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


Databases searched:
- ☒ CINAHL (Ebsco)
- ☐ Medline (Ebsco)
- ☐ Pubmed (NLM)
- ☒ Nursing (Ovid)
- ☐ Emcare (Ovid)

Keywords used:
- Paediatrics, pediatrics, procedur*, procedural pain, non-pharmacological, distress, anxiety, hospital* parent*

Search limits:
- English, Years 2000 - 2020

Other search comments:
## Reference (include title, author, journal title, year of publication, volume and issue, pages)

<table>
<thead>
<tr>
<th>Reference</th>
<th>Evidence level (I-VII)</th>
<th>Key findings, outcomes or recommendations</th>
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• There is no difference in pain perception between using deep breathing and blowing bubble techniques – therefore the choice should be made on child preference |
| Birnie KA, Noel M, Chambers CT, Uman LS, Parker JA. (2018). Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database of Systematic Reviews, Issue 10.* | I | • There is evidence for efficacy of distraction, hypnosis, CBT and breathing interventions for children’s needle-related pain or distress. |
• Main principles:  
  • One single voice should be heard during a procedure.  
  • Need parental involvement.  
  • Educate patient before the procedure about what is going to happen.  
  • Validate the child with words.  
  • Offer the most comfortable, non-threatening position.  
  • Individualize your game plan.  
  • Choose appropriate distraction to be used.  
  • Eliminate unnecessary people not actually involved with the procedure. |
• Slow breathing is safe in most patient populations  
• Technology such as apps can provide a helpful tool for breathing techniques |
| Fanurik, D. et al. (2000). Hospital room or treatment room for pediatric inpatient procedures: Which location do parents and children prefer?. *Pain Research and Management*, 5: 148-156. | VI | - The hospital room was preferred by the majority of parents and children over the treatment room for minor procedures  
- Reasons for this choice included the child's emotional or physical comfort, convenience and difficulties moving the child due to motor impairment or medical condition.  
- The treatment room was generally preferred for more invasive procedures.  
- Reasons for this included concerns for the privacy of the child and roommate, and the need for special equipment or supplies. |
| Fusco N et al. (2020). Hypnosis and communication reduce pain and anxiety in peripheral intravenous cannulation: Effect of language and confusion on pain during peripheral intravenous catheterization (KTHYPE), a multicentre randomised trial. *British Journal of Anaesthesia*, 124(3): 292 | II | - Significant benefit of a hypnosis technique during a routine procedure  
- Hypnotic communication with a confusion technique compared with neutral or nocebo communication decreases pain and anxiety. |
- Choices: Offer power in a powerless environment  
- Agenda: Let patients and families know what to expect and what is expected of them  
- Resilience: Highlight strengths and reframe negatives; and  
- Emotional support: Recognize and normalize common fears and responses. |
- Recommendation for the presence of parents as a comfort measure during procedures  
- Preparing the child and family for procedures and involving them in the planning  
- Evidence table grading the level of evidence of each intervention |
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<th>Reference</th>
<th>Summary</th>
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• Emphasises the role of pain memory |
• Sufficient evidence to support nonpharmacological interventions in infants and healthy neonates there was limited evidence to support these interventions with older infants and young children |
| Sometti D, Tinazzi M & Fiorio M. (2019). When words hurt: Verbal suggestion prevails over conditioning in inducing the motor nocebo effect. *European Journal of Neuroscience, 50*: 3311-3326. | III | • Emphasises the importance of positive verbal suggestion in enhancing coping |
• Also summarises interventions such as distraction, imagery, breathing exercises, non-nutritive sucking, skin to skin contact and swaddling. |
| Snyder BS . (2004). Preventing treatment interference: Nurses’ and parents’ intervention strategies. *Pediatric Nursing* 30: 31–40. | VI | • Reports that children who were physically restrained reported feelings of anger, resistance and discomfort which had ongoing negative memories for patients.  
• Alternative interventions such as building rapport, preparation, distraction and engagement with choice making for how an intervention is completed should be utilised to improve cooperation. |
• Recommendations for pain mitigation is based on five domains - procedural, physical, pharmacological, psychological and process  
• Relevant aspects include:  
• Parents to be present whenever possible in children under 10  
• Use of breastfeeding under 2, and comfort holding in a sitting upright position  
• Use of sucrose |
• Physiology, general principles |
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<td>• Review of the evidence for the long-term negative effects of poorly managed procedural pain</td>
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<td>• Impact of the environment on the child’s perception of pain and stress reduction</td>
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