

Adult Respiratory Care Practice Guidelines for COVID-19

POSITIVE or PUI patients

These practice guidelines were structured in order to optimize the safety practices around respiratory treatments and devices in COVID POSITIVE or Persons Under Investigation (PUI) patients.

Clustered Care

- All care should be coordinated with nursing; including treatments, therapies and ventilator-patient assessments.

Transport through the hospital

- Patients on nasal cannula **must** wear a face mask¹ covering their nose and mouth.
- Prior to transport on HFNC, nasal prongs should be checked for good fit and minimal leak. Face mask¹ should be worn by the patient over the HFNC.
- Patients on NIV must be transitioned to High Flow Nasal Cannula (HFNC), 100% NRB or be intubated for transport.
- An HME filter can be placed on the tracheostomy tube directly, allowing for venturi masks during transport or ambulation.

Nebulized Medication

- MDI treatments are preferred. May use higher doses (i.e. 6-12 puffs) with spacer.
- Intubated patients may receive small volume nebulizers (SVN) and nebulized epoprostenol via Aerogen delivery system.
- Non-intubated patients should avoid use of SVN (bronchodilators, corticosteroids). Permissible when strongly clinically necessary or patient fails MDI. These may be administered via filtered nebulizer and should be self-administered when patient is compliant. HCP should maintain arms length when initiating nebulizer and minimize time in the room during administration.

Oxygen Nasal Cannula or Oxymizer

- Nasal Cannula / Oxymizer flows should be limited to 5 LPM or less. **Avoid using aerosol/Venturi masks.**
- Patients requiring higher FiO₂ should be transitioned to an alternate oxygen (100% NRB, HFNC, NIV, intubate).
- Patients that desaturate with movement may benefit from pre-oxygenation with 100% NRB PRN for 5-10 minutes before movement. Order 100% NRB PRN pre-oxygenate for activity.

THE FOLLOWING are HIGH RISK AEROSOL GENERATING PROCEDURES (HR-AGP).

The following precautions should be taken in order to minimize the risk of HCP transmission.

- Please refer to accompanying chart for recommended location and PPE for respective AGP.

High Flow Nasal Cannula (HFNC)

- Maximum setting is 50LPM and 100% FiO₂.
- Patients that desaturate with movement may benefit from pre-oxygenation with 100% NRB PRN for 5-10 minutes before movement. Order 100% NRB PRN pre-oxygenate for activity. Continuous use of 100% NRB simultaneously with HFNC 100% 50LPM is an indication to evaluate for intubation.
- Nasal prongs must be well seated in the nares with **minimal leak**. If more than minimal leaking occurs, must use alternate oxygen (100% NRB, or intubate).

Non-Invasive Ventilation (NIV=BIPAP or CPAP)

- Discouraged unless clinically necessary due to risk for HCP.
- Acute Hypercarbic Respiratory Failure - if PCO₂ > 65 or >10 mmHg from baseline, consider intubation
- Acute Hypoxemic Respiratory Failure - Mild to Moderate ARDS with PaO₂/FiO₂ >150, otherwise consider intubation
- **Maximum Settings: IPAP 12 cm H₂O and EPAP 8 cm H₂O.**
- ALL patients on BIPAP are **required** to have an **ABG AND clinical assessment** within 2 hrs to determine either continuance of NIV or advancement to Intubation.
- Continuance of NIV is defined by Sat >93% and improved RR or pH and decreased work of breathing.

¹ Face Mask refers to PPE

- Chronic Respiratory Failure on NIV at home.
 - If COVID Positive / PUI initiate NIV at home settings only until test results. If pt fails home settings, intubate.
- Obstructive Sleep Apnea/Obesity Hypoventilation Syndrome on NIV QHS
 - ABG on admission.
 - If PCO₂ <45, 2L NC can be given QHS and ABG will be done in the morning.
 - If PCO₂ >45, NIV QHS can be ordered at no more than maximum settings (see above).
- ALL NIV will be set up with a **filtered circuit on the expire valve**.
- Good mask seal** *must* be ensured. Leaks >20% should be reported to respiratory supervisor and provider.

Suctioning and Physiotherapy

- Chest PT is restricted to patients with strong clinical necessity. HCP should maintain airways length when administering and minimize time in the room afterwards.
- Nasotracheal/open suctioning should be avoided. Failure to manage secretions is reason for intubation.

Tracheostomy tube

- Chronic respiratory failure on a home ventilator. Most home ventilators do NOT allow for filters on the exhale valve resulting in large exposure to aerosolized virus. **All** patients are preferentially placed on hospital ventilators (with filter).
- An HME filter can be placed on the tracheostomy tube directly, allowing for venturi masks during transport or ambulation.
- A closed T-piece system can be attached to the tracheostomy tube to provide aerosol oxygenation/humidification with an in-line suction catheter and appropriate filters.
- Suctioning should be done *in-line*. Open suctioning results in aerosolization of virus.
- A speaking valve (PMV) on the tracheostomy tube is aerosolizing. It should be covered with a *paper mask*.

Extubation

- Do NOT stand directly in front of the patient. Position yourself optimally to avoid path of coughing.
- Immediately after disposing of dirty materials the outside gloves should be removed, inside out.
- Patients transitioning to comfort measure may be extubated. The order in which life sustaining measures are discontinued (vasopressors, hemodialysis, mechanical ventilation, etc) is left to the discretion of the attending provider.

References:

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Hui, DSC, Chan MTV and B Chow. Aerosol dispersion during various respiratory therapies: a risk assessment model of nosocomial infection to health care workers. *Hong Kong Med J*. 2014 (Suppl 4):S9-13.

Esquinas *et al*. Noninvasive mechanical ventilation in high-risk pulmonary infections: a clinical review. *Eur Respir Rev*. 2014; 23:427-438

Yu IT, Xie ZH, Tsoi KK, et al. Why did outbreaks of severe acute respiratory syndrome occur in some hospital wards but not in others? *Clin Infect Dis* 2007; **44**: 1017-25.

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Please contact Respiratory Care or ICU leadership with any questions related to these practice guidelines.

COVID-19 Guidelines for Aerosol Generating Procedures for COVID POSITIVE / PUI patients

Aerosol Generating Procedures (AGP) for COVID POSITIVE/PUI					
Device / Treatment	HR ¹ -AGP	Negative Pressure with COVID Isolation	Regular Pressure with COVID Isolation	Staff PPE	Comments
Nasal Cannula	No	Recommended if available	Permitted*	Respirator, face shield/goggles, isolation ² gown and gloves	*If not in negative pressure room, ask pt to wear face mask ⁴ when HCP in the room
Nebulized Medications (use limited to clinical necessity)	No	Recommended if available	Permitted*		*Door is closed. PUI always in room by themselves (see neb notes)
Sputum Induction	Yes				AVOID
High Flow Nasal Cannula	Yes	Strongly Recommended	Permitted*	Respirator, face shield/goggles, isolation ² gown and gloves	*If not in negative pressure room, ask pt to wear face mask ⁴ when HCP in the room
High Flow Mask	Yes				AVOID
Non-Invasive Ventilation (BIPAP/CPAP)	Yes	Strongly recommended	Not recommended	Respirator, face shield/goggles, isolation ² gown and gloves	Discouraged unless clinically necessary
Nasopharyngeal Speciman collection, Aspiration, Washing	Yes	Recommended if available	Permitted		
Feeding Tube Placement	Yes	Recommended if available	Permitted		
Open Suctioning	Yes	Recommended if available	Permitted		
CPR	Yes	Recommended if available	Permitted	Respirator, face shield/goggles, bouffant/balacava, procedure ³ gown, double gloves and footcover	
Bag Mask Ventilation	Yes	Recommended if available	Permitted		
Intubation	Yes	Strongly Recommended if available	Permitted		
Extubation	Yes	Recommended if available	Permitted		
Bronchoscopy	Yes				AVOID
GI tract Endoscopy	Yes	Strongly Recommended if available	Not recommended	Respirator, face shield/goggles, bouffant/balacava, procedure ³ gown, double gloves and footcover	
Chronic Tracheostomy	Yes	Recommended if available	Permitted*		*RT to place closed filtered system
Chest Physiotherapy	Yes	Strongly Recommended if available	Not recommended	Respirator, face shield/goggles, isolation ² gown and gloves	Restricted to patients with strong clinical necessity.

¹ High Risk ² Isolation gowns=semi-fluid resistant ³ Procedure gown = fluid resistant ⁴ PPE Face Mask

Neb notes: If PUI pt is in a shared room and must receive neb emergently - Draw the curtain and isolate as much as possible.