3-1 Anaphylaxis v.3

- Unexplained hypotension
- Unexplained bronchospasm (*wheeze may be absent if severe*)
- Unexplained hypotension

- 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)*

### START

1. Call for help. Note the time. Stop or do not start non-essential surgery.
2. Call for cardiac arrest trolley, anaphylaxis treatment pack and investigation pack.
3. 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).
4. Give 100% oxygen and ensure adequate ventilation:
   - Maintain the airway and, if necessary, secure it with tracheal tube.
5. Elevate patient’s legs if there is hypotension.
6. If systolic blood pressure < 50 mmHg or cardiac arrest, start CPR immediately.
7. 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 β-blocked patient unresponsive to adrenaline.
8. Give rapid i.v. crystalloid: 20 ml.kg⁻¹ initial bolus, repeated until hypotension resolved.
9. Give hydrocortisone as part of resuscitation (Box B).
10. If bronchospasm is persistent, consider → 3-4
11. 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.
12. Give chlorphenamine when feasible (Box B).
13. Plan transfer of the patient to an appropriate critical care area. Note tasks in Box D.
14. Prevent re-administration of possible trigger agents (allergy band, annotate notes/drug chart)

### 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 effect
  - 3 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 necessary (consider infusion)

### Box B: OTHER DRUGS

- **Hydrocortisone i.v. doses:**
  - Adult: 200 mg
  - Child 6-12 years: 100 mg
  - Child 6 months-6 years: 50 mg
  - Child <6 months: 25 mg
- **Chlorphenamine i.v. doses:**
  - Adult: 10 mg
  - Child 6-12 years: 5 mg
  - Child 6 months-6 years: 2.5 mg
  - Child <6 months: 250 μg.kg⁻¹

### Box C: CRITICAL CHANGES

**CARDIAC ARREST → 2-1**

### 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 ([www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard)).
- NAP6 online resource: [http://www.nationalauditprojects.org.uk/NAP6-Resources#pt](http://www.nationalauditprojects.org.uk/NAP6-Resources#pt)