

Reference (include title, author, journal title, year of publication, volume and issue, pages)	Evidence level (I-VII)	Key findings, outcomes or recommendations
Dysart K, Miller TL, Wolfson MR, Shaffer TH. (2009) Research in high flow therapy: mechanisms of action. <i>Respiratory Medicine</i> .;103:1400-5.	VII	Proposed physiological mechanisms for the efficacy for HFNC including pulmonary compliance, reduction in energy expenditure and work of breath and a mild distending pressure
Groves N & Tobin A. (2007). High flow nasal oxygen generates positive airway pressure in adult volunteers. <i>Australian Critical Care</i> . 20, 126—131	VI	Suggests that HFNC therapy has been shown to have similar effect to nasal CPAP  A degree of CPAP is generated however flow is dependent on mouth being open or closed
Spentzas T, Minarik M, Patters AB, Vinson B, Stidham G. Children with respiratory distress treated with high-flow nasal cannula. <i>J Intensive Care Med</i> 2009;24:323-8.	IV	Suggests HFNC therapy improves respiratory scale score, O2 saturations and patient comfort
Schibler, A., Pham, T., Dunster, K., Foster, K., Barlow, A., Gibbons, K., and Hough, J. (2011) Reduced intubation rates for infants after introduction of high-flow nasal prong oxygen delivery. <i>Intensive Care Medicine</i> . May;37(5):847-52	IV	Suggests HFNP therapy provided efficient oxygen delivery and respiratory support in infants with a viral bronchiolitis  Appeared to reduce the need for intubation in infants (<24 months) with viral bronchiolitis
McKieman, C., Chua, L.C., Visintainer, P. and Allen, P. (2010) High Flow Nasal Cannulae Therapy in Infants with Bronchiolitis. <i>Journal of Pediatrics</i> 156:634-38	IV	Suggests HFNC therapy reduces the rates of intubation in infants with bronchiolitis compared to other forms of respiratory support  Provides a well-tolerated and comfortable method of non-invasive ventilatory support
Franklin, D., Babl, F., Schlapbach, L., Oakley, E., Craig, S., Neutze, J., Furyk, J., Fraser, J., Jones, M., Whitty, J., Dalziel, S., and Schibler, A. (2018). A Randomized Trial of High-Flow Oxygen Therapy in Infants with Bronchiolitis. <i>The New England Journal of Medicine</i> 378:1121-31	II	Among infants with bronchiolitis who were treated outside an ICU, those who received high-flow oxygen therapy had significantly lower rates of escalation of care due to treatment failure than those in the group that received standard oxygen therapy.
Kepreotes, E., Whitehead, B., Attia, J., Oldmeadow, C., Collison, A., Searles, A., Goddard, B., Hilton, J., Lee, M. and Mattes, J. (2017). High-Flow Warm Humidified Oxygen vs Standard Low-Flow Nasal Cannula Oxygen for Moderate Bronchiolitis (HFWHO-RCT): an open, phase 4, randomised controlled trial. <i>Lancet</i> 389:930-9	II	This study provides evidence for the use of HFWHO at a maximum of 1 L/kg per min (FIO 2 0.6) in the management of children with bronchiolitis of moderate severity for whom standard therapy with oxygen at 2 L/min has failed or have used HFWHO from the outset.

<p>Testa G, Iodice F, Ricci Z, Vitale V, De Razza F, Haiberger R, Iacoella C, Conti G, Cogo P (2014). Comparative evaluation of High Flow Nasal Cannula and conventional oxygen therapy in pediatric cardiac surgical patients: a randomized controlled trial. <i>Interactive Cardiovascular Thoracic Surgery</i>, 19(3), P: 456-461.</p>	<p>II</p>	<p>Suggests that HFNP therapy is safe to use on paediatric cardiac surgical patients, it improves oxygenation better than oxygen therapy and decreases the need for noninvasive post extubation respiratory support.</p>
<p>Shioji N, Iwasaki T, Kanazawa T, Shimizu K, Suemori T, Sugimoto K, Kuroe Y (2017). Physiological impact of high flow nasal cannula therapy on post-extubation acute respiratory failure after pediatric cardiac surgery: a prospective observational study. <i>Journal of Intensive Care</i>, 5(35), p:2-5.</p>	<p>III</p>	<p>Respiratory rate and systolic blood pressure dropped significantly after starting HFNP therapy, however this change was observed in the serial circulation group, not the single ventricle group.</p>
<p>ten Brink F, Duke T, Evans J (2013). High Flow Nasal Prong oxygen therapy or nasopharyngeal continuous positive airway pressure for children with moderate-to-severe respiratory distress. <i>Pediatric Critical Care Medicine</i>, 14(7), p:326-331.</p>	<p>III</p>	<p>A study of children within RCH PICU. HFNP therapy is effective in managing moderate-to-severe respiratory distress in children &lt;5 years old with varying diagnosis. In older children the therapy is promising but due to small sample size further research is required.</p>
<p>Inata Y &amp; Takeuchi M (2017). Complex effects of high flow nasal cannula therapy on hemodynamics in the pediatric patient after cardiac surgery. <i>Journal of Intensive Care</i>, 5(30), p:2-3.</p>	<p>VI</p>	<p>Positive pressure provided by HFNP therapy helps decrease afterload in turn abating sympathetic nervous system activity. The positive pressure generated by HFNP can exert different effects on pulmonary vascular resistance, which can be particularly significant in the patient with single ventricle heart.</p>
<p>Kugelman, A. High-flow nasal cannula therapy: can it be recommended as initial or rescue care for infants with moderate bronchiolitis in the paediatric ward? <i>European Respiratory Journal</i>. 2020; 56 (1)</p>	<p>II</p>	<p>The current literature does not support routine or initial use of HFNC in infants with moderate bronchiolitis – unless criteria for use more selective. Rescue HFNC might be justified if the threshold for standard care failure is better delineated.</p>

<p>Mayfield, S., Bogossian, F., O'Malley, L., and Schibler, A. (2014). High-flow nasal cannula oxygen therapy for infants with bronchiolitis: Pilot study. <i>Journal of Paediatrics</i>. May, Vol 50 (5) pp373-378</p>	<p>IV</p>	<p>The aim of this study was to evaluate the feasibility of HFNC oxygen therapy in infants hospitalized in a pediatric ward for moderate–severe bronchiolitis and to assess the changes in ventilatory parameters before and after starting HFNC support</p> <p>‘HFNC treatment in the paediatric ward is safe. Non-responders requiring PICU admission can be identified within the first hour of HFNC treatment by monitoring HR and RR. It is feasible to undertake a randomised controlled trial based on this pilot with the aim of decreasing PICU admissions.’</p>
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