

Penn Medicine COVID-19 Clinical Guide: Helmet CPAP

Updated 5/8/20 – Recommendations may evolve rapidly – See latest version at Penn COVID-19 Learning Homepage



Indications

- SpO₂ < 92% or increased work of breathing **despite 6LPM Nasal Cannula**
- **Rescue** for patients treated initially with HFNC or NRB, who have an SpO₂ < 92% or increased work of breathing



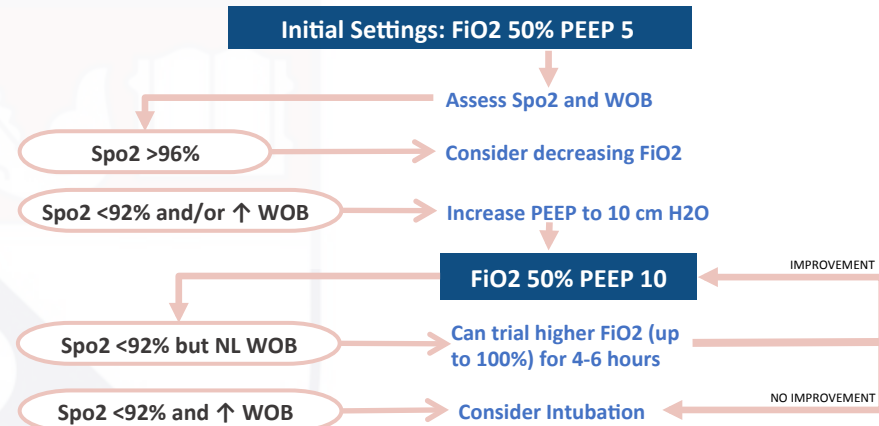
Oxygen Delivery Configurations

Device	Image	Flow	Notes
MaxVenturi (preferred)		50-60 LPM	<ul style="list-style-type: none"> ➤ Easy transition to HFNC during breaks ➤ Provides natural humidification (decreased at FiO₂ > 60%) ➤ Use for patient transport
Ventilator		50-60 LPM	<ul style="list-style-type: none"> ➤ Ventilator with HFNC mode needed (Servo-U/Hamilton C-1)
Venturi – 50% FiO ₂		30 LPM Wall O ₂ (80 LPM Total flow)	<ul style="list-style-type: none"> ➤ Titrate FiO₂ by changing setup (only two FiO₂ options – 50% or 60%)
Venturi – 60% FiO ₂		30 LPM Wall O ₂ + 20 LPM Wall O ₂ to side port (100 LPM total flow)	<ul style="list-style-type: none"> ➤ Louder due to high wall O₂; provide patient with ear plugs
Oxygen Blender		50-60 LPM	<ul style="list-style-type: none"> ➤ No natural humidification; monitor for discomfort with longer use



Use & Titration

- Duration determined by patient comfort – typically 4-6 hour sessions with breaks for PO meds and meals. Sleeping in semi-recumbent position with helmet is safe.
- During breaks, transition to HFNC or alternate oxygen device



*Consider weaning off helmet (to HFNC or NC) once stable on FiO₂ 40-50% and PEEP 5



Safety

- ❖ Helmet currently recommended for use only in ICU or during transport to ICU
- ❖ Always maintain total gas flow above 50 LPM to avoid CO₂ rebreathing
- ❖ Monitor for mental status changes; avoid use in patients with AMS or agitation
- ❖ If helmet deflates, check oxygen device and tubing connections for leak
- ❖ Self-proning has *not* been tested for safety with helmet



Tips

- ❖ A rolled-up hand towel may be placed inside helmet to provide neck support
- ❖ Monitor for skin breakdown at neck. Can use mepilex for skin protection
- ❖ Feeding tubes and IJ central lines can be threaded under rubber collar
- ❖ Straw can be fed through port at base of helmet for short periods of drinking
- ❖ Do not dispose after use; helmet can be sterilized and re-used