# VANDERBILT UNIVERSITY MEDICAL CENTER
# DIVISION OF TRAUMA AND SURGICAL CRITICAL CARE

## Guidelines for Rapid Sequence Intubation (RSI)

### I. Definition

Rapid sequence intubation is indicated when concern for aspiration exists. In the post-surgical patient this is often the case. To complete an RSI, the patient should not be ventilated until the ETT is in place. In the event of a desaturation (<80%) or a failed intubation attempt, mask ventilation with an oral airway should ensue.

### II. Equipment that must be present

1. Cardiac monitor
2. Blood Pressure cuff or arterial line
3. Pulse oximetry (on opposite side of BP cuff or forehead)
4. IV access (on opposite side of BP cuff or central access)
5. Non-rebreather mask with oxygen source connected
6. High-flow nasal cannula with oxygen source connected
7. Bag-valve mask with oxygen connected (used after intubation)
8. ACLS drugs
9. End-tidal CO2 detector
10. Laryngoscope/Intubation kit
11. Suction with yankauer tip
12. 10 mL syringe
13. ETT with stylet (8.0 preferred, 7.0 as backup)
14. Airway adjuncts (i.e. oral airway, LMA, etc.)
15. Emergency airway bag with bougie
16. Percutaneous Tracheostomy kit, trach tray, and #8 Shiley trach available at bedside (#8 XLT or #9 if BMI>35 or with severe edema)
17. 11 blade scalpel available at bedside with 6.0 ETT

### III. Induction drugs and paralytics to facilitate airway visualization

1. **Hypnotic/sedatives:**
   a. *Midazolam (Versed):* 0.01-0.03mg/kg or 1-3mg. Usually has minimal hemodynamic effects. Excellent for preventing recall.
   b. *Fentanyl (Sublimaze):* 1-2mcg/kg or 50-200mcg. Can cause hypotension and bradycardia. Excellent analgesia.
   c. *Propofol (Diprivan):* 0.5-2mg/kg or 50-200mg. Will cause hypotension especially in elderly, hypovolemic, and septic patients. Should be treated with pressor either before or after administration.
   d. *Etomidate (Amidate):* 0.1-0.2mg/kg or 10-20mg. Usually causes minimal hemodynamic changes immediately but does cause adrenal suppression. Should be used with caution in sepsis, hypovolemia, or patients expected to require pressor support. **Consider decreased dose for those patients**.

e. *Ketamine (Ketalar):* 0.5-2mg/kg or 50-200mg. Usually causes slight hypertension. Increases ICP but increases MAP more resulting in increased cerebral blood flow. Does not suppress respiratory function. May cause emergence psychosis, with benzodiazepines or propofol

2. **Paralytics:**
   a. *Rocuronium (Zemuron)*: RSI dose 1mg/kg. No hemodynamic changes or significant contraindications. Induction dose onset ~45-60 sec. **Post-intubation sedation (fentanyl and/or propofol drip) is critical due to prolonged neuromuscular blockade.**
   b. *Succinylcholine (Quelicin):* RSI dose 1.5-2mg/kg. Succinylcholine contraindicated with prolonged bedrest, hyperkalemia, myopathy, burns, spinal cord injury, pseudocholinesterase deficiency, open globe, renal failure, and malignant hyperthermia. Can also cause significant bradycardia, especially with repeated doses.
3. **Pressors:**
   a. *Phenylephrine (Neosynephrine):* Given in 100mcg doses (1mL). Will cause reflex bradycardia and should be avoided if HR is <60.
   b. *Ephedrine:* Given in 5-10mg doses (1-2mL). Has both beta and alpha properties and will increase both BP and HR. Ideal for hypotension with bradycardia or low normal HR.

## IV. Preparation for Procedure

1. Review medical chart for previous airway management note or Anesthesia OR record
2. Consent for procedure if not emergent
3. Critical Care attending or Anesthesia airway team notified and present
4. If airway exam is concerning for high-risk airway (i.e. beard, thick neck, short thyromental distance, small mouth opening, prominent incisors, facial trauma or recent head neck surgery, documented difficult airway by Anesthesia OR record, halo or cervical traction) then Anesthesia airway team should be present
5. Identify medication nurse
6. Identify individual performing the intubation and back-up personnel
7. Verify a functioning IV (verified by physician and medication nurse)
8. Verify a functioning oxygen saturation probe with back up probe available
9. Blood pressure cuff should be set to record every 1 minute and **not on same side as saturation probe or IV**
10. Verify medication doses and sequence to be given with 3-4 10mL flush syringes available (Consider contraindications for particular meds or dosage adjustments indicated)
11. Additional doses of drugs available as well as post-intubation sedation
12. Perform a "timeout" once everyone that is to be involved with the procedure is at the bedside

## V. Procedure

1. Wash hands and don personal protective equipment
2. Lay sterile towel or bedside table at the head of bed to place equipment
3. Non-rebreather mask and high-flow nasal cannula on patient with oxygen connected and flowing and HOB as high as possible for preoxygenation

4. Preoxygenate for at least 3 minutes if no contraindication
5. Setup suction apparatus and connect yankauer tip
6. Check equipment
    a. Use syringe to inflate ETT cuff and assess for leak. Deflate cuff
    b. Stylet ETT and place a 30 degree upward bend
    c. Check laryngoscope with MAC 3 blade confirming functional bulb. MAC 4 if patient has long neck or is very tall (>6'2")
7. Position patient's head by flexing the neck forward and extending head (sniffing position) if cervical trauma not suspected. If C-spine precautions are necessary, dedicate one person to provide in-line cervical stabilization and remove anterior portion of C-collar to facilitate intubation
8. Check mouth for dentures and loose dentition. Remove dentures if present
9. Have bag-valve mask present and oxygen connected at the bedside.
10. Administer induction and paralytic drugs while laying the patient flat with bed height appropriate for person performing intubation
11. No breaths to be given. Wait 45-60 seconds after drugs are flushed then proceed with intubation
12. Confirm ETT placement with end-tidal CO2 detector, bilateral breath sounds and chest rise. Confirm absent sounds over epigastrium
13. If no CO2 present and remainder of exam does not confirm proper tube placement, remove ETT and place appropriate size oral airway and manually ventilate while calling for additional help (Airway team). LMA to be used only as rescue if unable to mask ventilate
14. Once ETT properly placed, connect to mechanical ventilator
15. Replace anterior portion of cervical collar if in place
16. Order stat chest x-ray to confirm proper placement

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