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Title: RESP – BiPAP/CPAP/High Flow Nasal Cannula (HFNC) in the Setting of COVID-19 for Adult Patients 18 years of age and older

Applies to: All HHS staff involved in the application and management of BiPAP/CPAP/High Flow Nasal Cannula (HFNC) in the setting of COVID-19

1.0 Purpose

1.1 To outline the protocol to manage patients who are suspected or confirmed to be COVID-19 positive.

2.0 Policy

2.1 Guiding Ethical Principles

2.1.1 This Policy is informed by the following ethical principles, recognizing there are inherent tensions between these principles that require careful balancing and reflective compromise:

- **Beneficence and appropriate care for patients:** Patients rely on healthcare providers to provide treatments that are evidence-based, and that minimize harms and maximize benefits. Even in a pandemic or outbreak situation, every effort should be made to offer the standard of care to support optimal outcomes for patients, while balancing other principles.

- **Protection of healthcare providers:** By protecting the health and well-being of our healthcare providers, we protect the health and well-being of our community. Our healthcare providers need to feel safe and supported working with patients in an outbreak scenario. Modifications to standards of care are justifiable if they help to minimize the risk of infection to healthcare providers and others.

- **Preservation of PPE:** Personal Protective Equipment is essential to helping healthcare providers feel safe and supported in taking care of patients in an outbreak scenario. When PPE supplies need to be conserved due to potential scarcity, it is appropriate to modify standards of care to minimize usage in order to protect future patients and to minimize infection spread.

- **Balancing consistency and emerging evidence/innovation:** In an evolving and dynamic situation like a pandemic, guidelines that support consistent practice are essential to ensure trust, support efficiency and minimize conflict. However, new evidence will be emerging constantly that may challenge the established guidelines. In addition, the clinical experience of frontline staff may help to refine and enhance the standard of care. New evidence, and suggestions for changes to the standard of care, must be evaluated scientifically by those with the appropriate clinical/scientific expertise; any recommendations for modifications to current practice should be reviewed and approved by the appropriate clinical and organizational leaders, in order to ensure consistency, transparency and scientific rigor.

3.0 New Initiation of CPAP/BiPAP/HFNC for inpatients/ED patients not currently on home CPAP/BiPAP in Suspect or Confirmed COVID-19

3.1 High flow heated humidity oxygen therapy devices (AIRVO, Optiflow):

3.1.1 Aerosolization of respiratory secretions may result from high flow heated humidity oxygen

therapy devices. As such it should **only** be used in COVID-19 confirmed patients if the following criteria can be met:

- negative pressure room or single room with HEPA filter

using contact/droplet plus N95 respirator

3.1.2 This indication may change in a tiered fashion based on resource scarcity or emerging evidence.

3.2 Non-Invasive Ventilation (NIV; i.e. CPAP/BIPAP):

3.2.1 NIV may result in aerosolization of respiratory secretions. The utility in COVID-19 which may have normal lung compliance is also uncertain. Thus, it should **not** be used in suspected or confirmed COVID-19 patients. If used with ILI (COVID-19 or other pathogens) with hypoxemic respiratory failure or ARDS, NIV is associated with high failure rates and need for emergent intubation. Patients with hemodynamic instability, multi-organ failure, or abnormal mental status are at very high risk for failure and should not receive NIV. Pro-active intubation under less emergent conditions is the preferred strategy.

4.0 Process for New Initiation of CPAP/BiPAP/HFNC for inpatients/ED patients not currently on home CPAP/BiPAP in COVID-19 unknown

4.1 If a patient who's COVID status is unknown presents to hospital, or is in hospital, and the healthcare team feels that HFNC or CPAP/BiPAP would be of benefit the following procedure must be followed. CPAP or BiPAP may have mortality benefit in respiratory failure due to COPD or CHF, and may prevent intubation.

The patient will be placed in a negative pressure room (a single room with HEPA filter is an acceptable alternative), and the selected NIV will be started as per hospital policy. Prior to initiating the NIV, a COVID-19 swab will be taken. The patient must remain in the selected environment during the entire duration the swab is pending.

4.2 A resulted COVID swab can then lead to 3 scenarios:

4.2.1 If the swab returns negative and there is a low clinical suspicion for COVID-19, the NIV can be continued if still required and the patient would no longer need a negative pressure environment or single room with a HEPA filter. Where possible, it is encouraged the patient remain in a single room. CPAP/BIPAP will be provided as per usual hospital policy in droplet/contact precautions and using a "procedure in process" sign at the door.

4.2.2 If the swab returns positive then:

- HFNC can be continued if the treating team feels there is strong clinical benefit, however precautions must be the same as described above for COVID+ patients.
- CPAP and BiPAP should not be continued in the setting of a positive swab.

If non-invasive ventilation or high-flow oxygen is required beyond day of 7 of admission, the patient should be re-tested on day 8 to be cleared for continuation.

4.2.3 NIV and HFNC for Do Not Intubate or Palliative Patients in COVID-19 positive or unknown patients**.**

In patients failing conventional oxygen therapy who are not for intubation as per their goals of care neither HFNC nor NIV should be initiated as methods of symptom control. NIV and HFNC has not been shown superior nor to alter the outcome for these patients. Oxygen by mask and narcotics for symptom control will be used as appropriate, but they will not be put on palliative

NIV or HFNC.

5.0 Patients presenting to hospital who are currently on home CPAP/ BiPAP and COVID-19 Unknown

5.1 Patients on Home CPAP or BiPAP and presentation to the hospital (ED/Ward)

5.1.1 For many patients, home CPAP/BIPAP can be suspended for 3-4 days without significant patient harm. Following the principle of reducing potential harm to staff, these patients will be taken of CPAP/BIPAP during short term hospital stays. If hospital stay is longer than 4 days, a safe care plan must be made available to the patient to prevent patient harm.

5.1.2 The determination of the safety of suspending CPAP/BiPAP may be complex for some patients. A Respirology consult should be considered for all patients using home BiPAP as ventilatory support. Consultation should also be considered for CPAP, if it is severe disease or substantial narcotic usage is planned.

5.1.3 For patients that cannot tolerate that length of time without the device, a NPS will be obtained to rule out asymptomatic COVID-19 infection given the risk of aerosolization with these treatment modalities. Until COVID-19 is ruled out, CPAP/BiPAP would require airborne precautions as per the scenarios outlined above. The same holds true if the patient tests positive if the decision is to continue home CPAP/BiPAP. In general, however, the use of home CPAP/BiPAP is discouraged in these patients.

5.1.4 When COVID-19 is ruled out, CPAP/BIPAP will be provided as per usual hospital policy in droplet/contact precautions and using a "procedure in process" sign at the door. Patients on CPAP/BIPAP must be actively monitored for respiratory symptoms and temperature measured at least twice daily. Testing to rule out COVID-19 would be set by current IMS structure and approved information.

5.1.5 In the circumstances where we are not able to provide resources to provide safe care for any AGMP such as BiPAP/CPAP then the care for the patient may include monitoring off BiPAP/CPAP as available in appropriately cohorted areas.

5.1.6 Optimally, home CPAP/BiPAP machines should not be used to provide ventilation, and these machines should be bagged and placed with the patient. If no CPAP/BiPAP can be provided, refer all patients to Respiratory Therapy for equipment inspection.

5.1.7 If non-invasive ventilation is required beyond day of 7 of admission, the patient should be re-tested on day 8 to be cleared for continuation.

6.0 Developed By

Critical Care Physicians

7.0 In Consultation With

Respiratory Therapy
Infection Prevention and Control
COVID-19 SME Group

8.0 Approved By

HHS COVID-19 Corporate Command Centre
MAC

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