

Immediate Lifesaving Actions

Feel for **pulse**

Check **heartrate**: If slow, treat and go to Bradycardia Cognitive Aid

Check **rhythm**: if abnormal, go to ACLS Protocol

Inform **surgeon** and **team**

Call for **help**

Inspect **surgical field** for blood loss or manipulation

Give **IV fluid** bolus

Give **Phenlypherine** or **Ephedrine** to temporize

Consider **Trendelenberg** or elevation of patient's legs

Turn down or off **anesthetic agent**

Consider **100% O₂**

Consider code cart if severe.

Consider and rule out specific causes of hypotension:

Pneumothorax: Listen for bilateral breath sounds

Auto-PEEP: disconnect and reconnect circuit

Hemorrhage: rule out occult blood loss

Anaphylaxis

If Refractory Severe Hypotension,

Discuss pausing surgery

Call for more help and code cart

Secondary Actions

More **IV access**

Call for **rapid infuser**

Call for **blood**

Place **arterial line**

Send **labs**: ABG, Hgb, Electrolytes, Calcium, Type & Cross

Consider **terminating surgical procedure** or get surgical help

Consider **Trans-Esophageal Echo (TEE)** if unclear cause

Foley catheter if not present

Consider **Hydrocortisone**

Differential Diagnosis

$$\text{MAP} = \text{CO} \times \text{SVR}; \text{CO} = \text{SV} \times \text{HR}$$

SV from preload, afterload, contractility

Decreased preload: Hypovolemia from bleeding or other decreased volume, Tamponade, pneumothorax, PEEP, surgical compression/retraction, insufflations, pulmonary embolus, tachycardia or arrhythmia

Low SVR (vasodilation): Anaphylaxis, Cement/emboli, Anesthetics and drugs (volatiles, induction agents, Ace Inhibitors), Sepsis, Neuraxial blockade, Spinal shock

Decreased contractility: Low Calcium, Cardiomyopathy, MI/ischemia, prolonged hypoxemia, valvular disease

Low HR if on Beta Blockers, may not get tachycardic compensation for low SV

Increased afterload: Heart unable to eject enough blood against high afterload

Low stroke volume: See preload, contractility, and afterload