Current Clinical Practices Regarding High-flow Nasal Cannula Therapy With Concomitant Administration of Aerosol Therapy: A Global Survey


**Background**

Delivery of aerosolized medicines via HFNC is of interest to clinicians; however, little is known about current clinical practices in the ICU setting.

**Objective**

The aim of this survey was to evaluate the application of HFNC therapy in adult patients in the ICU. Current practices for aerosol delivery via HFNC were a focus of the survey.

**Materials and Methods**

**Design:** Anonymous online questionnaire survey

**Invitation**

Websites and social media platforms of respiratory care associations and societies*

**Eligibility**

- Healthcare professionals caring for adult patients in the ICU
- >1 year of ICU work experience
- Use of HFNC in the last 30 days

**Participants**

- Completed section on technical application of HFNC in the ICU: 1,358 participants
- Completed section on aerosol delivery during HFNC: 1,014 participants

- **Respondent profession (n=988):**
  - Medical doctor: 38
  - Respiratory therapist: 33
  - Registered nurse: 23
  - Physical therapist: 6
  - Other: 1

*American Association for Respiratory Care, European Society of Intensive Care Medicine, Chinese Respiratory Disease Society, and Taiwan Respiratory Care Society. HFNC, high-flow nasal cannula; ICU, intensive care unit.
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**Forms of aerosol delivery via HFNC**

- **Respondents** N=1014
  - 40% Nebulizer with mask/mouthpiece placed over the HFNC N=403
    - This practice should be avoided as it reduces the inhaled dose
  - 33% HFNC discontinuation to use a conventional aerosol device N=331
    - This practice offers no advantage in aerosol delivery efficiency
  - 24% Nebulizer placed in-line within the HFNC circuit N=248
    - In-line aerosol delivery offered better comfort, greater efficiency, and improved convenience versus conventional aerosol therapy

**Reasons for preferring in-line versus conventional aerosol delivery** (% respondents)

- Better comfort: 50%
- More efficiency: 49%
- More convenience: 40%

**Benefits of in-line aerosol delivery**

- 40% Vibrating mesh nebulizer
- 30% Ultrasonic nebulizer
- 28% Small-volume jet nebulizer
- 57% Placed at the inlet of the humidifier
- 58% Placed close to the patient

71% of the 248 respondents who preferred to place the nebulizer in-line within the HFNC circuit did so to maintain the benefits of HFNC.

HFNC, high-flow nasal cannula; ICU, intensive care unit.