



CLINICAL POLICY

Oxygen Administration (Mask, Nasal Cannula, High Flow Nasal Cannula)

A. EFFECTIVE DATE:

December 20, 2022

B. PURPOSE:

To clarify scope of practice requirements and provide general guidelines for supplemental oxygen administration.

Exclusions: This policy does not apply to oxygen delivery by invasive mechanical ventilation, non-invasive positive pressure ventilation (such as BiPAP), or continuous positive airway pressure (CPAP).

C. POLICY:

1. A practitioner order for oxygen (O₂) therapy is required for all patients receiving oxygen using any device or interface.
 - a. An order is not necessary for outpatients who remain on their personal oxygen supply during an outpatient appointment.
2. If outpatients are transferred from their personal oxygen supply to UConn Health oxygen supply, an order must be entered.
3. In an emergency, such as a Medical Response: Cardiac Response or a Rapid Response, oxygen may be administered without an order. An order must be written by the responsible practitioner once the patient has been stabilized.
4. Only licensed health care providers, certified ultrasound technicians, and certified nuclear medicine technicians who have been trained in oxygen therapy (per CT Public Act 10-117, section 80) may:
 - a. Connect or disconnect oxygen.
 - b. Connect, disconnect, and/or adjust a mask, nasal tubes, or other oxygen delivery devices.
 - c. Adjust the flow of oxygen to carry out a medical order.
5. All licensed health care providers, certified ultrasound technicians, and certified nuclear medicine technicians who implement orders for oxygen administration and perform the above will be educated during initial orientation and through annual competency validations.

A registered nurse will accompany any patient who requires oxygen and must be transported to another location for diagnostic testing or any other reason.

If the diagnostic test is lengthy (e.g., MRI) and the patient does not require on site nursing presence, the patient may be transferred to wall oxygen as appropriate and left in the care of the receiving department, with a proper SBAR handoff and instructions to notify nursing to return to the department for return transport back to the inpatient / originating unit.
6. If transport with oxygen is ordered, the oxygen tank must contain a minimum pressure of 750psi prior to use.
7. The Vapotherm *Precision Flow* device will only be used for patients hospitalized in the Intensive Care or

Intermediate Units.

8. The Vapotherm *Precision Flow* device will not be used during patient transport; an alternative delivery mode and interface are needed.
11. The Vapotherm and disposable patient circuit (Including disposable water path cartridge and circuit may be used for up to 30 days on a single patient.
12. The Vapotherm *Precision Flow* device will be disinfected between every patient use or after 30 days use on a single patient. All single use components must be removed prior to disinfection.
13. The Respiratory Therapy document is responsible for documenting charges for equipment, supplies, and hourly oxygen usage.

D. SCOPE:

All inpatient, procedural and ambulatory areas of UConn Health in which patients may receive supplemental oxygen.

E. DEFINITIONS:

Oxygen Therapy: the administration of supplemental oxygen at concentrations greater than ambient air for the purposes of treating or preventing hypoxemia, decreasing work of breathing or decreasing myocardial work.

Venturi Masks/Air Entrainment Masks are masks designed to provide a fixed concentration of oxygen. The prescribed FiO₂ is provided by selection and use of the appropriate dilutor jet and oxygen flow rate.

Vapotherm Precision Flow is a device with a built-in oxygen blender which delivers high-flow oxygen therapy to adult patients with conditions such as acute respiratory failure, increased work of breathing, hypercapnia, refractory hypoxemia or those who are intolerant to non-invasive positive pressure ventilation (NPPV). Vapotherm is contraindicated in patients with apnea, and those who are unable to protect their airways or tolerate the high flow.

F. MATERIAL(S) NEEDED:

1. Oxygen Flowmeter
2. Humidifier
3. Device interface
 - a. Simple mask with connecting tubing
 - b. Nasal cannula with connecting tubing
 - c. Partial rebreathing mask with oxymizer and connecting tubing
 - d. Venturi Masks/ Air Entrainment Masks - mask kit contains the mask, multi-vent barrel, 2 dilutors, locking ring, high humidity adaptor, oxygen tubing
 - i. Air flowmeter, Nebulizer bottle and aero tubing are optional unless humidity is desired.
4. Vapotherm Precision Flow and high flow nasal cannula

G. PROCEDURE:

General Care related to oxygen administration, the **Respiratory Therapist (RT)** or **RN** will:

1. Use the Safety Absolute and verify that the order and patient identifying information match.
2. Perform hand hygiene and use universal precautions to avoid contact with or transmission of respiratory pathogens.
3. Educate the patient, family, significant other and/or designated caregiver about the rationale for supplemental oxygen use and the expected results for the patient.
4. Offer support and reassurance; answer any questions or refer these to other team members
5. Document time of initiation of therapy, device used and assessment findings (including relevant vital signs, SpO₂ and capnography readings) before and after initiation of oxygen therapy- observe for patient's tolerance as well as amelioration or worsening of symptoms. Communicate with practitioner the patient's response to therapy and whether any adjustments might be warranted

6. Ensure that humidification is maintained when more than 4 liters per minute of oxygen is delivered.
 - a. Humidifiers will not be used for patients receiving 4L/minute unless requested by the practitioner or the patient.
7. Adjust the oxygen device to the patient's face to maintain security, comfort and to minimize pressure injury.
8. Verify that the liter flow is correct for the device and patient needs.
9. Confirm that there is oxygen flow from the device by testing for leaks, loose connections, and proper operation of the pressure relief valve by pinching the tubing close to the mask or cannula.
10. Assess the patient's ability to tolerate the device and collaborate with the care team if the patient's condition deteriorates and an alternative therapy is warranted.

Oxygen Delivery via Simple O2 Mask, the RT or RN will:

1. Connect the flow meter to the oxygen source, then attach the connecting tubing and mask.
2. Turn the flow meter to a minimum of 6 L/min confirm O2 flow.

Oxygen Delivery via Nasal Cannula, the RT or RN will:

1. Connect the flow meter to the oxygen source and to the humidifier; attach the connecting tubing and nasal cannula.
2. Verify that there is oxygen flow from the cannula.
3. Turn off the flowmeter
4. Gently place the cannula in the patient's nostrils and adjust the fit for maximum comfort and security
5. Turn the flowmeter on to the dose prescribed in the practitioner order. In general, each liter flow increases the inspired FiO₂ by about 4%.

<u>Nasal Cannula Low Flow System</u>	
<u>Liter flow</u>	<u>Approximate FiO₂ delivered</u>
1	24%
2	28%
3	32%
4	36%
5	40%
6	45%

Oxygen Delivery via Partial Rebreathing Mask, the RT or RN will:

1. Connect the flow meter to the oxygen source.
2. Attach the connecting tube and mask.
3. Verify that there is oxygen flow from the mask.
4. Set the flow meter to a minimum flow of 8 L/min.
5. Observe the partial rebreathing bag for collapse. If there is complete collapse of the bag, increase the oxygen flow rate until there is some degree of bag inflation throughout each respiratory cycle.

Oxygen Delivery via the Venturi Masks / Air Entrainment Masks, the RT will:

1. Connect the oxygen flow meter to the oxygen source:
2. Select the correct dilutor for the order FiO₂; assemble per manufacturer instructions.
3. Attach the connecting tubing and mask.
4. If humidity is desired, attached jet nebulizer bottle. Fill the nebulizer with sterile distilled water and attach to oxygen flowmeter.

5. Connect the large bore aerosol tubing to the nebulizer bottle and attach to the entrainment adapter.
6. Connect an aerosol mask to large bore tubing and dial in FiO₂ order.
7. Turn the flowmeter to the flow that matches the order and the jet dilutor used.

Vapotherm Precision Flow: The RT will

1. Set up the Vapotherm Precision Flow in accordance with the manufacturer instructions, using a liter flow between 10 to 40 Lpm.
2. Collaborate with the care team to make adjustments in accordance with patient's response, tolerance, SpO₂ and blood gas results.

H. ATTACHMENTS:

[Handling and Use of Compressed Gases](#)

I. REFERENCES:

CT Public Act 10-117, section 80, 3. Provider and Physician Practice -JDH and UMG
 CT Public Act 10-117, section 80

J. SEARCH WORDS:

Oxygen, Oxygen Mask, O₂, Nasal Cannula, Mask, Venturi Mask, Air Entrainment Mask, Vapotherm, High Flow Nasal Cannula

K. ENFORCEMENT:

Violations of this policy or associated procedures may result in appropriate disciplinary measures in accordance with University By-Laws, General Rules of Conduct for All University Employees, applicable collective bargaining agreements, the University of Connecticut Student Code, other applicable University Policies, or as outlined in any procedures document related to this policy.

L. COMMITTEE APPROVALS:

Nursing Standards Committee

M. FINAL APPROVAL:

- | | |
|---|---------------------------|
| 1. <u>Bruce T. Liang, MD (Signed)</u>
Bruce T. Liang, MD
Interim Chief Executive Officer & EVP for Health Affairs
Dean, School of Medicine | <u>01/04/2023</u>
Date |
| 2. <u>Anne Horbatuck (Signed)</u>
Anne D. Horbatuck, RN, BSN, MBA
Clinical Policy Committee Co-Chair | <u>12/21/2021</u>
Date |
| 3. <u>Scott Allen, MD (Signed)</u>
Scott Allen, MD
Clinical Policy Committee Co-Chair | <u>12/29/2022</u>
Date |
| 4. <u>Caryl Ryan (Signed)</u>
Caryl Ryan, MS, BSN, RN
Chief Operating Officer, JDH
VP Quality and Patient Services & Chief Nursing Officer | <u>01/03/2023</u>
Date |

N. REVISION HISTORY:

Replaces the following:

- a. Oxygen Administration. HAM 08-098
- b. Oxygen Administration. Cardiopulmonary Services Department Manual
- c. Oxygen Therapy. Respiratory Care Services Department Manual.
- d. Oxygen Therapy. UMG Manual.
- e. Oxygen via Simple O2 Mask. Respiratory care Services Department Manual.
- f. Oxygen via Nasal Cannula. Respiratory Care Services Department Manual.
- g. Oxygen via Partial Rebreathing Mask Respiratory Care Services Department Manual.
- h. Venturi Masks/ Air Entrainment Mask. Respiratory care Services Department Manual.
- i. Vapotherm *Precision Flow* High Flow Nasal Cannula, Respiratory Care Services Department Manual.

Date Issued: 6/12/2019

Date Revised: 12/20/2022

Date Reviewed: