

Chest Tube (Critical Care)

Purpose:

- A. To remove accumulated air, fluids, blood, pus, chyle, serous fluids or solids (blood clots) from the pleural cavity.
- B. To restore and / or maintain negative pressure in the pleural cavity to re-expand a partially or totally collapsed lung.

Policy:

1. Only a physician or Advanced Practice Nurse shall insert or remove a chest tube. (Competency verified through ePriv)
2. The physician's order for chest tube placement shall include the drainage system to be employed, suction requirements, and chest x-rays.
3. A signed Informed Consent is required prior to chest tube insertion except in emergency situations, where implied consent applies. Time out is performed to ensure correct site insertion.
4. A rapid IV access shall be established prior to insertion if none present.
5. Chest tubes are never to be clamped except when ordered by a physician. "Milking" of chest tubes shall only be done with a written physician's order specifying frequency.
 - To milk a chest tube, clasp one hand around the tube at the point at which the drainage is to be advanced. Gently squeeze the tubing against the palm of the hand. Release the tubing and then lift the tubing to advance the drainage toward the Collection Chamber. Repeat if necessary.
 - "Milking" is described as gently compressing the drainage tubing to remove fluid or blood clots.
6. A written physician's order shall be required to disconnect the chest tube from suction, except, when patient is being transported.
7. If chest tube comes apart at the distal end, quickly reconnect tubes rather than clamping. **X-ray should be obtained immediately.**
 - Chest tubes are clamped only when:
 - Patient is receiving chemotherapy or a sclerosant such as talc, atabrine or tetracycline via the chest tube;
 - changing a full chest drainage unit; or
 - chest tube is being removed.
 - Clamping a chest tube introduces the risk of the patient developing a tension pneumothorax. If chest tubes are clamped even for a brief time and the patient develops respiratory distress, unclamp chest tubes, connect them to the prescribed suction and notify the MD
8. Drainage systems that need changing due to breakage or filled collection chambers, shall be done by the RN.
9. The drainage system should be kept lower than the level of the bed and tubing shall be free from loops. This prevents clots from occurring, obstructing the drainage system and causing increased pressure in the lungs.
10. Dressings shall be monitored at least every shift for drainage or sucking of air.
11. Base line vital signs shall be recorded prior to insertion and monitored frequently during post-insertion care.
12. A chest x-ray shall be done post-insertion and when the chest tube is discontinued. This must be ordered by the physician.

Equipment:

Blue Pads
 Chest Tube (size selected by MD)
 Vaseline Gauze
 Toppers
 Tape 2 inch wide cloth
 Connecting Tubing
 Suction
 Thoracostomy Tray
 Knife handle
 Knife blade # 10
 #0 or #1 Nylon suture
 Needle holder
 20cc Syringe with 25 gauge needle
 Antiseptic Scrub
 Drainage System (i.e. Atrium, Thoraseal)
 Sterile Water
 Benzoin
 Xylocaine 1% Solution
 Sterile gloves
 Culture or cytology tubes when needed.
 Xeroform or Vaseline gauze

Procedure:

Responsible Party	Action
MD/NP	1. Writes order for placement including: <ol style="list-style-type: none"> type of drainage system. suction requirements. frequency of drainage monitoring 2. Explain procedure to patient. 3. Obtain informed consent. Exception for emergent situations 4. Select site for insertion. 5. Assemble equipment. 6. Wash hands with antimicrobial solution.
RN RN / MD/NP	7. Fill drainage system with sterile H ₂ O Atrium <ol style="list-style-type: none"> Fill water seal chamber with sterile water provided in kit. Connect Atrium to suction at the suction port

Once the Atrium is attached to the chest tube after insertion you should see the orange plug to the level of the arrow in the suction window.

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Responsible Party**Action**

	8. Connect clear tubing to the suction source and turn on the suction to check that suction is being applied to the device.
	9. Time out performed.
	10. Position patient in appropriate position, usually Semi-Fowler's position.
	11. Instruct patient to place arm, on insertion side, behind head.
	12. Obtain baseline vital signs.
	13. Open chest tube tray and equipment maintaining sterility of contents.
RN	14. Prep insertion site with antiseptic scrub.
MD/NP	15. Don mask, cap, and gloves (sterile or nonsterile).
	16. Don mask, cap, gown, and sterile gloves.
	17. Insert chest tube based on accepted medical standards.
RN	18. Assists the physicians during insertion procedure.
MD/NP	19. Suture tube in place.
MD / RN	20. Connect the end of the chest tube to the drainage system.
RN	21. Tape the junction of the chest tube and drainage device.
	22. Turn on suction and assure presence of orange stopper in the suction window.
MD/NP	23. Apply Vaseline gauze or Xeroform around tube and cover with sterile toppers.
MD / RN	24. Apply Benzoin to skin around the dressing and allow it to air dry.
	25. Apply tape to secure dressing and tube to skin.
MD/NP	26. Order a portable chest x-ray and check x-ray as soon as possible.
RN	27. Monitor patients, vital signs, respiratory rate, drainage output (note the color and amount), and presence of chest pain or SOB.
MD / RN	28. Place the soiled equipment in appropriate container.
MD/NP	29. Place the sharps in appropriate container.
RN	30. Document on the Chart: <ul style="list-style-type: none">a) date and time of insertionb) insertion sitec) drainage system usedd) tube sizee) presence of drainage (amount and color) and bubblingf) vital signs and auscultation findingsg) presence of air leak signified by bubbling in water seal chamberh) patient's tolerance to procedurei) any complications and nursing actions taken
	31. Observe and record every shift:

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	<ul style="list-style-type: none"> a) temperature q4hr b) condition of dressing c) drainage output and character d) presence of suction e) presence of intermittent bubbling in water seal chamber (air leak) f) fluctuation in the water seal chamber.
MD/NP	<ul style="list-style-type: none"> 34. Writes order for suction or water seal only. 35. Confirm chest tube placement by reading CXR. 36. Write progress note on procedure.
MD / RN	<ul style="list-style-type: none"> 37. To discontinue chest tube - Instruct the patient to take a deep breath and hold it while pulling chest tube.
RN	<ul style="list-style-type: none"> 38. Maintain sterile occlusive dressing over site for 48 hours after discontinuation. 39. Document on chart: <ul style="list-style-type: none"> a) date / time chest tube discontinued. b) vital signs and auscultation findings. c) condition of dressing. d) patient tolerance to procedure. e) amount, color and consistency of any drainage.
MD/NP	<ul style="list-style-type: none"> 38. Order post DC CXR. 39. Write in progress note procedure and post dc CXR findings.

Dressing Changes:

Responsible Party

Action

RN/MD	<ul style="list-style-type: none"> 1. Assess dressing at least every 4 hours. 2. Dressings are to be changed at least every 96 hours. The RN shall change the dressing More frequently if soiled or site without antibiotic saturated and occlusive gauze. 3. Refer to Infection Control Policy IC 22 for proper skin preparation at Chest Tube insertion site for dressing changes. http://www.sh.lsuhs.edu/policies/policy_manuals_via_ms_word/infection/IC%2022.0.pdf 4. Replace occlusive dressing. 5. Replace sterile gauze and tape dressing appropriately. 6. Document procedure in nursing notes.
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Reference:

- 1. Chulay, M. & Burns, S. (2006). AACN: Essentials of Critical Care Nursing.
- 2. Wiegand, D & Carlson, K. (2005). AACN: Procedure Manual for Critical Care.
- 3. Infection Control Guidelines IC 22