Trauma Services/Critical Care **DEPARTMNTAL GUIDELINES AND PROCEDURES**	Procedure No: Page Number: 1 of 5 Effective Date: 10/15

TITLE: REBOA

PURPOSE: To provide a guideline for the indications and placement of an endovascular balloon in the aorta to control bleeding.

ELABORATIONS:

I. INDICATIONS:

REBOA is indicated in select adult patients (aged 16-69) with:

- PEA arrest (<10 minutes) secondary to exsanguination from sub-diaphragmatic hemorrhage and femoral vessels immediately identifiable on ultrasound (if not identifiable consider emergency thoracotomy), or

- Severe hypovolemic shock and a systolic blood pressure **<90mm Hg** or those in an agonal state due to non-compressible exsanguinating hemorrhage, who are non/partial responders to rapid volume resuscitation and have had causes of obstructive shock excluded, and:
  - Suspected or diagnosed intra-abdominal hemorrhage due to blunt trauma or penetrating torso injuries (Zone I REBOA), or
  - Blunt trauma patients with suspected pelvic fracture and isolated pelvic hemorrhage (Zone III REBOA), or
  - Patients with penetrating injury to the pelvic or groin area with uncontrolled hemorrhage from a junctional vascular injury (iliac or common femoral vessels) (Zone III REBOA)

II. DEFINITIONS:

REBOA – Resuscitative Endovascular Balloon Occlusion of the Aorta

III. EQUIPMENT/SUPPLIES:

REBOAKit is located I the REBOA cart. Sterile gowns, masks, hats, gloves, drapes and saline are also in the cart

Cart contains:

ER-Reboa catheter
18 gauge arterial line kit, femoral a line kit
Micro puncture kit
7 Fr Sheath
Syringes for saline/contrast
Sterile 3/4 Drape
Minor instruments for cutdown: scalpel, vessel loops, vascular clamps, retractors,
Sterile gowns, gloves, masks, hats, injectable saline
Tegaderm for securing catheter
2-0 Nylon for securing catheter

IV. **PROCEDURE**:

1. Access Common Femoral Artery 2cm below inguinal ligament using 18 gauge arterial line catheter. (External landmarks for the inguinal ligament are the ASIS to superiolateral pubic tubercle)
2. Upsize arterial line for 7 French sheath
3. Approximate distance (bottom of the balloon at xiphoid for Zone 1 & bottom of the balloon at umbilicus for Zone 3)
4. Insert balloon catheter and place at desired location.
5. XRAY to confirm placement
6. Observe hemodynamic changes and secure sheath and balloon for transport to definitive care: OR, Angio
   *After definitive care, remove introducer sheath and hold pressure for 30 minutes (if percutaneous). If open, repair insertion site

NOTES:

1. External landmarks for the inguinal ligament are the ASIS to superior-lateral pubic tubercle.
2. The duration of balloon occlusion should be limited as much as possible. If return of perfusion is obtained, expeditiously control hemorrhage (via angioembolization, ex-fix and/or surgery) and resuscitate to facilitate the earliest possible balloon deflation.

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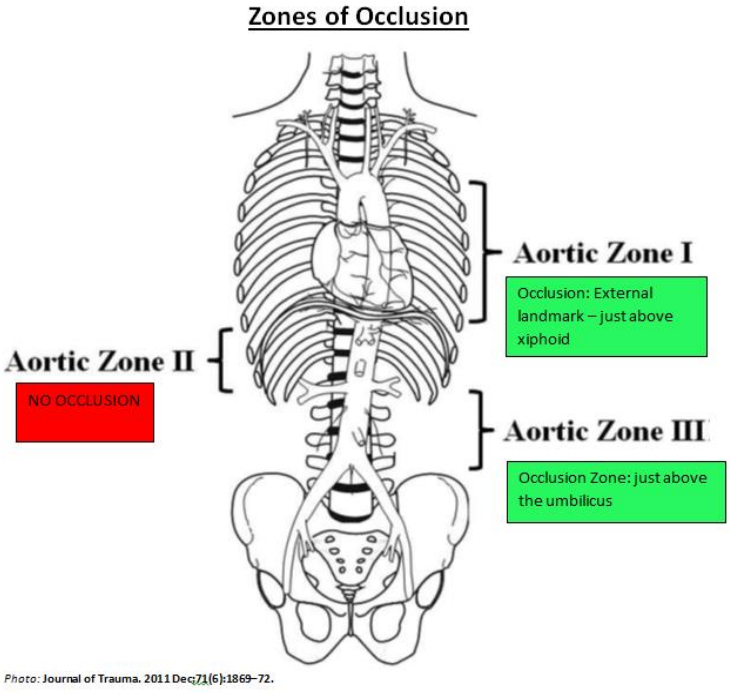
NOTE:

*The balloon should be inflated no more than 60 continuous minutes, and then *slowly* deflated to minimize reperfusion, acidosis, and hypotension. If pelvic hemorrhage is suspected, consider moving the balloon distal in to zone 3 after controlling proximal hemorrhage to preserve renal and visceral perfusion. With prolonged balloon inflation, intermittent balloon inflation and deflation may be necessary to maintain hemodynamic stability.

*Aortic Balloon Occlusion is an evolving science. The steps listed above represent one acceptable technique and are not intended to define best practice. Actual technique, including patient selection, balloon selection, use of introducer sheaths, and positioning maneuvers should be determined by the provider on an individual case basis, based on provider experience.



Can Occlude: Zone 1 is from the origin of the left subclavian artery down to the celiac trunk. Above the xiphoid

Can Occlude: Zone 3 is from the lowest renal artery to the aortic bifurcation. Just above umbilicus

***NO occlusion**: Zone 2 is from the celiac trunk to the lowest renal artery

*Common Femoral Artery is accessed 2cm below inguinal ligament
*External landmarks for the inguinal ligament are the ASIS to superior-lateral pubic tubercle.

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REBOA insertion Steps: Coda balloon catheter

1) Access Common Femoral Artery 2cm below inguinal ligament using 18 gauge arterial line catheter
2) Measure distance and advance Amplatz wire through a-line catheter into Zone 1 (external landmark-2nd rib space). Mark the end of the wire on the sterile drape
3) MUST obtain CXR now to confirm wire in Zone I
4) Exchange arterial line for 12 Fr sheath, upsizing if necessary
5) Advance sheath into proximal CFA and remove dilator
6) Measure distance and advance balloon into Zone 1 (2nd rib space) or distal Zone 3 (just above the umbilicus) and inflate to moderate resistance with **30 ml** balloon
7) Observe hemodynamic changes and secure sheath, balloon and wire for transport to definitive care: OR, Angio
8) After definitive care, the introducer sheath will need to be removed in OR via cut down with arterial repair

Coda 32 mm balloon catheter
18 gauge arterial line kit, femoral a line kit
Micro puncture kit
Amplatz Super Stiff 260 cm wire, 0.035
Coda 32 mm balloon catheter - Cook or Medtronic Reliant
12 and 14 Fr. Sheath- Cook
Sterile 3/4 Drape
Sterile marker and stickers (Steristrips or stickers)
Syringes for saline/contrast
Minor instruments for cutdown: scalpel, vessel loops, vascular clamps, retractors,
Large Ioban

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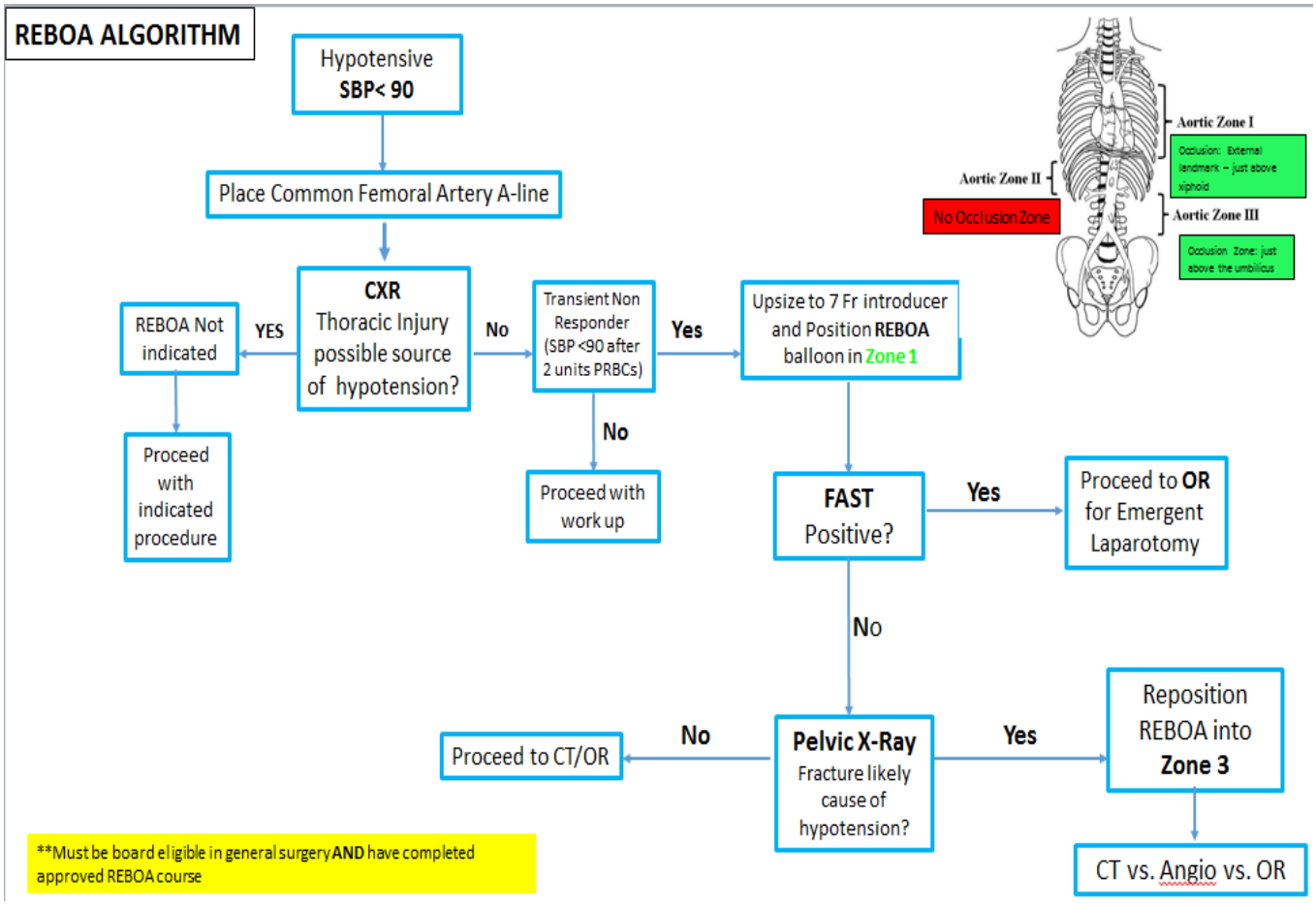

DEPARTMENT OF PRIMARY RESPONSIBILITY:

Trauma Services/Critical Care

REVISION HISTORY:

Effective Date	Version # (If Applicable)	Review or Revision Date (Indicate Reviewed or Revised)	Reviewed or Approved by: (Directors, Committees, Managers, and Stakeholders etc.)
10/15	1		Trauma Protocol and Research Committee
	2	09/24/16	Trauma Protocol and Research Committee