - Check expiration date
 - Follow manufacturer instructions
 - Ventilate properly
 - Don required PPE
- Sheets, Blankets, Towels, Pillowcases
 - Change after each use
- Stretcher, Reusable Patient Care Items
 - Disassemble, clean, disinfect, reassemble
 - Test for function
 - EPA registered disinfectant
- Contamination from dangerous or contagious disease
 - U.S. CDC guidance cleaning for specific pathogen
 - Clean ambulance interior, all contact surfaces, all exposed equipment
- Contamination from hazardous material
 - Emergency Response Guide (ERG) guidance cleaning
 - Ambulance interior, all contact surfaces, exposed equipment
- HVAC Filter
 - Cleanse of animal hair and dander
- Biohazard Waste, PPE Disposal in appropriate containers
 - Wash hands with soap and water or min. 60% alcohol

PRE-HOSPITAL CARE, PRE-MISSION ANALYSES, PRE-MISSION ASSESSMENT, BEING 'PRE-PARED'

Police K9 Statewide Point-of-Entry Plan

Emergency transport of police K9s injured in the line of duty to:

- Veterinary hospitals with 24/7 referral care
 - Transfusion capable
 - Surgery capable
 - ICU care
 - Board-certified specialist(s) in surgery, critical care, or both
- Veterinary practice used by K9's Police Department
 - Handler request
 - Clinic is open and can care for injured K9
- **What if the closest clinic is across a state line?**
 - Not covered by this law; being tracked as a training issue for future amendment

Commonwealth Emergency Hospitals - APPENDIX A

- As of August 10, 2022 – list of veterinary hospitals that meet recommended capabilities
- Some contact numbers listed are back lines for direct communication
- Obligated to take a Police K9 emergency regardless of what else is taking place in their ER

Documentation of Police K9 Care

Patient Care Report Form

- Patient Identification – put ‘K9’ as last name
- Examination Findings
- Treatments Performed
- Medications – dosing, time given
- Vitals Monitoring

Extremely Important for the Receiving Veterinary Staff

Informative documentation of treatment success or lack thereof

S2BAR

- Signalment: Age, gender, weight, species/breed
- Situation
- Background
- Assessment
- Recommendation
 - “We have a 75-pound male German Shepherd Police K9 with gunshot wound to the chest, recumbent but alert, en route, ETA 7 minutes.”

K9-Specific Ambulance Equipment, Supplies - APPENDIX B

- Oxygen Masks – Anesthesia type, non-vented (can tape over vented masks)
 - Tourniquet - Swat-T
 - Leash
 - Muzzles – cage, fabric
 - Thermometers – flex tip, quick read
 - Webbing 2” – extra for stretcher transport
- } Only 2 items on official list
- } Possible Additions?

General Equipment, Supplies for use on K9s

- Dressings – Sterile, Dry/Wet
- Epinephrine
- Forceps – (McGill, malleable, other?)
- Hemostatic Agent Dressings
- Narcan IN
- Nerve Agent Antidote – Duo-Dote or Mark-1 Autoinjectors
- Plastic Wrap/Chest Seal – Flail, Open Chest
- Roll Gauze – 3”, 4” Stretch
- Sterile Saline
- Stretch Wrap – outer, stretch (Coban, Vet Wrap) or Ace bandage
- Tape 2”, 1”
- Temperature Packs – hot and cold

EMS POLICE K9 ASSESSMENT

- Approach
- Restraint
- Low-Stress Handling

Approaching Injured Police K9

GOAL: SAFETY FOR ALL INVOLVED Performing medical evaluation, treatment, transport to definitive care

- EMS personnel
- Handler
- Canine

Injured K9 may pose unintentional threat to EMS; K9 must be secured before evaluation

- Best done by K9's primary Handler
- Backup K9 Handler if primary unavailable/unable
- Animal Control (available, equipped)

Reading the K9

Stressed K9 can be unpredictable

- May bite Handler, EMT, Paramedic, anyone within range
- Turn-out gear looks very similar to a bite suit used in training patrol K9s – take it off?
- K9s are fast; understand body language though some may strike out without warning
- If bitten, do not pull away – more damaging; let handler get K9 to release
- Toy (kept in cruiser) may distract K9; while holding in mouth can get on the muzzle

Body language

- Eyes
- Ears, head, and tail positions
- Hackles

Auditory

- Vocalization
- Growling

Turnout Gear Concern

- Similar to bite suit used in training
- Seriously consider removing before approaching/treating LE K9

Restraint of the Police K9

All injured K9s should be muzzled BEFORE handling – EXCEPT:

- Unconsciousness
- Upper Airway Obstruction
- Vomiting
- Severe Facial Trauma
- Heat-related Illness/Injury Panting
- Respiratory distress of any kind
 - Cage or Basket muzzles may be used if K9 needs to be muzzled, needs to pant
 - Must be closely monitored at all times

MUZZLES - Type depends on head size, what is on hand, type of injury, and need for access to head

Nylon

- Firmly closes mouth
- K9 cannot pant
- If vomiting, will aspirate
- Less likely to be able to do this with a Police K9

Basket, Cage

- Can drink through muzzle
- Allows for panting, swallowing
- Less harmful/painful with facial trauma
- **NOTE: Some LE K9s trained to fight with muzzle; may hit you with their head/face**

Homemade

- Stretch gauze, rope, leash
- Encircle muzzle and tie or cross below jaw
- Bring ends back, below ears
- Tie on back of neck – quick release

Low Stress Muzzle Handling of Injured Police K9 - Demo

- Restrain K9 in position of comfort
 - May be sitting, may be standing (may be recumbent)
 - Restraint manner should not impede breathing or panting
- Slide appropriate muzzle over nose from rostral (anterior) to caudal (posterior)
 - Be sure lower jaw is captured within the muzzle and not free
 - Longer part goes to Lower jaw
- Frequently check muzzle safety and security
 - Not impeding respiration
 - Not about to come off

Be sure any muzzle can be readily removed if needed

- Vomiting → Aspiration Pneumonia
- Respiratory Distress → Respiratory Arrest
- Panting Suppressed → Hyperthermia

Police K9 Care, Evacuation, Transport

After secured – K9 ideally accompanied through all phases of EMS care

- By primary Handler
- By backup Handler

If EMS priority to respond to human emergency renders them unavailable for K9, contact Animal Control

- Animal Control: available, appropriately equipped, may secure, stay with, transport K9

Restraint

The Hug at a sit

- Forelimb examination, treatment
- Head: eyes, ears, face examination, treatment
- Neck and front of chest examination, treatment

Hug with Partial Down

- Hold for above procedures
- Hind limb examination, treatment
- Paws, tail examination, treatment

The Take Down: Two-person procedure - Demo

- Stand/kneel to canine's side, facing canine
- One arm around front of chest to grasp opposite foreleg
- Other arm around back of thighs, grasp opposite hind limb
- Hug canine, bring held limbs to ground/table while pushing on their body with yours
- Person to hold their head so it won't hit ground
- Hold down: grasp lower forelimb with forearm over neck; grasp lower hind limb with forearm over K9 flank

Laying Down & Holding - Demo

Grasp in front and behind body, maneuver onto side

Cushion head, use body as weight, assistant holds lower limbs

The Slide Take Down - Demo

One or two-person procedure

- Securing K9 against body while kneeling on the ground
- Arms over top of K9 body and grasping front and hind legs closest to you
- Elevate limbs while using body and your legs to slide K9 down to ground surface
- Remain holding ground-side limbs and using forearms on neck and abdomen

Holding Safely, Securely

The Hold

- Place forearm over K9 neck area
- Use hand of that arm to grasp lower (ground side) forelimb
- Use the other forearm across K9 abdomen
- Use hand of that arm to grasp lower (ground side) hindlimb

Examination and Treatment

- Upper front limb lateral, lower front limb medial
- Chest, Abdomen, Tail
- Upper hind limb lateral, lower hind limb medial

Stretcher Transport

Straps (wide) across body

- Perpendicular, Parallel, Diagonal (no established protocol)
- Between front legs and across front of chest
- Under abdomen and around upper hindlegs

Pressure points of hold

- Shoulder & Hip/Pelvis = major points
- Neck, Thorax, Abdomen = minor points

Position – widest part of stretcher so head and neck not forced into flexion when K9 is on their side

Concerns

- Respiratory interference @ neck, thorax, abdomen
- Fractures @ shoulder, pelvis
- Canine flails against restraint

Options

- Strap with handler
- Do not force, esp. if respiratory distress
- Allow K9 to sit sternal or whatever is least stressful

Stretcher Transport Video

NON-TRAUMA INJURY AND ILLNESS; ENVIRONMENTAL INJURY AND ILLNESS

GENERAL PROTOCOLS IN ALL SITUATIONS

- Scene Safety
- Secure K9
- Assess K9 Medical Condition
- Administer Treatment
- Monitor Vital Signs
- Immediate Rapid Transport

Environmental Emergencies

Anaphylaxis

Major Categories

- Cutaneous: erythema, urticaria, pruritis, facial angioedema
- Respiratory: dyspnea, tachypnea, wheezes, crackles, cough
- Cardiovascular: tachycardia, weak pulse, pale MM, prolonged CRT, hypothermia, dullness
- Gastrointestinal: vomiting, diarrhea
- Genitourinary: urination
- Severe progression: weakness, seizures, collapse

Treatment

- Allow K9 most comfortable position
- Oxygen as appropriate
- Epinephrine: may repeat q 5-15 min x 3

Burns

Highest priority: Airway Distress and Major Trauma

- Oxygen as appropriate
- Avoid pulling away gear melted to skin/haircoat
- Can loosen gear to allow for better respiration
- Burn area >15% Total Body Surface Area (TBSA): consider cooling with water (sterile water/physiologic saline if available)
- Cover with dry dressing, sterile sheet
- Prevent heat loss, hypothermia, and third spacing which leads to lower BP and hypovolemic shock

Smoke Inhalation

Damage from Chemical Irritants, Thermal Injury

Signs

- Ocular: squinting, nictitans up/over eye, conjunctivitis
- Skin: soot, red inflamed burned face, muzzle, nostrils
- Mucous Membranes: bright red (CO, CN) or cyanotic
- Weakness, ataxia
- Nausea/drooling, vomiting
- Hoarse cough
- Rapid, deep breathing (swollen upper respiratory tract)
- Shock

Treatment

- Manage airway
- Monitor vitals (pulse oximetry inaccuracies)
- High Flow oxygen administration

Carbon Monoxide Exposure

Asphyxiant blood agent – binds to stop oxygen transfer to cells

Signs

- Dizziness, confusion, unsteady
- Nausea/drooling, vomiting
- Lethargy
- Rapid, deep breathing
- Tachycardia
- Excitability, tremors, seizure
- Progression decline: severe resp depression, lose consciousness, coma, death

Treatment

- Manage airway
- Monitor vitals (pulse oximetry inaccuracies)
- High Flow oxygen administration

Cyanide Exposure

Asphyxiant blood agent – binds to stop oxygen transfer to cells

Signs

- Frothing at mouth
- Cherry red mucous membranes
- Rapid, deep breathing
- Excitability, tremors, seizure
- Progression decline: severe resp depression, lose consciousness, coma, death

Treatment

- Manage airway
- Monitor vitals (pulse oximetry inaccuracies)
- High Flow oxygen administration

Hyperthermia/Heat Injury – APPENDIX C

Heat stress in the K9

- K9s do not sweat (except their paw pads)
- Predominant cooling mechanism is by panting (water loss)
- Progression of heat injury may be RAPID and requires IMMEDIATE INTERVENTION
- AVOID muzzles unless safety issue; open basket muzzle preferred to allow for panting

Treatments for all stages of heat illness

- Remove Police K9 from heat source
- Cease all work and activity
- Transport immediately
- Perform cooling methods en route
- Monitor temperature
 - Rectal preferred, most accurate but may not be tolerated
 - Axillary option; note this will be 102°F lower than rectal
- Monitor for changes in mentation (progression to shock)

Hyperthermia in the Winter

Heat Stress – a mild heat injury

- Begin cooling methods
 - Bring to shade or lightly air-conditioned area
 - Alternately use circulating fan directed at K9
- Remove as much gear as possible/feasible: muzzles, harness, tactical gear, etc.
- Place on cool surface – conductive cooling
- Offer cool water, encourage drinking
- Monitor vital signs every 5 minutes
- Discontinue cooling efforts when core temperature reaches 104°F or less
 - Cooling will still progress; do not want to become hypothermic

Heat Exhaustion - a moderate heat injury

- Guidelines as for heat stress and start active cooling methods
 - Cold compresses to head, neck, axillae, groin
 - Avoid cold to limbs (shunts hot blood to core) (?)
 - Douse/spray body with cold water, soaking hair to the skin
 - Air conditioning, cooling fans to cool further
- Monitor vital signs every 5 minutes
- Discontinue cooling efforts when core temperature reaches 104°F or less
 - Dry K9 off, place on dry surface
 - Avoid direct air from fan or A/C onto K9
 - Monitor temperature: if falls <100°F (rebound hypothermia) start passive warming (blankets)

Heat Stroke

Heat Stroke – a severe heat injury – LIFE THREATENING CONDITION

- Rapid cooling to body temperature 103.5°F – 104°F
 - Cool water - spray, towels to entire body, soaking hair to the skin level
 - Convective cooling with fan, A/C
- Discontinue cooling efforts when core temperature reaches 104°F or less
 - Dry K9 off, place on dry surface
 - Avoid direct air from fan or A/C onto K9
 - Monitor temperature: if falls <100°F (rebound hypothermia) start passive warming (blankets)

Heat Injury Quick Reference – APPENDIX D

Hypothermia

Normal physiologic responses are unable to maintain normal body temperature occur

- Mild 90-99°F (32-37°C)
- Moderate 82-90°F (28-32°C)
- Severe <82°F (28°C)

Signs

- Low Core Body Temperature
- Decreased consciousness
- Delayed, diminished reflexes
- Shivering (lost @ <88°F/31°C)
- Low HR (HR <70 bpm)
- Shallow, infrequent respirations
- Increased muscle tone/no shiver
- Dilated pupils

Treatment of Hypothermia

- ❄ Initial triage examination
 - 🐾 History
 - 🐾 ABCs
 - 🐾 Neurologic (mentation) systems
 - 🐾 Core body temperature
 - 📏 *Most commercial thermometers do not register below 89-95°F. Soft rectal probes are available, which can be inserted rectally 8-15 cm for an accurate value, and will measure very high and low values*
- ❄ Treatments are based on initial examination findings and the degree of hyperthermia
 - 🐾 Rewarming techniques
 - 🐾 Cardiovascular support
 - 🐾 Respiratory support
 - 🐾 Neurologic support
 - 🐾 Blood parameters
 - 🐾 Other complications or disease states

After Drop

- A patient's temperature initially drops after warming treatments are started
 - This occurs secondary to countercurrent cooling of the blood which is perfusing cold tissues
 - Once gradient between core blood and peripheral blood equalizes, core body temperature should rise.

Treating Mild Hypothermia (>96°F/36°C)

There are minimal detrimental effects

- ❄ Passive rewarming – prevent further heat loss
 - 🐾 Remove from cold
 - 🐾 Dry them if wet
 - 🐾 Place in a warmth
 - 🐾 Wrap with insulating blankets
- ❄ Active re-warming if above techniques fail to increase core body temperature

BLS Level Treatment Moderate (82-90°F, 28-32°C) to Severe Hypothermia (<82°F, <28°C)

Transport Methods

- Dry canine if they are wet
- Cover with insulation blanket
- Keep K9 horizontal to minimize movement so as to avoid ventricular fibrillation and other cardiac arrhythmias
- DO NOT rub or massage – may cause vasodilation, CV collapse, suppress shivering
- Avoid direct heating of skin at this point

Moderate to Severe Hypothermia Treatment

- *Do not rub or massage*
 - Vasodilation, cardiovascular collapse, suppress shiver
- Rewarming
 - Remove from cold, wind, rain/snow
 - Avoid direct heating of skin at this time (vasodilation, hypotension)
 - Blankets, warming covers
 - Place heating elements around blankets

BLS Level Treatment Moderate (82-90°F, 28-32°C) to Severe Hypothermia (< 82°F, < 28°C)

Respiratory Support

Airway and Breathing

- Breathing: 100% O₂
- Warm humidified air ideal
- Apneic: mouth-to-snout CPR

Monitoring

- Pulse/Pulse Oximetry
- Respiration
- BP
- Temperature

Cardiovascular Support - Hypovolemic shock

- Requires ALS support
- Transport ASAP while rewarming

Monitor

- Respiration
- Blood pressure
- Pulse/Pulse Oximetry
- Temperature

Neurologic Support

- Altered mentation - Cerebral edema - requires ALS support – transport ASAP
- Warming patient very important
- Oxygen – 100% (warm, humidify if possible)
- Elevate head 30° to minimize intracranial pressure
- Seizures – requires ALS support – transport ASAP
- Warming patient versus controlled hypothermia in neurologic injury
- Warming important; evidence that hypothermia protective in neurologic injury
- At the very least do not overly warm patient

Near Drowning

Types

- Pulmonary damage from water aspiration
- ‘Dry Drowning’ when larynx spasms shut

Treatment

- Clear airway of obstruction or debris (manually wipe, suction)
- Oxygen 100% by mask, extend head to open up throat
- Monitor body temp, warm to 100-102.5°F/38-39°C
- If arrest begin CPR

Treatment if unresponsive

- Oxygen 100%
- CPR if breathing lost, pulse lost
- Defibrillation if in ventricular fibrillation
- *Heimlich maneuver or postural drainage* (tip upside down) NOT RECOMMENDED; may expulse gastric contents that may be aspirated into lungs

Toxin and Drug Exposures

- Opioids: Illegal, Prescription
- Nerve Agents: Organophosphate, Carbamate
- Opioid Exposure

Signs

- Excessive Sedation
- Bradycardia
- Hypothermia
- Respiratory Depression – though less susceptible than humans, dose dependent
- Unresponsive

Treatment

- Manage Airway – rescue breaths if RR < 8/minute
- If unresponsive:
 - **Naloxone 2-4 mg IN every 2-5 min PRN**
 - **Naloxone 2-5 mg IM every 2-5 minutes PRN**

Organophosphate/Carbamate Exposure

Nerve Agent - Acetylcholinesterase inhibition at neuromuscular junctions

Signs: *SLUDGEM* and the *Killer B's*

- Salivation
- Lacrimation
- Urination
- Defecation
- GI Distress
- Emesis
- Miosis/Muscle Twitching
- Bradycardia, Bronchorrhea, Bronchospasm

Treatment

- Remove from area
- K9 Decontamination on situational basis
- Manage Airway, Oxygen as appropriate
- Ventilatory support may be critical
- Suctioning airway
- Mark 1 or Duo-Dote Autoinjector – Dosing **Appendix E**

WARNING

- Toxin contact potentially fatal to EMS and Law Enforcement personnel
- Transport K9 with ambulance windows open or activate fan/ventilation system

PRACTICAL PROGRAM “Teaching is only demonstrating that it is possible. Learning is making it possible for yourself.” —*Paulo Coelho*

POLICE K9 PHYSICAL EXAM and HANDLING LAB

Anatomy

Similarities

- Lymph Nodes
- Thoracic and Abdominal Organs
- Bones – but oriented differently

Differences

- Eyes: ocular Nictitans or Third Eyelid
- Ears: vertical to horizontal ‘L’ canal
- Nose: elongated, inner scrolls
- Skin: densely haired, subcutaneous space, does not sweat
- Paw pads: highly vascular, sweat glands
- 13 pairs of ribs (12 in human)
- Fenestrated Mediastinum

Physiology/Vital Signs

Similarities

- Heart Rate/Pulse: 80-120 bpm pet; 50-80 bpm K9/athlete at rest; 160 bpm at work
- Respiratory Rate: 10-30 brpm at rest; panting at work
- Mucous Membranes: moist, pink, Capillary Refill Time (CRT) \leq 2 sec.
 - Panting may artificially dry MM; check for moistness inside lip at front, under nose
- Pupillary Light Response: direct, indirect
- Pulse Oximetry – place on lip/ear/vulva/prepuce if awake & have access
- Blood Pressure 120/80 or 90/60 athletic

Differences

- Temperature: 99.8-102.8 °F average K9
- 103-106 °F not unusual for working K9

Checking Vital Signs

- Temperature – soft tipped quick read rectal thermometer
 - Axillary will be 1-2 degrees below core/rectal (*Lubricate tip please!*)
- Heart Rate – Stethoscope @ distal third thorax behind elbow (4th to 5th intercostal (IC) space)
- Respiratory Rate – visual chest rise, auscultation, nasal air flow
- Mucous Membrane color and Capillary Refill Time (CRT)
 - Inner lip, gums -challenging with muzzled patient
 - Conjunctiva, third eyelid (Nictitans); Penis (pull back prepuce); Inner Vulva
- Pulse Pressure and Rate – Femoral arterial pulse @ upper inner thigh
 - Dorsal pedal artery challenging
 - Caudal artery (ventral upper tail) offers another access
 - Femoral pulse implies a minimum 70/80 systolic
- Blood Pressure – Pediatric cuff
 - Distal foreleg or hindleg – above or below carpus (wrist) or tarsus (ankle)
 - Base of tail (Caudal Artery)
- Pulse Oximetry
 - Tongue if unconscious; Upper Lip if awake
 - Inner ear, webs between toes often unsuccessful

Monitoring Video

Intramuscular Injections

Landmarks

- Epaxials
 - Lateral to dorsal spinal processes from last rib to pelvis/ilium
 - Angle away from spine to avoid nerve roots
- Triceps
 - Caudal/posterior aspect foreleg from shoulder to elbow
 - Angle away from humeral bone
- Quadriceps
 - Cranial/anterior aspect of hindleg from hip to stifle/knee
 - Angle away from femoral bone

K9 Primary Survey and M³ARCH²E Algorithm

- **M**uzzle, **M**assive Hemorrhage, (**M**edications)
- **A**irway
- **R**espiratory
- **C**irculation
- **H**ypothermia/**H**ead Injury
- **E**vacuate

Secondary Survey - DCAP-BTLS

- Deformities
- Contusions
- Abrasions
- Punctures/perforations
- Burns
- Tenderness
- Lacerations
- Swelling

Puncture, Bite, Impalement

- Small wounding may be tip of the iceberg
- If lame check paw pads for wounds
- Detection may be delayed if heavily furred area
- Body cavity puncture is emergency until proven otherwise
- Do not delay transport for evaluation because they 'seem okay'
- If transport delayed, watch for deterioration of condition
- Skin may tear away, blood supply compromised
- Puncture, Bite, Impalement
- If object still embedded, **do not remove it**
- Transport ASAP

Evisceration

Situation

- Working K9 jumps over fence or other barrier
- Sharp edge catches at abdomen and intestines come out

Treatment Options

- Control any hemorrhage
- Saline/sterile water/any water rinse gross contamination but be aware that unless the fluid is warmed, rapid decrease in temperature is possible
- Cover with moistened (sterile if possible) towel/sponges/plastic barrier to keep organs moist and wrap to abdomen in front and behind to cover entire eviscerated contents and prevent escape from the bandage
- If abdominal wall wound is small, can attempt to replace bowel but not if there is hemorrhage, bowel leakage, or cannot be done in 60 seconds; do not force contents back into the abdomen

Gunshot

- Small entry wound - multiple injuries
- Abdomen – multiple organ damage
- Back, Pelvis – projectile may travel to abdomen, chest, pelvic canal

Small entry wound - major injury

- Head – subdural hematoma, brain injury
- Neck – esophageal and tracheal tears
- Chest – hemorrhage, lung collapse, rib fracture
- Limbs – hemorrhage, fractures

HANDLING INJURED POLICE K9

- Safe Approach
- Muzzling techniques
- Leashing, Carrying, Restraining
- Involve the Handler, ask questions, explain your intentions!

Demonstrations - Hands-On: Approach, Muzzling, Leashing, Carrying, Restraining, Stretcher Transport

Circulation and Shock – Stages of Shock APPENDIX F

Hemorrhage Control

Mild – Moderate Hemorrhage

- Apply pressure for minimum 5 minutes (5-15 Min)
- Check for ongoing bleeding – if stopped, apply pressure bandage over dressing
- Continued bleeding – reapply pressure minimum 5 minutes (5-15)
- Can replace pressure bandage if soaked through
- Bandage entire limb if wound higher up to prevent slipping
 - Stirrups on leg will help prevent slipping (Bandaging Examples)

Bandage Layers: Stirrups, Padding, Stretch Gauze, Roll up Stirrups, Stretch Outer Wrap

Bandage Examples - What NOT To Do and Why

Severe/Massive Hemorrhage

- Ascertain all bleeding sites; control with direct pressure
- Extremities: apply elastic wrap/pressure bandage or SWAT-T
- Windlass tourniquet ineffective due to tapered shape (except for distal limbs)

Junctional areas (neck, thigh, axilla), large muscle belly, chest, abdomen

- Apply pressure with Hemostatic Agent dressing, gauze packing
- Hand pressure over hemostatic dressing and do not let up

Deep Wounds - Junctional Areas

- Carotid (deep)
- Brachial A & V
- Femoral A & V
- Jugular (superficial)

Hemorrhagic Shock – Stages of Shock APPENDIX F

Signs, Symptoms: Tachycardia, tachypnea, pale mm, altered mentation, loss of consciousness (LOC)

BLS Management

- **TRANSPORT AS SOON AND AS EFFICIENTLY AS POSSIBLE**
- Control hemorrhage
- Manage airway as appropriate

Cardiac Arrest

- Chest Compressions
- Airway Management
- BLS Ventilation
- Post Return of Spontaneous Circulation (ROSC) Care

CPR Method

- K9 in lateral recumbency (either side)
- Stand at K9's back (otherwise body tends to move away from you)
- **COMPRESSIONS**
 - Place interlocked hands over highest widest part of chest
 - Lock your elbows
 - Stand with shoulders directly over your hands
 - Use palm of hand to initiate compressions
 - Compression rate is 100-120/minute
 - Depth $\frac{1}{2}$ - $\frac{1}{3}$ of chest width than allow recoil
 - RECOIL IS AS IMPORTANT AS COMPRESSIONS! Allows heart to refill with blood
- **RESCUE BREATHS**
 - 2 breaths every 30 compressions during recoil
 - Bag Valve Mask with tight fitting O₂ Mask using air or high flow O₂ @ 10-15 L/Min
 - Do not delay for lack of oxygen line; air shown to be as good as O₂
 - Mouth-to-Snout: do not bring mouth up to you; bend down to K9 level
 - Do not place your mouth on snout of opioid/other toxin exposure
 - Hold mouth closed; place your lips to cover their nostrils and blow
- Continue 2-minute cycles chest compressions with pulse checks

AED use in the K9

- Not recommended at this time
- Majority of K9 arrhythmias are not shockable
- Trauma is a rare cause of a shockable arrhythmia

Lucas Mechanical CPR Device - Not tested on K9

Post Return of Spontaneous Circulation (ROSC)

- Manage airway
- Maintain ventilation rate 10-12 breaths/minute

AIRWAY - Airway Obstruction

- Airway Management
- BLS Ventilation
- Post Return of Spontaneous Circulation (ROSC) Care
- Airway Obstruction

Clinical Signs

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

**Like person who can speak without respiratory distress – consider a barking, growling whining police K9 without signs of resp distress to have patent airway

Treatment

- Allow for position of comfort (sit, stand, lying with head elevated)
- Secure K9 with leash/rope around neck, one foreleg through loop (no neck constriction)
- **DO NOT PUT YOUR HANDS IN K9s MOUTH**
- Attempt abdominal thrusts UNLESS OBJECT IS SHARP
 - Heimlich Maneuver
- Palpate throat/trachea for supraglottic foreign body
 - May be dislodged with Hand Manipulation

Heimlich Maneuver

Method

- Bear hug with fists placed just below sternum
- +/- Lay K9 on side
- Place fist just below sternum or behind last rib
- Five (5) quick upward abdominal thrusts then airway check
 - Two (2) gauze/leash loops each placed behind canine teeth of upper and lower jaws
 - (or) Rolled towel placed towards back of mouth they can bite down, but heavy enough to prevent full jaw closure
- Can repeat 1-2 times

Supraglottic Manipulation - Method

- Palpate for object at front of neckline: midline, slightly below lower jaw
- Extend the head
- From bottom of palpated object, squeeze/push upwards towards front of the mouth
 - Two-handed with both thumbs
 - Single-handed with thumb and index finger/middle finger

Supraglottic Manipulation Video - West Hills Animal Hospital and Medical Center

Airway Obstruction – K9 Unconscious

Treatment

- Open the airway
 - Extend head and neck while pulling tongue forward
 - Secure upper and lower jaws open using gauze/leash behind canine teeth
- Obstruction visible
 - Attempt manual removal; do not push object further down airway (Magill Forceps)
- Obstruction NOT visible
 - **DO NOT PUT YOUR HANDS IN K9s MOUTH**
 - NO BLIND FINGER SWEEP – risk of pushing further in
- Obstruction not removed, K9 collapsed - CPR
 - Chest compressions
 - Mouth-to-Snout or Bag Valve Mask Positive Pressure Ventilations

Airway Management

Treatment

- Place Police K9 in **Recovery Position**: sternal/prone position
- Open airway
 - Tilt head while slightly extending the neck to open laryngeal/pharyngeal area
 - If foreign body suspected, Airway Obstruction Protocol
- Oxygen via Bag Valve Mask (BVM) with K9 mask and Positive Pressure Ventilation (PPV)
 - Goal respiratory rate 10-12 breaths/minute
 - Pediatric or adult BVMs may be used
 - Goal tidal volume on seeing chest expansion/chest rise
- PPV not required –supplemental O2 via non-rebreather (NRB) mask
 - Place near nostrils
 - Tape O2 tubing to basket muzzle
 - Hold K9 mask near nose (without a tight seal)

Respiratory Distress Video

Resolution of Respiratory Distress Video

Thoracic Wounding

Administer oxygen as appropriate; assist ventilations (NVM) PRN

- Impaled Objects
 - Secure in place with bulky dressings
- Open Chest Wound
 - Cover with vented or non-vented occlusive dressing, plastic wrap, glove
 - If shock present, r/o tension pneumothorax development and vent/burp the chest seal
- Flail Segment
 - Paradoxical movement, respiratory distress
 - Consider BVM ventilation
 - Can place flail chest side down if occlusion delayed

FLAIL CHEST VIDEO

SUPPLEMENTAL TOPIC - GASTRIC DILATATION VOLVULUS ('BLOAT')

- Sudden and abnormal distension of the stomach with gas, fluid, or food
- Leads to partial/complete twisting of the stomach
- Nothing moves in or out, gas builds up
- Affects primarily large breed, deep-chested dogs
- Absolute surgical emergency
- Universally fatal if untreated

GDV/Bloat Signs

- Distended abdomen
- Excessive salivation
- Non-productive retching
- Restlessness
- Pale or blue MM
- Weak pulses
- Dyspnea (difficulty breathing)
- Mental dullness
- Shock (hypovolemic)

Treatments

- Transport ASAP for treatments and surgery
- This is a surgical emergency – no exceptions
- FYI at veterinary hospital treatments may include
 - IV fluids in front legs only (pressure on CVC delays hindlimb delivery of fluids)
 - Stomach pressure release via stomach tube or trocar
 - Antibiotics and opiates
 - GDV/Bloat

Intra-abdominal View - Gas-filled stomach; Torsion Stomach

SUPPLEMENTAL TOPIC - Mesenteric Volvulus, Intestinal Torsion

Transport ASAP for treatments and surgery

This is a surgical emergency – no exceptions

- Mesenteric volvulus occurs when there is a twisting of bowel on its mesenteric axis
- Intestinal torsion is where the bowel twists on itself

SUPPLEMENTAL TOPIC - OCULAR TRAUMA

- Proptosis, Hyphema, Laceration

Treatment

- Cover Injury gently; minimal pressure, sterile dressing
- Cup over eye uncommon in veterinary world but may be worth a try
- Light bandage; stop if pain causing stress and they struggle
- Do not cover both eyes as loss of sight may increase stress level significantly
 - Paw at face, violent head shake, panic mode
 - Using collar to guide K9 increases pressure on neck, jugular
- Transport ASAP

SUPPLEMENTAL TOPIC NEUROLOGIC TRAUMA

- Head
- Spine

Head Trauma

Signs

- Depression
- Dementia
- Circling
- Seizures
- Nystagmus
- Fixed pupils
- Opisthotonos
- Proprioceptive deficits
- Cranial nerve deficits
- Head Tilt
- Anisocoria
- Stupor
- Coma
- Death
- Head Trauma

Treatment

- Airway, 100% oxygen, ventilate prn
- Elevate head and neck 30° without compromising jugular venous flow
- Treat hypothermia but do not overheat
- Transport ASAP

*** Minimal manipulation of head & neck**

*** Do not compress jugular veins**

Spinal Trauma

Signs

- Ataxia
- Hyperesthesia
 - Cries when head/neck manipulated
 - Cries with moderate pressure along spine
- Paresis – deficit of voluntary motor
- Paralysis/Paraplegia – complete loss of movement; no deep pain
- Spinal Trauma

Treatment

- Primary survey, ABC/CBA/MARCHE, BLS as needed
 - Shock, hemorrhage, thoracic trauma, etc.
- Immobilize for transport
 - Minimal manipulation; backboard

Summary of Notable Differences

Body Temperature

- 98.8-102.8°F
- 103-104°F not uncommon for work K9

Eye

- Nictitans – the '3rd Eyelid' (may hide FB)

Ear Canal

- Vertical/horizontal 'L'
- Tympanum not easily visualized

Pulse

- Femoral artery, inner thigh best
- Pedal pulse challenging

Cardiac

- Sinus Arrhythmia = normal respiratory response
- Normal T wave may be pos, neg, notched, biphasic

Chest Tap

- K9 has 13 pairs of ribs

CPR

- Mouth-to-Nose/Mouth-to-Snout

Skin

- Very pliable, especially around neck
- Hair/fur hides injury; palpate, observe (pain, moist)
- Does not blister; redness, pain, oozing
- Arborizing blood supply

Cooling

- Water loss via panting, not NaCl via skin
- Sweat glands in paw pads; can absorb toxins

Bandages


- Stirrups against skin on limbs/tail for staying power
- Include entire limb below wound or slippage can compromise blood supply
- NO 360° non-stretch material that cannot accommodate swelling
- Open toes for observation
- Use ears, shoulders as crossover for bandages

Miscellaneous

- Tetanus is extremely rare in dogs
- Xylitol (in gum, mints, human meds, etc.) extremely toxic in dogs – check BG for hypoglycemia
- No transmission HIV/Aids, hepatitis
- DO NOT give human NSAIDS – risk renal/hepatic failure, gastric ulcer
- Gastric Dilatation Syndrome – esp. in German Shepherds, also Labradors

APPENDIX A

Point-of-Entry Plan as of August 10, 2022

	<p align="center">DEPARTMENT OF PUBLIC HEALTH Office Of Emergency Medical Services 67 Forest Street, Marlborough, MA 01752</p>	<p>Massachusetts Statewide Point-of-Entry Plan for Police Dogs (K9s)</p>
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Emergency transports of police K9s injured in the line of duty, pursuant to Chapter 23 of the Acts of 22, must be made to either:

- A) Veterinary hospitals with 24-hour/7-days-a-week referral care, transfusion capability, surgical capabilities, ICU care, and board-certified veterinary specialists in either surgery, critical care or both. As of this date, the following veterinary hospitals are the only ones in the Commonwealth with these capabilities:

Location	Facility	Number
Boston	MSPCA-Angell Animal Medical Center	617-522-7282
Boston	BluePearl Pet Hospital	617- 284 9777
Bourne	Cape Cod Veterinary Specialists	508-759-5125
Lawrence	Bulger Veterinary Hospital	978-725-5544
North Grafton	Cummings Veterinary Medical Center, Tufts University	508-839-5395 (Option 3)
South Deerfield	Veterinary Emergency & Specialty Hospital	413-665-4911
Walpole	Tufts Veterinary Emergency Treatment & Specialties	508-668-5454
Waltham	MSPCA Angell-West	781-902-8400
Waltham	BluePearl Pet Hospital	781-684-8387
West Bridgewater	New England Animal Medical Center	508-584-1600
Westford	Westford Veterinary Emergency Referral Center	978-577-6525
Weymouth	VCA-South Shore Animal Hospital	781-337-6622
Woburn	Massachusetts Veterinary Referral Hospital	781-932-5802

or

- B) Veterinary practices used by the police department for which the police K9 is deployed, when directed by the police K9's handler upon his confirmation that the veterinary practice is open and available to take care of the police K9.

Issue date: August 10, 2022

APPENDIX B

K9 Equipment List

AR 5-401K9



ADMINISTRATIVE REQUIREMENT MANUAL

EFFECTIVE DATE: February 10, 2023 **AUTHORIZATION:** W. Scott Cluett III, Director

TITLE: Basic Life Support (BLS) Equipment List for Police Dog (K9) Care

SUPERSEDES: None

General Principles	
A.	STATUTORY AUTHORITY: Chapter 23 of the Acts of 2022
B.	REGULATORY AUTHORITY: 105 CMR 170.455, 170.460, 170.470
C.	AUTHORIZED EQUIPMENT: In addition to the equipment required by AR 5-401, ambulance services must carry equipment below, as required by the Police Dog (K9) Protocols. The statute governing police dog care and transport restricts EMS to care and transport at the BLS level only.
D.	PERFORMANCE STANDARDS: All equipment must be designed and constructed to meet veterinary performance objectives and must not endanger police K9 patients.
E.	MAINTENANCE: All equipment and supplies must be maintained and used according to manufacturers' specifications, including but not limited to, for storage, expiration date and replacement. Services must keep records of preventive maintenance and repairs for all equipment, including service-level and third-party inspection and maintenance records.
F.	SPECIFICATIONS: All equipment must be latex free if available. Disposable is preferred.

ITEM	#	DESCRIPTION	MIN. SIZE PER ITEM	TOTAL QUANTITY	CLASS				
					I	II	IV	V	
Tight-fitting K9 oxygen mask	K9.1	Must be "anesthesia type", tightly fitting to nose/face, without exhalation ports, and able to connect to Adult BVM for positive pressure ventilation	Large	1	I	II	IV	-	
SWAT-T-type tourniquet	K9.2	Arterial tourniquet reserved for Police K9 Use only. Must not be windlass-type.		1	I	II	IV	-	

APPENDIX C
Heat Injury Stages

	Core Temp (F)*	HR	MM	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	Tacky or Dry, Bright Red	Alert	Uncontrolled, Failure to Salivate	Weakness, anxiety, unwillingness to work, acts tired, unresponsive to handler commands
Severe (heat stroke)	Usually >108	Weak	Dry Pale	Altered	Maybe	Vomiting, diarrhea, ataxia, head tremors, seizures, blindness, abnormal pupil size
* Many canines are not trained or tolerable of rectal temps; may use axillary temperature if a rectal temp is not achievable. Axillary temps are approximately 1-2 degrees F less than rectal						

Treatment for all stages of heat illness includes:

1. Remove the Police K9 from the heat source and stop their work/exercise.
Transport immediately and perform other actions en route.
2. Begin cooling methods
3. Monitor temperature (rectal or axillary), if trained and equipped
4. Monitor for changes in mentation

- **Police K9 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 immediately intervention.**
- Causes are environmental, exertional 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.

Canine Heat Injury *Fast Facts*

Veterinary Tactical Group



www.vettacgroup.com

1. Body temperature is not a good predictor of heat injury in dogs. That is, the number alone can't tell you if a dog is getting "too hot."

Some athletic dogs can tolerate working temperature of 106° F and higher, while less fit dogs may suffer severe heat stroke at those temperatures. The best predictor of getting "too hot" is their behavior: uncontrollable panting, tongue hanging out and "floppy:" (look for subtle loss of muscle tone in the tongue), slow to respond or ignoring commands, shade seeking, subtle loss of coordination like small stumbling or tripping.

2. When a dog incurs heat injury, *rapid cooling* is the most important life- saving step.

There's an unfortunate myth that "cooling too fast could put them into shock." They have heat stroke: they are already in shock! In heat stroke, BODY HEAT is the immediate life-threat: there is **no benefit** to leaving them HOT for an extended time. By doing this you are essentially allowing the life-threatening problem to continue "cooking" and causing further harm to the dog.

3. Cooling methods: Ice water is okay, wet towels are okay. Anything that is cooler than the dog is okay!

Another unfortunate set of myths is that certain cooling methods are harmful, slow down cooling, or even cause the dog to get warmer. Some methods of cooling *are* faster than others, and we recommend using those if available (cold/cool running water, water troughs, ice water, etc.) but in reality, anything that is colder than the dog will cause the dog to cool down to some degree. Wet towels do trap in tiny bit of heat ("wetsuit effect") but cannot actually cause the dog to get warmer. Ice water on the skin does cause some vasoconstriction but not enough to slow cooling or cause any other significant medical complications. Cool the dog down with whatever you have available in your immediate environment. Stop cooling at 104° F (40° C) ("Safe temperature") and continue monitoring the dog's temperature as they may drop below normal (below 99° F/ 37.2° C) and need to be rewarmed to keep within a normal range.

4. Cool first, then transport.

A 10-minute trip to the veterinarian without first cooling to "safe temperature" (104° F /40° C) is ten minutes longer that you've let the dog "cook." If you don't have a thermometer, allow at least five minutes of any rapid cooling technique before transport. Remember excessive **body heat** is the immediate threat to life. The veterinarian is no more skilled at hosing down a dog than you are in the field! Veterinary treatments like IV fluids and antibiotics are secondary treatments that are important, but not intended to stop the *immediate life-threat*. You can do the best life-saving treatment with rapid, immediate cooling.

APPENDIX E

Mark 1 or Duo-Dote Kit autoinjector dosing

Atropine	Lb	Kg	Dose (mg)	Min # auto-injectors
	40	18	3.6-9	2
	50	22	4.5-11.4	2
	60	27	5.4-13.5	2
	70	32	6.4-16	3
	80	36	7.2-18	3
	90	41	8.2-20.5	4

2-PAM Chloride	Lb	Kg	Dose (mg)	Min # auto-injectors
	40	18	180-360	2
	50	22	227-450	2
	60	27	270-540	2
	70	32	320-640	3
	80	36	360-720	3
	90	41	410-820	4

APPENDIX F

Stages of Shock

Stage of Shock	HR beats/ min	Capillary refill secs	Mucous Membranes	Mentation	Pulse Quality
Normal (at rest)	<120	<2	Pink	Bright, alert	Strong
Acute Compensatory	>120	<1	Red	Alert	Fair
Early Decompensatory	>140	>2	Pale	Depressed	Weak
Terminal/Irreversible	<80	Absent	Pale	Stupor/ Comatose	Absent

APPENDIX G - Decontamination and Sterilization Procedures

AR 1-522G



ADMINISTRATIVE REQUIREMENT MANUAL

EFFECTIVE DATE: August 10, 2022 **AUTHORIZATION:** W. Scott Cluett, III, Director
TITLE: Decontamination and Sterilization Cleaning Procedures for Ambulance Equipment and Interiors
SUPERSEDES: 8/87

Purpose: To define the minimum cleaning procedures necessary for decontamination and sterilization of ambulance interior surfaces and ambulance equipment, after each patient transport. Ambulance services may define in service policies and procedures above those set out in this administrative requirement. These (or any further service) procedures shall apply to all patients transported by the ambulance, including police dogs injured in the line of duty, pursuant to Chapter 23 of the Acts of 2022.

Definition: A "police dog" is limited to being "a dog owned by a police department or police agency of the commonwealth, or any political subdivision thereof, and used by the department or agency for official duties." Only police dogs may be treated and transported by EMS, and only in accordance with Police K9 Protocols issued by the Department.

Procedures: Following completion of an EMS patient transport, all disposable patient care items utilized shall be discarded in an appropriate manner.

In all cases, when using cleaning solutions, follow manufacturer's instructions for application and ensure proper ventilation. Check to ensure the product is not past its expiration date. Never mix together different cleaning products. Don the appropriate personal protective equipment (PPE), which may include mask, gloves, goggles, gowns or protective suits.

Sheets, blankets, towels and pillowcases shall be changed after each use. Stretchers shall be kept clean, in good repair, and shall be disinfected after each use in accordance with the manufacturer's instructions, using an EPA registered disinfectant.

Reusable patient care items shall be disassembled, cleaned, disinfected, reassembled and tested for function as per manufacturer's recommendations after each use. Disinfection shall be done in accordance with the manufacturer's instructions, using EPA registered disinfectant.

If the ambulance has been used to transport a patient known to have a dangerous or a highly contagious disease, the ambulance interior, all contact surfaces, and all exposed and contaminated equipment shall be cleaned in accordance with any U.S. Centers for Disease Control guidance specific to that pathogen, or otherwise in accordance with the manufacturer's instructions, using EPA registered disinfecting solution.

If the ambulance has been used to transport a police dog, or if a service animal has been transported along with a human patient, in addition to the requirements above, clean the patient compartment HVAC filter, as that is the most likely to harbor animal hair and dander.

All biohazard waste shall be properly disposed of in appropriate containers. Gloves and any other disposable PPE used for cleaning and disinfecting the vehicle should be properly doffed and disposed of after cleaning; wash hands immediately after removal of gloves and PPE with soap and water for at least 20 seconds, or use an alcohol-based hand sanitizer with at least 60% alcohol if soap and water are not available.