

**Created:** June 2024  
**Reviewed:** November 2024  
**Revised:** June 2024

---

## Rib Fracture Management

---

**Purpose:** To standardize the treatment of rib fracture patient to improve chest wall stability, respiratory function, and secretion clearance

**Guidelines:**

- A. Initial treatment of rib fractures
  - a. Incentive spirometry (IS) and secretion clearance measures
    - i. Acapella every 4 hours while awake
    - ii. Incentive spirometry 10 breaths/hour while awake
  - b. Head of bed >30°
  - c. Early mobility
  - d. Multimodal pain control
  
- B. Indication for Open Reduction Internal Fixation (ORIF)
  - a. Pt with fractures of ribs 3 through 10
    - i. Within 72 hours of admission as able
    - ii. >18 years of age
    - iii. Flail chest
    - iv. 3 or more ribs with at least 2 of the following
      - 1. Respiratory rate >20
      - 2. IS <50% predicted
      - 3. Pain >5-10
      - 4. Poor cough/poor secretion clearance
  
- C. Contraindications
  - a. Shock or ongoing resuscitation
  - b. Ribs 1, 2, 11, 12
  - c. Sepsis
  - d. Severe TBI
  - e. Anatomic location considerations
  
- D. Technique
  - a. Appropriate pre-operative optimization
  - b. Use of muscle sparing exposures
  - c. Thoracoscopic or open techniques as appropriate
  - d. Irrigate and evacuate pleural space when hemothorax present

- E. Post-Operative Care
  - a. Chest tube management as appropriate
  - b. Maximize pulmonary hygiene
  - c. Pain control
    - i. Nerve block/pain catheter per anesthesia
    - ii. Schedule Tylenol and NSAID unless clinically contraindicated
    - iii. Consider Lidoderm patch

**References:**

- Chest Wall Injury Society
- Chen Zhu, R. , de Roulet, A. , Ogami, T. & Khariton, K. (2020). Rib fixation in geriatric trauma: Mortality benefits for the most vulnerable patients. *Journal of Trauma and Acute Care Surgery*, 89 (1), 103-110. doi: 10.1097/TA.0000000000002666.
- Shiroff, A. , Wolf, S. , Wu, A. , Vanderkarr, M. , Anandan, M. , Ruppenkamp, J. , Galvain, T. & Holy, C. (2023). Outcomes of surgical versus nonsurgical treatment for multiple rib fractures: A US hospital matched cohort database analysis. *Journal of Trauma and Acute Care Surgery*, 94 (4), 538-545. doi: 10.1097/TA.0000000000003828.
- Simmonds, A. , Smolen, J. , Ciurash, M. , Alexander, K. , Alwatari, Y. , Wolfe, L. , Whelan, J. , Bennett, J. , Leichtle, S. , Aboutanos, M. & Rodas, E. (2023). Early surgical stabilization of rib fractures for flail chest is associated with improved patient outcomes: An ACS-TQIP review. *Journal of Trauma and Acute Care Surgery*, 94 (4), 532-537. doi: 10.1097/TA.0000000000003809.