RAPID SEQUENCE INTUBATION

Rapid sequence intubation (RSI) is the preferred intubation approach for patients with confirmed or suspected COVID-19.

- Allows us to secure the airway as quickly as possible and to minimize infectious exposure to providers.
- Please refer to the protected intubation algorithm and checklist for full details. Even if you will not be the provider performing the intubation, you may be asked to assist with some of the steps and can begin preparing the patient.

Goal of RSI

To create the best possible intubating conditions to rapidly secure the airway and prevent aspiration.

- RSI is commonly used for airway management in critically ill patients.
- An induction agent and paralytic are given at the same time at predetermined doses. If the intubation is predicted to be difficult, call for help and reassess the plan.

Management Sequence

1 Prepare the team

Assign Roles

For a protected intubation, only three providers should be entering the room in appropriate PPE:

1. MD performing the intubation; **2.** MD, RT or RN assisting with the intubation; **3.** RN giving medications

A second MD should be outside the room, in PPE, ready to assist. . If intubation is anticipated to be difficult, consider having the second MD in the room as well. A second RN should also be available along with a runner to retrieve additional supplies. **There should be a safety lead to monitor PPE donning and doffing.**

Review plan A, B, and C for intubation → all equipment and medications should be prepared and easily accessible outside the room.

2 Prepare the Patient

Pre-oxygenate with non-rebreather with HEPA (HiOx or TAVISH), HFNC at 100% FiO_2 (if locally allowed), or BVM held with tight seal (two hands on the mask, **no manual breaths**)

Ensure IV access is working → have 2 IVs if possible

Optimize hemodynamics:

- Most critically ill patients will drop their blood pressure with induction agents
- Start a fluid bolus if any concern for hypovolemia
- If BP is borderline (SBP <110), consider starting a low dose norepinephrine infusion prophylactically (can be done through peripheral IV)
- Set monitor to cycle BP every 1-2 minutes
- Optimize positioning, consider head of bed elevated

3 Prepare Equipment

For COVID patients, there are special equipment considerations in bold below:

Airway:

- **Video laryngoscope**, endotracheal tube, bougie, LMA, suction
- Do not use direct laryngoscopy

Oxygen/Circuit:

- BVM with **HEPA filter**, **ETCO2 monitor, in-line suction**
- Ventilator set-up and ready to come into room

4 Choose an induction agent and paralytic agent

- Critically ill patients may become hemodynamically unstable with any induction agent. Always have a "push-dose" vasopressor, such as phenylephrine, ready and consider starting norepinephrine prophylactically in high risk patients.
- Commonly used induction agents and paralytics are outlined in the table below. The induction agent and paralytic are given in "rapid sequence" (i.e. one immediately after another).
- **If in doubt → Ketamine and 0.5-2 mg/kg + Rocuronium 1.2-2.0 mg/kg**
- use higher range dose for young patients with preserved LOC and stable hemodynamics; Lower range dose for elderly patients with low LOC and borderline hemodynamics.

Induction Agent	Dose	Considerations
Ketamine	0.5-2mg/kg	Good for use in hemodynamically unstable patients May cause increased secretions and (rarely) laryngospasm
Midazolam	0.1-0.3mg/kg	Slower onset, may cause hypotension
Propofol	0.5-1.5mg/kg	Causes hypotension and myocardial depression
Etomidate	0.3mg/kg	Good for use in hemodynamically unstable patients Possible risk of adrenal suppression in patients with sepsis
Paralytic	**Dose**	**Considerations**
Rocuronium* *Rocuronium may last for > 1 hour at higher doses. Ensure that a plan is in place for ongoing sedation.	1.2-2mg/kg	Longer time to onset (minimum 45 seconds), longer duration of action Time to onset is faster at higher doses
Succinylcholine	1-1.5mg/kg	Risk of hyperkalemia → Avoid in patients with burns, trauma, motor neuron disease, or elevated K+ at baseline Cannot be used if history of malignant hyperthermia

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- When the entire team is ready, give induction medication and paralytic → **No manual bagging**
- Wait until paralytic agent has taken full effect to avoid cough (up to 1 minute)
- Most experienced provider intubates patient with suspected COVID-19 with video laryngoscope
- Inflate endotracheal tube cuff prior to providing manual breaths (may also directly connect to the ventilator)
  - Use $ETCO_2$ to confirm tube placement, no auscultation unless life-threatening desaturation
- If unable to intubate, insert an LMA and manually ventilate with HEPA filter on the AmbuBag
- Wait at least 15 minutes before obtaining a CXR