

Cardiopulmonary Resuscitation

If the animal has stopped breathing (do not count gasps) and there is no peripheral pulse - **check apex beat.**

If there is no apex beat - **start CPR**, if there is an apex beat, ventilate with 100% oxygen

Airway

Visually check / insert endotracheal tube, or,
Emergency tracheotomy (large gauge catheter through cricothyroid membrane), or,
Extend neck and pull tongue forward
Stop giving anaesthetic drugs, flush circuit with oxygen and set high oxygen flow

Breathing

Squeeze bag 3 times checking for chest expansion - if chest expands, check pulse again: if no chest expansion, check airway again, or,
Ventilate mouth to nose
Ventilate every 5 - 10 seconds; allow chest to deflate between breaths

Circulation

Lay animal on right side
External cardiac massage at 1 - 2 beats per second
Continue ventilation
Stop and check for pulse every 2 minutes
Internal cardiac massage is only justified if the chest is open

Drugs

No drugs necessary in first 5 minutes, then:
adrenaline 20µg/kg iv, or, 40µg/kg intratracheally, repeat in 5 minutes with double dose.
atropine 20µg/kg iv, or, 40µg/kg intratracheally

after 10 minutes CPR:
sodium **bicarbonate** 1mEq (mmol)/kg slowly iv into running infusion (preferably 0.9% sodium chloride) - do not give intratracheally
repeat 0.5mEq/kg slowly iv every 10 minutes of CPR

in hyperkalaemia or hypocalcaemia **only**:
calcium (boro)gluconate 1mg/kg iv - do not give with bicarbonate

After heart restarts:

Continue ventilation with 100% oxygen and consider:

Positive inotropes adrenaline 5 - 10µg/kg /min titrate infusion to maintain blood pressure
dobutamine 2.5 - 10µg/kg /min titrate to effect
dopamine 1 - 10µg/kg /min titrate to effect

Fluids sodium bicarbonate in normal saline, Hartmann's solution, colloids

Antiarrhythmics

tachydysrhythmias lignocaine (without adrenaline) 1mg/kg slowly iv, repeat every 10 minutes if necessary up to a maximum of 3mg/kg: then infusion of 20µg/kg/min if necessary
verapamil 20µg/kg iv over 10 minutes, repeat if necessary
bradydysrhythmias isoprenaline 20 - 200 or dobutamine 2.5 - 10µg/kg/min to effect

Concurrent activity

Shout for help
Note time

When assistant arrives they take over ventilation

Establish iv access - big catheter in a big vein, cut down if necessary.

Start fluids to keep vein open.

check potassium first

monitor ECG

monitor blood gases and central venous pressure

monitor ECG