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| 2-4 Hypotension v.1 |
| Hypotension is commonly due to unnecessarily deep anaesthesia, the autonomic effects of neuraxial block, hypovolaemia or combined causes.You should rapidly exclude a problem in adequate oxygen delivery, airway and breathing first. |

 START.

❶ **Adequate oxygen delivery**

* Pause surgery if possible.
* Increase fresh gas flow AND give 100% oxygen AND check measured FiO2.
* Visual inspection of entire breathing system including valves and connections.
* Rapidly confirm reservoir bag moving OR ventilator bellows moving.

❷ **Airway**

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

❸ **Breathing**

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

 ❹ **Circulation**

* Check heart rate, rhythm, perfusion, recheck blood pressure.
* If heart rate <60 bpm consider giving anticholinergic drug (Box B).
* Consider giving vasopressor (Box C) and positioning (e.g. move head down).
* Consider fluid boluses (250 ml adult, 10 ml.kg-1 paediatric).
* If heart rate >100 bpm sinus rhythm, treat as hypovolaemia: give i.v fluid bolus.
* If heart rate >100 bpm and non-sinus **→ 2-7 Tachycardia.**

❺ **Depth**

* Ensure correct depth of anaesthesia AND analgesia (consider risk of awareness).

❻ Exclude potential surgical causes (Box D) – discuss with surgical team.

❼ Consider causes in Box E and call for help if problem not resolving quickly.

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| Box A: CRITICAL CHANGES |
| If problem worsens significantly or a new problem arises, call for help and go back to START of 1-1 Key basic plan. |

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| Box B: ANTICHOLINERGIC DRUGS |
| * Glycopyrrolate 5 μg.kg-1 (adult 200-400 μg)
* Atropine 5 μg.kg-1 (adult 300-600 μg)
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| Box C: VASOPRESSOR DRUGS |
| * Ephedrine 100 μg.kg-1 (adult 3-12 mg)
* Phenylephrine 5 μg.kg-1 (adult 100 μg)
* Metaraminol 5 μg.kg-1 (adult 500 μg)
* Adrenaline 1 μg.kg-1 (adult 10-100 μg) in emergency only
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| Box D: SURGICAL CAUSES |
| * Decreased venous return (e.g. vena cava compression / pneumoperitoneum)
* Blood loss (unrecognised / undeclared / occult)
* Vagal reaction to surgical stimulation
* Embolism (gas / fat / blood / cement reaction)
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| Box E: DON’T FORGET! |
| * Consider whether you could have made a drug error.
* Pneumothorax and/or high intrathoracic pressure can cause hypotension.
* Also consider:
	+ Cardiac ischaemia → 3-12
	+ Anaphylaxis → 3-1
	+ Cardiac tamponade → 3-9
	+ Local anaesthetic toxicity → 3-10
	+ Sepsis → 3-14
	+ Cardiac valvular problem
	+ Endocrine cause (eg steroid dependency)
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