



# Section 11: Pediatric Trauma Protocols

## PEDS TRAUMA: CHEST TRAUMA

E	EMT	E
A	AEMT	A
P	PARAMEDIC	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL
CERVICAL SPINAL MOTION RESTRICTION -SMR
AIRWAY PROTOCOL
HIGH FLOW OXYGEN
CAPNOGRAPHY PROCEDURE
<b>IF S&amp;S of Tension Pneumothorax (No lung sounds on affected side, Hypotension, JVD) NEEDLE CHEST DECOMPRESSION PROCEDURE Use appropriate size catheter for age or commercial device</b>
<b>IV / IO PROCEDURE Normal Saline Bolus to maintain SBP 90 / Radial Pulses</b>
APPLY CARDIAC MONITOR

<b>Cardiac Tamponade:</b> Assess for + Beck's Triad (Hypotension, +JVD and muffled heart sounds). Paradoxical Pulse (no radial pulse when breathing in) is likely. <b>LOAD AND GO</b>
<b>Massive Hemothorax:</b> Shock, then difficulty breathing. No JVD, decreased breath sounds, dull to percussion. <b>LOAD AND GO</b>
<b>Open Pneumothorax:</b> Close wound with occlusive dressing secured on THREE SIDES, allowing air escape. Prepare for tension pneumothorax. <b>LOAD AND GO</b>
<b>Flail Chest:</b> Stabilize flail segment with manual pressure then apply bulky dressing and tape. <b>LOAD AND GO</b>
<b>Suspected:</b> Traumatic Aortic Rupture, Tracheal or Bronchial Tree Injury, Myocardial Contusion, Diaphragmatic Tears, Esophageal Injury, Pulmonary Contusion: Ensure an Airway, Administer Oxygen, <b>LOAD AND GO</b>

INITIATE TRAUMA ALERT
<b>TRANSPORT</b> to appropriate facility <b>CONTACT</b> receiving facility <b>CONSULT</b> Medical Direction where indicated



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## PEDS TRAUMA: CHEST TRAUMA-Cont.

### PEARLS and KEY POINTS

SIGNS AND SYMPTOMS			
SIMPLE PNEUMOTHORAX	OPEN PNEUMOTHORAX	TENSION PNEUMOTHORAX	HEMOTHORAX
<ul style="list-style-type: none"> <li>• Shortness of breath</li> <li>• Dyspnea</li> <li>• Tachypnea</li> <li>• Cyanosis</li> <li>• Chest pain</li> <li>• Absent diminished Lung sounds on the affected side</li> </ul>	<ul style="list-style-type: none"> <li>• Shortness of breath</li> <li>• Dyspnea</li> <li>• Cyanosis</li> <li>• Sucking chest wound</li> <li>• Shock</li> <li>• Absent / diminished Lung sounds on affected side</li> </ul>	<ul style="list-style-type: none"> <li>• Shortness of breath</li> <li>• Cyanosis</li> <li>• Shock</li> <li>• Absent / diminished Lung sounds</li> <li>• Tracheal deviation</li> <li>• Hypotension</li> <li>• JVD</li> <li>• Tachycardia</li> <li>• Dyspnea (late sign)</li> </ul>	<ul style="list-style-type: none"> <li>• Shortness of breath</li> <li>• Dyspnea</li> <li>• Cyanosis</li> <li>• Dullness to Percussion sounds</li> <li>• Flat neck veins</li> <li>• Hypotension</li> <li>• Shock</li> <li>• Absent / diminished breath sounds</li> <li>• Tachycardia</li> </ul>

CARDIAC TAMPONADE	TRAUMATIC ASPHYXIA	FLAIL CHEST
<ul style="list-style-type: none"> <li>• Hypotension</li> <li>• Decreasing pulse pressure</li> <li>• Elevated neck veins</li> <li>• Muffled heart tones</li> <li>• Bruising over the sternum</li> <li>• Tachycardia</li> </ul>	<ul style="list-style-type: none"> <li>• Bloodshot, bulging eyes</li> <li>• Blue, bulging tongue</li> <li>• JVD</li> <li>• Cyanotic upper body</li> </ul>	<ul style="list-style-type: none"> <li>• Paradoxical chest wall movement</li> <li>• Asymmetric chest movement Upon inspiration</li> <li>• Dyspnea</li> <li>• Unstable chest segment</li> <li>• Significant chest wall pain</li> </ul>

Thoracic injuries have been called the deadly dozen. The first six are obvious at the primary assessment.

1. Airway obstruction
2. Flail chest
3. Cardiac tamponade
4. Massive hemothorax
5. Open pneumothorax
6. Tension pneumothorax

The second six injuries may be more subtle and not easily found in the field:

7. Traumatic aortic rupture
8. Esophageal injury
9. Myocardial contusion
10. Diaphragmatic tears
11. Tracheal / bronchial tree injury
12. Pulmonary contusion

- A **sucking chest wound** is when the thorax is open to the outside. The occlusive dressing may be anything such as petroleum gauze, plastic, or a defibrillator pad. Tape only 3 sides down so that excess intrathoracic pressure can escape, preventing a tension pneumothorax. May help respirations to place patient on the injured side, allowing unaffected lung to expand easier.
- A **flail chest** is when there are extensive rib fractures present, causing a loose segment of the chest wall resulting in paradoxical and ineffective air movement. This movement must be stopped by applying a bulky pad to inhibit the outward excursion of the segment. Positive pressure breathing via BVM will help push the segment and the normal chest wall out with inhalation and to move inward together with exhalation, getting them working together again. Do not use too much pressure to prevent additional damage or pneumothorax.
- A **penetrating object** must be immobilized by any means possible. If it is very large, cutting may be possible, with care taken not to move it about when making the cut. Place an occlusive and bulky dressing over the entry wound.
- A **tension pneumothorax** is life threatening, look for *HYPOTENSION*, unequal breath sounds, JVD, increasing respiratory distress, and decreasing mental status. The pleura must be decompressed with an appropriate sized catheter for patients age to provide relief. Decompress between the 2<sup>nd</sup> and 3<sup>rd</sup> ribs, midclavicular placing the catheter over the 3<sup>rd</sup> rib. Once the catheter is placed, watch closely for reocclusion. Repeat if needed to prevent reocclusion. Decompress with 3.25" catheter based on patient's size.