

## Guiding Principles for CPAP Rescuer Device during COVID-19 Pandemic

### Guiding Principles:

- 1) This document complements the *Airway Management Guidelines for Patients with Known or Suspected COVID-19 Infection* (Kovacs, Law & Witter, 2020) found on the COVID Hub.
- 2) Rescuer Emergency CPAP System is now found as a treatment modality within the guidelines noted above.
- 3) This device is intended for the care of the patient exhibiting symptoms consistent with acute respiratory illness due to COVID-19.
- 4) This device is intended for use in practice settings that allow for close monitoring and early detection of deterioration. The intended practice settings include; emergency departments, intermediate care units, and potentially intensive care surge areas.
- 5) The intensity of care requirements for the patient population will be high and complex (i.e. frequent assessments, rapidly evolving plan of care, etc). The recommended staffing model would be a RN competent in the care of the patient receiving CPAP (see competency requirements below).
- 6) Rescuer Emergency CPAP System can be considered for use to bridge patient care, for example, pending the arrival of a transport crew/airway response team able to perform tracheal intubation.
  - Strongly consider discussion with the EHS LifeFlight and/or Critical Care Medical Control Physician when considering this escalation of care.

### **Clinical Indications for Use in Suspected or Confirmed COVID 19:**

- 1) Respiratory distress (elevated respiratory rate, SpO<sub>2</sub> < 92%, increased work of breathing, dyspnea)
- 2) Presence of hypoxemia refractory to increasing FiO<sub>2</sub>
- 3) Tachycardia

### **Absolute Contraindications to Use:**

- 1) Pneumothorax
- 2) Respiratory arrest / agonal respirations / hypoventilation
- 3) Blunt / penetrating chest trauma
- 4) Facial trauma / deformity / burns inhibiting proper mask fit
- 5) High risk of aspiration / active vomiting
- 6) Presence of patient restraints. Patient must have the ability to remove the mask to protect their airway.

### **Relative Contraindications to Use:**

- 1) Hypotension (SBP < 90 mmHg). Consider risk of pending respiratory failure and interventions to maintain adequate systolic pressure.
- 2) Patients less than 16 years of age. Consider size of patient and consult pediatrician.
- 3) Unconscious or GCS < 12. Consider patient's ability to maintain their own airway.
- 4) Tracheostomy. Consult specialist.

### **Limitations and Complications:**

- 1) Patient claustrophobia leading to intolerance
- 2) Feeling of suffocation due to low flow rates
- 3) Patient discomfort (abrasions to bridge of nose, strap on face, pinching of ears, dry mouth)

- 4) Potential for barotrauma
- 5) Inability to achieve the air-tight seal with mask that is required
- 6) Need for secretion management and associated challenges with suctioning
- 7) Difficulty assessing airway patency

**Key Items for Consideration:**

- 1) This device is for single patient use only and is to be discarded afterwards.
- 2) All CPAP options should be considered an **aerosol-generating medical procedure** and performed using [airborne precautions](#), it should be done in a negative pressure airborne infection isolation room (AIIR). Staff caring for the patient with the Rescuer CPAP System should be protected by full airborne/ droplet PPE.
- 3) Please follow the 2019 Novel Coronavirus (COVID-19). Aerosol Generating Medical Procedures in Healthcare Settings document found on the COVID Hub.  
[http://policy.nshealth.ca/Site\\_Published/covid19/document\\_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=78461](http://policy.nshealth.ca/Site_Published/covid19/document_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=78461)
- 4) To help reduce aerosolization potential, consider starting with the least supporting pressure (e.g., CPAP 8-10 cm H<sub>2</sub>O) consistent with adequate SpO<sub>2</sub> (e.g., 92-96%).
- 5) If CPAP is used, the patient should be closely monitored for deterioration, and if not responding favorably (i.e. an increase in SpO<sub>2</sub>, decrease in respiratory rate, decrease in work of breathing) within a 30-60 minute trial period, should proceed to tracheal intubation.
- 6) With or without a trial of CPAP, when required, tracheal intubation should occur before it is an emergency. Controlled tracheal intubation before the patient decompensates will minimize the potential for risk to staff due to



breaches of PPE donning protocols.

- 7) If the patient responds well to support with CPAP, that modality can be continued indefinitely with ongoing close observation for tiring or

deterioration. Once clinically improved, the patient should be stepped down to non-aerosol generating oxygen supplementation.

- 8) A trial of CPAP in the prone position can be considered in the cooperative awake, spontaneously breathing patient.
- 9) Monitor blood pressure with increases in CPAP level.
- 10) Ensure a non-rebreather mask is at patient's bedside in the event of device failure.

### **Competency Requirements for Respiratory Therapists (RTs) and Paramedics**

- 1) The management of Continuous Positive Airway Pressure (CPAP) is considered an Entry Level competency for Respiratory Therapists and all Paramedic classes of licensure, primary through to critical care.
- 2) The healthcare provider should self-assess competency before implementing into the plan of care for the patient. If education is needed, reach out to practice support in your area ie: educator or other health care professional deemed competent.

### **Competency Requirements for Registered Nurses (RNs)**

- 1) Application and ongoing assessment of the CPAP Rescuer Device can be performed by the Registered Nurse (RN) who possesses the competency associated with this system and the principles of CPAP.
- 2) This would be considered a Beyond Entry Level Competency (BELC)
- 3) The RN achieves the BELC by:
  - Demonstrating knowledge, skills, and judgement (competency) for application, indications for use, and ongoing assessment associated with this system.



- Reviewing the associated support documents for the Rescuer Emergency CPAP System and being able to describe all considerations for safe application and ongoing patient assessment.
- Attending education session and demonstrating skill on manikin.
- Having competency evaluated on an ongoing basis.



## Rescuer Emergency CPAP System

### Quick Instructions

1



Attach oxygen tubing and turn flowmeter to 5 Lpm

2



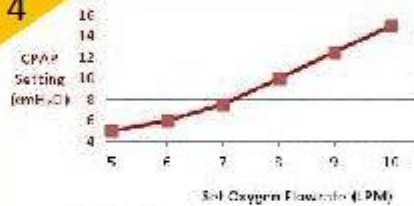
Place mask over the nose and mouth of the patient, sliding the bonnet over the head, adjusting seal using straps and forehead pads

3



Turn Pressure Adjustment Cap Clockwise to 5 cmH<sub>2</sub>O pressure

4



CPAP Setting (cmH <sub>2</sub> O)	5	6	7.5	8	9	10
Oxygen Flow	5 Lpm	6 Lpm	7 Lpm	8 Lpm	9 Lpm	10 Lpm

5



Nebulized Medications can be administered using a 22mm ID/22mmOD T-piece and secondary gas source

6



MDI (puffer) style medications can be administered through the MDI port

## References

Code Blue Working Group (2020). *Code Blue Guiding Principles*. Retrieved from [http://policy.nshealth.ca/Site\\_Published/covid19/document\\_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=78310](http://policy.nshealth.ca/Site_Published/covid19/document_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=78310)

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Nova Scotia College of Nurses (2019). *Scope of Practice of the Registered Nurse*. Halifax, NS: Author

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Witter, T. & Isenor, C. (2020). *Prone Positioning from Acute Admission to Critical Care for the COVID Patient*. Retrieved from [http://policy.nshealth.ca/Site\\_Published/covid19/document\\_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=79043](http://policy.nshealth.ca/Site_Published/covid19/document_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=79043)

## Other Practice Documents

BLS Systems (2018). Rescuer Emergency CPAP System.

Rescuer II Compact CPAP System. Retrieved from [http://blssystemsltd.com/resquer2\\_cpap.html](http://blssystemsltd.com/resquer2_cpap.html)





Rescuer CPAP Device for the Treatment of COVID-19 Patients in Respiratory Distress. (Brown, R.) 2020.