

# 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 (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](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>

Databases searched:	<input checked="" type="checkbox"/> CINAHL (Ebsco)	<input type="checkbox"/> Medline (Ebsco)	<input type="checkbox"/> Pubmed (NLM)	<input type="checkbox"/> Nursing (Ovid)	<input type="checkbox"/> Emcare (Ovid)	<input checked="" type="checkbox"/> Other List: _Cochrane Library
Keywords used:	Pressure injury, pressure ulcer, pressure sore, risk assessment, prevention strategies, management					
Search limits:	'all child', English, 2015- Feb 2022					
Other search comments:						

Reference (include title, author, journal title, year of publication, volume and issue, pages)	Evidence level (I-VII)	Key findings, outcomes or recommendations
<p>Australian Commission on Safety and Quality in Health Care (2017). National Safety and Quality Health Service Standards: Guide for Hospitals, (2nd ed). Sydney: ACSQHC.</p> <p><a href="https://www.safetyandquality.gov.au/standards/nsqhs-standards/comprehensive-care-standard">https://www.safetyandquality.gov.au/standards/nsqhs-standards/comprehensive-care-standard</a></p>	VII	<ul style="list-style-type: none"> <li>• National Safety and Quality Health Service Standards (NSQHS)</li> <li>• Comprehensive Care standard 5 outlines actions that health service in Australia are required to do to identify, prevent and manage patients at risk of pressure injuries</li> </ul>
<p>Delmore, B., Deppisch, M., Sylvia, C., Luna-Anderson, C., &amp; Nie, A. M. (2019). Pressure Injuries in the Pediatric Population: A National Pressure Ulcer Advisory Panel White Paper. <i>Advances in Skin &amp; Wound Care</i>, 32 (9), 394-408. doi:10.1097/01.ASW.0000577124.58253.66</p>	VII	<ul style="list-style-type: none"> <li>• National Pressure Advisory Panel white paper</li> <li>• Review of the science of paediatric pressure injury formation, prevention and treatment</li> </ul>
<p>European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance (2019). <i>Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guideline</i>. Emily Haesler (Ed.). EPUAP/ NPIAP/PPPIA 2019.</p>	VII	<ul style="list-style-type: none"> <li>• International guideline developed as a collaboration between— European Pressure Ulcer Advisory Panel (EPUAP), National Pressure Injury Advisory Panel (NPIAP) and the Pan Pacific Pressure Injury Alliance (PPPIA) and 14 wound organizations from 12 countries</li> <li>• provides a detailed analysis of the evidence underpinning the recommendations and good practice statements including paediatric and neonatal populations</li> <li>• Recommendations provided included; risk factors and risk assessment, skin and tissue assessment, preventative skin care, nutrition assessment and treatment, repositioning and early mobilisation, heal pressure injuries, support surfaces, device related pressure injuries, and pressure injury classification, assessment, monitoring &amp; treatment</li> </ul>

<p>Gefen, A., Alves, P., Ciprandi, G., Coyer, F., Milne, C. T., Ousey, K., . . . Schluer, A.-B. (2020). Device-related pressure ulcers: SECURE prevention. <i>Journal of Wound Care</i>, 29(Sup2a), S1-S52. doi:10.12968/jowc.2020.29.Sup2a.S1</p>	<p>VII</p>	<ul style="list-style-type: none"> <li>• International consensus document developed by, medical, clinical and bioengineering experts</li> <li>• Paediatric patients are particularly susceptible to device related pressure injuries</li> <li>• Consensus statements re aetiology of device related pressure injuries and technologies and clinical protocols to mitigate them</li> </ul>
<p>Katzengold, R., &amp; Gefen, A. (2019). Modelling an adult human head on a donut-shaped gel head support for pressure ulcer prevention. <i>International Wound Journal</i>, 16(6), 1398–1407. https://doi.org/10.1111/iwj.13203</p>	<p>VI</p>	<ul style="list-style-type: none"> <li>• Computer biomechanical modelling study comparing the magnitude and distribution of mechanical loads on the occiput (adult) in contact with donut-shaped gel compared to medical foam and fluidised head positioner</li> <li>• Donut-shaped gel head support in effort to avert tissue loads away from occiput increases scalp tissue stresses and may increase risk of developing pressure injury</li> </ul>
<p>Leonard, P., Hill, A., Moon, K., &amp; Lima, S. (2013). <i>Pediatric Pressure Injuries: Does modifying a tool alter the risk assessment outcome?</i> Issues in Comprehensive Pediatric Nursing, 36(4), 279-290.</p>	<p>IV</p>	<ul style="list-style-type: none"> <li>• Determined whether a modified Glamorgan Scale yielded same risk stratification as Glamorgan Scale in PICU (n=68) and NICU (N=65) patients in Australian Hospital</li> <li>• Little difference in risk categorisation</li> <li>• Modified scale easier to complete</li> </ul>
<p>Shi, C., Dumville, J. C., Cullum, N., Rhodes, S., McInnes, E., Goh, E. L., &amp; Norman, G. (2021). Beds, overlays and mattresses for preventing and treating pressure ulcers: an overview of Cochrane Reviews and network meta-analysis. <i>Cochrane Database of Systematic Reviews</i>(8). doi:10.1002/14651858.CD013761.pub2</p>	<p>I</p>	<ul style="list-style-type: none"> <li>• Summarised evidence from Cochrane Reviews that assessed the effects of beds, overlays and mattresses on reducing the incidence of pressure ulcers and on increasing pressure ulcer healing in any setting and population.</li> <li>• 40 studies (12,517 people) but mostly adult participants</li> <li>• Generally found evidence to be insufficient or of very low certainty for both prevention and treatment, however:</li> <li>• compared with foam surfaces reactive air surfaces may reduce pressure ulcer risk and may improve complete ulcer healing</li> <li>• Compared with foam surfaces, alternating pressure (active) air surfaces may reduce pressure ulcer risk and are probably more cost-effective in preventing pressure ulcers.</li> <li>• compared with foam surfaces, reactive gel surfaces may reduce pressure ulcer risk, particularly for people in operating room and long-term care settings.</li> </ul>

<p>Triantafyllou, C., Chorianopoulou, E., Kourkouni, E., Zaoutis, T. E., &amp; Kourlaba, G. (2021). Prevalence, incidence, length of stay and cost of healthcare-acquired pressure ulcers in pediatric populations: A systematic review and meta-analysis. <i>International Journal of Nursing Studies</i>, 115, 103843. <a href="https://doi.org/10.1016/j.ijnurstu.2020.103843">https://doi.org/10.1016/j.ijnurstu.2020.103843</a></p>	<p>V</p>	<ul style="list-style-type: none"> <li>• Systematic review and meta-analysis of 21 cohort and cross sectional studies of paediatric population</li> <li>• Overall prevalence ranged from 0.47% to 31.2% with great variation across the age groups</li> <li>• Attributable length of stay ranged from 0.9 days to 14.1 days per patient</li> <li>• Attributable cost ranged from 894.69 to 98,730.24 US dollars per patient</li> </ul>
<p>Willock, J., Habiballah, L., Long, D., Palmer, K., &amp; Anthony, D. (2016). A comparison of the performance of the Braden Q and the Glamorgan paediatric pressure ulcer risk assessment scales in general and intensive care paediatric and neonatal units. <i>Journal of Tissue Viability</i>, 25(2), 119-126. doi:10.1016/j.jtv.2016.03.001</p>	<p>IV</p>	<ul style="list-style-type: none"> <li>• prospective cohort study comparing Braden Q and Glamorgan risk assessment scale in paediatric inpatients (1 Australian hospital and 1 Jordan hospital)</li> <li>• predictive ability similar for both scales in paediatric intensive care but findings suggested Braden Q may be better for general children's wards</li> <li>• Glamorgan scale is probably preferred by children's nurses as it is easier to use</li> </ul>
<p>Willock, J., Baharestani, M. M., &amp; Anthony, D. (2007). The development of the Glamorgan paediatric pressure ulcer risk assessment scale. <i>Journal of Children's and Young People's Nursing</i>, 1(5), 211-218.</p>	<p>IV</p>	<ul style="list-style-type: none"> <li>• Developed a predictive pressure ulcer risk assessment scale based on 265 patients in children's hospital and 54 children with Pressure ulcers and 17 children without pressure ulcers from 11 hospitals in UK</li> <li>• Sensitivity, specificity and predictive validity was found to be greater than Braden Q scale which is the paediatric tool more widely used in the US (modified adult tool)</li> </ul>