

<b>Emergency Department Thoracotomy</b>		
<b>Effective Date:</b> 10/30/2024	<b>Original Date:</b> 4/1/2016	<b>Approval Date (if different from effective date):</b> Online Vote: 10/30/2024
<b>Number:</b> TP-1004		<b>Version:</b> 3
<b>Facility (Scope):</b> Emergency Department/Trauma		

**POLICY STATEMENT:**

1. Emergency Department Thoracotomy (EDT) or Resuscitative Thoracotomy (RT) is a procedure of last resort that is performed only under specific clinical circumstances. Resuscitative Thoracotomy is nearly always performed in the emergency department and involves gaining rapid access to the heart and major thoracic vessels through an anterolateral chest incision to control exsanguinating hemorrhage or other life-threatening chest injuries. This is intended to guide the Emergency physician and the Trauma Surgeon in clinical decision making of the trauma patient in extremis.

**DEFINITIONS:**

- A. Extremis: at the point of death
- B. Signs of life: signs which guide the provider to proceed with the EDT. They include:
  1. Spontaneous respirations
  2. Palpable pulse/BP
  3. Narrow complex QRS
  4. Organized cardiac activity via US
  5. Pupillary response

**PROCEDURE:**

- A. Patient in extremis:
  1. Patient EMS report
    - a) Mechanism of injury
      - a. Blunt (Arrest w/in 10 min of ED arrival may be considered for EDT)
      - b. Penetrating (Arrest w/in 15 min of ED arrival may be considered for EDT)
    - b) Vital signs
    - c) Time CPR started
- B. Activate Level I/OR if patient meets criteria for EDT.
  1. Trauma Surgeon, Anesthesia and OR team are notified with the activation.
- C. Prepare team
  1. 2<sup>nd</sup> Emergency physician
  2. CV surgeon
  3. Trauma team
  4. Assign roles
  5. Initiate Massive Transfusion guideline (automatically initiated w/ Level I/OR activation)
    - a) Notify Blood Bank
- D. Prepare equipment
  1. Thoracotomy tray
  2. Chest tube insertion tray (2)
  3. packs of lap sponges (5 in each pack)
  4. Suture

5. Scalpel
  6. Betadine
  7. Lines for blood and fluid resuscitation
  8. Rapid Fluid Infuser
  9. Nasogastric Tube
  10. 20fr Foley Catheter
- E. Rapidly perform primary assessment
- F. If case meets criteria-perform EDT
- a) Blunt (Arrest w/in 10 min of ED arrival)
  - b) Penetrating (Arrest w/in 15 min of ED arrival)
- G. If return of vital signs: transfer to OR immediately
- H. If futile: cease resuscitation
- I. All sharps must be disposed of in sharps container
- J. Clothing and personal items must be labeled and handled as evidence until law enforcement collects.

**REFERENCES:**

1. Alremeithi R, Tran QK, Quintana MT, Shahamatdar S, Pourmand A. Approach to traumatic cardiac arrest in the emergency department: a narrative literature review for emergency providers. *World J Emerg Med.* 2024;15(1):3-9. doi: 10.5847/wjem.j.1920-8642.2023.085. PMID: 38188559; PMCID: PMC10765073.
2. M Oliver, J Bennet, N Nassr, B Marson, R Freij, A Brooks, 744 Indications for Emergency Department Resuscitative Thoracotomy in Blunt and Penetrating Trauma: A Survey of UK Major Trauma Centre Guidelines, *British Journal of Surgery*, Volume 109, Issue Supplement\_6, September 2022, znac269.209, <https://doi.org/10.1093/bjs/znac269.209>
3. Burlew CC, More EE, Moore FA, Coimbra R, McIntyre, RC Jr., Davis JW, Sperry J, and Biffl WL. (2012) Western Trauma Association Critical Decisions in Trauma: Resuscitative thoracotomy
4. Seamon MJ, Haut ER, Van Arendonk K, Barbosa RR, Chiu WC, Dente CJ, Fox N, Randeep S, Khwaja K, Lee, JK, Mayglothling JA, McDonald AA, Rowell S, To, KB, Falck-Ytter, Y, Rhee, P. An evidence-based approach to patient selection for emergency department thoracotomy: A practice management guideline from the Eastern Association for the Surgery of Trauma. *J of Trauma and Acute Care Surgery* July 2015 79:1; 159-173
5. Western Trauma Association. Resuscitative Thoracotomy. 2024. <https://www.westerntrauma.org/western-trauma-association-algorithms/resuscitative-thoracotomy/introduction/>

**EXHIBITS:**

- A. Billings Clinic EDT decision algorithm.pdf (Attached)

**KEY WORDS AND KEY PHRASES: NA**

**ADDITIONAL POLICY INFORMATION:**

Type:	Owner: Trauma program
Replaces:	
Other required review/approval(s) (name, title, date):	ED Manager and Medical Director
Regulatory or Accreditation Agency:	

**EXHIBIT A.**

**Billings Clinic Emergency Department Thoracotomy (EDT) Algorithm**

(See #19 – Traumatic Arrest CPG for full page print)



Original Date: 2024  
Latest Approval: 11/8/2024

**Clinical Practice Guideline (CPG): Traumatic Arrest**

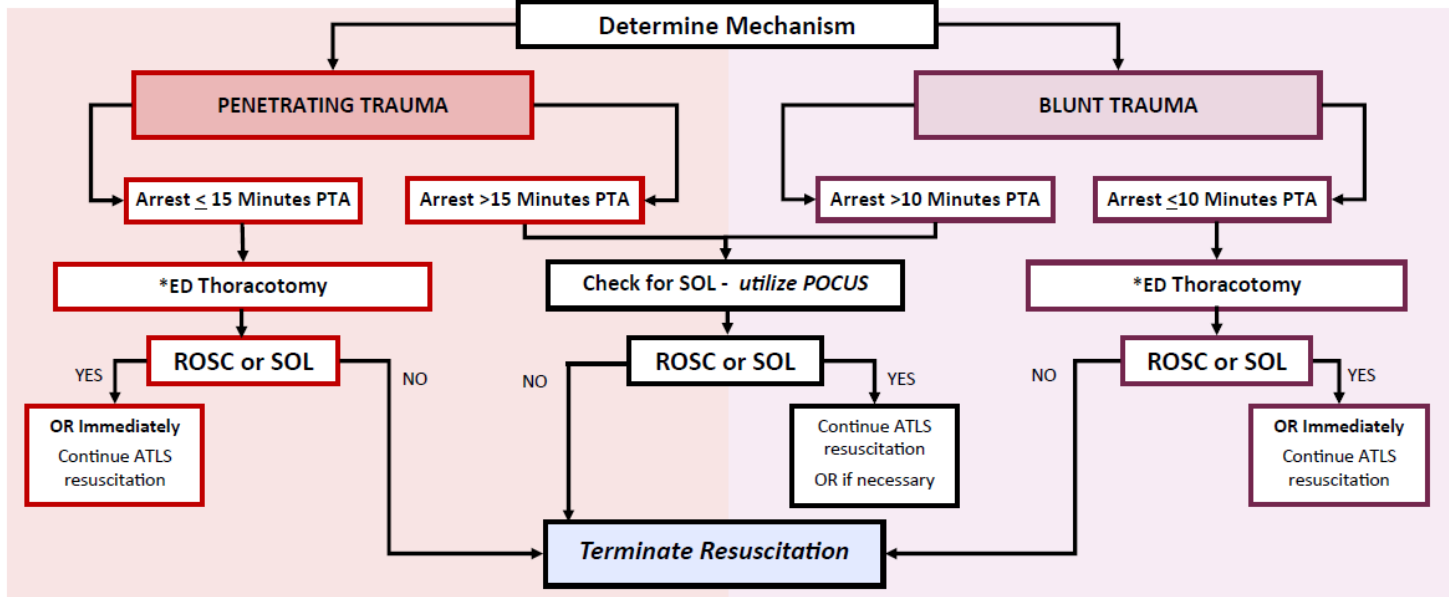
**ACLS CPR should NOT interfere with ATLS procedures**

Physician clinical judgement supersedes this guideline

\*Reference: ED Thoracotomy Guideline

- Hypovolemia:**
  - Consider Massive Transfusion Protocol
  - Control external hemorrhage
  - Pelvic binder for unstable pelvis
- Oxygenation:**
  - Ensure airway & proper ventilation
- Tension Pneumothorax:**
  - Bilateral thoracostomies
- Tamponade (Cardiac):**
  - Decompress

**Traumatic Arrest**  
Large bore IV/IO access  
Treat/Evaluate H.O.T.T  
CXR if able  
Start Massive Transfusion



**Definitions**  
SOL (Signs of Life): spontaneous respirations, palpable pulse/BP, narrow complex QRS, cardiac activity via ultrasound, pupillary response, extremity movement  
ROSC (Return of Spontaneous Circulation): sustained heart rhythm post arrest  
POCUS (Point of Care Ultrasound): ultrasound to assess for pneumothorax, hemoperitoneum, hemopericardium, etc.  
Traumatic arrest: A patient who is admitted to the trauma room with no pulses or spontaneous respiratory activity. Status includes pulseless electrical activity (PEA).