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

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 (SpO_2, 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:
  - SpO_2 ≥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 cmH_2O
FiO_2: Start high, titrate down

TARGETS

- SpO_2 92–96%
- Avoid hyperoxia
- Normocapnia for most patients

ADJUSTMENTS (PRACTICAL)

- ↑ RR → ↓ CO_2
- ↓ RR → ↑ CO_2
- ↑ PEEP / FiO_2 → ↑ 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
- [ ] SpO_2 ≥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 cmH_2O
- [ ] FiO_2 titrated to SpO_2 92–96%

ONGOING MONITORING

- [ ] Chest rise bilaterally
- [ ] SpO_2
- [ ] Capnography
- [ ] BP and heart rate
- [ ] ABG if available

ADJUSTMENTS

- [ ] RR adjusted for CO_2
- [ ] PEEP / FiO_2 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