



RAPID SEQUENCE INTUBATION (RSI) WITH IMMEDIATE POST INTUBATION MECHANICAL VENTILATION



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RSI is a **time critical airway control technique** using sedation and neuromuscular blockade to secure the airway while **minimising hypoxia, aspiration, and physiological collapse**.

RSI and ventilation must be planned together.

INDICATIONS

Proceed to RSI if one or more present:

- Inability to protect airway
- Refractory hypoxia or ventilatory failure
- GCS ≤ 8
- Severe agitation impairing oxygenation or care
- Predicted clinical course

Early, controlled RSI is safer than crash intubation.

PHYSIOLOGY THAT MATTERS

Major threats during RSI:

- Hypoxia
- Hypotension
- Acidosis
- Loss of airway after paralysis

Ventilation errors post RSI:

- Excessive tidal volumes
- Hyperventilation
- Hypoventilation
- Missed oesophageal intubation

PREPARATION (SOAP ME)

Suction

Oxygen

Airway equipment (primary + backup)

Pharmacy (induction + paralysis + pressors ready)

Monitors (SpO₂, ECG, BP, capnography)

Equipment (BVM with PEEP, ventilator primed)

Have a **failed airway plan** before pushing drugs.

PREOXYGENATION

- 3–5 minutes minimum
- Options:
 - Non rebreather mask
 - BVM with PEEP and good seal
- Aim:
 - SpO₂ $\geq 94\%$ before induction

INDUCTION & PARALYSIS

INDUCTION AGENTS

Choose based on physiology:

- **Ketamine** → shock, asthma, raised ICP
- **Etomidate** → haemodynamically stable

Avoid large sedative doses in shock.

NEUROMUSCULAR BLOCKADE

- **Succinylcholine** (rapid, short acting)
- **Rocuronium** (longer acting, equivalent conditions)

Paralysis demands intubation success, plan accordingly.

PROCEDURE

- Position patient optimally
- No bagging unless desaturating
- Single best attempt
- Intubate → confirm immediately with waveform capnography / auscultation
- Secure tube
- Inflate cuff

Capnography is mandatory (if available), clinical signs alone are unreliable.

IMMEDIATE POST INTUBATION ACTIONS

- Start sedation immediately
- Connect to ventilator
- Set lung protective ventilation
- Reassess BP → treat hypotension early

Post intubation hypotension is common and preventable.

MECHANICAL VENTILATION

Ventilation is about gas exchange and lung protection, not normalising blood gases.

INITIAL VENTILATOR SETTINGS (DEFAULT)

Mode: Volume control

Tidal volume: 6–8 mL/kg ideal body weight

Respiratory rate: 12–20

PEEP: 5 cmH₂O

FiO₂: Start high, titrate down

TARGETS

- SpO₂ 92–96%
- Avoid hyperoxia
- Normocapnia for most patients

ADJUSTMENTS (PRACTICAL)

- ↑ RR → ↓ CO₂
- ↓ RR → ↑ CO₂
- ↑ PEEP / FiO₂ → ↑ oxygenation
- ↓ TV → ↓ barotrauma risk

Never increase tidal volume to correct hypoxia.

SPECIAL POPULATIONS

ARDS

- TV 6 mL/kg
- Higher PEEP
- Accept permissive hypercapnia

TRAUMATIC BRAIN INJURY

- Avoid hypercapnia
- Avoid routine hyperventilation
- Prioritise oxygenation and BP

COMMON FAILURES

- Excessive tidal volumes
- Hyperventilation post RSI
- Inadequate sedation → desynchrony
- Missed tube displacement
- Ignoring hypotension



CHECKLIST

RSI + MECHANICAL VENTILATION

BEFORE INDUCTION

- Indication confirmed
- Airway plan + failure backup
- Suction ready
- Oxygenation optimised
- IV access ×2 (or IO)
- Monitors + capnography on
- Ventilator primed

PREOXYGENATION

- NRB or BVM with PEEP
- 3–5 minutes minimum
- SpO₂ ≥94% before induction

DRUGS DRAWN & READY

- Induction agent chosen appropriately
- Paralytic prepared
- Push dose vasopressor available if shock
- Post intubation sedation prepared

RSI PROCEDURE

- Optimal positioning
- Minimal apnoea time
- One best attempt
- Intubate
- Confirm with waveform capnography
- Secure tube

IMMEDIATE POST INTUBATION

- Sedation started immediately
- Tube depth documented
- Cuff inflated
- BP reassessed and supported

INITIAL VENTILATOR SETTINGS

- Mode: Volume control
- TV 6–8 mL/kg IBW
- RR 12–20
- PEEP 5 cmH₂O
- FiO₂ titrated to SpO₂ 92–96%

ONGOING MONITORING

- Chest rise bilaterally
- SpO₂
- Capnography
- BP and heart rate
- ABG if available

ADJUSTMENTS

- RR adjusted for CO₂
- PEEP / FiO₂ adjusted for oxygenation
- Avoid increasing tidal volume
- Sedation adequate for synchrony

WHAT TO AVOID

- Hypoxia during attempts
- Multiple prolonged laryngoscopy attempts
- Bagging unnecessarily
- Hyperventilation
- High tidal volumes
- Delayed sedation

DISPOSITION

- ICU / definitive care
- Clear documentation:
 - Indication
 - Drugs and doses
 - Tube size and depth
 - Ventilator settings
 - Complications