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| 3-1 Anaphylaxis v.5 |
| • Unexplained hypotension• Unexplained bronchospasm *(wheeze may be absent if severe)*• Unexplained tachycardia or bradycardia | • Angioedema *(often absent in severe cases)*• Unexpected cardiac arrest where other causes are excluded• Cutaneous flushing in association with one of more of the signs above *(often absent in severe cases)* |

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| Box A: DRUGS TO TREAT HYPOTENSION IF CARDIAC ARREST → 2-1 |
| * Adult adrenaline: i.v. 50 μg (= 0.5 ml of 1:10 000)

i.m. 0.5 mg (= 0.5 ml of 1:1000) *if i.v. not possible** Paediatric adrenaline: i.v. 1.0 μg.kg-1 (0.1 ml.kg-1 of 1:100 000)

[1:100 000 solution made by diluting 1 ml of 1:10 000 up to 10 ml]* If no i.v. access, intraosseous adrenaline dose same as i.v.
* Suggested adrenaline infusion regimes (adult):

5 mg in 500 mL dextrose = 1:100 000, titrate to effect3 mg in 50 mL saline. Start at 3 ml.h-1 (= 3 μg.min-1), titrate to maximum 40 ml.h-1 (= 40 μg.min-1)* Glucagon (adult): 1 mg, repeat as necessary
* Vasopressin (adult): 2 units, repeat as necessary (consider infusion)
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 START.

❶ Call for help. Note the time. Stop or do not start non-essential surgery.

❷ Call for cardiac arrest trolley, anaphylaxis treatment pack and investigation pack.

❸ Remove all potential causative agents and maintain anaesthesia.

* Important culprits: antibiotics, neuromuscular blocking agents, patent blue.
* Consider chlorhexidine as cause (impregnated catheters, lubricants, cleansing agents).
* Consider i.v. colloids as a possible cause.
* Change to inhalational anaesthetic agent (if not already).

❹ Give 100% oxygen and ensure adequate ventilation:

* Maintain the airway and, if necessary, secure it with tracheal tube.

❺ Elevate patient’s legs if there is hypotension.

❻ If systolic blood pressure < 50 mmHg or cardiac arrest, start CPR immediately.

❼ Give drugs to treat hypotension (Box A):

* **Hypotension may be resistant and may require prolonged treatment.**
* Give adrenaline bolus and repeat as necessary.
* Consider starting an adrenaline infusion after three boluses.
* If hypotension resistant, give alternate vasopressor (e.g. metaraminol, noradrenaline infusion +/- vasopressin)
* Give glucagon in ß-blocked patient unresponsive to adrenaline.
* Hydrocortisone and chlorphenamine are no longer part of acute treatment (Box C)

❽ Give rapid i.v. crystalloid:

* 20 ml.kg-1 initial bolus, repeated until hypotension resolved.
* Fluid requirements may be significant

**❾** If bronchospasm is persistent, consider **→ 3-4**

❿ Take 5-10 ml clotted blood sample for **serum tryptase** as soon as patient is stable.

* Plan for repeat sample at 1-2 hours and >24 hours.

⓫ Plan transfer of the patient to an appropriate critical care area. Note tasks in Box D.

⓬ Prevent re-administration of possible trigger agents (allergy band, annotate notes/drug chart)

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| Box B: CRITICAL CHANGES |
| CARDIAC ARREST → QRH SECTION 2-1  |

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| Box C: HYDROCORTISONE and CHLORPHENAMINE CHANGES |
| AFTER initial resuscitation:* Consider steroids for refractory reactions or ongoing asthma/shock.
* Antihistamines (preferably oral, non-sedating) can be given for skin symptoms.
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| Box D: DON’T FORGET |
| * Repeat testing for serum tryptase at 1-2 hours and >24 hours.
* Liaise with hospital laboratory about analysis of samples.
* Liaise with department anaphylaxis lead regarding referral to a specialist allergy or immunology centre to identify the causative agent (see [www.bsaci.org](http://www.bsaci.org) for details).
* Inform the patient, surgeon and general practitioner.
* Report to MHRA (<https://yellowcard.mhra.gov.uk>).
* NAP6 online resource including anaphylaxis follow-up packs: <http://www.nationalauditprojects.org.uk/NAP6-Resources#pt>
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