# Treatment Recommendations for Anaphylaxis in the Operating Room

***Recognition of an anaphylactic reaction is vital, as reactions may be well established before they are recognized.***

**Most commonly reported initial features:**

Pulselessness
Increased airway pressures or difficulty ventilating the patient
Desaturation
Decreased ETCO2 may be present secondary to a decrease in gas exchange

**When anaphylaxis emerges during the maintenance of anesthesia, an allergy to *latex or volume expanders* is the likely culprit.**

## *The following steps are recommended if an anaphylactic reaction is suspected:*

- Discontinue administration of all agents that may have caused the anaphylaxis
- Call for assistance
- Secure the patient's airway and give ***100% oxygen***
- Position the patient supine with legs elevated
- Administer epinephrine. This may be given intramuscularly or IV

**Intramuscular dosing:** 0.5 mg to 1 mg (0.5 to 1 mL of 1:1,000) and may be repeated every 10 min according to the arterial pressure and pulse until improvement occurs.
**Pediatric dosing:** Intramuscular epinephrine 1:1000 should be administered as follows
>12 years 500 µg IM (0.5 mL)
6-12 years 250 µg IM (0.25 mL)
>6 months-6 years 120 µg IM (0.12 mL)
<6 months 50 µg IM (0.05 mL)

**IV dosing:** 50 to 100 µg (0.5 to 1 mL of 1:10,000) over 1 min has been recommended for hypotension with titration of further doses as required.
**Pediatric IV dosing:** epinephrine bolus 1-10 µg/kg;
epinephrine infusion 0.02-0.2 µg/kg/min, if needed

**Never give undiluted epinephrine 1:1000 intravenously. In a patient with cardiovascular collapse, 0.5 to 1 mg (5 to 10 mL of 1:10,000) may be required intravenously in divided doses by titration. This should be given at a rate of 0.1 mg/min stopping when a response has been obtained.**

***Adult patients may require 2 to 4 L of crystalloid.***

## *Secondary therapy*

- **Antihistamines** (chlorpheniramine 10-20 mg by slow intravenous infusion)
- **Corticosteroids** (100 to 500 mg hydrocortisone slowly iv)
- **Bronchodilators** may be required for persistent bronchospasm

- **Consider the use of the following agents:**
  diphenhydramine 25-50 mg/kg IV
  ranitidine 50 mg IV
  famotidine 20 mg IV
  hydrocortisone 100 mg IV
  methylprednisolone 1-2 mg/kg IV
  albuterol 4-10 puffs
  **Pediatric dosing:**
  vasopressin 0.3-2 milliunits/kg/min IV (maximum, 40 units)
  diphenhydramine 1-5 mg/kg IV (maximum, 300 mg/day)
  famotidine 0.5 mg/kg IV
  hydrocortisone 2 mg/kg IV (maximum, 100 mg/day)
  methylprednisolone 0.25-2 mg/kg IV (maximum, 60-80 mg, depending on age)
  albuterol 4-10 puffs

**Follow advanced cardiac life support (ACLS)/pediatric advanced life support (PALS) protocol in the event of complete cardiovascular collapse**