Mercy Hospital
Trauma Care Guideline

Management of Chest Tube Removal

**Purpose:**
To communicate evidence-based guidelines related to the management of chest tube removal

**Guidelines:**
Based on recommendations from current literature

**Level 1 recommendations:**
- Chest drainage should be less than 150 cc in the previous 24 hours prior to removal.
- Chest tubes should not be removed unless the pneumothorax is gone or minimal/stable

**Level 2 recommendations:**
- Chest tubes can be removed equally safely at end-inspiration or end-expiration
- Chest tubes can be safely removed on suction
- A brief trial of waterseal prior to chest tube removal may allow occult air leaks to become clinically apparent and reduce the need to chest tube reinsertion due to recurrent pneumothorax. Such trials, however, may increase length of hospital stay as well as the number of radiographs.

**Level 3 recommendations:**
- In mechanically ventilated patients, follow-up CXR after chest tube removal should occur within 1-3 hours
- In non-mechanically ventilated patients, follow-up CXR after chest tube removal should occur in approximately 6 hours.
Adopted at the Trauma M&M Conference March 26, 2013.

________________________  Date
David Kalb, M.D.  Trauma Medical Director


Mercy Hospital
Trauma Care Guideline

Algorithm for Chest Tube Removal

Chest tube removal parameters (evaluate every shift):
- Output < 150 cc in 24 hours
- No air leak for 24 hours
- Residual pneumothorax: none or minimal/stable

Are all above parameters met?
- Yes
- No

Was an air leak ever present?
- Yes
- No

Water seal for 6 hrs; check CXR
- Yes
- No

Is PTX gone? Minimal or stable?
- Yes
- No

Return to suction for 6 hrs

Remove chest tube and place occlusive drsg; CXR in 6 hrs if extubated
Or CXR in 1-3 hrs if intubated
- Yes
- No

Is there a significant change?
- Yes
- No

Done

Observe. Consider drainage

Evaluate next shift