

## RAPID SEQUENCE INTUBATION

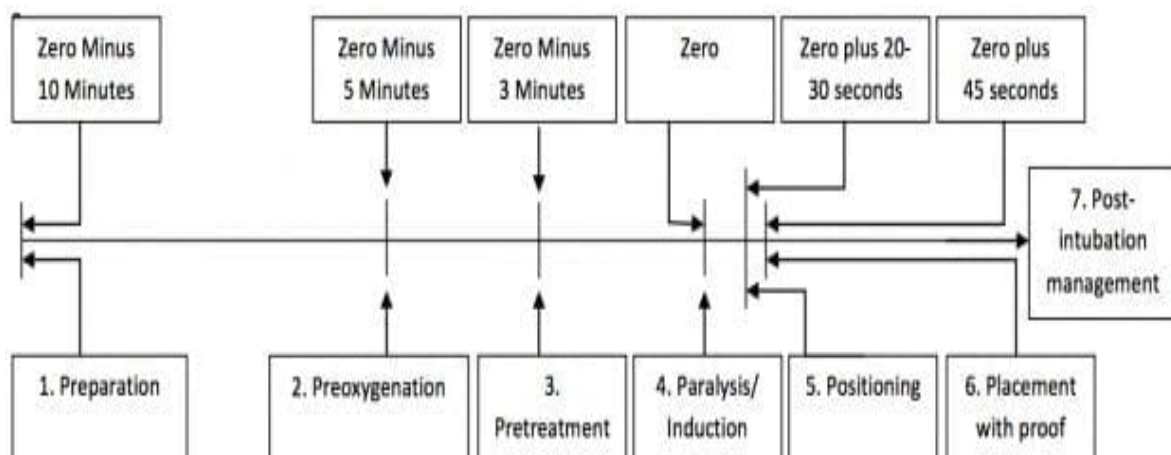
### Indications

1. Dynamically deteriorating clinical situation, i.e., there is a real “need for speed”
2. Non-cooperative patient
3. Respiratory and ventilatory compromise
4. Impaired oxygenation
5. Full stomach (increased risk of regurgitation, vomiting, aspiration)
6. Extremely short safe apnea times
7. Secretions, blood, vomitus, and distorted anatomy

### Contra - Indications

- Urgent need to OT and theatre is available anatomically or pathologically difficult airway (e.g. Congenital deformity, laryngeal fracture)
- Close proximity to OT
- Paediatric cases (especially <5 years of age)
- Hostile environment
- Poorly functioning team
- Lack of requisite skills among team
- Emergency surgical airway is not possible (e.g. Neck trauma, tumour)

### Procedure



**Roles during Procedure**

- The airway team should be a minimum of 3 people:
  - airway proceduralist
  - airway assistant
  - drug administrator
- The team leader may perform one of the above roles if necessary, but should ideally be a separate stand alone role.
- Other roles include:
  - person to perform Manual In-Line Stabilization (MILS) if indicated
  - person to perform cricoid pressure (if deemed necessary)
  - scribe
- In the event of a failed airway, another person may take on the role of the airway proceduralist and role re-allocation must be clearly communicated to the team.

**Check List MNEMONICS RSI Procedure**

**SOAP ME**

<b>S</b> uction	at least one working suction, place it between mattress and bed
<b>O</b> xygen	<ul style="list-style-type: none"> <li>• Bag valve mask (with PEEP valve) ready</li> <li>• Non-rebreather mask on patient (O2 wide open)</li> <li>• Nasal cannula on the patient (with 15L O2) during RSI</li> </ul>
<b>A</b> irways	<ul style="list-style-type: none"> <li>• Oral, nasal airways</li> <li>• 2 ETT (expected size &amp; one size below) w/ balloons checked, &amp; stylet straight to cuff</li> <li>• 1 ETT ready for video laryngoscopy (curved stylet needed)</li> <li>• Rescue devices (Laryngeal mask airway, scalpel, etc.)</li> </ul>
<b>P</b> ositioning	<ul style="list-style-type: none"> <li>• Ear-to-sternal notch position</li> <li>• Ramped if obese</li> </ul>
<b>M</b> onitors & <b>M</b> eds	<ul style="list-style-type: none"> <li>• Continuous monitoring devices</li> <li>• RSI Meds: Drawn up in carefully considered doses, labeled syringes</li> <li>• Sedative (Ketamine, etomidate, etc.)</li> <li>• Paralytic (rocuronium, succinylcholine)</li> <li>• Post intubation sedation meds (Propofol, fentanyl, etc)</li> </ul>
<b>E</b> tCO <sub>2</sub> & other <b>E</b> quipment	<ul style="list-style-type: none"> <li>• Continuous EtCO2 or at least color-change device to confirm successful intubation</li> <li>• Bougie placed under the mattress next to yankauer suction</li> <li>• 2 laryngoscopes (MAC 3 &amp; 4) with lights checked.</li> <li>• Video laryngoscope plugged in &amp; turned on</li> </ul>

**O<sub>2</sub> MARBLES is an alternative for the equipment and planning:**

- Oxygen
- masks (NP, NRB, BVM); monitoring
- airway adjuncts (e.g. OPA, NPA, LMA); Ask for help and difficult airway trolley
- RSI drugs; Resus drugs
- BVM; Bougie
- Laryngoscopes; LMA
- ETTs; ETCO<sub>2</sub>
- Suction; State Plan

**DRUG DOSAGES FOR RSI**

**INDUCTION AGENTS**

**Ketamine**

Dose : 1.5 mg/kg IV (4mg/kg IM)

Onset : 60-90 sec

Duration : 10-20 min

Use : any RSI, especially if hemodynamically unstable (OK in TBI, does not increase ICP despite traditional dogma) or if reactive airways disease (causes bronchodilation)

Drawbacks: increased secretions, caution in cardiovascular disease (hypertension, tachycardia), laryngospasm (rare), raised intra-ocular pressure

**Thiopentone**

Dose : 3-5 mg/kg IV TBW

Onset : 30-45 sec

Duration : 5-10 min

Use : any RSI if haemodynamically stable, status epilepticus

Drawbacks : histamine release, myocardial depression, vasodilation, hypotension, must NOT be injected intra-arterially due to risk of distal ischaemia, contra-indicated in porphyria

**Propofol**

Dose : 1-2.5 mg/kg IBW + (0.4 x TBW) (others simply use 1.5-2.5 mg/kg x TBW as a general guide)

Onset : 15-45 seconds

Duration : 5 – 10 minutes

Use : Haemodynamically stable patients, reactive airways disease, status epilepticus

Drawbacks: hypotension, myocardial depression, reduced cerebral perfusion, pain on injection, variable response, very short acting

## INDUCTION AGENTS

### Fentanyl

- Dose : IV 2-10 mcg/kg TBW  
Onset : <60 seconds (maximal at ~5 min)  
Duration : dose dependent (30 minutes for 1-2 mcg/kg, 6h for 100 mcg/kg)  
Use : may be used in a low dose as a sympatholytic premedication (e.g. TBI, SAH, vascular emergencies); may used in a 'modified' RSI approach in low doses or titrated to effect in cardiogenic shock and other hemodynamically unstable conditions  
Drawbacks : respiratory depression, apnea, hypotension, slow onset, nausea and vomiting, muscular rigidity in high induction doses, bradycardia, tissue saturation at high doses

### Midazolam

- Dose : 0.3mg/kg IV TBW  
Onset : 60-90 sec  
Duration : 15-30 min  
Use : not usually recommended for RSI, some practitioners use low doses of midazolam and fentanyl for RSI of shocked patients  
Drawbacks : respiratory depression, apnea, hypotension, paradoxical agitation, slow onset, variable response

### Etomidate

- Dose : 0.3mg/kg IV  
Onset : 10-15 seconds  
Use : suitable for most situations including haemodynamically unstable, other than sepsis or seizures  
Drawbacks : adrenal suppression, myoclonus, pain on injection,

## PARALYTIC AGENTS

### Suxamethonium (aka succinylcholine)

- Dose : 1.5 mg/kg IV (2 mg/kg IV if myasthenia gravis) and 4 mg/kg IM (in extremis)  
Onset : 45-60 seconds  
Duration : 6-10 minutes  
Use : widely used unless contra-indicated; ideal if need to extubate rapidly following an elective procedure or to assess neurology in an intubated patient  
Drawbacks: numerous contra-indications (hyperkalemia, malignant hyperthermia, >5d after burns/crush injury/ neuromuscular disorder), bradycardia (esp after repeat doses), hyperkalemia, fasciculations, elevated intra-ocular pressure, will not wear off fast enough to prevent harm in CICV situations

### Vecuronium

- Dose : 0.15 mg/kg IV (may be preceded by a 0.01 mg/kg IV priming dose 3 min earlier)  
Onset : 120-180 seconds  
Duration : 45-60 minutes  
Use : not recommended for RSI, unless no suxamethonium cannot be used – can be reversed by sugammadex  
Drawbacks: allergy (rare), slow onset, long duration

### **PRETREATMENT DRUGS FOR RSI**

**Atropine:** 20 mcg/kg IV Prevent bradycardia in children

**Lignocaine:** 1.5 mg/kg IV Sympthetic, neuroprotection in head injury. Decrease airway reactivity in asthma

**Fentanyl:** 2-3 mcg/kg IV — sympatholytic, neuroprotection in head injury and vascular emergencies (e.g. myocardial ischaemia, aortic dissection, subarachnoid haemorrhage)  
defasciculating dose of a non-depolarising neuromuscular blocker (e.g. rocuronium 0.1 mg/kg IV or vecuronium 0.01 mg/kg IV) — prevents fasciculations from suxamethonium (e.g. TBI)

### **RSI IN DIFFICULT SETTINGS**

Ensure 360 degree access to the patient

- Consider 'scoop and run' (e.g. from prehospital environment to ED, or from ward to recovery/ ICU)
- RSI is rarely practical in the position that the patient is found, whether that be prehospital or on the ward
- Airway equipment (e.g. prehospital 'kit dump'), monitors and the airway assistant are typically on the patient's right

### **RSI IN DIFFICULT SETTINGS**

#### **RSI in Ward Environment**

- consider transfer to recovery/ ICU for RSI
- exercise crowd control
- adjust and move beds and other equipment as required
- ensure access to the patient
- consider the needs of other patients nearby