



## Outline

- RECOVER Initiative
  - Preparedness and Prevention
  - Basic life support
  - Advanced life support
  - Monitoring
  - Post cardiac arrest care
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## What does RECOVER mean anyway?

- **RE**assessment **C**ampaign **O**n **VE**terinary **R**esuscitation
- Based on recent work by ILCOR (international liaison committee on resuscitation)
- 101 clinical questions were examined covering 5 domains
  - Preparedness and Prevention
  - Basic life support
  - Advanced life support
  - Monitoring
  - Post cardiac arrest care
- Communication
  - Scribe to write down events of CPR
  - Only team leader should give direction on interventions – drug doses, when to defibrillate etc.
  - Instructions should be repeated back to the team leader to ensure accuracy
- Debriefing is a time to recognize gaps in efficiency in order to perform better next time, not a time for blame or finger pointing

## Preparedness and Prevention

- Location, storage and content of resuscitation equipment should be standardized and regularly audited (I-A)
- Checklists, algorithm charts and dosing charts improve compliance (I-B)
- CPR training every 6 months is recommended to reduce decay of skills (I-A)
- Each hospital should evaluate their own treatment area to determine where the best place is to set up a crash station with monitoring equipment and supplies

## Team Approach

- Crash situations draw a lot of attention. It is best to limit the number of people involved with CPR
- Team approach to CPR, not more than 3-4 people need to be involved
  - Team leader – DVM or CVT
  - Someone to intubate and ventilate
  - Someone to do manual compressions

## Basic Life Support

- Recognition of arrest
- Chest compressions
- Airway management

## Recognition of Arrest

- Should take no more than 10-15 sec
- Brief evaluation of mental status and breathing effort
- Brief auscultation and pulse evaluation – if patient has spontaneous breaths
- Ok to start compression based on little or no airflow **REGARDLESS** of whether patient has spontaneous heart beat
  - Best to start compressions and determine it is *not* needed as opposed to starting compressions too late

## Chest Compressions

- Size and chest conformation will determine hand positioning, cardiac pump technique versus thoracic pump technique
- Goal 100-120 compressions/min
- 50% duty cycle
- Compress 1/3 of the diameter of the chest



## Basic Life Support – Ventilation

- 1 breath / 6 sec – about 10 breaths/min regardless of patient size
- 1 sec inspiratory time
- Up to 40 cm H<sub>2</sub>O is okay for inspiratory pressure
- Pros and cons for both Ambu Bag and anesthesia machine
  - Use whichever oxygen delivery system you are most familiar with

## Advanced Life Support

- Includes anything beyond BLS until the point of ROSC – return of spontaneous circulation
- Vasopressors, positive inotropes, correction of acid/base disturbance, volume administration and defibrillation
- Witnessed arrest (in hospital, during anesthesia etc), if *prompt* BLS and ALS is performed, *initial* ROSC rate may be up to 50% in dog and cats
- Non witnessed arrest (out of hospital arrest or presents already deceased) ROSC much lower than 50%

## Drug Therapy

- Epinephrine: Low dose 0.01 mg/kg IV every other BLS cycle (ie every 4-5 minutes)
- Atropine: 0.04 mg/kg IV once OR every other BLS cycle, independent of epinephrine dosing
- Other drugs used highly dependent on patient needs
  - Dextrose, calcium gluconate, steroids, anti-arrhythmic drug can be given in specific circumstances but should not be given to every arrested patient

## FOLLOW the CPR Algorithm

- **BLS** – initiation of chest compressions, intubate and ventilate
- **ALS** – obtain vascular access, initiate monitoring (EKG, ETCO<sub>2</sub>), administer reversals, other drug therapy
- If NO EKG information obtained at time of arrest wait 1 BLS cycle (2 min) and evaluate EKG prior to making next ALS decision

- If EKG information is available at the time of arrest, continue with ALS algorithm

## EKG Diagnosis and Action Plan

- Asystole or PEA
  - Low dose epinephrine every *other* BLS cycle
  - Atropine every *other* BLS cycle (not dependent on timing of epi)
- V-Fib or Pulseless V-Tach
  - Do *not* give Epi or Atropine
  - Immediate defibrillation if available
  - Precordial thump

## ALS – Defibrillation

- Rhythms responsive to defibrillation
  - Ventricular Fibrillation (VF)
  - Pulseless Ventricular Tachycardia (PVT)
  - Atrial Fibrillation

## Post Arrest Care – Now What?!

- Post arrest care is important is key in improving survival outcomes
- We have to battle with consequences of post arrest systemic issues
  - Multiorgan failure
  - Cardiogenic shock (myocardial stunning)
  - Pre-existing disease
  - Cerebral hypoxia

## Improve Outcome in CPR

- Be prepared for any crash situation
- Routine training so there is no delay in starting CPR
- *Brief* assessment of ABCs to reduce delay in CPR
- *Do as much as possible to reduce interruption in chest compressions*
- Give CPR enough time
  - At least 4-5 BLS cycles – about 8 to 10 minutes