

Anlage B zum Expertenstandard „Dekubitusprophylaxe in der Pflege“

Sabine Metzging

STUDIENÜBERSICHT

Die nachfolgenden Tabellen geben – thematisch sortiert – eine Übersicht über die Artikel, die in diese Literaturstudie integriert wurden.

Nicht alle hier berücksichtigten Artikel entsprechen den strengen Qualitätskriterien. Methodische Schwächen der Studien, die die Aussagekraft von Ergebnissen beeinflussen, sind dargestellt.

Thema Risikoskalen/Assessment

Referenz Thema	Design, Setting und Stichprobe	Methode	Ergebnisse	Schlussfolgerung d. AutorInnen	Kommentar
(Halfens, Van Achterberg u. Bal 2000) "Validity and reliability of the Braden scale and the influence of other risk factors"	<ul style="list-style-type: none"> prospective multi-centre study 11 wards of three hospitals, NL convenience sample n = 320; all patients of the wards who met the inclusion 	<ul style="list-style-type: none"> risk assessment via translated Braden Scale through ward nurses (purposeful decision to investigate validity and reliability under normal conditions) pressure sore assessment through research assistants twice a week, blind for risk assessment addition of blood circulation as risk factor (through expert in-depth interviews) via 3-point scale main outcome measurement: 	<ul style="list-style-type: none"> pressure sore incidence: 14.7% (n= 47), n =9 without prevention and n = 38 in spite of prevention (internal consistency (Crombach's alpha) for: original Braden scale = 0.78, extended scale = 0.76 low correlation for added risk factor blood circulation with the scale (0.24) interrater reliability of original Braden scale = 0.86, extended scale = 0.85 (Cohen's Kappa) interrater reliability of individual risk factors varied between 0.71 – 0.86 except for 'moisture' (0.54) stability between 1st and 2nd and 2nd and 3rd measurement for: 	<ul style="list-style-type: none"> "translated Braden Scale is a more than sufficiently sensitive, specific, and reliable instrument for hospitals" enhancement possible through <ol style="list-style-type: none"> adding 'age' as a risk factor and reformulation of two risk factors of the scale: <ol style="list-style-type: none"> nutritional intake → nutritional condition moisture as the degree to which the skin is exposed → moisture = incontinence (urine + faeces) + sweating 'blood circulation' as additional risk factor did not enhance validity of Braden scale only two factors of the original Braden 	<ul style="list-style-type: none"> Studie in jedem Schritt nachvollziehbar beschrieben, mögliche Schwächen werden diskutiert wertvolle Ergebnisse, Replikationsstudie (möglichst mit Stichprobenkalkulation)

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	<p>criteria were included</p> <ul style="list-style-type: none"> • five patients refused to participate 	<p>(1) presence of pressure sores and their degree (2) all preventive activities as external criterion</p> <ul style="list-style-type: none"> • 	<p>original Braden scale = 0.52, extended scale = 0.68</p> <ul style="list-style-type: none"> • Sensitivity/specificity original scale: cut-off 16 or less: 32.3%/91.8% • optimal cut-off: 22; 73.7%/70.1% • optimal cut-off for extended scale: 23; 73.7%/69.4% • significant relations between potential risk factors and presence of pressure sores for: urine incontinence ($P < 0.001$), faeces incontinence ($P < 0.05$) and age ($P < 0.001$) • tendency for relation, but not statistically significant, for extreme sweating ($P < 0.16$), Diabetes ($P < 0.14$) and pressure sore history ($P < 0.12$); • strongest predictors (through stepwise logistic regression): original Braden scale ($P < 0.001$) and Age ($P < 0.001$), followed by 'moisture' (urine + faeces incontinence + extreme sweating) ($P < 0.01$) • all risk factors of original scale were related to risk of pressure sore development except for 'nutrition' ($X^2 = 4.7, P > 0.10$). • further stepwise logistic regression analysis identified four risk factors for predictive chance of pressure sore development: sensory perception, age, friction & shear, moisture (P for all < 0.01) 	<p>scale show predictive values (sensory perception and friction & shear), while mobility and activity were not related to pressure sore development, which might be "due to the fact that mobility and activity are strongly related to the factor friction and shear ($r = 0.63$ and 0.50).</p> <p>→ risk assessment scales need "at least the following risk factors: sensory perception, friction and shear, moisture and age."</p> <ul style="list-style-type: none"> • Recommendation, not to use different cut-off points but "to indicate the chance a patient has to develop pressure sores" • use of risk assessment scale makes sense within a broader risk-based programme 	<p>erwünscht</p>

Fortsetzung Risikoassessment/Skalen:

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(Lewicki, Mion u. Secic 2000) "The specific aims of the study were to explore the appropriate cutoff point to identify pressure ulcer risk in the cardiac population and to examine the impact of the cardiac surgical patients' postoperative course on the cutoff point."	<ul style="list-style-type: none"> • Prospective descriptive study • 958-bed tertiary care and referral center, Ohio • convenience sample n = 337 patients, scheduled for cardiac surgery and pressure ulcer-free • drop-outs: ??? 	<ul style="list-style-type: none"> • risk assessment via Braden Scale through data collection team of seven trained registered nurses (interrater reliability 0.9) preoperative, postoperative days 1, 3 & 5 • entire body skin assessment for pressure ulcer existence via 4-stage scale for staging pressure ulcers developed by the WOCN Society preoperative, postoperative day 1, 3 & 5 • statistics 	<ul style="list-style-type: none"> • total of 22 ulcers subsequently developed in 16 patients (4.7%) during hospital stay, Stage I: 13 ulcers II: 5 ulcers III: 0 ulcers IV: 0 ulcer not staged: 4 ulcers • pressure ulcers that resolved before the 5th day: I: 11 (> 84%) II: 4 (80%) • Sensitivity/specificity (cut-off 16 or less) pre-op: 0%/99.4% day 1: 83.3%/4.5% day 3: 57%/86.9% day 5: 33%/89.3% • optimal cut-off: pre: 22 (50/78.6%) 1: 13 (50/45.7%) 3: 14 (57.1/92%) 5: 20 (50/70.9%) • lower preoperative Braden score was a significant risk factor for postoperative pressure sore breakdown (P = 0.03) 	<ul style="list-style-type: none"> • cut-off score 16 or less for Braden Scale "proved ineffective for screening at-risk cardiac surgical patients" • cut-off score must be defined, that minimizes the number of false negatives 	<ul style="list-style-type: none"> • unklar, ob Risiko- und Dekubitusassessment durch dieselbe Person durchgeführt wurde • keine Verblindung der Outcomemessung • Gelegenheitsstichprobe verhindert Generalisierbarkeit d. Ergebnisse • Aussagen für 5. post-op. Tag begrenzt, weil Stichprobe evtl. zu klein (nur noch 3 der beurteilten Ulcera vorhanden); Powerkalkulation notwendig

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<p>(McGough, 2000)</p> <p>systematic review of the effectiveness of risk assessment scales used in the prevention and management of pressure sores.</p>	<ul style="list-style-type: none"> • systematic review for literature from 1966 – 09/1997 • clearly stated inclusion criteria, search strategy and data extraction • total of 66 studies identified as eligible, 18 included in the review 	<ul style="list-style-type: none"> • search via electronic and online databases • hand-search of main specialist journals • search of grey literature • citation search • researchers involved in developing or testing scales were contacted • description of excluded studies with reasons for exclusion • detailed description of appraisal criteria 	<ul style="list-style-type: none"> • Effectiveness of risk assessment scales: no RCT found; 9 observational studies about the effectiveness of education in reducing pressure ulcer incidence; it is difficult to “disentangle the effects of introducing an educational programme from other initiatives introduced at the same time”. • Predictive validity of scales compared to nursing judgement: 2 studies found which both compared the Braden Scale to nursing judgement; different methodological aspects make comparison of results difficult; in one study, the Braden score was not found to be significantly different between patients with and without pressure ulcers whereas in the other study the Braden scale is reported to be the only significant difference between the two groups; one study found the nursing judgement to be more accurate in the prediction of pressure ulcer development although neither method was highly predictive, whereas the other study concluded that the Braden Scale was more useful than nursing judgement alone. 	<ul style="list-style-type: none"> • “The quality of the reporting studies was poor with many details missing regarding the research methodology employed, checking the inter-rater reliability, name of the grading system used and whether all grades of pressure sores were included” • of 43 known scales, only 5 have been tested for predictive validity; “results cannot be pooled down quantitatively due to the heterogeneity of the populations studied and the variations in outcome assessments. Thus it is not possible to make a valid comparison of one or more risk assessment scales.” • Problems of bias: selection of convenience or consecutive samples; neither methodology nor statistical analysis was consistent across studies to test reliability of scales; failure of adequate description of pressure ulcer grading system used; no reliability testing of skin assessment tool in any of the studies; blinding of person performing skin assessment to pressure ulcer risk status was only ensured in 5 studies; blinding of nurses caring for patients to the pressure ulcer risk status in only 2 studies mentioned; • --> “There is no evidence that risk assessment scales are effective in reducing the incidence of pressure sores or that they improve preventive care. There is little evidence that risk assessment scales are better than clinical nursing judgement. Few scales (...) have been tested for their predictive validity and the quality of many of these studies is poor. No scale appears to be more accurate in identifying those patients at most risk from developing pressure sores although the Braden scale has been more extensively tested than other scales. Further studies testing the Braden scale for predictive validity have never replicated the high sensitivity and specificity figures obtained by Braden, Bergstrom and colleagues.”

Fortsetzung Risikoassessment/Skalen:

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(Schoonhoven et al. 2002) To evaluate whether the three risk assessment scales Norton, Braden and Waterlow can be used to identify patients who are likely to get pressure ulcers	<ul style="list-style-type: none"> prospective cohort study two large hospitals, NL convenience sample, n = 1229 patients, admitted to the surgical, internal, neurological, or geriatric wards between 01/99 and 06/00 25% (n=1536) of all eligible patients were asked to participate, 93.2% agreed to do so, 80% (of 1536) could be included in the analysis drop outs during study period: 1st week: 0% 2nd week: 63% 3rd week: 84% 4th week: 91% 	<ul style="list-style-type: none"> risk assessment via Braden, Norton and Waterlow scale within 48 hrs after admission and weekly for four weeks through research nurse skin assessment for presence of pressure ulcers (EPUAP staging), pressure ulcers Grade 2 or worse were included collection of information on preventive measures, defined as pressure reducing mattresses or beds and regular repositioning ward nurses were blinded for observations by 	<ul style="list-style-type: none"> a total of n = 135 (11%) developed pressure ulcers while in hospital weekly incidence = 6.2% (95% CI 5.2% to 7.2%) most patients at risk, according to the assessment, did not receive preventive measures, while some who were assessed as not-at-risk did receive preventive measures less than 1% (n= 10) received preventive measures both at the visit when skin assessment took place and the previous visit area under the curve (ROC) for all patients for the 1st week: Norton: 0.51 (0.44 to 0.58) Braden: 0.52 (0.45 to 0.59) Waterlow: 0.60 (0.53 to 0.66) area under the curve (ROC) for all patients over all weeks: Norton: 0.56 (0.51 to 0.61) Braden: 0.55 (0.49 to 0.60) Waterlow: 0.61 (0.56 to 0.66) similar results despite exclusion of those (n = 57) with preventive measures who did not develop pressure ulcers area under the curve (ROC) for the 1st week with exclusion of the 57 patients mentioned above + surgical patients (n = 747): Norton: 0.69 (0.63 to 0.76) Braden: 0.70 (0.63 to 0.77) Waterlow: 0.67 (0.61 to 0.73) similar results for only excluding the surgical patients sensitivity/specificity for all patients: Norton: 46.2%/60.4% Braden: 43.5%/67.8% Waterlow: 89.5%/22.4% positive predictive value for all patients: Norton: 7.1% 	<ul style="list-style-type: none"> "The three scales most commonly used to assess the risk of developing pressure ulcers – the Norton, Braden, and Waterlow scales – do not satisfactorily predict pressure ulcer development in patients admitted to hospital." Including imminent surgery as a risk factor in the scales might improve prediction, since the area under the ROC curve was significantly greater for all three scales after excluding the surgical patients --> "the broadly advocated advice to use the risk assessment scales for pressure ulcers and to use the outcomes to decide on preventive measures leads to ineffective and inefficient treatment for most patients" 	<ul style="list-style-type: none"> keine differenzierte Ergebnisdarstellung der beteiligten Krankenhäuser; vergleichbar? unklar, wie Risikoassessment vor Ort routinemäßig erhoben wird, ob überhaupt, mit welcher Konsequenz hohe Ausfallquote im Verlauf der Studie schränkt Aussage der Ergebnisse ein

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		the research nurse	Braden: 8.1% Waterlow: 6.7% • sensitivity/specificity for the mentioned subpopulation (- 57 – 747): Norton: 78.7%/46.5% Braden: 72.9%/57.2% Waterlow: 95.9%/22% • positive predictive value for subpopulation: Norton: 7.0% Braden: 7.8% Waterlow: 5.3%		

Fortsetzung Risikoassessment/Skalen:

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(Williams, Stotts u. Nelson 2000) Frage 2 der Studie: „... whether the Braden scale accurately identifies patients with existing pressure ulcers as at risk for pressure ulcer development“	<ul style="list-style-type: none"> Prospective cohort study 256-bed tertiary care medical center in the Pacific Basin. Military hospital convenience sample, n=267; 79.4% men drop-outs not mentioned 	<ul style="list-style-type: none"> risk assessment via Braden scale; (cut-off for being at risk ≤ 16) on admission skin assessment for presence of pressure ulcers (AHCPR staging) on admission statistical analysis 	<ul style="list-style-type: none"> 34 (12.8%) had a total of 40 pressure ulcers on admission; Stage I: 21 ulcers II: 15 ulcers III: 3 ulcers IV: 1 ulcer sensitivity: 54.55% specificity: 84.62% positive predictive power: 33.33% neg. predictive power: 90.74% 	“The Braden scale performed poorly in identifying patients with existing ulcers as ‘at-risk’ for pressure ulcers. It had a low positive predictive value (33%) and limited sensitivity (54%), indicating that it did not effectively identify patients with ulcers as at risk.”	<ul style="list-style-type: none"> unklar, ob Risiko- und Dekubitusassessment durch dieselbe Person durchgeführt wurde Stichprobe ist mit fast 80% Männern die in der Mehrzahl dem Militär angehör(t)en für die Zielgruppe des Expertenstandards nicht repräsentativ es bleibt fraglich, ob Menschen mit vorhandenem Dekubitus nicht per se als dekubitus-gefährdet eingestuft und behandelt werden

Thema druckreduzierende Hilfsmittel

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Defloor u. De Schuilmer 2000) To assess the pressure- reducing effects of different operating- table mattresses in four different intra- operative postures	<ul style="list-style-type: none"> quasi-experimental laboratory setting 36 healthy volunteers 	<ul style="list-style-type: none"> interface pressure measurements on 36 healthy volunteers lying in four intraoperative positions (supine, 90° lateral, Miles-Pauchet, Fossa) on five types of operating-table mattresses (standard operating-table m., foam m., visco-elastic polyether foam m., visco-elastic polyurethane m.) order of mattress and of position was randomized for each subject interface pressure measurements via Ergocheck system 	<ul style="list-style-type: none"> interface pressure in all positions was higher on the standard mattress than on any other type polyurethane mattress had a significant lower interface pressure than the gel, foam or standard mattress the polyether mattress generated lower interface pressures than the standard -, gel – or foam mattress in the supine and fossa position the polyurethane mattress generated lower interface pressure in the fossa position than the polyether -, gel – or foam mattress 	<ul style="list-style-type: none"> the foam and the gel mattress seem to have little or no pressure-reducing effect the polyurethane and the polyether mattress reduce interface pressure significantly better ($p > .001$) none of the mattresses reduces pressure sufficiently in the lateral position to prevent pressure ulcer development 	<ul style="list-style-type: none"> Ergebnisse sind nicht generalisierbar: kleine Stichprobe Laborsituation laut Cullum u.a. ist fraglich, ob Messungen des Auflagedrucks „reliably predict the clinical performance of support surfaces“ {Cullum, 2000 #439}

Fortsetzung druckreduzierende Hilfsmittel:

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(Russell u. Lichtenstein 2000) To "compare the efficacy and safety of the multi-cell pulsating dynamic mattress system with conventional management* in the prevention of pressure ulcers in the operative and postoperative settings in patients undergoing cardiovascular surgery".	<ul style="list-style-type: none"> single center, prospective, randomised controlled study operating room and ward n=198 patients scheduled for cardiovascular surgery, randomised to either the experimental or control-group 	<ul style="list-style-type: none"> main outcome measurement: pressure ulcer yes/no skin risk assessment pre-operative, immediately after surgery and on postoperative day 1, 4 & 7 (additional, when change in status was noted) pressure ulcer definition and staging via NPUAP scoring system risk assessment via modified Knoll scale <p>*(conventional method = use of gel pad in the operating room and standard hospital bed)</p>	<ul style="list-style-type: none"> groups comparable at baseline no statistically significant differences in post-operative ulcer rates between the two groups, but trend to decreased pressure ulcers in experimental group pressure ulcer incidence <ul style="list-style-type: none"> - experimental group: 2% (n=2) - control group: 7% (n=7) 	<ul style="list-style-type: none"> "multi-cell pulsating dynamic mattress system is both safe and efficacious in reducing the incidence of pressure ulcers in patients undergoing major cardiovascular surgery of 3 hours duration or more." 	<ul style="list-style-type: none"> unklar, wer Risikoassessment und main outcome-Messung durchgeführt hat (Verblindung???) Ergebnisse nicht statistisch signifikant Stichprobe underpowered? Replikation mit kalkulierter Stichprobe notwendig