



Conclusion

NHF was found to be non-inferior to NIV for rates of endotracheal intubation or death at 7 days, within all specified patient groups, except immunocompromised patients with hypoxemic respiratory failure.

Editorials

“The results are best interpreted as indicating that initiating treatment with high-flow oxygen is generally not harmful”

“These results suggest that high-flow oxygen can serve as a safe bridge therapy while the underlying cause of acute respiratory failure is determined and the most appropriate respiratory support is ultimately implemented.”

JEAN-PIERRE FRAT



Is High-Flow Oxygen the Standard for All Patients With Acute Respiratory Failure? JAMA. December 10, 2024.

“The authors deserve recognition for the trial’s ambitious scope and adaptive design that allowed for real-time adjustments to improve relevance and applicability.”

YONATHAN FREUND



Reevaluating Respiratory Support in Acute Respiratory Failure – Insights From the RENOVATE Trial and Implications for Practice. JAMA. December 10, 2024.



Publication

The RENOVATE Randomized Clinical Trial
JAMA. 2024
High-Flow Nasal Oxygen vs Noninvasive Ventilation in Patients With Acute Respiratory Failure.

AIM

To assess whether NHF is non-inferior to NIV on the rates of endotracheal intubation or death at 7 days in 5 patient groups with acute respiratory failure.

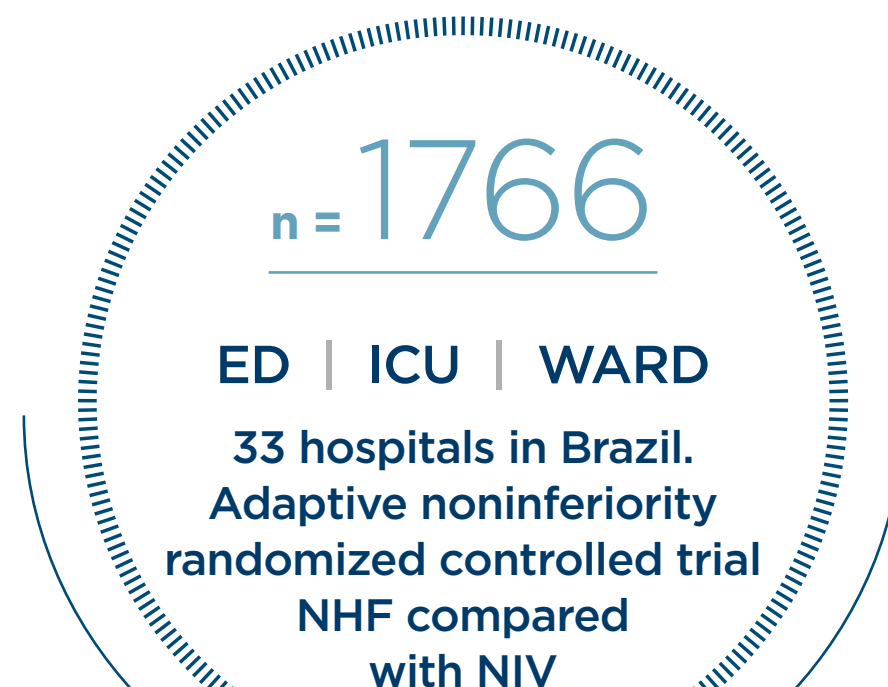
PATIENT GROUPS

- Non-immunocompromised with hypoxemia
 - AECOPD with respiratory acidosis
 - Acute cardiogenic pulmonary edema
- Hypoxemic COVID-19
- Immunocompromised with hypoxemia

JAMA Abstract:



Method



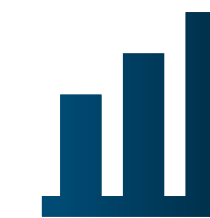
Randomization



NHF
with Airvo 2 starting flow rate
Gradual titration to 60 L/min or highest tolerated
AECOPD: 30 L/min
All others: 45 L/min

NIV
IPAP: (max 20 cmH₂O)
AECOPD: 12 - 16 cmH₂O
All others: 12 - 14 cmH₂O
EPAP: (max 12 cmH₂O)
AECOPD: 4 cmH₂O
All others: 8 cmH₂O
Tidal volume: 6 - 9 ml/kg of ideal body weight

IPAP: Inspiratory positive airway pressure; EPAP: Expiratory positive airway pressure; AECOPD: Acute exacerbation of chronic obstructive pulmonary disease.



Results

Intubation or death within 7 days

| Primary outcome | n = 1766 | n | NHF 39% | NIV 38% | Model-fitted median odds ratio (95% credible interval) | High-flow nasal oxygen better | Noninferiority margin | Noninvasive ventilation better |
|--------------------------------------|----------|-------|---------|--------------------|--------------------------------------------------------|-------------------------------|-----------------------|--------------------------------|
| Non-immunocompromised with hypoxemia | 485 | 32.5% | 33.1% | 1.02 (0.81 - 1.26) | Non-inferior | | | |
| AECOPD with respiratory acidosis | 77 | 28.6% | 26.2% | 1.05 (0.79 - 1.36) | Non-inferior | | | |
| Acute cardiogenic pulmonary edema | 272 | 10.3% | 21.3% | 0.97 (0.73 - 1.23) | Non-inferior | | | |
| Hypoxemic COVID-19 | 882 | 51.3% | 47.0% | 1.13 (0.94 - 1.38) | Non-inferior | | | |
| Immuno-compromised with hypoxemia | 50 | 57.1% | 36.4% | 1.07 (0.81-1.39) | Enrolment terminated due to futility* | | | |

Secondary outcomes



No difference in:

- Day 28 or day 90 mortality
- ICU days or ventilator-free days

Tertiary outcomes



NHF was superior for:

- Patient comfort



No difference in:

- Hospital and ICU LoS within 90 days
- Vasopressor-free days within 28 days
- DNI order within 7 days

*Futility: low power, unlikely to see a statistical significant result.