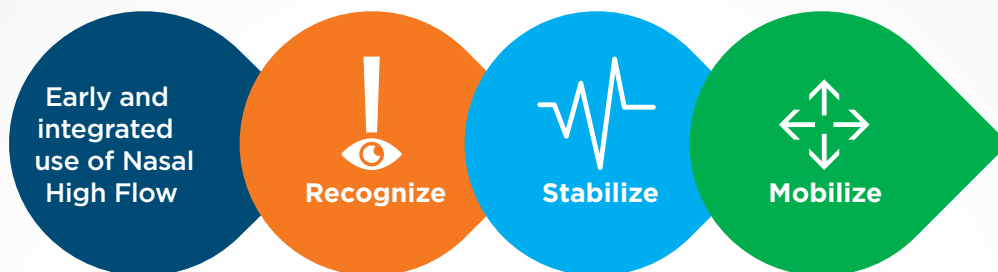
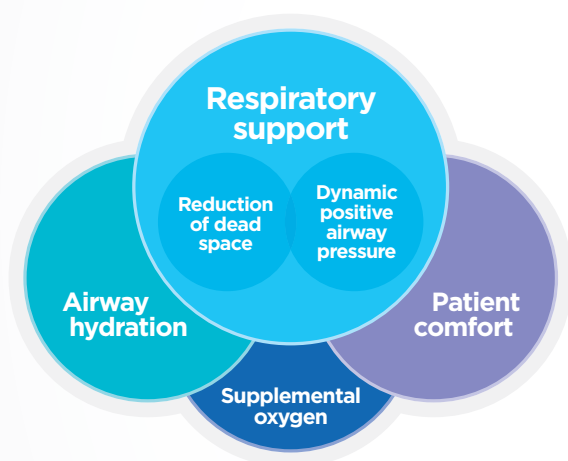


Optiflow™ Junior 2 in the Emergency Department



How does Nasal High Flow (NHF) work?

Mechanisms of NHF



When should I see the effects of NHF?

An improvement to these indicators within 60 minutes may help to identify infants who are likely to respond to NHF. No improvement may help identify infants who are likely to require escalation of treatment.



-  Respiratory rate
-  Heart rate
-  Work or breathing
-  O₂ Oxygen desaturation

Evolution of clinical literature

The early physiological and observational research into NHF therapy led to an understanding of the mechanisms and potential clinical impact of NHF in infants. This was followed by a number of randomized controlled trials (RCT) describing the physiological and clinical efficacy of the therapy. The following papers represent a sample of some of the key studies in this field:

2011 SCHIBLER ET AL.¹

Retrospective review – Australia

The increased use of NHF was associated with a dramatic change in ventilation practices in PICU. Decreased need for intubation in infants with bronchiolitis ≤ 24 months old.

2013 MILÉSI ET AL.²

Physiological study – France

This was the first study to indicate that a flow of approximately 2 L/kg/min is required to improve work of breathing in young infants with bronchiolitis.

2014 MAYFIELD ET AL.³

Pilot RCT – Australia

Improvements to heart rate and respiratory rate within one hour, may be useful as predictors of therapy success for infants on NHF outside the PICU.

2018 FRANKLIN ET AL.⁴

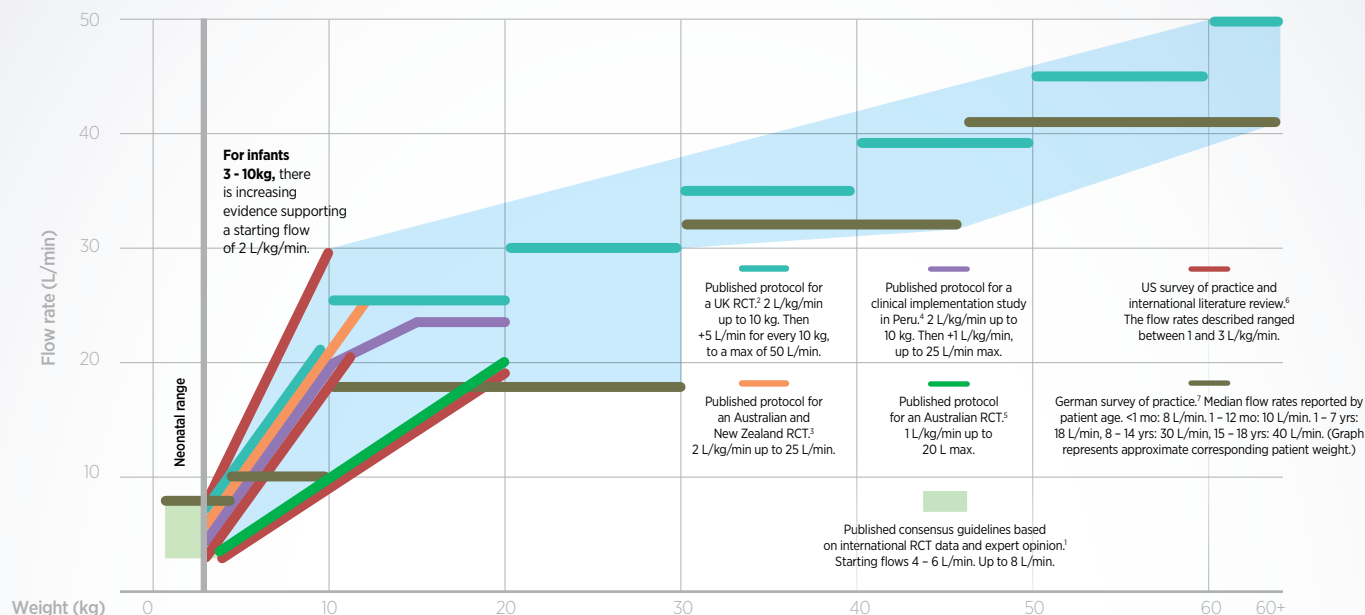
RCT – Australia + New Zealand

RCT including > 1400 infants with bronchiolitis in non-ICU settings. Rate of initial therapy failure with NHF was significantly lower than with standard oxygen therapy.

1. Schibler et al. *Intensive Care Med*, 37(5), 2011. 2. Milési et al. *Intensive Care Med*, 39 (6), 2013. 3. Mayfield et al. *J Paediatr Child Heal*, 50 (5), 2014. 4. Franklin et al. *N Engl J Med*, 378 (12), 2018.

What starting flows should I consider for NHF therapy?

A visual representation of the commonalities between the clinical literature, practice, and protocol



Disclaimer: German survey of practice results adapted from age to weight using CDC Growth Charts for both boys and girls. 1. Yoder et al. *J Perinatol*, 37 (7), 2017. 2. Ramnarayan et al. *BMJ Open*, 43 (2), 2017. 3. Franklin et al. *N Engl J Med*, 378 (12), 2018. 4. Nielsen et al. *Front Pediatr*, 6 (85), 2018. 5. Kepreotes et al. *Lancet*, 389 (10072), 2017. 6. Miller et al. *Respir Care*, 63 (7), 2018. 7. Schmid et al. *Respir Med*, 131, 2017.

Franklin et al. 2018. *New England Journal of Medicine*. 2018.

A randomized controlled trial of high-flow oxygen therapy in infants with bronchiolitis



1,472 patients



17 emergency departments and wards



Hospitals in Australia and New Zealand

Key points

Largest NHF trial to date, which addresses the question: Should NHF therapy be used beyond the PICU?

The use of NHF in Emergency Departments (ED) and general pediatric wards resulted in a significantly lower rate of treatment failure compared to standard oxygen therapy in young infants with bronchiolitis.

This study may give clinicians confidence to use NHF in the ED and general pediatric wards in this patient population.

NHF may be used early (in the ED) and across the hospital to help reduce the escalation of therapy.

Franklin et al. (2018) found that the early use of NHF in the ED and ward resulted in a significantly lower rate of therapy failure compared to standard oxygen therapy.