New evidence continues to emerge showing how Optiflow™ Nasal High Flow contributes to improved patient care and outcomes. To learn more about one of the world’s fastest-growing respiratory therapies, be sure to visit www.myoptiflow.com today.

**Focus: Optiflow™ Nasal High Flow post extubation**

**USING NASAL HIGH FLOW TO REDUCE THE RISK OF REINTUBATION**

It is well known that escalation resulting in intubation is generally associated with poor clinical and economic outcomes. Reintubation following extubation failure is particularly detrimental.1,2

In 1997, Epstein1 and colleagues examined patient outcomes associated with reintubation for extubation failure. They determined that patients who failed extubation had:

- increased hospital mortality (43% vs. 12%, p<0.0001)
- increased ICU length of stay (21.2 vs 4.5 days, p<0.001)
- increased hospital length of stay (30.5 vs 16.3 days, p<0.001)

Increased length of stay associated with extubation failure directly translates into increased daily and total hospital costs. In a study by Seymour2 in 2004, the costs of reintubated patients were double that of successfully extubated patients. Avoiding reintubation means avoiding these significant costs.

Where does Nasal High Flow fit in?

In previous editions we have shared the results of key studies by Frat3 and Maggiore4 demonstrating the efficacy of Optiflow™ in avoiding primary intubation as well as reintubation.

Although the primary outcome of the Frat study was not met, it was shown that for the more acute patients (with a \( \text{PaO}_2: \text{FiO}_2 \leq 200 \text{ mmHg} \)):

- NHF significantly decreased the need for intubation (35% of NHF patients compared to 53% standard \( \text{O}_2 \) and 58% NIV)

Maggiore’s 2014 study investigated reintubation rates in a general population of critical care patients and found that:

- NHF significantly decreased the need for reintubation (4% of NHF patients compared to 21% in the venturi mask group)

Overleaf, we are pleased to present a summary of the results of the Hernández5 study recently published in the Journal of the American Medical Association (JAMA). This study focused on patients deemed at low risk for reintubation and found a reduced risk of reintubation within 72 hours of extubation.

Collectively, these study findings provide a strong justification for the use of Optiflow™ Nasal High Flow both pre-intubation and post-extubation.

Reducing the rates of primary intubation and reintubation could have profound impacts on clinical and economic outcomes in your hospital.

See overleaf for a summary of the Hernández JAMA publication.

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Optiflow™ reduces the risk of reintubation in low-risk patients, compared with conventional O₂

HERNÁNDEZ ET AL. 2016

The Hernández² study recently published in the Journal of the American Medical Association (JAMA) has significant implications for critical care practice.

Hernández and colleagues randomized 527 extubated patients at low risk of reintubation to receive nasal high flow (NHF) or conventional oxygen therapy for the first 24 hours after extubation. The study was carried out in seven ICU’s throughout Spain.

Use of Optiflow™ nasal high flow:
- reduced reintubation within 72 hours of extubation
- reduced post-extubation respiratory failure
- did not delay reintubation compared to conventional oxygen therapy
- avoided one reintubation per 14 patients treated

Background
Nasal high flow after extubation has demonstrated clinical benefits in general critical care populations⁴ as well as specific populations such as patients post cardiothoracic surgery⁶.

Why this trial?
Maggiore et al showed in 2014 that nasal high flow therapy after planned extubation decreased the reintubation rate in a general population of critical care patients.

However, it had been suggested that the results seen were attributable to improvements in the high-risk patients in this group. In their trial, Hernández et al focused specifically on low-risk patients, defined as:

- < 65 years of age
- APACHE II < 12
- BMI < 30
- Adequate secretion clearance
- Simple weaning from MV
- Absence of heart failure
- Comorbidities < 2

Results
The primary outcome of the study was met. 527 patients were included and randomized to NHF (n=264) or standard oxygen therapy (n=263) (mean age 51.4 years, 62% male) with the following results:

- Kaplan-Meier analysis of time from extubation to reintubation
- Reduced risk of reintubation within 72 hours of extubation (NHF 4.9% vs. standard O₂ 12.2%, p=0.004)
- Reduced rate of post-extubation respiratory failure (NHF 8.3% vs. conventional O₂ 14.4%, p=0.03)
- No significant difference in median time to reintubation (NHF 19 h, conventional O₂ 15 h, p=0.66)
- For every 14 patients treated with NHF, one reintubation was avoided (NNT = 14)

How does this study help clinicians and their patients?
This well-designed study provides compelling evidence that use of NHF immediately after planned extubation can reduce 72-hour reintubation rates in low-risk patients compared to conventional oxygen therapy.

These findings have significant implications not only on patient care, but also on costs of treatment. A secondary analysis of the patients who underwent reintubation showed increased ICU and hospital stays compared to those successfully extubated.

Exubating each and every patient to Optiflow™ could provide a simple method to avoiding costly re-escalation of therapy. Patricia Kritek, MD, of NEJM Journal Watch commented recently that “extubation to [NHF] in low-risk patients makes sense and is relatively low-cost to implement”⁷.

To view the abstract for the study, please visit: http://www.ncbi.nlm.nih.gov/pubmed/26975498
To discover how to integrate Optiflow™ NHF into your clinical practice, contact your local Fisher & Paykel Healthcare representative.

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