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| 2-6 Bradycardia v.1 |
| Bradycardia in theatre should not be treated as an isolated variable: remember to tailor treatment to the patient and the situation.  Follow the full steps to exclude a serious underlying problem. |

START.

❶ **Immediate action**: Stop any stimulus, check pulse, rhythm and blood pressure:

* If no pulse OR not sinus bradycardia OR severe hypotension: use Box A.
* If pulse present AND sinus bradycardia: use Box B.

❷ **Adequate oxygen delivery**

* Check fresh gas flow for circuit in use AND check measured FiO2.
* Visual inspection of entire breathing system including valves and connections.
* Rapidly confirm reservoir bag moving OR ventilator bellows moving.

❸ **Airway**

* Check position of airway device and listen for noise (including larynx and stomach).
* Check capnogram shape compatible with patent airway.
* Confirm airway device is patent (consider passing suction catheter).

❹ **Breathing**

* Check chest symmetry, rate, breath sounds, SpO2, measured VTexp, ETCO2.
* Feel the airway pressure using reservoir bag and APL valve <3 breaths.

❺ **Circulation**

* Check rate, rhythm, perfusion, recheck blood pressure.

❻ **Depth**

* Consider current depth of anaesthesia AND adequacy of analgesia.

❼ Consider underlying problem (Box C).

❽ Call for help if problem not resolving quickly.

**❾** Consider transcutaneous pacing (Box D).

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| Box A: CRITICAL BRADYCARDIA |
| Give atropine 20 µg.kg-1 (adult 0.5-1 mg) with fluid flush.  If no pulse: (or heart rate <60 bpm infant or neonate):   * Delegate (minimum) 1 person to chest compressions * → 2-1 Cardiac arrest |

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| Box B: DRUGS FOR BRADYCARDIA |
| * Glycopyrrolate 5 µg.kg-1 (adult 200-400 µg) * Ephedrine 100 µg.kg-1 (adult 3-12 mg) * Atropine 10 µg.kg-1 (adult 300-600 µg) * Isoprenaline 0.5 µg.kg.min-1 (adult 5 µg.min-1) * Adrenaline 1 µg.kg-1 (adult 10-100 µg) in emergency only |

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| Box C: POTENTIAL UNDERLYING PROBLEMS |
| * Consider whether you could have made a drug error. * Consider known drug causes (eg. remifentanil, digoxin etc). * Surgical stimulation with inadequate depth. * Also consider: high intrathoracic pressure; pneumoperitoneum; local anaesthetic toxicity (→ 3-10); beta-blocker; digoxin; calcium channel blocker; myocardial infarction, hyperkalaemia, hypothermia, raised intra-cranial pressure. |

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| Box D: TRANSCUTANEOUS PACING |
| * Attach pads and ECG leads from pacing defibrillator. * Set to PACING MODE. * Set PACER RATE. * Increase PACER OUTPUT from 60 mA until capture (spikes align QRS). * Confirm capture: electrical AND mechanical (femoral pulse). * Set PACER OUTPUT 10 mA above capture. |

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