

# 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** 20 g/kg iv, or, 40 g/kg intratracheally, repeat in 5 minutes with double dose.  
**atropine** 20 g/kg iv, or, 40 g/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 - 10 g/kg /min titrate infusion to maintain blood pressure  
dobutamine 2.5 - 10 g/kg /min titrate to effect  
dopamine 1 - 10 g/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 20 g/kg/min if necessary  
verapamil 20 g/kg iv over 10 minutes, repeat if necessary  
*bradydysrhythmias* isoprenaline 20 - 200 or dobutamine 2.5 - 10 g/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