

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 Melynky 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

Melynky, B. & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing & healthcare: A guide to best practice (2nd 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

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 (include title, author, journal title, year of publication, volume and issue, pages)	Evidence level (I-VII)	Key findings, outcomes or recommendations
Apnoea Risk in Infants Following Anaesthesia and Sedation		
Australian and New Zealand College of Anaesthetists and Faculty of Pain Management (ANZCA) Acute Pain Management: Scientific Evidence (2020) 5 th Edition	I-IV	Evidence summary of SRs, RCTs and Case series reports Volume 2 the Paediatric patient:
Connors, N.J & Nelson, L.S. (2016) The evolution of recommended naloxone dosing for opioid overdose by medical specialty. <i>Journal of Medical Toxicology</i> 12, 276-281	Narrative review	Review of IV naloxone doses used to reverse opioid overdose – varied practice is reported in the literature in regards to doses
Fukuda T, Chidambaran V, Mizuno T et al (2013) Genetic variants influence the pharmacokinetics of morphine in children <i>Pharmacogenomics</i> 14 (10): 114151	IV	Genotype studies showing significant role other than bodyweight in the pharmacokinetics and metabolites for opioid requirements in children. In the future maybe individualized morphine dosing may be prescribed to fit the variations in multiple genes.
Jungquist, C.R., Karan, S. & Perlis, M. (2011) Risk factors for opioid induced excessive respiratory depression. <i>Pain Management Nursing</i> , 12 (3) 180-187	Narrative review	Summary of the evidence on how to assess patients for risk factors for respiratory depression secondary to opioid therapy including pharmacodynamics and interventions
Lorraine I. Kelley-Quon, Matthew G. Kirkpatrick, Robert L. Ricca, et al. Guidelines for Opioid Prescribing in Children and Adolescents after surgery: An Expert Panel Opinion. <i>2021; 156(1):76-90 JAMA Surg</i>	V11	Over 14000 articles were reviewed, 217 unique articles, 20 guideline statements. There was then a list of recommendation to all health professionals caring for children with an emphasis on the needs for surgical analgesia and opioids
McDonnell C. Opioid medication errors in pediatric practice: Four years' experience of voluntary safety reporting. (2011) <i>Pain Res Manage</i> . Vol 16 No2 March/April: 93-98	IV (case series)	A review at The hospital for Sick Children Toronto, looked at voluntary reporting errors hospital wide for all intra-hospital paediatric medications. The aim was to review opioids specifically, the opioid medication involved, the severity and type of error and where and when they occurred. Of the 5935 medication related safety reports, 507 were opioid-related. However, many of these were inappropriate opioid disposal, counting checks and the patients experiencing pain. Administration/prescription errors were the highest incidents including inadequate dosing.

		Education was introduced to new medical staff to fill the knowledge gap including pain assessment.
Morton N. S, Errera A (2010) APA national audit of pediatric opioid infusions. <i>Pediatric Anesthesia</i> . 20: 119-125	IV (case series)	A large prospective multicenter audit of neonates, infants and children receiving 1955 opioid infusion modalities who were managed by APSs. Overall incidence of 1:10000 (serious harm). 45 events occurred unrelated to age or modality and ranged from respiratory depression to urinary retention. Programming or prescription errors occurred (9 events) none of which led to harm (with APS oversight) There was a low incidence of respiratory depression (2 cases: 1 requiring naloxone) which may have related to the cohort having guidelines and APSs managing the children on opioid infusions. Co-morbidities were identified as a risk and respiratory issues more likely to occur within the first hour. Safety can be improved by the awareness of these risks and careful dosing and monitoring.
<u>Percy Rossell-Perry</u> , <u>Carolina Romero-Narvaez</u> , <u>Ruth Rojas-Sandoval</u> , <u>Paula Gomez-Henao</u> , <u>Maria Pia Delgado-Jimenez</u> , and <u>Renato Marca-Ticona</u> , 2021 Jan, 9 (1) Is the use of Opioids Safe after Primary Cleft Palate Repair? A systematic Review. <i>Plastics Reconstructive Surgery Glob Open</i> .	V	Systematic review of the literature based on guidelines and safety for the use of opioids after cleft palate repair in infants who are susceptible to opioid induced respiratory depression
Rosen, D., Alcock, M., Palmer, G., Opioids for acute pain management in children. Feb. 2020 <i>Anaesthesia and Intensive Care</i>	V11	Opioids are integral for effective pain management but are not without adverse side effects. Consideration for prescribing in hospital and at discharge must be taken in to account, the education, outcomes and leadership from the prescribing clinicians are vitally important
Twycross A, Dowden S, Stinson J. (2014) <i>Managing pain in Children: a clinical guide for nurses and health professionals</i> , 2 nd ed, Wiley Blackwell	V11	All aspects of managing paediatric pain, modalities and pain assessment. This book shows the best evidence with a practical approach to procedural, acute and chronic pain and has been written by internationally respected nurse clinicians References are relevant Pharmacology of Analgesia Drugs Pages 48-85 Managing Acute pain in Children Pages 140-178

<p>Weiner C, Penrose S, Manias E, Cranswick N et al. (2016) Difficulties with assessment and management of an infant's distress in the postoperative period: Optimising opportunities for interdisciplinary informationsharing. Sage Open medical Case Reports Vol 4: 1-5</p>	<p>VI</p>	<p>Postoperatively in a single infant, there were difficulties in managing pain and an episode of over-sedation, occasioning opiate reversal with naloxone. Demonstrated the importance of comprehensive assessment and careful consideration of alternative causes of an infant's distress. Communication and optimising interdisciplinary information-sharing.</p>
<p>Victoria C. Ziesenitz, Janelle D. Vaughns, Gilbert Koch, Gerd Mikus & Johannes N. van den Anker Pharmacokinetics of Fentanyl and Its Derivatives in Children: A Comprehensive Review Clinical Pharmacokinetics volume 57, pages125–149 (2018)</p>	<p>v</p>	