

# The Hierarchy of Evidence

**The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).**

- I** Evidence obtained from a systematic review of all relevant randomised control trials.
- II** Evidence obtained from at least one well designed randomised control trial.
- III** Evidence obtained from well-designed controlled trials without randomisation.
- IV** Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case- series
- V** Evidence obtained from systematic reviews of descriptive and qualitative studies
- VI** Evidence obtained from single descriptive and qualitative studies
- VII** Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology

Melynyk, B. & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing & healthcare: A guide to best practice (2<sup>nd</sup> ed.)*. Philadelphia: Wolters Kluwer, Lippincott Williams & Wilkins.

National Health and Medical Research Council (2009). *NHMRC levels of evidence and grades for recommendations for developers of guidelines* (2009). Australian Government: NHMRC.  
[http://www.nhmrc.gov.au/files\\_nhmrc/file/guidelines/evidence\\_statement\\_form.pdf](http://www.nhmrc.gov.au/files_nhmrc/file/guidelines/evidence_statement_form.pdf)

OCEBM Levels of Evidence Working Group Oxford (2011). *The Oxford 2011 Levels of Evidence*. Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/index.aspx?o=1025>

Reference)	Evidence level (I-VII)	Key findings, outcomes or recommendations
Aggarwal, R., Singhal, A., Deorari, A., Paul, V.K. (2009). Apnoea in the newborn. <i>All India Institute of Medical Sciences</i>	VII	<ul style="list-style-type: none"> <li>• Further potential causes of apnoea</li> <li>• Differential diagnosis</li> <li>• Clinical examination</li> <li>• Pharmacology</li> </ul>
Atkinson, E. & Fenton, A. (2009). Management of apnoea and bradycardia in neonates. <i>Paediatrics and Child Health</i> . 19(12), 550-554	V	<ul style="list-style-type: none"> <li>• Incidence of apnoea of prematurity at different gestations</li> <li>• Further potential causes of apnoea</li> </ul>
Doherty Chantal, MD. Causes and management of apnoea in the newborn. Powerpoint presentation.	VII	<ul style="list-style-type: none"> <li>• Differences between apnoea in preterm and term infants</li> <li>• Potential causes of apnoea</li> <li>• The 3 types of apnoea</li> <li>• Expected onset of apnoea of prematurity and duration</li> <li>• Treatment and management possibilities after recognizing the type and cause of apnoea</li> </ul>
Gray, P.H., Flenady, V.J., Charles, B.G., Steer, P.A. (2011). Caffeine citrate for very preterm infants: effects on development, temperament and behavior. <i>Journal of Paediatrics and Child Health</i> . 47, 167-172	II	<ul style="list-style-type: none"> <li>• Caffeine is frequently utilized to treat apnoea of prematurity</li> <li>• High-dose caffeine reduces the need for respiratory support over the standard dose regimen of 5mg/kg/day, without apparent adverse outcomes in infant development, temperament or behavior at 2 years of age</li> </ul>
Henderson-Smart, D.J., Steer, P.A. (2010). Caffeine versus theophylline for apnea in preterm infants. <i>Chochrane Database Syst Rev</i> . Jan 20; (1)	I	<ul style="list-style-type: none"> <li>• Caffeine has similar short term effects on apnea/bradycardia as theophylline but caffeine has certain therapeutic advantages over theophylline.</li> <li>• Theophylline associated with higher rates of toxicity</li> <li>• Possibility that higher dose caffeine might be more effective in extremely preterm infants- needs further evaluation in randomized controlled trials</li> </ul>
Johnson, P.J. (2011). Caffeine Citrate Therapy for Apnoea of Prematurity. <i>Neonatal Network</i> . 30(6), 408-412	VII	<ul style="list-style-type: none"> <li>• Review of history of methylxanthine therapy as a treatment of AOP</li> <li>• Examines benefits of caffeine citrate</li> <li>• Review of pharmacology and pharmacokinetics of caffeine</li> <li>• Review of current evidence-based practice for the use of caffeine citrate in treating apnoea of prematurity</li> </ul>

Mohammed, S., Nour, I., Shabaan, A.E.,  Shouman, B., Adbel-Hady, H., Nasef, N. (2015). High vs low-dose caffeine for apnea of prematurity: a randomized controlled trial. <i>Eur J Pediatrics</i> . Jul; 174(7): 949-956	II	<ul style="list-style-type: none"> <li>Shows that a higher dose of caffeine (40mg/kg load and 20mg/kg/day compared to the current standard of 20mg load and 10mg/kg/day) can decrease the chance of extubation failure and frequency of apnoeas in the preterm infant.</li> </ul>
Sreenan, C., Lemke, R.P., Hudson-Mason, A., Osiovich, H. (2001). High-flow nasal cannulae in the management of apnoea of prematurity: A comparison with conventional nasal continuous positive airway pressure. <i>Pediatrics</i> 107, 1081-1083	IV	<ul style="list-style-type: none"> <li>Comparison of CPAP and high-flow nasal cannula (HFNC) oxygen in the management of AOP</li> <li>At flows of 2.5L/min in infants &lt;2kg, HFNC can generate positive distending pressure which is as effective as NCPAP in the management of AOP</li> </ul>