Pressure Injury Current Awareness Service

April 2020

Queensland Health Libraries Search

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Subject guide by TPCH Library: http://tpch.qld.libguides.com/pressure-injury

TPCH Library = Informed Decisions

Citations listed have been generated as an update from the MEDLINE and CINAHL databases and information recently received by The Prince Charles Hospital Library.

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(2020) "Prophylactic dressings to help prevent pressure injuries" AORN journal 111(3): P24
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Background: Pressure ulcer rates are persistently high despite years of research and practice policies focused on prevention Prior research found crosssectional associations between care interventions, hospital and nursing unit characteristics and pressure ulcer rates Whether these associations persist over time is unknown Finally, comparisons of quality measures across rural and urban location have mixed findings; Objective: Our study examined effects of care interventions on unit-acquired pressure ulcer rates over 4 years controlling for community, hospital, and nursing unit characteristics in rural and urban locations; Design: Guided by contingency theory a longitudinal study was conducted to examine associations between context, staffing, care interventions, nurse outcomes, and pressure ulcer rates, using unit-level data from the National Database of Nursing Quality Indicators ™ 2010-2013 (16 quarters) augmented with data on rural classifications and case mix index Ulcer rates were measured as percentage of patients with a nursing unit-acquired pressure ulcer The three care interventions were unit-percentange of patients receiving skin assessment on admission, receivingrisk assessment on admission, and receiving any risk assessment before the pressure ulcer The three care interventions were unit-percentange of patients receiving skin assessment on admission, receiving risk assessment on admission, and receiving any risk assessment before the pressure ulcer Nursing unit characteristics were RN staffing, education, and experience Nurse outcomes were job satisfaction and intent-to-stay; Participants: We included 5761 units (332 rural and 5429 urban) in 772 hospitals (89 rural and 683 urban) that reported ulcer rates in two or more quarters during the study period; Methods: Rural and urban units were examined separately using multilevel binomial regression in which within-unit changes in pressure ulcer rates were related to the within-unit changes in the explanatory variables, controlling for region, hospital size, unit type, case mix index, and percentage of patients at risk for pressure ulcers; Results: An increase in the three care interventions, RN skill mix, and the two nurse outcomes were associated with a decrease in unit-acquired pressure ulcers For example, in rural units a 10% increase in unit-percentange of any risk assessment and in urban units a 10% increase in skin assessment on admission were associated with a 21% and 5% decrease in the odds of developing an ulcer A 10% increase in RN skill mix was associated with 17-18% and 5-6% decrease in ulcer rates in rural and urban units respectively; Conclusion: Hospitals aiming to improve pressure ulcer prevention should focus on organizational structures that support improved nurses work environments and workflow that will enhance nursing care interventions Future studies should include both contextual and patient characteristics along with care interventions (Copyright © 2019 Published by Elsevier Ltd)
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Pressure ulcers/injuries are well known for being a common problem in healthcare and are a key indicator of the quality and experience of patient care This article discusses how one NHS trust reduced the incidence of heel pressure ulcers within adult inpatient settings In 2016/17, the trust identified 14 avoidable category 3 and above pressure ulcers/injuries in inpatient settings, of which 10 had developed on the heels Through root cause analysis, the organisation identified themes, which prompted action, and a quality improvement
Objective: This study was conducted to identify the prevalence of pressure injury (PI) in patients with incontinence and structured approach; the key stakeholders included the tissue viability team, procurement, medical devices, patient safety, managers, matrons, ward sisters and tissue viability link advisors, who worked together to reduce heel ulcer prevalence through education and standardised practice. As a result of improved organisational awareness and some changes, the number of heel pressure ulcers/injuries reduced to two over a 3-year period, which also helped reduce the total number of avoidable pressure ulcers/injuries.

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Objective: The aim of this systematic review was to examine the associations and relationship between commonly cited risk factors and the pathology of pressure ulcer (PU) development; Method: Using systematic review methodology, original research studies, prospective design and human studies written in English were included. The search was conducted in March 2018, using Ovid, Ovid EMBASE and CINAHL databases. Data were extracted using a pre-designed extraction tool and all included studies were quality appraised using the evidence-based librarianship critical appraisal; Results: A total of 382 records were identified, of which five met the inclusion criteria. The studies were conducted between 1994 and 2017. Most studies were conducted in hospital and geriatric wards. The mean sample size was 96±1457 participants. Ischaemia, recovery of blood flow and pathological impact of pressure and shear was mainly found as the cited risk factor and PU aetiology; Conclusion: This review systematically analysed five papers exploring the relationship between risk factors for PU development and aetiology. It identified many risk factors and underlying pathological mechanisms that interact in the development of PU including ischaemia, stress, recovery of blood flow, tissue hypoxia and the pathological impact of pressure and shear. There are several pathways in which these pathological mechanisms contribute to PU development and identifying these could establish potential ways of preventing or treating development of PU for patients.

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Objective: To determine the relationship between skin moisture and the incidence of medical devices related to pressure injury (MDRPI). Method: This was a prospective study in an intensive care unit. Measurement of changes in skin moisture is measured every two days until thirteenth. The skin moisture status between no MDRPI and presence of MDRPI analyzed using independent t-test; Result: The independent t-test confirmed no difference of skin moisture between no MDRPI group (the range of moisture: 28±0.5 to 32±4) and presence MDRPI group (the range of moisture: 27.6±2 to 31.9±2) for intervention devices and presence MDRPI group (the range of moisture: 27.0±4 to 40.5±3) and presence MDRPI group (the range of moisture: 27.5±1 to 34.7±1) for intervention devices; Conclusion: Current study indicates the role of skin moisture in development of MDRPI remains unanswered (Copyright © 2019 Elsevier España, SLU All rights reserved).

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Objective: This study was conducted to identify the prevalence of pressure injury (PI) in patients with incontinence; Method: We searched articles through PubMed, Science Direct, ProQuest, EBSCO, COCHRANE, and DOAJ; We identified 138 articles from electronic databases published from 2015 to 2019; all of these articles were clinical studies. We obtained seven articles that met the inclusion criteria consisting of 4 cross-sectional articles, one cross-sectional cohort, one prospective study; Results: The prevalence of PI varied incontinence patients, starting from 80% of 276 patients, 163% of 176,689 patients, 169% of 261 patients, 303% of 8365 patients, 333% of 120 patients, 406% of 832 patients and 171% of 5342 patients;
Conclusion: Our study suggests that the prevalence of PI in patients with varied incontinence, and highest in patients with double incontinences (urine and feces) (Copyright © 2019 Elsevier España, SLU All rights reserved)

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Catherine Milne and colleagues present the findings of their review,

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The incidence rate of pressure injury is a critical nursing quality indicator in clinic care; consequently, factors causing pressure injury are diverse and complex. The early prevention of pressure injury and monitoring of these complex high-risk factors are critical to reduce the patients' pain, prevent further surgical treatment, avoid prolonged hospital stay, decrease the risk of wound infection, and lower associated medical costs and expenses. Although a number of risk assessment scales of pressure injury have been adopted in various countries, their criteria are set for specific populations, which may not be suitable for the medical care systems of other countries. This study constructs three prediction models of inpatient pressure injury using machine learning techniques, including decision tree, logistic regression, and random forest. A total of 11,838 inpatient records were collected, and 30 sets of training samples were adopted for data analysis in the experiment. The experimental results and evaluations of the models suggest that the prediction model built using random forest had most favorable classification performance. 0.045. The critical risk factors for pressure injury identified in this study were skin integrity, systolic blood pressure, expression ability, capillary refill time, and level of consciousness.

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Background: Pressure injuries are frequently occurred adverse events in hospitals, affecting the well-being of patients and causing considerable financial burden to healthcare systems. However, the estimates of prevalence, incidence, and hospital-acquired rate of pressure injury in hospitalised patients vary considerably in relevant published studies. Objectives: To systematically quantify the prevalence and incidence of pressure injuries and the hospital-acquired pressure injuries rate in hospitalised adult patients and identify the most frequently occurring pressure injury stage(s) and affected anatomical location(s); Design: Systematic review and meta-analysis; Data Sources: Medline, PubMed, Embase, Cochrane Library, CINAHL and ProQuest databases from January 2008 to December 2018; Review Methods: We included studies with observational, cross-sectional or longitudinal designs, reporting pressure injury among hospitalised adults (≥16 years) and published in English. Outcomes were point prevalence, incidence of pressure injuries and the hospital-acquired pressure injuries rate reported as percentages. Two reviewers independently appraised the methodological quality of included studies. Heterogeneity was assessed by using the I² statistic and random effects models were employed. Sources of heterogeneity were investigated by subgroup analysis and meta-regression. Results: Of 7,489 studies identified, 42 were included in the systematic review and 39 of them were eligible for meta-analysis, with a total sample of 2,579,049 patients. The pooled prevalence of 1,366,848 patients was 12% (95% CI 11.8-13.9%); pooled incidence rate of 813,885 patients was 54 per 10,000 patient-days (95% CI 34-78) and pooled hospital-acquired pressure injuries rate of 1,893,593 was 84% (95% CI 76-93%). Stages were reported in 16 studies (132,530 patients with 12,041 pressure injuries). The most frequently occurred stages were Stage I (43%) and Stage II (28%). The most affected body sites were sacrum, heels and hip. Significant heterogeneity was noted across some geographic regions. Meta-regression showed that the year of data collection, mean age and gender were independent predictors, explaining 67% variability in the prevalence of pressure injuries. The year of data collection and age alone explained 93% of variability in hospital-acquired pressure.
Health care costs in the United States are considerable, and total national cost of preventable adverse events in the United States ranges from billions to trillions of dollars annually. Achieving the highest quality of health services requires delivering care that mitigates the risk of patient adverse events. Pressure injuries are a significant concern globally.

Objective: The main aim of this study was to estimate the prevalence of pressure ulcers (PU) and related risk factors of PU development in ICU patients. The methodology used to measure PU prevalence was that recommended by the European Pressure Ulcer Advisory Panel (EPUAP).

Methods: A cross-sectional study, using two separate designs at two separate timepoints: 2010 and 2015. The study involved 72 patients eligible for hospitalization in hospitals of Isfahan University of Medical Sciences. Patients were divided randomly into two groups: control and intervention (receiving olive oil). The standard program of skincare was implemented on both groups; in addition, olive oil was applied topically in the intervention group. An infrared thermometer was used to record the local temperature of the ulcers daily. Assessments were made based on pressure ulcer scale for healing (PUSH) tool and the pressure ulcer area was measured per square cm on the first, fourth, and seventh day. The data collected was analyzed by Fisher's exact test, independent sample t-test, and repeated measure analysis using SPSS (version 22).

Results: On the fourth and seventh day, the PUSH score was lower in the olive oil group (750 ± 283 and 544 ± 3806) than in the control group (950 ± 1732 and 883 ± 2864) (P-value <0.001). Also, a significant improvement of ulcer was observed in the olive oil group (mean difference 356; P-value <0.001) but no change was observed in the control group (mean difference 075; P-value 0.052).

Conclusions: Based on the effect of olive oil in the reduction of ulcer area and the average PUSH score obtained in ICU patients, the application of olive oil is recommended for healing grade one pressure ulcers.

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significant and costly adverse event Mitigating or eliminating harm from pressure injuries not only improves quality and increases patient safety but also decreases costs of care The purpose of this article is to pilot a systematic methodology for examining the differences in the cost of care for a subset of patients with and without hospital-acquired pressure injuries in an acute care setting

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Background: A core outcome set (COS) is an agreed minimum set of outcomes that should be reported in all clinical trials in specific areas of health care A considerable amount of trials did not report essential outcomes or outcomes measurement methods, which makes it challenging to evaluate the efficacy and safety of treatment strategies for pressure injury (PI) and produced significant heterogeneity of reported outcomes It is necessary to develop a COS, which can be used for clinical trials in PI treatment;

Methods/design: The development of this COS will be guided by an advisory group composed of clinicians, senior nurses, patients, and methodologists We will search six databases and 2 registry platforms to identify currently reported PI treatment outcomes and outcome measurement instruments in randomized controlled trials, meta-analysis, and systematic reviews We will also conduct a semi-structured interview with clinicians, nurses, and adult PI patients to collect their opinions on important outcomes Each outcome of the initial list generated from systematic review and interviews will be scored and reach a consensus through two rounds of international Delphi survey with all key stakeholders A face-to-face consensus meeting with key stakeholders will be conducted to finish a final COS and recommend measurement instruments for each outcome; Results: We will develop a COS that should be reported in future clinical trials to evaluate the effectiveness of PI treatment; Discussion: The COS will follow current guidance to develop a high-quality COS in the field of PI treatment to reduce heterogeneity in trial reporting, facilitate valid comparisons of new therapies, and improve the quality of clinical trials

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The aim of this systematic review was to summarize the evidence on the efficacy of zinc supplementation in patients with pressure injuries (PIs) Electronic data bases (Embase, MEDLINE, and Web of Science) were searched from inception to 2019 for randomized controlled trials (RCTs) and non-RCTs addressing the efficacy of zinc supplementation compared with a control nutrition intervention on PI outcomes The primary study outcome was the healing rate of PIs during treatment; the secondary outcomes were the improvement of PI area and pressure ulcer scale for healing (PUSH) score A total of 7 studies were included in this systematic review and meta-analysis The intervention group significantly had improved healing vs that of the control group (relative risk, 144; 95% CI, 101-206; P 0043, I 2 193%) There was no obvious asymmetry in the funnel plot and no strong evidence of publication bias Sensitivity analysis showed that meta-analysis has good stability Studies showed a greater mean reduction in PI area All the studies we included had a significant improvement in the PUSH score of PIs Our systematic review and meta-analysis from clinical research confirmed that zinc therapy can promote wound healing and suggest that medical staff should consider providing patients with zinc during PI treatment (© 2020 American Society for Parenteral and Enteral Nutrition)

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Undermining is an important issue in the treatment and care of deep pressure ulcers. The frequency of the undermining over different bony prominences varies. In particular, deep pressure ulcers over the sacrum exhibit undermining more frequently than those occurring over the heel. Although shear force has been suggested as a critical factor in undermining, the exact mechanism remains unclear due to ethical and technical reasons in clinical practice. To clarify this issue, a deformable model was constructed to recreate the physical and morphological properties of a pressure ulcer with persistent undermining. The model was constructed using urethane to recreate the physical properties of a pressure ulcer. To examine the clinical relevance of the model, mechanical properties of the skin and the model were measured using a durometer. The model was further mounted onto a phantom that was laid on a bed. Backrest elevation of the bed induced deformities in the urethane model, suggesting a mechanism of persistent undermining of the sacral pressure ulcer. Moreover, a simple palpation examination in elderly volunteers revealed that the skin over the sacrum was more mobile than the skin over the heel. Therefore, persistent undermining is likely caused by specific external forces and the characteristic skin mobility of the sacral region. These two different factors explain the frequent undermining that occurs in sacral pressure ulcers. (Copyright © 2020 Tissue Viability Society Published by Elsevier Ltd All rights reserved)

Çelik (2020) "Comparison of platelet-rich plasma gel in the care of the pressure ulcers with the dressing with serum physiology in terms of healing process and dressing costs" International wound journal

This research was carried out with the aim of comparing the effects of platelet-rich plasma (PRP) gel and gas dressing with serum physiologic applied to stage II pressure ulcer in coccyx of patients for 2 months on healing process and dressing costs. This prospective randomised controlled experimental study was conducted with 60 patients hospitalised in the palliative care unit after surgery. The experimental group (n = 30) was dressed with platelet-rich plasma gel. The control group (n = 30) was treated with serum physiologic dressing. At the end of the 20th observation of the patients in the experimental group, it was found that the mean scores of area, exudate, and tissue type in pressure sores decreased statistically (P < 0.01). In the control group, no significant difference was found between the mean PUSH score at the end of the 20th observation (P > 0.05). The study showed that PRP gel had a positive effect on healing of stage II pressure ulcers with platelet-rich plasma gel dressings. In addition, when evaluated in the long term, it was concluded that platelet-rich plasma gel is easily accessible and less costly than serum physiological dressing. (© 2020 Medicalhelplines.com Inc and John Wiley & Sons Ltd)

Turin (2020) "Complex interactions between provider, organisation and patient level characteristics influence the effect of pressure ulcer preventive care interventions" Evidence-based nursing

(© 2020 Medicalhelplines.com Inc and John Wiley & Sons Ltd)
Websites


“Risk Assessment and Prevention of Pressure Ulcers: a clinical practice guideline from the American College of Physicians” (2015)
http://annals.org/article.aspx?articleid=2173505


NICE Guideline: “Pressure ulcers: prevention and management of pressure ulcers” (April 2014)
http://www.nice.org.uk/guidance/CG179


The Trans Tasman Dietetic Wound Care Group, Evidence based practice guidelines for the nutritional management of adults with pressure injuries (2011)

Registered Nurses’ Association of Ontario - Risk assessment and prevention of pressure ulcers (2011 revised)

National Guideline Clearinghouse – predefined search
https://search.ahrq.gov/search?q=%22pressure+ulcer*%22+or+%22pressure+injur*%22


Cochrane Wounds Group
https://wounds.cochrane.org/news/reviews
The Cochrane Wounds Group was established in 1995 with the aim of using evidence from trials to conduct systematic reviews to establish the effectiveness of interventions for the prevention and treatment of wounds, and interventions for the prevention and treatment of wound complications.

National Pressure Injury Advisory Panel
http://www.npiap.com/
e-Journals

Advances in Skin & Wound Care  (Tables of Contents only)

Eplasty (formerly Journal of Burns & Wounds)  (full text)

EWMA Journal  (full text)

International Wound Journal  (Tables of Contents only)

Journal of the American College of Clinical Wound Specialists  (full text)

Journal of Tissue Viability  (full text)

Journal of Wound Care  (full text)

World Council of Enterostomal Therapists Journal  (full text 2010 onwards)

World Wide Wounds: the premier online resource for dressing materials and practical wound management information  (full text)

The mission of World Wide Wounds is to be the premier online resource for peer-reviewed information on dressing materials providing practical guidance on all aspects of wound management to health professionals worldwide.

Wound Care Advisor  (full text 2014 onwards)

Wound Management and Prevention  (Table of Contents only)

Wound Practice & Research  (full text)

Wound Repair & Regeneration  (full text with 12-month delay)

Wounds International  (full text 2012 onwards)

Wounds UK Journal  (full text 2011 onwards)

e-Books

Acute and chronic wounds  5th ed, 2016

Fast facts for wound care nursing : practical wound management in a nutshell  2011

Nutrition and wound healing  2007


## Queensland Health Libraries and Contact Numbers

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