

Section: Division of Nursing

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\*PROCEDURE\*

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HACKETTSTOWN REGIONAL MEDICAL CENTER

**ED**  
(Scope)

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**Title: Adult Rapid Sequence Intubation (RSI)**

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**Purpose:**

- 1) To provide Rapid Sequence Intubation to those adult patients requiring airway management guidelines for Emergency Department personnel to provide immediate intervention for airway preservation.

**Definition:**

RSI is a method of quickly obtaining optimal intubating condition via the delivery of an induction agent (to induce unconsciousness) followed in rapid succession by a paralytic agent.

**Goal:**

The goal of RSI is to facilitate the passage of an ET tube into the trachea quickly and efficiently. RSI eliminates or reduces the need for ventilating the patient during the procedure unless oxygenation is impaired and the bag-valve mask must be used to maintain adequate saturation. This technique should minimize the chances of aspiration of stomach contents during the intubation.

**Supportive Data**

- 1) Airway maintenance/protection
- 2) Trauma
- 3) Burns
- 4) Loss of protective reflexes
- 5) Pulmonary, respiratory failure
- 6) CNS
- 7) Infection
- 8) Trauma/spinal cord trauma
- 9) Chest wall deformity (kyphosis)
- 10) Upper airway disease (i.e. croup, epiglottitis) lower airway disease (bronchiolitis; asthma)

**Personnel:**

RN  
Physician  
Respiratory therapist  
Second nurse

**Contraindications:**

Spontaneous breathing with adequate ventilation  
Major facial or laryngeal trauma  
Upper airway obstruction  
Distorted facial or airway anatomy

**MEDICATIONS (Intravenous)**

**1) Sedating Agents**

	<b>DOSE</b>	<b>ONSET</b>	<b>DURATION</b>
Ketamine (Ketalar <sup>R</sup> )	1-2 mg/kg	<1 min	5-10 min
Diazepam (Valium <sup>R</sup> )	10-20 mg	2-10 min	240-360 min
Midazolam (Versed <sup>R</sup> )	0.1-0.3 mg/kg	2-3 min	30-60 min
Fentanyl (Sublimaze <sup>R</sup> )	3-5 mcg/kg	2-3 min	45-60 min
Propofol (Diprivan <sup>R</sup> )	1-2.5 mg/kg	0.5-1 min	3-10 min
Etomidate (amidate <sup>R</sup> )	0.2-0.3 mg/kg	<1 min	4-10 min

**2) Paralytic Agents**

	<b>DOSE</b>	<b>ONSET</b>	<b>DURATION</b>
Succinylcholine (Quelicin <sup>R</sup> )	1.5 mg/kg	< 1 min	6-10 min
Vecuronium (Norcuron <sup>R</sup> )	0.08-0.1 mg/kg	2-3 min	30-40 min
Rocuronium (Zemuron <sup>R</sup> )	0.6 mg/kg	1-1.5 min	10-30 min

**3) Anticholinergics**

	<b>DOSE</b>	<b>ONSET</b>	<b>DURATION</b>
Atropine <sup>1</sup>	0.4 mg	2-4 min	Dose dependent
Glycopyrrolate (Robinul <sup>R</sup> )	0.1-0.2 mg/kg	1 min	420 min (7 hrs)

**4) Anesthetic Agents**

	<b>DOSE</b>	<b>ONSET</b>	<b>DURATION</b>
Lidocaine (Xylocaine <sup>R</sup> )	1.5 mg/kg	1.5 min	10-20 min

**<sup>1</sup> Atropine:**

Atropine decreases secretions and allows for improved visualization of landmarks. Atropine 1-2 mg IV pretreatment should be given in adults who will be receiving a second dose of succinylcholine. Bradycardia and asystole have been reported with succinylcholine

Bradycardia and asystole have been reported with succinylcholine use in children. Atropine 0.02 mg/kg pretreatment in children under the age of 10 receiving succinylcholine is essential.

**<sup>2</sup> Ketamine:**

Ketamine is relatively contraindicated in patients with hypertension, head injury, psychiatric problems, glaucoma, and open globe injuries. Ketamine produces excessive airway secretion and should be pretreated with Atropine 0.4-0.6 mg or Glycopyrrolate 0.2-0.4 mg.

**<sup>3</sup> Lidocaine:**

1.5 mg/kg is given 2-3 minutes prior to intubation to decrease the increased intracranial pressure and intraocular pressure associated with endotracheal intubation.

**Equipment List:**

- Cardiac Monitor
- O<sub>2</sub> Source
- Uncuffed/Cuffed ET Tubes (2.5-5.0) (5.0-8.5)
- Surgilube
- Laryngoscope – straight blade 0-3, curved 2-4
- Oral airways, suction equipment, yankauer, flexible suction cath
- Ventilation masks, bag-valve mask
- Nasogastric tube...lavage setup
- Cricothyrostomy tray
- ET Tube stylets
- Stethoscope
- Cloth tape
- Gloves
- Ventilator
- Difficult Airway Box
- Code Cart Standby

**PROCEDURES**

1. History and Assessment
2. Preparation of equipment and medication
3. Rapid Sequence Intubation

**KEY POINTS**

Assess for RSI Contraindication.  
 Focus on face, neck, c-spine, check the teeth, ability to open the jaw, etc.

NEVER PARALYZE A PATIENT WITHOUT AT LEAST ONE SECURE IV ACCESS! Prepare alternative airway access in the event of failed ETI. Have Cricothyrotomy available.

TIME	ACTION
Zero minus 5 minutes	Pre-oxygenate
Zero minus 3 minutes	Pretreatment medications
TIME ZERO	Induction Agent AND
	Muscle Relaxant
Zero plus 20 seconds	Sellick's Maneuver (cricoid pressure)
Zero plus 45 seconds	INTUBATE, secure Endotracheal tube, verify Tube position.

- Refer to Regimens for RSI  
 Refer to Algorithms for RSI
4. Monitor

See TABLE 1  
 See ATTACHMENT 1  
 Obtain patients baseline V/S, ECG, SaO<sub>2</sub>  
 BP in order to be alert to change during RSI post RSI, ET, CO<sub>2</sub>  
 should be monitored.

**TABLE 1: REGIMENS FOR RAPID SEQUENCE INTUBATION**

<b>MODIFYING CONDITION</b>	<b>INDUCTION AGENT</b>	<b>PRETREATMENT</b>	<b>MUSCLE RELAXANT</b>
Asthma, adult	Ketamine	Lidocaine AND Atropine	Succinylcholine
Asthma, pediatric	Ketamine	Lidocaine AND Atropine	Succinylcholine
Burns, adult, > 72 h	Thiopental OR Etomidate OR Propofol		Rocuronium
Burns, adult, < 72 h	Thiopental OR Etomidate OR Propofol		Succinylcholine
Burns, pediatric, > 72 h	Thiopental		Rocuronium
Burns, pediatric, < 72 h	Thiopental	Atropine	Succinylcholine
Head Injury (normotensive), adult	Etomidate OR Thiopental OR Propofol	Lidocaine AND Fentanyl AND Vecuronium	Succinylcholine
Head Injury (normotensive), pediatric	Thiopental	Atropine AND Lidocaine AND Fentanyl AND Vecuronium	Succinylcholine
Head Injury (mildly hypotensive), adult	Etomidate	Lidocaine AND Fentanyl AND Vecuronium	Succinylcholine
Head Injury (mildly hypotensive), pediatric	Midazolam	Atropine AND Lidocaine AND Fentanyl AND Vecuronium	Succinylcholine
No modifying condition, adult	Etomidate OR Thiopental OR Propofol	Vecuronium	Succinylcholine
No modifying condition, pediatric	Thiopental	Atropine AND Vecuronium	Succinylcholine
Pregnancy	Ketamine	Atropine	Rocuronium
Renal failure, adult	Etomidate OR Propofol		Rocuronium
Renal failure, pediatric	Thiopental		Rocuronium
Seizure, status, adult	Thiopental		Succinylcholine
Seizure, status, pediatric	Thiopental	Atropine	Succinylcholine

References: Graber, Mark, MD Resuscitation, Airway Management and Acute Arrhythmias, "Airway Management and Rapid Sequence Intubation." 2005  
Stewart, Charles, MD "Airway Management With Rapid Sequence Intubation" , [www.emsmagazine.com/articlesart.html](http://www.emsmagazine.com/articlesart.html) 2005