

# Ipswich Hospital – The Journey of High Flow Nasal Cannula Therapy for Infants with Bronchiolitis

## Kelly Foster Paediatric Nurse Consultant

### Background

Bronchiolitis is the leading cause of paediatric hospitalisation in Australia with approx. 10% of admissions requiring transfer to a paediatric intensive care unit (PICU) and subsequently at times requiring respiratory support. In 2011 Ipswich Hospital introduced high flow nasal cannula oxygen for bronchiolitic infants with a maximal flow delivery rate of 8 litres/minute. The therapy was delivered in an ad hoc manner and lacked consistency in its application.

### Methods

By 2013 new delivery systems were available which could support higher flow rates. Current research and clinical practice evidence from a tertiary centre supported the use of higher flow rates to deliver a CPAP effect and reduce work of breathing.<sup>1,2,3,4</sup> Flow rates were calculated on weight (2L/Kg/Min), with a titration of FiO2 as required. As a result:

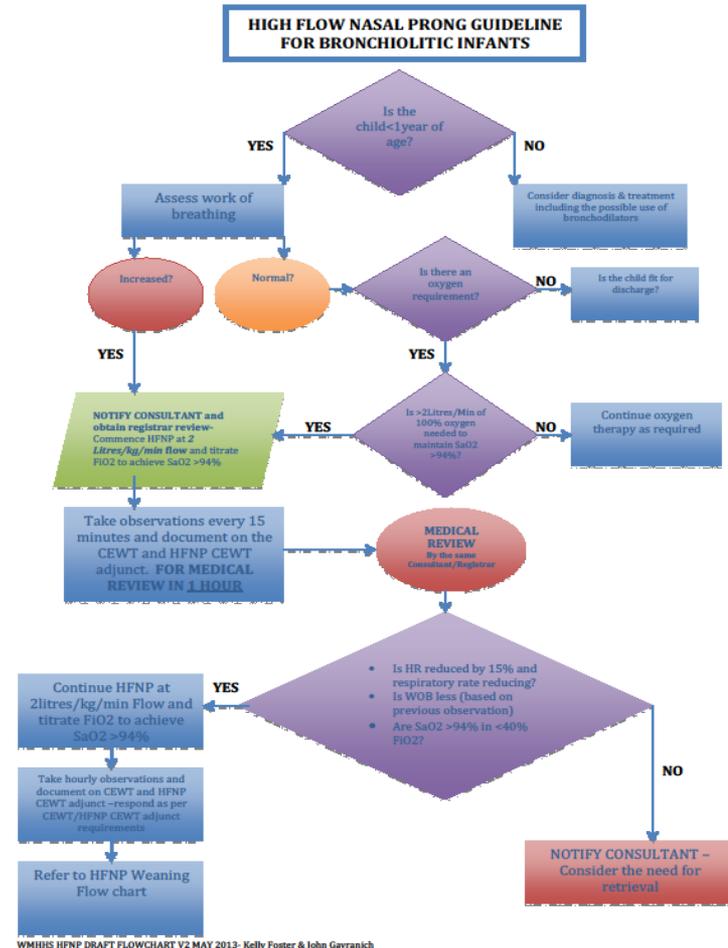
- The new delivery system was purchased
- A teaching and education program for nursing and medical staff implemented
- A bedside clinical practice flow diagram (for application and weaning) was produced
- Amended clinical documentation to support the change in practice (CEWT Adjunct tool).

### Results

- Infants have been able to safely be managed in the Emergency Department and Children's Sunshine ward on High Flow Nasal Cannula Therapy.
- The teaching and education program has improved understanding of the therapy, and the clinical practice flow diagram has ensured the safety and consistency of the therapy delivery.
- Many infants have not required transfer to a tertiary PICU and have been able to stay and be cared for closer to their family members.

### Conclusions

Infants with bronchiolitis have benefitted from an improvement in therapy delivery and clinical practice understanding, which has in turn reduced the number of transfers required to a tertiary PICU. This work has led to further therapy development and we are now part of a large multi-centre RCT.



### References:

1. Mayfield, S., Bogossian, F., O'Malley, L., Schibler, A. High flow nasal cannula oxygen therapy: Pilot Study. *Journal of paediatrics and child health* – in press 2014
2. Hough, J., Pham, T., Schibler, A., Foster, K. Reduced intubation rates for infants after introduction of high flow nasal prong oxygen delivery. *Intensive Care Medicine* May 2011, 37 (5)
3. Arora, B., Mahajan, P., Zidan, M.A., Seturaman, U. Nasopharyngeal airway pressures in bronchiolitis patients treated with high-flow nasal cannula oxygen therapy. *Pediatric Emergency Care* 2012;28:1179-84
4. Dysart, K, Miller, T., Wolfson, M., Marla, R., Shaffer, T.H. Research in high flow therapy: Mechanisms of action. *Respiratory Medicine* 2009; 103: 1400-5