

EMS....."Gone to the Dogs"



PRE-020

By

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Commonwealth of Va. Region 1 Urban Search and Rescue Team

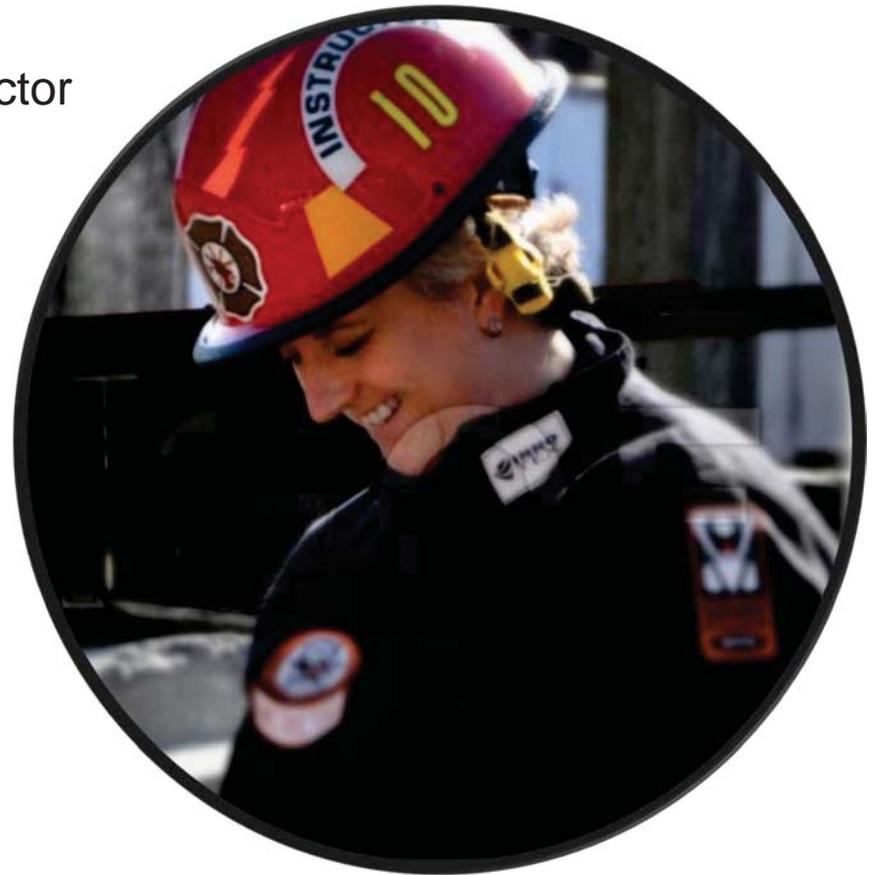


Introductions/Information

- Punctuality
 - Bathrooms
 - Breaks
 - Refreshments
 - Dress/Attire
 - Cell Phones
 - Notes
 - Pictures
 - Handouts
 - Instructor Cadre
-

Mary Frayser

- MSN, CCRN, NREMT-P
- VCU Medical Center – Neuroscience ICU
- DHS-HSS-VA-1 DMAT – Nursing Supervisor
- Forest View VRS – Life Member
- Hanover Fire-EMS
- Va. Department of Fire Programs Instructor
- Va. Association of VRS Instructor



V.M. “Max” Frayser

- Career – Lieutenant, York Co Fire Rescue, Tech Rescue Team
- Volunteer – Lieutenant, Hanover Co FEMS, Training Division
- Central Va USAR Team Disaster K-9
- Tidewater Search & Rescue – Disaster K-9
- Tactical Care Combat Certified Paramedic
- Nationally Registered EMT-Paramedic
- ASHI Level 9 Instructor
- 35 Years in EMS

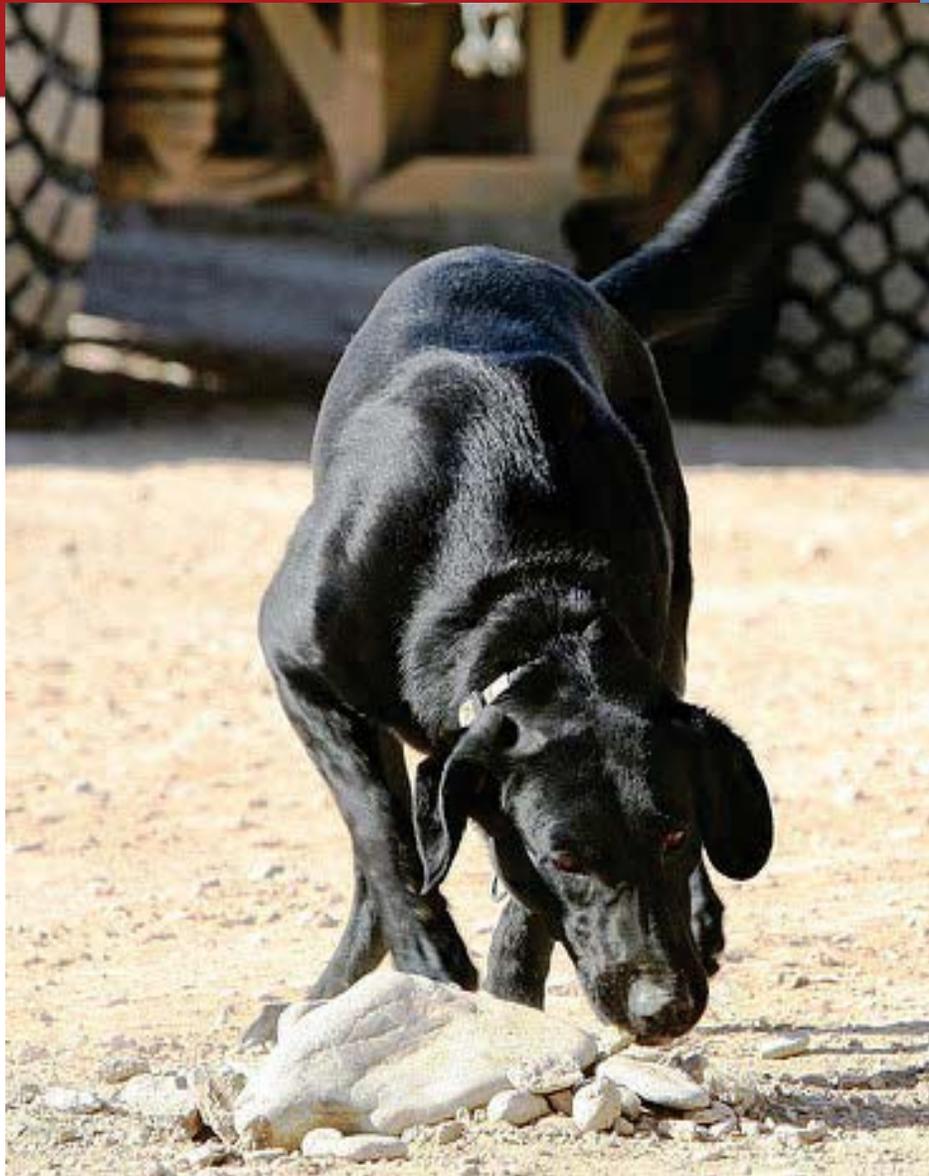




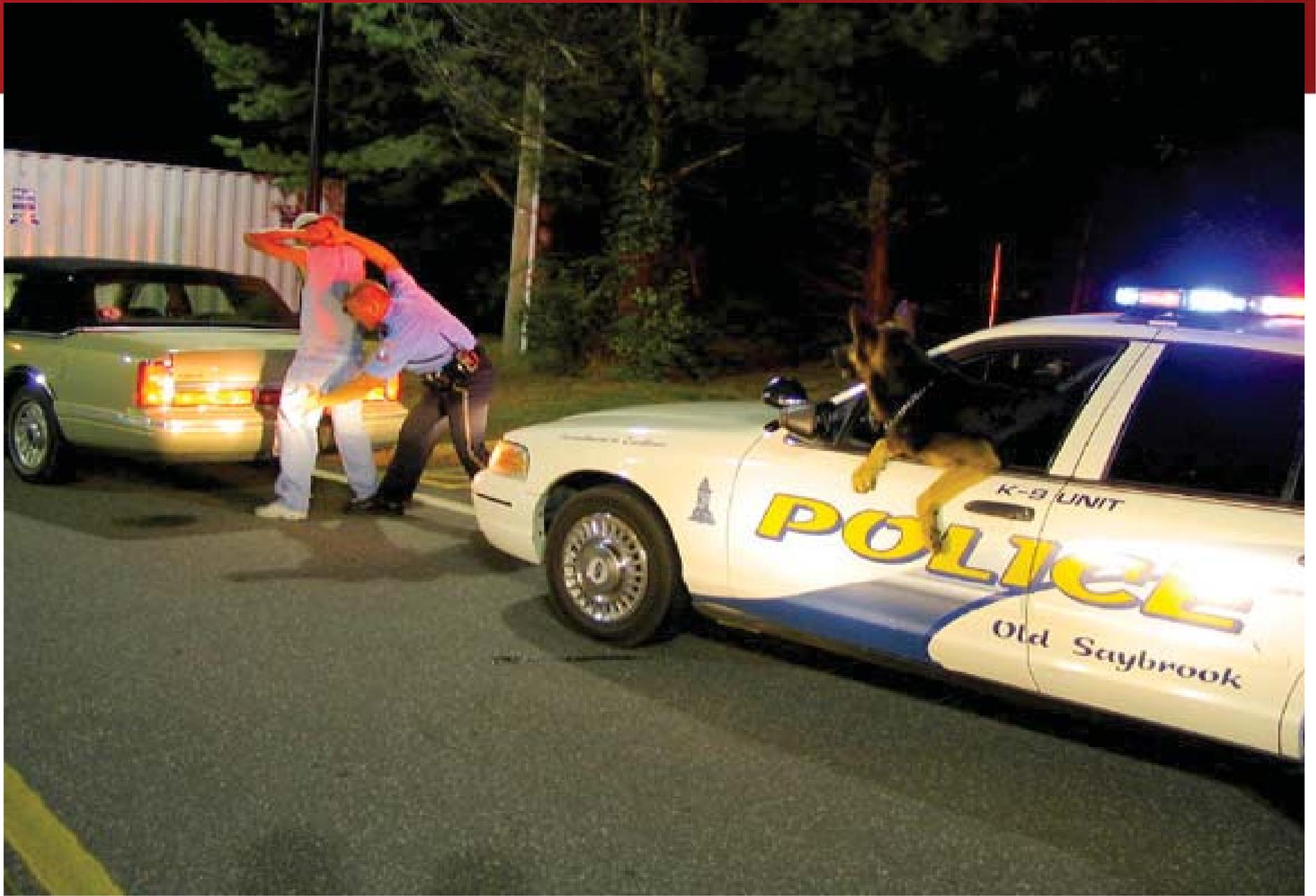
WARNING.....

- This Presentation uses actual photos of Canines Live and Cadavers for the use of Medical Education.....
 - There are Graphics in this presentation of Canine Medical Procedures that may be considered disturbing to some people.
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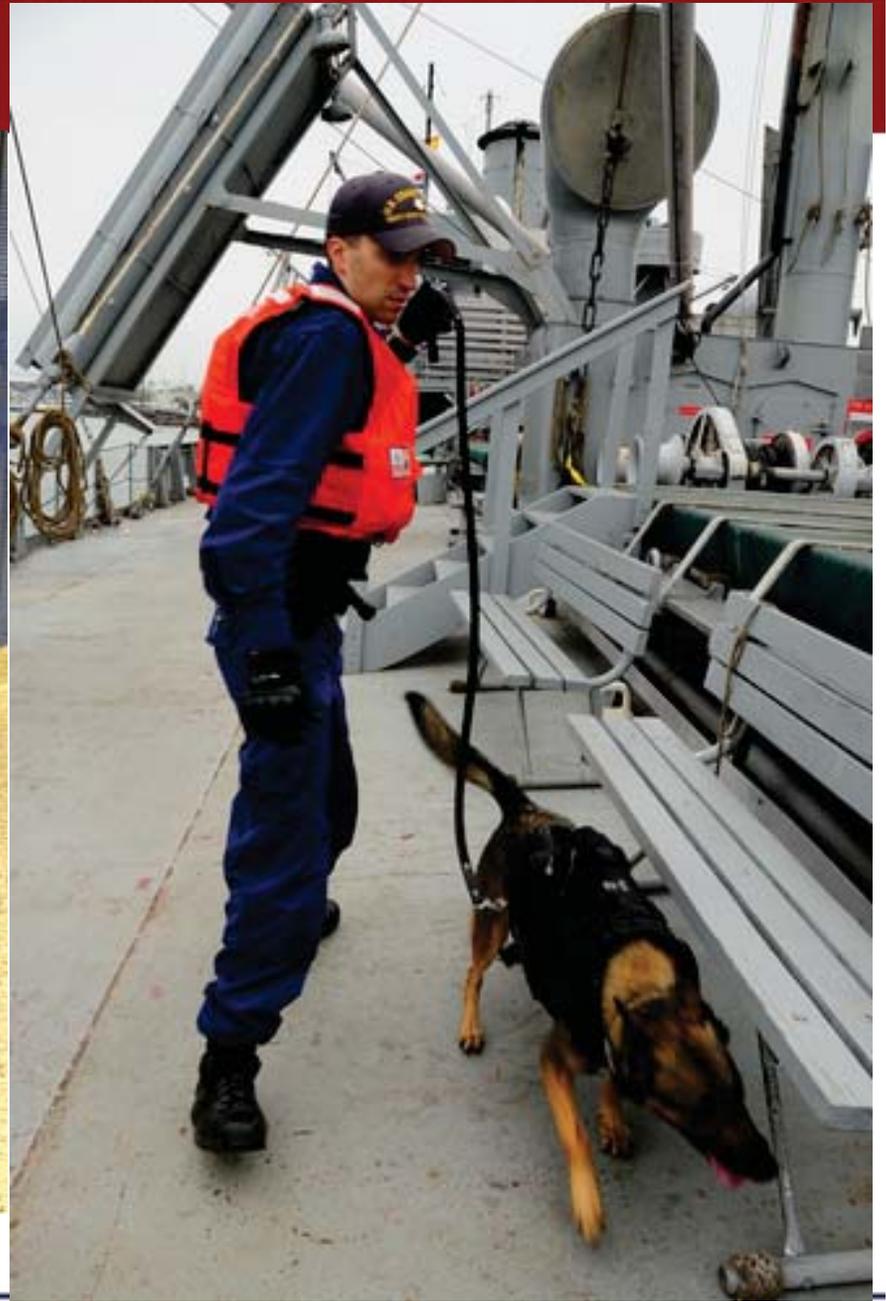






















Working K-9's

- “These brave canines lay there lives on the line daily to enforce our laws, find deadly contraband, locate or families in disasters and fight our wars.....So how do we repay them?”

- » President
 - » George W. Bush
 - » After 09-11-2001
-



Did you Know.....

- On 10/22/08 1035 hours, Plymouth Township PA Police K-9 unit Bank Robbery, K-9 Andy shot twice, Bank Robbery Suspect was Killed by Police
 - On 06-22-09 12:30am Broward Co. FL. Officers were trailing a man who fled after allegedly firing shots during a domestic dispute with his ex-girlfriend, K9 Oozi Shot , Suspect was killed by Police
 - 01/01/10 Oceanside Police Department in San Diego, Ca. responded to an assault, suspect ran onto a bridge with officers, suspect pulled a knife, K-9 Stryker attached to the suspect fell 130 feet to the river below. The suspect lived.
 - On Friday June 4, 2010, FEMA Virginia Task Force 2 K-9 Winters was in the process of searching a rubble pile for a live victim.
-



Treatment Standards ????

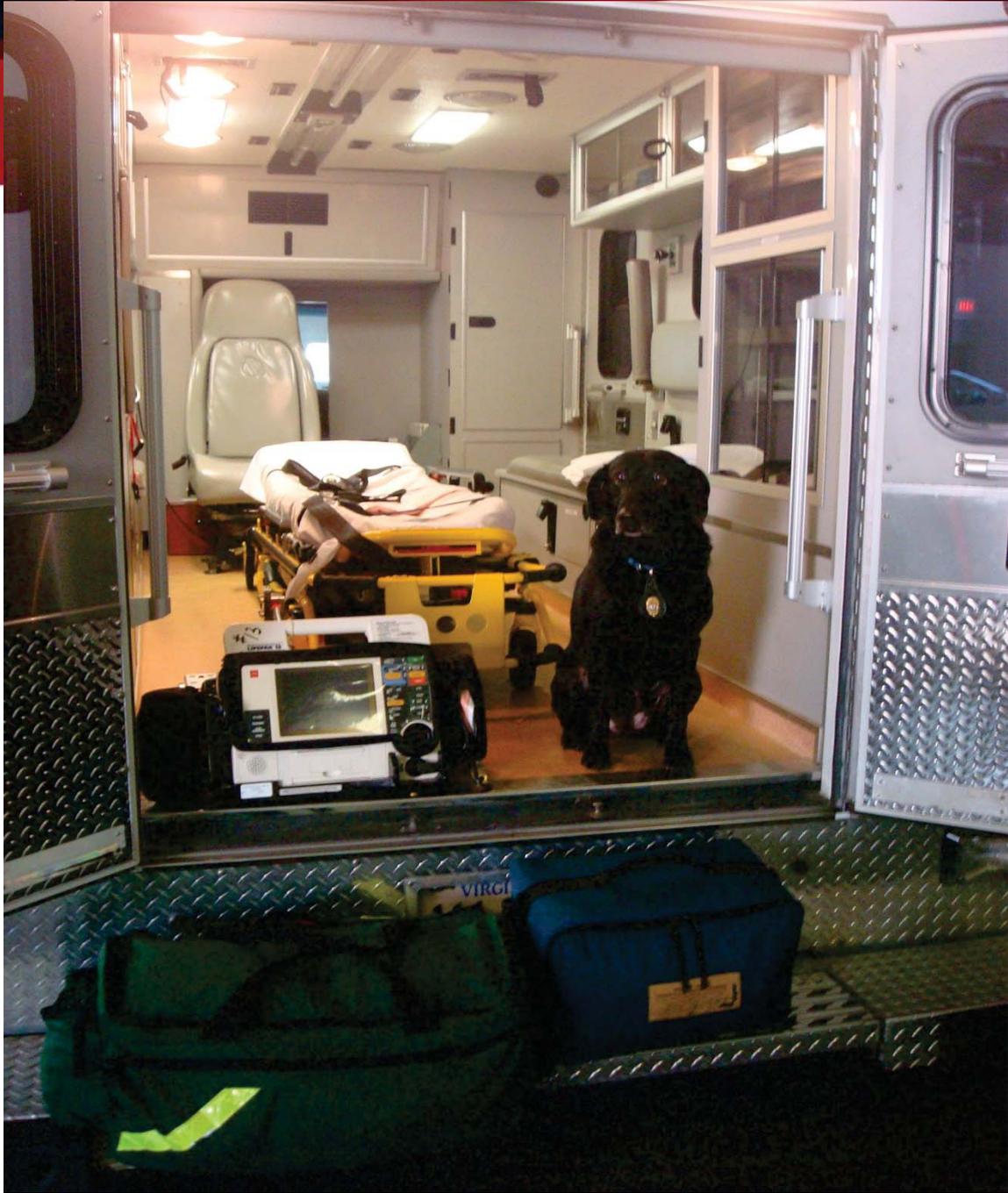
- Military Working Dogs (MWD)
FM3-19, 17th July 2005
 - “If wounded or killed a MWD shall be evacuated using the **same assets** and shall receive the **same consideration and care** as that given to a soldier under the **same circumstances**”
-

Emergency











**Why use these resources
For an animal?**

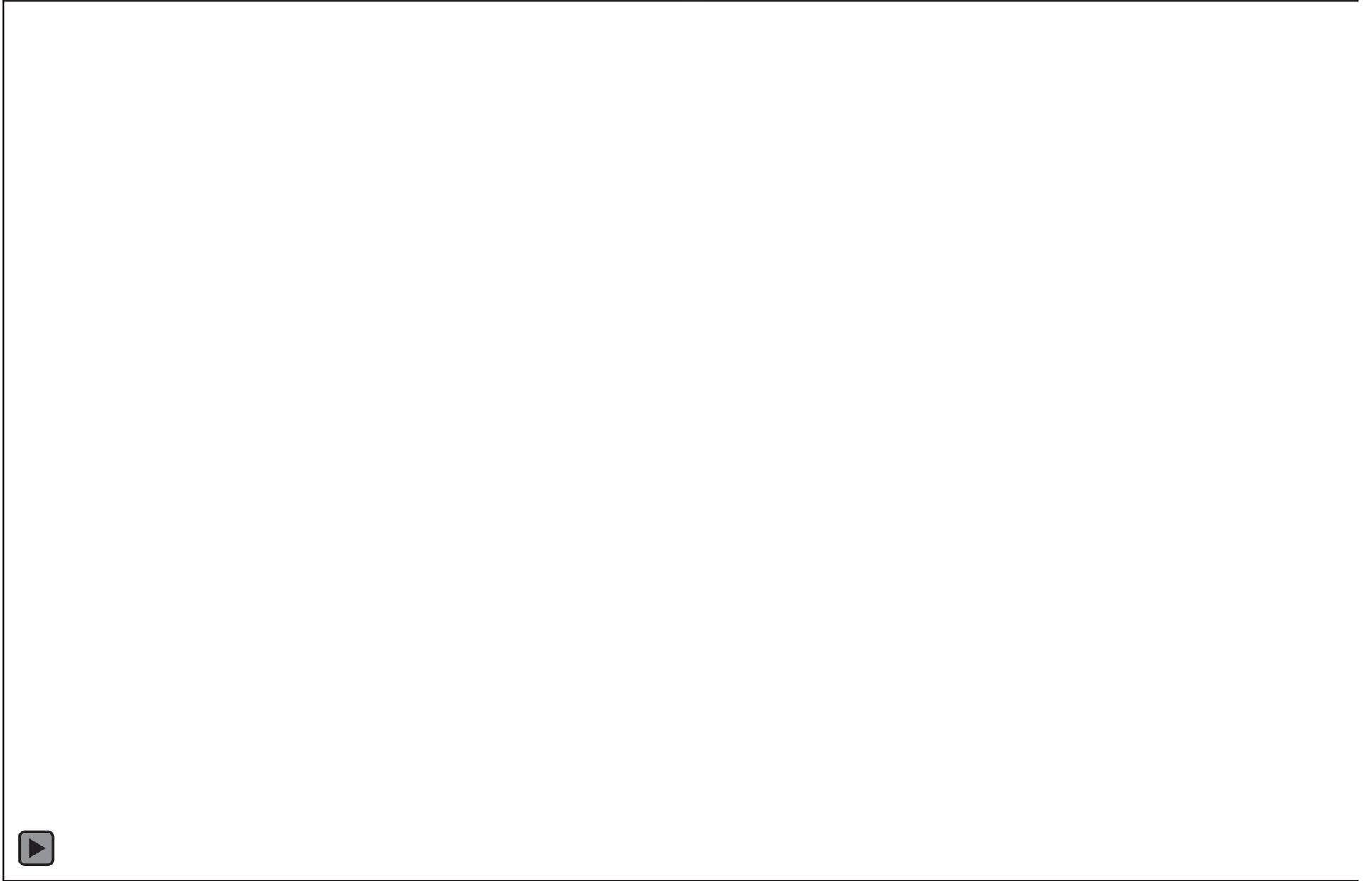
Because they are on our team.....



Introduction

- K-9 Liberty and I.....







From the Office of EMS

- Va. Board of Veterinary Medicine

 - Va. Office of EMS
-



The Basics

- If in Doubt....
 - Use your Human Medical Skills
 - Consider your Canine to be a
 - ***HIGH SPEED -FURRY -PEDIATRIC!***
-

Working with Canines

- Which ones BITE???
- Fire and SAR Canines
- Police Canines



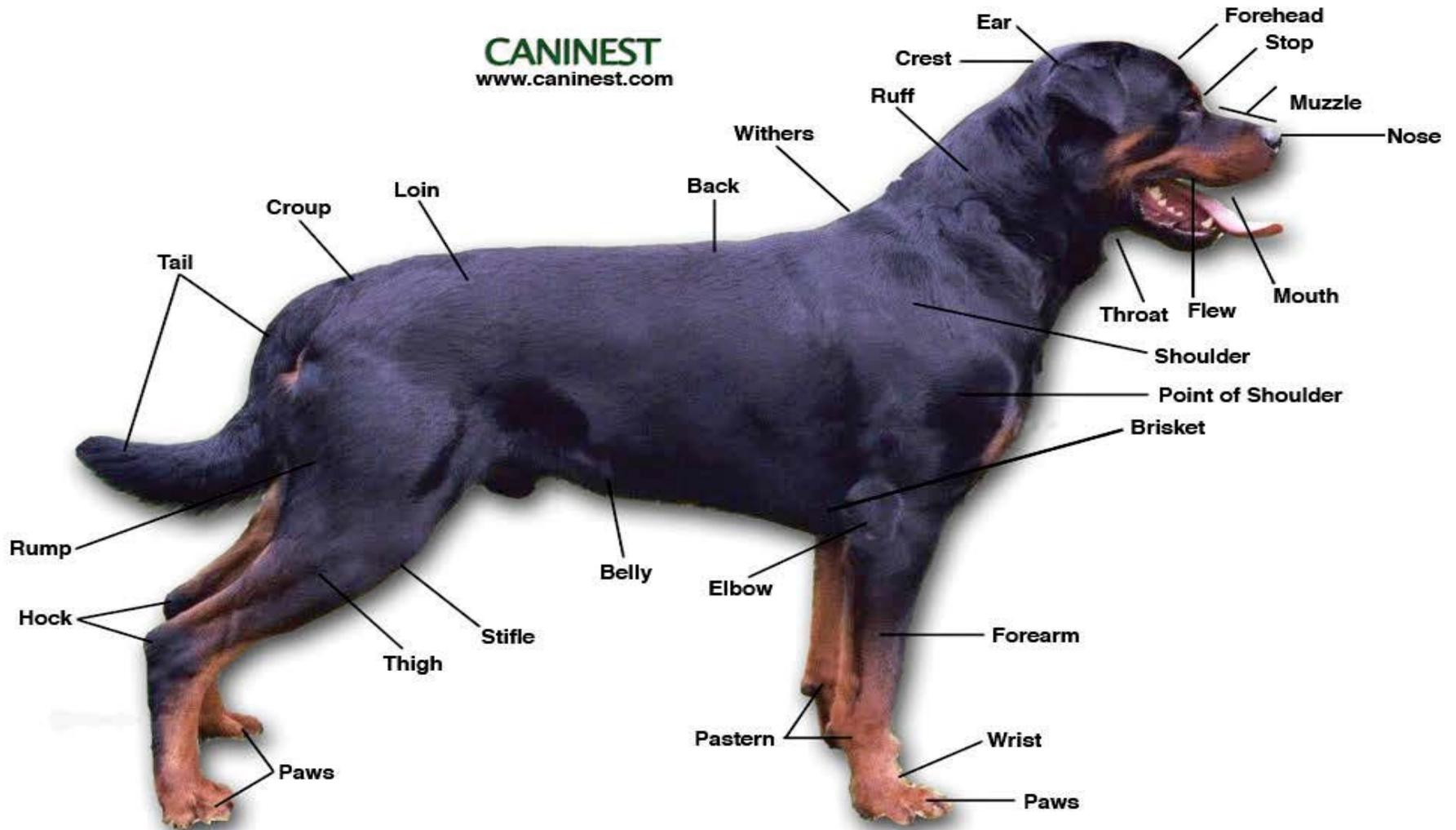
- All Canines.....When they are HURT!
-

Care Under Fire – LE K-9

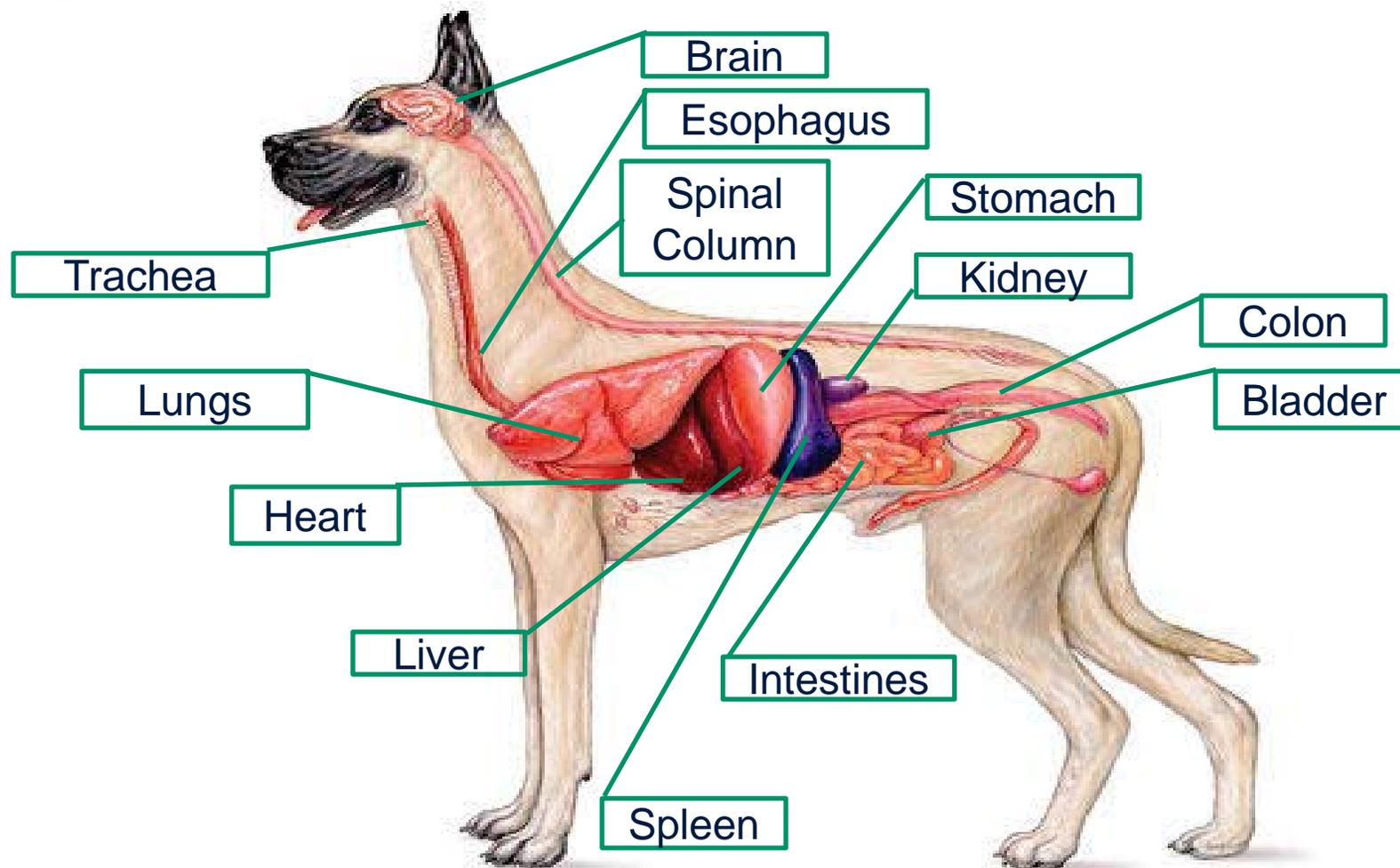
- “The Best medical care under fire is ...
- **ELIMINATE THE THREAT!**
- ***Fire Superiority !!!***
- **M X**
- Muzzle
- Move eXtract
- Massive Hemorrhage eXsanguinate



Basic Canine Anatomy

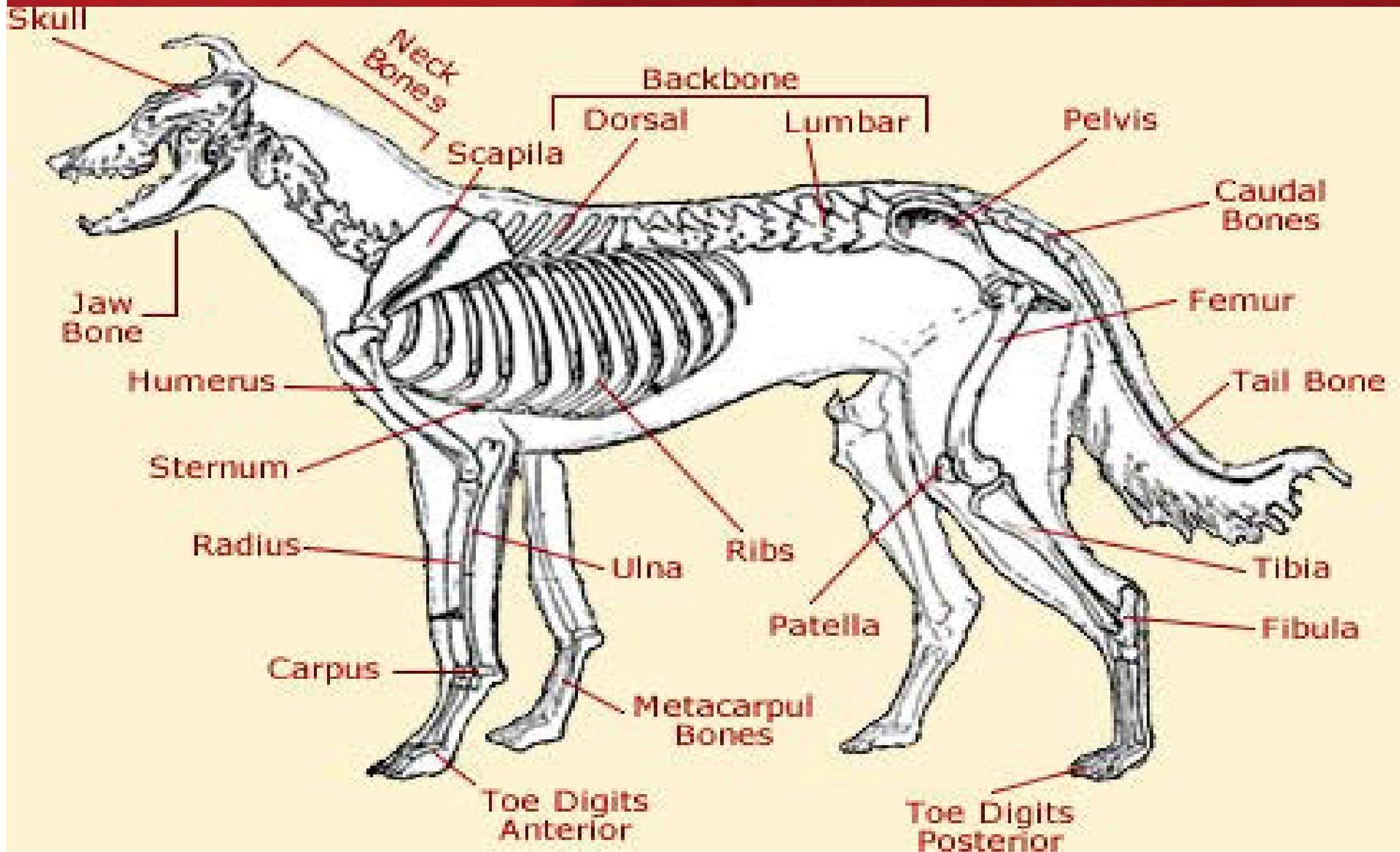


Basic Internal Canine Anatomy



SCIENCEPHOTOLIBRARY

Canine Skeletal Anatomy



Basic Canine Vitals

- The Handler **WILL KNOW** his/her Canine! **ASK!**
- **Temperature** – 100-102.5 degrees
 - Rectal, Ear Digital
- **Pulse** – 60-120bpm
 - Palpate, Auscultate
- **Respiration** – 20-40bpm
 - Visualize
 - Auscultate
 - Bilateral

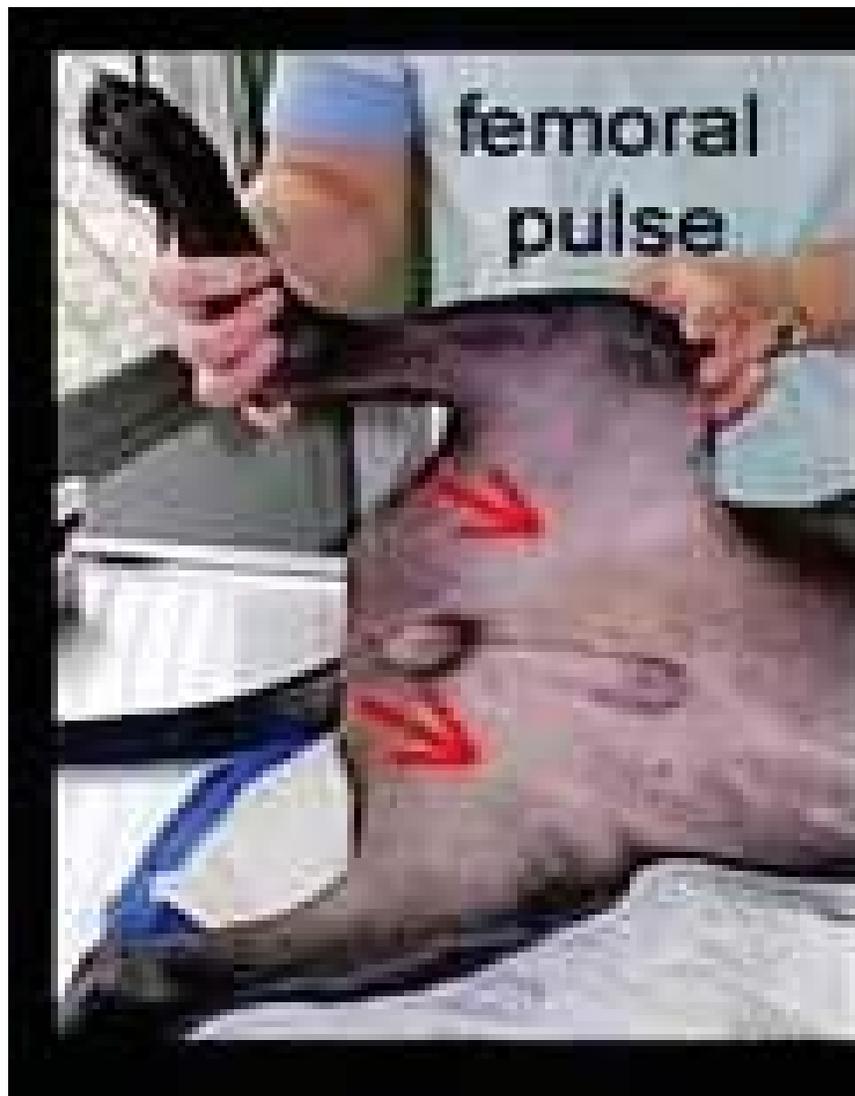
S.A.M.P.L.E.
O.P.Q.R.S.T.

Basic Canine Vitals

- P
- C
- M
-
- C
-
-
-



Canine Pulses





Temperature

- Rectal Best
- Insert approx. 2" of the thermometer
- 102 degrees normal
- Ear works
- Tympanic – Pull ear up and out





Head to Toe...Tail

- A-B-C's
 - Head, Eyes, Ears, Nose, Mouth
 - Neck, Chest Front Legs, Paws
 - Abdomen, Rear Legs, Paws
 - Genitalia, Tail
 - Vitals, T-P-R-MM-CRT
 - Over All Impression
-



Impression.....

- “Canines do not feel pain as we do”
 - “Canines can walk on broken legs”
 - “A whining canine is an injured canine”
 - “A bleeding canine is a injured canine”
 - “A canine breathing hard is.....”
 - “A quiet canine is a dying canine”
-

Muzzle the Canine 1st



Carry the Canine





Scene Safe BSI

- MUZZLE THE INJURED CANINE!!!!
 - Wear Gloves.....
 - Have an assistant
 - Let the handler restrain the K-9
 - K-9's Regular Muzzle
 - Medical Kit Muzzle
 - Field Muzzle
-



Preventable Causes of Working K-9s Deaths

- 51% Bleeding from extremity wounds
 - 26% Tension Pneumothorax
 - 21% Hyperthermia
 - 2% Airway Obstruction
-





Tactical Field Care

- After the threat has been eliminated
 - Tactical Field Care Begins
 - Airway
 - Breathing
 - Circulation
 - Shock
 - Hyperthermia/Hypothermia
-

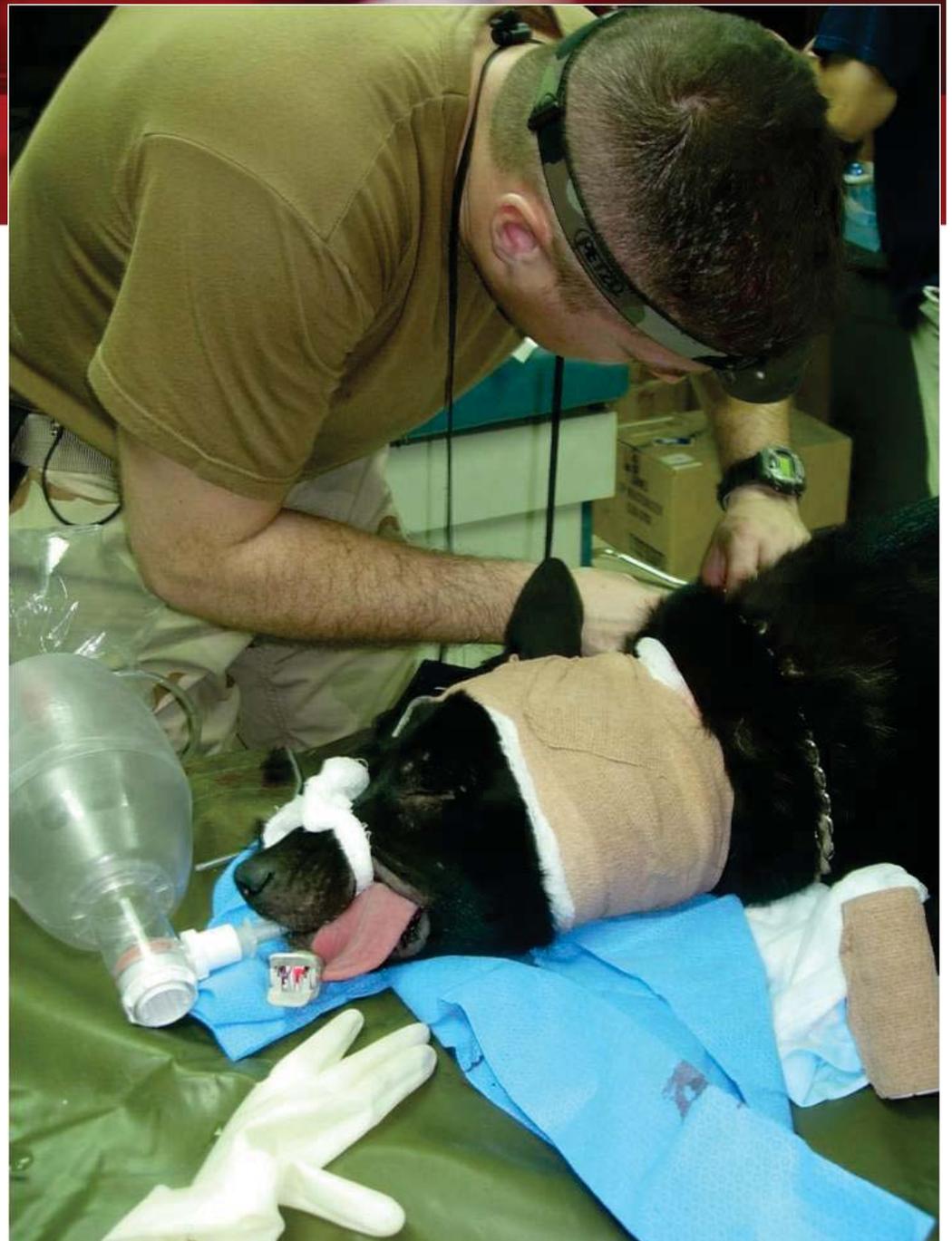
“Street Care”

- Airway
- Breathing
- Circulation
- Shock
- Hyperthermia/Hypothermia
- Full Examination/Assessment
- Use full Interventions and resources available....



Airway

- Airway
 - Check the Airway
 - Extend the Neck
 - Pull & Lay over tongue
 - Intubation
 - Surgical Airway



Breathing

- Respirations:
 - Present ?
 - Equal ?
 - Bilateral ?
 - Butterfly Hands - Symmetry?



- Recognize Tension Pneumothorax
 - Breath Sounds
 - Chest Decompression



Circulation

- Circulation
 - Assess for massive bleeding
 - Perform a blood sweep/smell
 - Direct Pressure
 - Basic Bandaging
 - Hemostatic Agents
 - Check Femoral Pulses
-

Restraining the Canine





Oxygen

- Got it.....USE IT!
 - 2-6 LPM via Petmask
 - Lateral Recumbent
 - Briskly rub the ribs and stimulate the Canine
 - Offer water
-

Canine Oxygen Therapy

- PETMASK
- Kits
- Improvised



Using Petmasks.....



In



Bleeding.....

- Minor
 - Direct Pressure
 - Bandaging
 - Vet wrap
 - 4" Powerflex by Andover
 - 23 pound strength
- Tissue Glue
- Pads



Bleeding.....

- Minor
 - Glue
 - Steri Strips
 - Staples
 - Sutures
- Moderate
 - Israeli Bandage
 - Military Bandage



Bleeding.....

- Moderate
 - Hemostatic Agents
 - Quick Clot
 - Celox
 - Wound-stat



Leg Bandaging.....







Bleeding.....

- Major
 - Tourniquet
 - CAT
 - CAT (Combat Application Tourniquet)
 - Hard to tighten with Canine's conical anatomy
-

Bleeding.....

- Swat-T
 - Stretch – Wrap and Tuck
 - Has an adhesive nature
 - Addresses the K-9 anatomy problem
 - Can be used as a pressure bandage
 - www.swattourniquet.com



Bleeding.....

- Major
 - All the above
 - Pack the wound
 - Stuff the gauze and Hemostatic agent into the wound
 - Pinch the wound together
 - Apply an aggressive Pressure bandage



Ear Lacs





Fractures

- Long-bone, Heavy Pressure
 - Stabilize manually
 - Pad well – Cast Padding
 - Vet Wrap – Pull off
 - Careful of Circulation
-

ORANGE

	RESUSCITATION	RAPID SEQUENCE INTUBATION PREMEDICATIONS	RESUSCITATION
RESUSCITATION	Epinephrine (1:10,000) 0.27 mg (2.7 mL)	Atropine 0.5 mg	Epinephrine (1:10,000)
INDUCTION AGENTS	Epinephrine ET (1:1,000) 2.7 mg (2.7 mL)	Pan/Vecuronium (Defasciculating Agent) 0.27 mg	Epinephrine ET (1:1,000)
	Atropine (0.1 mg/mL) 0.5 mg (5 mL)	Lidocaine 40 mg	Atropine (0.1 mg/mL)
	Atropine ET (0.4 mg/mL) 0.8 mg (2 mL)	Fentanyl 80 mcg	Atropine ET (0.4 mg/mL)
	Sodium Bicarbonate 27 mEq	INDUCTION AGENTS	Sodium Bicarbonate
	Lidocaine 27 mg	Etomidate 8 mg	Lidocaine
	Lidocaine ET 54-80 mgs	Ketamine 50 mg	Lidocaine ET
	Defibrillation 53J/106J	Midazolam 8 mg	Defibrillation
	1st/2nd Dose (may repeat)	Propofol 80 mg	1st/2nd Dose (may repeat)
	Cardioversion 27J/53J	PARALYTIC AGENTS	Cardioversion
	1st/2nd Dose	Succinylcholine 50 mg	1st/2nd Dose
	Adenosine 2.7 mg	Pancuronium 5.3 mg	Adenosine
	1st Dose 5.4 mg	Vecuronium 5.3 mg	1st Dose
	2nd Dose if Needed 130 mg	Rocuronium 27 mg	2nd Dose if Needed
PARALYTIC AGENTS	Amlodarone 130 mg	MAINTENANCE	Amlodarone
(give atropine prior)	Calcium Chloride 530 mg	Pancuronium/Vecuronium 2.7 mg	Calcium Chloride
	Magnesium Sulfate 1325 mg	Lorazepam 1.3 mg	Magnesium Sulfate
MAINTENANCE			
ronium 2.1 mg			
1 mg			

22 KG

24 KG

26 KG

28 KG

30 KG

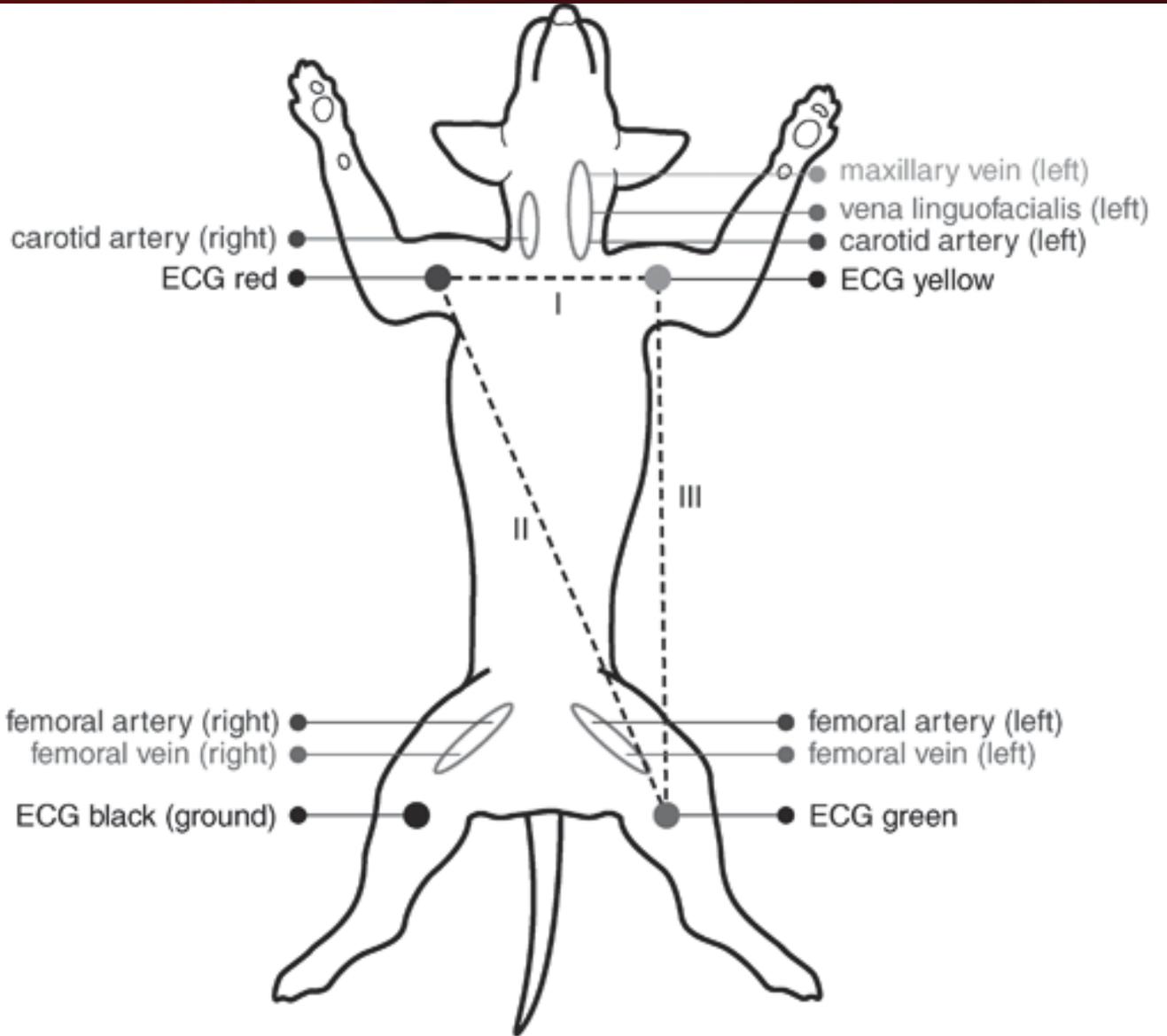


Canine EKG

- Standard EKG Monitor
 - 3 or 4 lead
 - Human Leads stick to foot pads
 - Clips to flank skin
 - Electrodes to the Paws
 - Shave Paws and stick
 - Stick to the basics
-

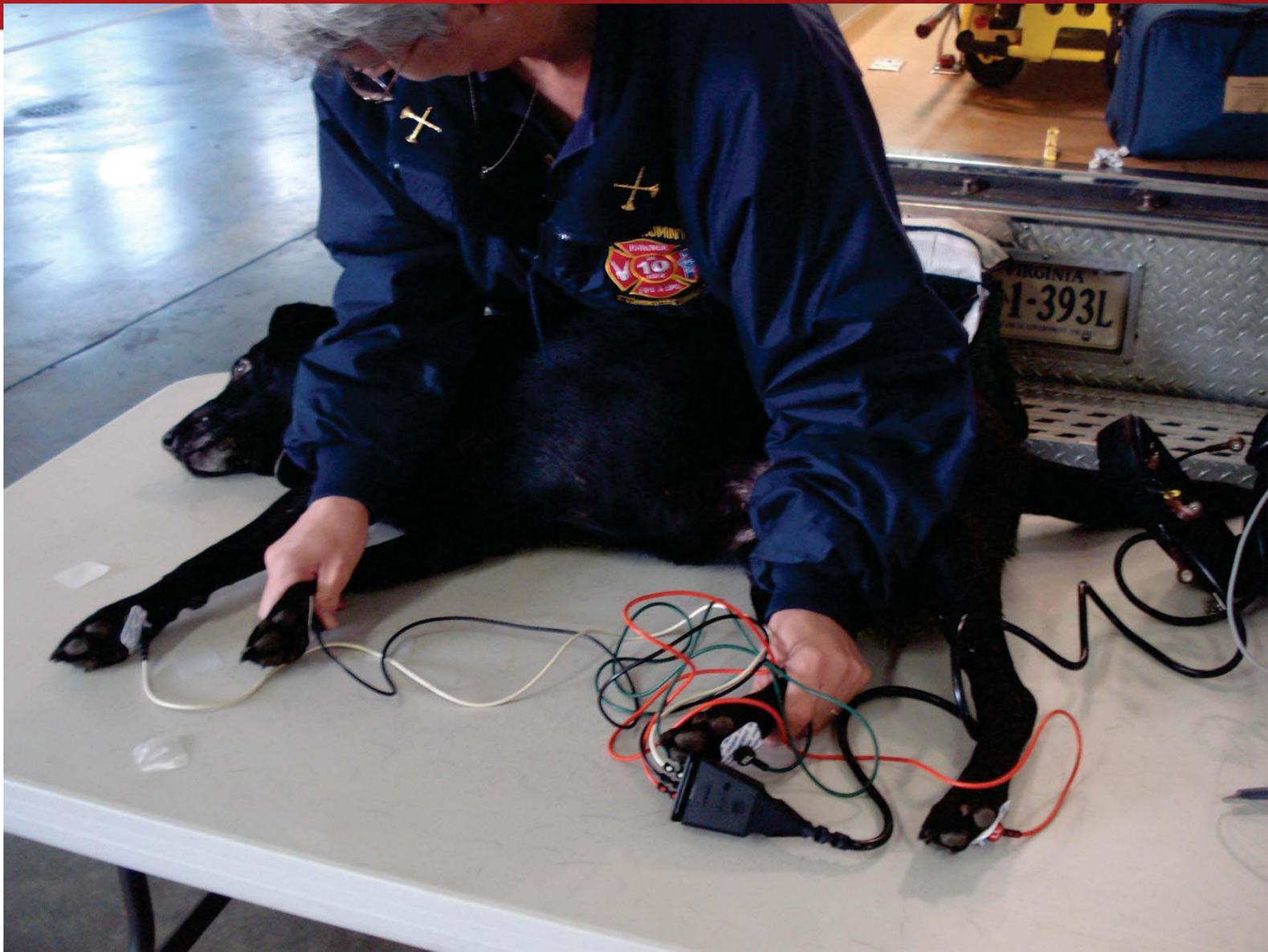
EKG





= skin incisions = ECG needle position = ECG lead = veins and arteries

EKG



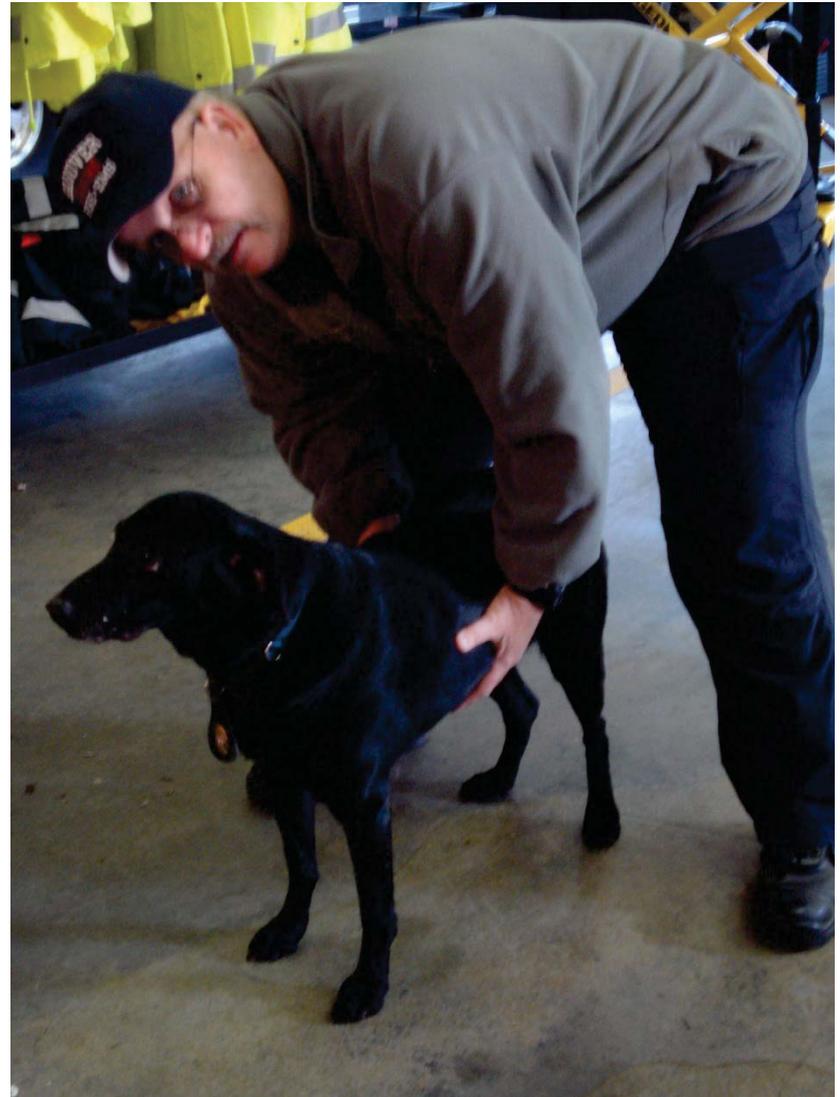
Hurry Cases....

- Unconscious Canine
 - Ly on its side
 - Extend the Head & Neck
 - Pull the Tongue out
 - Look
 - Listen
 - Feel



Hurry Cases....

- FBOA
 - Abdominal Thrusts
 - Last 2/3rds of the canine
 - The soft area
 - Thoracic Compressions
 - Side to Side
 - Gravity is your friend!!!
 - Digital Removal.....
 - Caution....BITE!





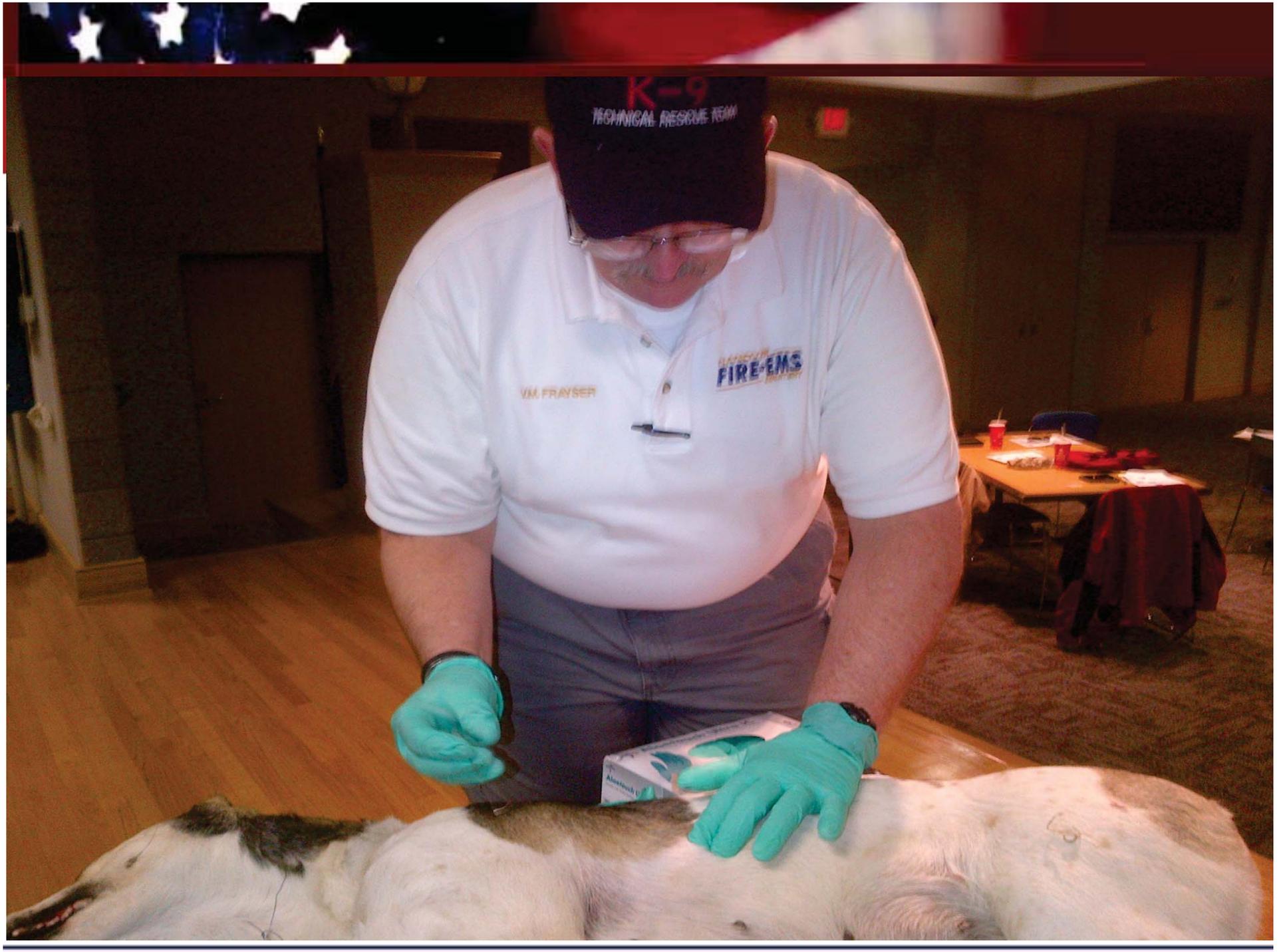
Tension Pneumothorax

- Sn/Sn
 - Difficulty Breathing
 - Paradoxical Breathing
 - Decreased or Absent Breath Sounds
 - Tracheal Deviation
 - JVD
 - Shock
-

Chest Decompression Site







Tension Pneumothorax







ABC's of CPR

- Number of Compressions and Breaths
 - Compression ratio of 15:2
 - Aim for a rate of 100 per minute
 - Continuous once started
 - Ambu w/O₂ can be used with Pet Masks
 - Pull tongue out and to the side
 - Change out Rescuers when needed
 - Watch for Abdominal Distention
-



Canine CPR v/s Human CPR

- Simultaneous Compression and Ventilation
 - Thumpers
 - Auto-pulse
 - Lucas Devise
 - Other Mechanical Compressors
 - Rescue POD, Cardio pump,
 - Other Impedance Threshold Devices
 - No Proven Benefit.....Child?
-



Canine CPR

- Rate – 80-100 Compressions/min
 - Depth – 30-35% or 1/3rd of the depth
 - Compress – Wide Area of the Chest
 - One hand on top of the other
 - Even pressure with palm of hand
 - Compress from the Spine side of the Canine
-



Canine CPR

- http://www.youtube.com/watch?feature=player_embedded&v=VJGIsYHI9cU

K





Endotracheal Intubation

- K-9 must be Unconscious or Sedated
 - ET Tube size 8-10mm for 10-20kg,
 - ET Tube size 12mm for 30+ kg
 - Sternal or Lateral positions.....(NOT on their Back)
 - Handler holds jaw and tongue
 - Observe the ET Tube pass the Cords
 - Inflate the Balloon
 - No Adjuncts
-

Endotracheal Intubation





Surgical Airway

- Last Resort , most for Anaphylaxis
 - Locate mid Trachea area
 - Cut through the skin
 - Locate the Trachea
 - Cut a slit, Insert ETT, Ventilate!!
 - Human Cric Kits work also
 - Needle Cric Kits do not.....
-

Surgical Airway





Shock

- Signs/Symptoms
 - Lethargic
 - Distal Pulses – weak, absent
 - Heart Rate – Tachycardia, Irregular
 - Mucus Membrane Color – Pale
 - Capillary Refill Time - >2 sec
 - Pulse Quality
 - Skin Cool
-

Tactical Field Care – Shock – IV Therapy

- Intravenous IV
- Intraosseous IV
- Venous Cut Down
- Bi-Lateral Lines
- Pressure Infusers
- IV Pumps
- 90 ml/kg/hr.....



Intravenous

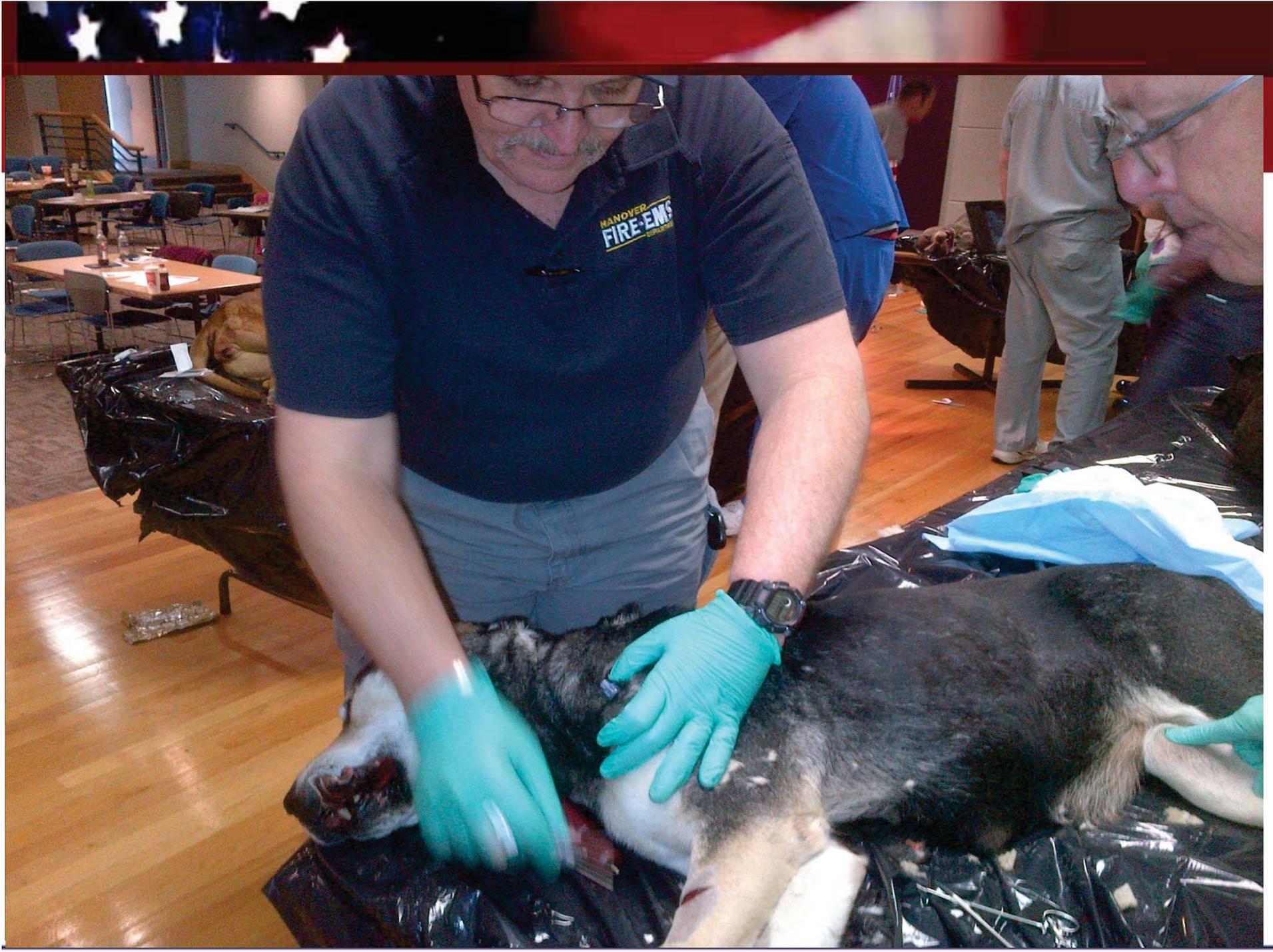


Intraosseous

- Top of the Tibia
- Two Fingers below Tibial Crest
- Top of the Hip
- Peds Needle
- Normal procedure.....









Venous Cut Down

- Largest Possible, 18ga-16ga
 - Start Distal, Go proximal
 - Consider two IV's for Large K-9s and Trauma
 - SKIN is VERY Tough.....Scalpel
 - 0.9%NS, L/R, Normosol R IV's
 - Shock – 50-90ml/kg/hr
 - Reassess
-





Heat Related Emergencies

- **Early Signs Compensated:** The handler will know his/her K-9
 - Panting
 - Hypersalivation
 - Tachycardia
 - Hyperemic(Engorged) Mucus Membranes
 - Rapid CRT
 - Bounding Pulses
 - Paddled Tongue
 - Elevated Temperature 109 degrees is BAD!



Heat Related Emergencies



LIFE LESSONS

KICKING THE DOG WAS A BAD IDEA

Heat Related Emergencies

- VERY Late Signs
 - Shock Progresses
 - Pale to Gray Mucus Membranes
 - Pallor
 - Delayed CRT
 - Low BP
 - Weak or no distal pulses
 - Acute Respiratory Distress



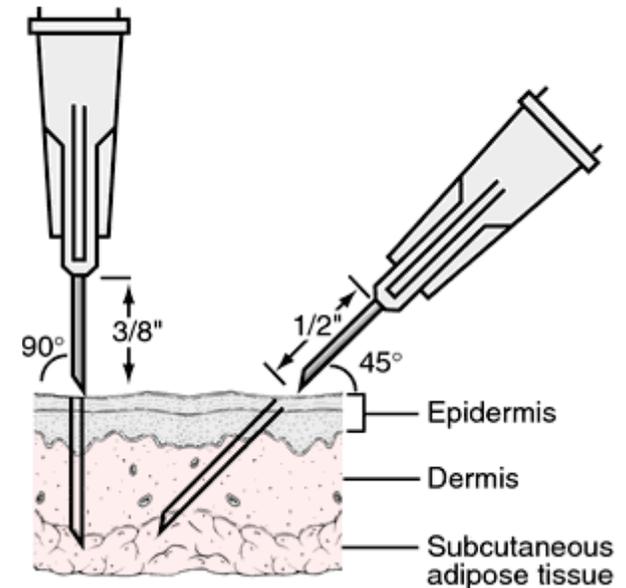


TOTALLY
COOL
PIX.COM



K-9 Camelbak

- Think about it!!!!
- Prevention and treatment...
- Tent the skin
- Normal Maxi Drip IV set up
- 50 lb K-9 = 250cc
 - 0.9%NS, L/R, Normosol R IV's
 - Reassess
 - Continue to look for Shock
 - Continue to look for Hyperthermia



K-9 Camelbak

- Regular IV Set Up
- 18ga needle
- 250cc to 500cc med K-9
- 500cc to 1000cc Large
- Saline 0.9%



Penetrating Wounds

- Chest, Abdomen
- Wrap in Saran Wrap
- Use Vet wrap on the legs
- K-9 MAST....
- Pressure
- O2
- IV
- TX



Snakebite



-
-
-
-

The Vaccine....

- **Designed for** : Western Diamondback
- **Also**: Western Rattlers, Sidewinders, Southern
- **Partial**: Eastern Diamondback
- **No Protection**: Water Moccasin, Cottonmouth, Mojave, Coral
- **Consider a Hyperbaric Chamber**



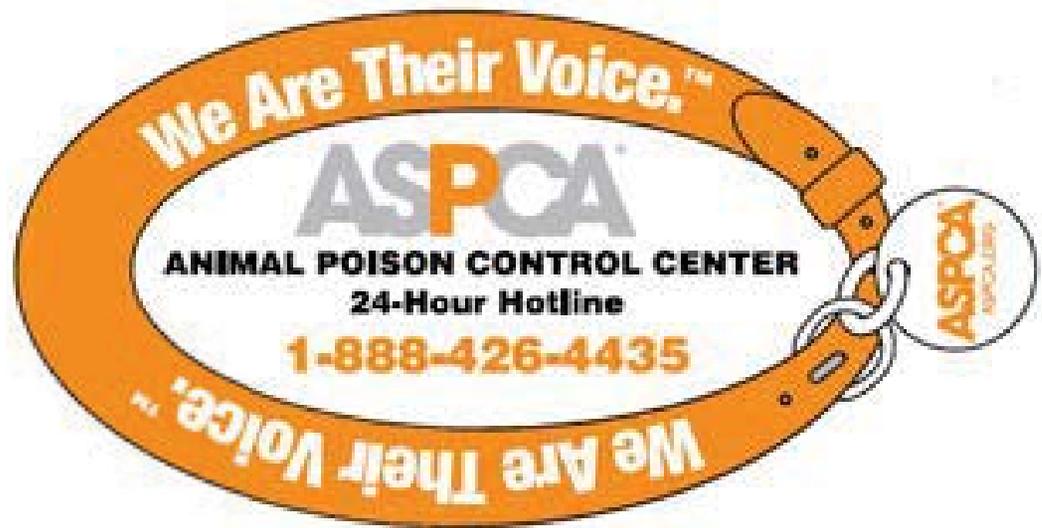
Pain Control & infection Control

- K-9s have a Higher Threshold
- Leg & Rib Fx seldom require Pain Meds
- Canines fight infection 30% harder and faster



Poisons....

- If in doubt call!!!!



 **PET
POISON
HELPLINE®**
800.213.6680
www.petpoisonhelpline.com



Common Poisons

- **Plants** – 88 Household plants
 - **Human Medications** - Bad
 - **Grapes – Toxicity** – eat whole
 - **Onion** - It causes hemolytic anemia
 - **Garlic** – Toxic to canines
 - **Chocolate** - Chocolate is severely toxic to dogs because it contains theobromine. This is a stimulant that effects the nervous system and heart muscle, as well as increasing the frequency of urination.
 - **Snails** – digestive fluids
 - **Rat Poison** – really?
 - **Antifreeze** – Ethyl Glycol – 30-45 min
 - **Xylitol** – sweetener , can not be digested
 - **Narcotics** – really?
-

Symptoms

- Vomiting
- Diarrhea
- Dehydration
- Lack of Appetite
- Lack of energy
- Lethargic
- Drooling



Treatment to Possible Poisons

- Inducing Vomiting
 - Apomorphine
 - 3% Hydrogen Peroxide
 - 0.5-2ml/kg
 - 2nd dose after 15 minutes
 - Max 3 tablespoons
- Charcoal
- NG Tube
- Never Induce Vomiting for Petroleum products and acids



Just like us.....

- Smoke Inhalation
 - Oxygen is GOOD!
- Eye Exposure
 - Flush quickly
- Allergic reaction
 - Benadryl Peds dose crush and rub on gums
 - Epi Pen Jr if severe
- OD
 - Narcan 2mg iv



Pain Management

- Enteric Coated Aspirin
 - Non-bleeding
 - 10-25 mg/kg PO BID-TID
 - With food
- Tylenol
 - Bleeding
 - 5-15 mg/kg PO BID-TID
 - With food
- Ibuprofen NO! Hurts Kidneys, stomach



Hypo – Hyper Glycemic

- Normal Blood Sugar
100-180 mg/dl
- Hyperglycemia
 - Saline Fluids
- Hypoglycemia
 - FSBS can be taken in paw pads
 - 15gm Oral Glucose
 - 1ml/kg D50 IV-IO



Seizures

- Protect K-9 Airway
- Lateral
- Pull out tongue
- Soft teeth guard
- Oxygen is GOOD!
- 0.1 mg/kg Ativan/Valium IV-IO - Rectal



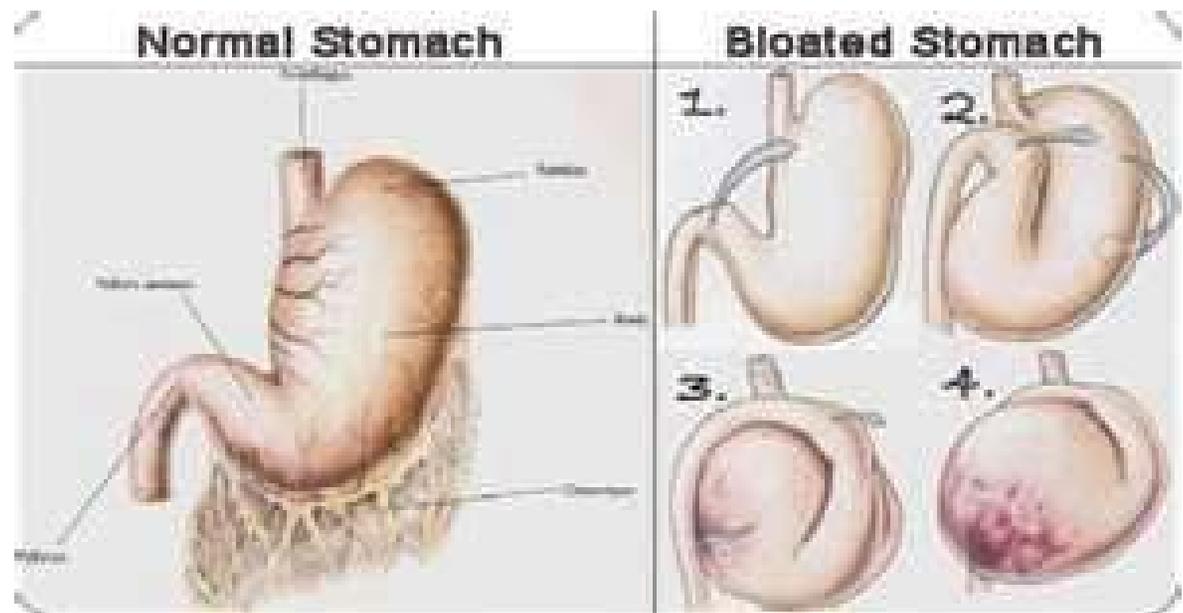
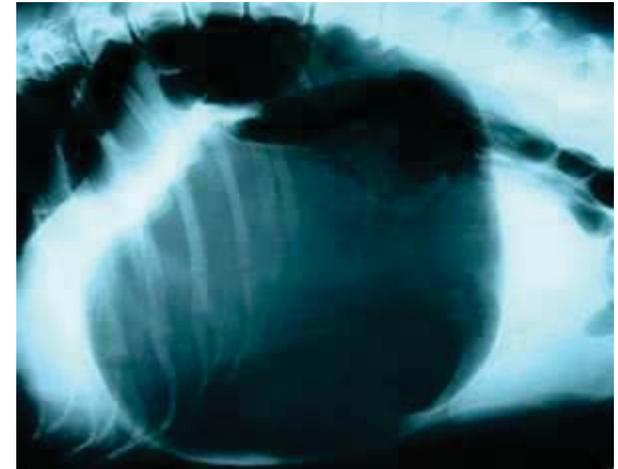


Bloat

- Bloat occurs when something goes wrong during digestion of food. Something causes gases to build up in the stomach so fast that the stomach blows up like a balloon, stretching the organ so much that normal circulation of blood to and from the heart is cutoff.
 - The stretching itself and the lack of blood to the stomach's cells can cause cell death, or necrosis.
 - What makes it even worse and more immediately serious is when the stomach actually “twists and turns” (known as volvulus) at the top near the esophagus and at the bottom of the stomach at the pyloric valve.
 - Picture a tootsie roll candy that's got a wrapper twisted at both ends keeping the candy lodged inside the paper.
-

Bloat

- Signs/Symptoms
 - Distended abdomen
 - Retching
 - Gas
 - Difficulty Breathing
 - Shock



Bloat

- Treatment
 - Epigastric Tube
 - Horse Naso-Gastric Tube
 - Measure Nose to last rib
 - 3 Esophageal constrictions
 - Cricoid Sphincter



Bloat

- Treatment
 - Epigastric Decompression
 - Ly Canine on left side
 - Thump the Abdomen
 - Tympanic - Spleen
 - Hollow – Stomach
 - Locate site
 - Decompress

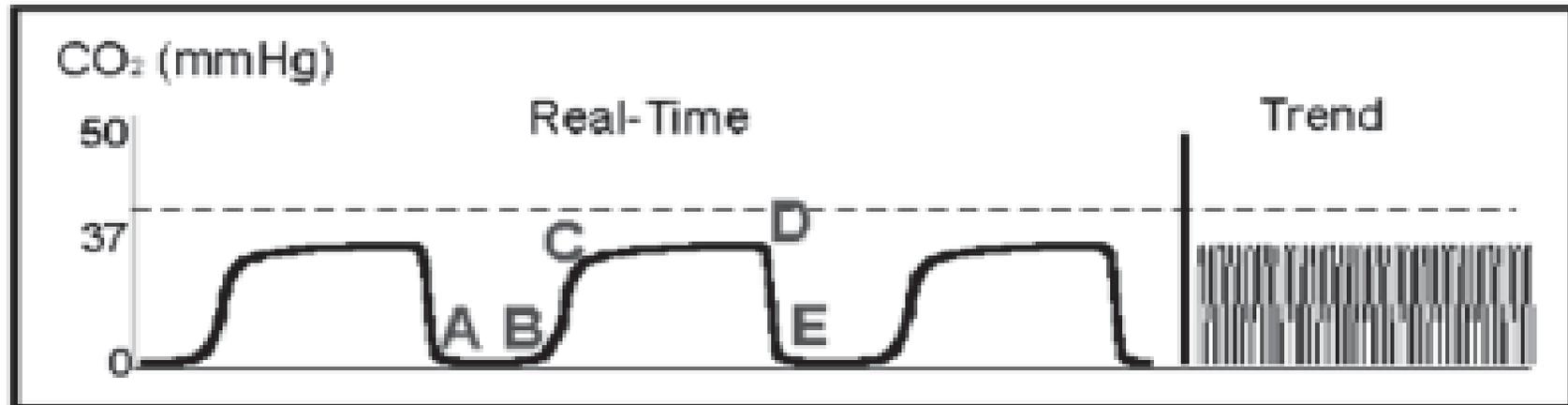




Pulse Oximetry



Waveform Capnography



- A – B Baseline
- B – C Expiratory Upstroke
- C – D Expiratory Plateau
- D ETCO₂ value
- D – E Inspiration Begins

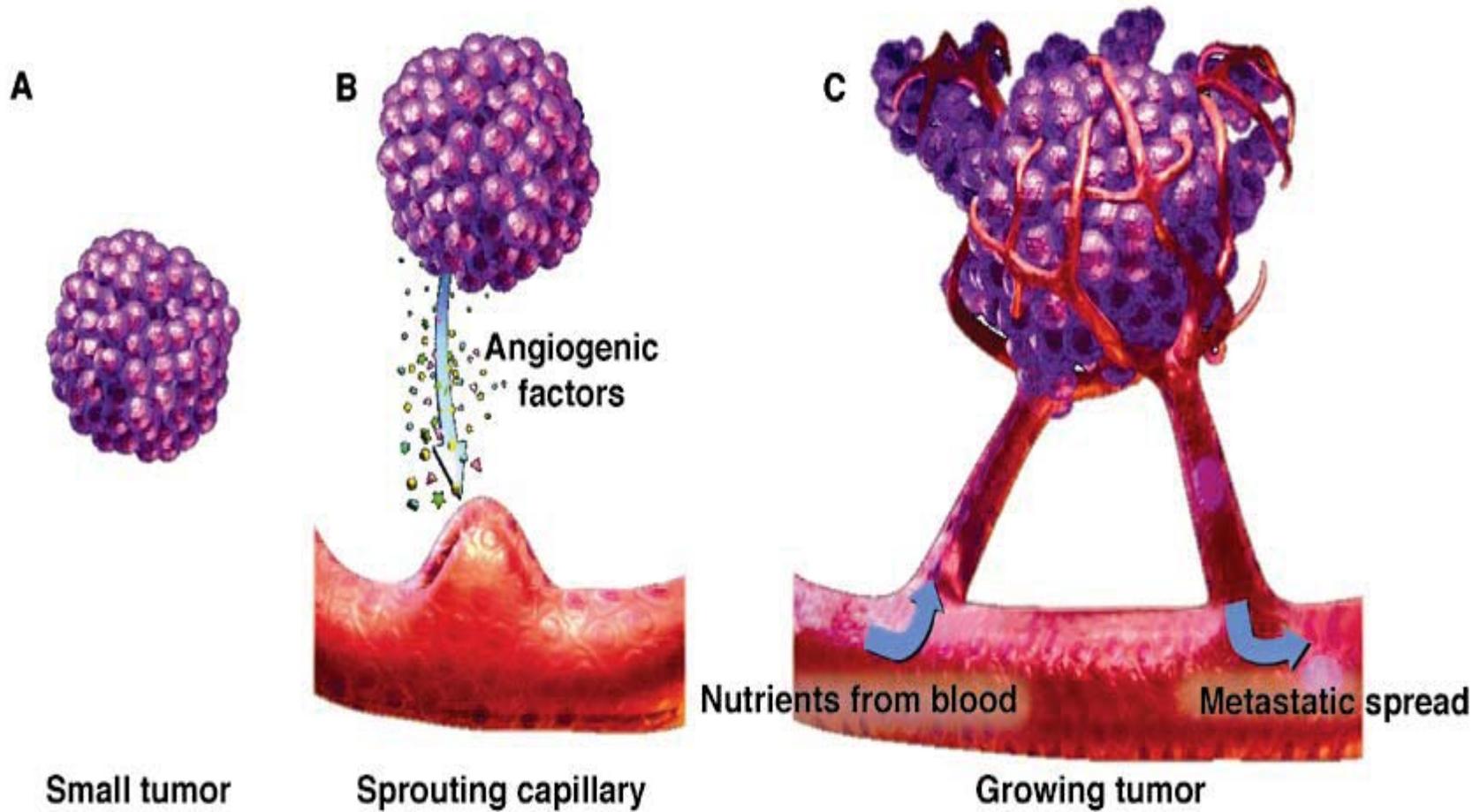


Head Injury

- K-9s skull is VERY Thick
- Sn/Sn
 - Pupils dilated
 - Unequal
 - Unsteady gait
 - Eyes not open all the way
 - Slow to obey
 - Non-coordinated walk



Strokes/Heart Attacks



The Other Situations

- Pad tears
- Small lacerations
- Eye Injuries
- Tail injuries
- Claw injuries



What I Believe.....





Thank You!

Questions?
