

# Protocol 4-11

**SECTION:** Adult Trauma Patient Care

**PROTOCOL TITLE:** Injury - Thoracic

**REVISED:** 06/2017

## THORACIC TRAUMA

### OVERVIEW:

Thoracic injuries can be very dramatic, presenting with obvious physical findings that lead to immediate identification and management during the initial assessment, while others may only exhibit subtle signs and symptoms that can be easily missed initially. A high index of suspicion, accurate assessment, and frequent reassessment are necessary to identify both the apparent and less obvious thoracic injuries that could lead to lethal consequences. Thoracic injury may result from both penetrating and blunt trauma. Penetrating trauma has a tendency to be more obvious due to the presence of an open wound while blunt trauma may produce findings such as large contusions, tenderness, fractured ribs or flail segments, or relatively little external evidence of injury. Although little external injury may be present, the patient may be suffering from multiple and severe organ, vascular, and structural injuries.

HPI	Signs and Symptoms	Considerations
<ul style="list-style-type: none"> <li>• Time of injury</li> <li>• Mechanism: blunt vs penetrating</li> <li>• Loss of consciousness</li> <li>• Damage to structure, vehicle</li> <li>• Location in structure or vehicle</li> <li>• Speed, details of MVC: Restraints, protective devices</li> <li>• Medical history</li> <li>• Medications</li> <li>• Evidence of multi-system trauma</li> </ul>	<ul style="list-style-type: none"> <li>• Pain, swelling, bleeding</li> <li>• Deformity, lesions</li> <li>• Altered mental status, unconsciousness</li> <li>• Respiratory distress, failure</li> <li>• Hypotension, shock</li> <li>• Arrest</li> <li>• Significant mechanism of injury</li> </ul>	<ul style="list-style-type: none"> <li>• Tension pneumothorax</li> <li>• Flail chest</li> <li>• Pericardial tamponade</li> <li>• Open chest wound</li> <li>• Hemothorax</li> </ul>

	EMR	EMT	A	I	P
1. Maintain scene and provider safety.	•	•	•	•	•
2. Perform general patient management.	•	•	•	•	•
3. Administer oxygen, to maintain $SPO_2$ 94 - 99%. If needed, assist ventilations with BVM, maintain C-spine precautions.	•	•	•	•	•
4. If airway remains unstable, consider placement of definitive airway ( <i>Supraglottic / dual lumen</i> ) ( <i>ETT I and P only</i> ).		•	•	•	•
5. Identify mechanism of injury.	•	•	•	•	•
6. Assess breath sounds. Stabilize any chest injuries.*		•	•	•	•

# Protocol

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Continued

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	EMR	EMT	A	I	P
7. If patient has clinical findings consistent with tension pneumothorax and has hypotension/signs of shock, perform <u>needle decompression</u> * per protocol.				•	•
8. Establish large bore IV's of normal saline. Titrate to systolic blood pressure of 90 to 100 mmHg.			•	•	•
9. Place patient on cardiac monitor per assessment.				•	•
10. Treat pain if indicated. Refer to <u>pain management protocol</u> .			•	•	•
11. Transport to the appropriate hospital per <u>trauma triage scheme</u> and reassess patient as indicated.		•	•	•	•

### \*Open Pneumothorax

Occlude initially with gloved hand as soon as found.  
As rapidly as possible, apply an occlusive dressing, taped on three sides over wound.

### \*Tension Pneumothorax

Perform chest decompression of the affected side, at the mid-clavicular line between the second and third intercostal space, per Needle Thoracentesis Clinical Procedure.

### PEARLS:

1. The amount of external bleeding is not an indicator of the potential severity of internal bleeding associated with an underlying trauma.
2. Some injuries, such as simple rib fractures, may produce such excruciating pain that the patient intentionally hypoventilates to reduce chest wall movement causing secondary hypoxia.
3. Due to the amount of external noise, a possible pneumothorax should not be determined by lung sounds alone. In the presence of a true tension pneumothorax, the patient will also show signs of increasing tachycardia, decreasing SpO<sub>2</sub>, tachypnea, and anxiety. Tracheal deviation away from the affected side is a late sign and may be difficult to assess in obese patients.
4. Careful reassessment of lung sounds should occur continuously. A patient that initially only has an open pneumothorax may quickly develop a tension pneumothorax and need needle thoracentesis after an occlusive dressing has been applied.
5. A true flail segment is two or three adjacent ribs, fractured in two or more places, which have the ability to move independently of the remaining chest wall.
6. Although paradoxical motion is often thought to be the hallmark sign of a flail chest, when the ribs fracture, the intercostal muscles may spasm, causing the flail segment to be initially stabilized. Paradoxical motion may be initially missed upon inspection while a thorough palpation exam will reveal any instability.
7. Stabilizing a flail segment with sandbags or other devices is no longer recommended. Carefully monitor for inadequate ventilations and provide positive pressure ventilations as needed.