CCT: NEONATAL THORACOSTOMY TUBE
PERCUTANEOUS PLACEMENT OF A SMALL-BORE PIGTAIL

PURPOSE
1. Tube thoracostomy may be performed by a Transport Team Member. The decision to perform tube thoracostomy should be based upon the severity of the infant’s condition.

SCOPE
A. This guideline applies to all members of the Indiana University Lifeline Critical Care Transport team.

DEFINITIONS
None

GUIDELINES
1. Indications
   a. Air or fluid in the pleural cavity is compromising ventilation and/or oxygenation. Air or fluid continues to re-accumulate following thoracentesis, or the Transport Team member judges that a stable thoracostomy tube is needed prior to transport. The diagnosis is made by transillumination, chest radiograph, or clinical evaluation.

2. Contraindications
   1. None

3. Complications
   7. Hemorrhage
   8. Laceration of intercostal artery/nerve
   9. Laceration of lung
   10. Infection
   11. Death (if air or fluid cannot be adequately evacuated)

4. Equipment
   A. Sterile gloves
   B. Cook Medical Pigtail C-PPD-850-IMH
   C. Introducer needle
   D. Pigtail Catheter 8.5 French, 15cm length
   E. Gray Catheter stabilizer
   12. Luer-lock stopcock
   13. T-Connector
   14. Drape or sterile towel (s)
   15. Additional Items needed
      a. 1% lidocaine, 1 ml syringe, and 25-gauge or 27 gauge needle
      b. Steri-strips or tape
Consider administration of pain medication

5. **Procedure Technique**
   i. Select site for Pigtail catheter placement.
   ii. For midaxillary line insertion, position infant with affected side elevated 30-45 degrees. For midclavicular insertion the patient can remain supine.
   iii. Quickly prep selected site with antiseptic solution.
   iv. Pigtail catheter site will be in the anterior axillary line 2nd, 3rd or 4th intercostal space or 2nd intercostal space midaxillary.
   v. Infiltrate area of puncture and chest tube insertion with up to 1 ml of 1% lidocaine if time permits
b. Stretch the overlaying skin cephaled. Use 18 gauge angiocath to obtain entry into the chest cavity, withdraw needle.
c. Insert the guide wire set up into angiocath and thread guide wire until silver mark is level with white piece of guide wire structure.
d. Withdraw angio and white introducer piece from chest and remove from guide wire, it is important to stabilize guide wire to prevent its removal from chest cavity.
e. Insert dilator onto guide wire and insert into chest until largest diameter is inserted. Carefully remove dilator from guide wire while stabilizing guide wire to prevent removal from chest.
f. While maintaining the stability of the guide wire, thread the pigtail catheter onto the guide wire and rotate the catheter so the holes are up, for a pneumothorax, or down, for fluid drainage. Insert pigtail catheter into chest until all holes are in pleural cavity. Withdraw guide wire from chest and pigtail cavity.
g. Attach the Luer lock adapter to the catheter. A short piece of green bubble tubing may be used to connect to Heimlich valve and Stopcock with 20ml syringe should remain in place between pigtail catheter and blue connector piece while on transport so air may be directly aspirated off catheter in the event of hypotension.
h. Secure the catheter in place with Steri-strips or tape in a “chevron” pattern, or suture in place. Seal the skin entry site with a transparent adherent dressing.

**Required Documentation:**
A. Document amount of air removed during procedure.
B. Document number at skin insertion and results of confirmation CXR.

**Citations/References:**