

Date:

Patient ID

Airway

Cuff leak?	Change tube	
> 14 days ventilated?	Consider tracheostomy (risks infection control vs benefits of weaning). Surgical tracheostomy preferable.	

Breathing Aims pH > 7.15 SpO2 88-92% pO2 7 6 ml/kg ideal body weight tidal volume

Ventilator safe?	Default settings <ul style="list-style-type: none"> - FiO2 1.0 and wean down against SpO2 - Mode: PCV or CMV with autoflow (Draeger); PCV or PRVC (Maquet); PCV or PCV-VG (anaesthetic machine) - Tidal volume 6 ml/kg predicted body weight (see chart) - PEEP 5 (8 in larger or more hypoxic patients) - I:E = 1:2 - RR up to 30 - Permissive hypercapnia within pH limits above 	
FiO2 ≤ 40%?	Stop any paralysis, reduce sedation and try to wean to PSV Once stable for 12 hours with PEEP 5 PS ≤10 -> consider *extubation to facemask	
FiO2 40% - 60%?	Complication? -Sputum plugging, pneumothorax, secondary infection I:E = 1:1 PEEP trial (see chart) *Consider CT thorax (? lung ultrasound if skilled)	
FiO2 ≥ 60%?	Do above Higher PEEP trial 10 – 15 cm H2O Use atracurium/rocuronium bolus then infusion for paralysis No improvement – prone *Tolerate lower SpO2 ≥ 85% *No improvement – consider PEEP 15-18 cm H2O, ECMO	

Circulation Aims MAP 65 Neutral or negative fluid balance

Norad > 0.5 mcg/kg/min?	Clinical examination Consider: <ul style="list-style-type: none"> - echo to assess LV/filling - CO monitor - CT body for source of sepsis, line change if ≥5 days old - add vasopressin, change propofol to midazolam - add antibiotics as per micro advice AFTER septic screen 	
Positive fluid balance?	Add furosemide ivi 1 -10 mg/hr or 20mg BD iv or increase dose *Consider CVVHF for fluid removal if FiO2 > 60%	
CPR and escalation decisions?	*Family & “three wise people” and consider national guidance	

General care

Sedation?	Daily sedation hold if stable from CVS/RS point of view Wean sedation if FiO2 ≤ 40% Halve propofol/fentanyl rate every 4 hours when weaning Consider clonidine ivi/haloperidol regularly if agitated/high BP	
Feed?	NG feed as per guideline/dietician advice Glucose? Insulin if > 15 mmol/L or complications	
Bowels?	As per guideline	
Pregnancy test?	β-HCG on admission – if positive contact obstetrics	
Blood tests?	Daily FBC/Coags/U&E/LFT/CRP. Minimise ABGs	
What infection?	Swabs for SARS-COV-2, respiratory viruses Septic screen (d/w intensivist before *BAL) for secondary infection	
Lines?	Change or remove CVCs if red or > 10 days or not needed > 1 day	
Drug chart?	VTE prophylaxis – pharmacological/mechanical PPI until enteral feed established Carbocysteine 750 mg NG q8h Antibiotics for CAP as Trust guideline on hospital admission; for secondary infection as per micro OR tazocin 4.5g q8h	
Research?	Eligible for COVID or non-COVID study?	
Family update?	Phone/Skype/dedicated family update team	

* Please discuss these points with an intensivist

Ventilation

Safety

- do NOT break circuit if at all possible
- if you have to, wear full PPE, turn ventilator off and clamp ETT before circuit is broken
- CPR – if indicated, leave ventilator connected, increase FiO₂ to 1.0

Settings

V_T is 6 ml/kg predicted body weight. Measure height and use the table below.

Height (cm)	Males	Females
150	290	260
155	315	290
160	340	315
165	370	340
170	395	370
175	425	395
180	450	425
185	475	475
190	505	505

Limit plateau pressure to 30 cm H₂O, driving pressure (= plateau pressure – PEEP) to below 15 cm H₂O

Respiratory rate up to 30

Permissive hypercapnia keeping pH above 7.15. If unachievable consider – minimizing circuit dead space, paralyse if not already, treat fever, RR up to 35, NaHCO₃ infusion.

If RR > 25 and I:E ratio 1:1, check PEEPi. Do expiratory hold manoeuvre (ask to be shown if unsure) and keep PEEPi within 3 cm H₂O of set (extrinsic) PEEP. If more, discuss with intensivist and consider longer expiratory time, reduced RR, reduced V_T.

PEEP settings

FiO ₂	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.7	0.7	0.8	> 0.9
PEEP	5	5	8	8	10	10	10	12	14	14	≥15

Above suggested settings modified from ALVEOLI study and ATS/ESICM guidelines

COVID-19 and ventilation

- **Hypoxia with preserved compliance** seems common. Vulnerable therefore to **overdistension** – watch driving pressures and tidal volumes, accept lower pH than usual if necessary
- **High PEEP** 15-20 reportedly needed in severely hypoxic patients
- **Prone** for severe hypoxaemia – 18 hours prone, then back supine for 6 if tolerated. Longer prone (20-22 hours) if need be
- **ECMO** reportedly rarely needed
- **Sputum plugging** can be problematic, hence regular carbocysteine
- **Weaning** – Italians warn against early transition to PSV, weaning can be difficult

Other COVID-19-specific points

- **Myocardial involvement** frequent, with high Troponin I (?viral myocarditis, ?stress cardiomyopathy)
- Cardiogenic shock, ventricular arrhythmias are unusual
- Syndrome of **late cardiovascular collapse** reported, usually responsive to fluids and vasopressors/inotropes
- Specific treatments
 - o Steroids – appear not to be beneficial
 - o Specific therapies
 - Antivirals, biological under evaluation with reports of benefit
 - Profs Gordon/Brett lead on trials/compassionate use