

Purpose: To properly and safely inflate tracheostomy tube cuff by inflating with the optimal prescribed amount of air or sterile water to create an optimal “minimal leak” to allow a minimum amount of air to flow between the tracheostomy tube cuff and the tracheal wall at the very end of inspiration. This technique is commonly called Minimal Leak Technique and is used to prevent damage to the tracheal wall by preventing over inflation of the tracheostomy tube cuff.

Clinical considerations: Minimal leak technique should be utilized with every tracheostomy tube cuff inflation, whenever proper inflation or tracheostomy tube cuff viability is in question, and as part of a patient’s initial assessment.

Assemble supplies:

- Suction machine and suction catheter
- Oral suction adapter
- Luer Lock or slip tip syringe
- Stethoscope

Preparation:

1. Check physician’s order for detailed instructions specific to the patient.
2. Explain and prepare the patient for the procedure.
3. Prior to performing the procedure, assemble appropriate supplies and plan all actions.
4. Utilize appropriate infection control techniques while preparing, using, and discarding supplies.
5. Verify that suction machine is working properly

Procedure:

1. Wash hands or use hand sanitizer according to agency policy.
2. Suction orally with appropriate suction adapter to minimize any retained secretions or food particles that may have pooled above the tracheostomy tube cuff.
3. Attach slip tip or Luer Lock syringe to pilot balloon.
4. Deflate the cuff completely by pulling back on plunger of syringe until negative pressure is felt.
5. Remove syringe prior to releasing plunger.
6. Suction tracheostomy tube to prevent aspiration of any retained secretions or food particles not removed with oral suctioning.
7. Fill syringe with maximum prescribed amount of air or fluid. Pediatrics will be prescribed with an exact amount. Adults will be prescribed a range.
8. Attach syringe to pilot balloon.
9. Place stethoscope on the side of patient’s neck near trachea; place stethoscope at the approximate location of the cuff on the inserted tracheostomy tube.
10. Start inflating cuff; as cuff is inflated, listen for air flow during ventilated breaths.
11. When you no longer hear air flow, stop inflation and remove fluid or air in 0.5 ml increments until you hear air flow again at the very end of inspiration.

Minimal Leak Technique Protocol

12. Verify that the final inflated volume is within the prescribed amount of air or fluid.
13. Remove syringe.
14. If you cannot detect a leak within prescribed amount of air or fluid, reposition patient and re-attempt inflation starting at #4.
15. If you still cannot detect a leak within prescribed amount of air or fluid, deflate cuff until minimal leak is detected and contact Urgent On-Call immediately.
16. Document procedure including the amount of air or fluid used to inflate cuff and that minimal leak was achieved.