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| **Huron Perth Healthcare Alliance** |
| **Cardiorespiratory** | Original Issue Date:  | March 01, 2021 |
| **C1 Ventilator Based Nasal Continuous Positive Airway Pressure (nCPAP) and Non-invasive Positive Pressure Ventilation nCPAP-PC (NIPPV)** | Review/Effective Date:  | March 01, 2021 |
| **Approved By: Director, Patient Care** | Next Review Date:  | March 01, 2023 |

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| The purpose of a Standard Work document is to provide guidelines for the staff involved in the described process and their managers at the HPHA. Standard Work is a detailed definition of the current best practices for performing an activity or process. Standard Work documentation contains instructions, useful graphics, and anything else necessary to ensure that work is done consistently regardless of who performs the process. It is expected that all staff shall adhere to the principles outlined in this document. **Scope**This document applies to all Registered Respiratory Therapists who initiate, maintain and discontinue nCPAP or NIPPV Therapy at the Huron Perth Healthcare Alliance (HPHA). |

**Procedure**

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| **The following steps shall be followed:**  |
| 1. The C1 (Neonatal option) ventilator is the primary infant ventilator at Stratford General Hospital (SGH). The C1 is to be used for nasal continuous positive airway pressure (nCPAP) ONLY if the 2 Biphasic Synchronized inspiratory positive airway pressure (SiPAP) units are unavailable. Physician should be made aware that the primary infant ventilator is being used for nCPAP and is unavailable for any subsequent critical infants requiring intubation.2. The C1 (Neonatal option) ventilator is the primary infant ventilator at SGH. The C1 is to be used for nCPAP-PC (NIPPV) if escalation in care is required for a patient on Biphasic (SiPAP) or the patient presents with needs greater than Biphasic (SIPAP) can provide. Physician should be made aware that the primary infant ventilator is being used for NIPPV and is unavailable for any subsequent critical infants requiring intubation.3. nCPAP and nCPAP-PC (NIPPV) on the C1 use a nasal mask and are strictly spontaneous with no apnea detection or disconnect alarm.4. A separate bonnet, mask and patient interface than Biphasic (SiPAP) set up is used.**C1 SET UP:**1. Perform hand hygiene and don gloves.2. Turn on C1 unit and Select Mode – nCPAP or nCPAP-PC 3. nCPAP must be used with an interface that has a dual limb. Once either of these modes is selected (nCPAP, nCPAP-PC), a picture of how to setup the circuit is displayed. The flow sensor is not used for these modes but a pressure line is (found in infant ventilator circuit). The flow sensor is removed and a pressure line is connected to the blue port on side of ventilator.4. Re-circuit as shown on display5. Use pressure line and connector from infant ventilator circuit package6. Remove spike from pressure line and attach pressure line to blue port on C1 ventilator            Pressure line attached to blue port7. Attach end of pressure line with white elbow to connector and then attach connector to inspiratory blue limb of circuit8. Attach dual limb of circuit to “Flexitrunk” patient interface with pressure line attached to inspiratory limb                                                  Attach appropriate sized mask              pressure line attached9. The ventilator screen will then show the pre use check screen. Note that the normal “Flow Sensor” button has been replaced with a “Circuit” button and there is a dash beside it which means that this test needs to be performed prior to using an nCPAP mode. This test needs to be done to calibrate the pressure line when the flow sensor removed.Press to calibrate Calibration is complete10. Select appropriately sized bonnet11. Apply hooks to patient interface to secure The 35-40cm Bonnet is of a different style             12. You are now ready to use the mode and can switch between these 2 modes (nCPAP and NCPAP-PC) without having to perform the test again. When you want to go back to invasive ventilation modes, remove pressure line, re-circuit with normal infant ventilator circuit and calibrate the flow sensor again.                                       nCPAP mode nCPAP-PC (NIPPV) mode**C1 nCPAP USE**13. Ensure an orogastric tube is in place 14. Ensure humidifier is on with sterile water 15. Ensure a good seal is established and that the patient mask fit is appropriate 16. Select initial parameters:* CPAP 5-8 cmH2o
* FiO2 as needed to achieve target SpO2
* Set alarms appropriately

**C1 nCPAP – PC (NIPPV) USE**17. Ensure an orogastric tube is in place 18. Ensure humidifier is on with sterile water 19. Ensure a good seal is established and that the patient mask fit is appropriate 20. Select initial parameters: * Rate of 30 – 40 bpm.
* Inspiratory time (I time) of 0.5secs – 1.0secs
* PEEP of 5 – 8cmH20 (may need to go higher).
* PIP 10cmH20 higher than PEEP level i.e.: 10 over 5. Target distending pressure not PIP. Adjust for desired effect (PIP should not routinely be set higher than 20cmH2O).
* FIO2 as needed to achieve target SpO2
* Set alarms appropriately

**CHARTING**21. The RRT will document the ventilator settings, alarms and temperature setting in Meditech under CPAP/BiPAP intervention screen22. Subsequent documentation/charting will occur Q2H by the RRT. Regular monitoring of the patient’s work of breathing, respiratory status, gastric distension and comfort is essential. 23. Maintenance/routine care: Position of the prongs /mask should be checked routinely by the RN/RRT to ensure no nasal septal damage is occurring. Encourage gentle massaging of nares between change outs to stimulate blood flow to the area.  |

**References:**Hamilton C1 Operators Manual  |

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