

OCTOBER NEWSLETTER

Saskatchewan Respiratory Therapy Education Committee Inc.



Aerosol Medication Delivery & HFNC

- There are 3 ways inhaled medications can be given with HFNC. **MDI** and spacer, requiring the removal of HFNC. This ensures optimal medication delivery, but the disconnect from HFNC may worsen a patient's respiratory status. A **nebulizer** is placed **overtop** of the HFNC. This is not ideal as the nasal cannula will impede delivery. The **nebulizer** is placed **inline** the high flow circuit. When the nebulizer is placed in the high flow circuit there are important factors to consider which will affect drug delivery:
- **Gas Flow Rate:** lower flow rates mean less turbulence and particle impaction in the circuit and airway, however may lead to the loss of some physiological benefits of HFNC. Such as nasopharyngeal washout and decreased work of breathing. With distressed breathing, delivery is most effective when flow is set below a patient's inspiratory effort, with a plateau effect seen at flows of 50% of inspiratory flow.
- **Heating and Humidification:** can induce a thermodynamic effect on aerosol particles through hygroscopic growth and therefore lowering aerosol delivery. Evaporation in the circuit will also reduce delivery.
- **Type of Nebulizer:** A vibrating mesh nebulizer provides better deposition of aerosol particles and decreased residual volume compared to a jet nebulizer. A VMN is driven by electricity whereas a jet nebulizer will require additional gas flow, which can modify the oxygen concentration, and interfere with humidity and temperature control.
- **Position:** optimal position is upstream before the humidifier. Placement between the humidifier and patient can result in greater deposition loss in the tubing and can occlude the nasal prongs. Placement closer to the nasal cannula may impair drug delivery to the patient as it will favour deposition in the cannula and can decrease patient comfort due to aerosol nasal drip.

WHY DID DRACULA GO TO THE
RESPIROLOGIST?

HE COULDN'T STOP *COFFIN*

SOCIAL MEDIA HIGHLIGHT:
[@AEROGENTECHNOLOGY](#)

HAPPY RESPIRATORY
THERAPY WEEK
OCTOBER 25TH TO 31ST

Educational Resources

AEROSOL MEDICATION DELIVERY & HFNC

ARTICLE RESOURCES

- [Aerosol delivery through high-flow nasal therapy: Technical issues and clinical benefits](#)
- [Narrative review of practical aspects of aerosol delivery via high-flow nasal cannula](#)
- [A narrative review on trans-nasal pulmonary aerosol delivery](#)
- [The effects of flow settings during high-flow nasal cannula support for adult subjects: a systematic review](#)

If you're having difficulty accessing the articles SHA Library Services is a great resource available to all SHA employees. Feel free to contact them to setup a library card number to obtain off site access.

WEBINARS

- [The Impacts of High-flow Nasal Cannula Device, Nebulizer Type and Placement on Trans-nasal Aerosol Drug Delivery: An In-vitro Study](#)
- [How to Deliver Aerosolized Medication through High Flow Nasal Cannula](#)

VIDEO RESOURCES

- [When every minute matters: Evidence-based management of acute respiratory patients in the Emergency Department](#)
- [The Pitt showcasing Aerogen Nebulizer](#)

PODCASTS

- [The Gas Exchange Podcast, Inhaled Medications via HFNC with Dr Arzu Ari](#)
- [Advancing Drug Delivery - Aerosolized Medication](#)

ADDITIONAL RESOURCES

- [Aerogen Continuing Education Registration Page](#)
- [Delivering Aerosol Therapy: Can High-flow Nasal Cannula Do the Job?](#)



Upcoming webinars:

October 15th at 1PM - Karlene Haubrich from Conserve Medical for an interactive co-design session on Conserve Tree™
Join us via the [link](#)

October 21st at 1PM - Empowering Clinicians to Rethink Clinical Strategies for COPD Management with Dr. Rashad
Register using the [link](#) by October 16th

