

Exposure Limitations

- 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 SURGICAL MASK covering their nose and mouth.
- Patients on NIV or HFNC **must** transition to either 100% NRB or be intubated during transport.

THE FOLLOWING AEROSOL GENERATING APPLICATIONS increase risk of COVID transmission.

- Initiation, continuance and manipulation of these devices *should* occur within a NEGATIVE PRESSURE ROOM.
- Providers **must** wear N95, face shield or goggles, gown and gloves.

Oxygen Nasal Cannula

- Nasal Cannula flows should be limited to 5 LPM or less. **Do not use aerosol/Venturi masks** to deliver oxygen.
- Patients requiring higher FiO₂ should be transitioned to an alternate oxygen (100% NRB, HFNC, NIV, intubate).
- If a negative pressure room is not available, patient **must** have a private room, wear a mask, door closed with isolation sign.

High Flow Nasal Cannula (HFNC)

- Maximum setting is 30LPM and 100% FiO₂. If Sat <93%, consider intubation.
- Negative Pressure Room *is required*. Ask patient to wear a surgical mask.
- Nasal prongs must be well seated in the nares with **minimal leak**. If more than minimal leaking occurs, must use alternate oxygen (100% NRB, NIV, intubate)

Non-Invasive Ventilation (NIV=BIPAP or CPAP)

- Negative Pressure Room *is required*. NIV use is discouraged in the setting of COVID infection due to risk for health care providers.
- Acute Hypercarbic Respiratory Failure - if PCO₂ > 65 consider intubation
- Acute Hypoxemic Respiratory Failure – Mild ARDS with PaO₂/FiO₂ >200, 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.
- Chronic Respiratory Failure on NIV at home.
 - If COVID PUI initiate NIV at home settings only until test results. If pt fails home settings, intubate.
 - If COVID positive, pt is unlikely to improve, and early safe intubation preferred.
- 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, sleep or pulmonary consult should be ordered.
- 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.

Treatments/ Physiotherapy

- MDI treatments are preferred. May use higher doses (i.e. 6-12 puffs) with spacer.
- Use of continuous nebulizers is not permitted.
- Avoid use of small volume nebulizers (bronchodilators, corticosteroids). Permissible when strongly indicated or patient fails MDI. *Negative pressure room* is required with filtered nebulizer.
- Chest PT is restricted. *Negative pressure room* is required with use of a tent with HEPA filter.
- 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).
- Suctioning should be done *in-line*. Open suctioning results in aerosolization of virus.
- A speaking valve should cap the tracheostomy tube with a surgical mask covering the patient's mouth, *or* a surgical mask should cover the tracheostomy tube while another one covers the patient's mouth.
- A respiratory therapist should be consulted to advise the management of tracheostomy tubes in the setting of COVID PUI/ positive patients, in order to minimize the risk of aerosol generation and transmission of the virus.

Extubation

- PPE (see above) AND protective footwear recommended.
- Do NOT stand directly in front of the patient. Position yourself optimally to avoid path of coughing.
- Double glove. Immediately after disposing of dirty materials the outside gloves should be removed, inside out.

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.

Hui DS, Chow BK, Lo T, et al. Exhaled air dispersion during high flow nasal cannula therapy versus CPAP via different masks. *Eur Respir J* 2019; **53**: 1802339.

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