

# QUICK GUIDE FOR MANAGEMENT OF CRITICALLY ILL PATIENTS WITH COVID19: RESPIRATORY FAILURE

## OXYGEN THERAPY: \*\*Goal SpO2 92-96% PaO2 >75\*\*

- Nasal cannula 1-6L/min → if need more O2 us High Flow Nasal Cannula at FiO2 0.35
- Consult anesthesia EARLY (when high-flow nasal cannula at FiO2 0.35)
- AVOID CPAP or BiPAP for ARDS, but can consider in reversible cases (e.g. flash pulmonary edema, mild COPD exacerbation)

## RESPIRATORY FAILURE ALGORITHM: What to do in each situation...

### NC 1-6lpm to maintain SpO2 goal

\*GOC and code status discussion

### NC>6lpm to maintain SpO2 goal

- Consult RCP → Start High Flow Nasal Cannula
- Consult Anesthesia for pre-intubation planning
- Consult ICU Triage

- Institute High-flow nasal cannula at FiO2 0.35 required to maintain SpO2 goal.
- If rapidly increasing FiO2 0.35 requirement OR work of breathing OR tachypnea OR FiO2 0.6 and SpO2 <92% **CALL ANESTHESIA TO INTUBATE.**

\*If respiratory deterioration or rapid increase in FiO2  
→ **CALL ANESTHESIOLOGY TO INTUBATE**

### Early intubation (per anesthesiology intubation guidelines)

- Use lung protective ventilation → see below for details
- If persistent hypoxemia → see right side panel for approach
- Determine ICU unit with COVID ICU triage + MICU attending

## UPFRONT VENTILATOR SETTINGS: Immediately upon intubation

- Volume control with Vt 6cc/kg IBW + RR 16-24 + FiO2 1.0 + PEEP based on BMI as below
- If BMI<35 PEEP 10; if BMI 35-50 PEEP 12; if BMI>50 PEEP 15

## INITIAL VENT ADJUSTMENTS: (do this before bedside procedures)

- 1) **TITRATE PEEP** with RT help if vent use PV tool, otherwise Best PEEP protocol (if RT has time) or ARDSNET lower PEEP table w/RT help see here →
- 2) **TITRATE DOWN FiO2** for goal SpO2 92-96% or PaO2 >75
- 3) **MEASURE RESISTANCE + COMPLIANCE** (RT can do this)
- 4) **MEASURE PLATEAU PRESSURE:** if >30, decrease Vt to 4cc/kg IBW (tolerate incr pCo2 as a result)

FiO2	PEEP
0.3	5
0.4	5
0.4	8
0.5	8
0.5	10
0.6	10
0.7	10
0.7	12
0.7	14
0.8	14
0.9	14
0.9	16
0.9	18
1.0	18-24

## WHAT TO DO FOR DIFFICULTY WITH OXYGENATION

- 1) PEEP titration (as above for initial settings)
- 2) Increase sedation to goal RAAS -5
- 3) Initiate continuous paralysis
- 4) **PRONE POSITIONING if P:F <150 or FiO2 >0.75**  
See MICU protocol for proning  
1 hr post-prone check mechanics + adjust PEEP as above  
DC proning if P:F>200 or if O2 @ goal w FiO2 <0.5
- 5) Inhaled epoprostenol (veletri) titrate to 0.05mcg/kg/min bycontinuous neb, x4 hrs if P:F no better wean off per protocol
- 6) Inhaled Nitric Oxide: 40-80ppm into vent circuit trial x4 hrs ifP:F no better wean off over 2 hrs
- 7) ECMO consultation

## VENT TITRATION for ACID/BASE ISSUES:

### target pH 7.25-7.45

- if pH <7.25 increase RR towards 35
- if pH <7.15 and RR is 35 then increase Vt to 8cc/kg IBW (as long as plateau pressure <30) AND do steps 1-4 above (sedation to RASS -5 + paralysis + prone)

\*Treat metabolic acidosis as normally done. Consider using permissive hypercarbia in respiratory acidosis if the respiratory rate or ventilation mode needed to manage it can add to lung injury. Unless the patient has significant pulmonary hypertension with right heart failure or increased ICP, having a high CO2 is not associated with long term injury as long as we can oxygenate.