



Triage: When it's time to use your loud voice

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What is triage?

- ▶ Triage: The preliminary assessment of patients or casualties in order to determine the urgency of their need for treatment and the nature of treatment required.
- ▶ What is an emergency to an owner, will not always be an emergency to you.



Check in / Triage

Initial Vitals on all patients

- Assess their status
- Helps prioritize which patients need to be seen first or hospitalized

Weights very important to record accurately

- Immediate drug calculations

Write it all down

Triage

Red	Orange	Yellow	Green	Blue
Immediate	Very Urgent	Urgent Care	Standard	Non-Urgent
• Collapse • Respiratory Distress • Cardiac Arrest • Active Seizure • Hit by car • Profuse Bleeding	• Toxic ingestion • Foreign object –making pet sick • Heat Stroke • Dystocia • Retching, but not producing anything • Blocked male cat	▪ Allergic Reaction ▪ Mild GI issues ▪ Trouble walking ▪ Small Wounds ▪ Possible Foreign body	▪ Skin issues ▪ Ear infection ▪ Broken nail	▪ More owner convenience ▪ Chronic issues

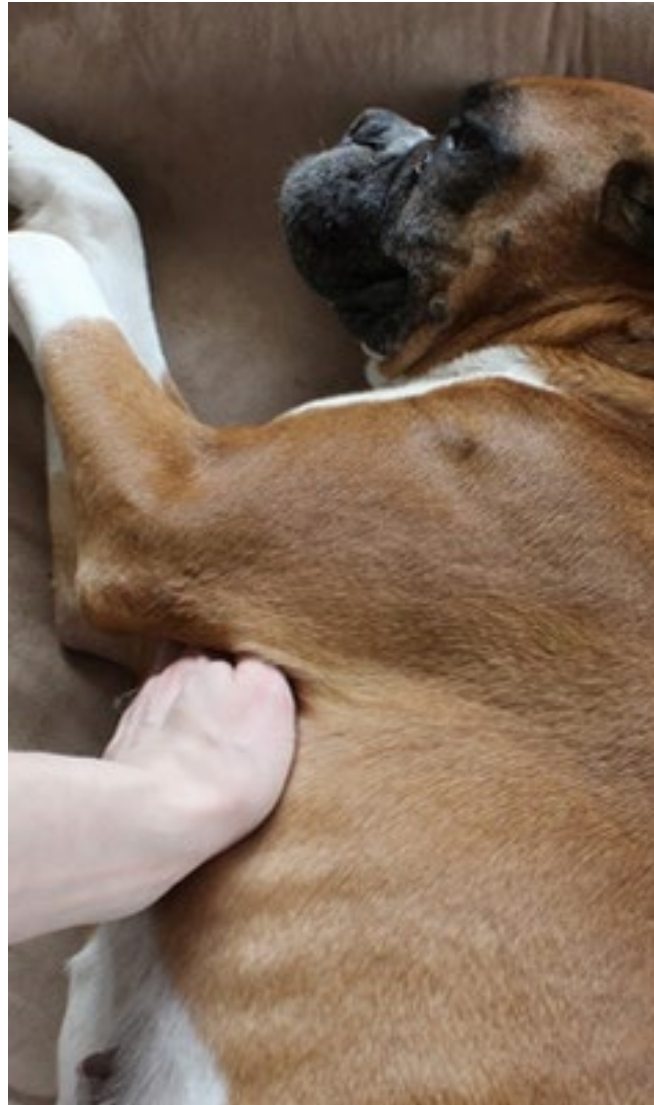
Vitals

- ▶ Full vitals will include
 - ▶ Heart rate
 - ▶ Respiratory rate
 - ▶ Temperature
 - ▶ Mucous membrane color
 - ▶ Capillary refill time
 - ▶ Body Score Condition



Heartrate

- ▶ Count for 6 seconds x 10
 - ▶ Count for 15 seconds x 4 (More accurate)
- ▶ Heartrate and femoral pulse should match
- ▶ Listen for murmurs, skipped beats, irregular rhythm



Approximate Heart Rate/Pulse Rates

Cats	140-220 bpm
Small Dogs	80-140 bpm
Medium/Large Dogs	60-120 bpm
Puppies	Can be over 200 bpm
Kittens	Can be over 200 bpm

Relaxed, Large Breed, Athletic dogs may have lower heart rates

A sick, scared, hurt patient may have an increased heart rate

Pulse Quality

Strong and Synchronous	Weak or Thready	Snappy or Bounding	Absent
Normal Blood Pressure	Decreased Blood Pressure	Increased Blood Pressure	Decreased Cardiac output

If you cannot feel femoral pulse, Mean arterial pulse likely to be less than 60 mm Hg.

Systolic = 90-140 mm Hg
Diastolic = 50-60 mm Hg
Map/Mean = 60-90 mm Hg

Sinus Arrhythmia

- ▶ Normal finding
- ▶ Heart rate increased on inspiration
- ▶ Decreased on exhalation

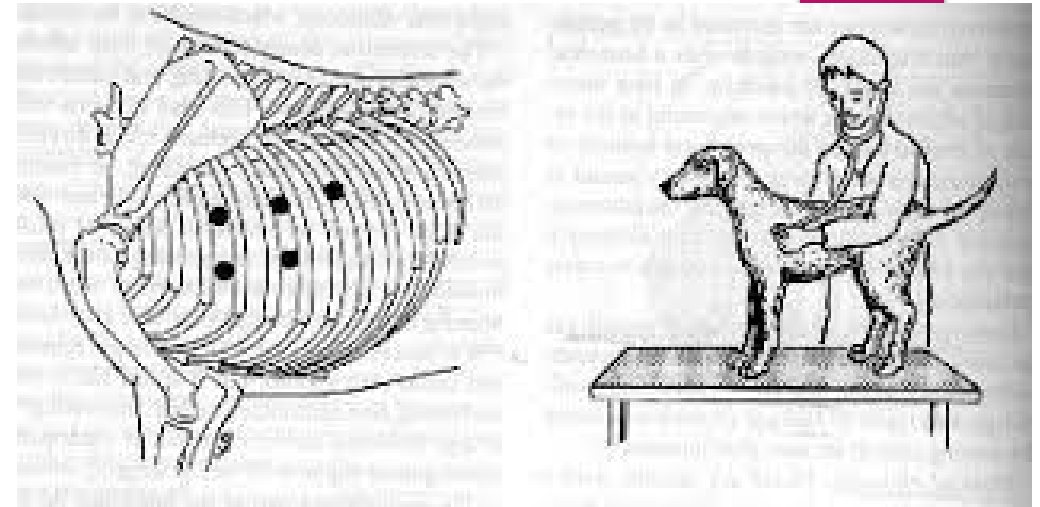


- ▶ Too high?
 - ▶ Physical activity
 - ▶ Fear
 - ▶ Overheated
 - ▶ If doesn't come down on own, may need treatment
- ▶ Too low? Or irregular heart rhythm
 - ▶ Illness
 - ▶ Dehydration
 - ▶ Heart disease



Respiratory rate

- ▶ Count how many times chest rise and fall in 6 seconds x 10
- ▶ If stethoscope available:
 - ▶ listen to at least 2 spots in lung field
 - ▶ Listen to both sides
- ▶ Listen for clear lung sounds



JUST BREATHE		
	normal respiratory rate	
	DOGS	12–24 breaths per minute
	CATS	20–30 breaths per minute



Temperature

Rectal is most accurate

Temperature

High temperature

- ▶ Fever 104-105
 - ▶ Due to infection
 - ▶ Find out the cause
 - ▶ Treat the cause
- ▶ Over-heated – hyperthermia 106+
 - ▶ Hot weather
 - ▶ No shade
 - ▶ Not enough water

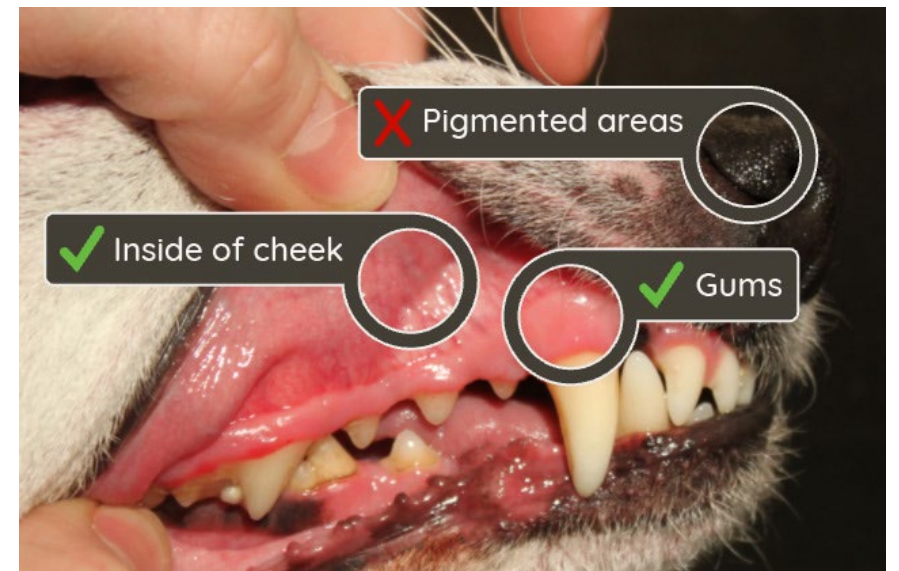


Low Temperature

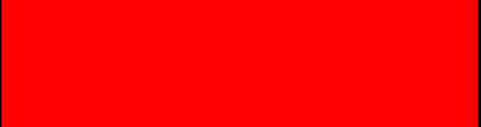
- ▶ A problem in newborn animals, sick animals and old animals
- ▶ Keep dry
- ▶ Keep warm
 - ▶ Heat lamps – be careful
 - ▶ Bedding

Mucous Membranes

- ▶ The Gingiva
- ▶ Eyes
- ▶ Nostril lining
 - ▶ Can be harder to see due to pigmentation
- ▶ Inner surface of vulva



Mucous Membrane Color

	Pale pink/Pink	Normal	
	Blue/purple	Cyanotic	Oxygen loss, unable to breath
	Red	Injected	Sepsis, heat stroke *Inflammation of gums
	White	Anemia	Blood loss
	Yellow	Icteric	Liver disease
	Grey muddy	Poor tissue perfusion	Shock

Normal



Blue



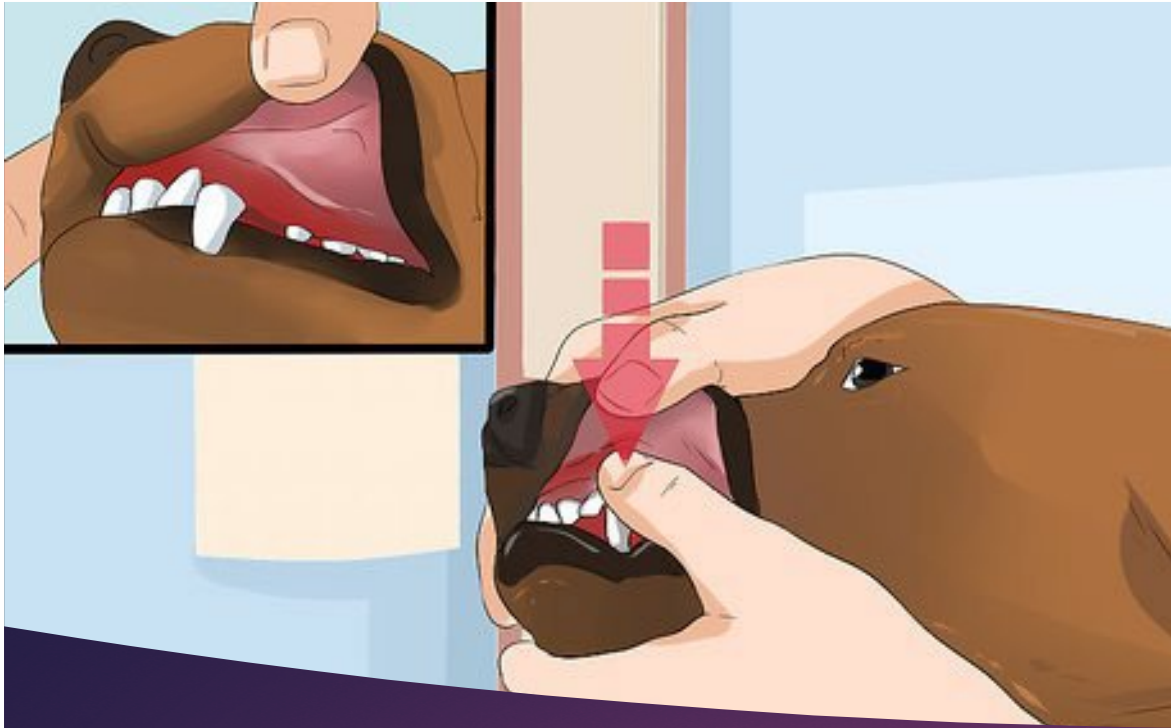
Red



Yellow

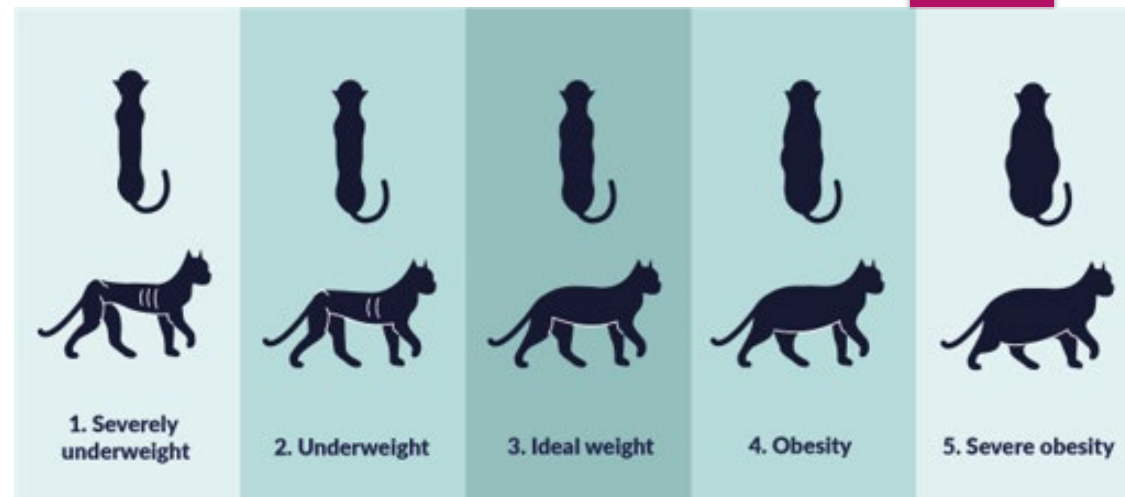
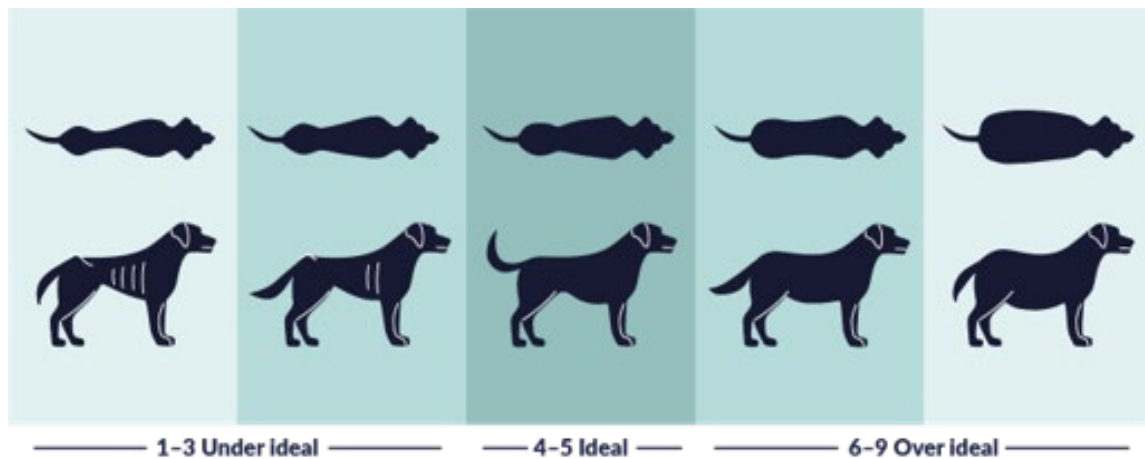


Pale/White



Capillary Refill Time

- ▶ Normal is 1-2 seconds
- ▶ Place finger on gingiva
 - ▶ Apply pressure
 - ▶ Area will blanch white
 - ▶ Count how many seconds it takes to return to normal color
- ▶ Delayed means improper blood flow



Body Score Condition

Other indications something is wrong



- ▶ Dry, sticky gums
- ▶ Dehydrated



- ▶ Yellow ear pinna
- ▶ Jaundice/icteric
- ▶ Liver disease



- ▶ Tent skin
- ▶ If stays tented = dehydrated

Dehydration

Dehydration Level	Findings
5 %	Mild gum Dryness
7%	Dry mucous membranes Mild loss of skin turgor Possible increased heart rate
10 %	Dry mucous membranes Marked loss of skin turgor Tachycardia Sunken eyes Weak pulses
Greater than 10 %	Severe loss of skin turgor Sunken eyes Shock Coma/Death

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Better or Overreact than
to underreact!



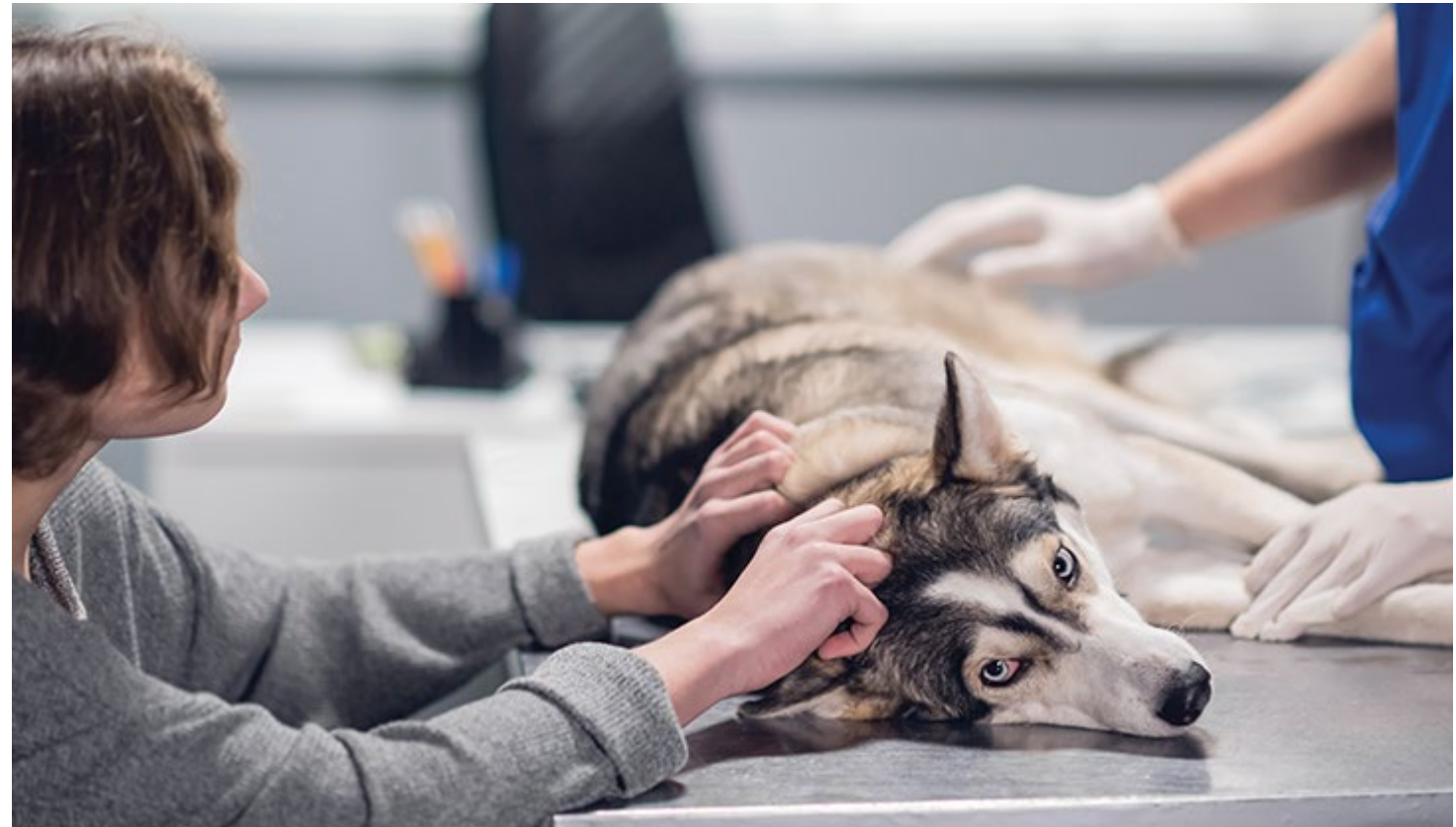
Initial questions for triage

- ▶ What exactly happened and how long ago did this happen/ did you find them?
- ▶ Where were they when they found them?
- ▶ Activity/energy/demeanor up to the event
- ▶ Vaccine history
- ▶ Are they on any medications?
- ▶ Could they have gotten into anything?
- ▶ Any major medical issues or surgeries in the past?
- ▶ Heartworm prevention?



History

- ▶ For red and orange emergencies, initial triage history is very short and sweet
- ▶ We need that information as quickly as possible, to get back to our team
- ▶ Usually gotten in lobby.
 - ▶ Can be placed in room if able
- ▶ Stay calm, keep owner calm



History

- ▶ An in-depth history can be obtained once patient is stable or determined to be non-life threatening
- ▶ Important to ensure owner has not taken pet anywhere else
 - ▶ Owners are sneaky!
- ▶ Make sure owners are giving their pet meds like they should aaaand not giving over the counter medications
 - ▶ See above comment



History

- ▶ How long have symptoms persisted?
 - ▶ By last night, you literally mean 12 hours, right?
- ▶ Diet
 - ▶ Any changes to food type, table scraps, GRAIN FREE
- ▶ Possible Drug ingestion
- ▶ Owner expectations – there may be a wait
- ▶ Emergent to them is not the same as emergent to you



Owner communication



- ▶ For level red and orange emergencies, someone should be getting authorization from the owners to move forward with emergency services
- ▶ Create a monetary range of basic emergency services for owners to authorize in order to stabilize patient
- ▶ For lower-level emergencies, an estimate can be presented to the owners before treatment is rendered

CPR or DNR

- ▶ Always get a code status for patients in the hospital, even stable ones
- ▶ Some owners will immediately elect to euthanize their pets due to their injuries or illness



CPR

- Cardiopulmonary resuscitation
- Do everything in your power to bring the patient back

DNR

Do not Resuscitate
Let patient pass on their own
No life-saving measures

CODE RED

ABC's of Triage

- ▶ A – Airway
- ▶ B - Breathing
- ▶ C – Circulatory
- ▶ D – Disability/ Neurologic
- ▶ E - External



A - Airway



- ▶ Check for any obstructions
- ▶ Intubate if necessary

B - Breathing



- ▶ Listen to lungs
- ▶ Patient breathing on own?
- ▶ Oxygen mask if necessary

C - Circulatory

- ▶ What helps us determine a patient's circulation status?
 - ▶ Gum Color
 - ▶ Capillary refill time
 - ▶ Pulse quality
 - ▶ Extremity temperature
 - ▶ Poor perfusion



- Start an IV catheter.
- Run fluids if circulation is poor

C- Circulatory

- ▶ Dogs in shock will have a higher heart rate
 - ▶ Tachycardia
- ▶ Cats in shock will usually have a lower heart rate
 - ▶ Bradycardia
- ▶ Cold extremities mean poor perfusion



D - Disability/Neurologic

- ▶ Seizures
- ▶ Brain Trauma
- ▶ Spinal Trauma

Table 1. Levels of consciousness and clinical presentation

States of consciousness	Presentation
Normal	Normal interaction with the environment
Obtunded	Decreased responsiveness/alertness
Stupor or semicoma	Responses only to vigorous/painful stimuli
Coma	No conscious response to any stimuli
From Knipe (2015)	

D - Disability/Neurologic



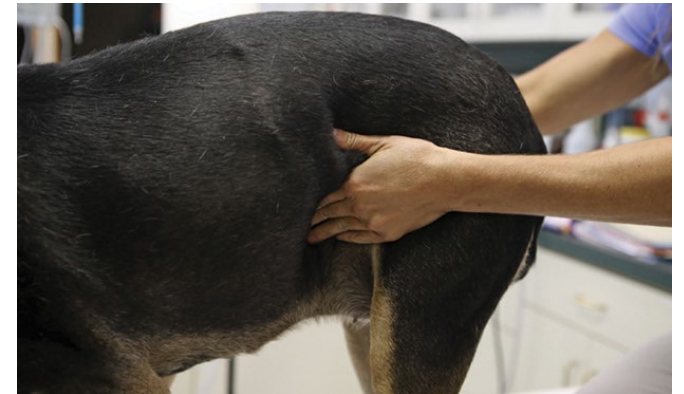
- ▶ Dog should flip paw over immediately
- ▶ Pet does not know where his foot is
- ▶ Spinal issue – possible herniated disk



- ▶ Extremely common in long-bodied dogs, but can happen to any breed

E - External

- ▶ Look over pet's whole body
- ▶ Notate:
 - ▶ Open wounds
 - ▶ Cuts
 - ▶ Possible fractures
 - ▶ Painful locations
 - ▶ External Parasites



Code Red

- ▶ During these cases, many things will be happening all at once.
- ▶ Triage, intubation, IV catheter placement will be the main priorities
- ▶ PRACTICE
 - ▶ Run fake codes



Cardiopulmonary Resuscitation - CPR

- ▶ Low chance of survival even with interference
- ▶ As soon as brought to treatment area, assess for heart rate
- ▶ If no heart rate – start chest compressions immediately

Roles of the CPR Team

Compressor (rotating role)	Main action - 2 min intervals
Ventilator	Intubation of patient Manually breathe for patient
Scribe/Timekeeper	Writes down all medications and what times given. Keeps track of 2-minute intervals
Assistants	Places catheter Pulls medications that team leaders advise them to Applies monitoring equipment
Team Leader/Doctor	Instructs team on next steps of CPR

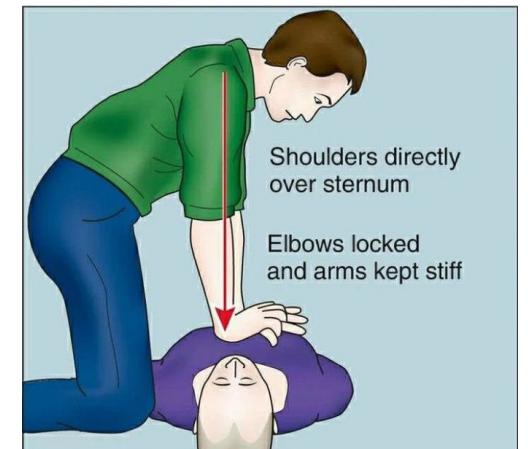
Basic Life Support

- ▶ **IF HEART RATE NOT PRESENT START CPR IMMEDIATELY**
- ▶ Best done with patient flat on their side
 - ▶ Barrel chested dogs may need to be laid on their back
 - ▶ May need help stabilizing patient in this position
- ▶ Push to about half the depth of the chest
- ▶ Allow full chest recoil
- ▶ Compression by Minute
 - ▶ Cats & Small Dogs - 120-130 bpm
 - ▶ Medium-Large dogs – 100 bpm



Basic Life Support

- ▶ Breaking ribs will happen during CPR
- ▶ Elbows locked, directly over patient
- ▶ Top fingers interlocked with bottom hand



Basic Life Support

- ▶ Small dogs and cats
- ▶ Circumferential Compressions
 - ▶ Used to not apply too much pressure to chest
- ▶ Clasp chest right over heart
 - ▶ Chest compressions at a rate of 100-120 compressions

Songs to perform CPR to

- | | |
|---|---------|
| 1. "Stayin Alive" - Bee Gees | 103 bpm |
| 2. "Imperial March" - Star Wars | 103 bpm |
| 3. "Pump up the Jam" – Technetronic | 120 bpm |
| 4. "Another one Bites the Dust" – Queen | 112bpm |



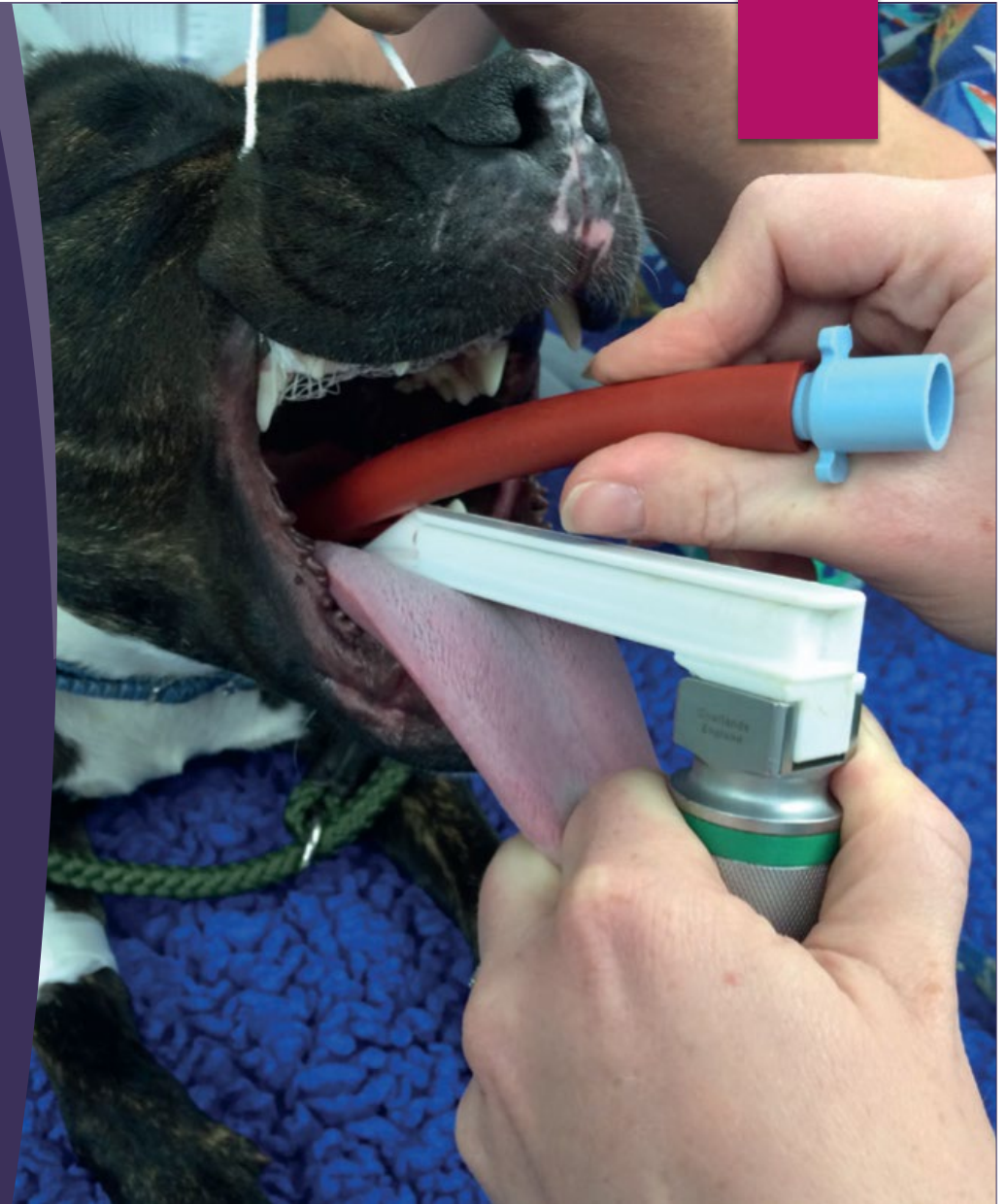


Recap - what's going on

- ▶ If evident or unsure if heartbeat is present, start chest compressions.
 - ▶ Timekeeper starts writing everything down
 - ▶ Vitals as they are checked, time CPR is started, medications used and time
 - ▶ Most importantly letting the team know when 2 minutes is up to rotate
- ▶ Team leader checks for heart rate - if none continue compressions.
 - ▶ Start timer for 2 minutes
 - ▶ As compressions are happening, assistant already pulling up medications as instructed by leader/doctor

Cardiopulmonary Resuscitation - CPR

- ▶ Ventilation is the next most important action during CPR
 - ▶ Patient should be intubated as soon as possible
 - ▶ Intubation happens simultaneously as CPR.
 - ▶ Practice intubating in lateral on non-emergent cases
- ▶ Ventilator breathing at rate of 10 breaths per minute
 - ▶ Each breath lasting 1 second
 - ▶ Tidal Volume no more than 10mL/kg
- ▶ 100% Oxygen
 - ▶ Room air is about 21%



CPR Emergency Drugs and Doses



		Weight (kg)	2.5	5	10	15	20	25	30	35	40	45	50
		Weight (lb)	5	10	20	30	40	50	60	70	80	90	100
	DRUG	DOSE	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml
Arrest	Epi Low (1:1000; 1mg/ml) every other BLS cycle x3	0.01 mg/kg	0.03	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5
	Epi High (1:1000; 1 mg/ml) for prolonged CPR	0.1 mg/kg	0.25	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
	Vasopressin (20 U/ml)	0.8 U/kg	0.1	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2
	Atropine (0.54 mg/ml)	0.04 mg/kg	0.2	0.4	0.8	1.1	1.5	1.9	2.2	2.6	3	3.3	3.7
Anti-Arrhyth	Amiodarone (50 mg/ml)	5 mg/kg	0.25	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
	Lidocaine (20 mg/ml)	2 mg/kg	0.25	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
Reversal	Naloxone (0.4 mg/ml)	0.04 mg/kg	0.25	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
	Flumazenil (0.1 mg/ml)	0.01 mg/kg	0.25	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
	Atipamezole (5 mg/ml)	100 ug/kg	0.06	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Defib Monophasic	External Defib (J)	4-6 J/kg	10	20	40	60	80	100	120	140	160	180	200
	Internal Defib (J)	0.5-1 J/kg	2	3	5	8	10	15	15	20	20	20	25

- Have a designated CPR location
- All things you need should be within reach
- Have premade charts that have your most common emergency medications near that location.

Advanced Life Support

- Rarely will chest compressions alone revive a patient.
- IV catheter placement
 - Should be achieved as soon as compressions are started and patient has been intubated

Epinephrine Dose	
LOW	High
0.01 mg/kg	0.1 mg/kg Prolonged CPR
Give every other BLS cycle	

Atropine
0.04 mg/kg
> 0.1 mg/kg not recommended
Higher doses associated with worse outcomes

Fluids

- ▶ Initial bolus only administered if trauma or extreme fluid loss (hypovolemia)
 - ▶ 10-15 ml/kg
- ▶ Running fluids at high rate can lead to patient overload and cause adverse effects
- ▶ Run fluids at slow rate/slow drip during BLS



Recap - what's going on ... part 2

- ▶ Chest compressions and manual breathing started
- ▶ 2-minute time mark up
 - ▶ Compressors switch spots
 - ▶ Ventilator still breathing
 - ▶ Team leader listening to hear heart rate
 - ▶ If none heard - continue compressions
- ▶ Team leader directing assistant which medications to draw up and administer
- ▶ Timekeeper has started another 2-minute cycle
 - ▶ Writes down which medications were administered and time
- ▶ Continue BLS & ALS cycles until patient recovers or the doctor calls time of death

Crash Carts/Boxes

- ▶ Can be any size
- ▶ Quick grab that will have many of the things needed in an emergency







NALOXONE

ATROPINE

PYRROLATE

EPINEPHRINE



3 ML SYRINGES

1 ML SYRINGES



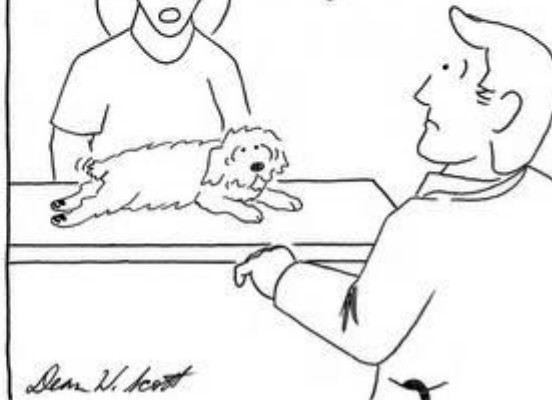
Thank you Any Questions?

My dog was
hit by a car!



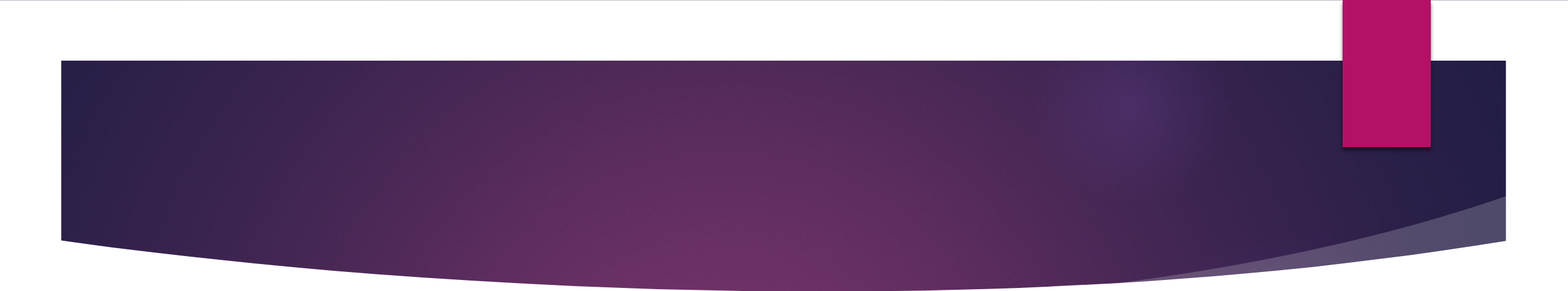
15 Minutes Later....

Yeah, he got hit two weeks
ago but wasn't getting
better so we
thought we should
bring him in.



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- ▶ https://www.vet.upenn.edu/docs/default-source/penn-annual-conference/pac2016-proceedings/vet-tech-track/triage-initial-assessment--elisa-rogers.pdf?sfvrsn=e65f19ba_3#:~:text=The%20history%20should%20include%20the,in%20a%20life%2Dthreatening%20condition.
 - ▶ <https://www.dvm360.com/view/triage-more-just-history-proceedings>
 - ▶ <https://blog.vetprep.com/5-tips-for-vet-students-when-obtaining-a-patient-history#:~:text=In%20general%2C%20a%20good%20patient,sneezing%2C%20behavioral%20changes%2C%20etc.>
 - ▶ <https://recoverinitiative.org/cpr-guidelines/current-recover-guideline/>