

Tips on Using High Flow Nasal Cannula

What is High Flow Nasal Cannula (HFNC)?

A non-invasive method that delivers heated and humidified high flow oxygen through a wide bore nasal cannula. There are many different brands and set-ups, including Optiflow, Airvo, VapoTherm.

All staff and clinicians must wear an N-95 before entering a room where HFNC is being used. Discuss with Critical Care new HFNC initiation.

When to use HFNC at UNMH Outside of the ICU

- Patients who are DNI, hypoxic on maximal lower flow oxygen delivery methods and without other indications for ICU level of care
- Transferred ICU patients who are on HFNC and stable for 24 hours on a flow rate as no higher than hospital policy allows
- Patients admitted with COVID or who are a PUI likely to have COVID but whose hypoxic respiratory failure progresses despite use of a non-rebreather may be started on HFNC if they are/have:
 - a) Hemodynamically stable
 - b) Cognitively alert
 - c) No other indication for ICU level care

How to Order HFNC

1. Go to PowerOrders
2. Type in "RT O2" under the search icon.
3. In the order itself, select 20 L/min, 35% FiO₂, and oxygen delivery method ('high flow nasal cannula')
4. **Add special instructions as needed, including "RT to titrate for patient need" by RT**
5. Ensure the patient has airborne isolation precautions
6. Repeat ABG/VBG 1 hour after initiation of therapy/changes to therapy

How to use HFNC:

- **This is done by RT after the order is placed.** The flow rate will be set at 20 to 35 L/min (range 5 to 60 L/min). Flow can be titrated by 5-10 L/min increments in response to respiratory rate, work of breathing, or if oxygenation fails to adequately improve. Hospital policy determines the maximum flow rate and FiO₂ per outside of the ICU.
- FiO₂ rate ranges from 21-100% and can be titrated based on goal SpO₂. While it is preferred to maintain FiO₂ ≤ 60% to prevent lung injury, an increase in FiO₂ might be necessary to reach sufficient oxygenation. The maximum FiO₂ on ward patients is 80% per policy. Contingency and crisis care guidance may exceed this due to surge conditions.
- It is recommended to maximize the flow rate first before increasing FiO₂. However increasing FiO₂ may be necessary to improve oxygenation.

- Patients will wear a surgical face mask when on HFNC
- If HFNC is initiated on the ward, ICU should be consulted and the patients should be assessed by respiratory therapy, nursing teams, or primary team every 2 hours for up to 6 hours, and every 4 hours thereafter.

Contraindications for HFNC

- Hemodynamically instability
- Altered mental status
- Anything that prevent cannula from fitting correctly (ie. facial/nasal surgeries/trauma)

What to Do When/if a Patient Decompensates

- Prone the patient
- Evaluate for Lasix
- Contact RT
- Obtain a VBG; hypercarbia is often a harbinger of needing intubation
- Consider ICU consult
- Consider a chest X-ray if pneumothorax or other forms of barotrauma are suspected

When to Consider Transfer to the ICU

- Rapidly worsening hypoxia/decompensation
- Oxygen saturation 90% or lower on maximum settings allowed outside the ICU
- Increased work of breathing
- Worsening mental status or other signs of end organ damage
- Evolving hypercarbia
- Hemodynamic instability
- If HFNC therapy fails within 2 hours, the patient should be considered for ICU transfer.

Risks of HFNC

- Barotrauma to the sinuses and airways, including pneumothorax and pneumomediastinum
- Failure to recognize impending respiratory failure

Additional Educational Resources

UpToDate: [Heated and humidified high-flow nasal oxygen in adults: Practical considerations and potential applications](#)

UpToDate: [Coronavirus disease 2019 \(COVID-19\): Critical care and airway management issues](#)
[High Flow Nasal Cannula Set up](#) (11 minutes)

[High Flow Nasal Cannula \(HFNC\) – Part 1: How It Works](#)

[Video created by UNMH RT](#) (access from the hospital or through Citrix at home)

[High flow Oxygen Therapy-Part 2 Clinical Application](#) (4 minutes)

[Why and how to use HFNC](#) (20 minutes)