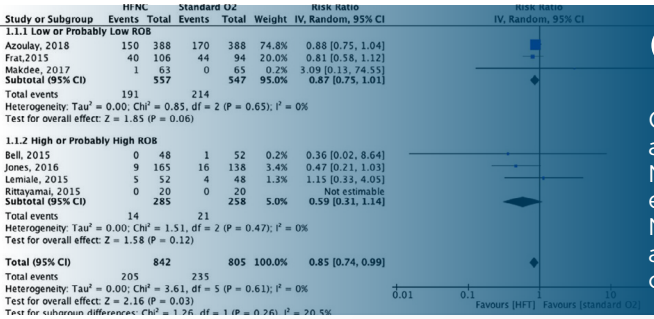
F&P Optiflow

Flow Matters

EDITION 11

July 2023



Optiflow™ matters

Guideline recommendations for the use of Nasal High Flow therapy (NHF) are supported by analyzed data from research investigating the effect of NHF on clinical outcomes, such as the reduced need for tracheal intubation, escalation of therapy, and reintubation after extubation. When selecting an NHF system, it is important to ensure the entire system, including design and device limits, can provide the therapy proven to deliver the expected outcomes.

Summary

- Clinical practice guidelines recommend NHF for use in several clinical applications.[1-8]
- These recommendations are supported by findings from systematic reviews with meta analyses.
- A review conducted by Fisher & Paykel Healthcare (F&P) showed that the flow rates used in the published studies ranged from 10 L/min to 60 L/min, and 84% of the studies required flows ≥ 45 L/min (see Figure 1).
- When this review was repeated on the 115 acute adult NHF controlled studies (with subjects n > 39), found using a systematic search of the PubMed database, it was again shown that the flow rates used ranged from 10 L/min to 60 L/min and that 82% of the studies required flows ≥ 45 L/min.
- F&P Optiflow Systems (including F&P Optiflow interfaces) and humidity settings of 37 °C were widely used.

Guideline recommendations

Eight clinical practice guidelines recommend the use of NHF as respiratory support in adults (see Figure 1). These recommendations are supported by systematic reviews with meta analyses which search for, review and analyze clinical data from controlled studies such as Randomized Controlled Trials (RCTs).

Publication	Society	Journal
Rochwerg et al. 2020.[1]	European Society of Intensive Care Medicine (ESICM)	Intensive Care Medicine
Qaseem et al. 2021.[2]	American College of Physicians (ACP)	Annals of Internal Medicine
Oczkowski et al. 2021.[3]	European Respiratory Society (ERS)	European Respiratory Journal
Evans et al. 2021.[4]	Society of Critical Care Medicine (SCCM): Surviving Sepsis Campaign (SSC)	Critical Care Medicine
Piraino et al. 2021.[5]	American Association for Respiratory Care (AARC)	Respiratory Care
Barnett et al. 2022.[6]	Thoracic Society of Australia and New Zealand (TSANZ)	Respirology
WHO Guideline Development Group[7]	Clinical management of COVID-19: Living guideline, 23 June 2022.	N/A
Tasaka et al. 2022.[8]	ARDS Clinical Practice Guideline 2021.	[Japanese] ARDS Clinical Practice Guideline Creation Committee (JARDS)*

* Joint committee from the Japanese Society of Intensive Care Medicine, the Japanese Respiratory Society, and the Japanese Society of Respiratory Care.

Table 1

F&P conducted a review of the systems and settings used in the studies included in the clinical practice guidelines from which analyzed data formed the basis of these recommendations.

Analyzed published studies

The eight guidelines analyzed data from 76 published studies (mostly RCTs) and one study abstract. The studies represent various NHF applications, including primary respiratory support, pre-oxygenation prior to intubation and post ventilatory respiratory support. The studies reported the NHF systems and settings that were used.

Systems and settings

The reported flow rates ranged between 10 L/min and 60 L/min with the majority requiring flows at the higher end of the range.

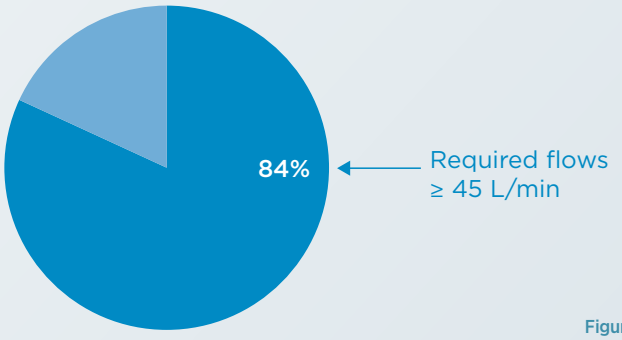


Figure 1

Of the 76 published and analyzed studies, 69 (91%) used F&P Optiflow Systems, including a F&P Optiflow patient interface and a F&P humidity delivery system with humidity setting of 37 °C.

Wider body of evidence (acute adult NHF controlled studies)

To further investigate the body of evidence (beyond that analyzed in the eight clinical practice guidelines),[1-8] the review method was repeated for the 115 acute adult NHF controlled studies with subjects n > 39, found using a systematic search of the PubMed database. Again, the reported flow rates ranged between 10 L/min and 60 L/min with the majority requiring flows at the higher end of the range (82% of the studies required flows ≥ 45 L/min). The flow rates reported in the 115 controlled studies are shown in Figure 2 on the next page.

Of the 115 controlled studies, 82% used F&P Optiflow Systems, including a F&P Optiflow patient interface and a F&P humidity delivery system with humidity setting of 37 °C.

When selecting a NHF system, it is important to ensure the entire system, including device capabilities such as flow rate and humidity delivery, can provide the therapy to deliver the expected outcomes proven in the clinical body of evidence.

Definitions

F&P Optiflow System: A F&P purpose-built system for NHF – either an Airvo™ Optiflow System or a non-Airvo Optiflow System.

Airvo Optiflow System: A F&P Airvo System with integrated flow source, humidifier and humidity delivery system (F&P heated breathing tube and F&P auto-fill chamber). Used with a F&P Optiflow patient interface and able to deliver NHF anywhere in the hospital independent of medical air supply.

Non-Airvo Optiflow System: A F&P humidifier (e.g. MR850 system) and humidity delivery system (F&P heated breathing tube and F&P auto-fill chamber). Used with a F&P Optiflow patient interface and an independent flow generator such as a HFNC-capable ventilator.

Systematic search of the PubMed database: Conducted on 22 May 2023 using pre-defined search terms. Filtered using an Excel database and checked by an internal clinical team.

Controlled studies: Outcomes RCTs, pilot RCTs, physiological RCTs, non-randomized controlled trials and randomized crossover trials which were either open label or blinded, single or multicentre.

Hospital acute treatment areas: All in-patient treatment areas and emergency department. Excluding operating theatres, procedural suites, outpatient clinics and rehabilitation.

Acute adult NHF: All NHF applications used in hospital acute treatment areas, including primary respiratory support, pre-oxygenation prior to intubation, post extubation respiratory support, post surgical respiratory support and respiratory support during medical recovery

For further information, please visit www.fphcare.com/optiflow or click on the hyperlinked reference below.

1. Qaseem A, Etxeandia-Ikobaltzeta I, Fitterman N, et al. Appropriate Use of High-Flow Nasal Oxygen in Hospitalized Patients for Initial or Postextubation Management of Acute Respiratory Failure: A Clinical Guideline From the American College of Physicians. Ann Intern Med. 2021 Jul;174(7):977-984. [Epub ahead of print].
2. Rochwerg B, Einav S, Chaudhuri D, et al. The role for high flow nasal cannula as a respiratory support strategy in adults: a clinical practice guideline. Intensive Care Med. 2020 Dec;46(12):2226-2237.
3. Evans L, Rhodes A, Alhazzani W, et al. Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock 2021. Crit Care Med. 2021 Nov 1;49(11):e1063-e1143.
4. Piraino T, Madden M, J Roberts K, et al. Management of Adult Patients With Oxygen in the Acute Care Setting. Respir Care. 2021 Nov 2:respcare.09294. [Epub ahead of print].
5. Oczkowski S, Ergan B, Bos L, et al. ERS clinical practice guidelines: high-flow nasal cannula in acute respiratory failure. Eur Respir J. 2022 Apr 14;59(4):2101574.
6. Barnett A, Beasley R, Buchan C, et al. Thoracic Society of Australia and New Zealand Position Statement on Acute Oxygen Use in Adults: 'Swimming between the flags'. Respirology. 2022 Apr;27(4):262-276.
7. Clinical management of COVID-19: Living guideline, 23 June 2022. Geneva: World Health Organization; 2022 (WHO/2019-nCoV/Clinical/2022.1). Available from: https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2022-1/ [Accessed 12 September 2022].
8. Tasaka S, Ohshimo S, Takeuchi M, et al. ARDS Clinical Practice Guideline 2021. J Intensive Care. 2022 Jul 8; 10(1):32.

Flow rates used in the 115 controlled studies on acute adult NHF (with subjects n > 39)

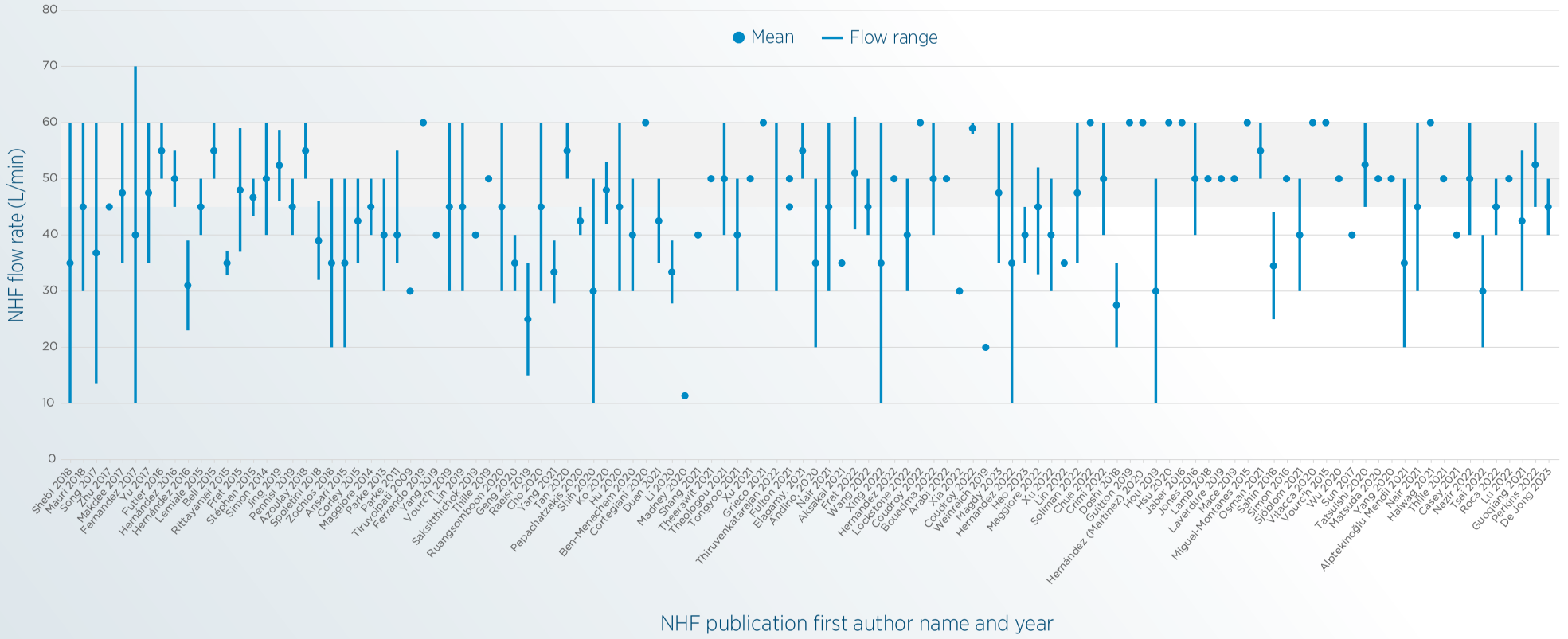


Figure 2