

RESPIRATORY SUPPORT FOR ADULTS WITH SEVERE TO CRITICAL COVID-19

HIGH-LEVEL RESPIRATORY SUPPORT

MANAGING RISK OF INFECTION

TF7.0 For patients with COVID-19 for whom respiratory support (HFNO/NIV) is being considered, decisions should balance likelihood of patient benefit against the risk of infection for healthcare workers. For patients with COVID-19 receiving respiratory support (HFNO/NIV) or requiring intubation, use single rooms or negative pressure rooms wherever possible and ensure contact, droplet and airborne precautions are in place. **CBR** [Taskforce]

00.07 As per the current national guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak:

- follow contact and droplet precautions for routine patient care of people with suspected or confirmed COVID-19
- add contact and airborne precautions when aerosol-generating procedures are required.

PP [Taskforce/AHPPC]

OXYGENATION TARGET

33.25 In patients with COVID-19 and acute hypoxaemic respiratory failure on oxygen, maintain SaO₂ no higher than 96%. **CBR** [Taskforce/SSC]

HIGH-FLOW NASAL OXYGEN THERAPY (HFNO)

High-flow humidified oxygen should be considered when unable to maintain SaO₂ ≥ 92% despite conventional oxygen delivery at FiO₂ > 6 L/min or an FiO₂ 0.4. **Info** [Taskforce]

TF7.1 In **negative pressure rooms**, use high-flow nasal oxygen (HFNO) therapy for patients with hypoxaemia associated with COVID-19, ensuring it is used with caution and strict attention is paid to staff safety. Use the lowest flow necessary to maintain oxygen saturation ≥ 92%. **EBR** [Taskforce]

TF7.1 In **single rooms or shared ward spaces with cohorting of confirmed COVID-19 patients only**, consider using high-flow nasal oxygen (HFNO) therapy for patients with hypoxaemia associated with COVID-19, ensuring it is used with caution and strict attention is paid to staff safety. Use the lowest flow necessary to maintain oxygen saturation ≥ 92%. **EBR** [Taskforce]

TF7.1 In **shared wards or emergency department cubicles** do not use high-flow nasal oxygen (HFNO) therapy for patients with hypoxaemia associated with COVID-19. **EBR** [Taskforce]

TF7.1 During **inter-hospital patient transfer/retrieval** do not use high-flow nasal oxygen (HFNO) therapy for patients with hypoxaemia associated with COVID-19. **EBR** [Taskforce]

NON-INVASIVE VENTILATION (NIV)

Non-invasive ventilation (NIV), also known as non-invasive positive pressure ventilation (NIPPV) or bilevel positive pressure support (BiPAP), is a form of respiratory support. Bilevel positive pressure is delivered throughout the respiratory cycle by a firm-fitting nasal-face mask. The patient breathes spontaneously and triggers the device to cycle. **Info** [Taskforce]

TF7.2 In **negative pressure rooms**, consider using NIV therapy for patients with hypoxaemia associated with COVID-19, ensuring it is used with caution and strict attention is paid to staff safety. **CBR** [Taskforce]

TF7.2 In **single rooms or shared ward spaces with cohorting of confirmed COVID-19 patients only**, consider using NIV therapy for patients with hypoxaemia associated with COVID-19, ensuring it is used with caution and strict attention is paid to staff safety. **CBR** [Taskforce]

TF7.2 In **shared wards or emergency department cubicles**, do not use NIV therapy for patients with hypoxaemia associated with COVID-19. **CBR** [Taskforce]

TF7.2 During **inter-hospital patient transfer/retrieval**, do not use NIV therapy for patients with hypoxaemia associated with COVID-19. **CBR** [Taskforce]

TF7.2 In patients with COVID-19 for whom NIV is appropriate for an alternate clinical presentation (e.g. concomitant COPD with type 2 respiratory failure and hypercapnoea, APO), ensure airborne and other infection control precautions are optimised. **CBR** [Taskforce]

PRONE POSITIONING

Positioning the patient in a face-down (prone) position may help to open up (recruit) collapsed alveoli and improve oxygen levels in the blood. **Info** [Taskforce]

TF7.7 For adults with COVID-19 and respiratory symptoms who are receiving any form of supplemental oxygen therapy and have not yet been intubated, consider prone positioning. When positioning a patient in prone, ensure it is used with caution and close monitoring of the patient. Patients who are deteriorating should be considered for early endotracheal intubation and invasive mechanical ventilation. **CBR** [Taskforce]

RESPIRATORY MANAGEMENT OF THE DETERIORATING PATIENT

TF7.3 In patients with COVID-19 who are deteriorating, consider early endotracheal intubation and invasive mechanical ventilation. **CBR** [Taskforce]
Patients can deteriorate rapidly 5 to 10 days after onset of symptoms.

Definition of disease severity

Severe illness

Adult patients meeting any of the following criteria:

- respiratory rate ≥ 30 breaths/min
- oxygen saturation ≤ 92% at a rest state
- arterial partial pressure of oxygen (PaO₂) / inspired oxygen fraction (FiO₂) ≤ 300

Critical illness

Adult patients meeting any of the following criteria:

- Respiratory failure
- Occurrence of severe respiratory failure (PaO₂ / FiO₂ < 200), respiratory distress or acute respiratory distress syndrome (ARDS). This includes patients deteriorating despite advanced forms of respiratory support (NIV, HFNO) OR patients requiring mechanical ventilation

OR other signs of significant deterioration

- Hypotension or shock
- Impairment of consciousness
- Other organ failure

MEDICAL TREATMENTS AND MANAGEMENT OF SHOCK

Refer to **MANAGEMENT OF SEVERE TO CRITICAL COVID-19** Clinical Flow Chart

ADVANCED RESPIRATORY SUPPORT

GENERAL

Videolaryngoscopy

TF7.4 In adults with COVID-19 undergoing endotracheal intubation, consider using videolaryngoscopy over direct laryngoscopy if available and the operator is trained in its use. **EBR** [Taskforce]

33.31, 33.32 In mechanically ventilated adults with COVID-19 and ARDS, use low tidal volume (Vt) ventilation (Vt 4-8 mL/kg of predicted body weight) rather than higher tidal volumes (Vt > 8 mL/kg) and aim for plateau pressures (Pplat) of < 30 cm H₂O. **CBR** [Taskforce/SSC]

Neuromuscular blockers

TF7.5 For mechanically ventilated adults with COVID-19 and moderate to severe ARDS, do not routinely use continuous infusions of neuromuscular blocking agents (NMBAs). **EBR** [Taskforce]

However, if protective lung ventilation cannot be achieved, consider using NMBAs for up to 48 hours. If indicated, consider cisatracurium as first-line agent; if cisatracurium is not available alternatives include atracurium or vecuronium by infusion. **PP** [Taskforce]

Positive end-expiratory pressure

TF7.6 For mechanically ventilated adults with COVID-19 and moderate to severe ARDS, consider using a higher PEEP strategy (PEEP > 10 cm H₂O) over a lower PEEP strategy. **CBR** [Taskforce]

33.34 In mechanically ventilated adults with COVID-19 and ARDS, use a conservative fluid strategy rather than a liberal fluid strategy. **PP** [Taskforce/SSC]

ADDITIONAL MEASURES

Prone positioning

TF7.7 For mechanically ventilated adults with COVID-19 and hypoxaemia despite optimising ventilation, consider prone positioning. **CBR** [Taskforce]

Current reports suggest prone ventilation is effective in improving hypoxia associated with COVID-19. This should be done in the context of a hospital guideline that includes suitable personal protective equipment (PPE) for staff, and that minimises the risk of adverse events, e.g. accidental extubation. **PP** [Taskforce]

Recruitment manoeuvres

TF7.8 For mechanically ventilated adults with COVID-19 and hypoxaemia despite optimising ventilation, consider using recruitment manoeuvres.

If recruitment manoeuvres are used, do not use staircase or stepwise (incremental PEEP) recruitment manoeuvres. **CBR** [Taskforce]

33.45 In mechanically ventilated patients with COVID-19 and respiratory failure, use empiric antibacterial agents when clinically indicated. Re-evaluate the duration of therapy and spectrum of coverage based on the microbiology results and the individual's clinical status. **PP** [Taskforce]

33.38 In mechanically ventilated patients with COVID-19 and ARDS, do not routinely use inhaled nitric oxide. **CBR** [Taskforce/SSC]

33.39 In mechanically ventilated patients with COVID-19 and ARDS who develop refractory hypoxaemia, consider inhaled nitric oxide or other inhaled pulmonary vasodilator as a rescue therapy. **PP** [Taskforce]

TRACHEOSTOMY

00.09 In mechanically ventilated adults with COVID-19, consider performing a tracheostomy after 10 or more days as per standard practice, while optimising the environment for health care worker safety, including wearing appropriate PPE. **CBR** [Taskforce]

EXTRACORPOREAL MEMBRANE OXYGENATION

TF7.9 In mechanically ventilated adults with COVID-19 and refractory hypoxaemia (despite optimising ventilation, use of rescue therapies and proning), consider using venovenous extracorporeal membrane oxygenation (VV ECMO) if available, or referring the patient to an ECMO centre. **CBR** [Taskforce]

Due to the resource-intensive nature of ECMO and the need for experienced centres, healthcare workers and infrastructure, ECMO should only be considered in carefully selected patients with COVID-19 and severe ARDS. **PP** [Taskforce]

Mechanical ventilation

Refractory patients

Guiding principles of care

Supplemental oxygen

Sources

AHPPC – Australian Health Protection Principal Committee (AHPPC). Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak. Updated 19 June 2020

SSC – Surviving Sepsis Campaign: Guidelines on the Management of Critically Ill Adults with Coronavirus Disease 2019 (COVID-19)

Taskforce – Current guidance from the National COVID-19 Clinical Evidence Taskforce

LEGEND

EBR: Evidence-Based Recommendation

CBR: Consensus-Based Recommendation

PP: Practice Point

Living
Guidance

Currently
prioritised
for review

Not
prioritised
for review