Pressure Injury Current Awareness Service

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Pressure ulcer (PU) risk assessment practices in adult intensive care unit (ICU) patients remain varied Purpose: The authors assessed the performance of the Sequential Organ Failure Assessment (SOFA) scale and its subcategories in predicting the development of PUs Methods: A retrospective cohort study was conducted of all adult patients admitted to the mixed medical-surgical ICU of a Finnish tertiary referral hospital between January 2010 and December 2012 Data (diagnoses, demographics, clinical information, treatments, and instrument scores) were retrieved from the ICU database Wilcoxon and chi-squared tests were used to examine patient subgroup (medical or surgical ICU and intensive care or high-dependency care patients), length of ICU stay (LOS), modified Jackson/Cubbin (mJ/C) scores and SOFA subcategory variables, and first-day SOFA scores PU association was determined by logistical regression Results: Among the 4899 patients in the study population, the overall PU incidence of acquired PUs was 81% Medical patients had significantly more PUs (145/1281; 113%) than surgical patients (212/3468; 61%) (P <0.001) In all subgroups, significantly more patients with PUs had higher SOFA scores (mean 824) than patients without PUs (mean 674) (P <0.01) The difference persisted when patients with LOS <3 days in the ICU were considered Among the SOFA subcategories, the Glasgow Coma score, renal and respiratory disorders, and hypotension were significantly linked to PU development First-day total SOFA score and its cardiovascular and respiratory subcategory scores were the most important predictors of PUs Conclusion: The total SOFA score provides an additional tool to assess PU risk in ICUs and should be used together with the Braden or the mJ/C Scale
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Wound pressure injuries have been given various names over the last several years In the past, they were referred to as pressure ulcers, decubitus ulcers, or bed sores; and now they are most commonly termed "pressure injuries" Pressure injuries are defined as the breakdown of skin integrity due to some types of unrelieved pressure This can be from a bony area on the body coming into contact with an external surface which leads to pressure injury These wounds represent the destruction of normal structure and function of the skin and soft tissue through a variety of mechanisms and etiologies The wound healing process is affected by various factors including infection, the presence of chronic diseases like diabetes, aging, nutritional deficiency like vitamin C, medications like steroids, and low perfusion of oxygen and blood flow to the wound in cases of hypoxia and cold temperature Pressure ulcers result from long periods of repeated pressure applied to the skin, soft tissue, muscle, and bone In pressure ulcers, the external pressure exceeds capillary closing pressure[1][2][3]; Copyright © 2018, StatPearls Publishing LLC
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Surgical patients are prone to developing hospital-acquired pressure ulcers (HAPU) Therefore, a better prediction tool is needed to predict risk using preoperative data This study aimed to determine, from previously published HAPU risk factors, which factors are significant among our surgical population and to develop a prediction tool that identifies pressure ulcer risk before the operation A literature review was first performed to elicit all the published HAPU risk factors before conducting a retrospective case-control study using medical records The known HAPU risks were compared between patients with HAPU and without HAPU who underwent operations during the same period (July 2015-December 2016) A total of 80 HAPU cases and 189 controls were analysed Multivariate logistic regression analyses identified eight significant risk factors: age ≥ 75 years, female gender, American Society of Anaesthesiologists ≥ 3, body mass index < 23, preoperative Braden score ≤ 14, anaemia, respiratory disease, and hypertension The model had bootstrap-corrected c-statistic 078 indicating good discrimination A cut-off score of ≥6 is strongly predictive, with a positive predictive value of 732% (confidence interval [CI]: 597%-842%) and a negative predictive
value of 807% (CI: 743%-861%) SPURS contributes to the preoperative identification of pressure ulcer risk that could help nurses implement preventive measures earlier; © 2018 Medicalhelplinescom Inc and John Wiley & Sons Ltd

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Introduction Locally and neurally mediated vasodilation of the cutaneous vasculature has been shown to occur in response to locally and systemically applied heat stresses The resultant shunting of blood to the periphery can be upwards of 7 L/min to 8 L/min when profound heat stresses are applied The increased cutaneous circulation from local heat stress may benefit extremities afflicted with a wound or area of compromised arterial supply Insulating the extremity also may increase local cutaneous perfusion Objective This study aims to determine if increased local warmth from an insulated offloading boot or mitt (designed to protect an extremity from trauma, offload the extremity to prevent pressure ulcers, and insulate the extremity to minimize heat loss) also results in increased local cutaneous perfusion using indocyanine green fluorescence angiography (ICGFA) Materials and Methods Nine patients from an outpatient wound care clinic with a wound or area of compromised arterial supply on the upper or lower extremity were studied prior to and following a minimum of a single 60-minute session of insulated offloading boot or mitt use utilizing ICGFA Measurements taken were time to first onset of fluorescence (seconds) and ingress and egress rates for the area of concern and the remainder of the area imaged Results All 9 patients exhibited signs of increased local warmth by a mean of 31°F while body temperature decreased by a mean of 12°F Local cutaneous perfusion increased with a mean change of 1 for the ingress rate to the area of concern and a mean change of 01 to the remainder of the area imaged Also, ICGFA was able to demonstrate preferential shunting of the increased cutaneous perfusion to the site of most need Conclusions These findings suggest enhanced skin perfusion may be an additional advantage of insulated offloading boot or mitt use

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Awareness that medical devices and other objects can cause pressure injuries is an important step in preventing such wounds The literature reports a wide variety of prevalence rates of pressure injuries from medical devices (MDRPI) which may be due to patient age, acuity, type of device/ object and location of the device/object In 2016, the National Pressure Ulcer Advisory Panel (NPUAP) revised its definition of medical device-related pressure injuries (MDRPI) and mucosal pressure injuries Since the mucosa does not keratinise, mucosal pressure injuries cannot be staged using the 2014 NPUAP EPUAP PPPIA staging system Nurses and all clinicians can benefit from quick summaries of key information on a clinical concept such as MDRPI These highlights of important information that nurses and other clinicians can bring to the bedside are called "educational enablers" We have published and will describe in this presentation two such enablers that can be used in clinical practice They are the SORE© mnemonic, which was developed to raise awareness of potential sources of these type of pressure injuries, and the DEVICES© mnemonic for prevention and treatment of MDRPI Clinical photos will also supplement this presentation

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Carl, K (2018) "A Unit Based Approach to Reducing Pressure Injuries" Georgia Nursing 78(4): 4-4

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This article offers guidance on use of the Braden QD Scale—a pediatric risk assessment instrument that reliably predicts both immobility-related and medical device-related pressure injuries Readers can test their skills by assigning scores to patients in a variety of scenarios The Braden QD Scale is a conceptually based, pediatric-specific, risk assessment instrument that reliably predicts both immobility-related and medical device–related pressure injuries in the pediatric acute care environment A revision and simplification of the commonly used Braden Q Scale, the Braden QD Scale can be used to assess risk among the wide range of infants, children, and adolescents commonly treated in acute care environments As part of a comprehensive program to prevent hospital-acquired pressure injuries, the Braden QD Scale promotes
patient safety, quality of care and care monitoring, and effective resource use in pediatric hospitalized patients. The authors provide guidance on using the Braden QD Scale to assess pediatric patients and score their risk of pressure-related injury in numerous scenarios frequently encountered in acute care practice.

Contrada, E (2018) "2 CE Test Hours: How to Predict Pediatric Pressure Injury Risk with the Braden QD Scale" The American Journal Of Nursing 118(11): 44-45 Check for full text availability


Objective: To evaluate the cost of topical therapy in patients with pressure ulcers. Method: Quantitative, cross-sectional and analytical study carried out at a reference outpatient clinic for the treatment of complex wounds. The sample consisted of 20 participants who sought the service for evaluation and the treatment of the ulcer. A form for sociodemographic, clinical, therapeutic and cost analysis was used for data collection. The analysis was carried out through descriptive and inferential statistics. Results: There was a predominance of males, with a mean age of 56.6 years and of patients coming from Teresina. Chronic wounds prevailed, located in the sacral region and in stage 4. The cost analysis showed that lesions in the lower limbs, with fetid odor, devitalized tissue, intense exudate and that were treated with activated charcoal, silver foam and hydrofiber presented higher cost. Conclusion: It was shown that the pressure ulcer presented a high cost determined by the clinical characteristics and therapeutic methods adopted. The need to implement preventive measures and new studies to show the impact of the injury on health services was evidenced.

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Objective: To quantify the prevalence and incidence of different skin injuries, pressure ulcers (PU), skin tears (ST) and incontinence-associated dermatitis (IAD) in China, and to identify their causes to aid prevention and control. Method: A cross-sectional observational study was conducted across nine tertiary hospitals. Registered nurses were trained on a standard approach to injury assessment and examination. The study was carried out at the same time on the same day across the participating centres. Participating patients were examined for PU, ST or IAD. Results: A total of 13,176 inpatients were assessed and 233 PU were identified, of which 126 occurred in hospitals, 99 cases at home and eight cases within community hospitals. In addition, there were 141 skin tears and 97 IADs. Conclusion: This study involved the largest number of hospitals, to date (in China). Therefore, the prevalence and rate of incidence of skin injury obtained in this study may represent a regional baseline in China.

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Haesler, E (2018) "Evidence Summary: Prevention of pressure injuries in individuals with overweight or obesity" Wound Practice & Research 26(3): 158-161

The article offers information on the evidence for prevention of pressure injuries in obese persons. Topics discussed include the increased risk of PI in obese persons, the influence of optimal nutrition on the prevention and healing of PIs, and the use of regular skin assessment to determine areas at risk of PI.

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Background: One of the most common orthopedic problems is the incidence of pressure ulcer followed by immobility. This study aimed to investigate the effect of Aloe Vera gel on the prevention of pressure ulcer in patients hospitalized in the orthopedic ward. Method: This study is a randomized, triple-blind clinical trial which was done on 80 purposefully selected patients in orthopedic ward in Arak town, Iran, 2016. Patients were randomly assigned into two intervention and control groups based on blocking sampling method. In each group the routine daily cares to prevent bed sores were performed by nurses. In the intervention group in addition to routine nursing care to prevent bed sores, twice a day (hours of 9 and 21) pure Aloe
A pressure ulcer occurs as a result of prolonged pressure and shear that diminish the flow of blood to an area of the body, causing a subsequent reduction in oxygen supply which leads to cell death Deep tissue injury (DTI) is considered to be a new type of pressure ulcer resulting from deterioration in deeper tissue. Our research team has been focusing on DTI since this type of pressure ulcer remains a big problem, which sometimes progresses to a severe pressure ulcer rapidly and becomes life-threatening, especially in elderly patients. To understand the degree of tissue damage, we established a novel assessment technique using ultrasound with a high-frequency transducer, which can detect structural and functional changes in deeper tissue. Visualisation of deep tissue structure with high-frequency ultrasonography enables clinicians to predict deterioration by assessing for the presence of four ultrasonographic features: unclear layered structure; hypoechoic lesions; discontinuous fascia; and heterogeneous hypoechoic areas. Establishing whether any of these abnormal features are present may aid in predicting prognosis, and would encourage the use of adequate preventative and treatment strategies. To prevent DTI deterioration, intensive pressure redistribution care is indispensable. Our recent innovations include a "Robotic Mattress." We propose a new adjustment algorithm based on continuously-monitored interface pressure inside the mattress. In this algorithm, the inner air-cell pressure is adjusted to one level higher than the level where the interface pressure values are the lowest to offer optimal mattress hardness without a risk of bottoming-out. Since the inner air-cell pressure can be automatically adjusted according to the sensor input, this support surface is a kind of robotic mattress. These advancements will promote technology-based innovations for pressure ulcer management.

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A pressure ulcer occurs as a result of prolonged pressure and shear that diminish the flow of blood to an area of the body, causing a subsequent reduction in oxygen supply which leads to cell death. Deep tissue injury (DTI) is considered to be a new type of pressure ulcer resulting from deterioration in deeper tissue. Our research team has been focusing on DTI since this type of pressure ulcer remains a big problem, which sometimes progresses to a severe pressure ulcer rapidly and becomes life-threatening, especially in elderly patients. To understand the degree of tissue damage, we established a novel assessment technique using ultrasound with a high-frequency transducer, which can detect structural and functional changes in deeper tissue. Visualisation of deep tissue structure with high-frequency ultrasonography enables clinicians to predict deterioration by assessing for the presence of four ultrasonographic features: unclear layered structure; hypoechoic lesions; discontinuous fascia; and heterogeneous hypoechoic areas. Establishing whether any of these abnormal features are present may aid in predicting prognosis, and would encourage the use of adequate preventative and treatment strategies. To prevent DTI deterioration, intensive pressure redistribution care is indispensable. Our recent innovations include a "Robotic Mattress." We propose a new adjustment algorithm based on continuously-monitored interface pressure inside the mattress. In this algorithm, the inner air-cell pressure is adjusted to one level higher than the level where the interface pressure values are the lowest to offer optimal mattress hardness without a risk of bottoming-out. Since the inner air-cell pressure can be automatically adjusted according to the sensor input, this support surface is a kind of robotic mattress. These advancements will promote technology-based innovations for pressure ulcer management.

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Background: Prevalence of hospital-acquired pressure injuries has declined over time. However, it is unknown if this decline is consistent for different stages of pressure injuries. It is also unknown if risk factors differ between superficial (stage 1 and 2) and severe (stage 3, 4, deep tissue, and unstageable) pressure injuries.

Objective: To examine changes in prevalence of superficial and severe hospital-acquired pressure injuries from 2011 to 2016 to evaluate differences between risk factors associated with superficial versus severe hospital-acquired pressure injuries.

Design: Retrospective analysis of the 2011-2016 International Pressure Ulcer Prevalence™ data.

Setting: Acute care hospitals in the USA.

Participants: 216,626 patients had complete data; Methods: Prevalence of all, superficial, and severe hospital-acquired pressure injuries was calculated annually from 2011 to 2016 and linear trendlines were generated. Two logistic regressions examined risk factors for superficial and severe hospital-acquired pressure injuries. Results: Prevalence of superficial hospital-acquired pressure injuries declined significantly from 2011 to 2016. However, prevalence of severe pressure injuries did not show a reduction. Risk factors that significantly increased the risk of both superficial and severe pressure injuries were: increased age, male gender, unable to self-ambulate, all types of incontinence, additional linen layers, longer lengths of stay, and being in an intensive care unit. Body mass index (BMI) had a U-shaped relationship, where the likelihood of having either type of pressure injury was highest for low and high BMIs.

Conclusions: A decline in superficial, but not severe,
hospital-acquired pressure injuries suggests current prevention techniques might not adequately prevent severe pressure injuries. Generally, risk factors for superficial and severe pressure injuries were highly similar where all 14 of the risk factors were significant in both regression models. However, five risk factors in particular - ICU stay, presence of an ostomy, patient age, ambulatory status, and presence of a fecal management system - had substantially different effect sizes. Copyright © 2018 The Author(s) Published by Elsevier Ltd All rights reserved

Background: Pressure ulcers (PU) are serious medical problems that involve several factors. Recent studies suggest that oxidative stress along with chronic inflammation may cause and develop PU. However, the metabolic disturbances underlying PU are not totally known. The purpose of this study is to evaluate biochemical oxidative stress markers in Tunisian patients suffering of PU. Methods: 100 adult patients with PU and 213 healthy adult controls were selected for the study. Biochemical parameters related to immune profiles, and biomarkers of the liver, kidney, and inflammatory proteins were evaluated using recently developed automated measurement methods. Oxidant-antioxidant system markers (malondialdehyde, carbonyl proteins, total antioxidant potential, total oxidant status, catalase, and glutathione-S- transferase) were studied using appropriate methods; Results: Patients with PU showed, remarkably, abnormal levels of biochemical markers and relatively higher systemic oxidative stress compared to healthy subjects. This provides the first evidence that alterations in biochemical parameters and oxidative stress are features of PU; Conclusion: Understanding the signaling pathways involved in the development of PU will provide experts with additional knowledge for therapeutic strategies aimed at limiting the oxidative and inflammatory reactions in affected patients.

Aim: Geriatric syndromes are common among older individuals, and can affect their health and quality of life. The present study aimed to determine if combinations of geriatric syndromes affected adverse outcomes among older Koreans. Methods: Korean national health insurance data were collected for a cohort of 5,058,720 individuals who were aged ≥65 years in 2008. The same data source was used to follow these individuals until 2015. Diagnostic codes were used to assess four major geriatric syndromes (delirium, fall-related fractures, incontinence and pressure ulcers) and adverse outcomes (mortality and nursing home institutionalization). Results: The prevalence of geriatric syndromes was 0.3% for delirium, 34.9% for fall-related fractures, 10.8% for incontinence, and 0.2% for pressure ulcers. All four geriatric syndromes were associated with increased risks of institutionalization (adjusted hazard ratio [aHR] 2.18, 95% CI 2.08–2.17 for delirium; aHR 1.58–1.76 for fall-related fractures; aHR 1.41–1.44 for incontinence; and aHR 2.51, 95% CI 2.47–2.55 for pressure ulcers) and increased risks of mortality (aHR 2.13, 95% CI 2.08–2.17 for delirium; aHR 1.91, 95% CI 1.90–1.92 for fall-related fractures; aHR 1.91, 95% CI 1.90–1.92 for incontinence; and aHR 2.32, 95% CI 2.30–2.32 for pressure ulcers). The aHR for institutionalization were 1.64 (95% CI 1.63–1.65) for one geriatric syndrome, 2.40 (95% CI 2.35–2.44) for two coexisting geriatric syndromes, and 2.56 (95% CI 2.35–2.74) for three coexisting geriatric syndromes. The aHR for mortality were 1.52 (95% CI 1.51–1.53) for one geriatric syndrome, 2.36 (95% CI 2.32–2.40) for two coexisting geriatric syndromes, and 2.90 (95% CI 2.72–3.09) for three coexisting geriatric syndromes. Conclusions: Delirium, fall-related fractures, incontinence and pressure ulcers were associated with increased risks of institutionalization and mortality. The magnitude of these risks increased with increasing numbers of coexisting geriatric syndromes. Geriatr Gerontol Int 2018; 18: 1463–1468

Background: Immobility and prolonged bed rest often lead to heel pressure ulcers in patients. A point prevalence audit undertaken in the orthopaedic wards of a Singapore tertiary hospital reported that 6 out of 30 patients who were audited had mild to blanching redness on their heels. Aims: The evidence-based project sought to achieve 80% compliance from nurses to perform heel off-loading practice and a 50% reduction in the...
occurrence of heel pressure ulcers; Methods: The project, lasting two years, was undertaken in two orthopaedic wards and utilized a pre- and post-implementation audit strategy using the Joanna Briggs Institute on-line ‘Practical Application of Clinical Evidence System’ and ‘Getting Research into Practice’ programs Implementation occurred in four phases and involved a sample consisting of 30 adult patients; Results: Nurses' compliance with performing heel off-loading techniques increased The post-implementation audit showed 933% compliance of nurses undertaking heel off-loading techniques in the subsequent four follow-up audits Meanwhile, the compliance with documentation increased from 633% to 867% The project resulted in more than 50% reduction in stage one heel pressure ulcers; Conclusion: The implementation of heel off-loading techniques significantly reduced the incidences of heel pressure ulcers in orthopaedic wards; Copyright © 2018 Elsevier Ltd All rights reserved

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Lecko, C (2018) "Assessing nutritional status to reduce risk of pressure ulcers" Nursing Times 114(6): 4-4 Good nutrition and hydration play a key role in keeping skin healthy, and poor nutritional status is a risk factor in the development of pressure ulcers Assessing patients' nutrition status, including their ability to eat and drink, should therefore form part of holistic care in pressure ulcer prevention and management A group of specialist nurses and dietitians at NHS Improvement has developed a series of evidence-based, practical resources to raise awareness of the importance of good nutrition in pressure ulcer prevention and care, and support staff to give the right advice and treatment to patients who are at risk

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Liu, J, E G Rybakina, et al (2018) "Effects of Derinat on ischemia-reperfusion-induced pressure ulcer mouse model" Journal Of Pharmacologic Sciences Epub ahead of print Sodium salt of deoxyribonucleic acid (DNA), Derinat, isolated from the soft roes of Russian sturgeon, has been utilized as an immunomodulator for the treatment of reactive oxygen species (ROS)-associated diseases in clinics Here we show that treatment with Derinat has an anti-inflammatory and anti-oxidative effects on cutaneous ischemia-reperfusion (IR) injury in pressure ulcer (PU) model mice Dorsal skin damage and dermal edema in mild PU model mice were attenuated by treatment with Derinat Immunohistochemical and biochemical analyses showed that Derinat suppressed IR-induced oxidative damage, ie accumulation of 8-hydroxy-2'-deoxyguanosine (8-OHdG), and related inflammatory factors such as cyclooxygenase 2 (COX-2) and IL-6 receptor (IL-6R) in dorsal skin from PU model mice We also verified that phosphorylated/non-phosphorylated ratio of extracellular signal-regulated kinase (Erk) and p38 mitogen-activated protein kinase (MAPK) increased after IR, which were attenuated by Derinat We then compared the effect of Derinat with that of salmon DNA and other PU therapeutic agents, prostaglandin E1 (PGE1) and basic fibroblast growth factor (bFGF), by using severe PU model mice The effects of Derinat and salmon-DNA were compatible with those of PGE1 and bFGF These results suggest that Derinat other fish-derived DNA formulation could be effective enough and become intriguing new therapeutic options; Copyright © 2018 The Authors Production and hosting by Elsevier BV All rights reserved

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McInnes, E, A Jammali-Blasi, et al (2018) "Support surfaces for treating pressure ulcers" The Cochrane Database Of Systematic Reviews 10: CD009490 Background: Pressure ulcers are treated by reducing pressure on the areas of damaged skin Special support surfaces (including beds, mattresses and cushions) designed to redistribute pressure, are widely used as treatments The relative effects of different support surfaces are unclear This is an update of an existing review; Objectives: To assess the effects of pressure-relieving support surfaces in the treatment of pressure ulcers; Search Methods: In September 2017 we searched the Cochrane Wounds Specialised Register; the Cochrane Central Register of Controlled Trials (CENTRAL); Ovid MEDLINE (including In-Process & Other Non-Indexed Citations); Ovid Embase and EBSCO CINAHL Plus We also searched clinical trials registries for ongoing and unpublished studies, and scanned reference lists of relevant included studies as well as reviews, meta-analyses and health technology reports to identify additional studies There were no restrictions with respect to language, date of publication or study setting; Selection Criteria: We included published or unpublished randomised controlled trials (RCTs), that assessed the effects of support surfaces for treating pressure ulcers, in any participant group or setting; Data Collection and Analysis: Data extraction, assessment of 'Risk of bias' and GRADE assessments were performed independently by two review authors Trials with similar participants, comparisons and outcomes were considered for meta-analysis Where meta-analysis was inappropriate, we reported the results of the trials narratively Where possible, we planned to report data as either risk ratio or mean difference as
appropriate; Main Results: For this update we identified one new trial of support surfaces for pressure ulcer treatment, bringing the total to 19 trials involving 3241 participants Most trials were small, with sample sizes ranging from 20 to 1971, and were generally at high or unclear risk of bias; Primary Outcome: healing of existing pressure ulcers Low-tech constant pressure support surfaces is uncertain whether profiling beds increase the proportion of pressure ulcer which heal compared with standard hospital beds as the evidence is of very low certainty: (RR 396, 95% CI 128 to 1224), downgraded for serious risk of bias, serious imprecision and indirectness (1 study; 70 participants) There is currently no clear difference in ulcer healing between water-filled support surfaces and foam replacement mattresses: (RR 093, 95% CI 063 to 137); low-certainty evidence downgraded for serious risk of bias and serious imprecision (1 study; 120 participants) Further analysis could not be performed for polyester overlays versus gel overlays (1 study; 72 participants), non-powered mattresses versus low-air-loss mattresses (1 study; 20 participants) or standard hospital mattresses with sheepskin overlays versus standard hospital mattresses (1 study; 36 participants) High-tech pressure support surfaces is currently unclear whether high-tech pressure support surfaces (such as low-air-loss beds, air suspension beds, and alternating pressure surfaces) improve the healing of pressure ulcers (14 studies; 2923 participants) or which intervention may be more effective The certainty of the evidence is generally low, downgraded mostly for risk of bias, indirectness and imprecision Secondary outcomes No analyses were undertaken with respect to secondary outcomes including participant comfort and surface reliability and acceptability as reporting of these within the included trials was very limited Overall, the evidence is of low to very low certainty and was primarily downgraded due to risk of bias and imprecision with some indirectness Authors’ Conclusions: Based on the current evidence, it is unclear whether any particular type of low- or high-tech support surface is more effective at healing pressure ulcers than standard support surfaces.

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Pressure ulcers (PUs) are caused by tissue damage when the blood supply to an area of skin is diminished as a result of pressure Although most pressure ulcers are preventable, all patients are at risk Nurses have a central role in prevention and management of pressure areas They should be able to assess patients’ risk of developing PUs using evidence-based practice, recognised risk assessment tools and by completing a holistic assessment Nurses must be able to identify the risk factors associated with developing PUs and implement appropriate measures to deliver harm-free care Repositioning techniques, monitoring and ongoing care strategies are essential for pressure ulcer prevention in practice;

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Background: Flap surgery for deep pelvic pressure ulcers (PPUs) has been found effective, but the recurrence rate remains high and few risk factors have been identified; Objective: We evaluated risk factors for PU recurrence after primary flap surgery in people with spinal cord injury (SCI); Patients and Methods: This observational retrospective study based on medical charts included all individuals with SCI who underwent primary flap surgery for a PPU in the Hérault department in France between 2006 and 2014 Overall, 100 biomedical, psychological, socioeconomic and care management factors were studied The primary outcome was PPU recurrence (surgical site and/or other pelvic site) The secondary outcome was recurrence at the surgical site Cox proportional hazards regression was used to determine associated factors, estimating hazard ratios (HRs) and 95% confidence intervals (CIs); Results: We included 85 patients Half had a PPU recurrence, and in one-third, the recurrence was at the surgical site On multivariate analysis, global PPU recurrence was associated with colostomy (HR279) and living with a partner (HR229) Non-traumatic SCI and sacral wound were associated with PPU recurrence (HR339, HR048) and recurrence at the surgical site (HR33, HR03); Conclusion: Risk factors of PPU recurrence are based on both biomedical and social models After primary flap surgery, the risk of recurrence justifies regular follow-up and strict monitoring; Copyright © 2018 Published by Elsevier Masson SAS

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Compliance with international best practice guidelines can effectively prevent most hospital-acquired pressure injuries (HAPIs) (Black 2011, National Pressure Ulcer Advisory Panel 2010, Padula et al 2016) These guidelines include several nursing interventions that were introduced in 1992 by the US Agency for Healthcare Research & Quality (AHRQ), and have since been updated by the National Pressure Ulcer Advisory Panel (NPUAP) every 3-5 years (NPUAP 2014, Panel on the Prediction and Prevention of Pressure Ulcers in Adults 1992 AHCPR Publication No 91-0047) Following admission, nurses should perform a daily skin check and risk-assessment using a validated risk tool (Bergstrom 1987, Braden 1994) Patients determined to be high-risk receive additional measures: (a) repositioning every 2-4 hours; (b) managing skin care and incontinence; (c) improving nutrition; (d) using pressure-relieving support surfaces; and (e) reducing friction and shear (NPUAP 2014, Agency for Healthcare Research and Quality 2011) Many hospitals struggle to incorporate these guidelines into a daily routine given the intense amount of nursing time, costliness to implement, uncertain clinical effectiveness, and competing patient demands and hospital priorities This article is protected by copyright All rights reserved; This article is protected by copyright All rights reserved

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Santaegènia, S J, M Àngel Mas, et al (2017) "Does the presence of pressure ulcers entail “high risk of negative outcomes” in geriatric rehabilitation? Results from a retrospective cohort study" Nutricion Hospitalaria 34: 1305-1310

Aim: A retrospective cohort study was performed in order to evaluate the prevalence of pressure ulcers (PrUs) in older patients admitted to a geriatric rehabilitation unit of a postacute care hospital and to investigate the impact of the presence of PrUs on clinical outcomes of the rehabilitation process Methods: We studied 668 post-acute patients consecutively attended, from January 2010 to December 2011 The effect of having PrUs at admission was evaluated based on its impact on outcomes: final destination, functional status, mortality and length of stay in the rehabilitation unit Results: PrUs prevalence at admission was 16% Patients with PrUs were older, more disabled and had more complex conditions, including malnutrition and cognitive impairment In the bivariate analysis, we found patients with PrUs at admission had worst final outcome (%): discharge home (692 vs 825), discharge long term care setting (14 vs 64), discharge acute care (84 vs 62) and death (84 vs 48); p < 0001, and worst Barthel index score at discharge 57 (SD 341) vs 83 (SD 336); p < 0001, with longer length of stay in the unit 61 (SD 423) vs 53 (SD 371); p 0004 In the multivariate analysis, PrUs presence was found as one of the variables with significant association to no return to home Finally, a negative association between PrUs at admission and functional gain at discharge of the postacute unit was identified Conclusions: PrUs were prevalent and had negative impact on clinical outcomes of our geriatric unit, as discharge destination, functional gain and Length of Stay, in vulnerable patients

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Background: Researchers advocate developing empirically-derived prognostic models to predict pressure ulcer risk However, there remains a scarcity of evidence about the performance and clinical value of these models Objectives: To identify and describe empirically-derived models for predicting pressure ulcer risk; to assess the predictive performance of these models; and to evaluate their clinical impact in reducing pressure ulcer incidence Methods: We performed a comprehensive database search up to February 2017 and searched other resources to identify longitudinal studies that developed and/or validated prognostic models for predicting pressure ulcer risk and studies evaluating the clinical effects of such models There were no
Maintaining skin integrity is benchmarked for patient safety and quality of care. The purpose of this quality improvement project was to evaluate the incidence of pressure ulcers in high-risk, seriously ill patients from critical care areas comparing the number of hospital-acquired pressure injuries (HAPIs) after implementation of a new silicone multi-layer foam dressing with the number of HAPIs developed during a period in the previous year within which other silicone multi-layer foam dressings were used for prevention.

This study took place in three intensive care units (ICUs) including 326 patients from three community hospitals. The risk of bias associated with the development of all 22 models and eight validations was judged as high or unclear. The predictive performance was reported as: c-statistic point estimates ranging from 0.65 to 0.89, and total observed:expected risk ratios between 0.94 and 1.00. Compared with heuristic tools, relevant included models had better discrimination and calibration. No eligible study was identified that evaluated the clinical impact of any included model.

Conclusions: Whist many prognostic models for predicting ulcer risk have been developed few have been validated. The methods used for model development are generally flawed which reduces the potential for using these models in practice. Future research should address these weaknesses.

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Aim: Understand the significance of the incorporation of the pressure injury protocol in the care management performed by nurses. Method: Qualitative research using a methodological framework based on the Grounded Theory. Data were collected through a semi-structured interview, with 22 nurses from a university hospital, from July to September 2014. Results: The central phenomenon “Making the Pressure Injury Protocol meaningful as a Nursing Qualification Tool for Managerial Care”, composed of the category “Qualifying the professionals for the management of care” and its four subcategories, which are: “Perceiving the professional qualification from the protocol”, “Considering the protocol a teaching tool”, “Perceiving the protocol as an instrument of education in service”, and “Evidencing the importance of protocols in patient safety”. Conclusion: The study showed that the protocol is a tool of care, as well as an instrument of education in service, which makes management of care safer and also promotes professional qualification.

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Stephenson, J (2018) "Exclusive: Pressure damage scanner has positive impact in hospice" Nursing Times 114(6): 82-82

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Stephenson, J (2018) "Guidance sets out change in pressure ulcer recording at end of life" Nursing Times 114(7): 83-83

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Stephenson, J (2018) "Trust's nurses celebrate 19 months free of serious pressure ulcers" Nursing Times 114(7): 111-111

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Maintaining skin integrity is benchmarked for patient safety and quality of care. The purpose of this quality improvement project was to evaluate the incidence of pressure ulcers in high-risk, seriously ill patients from critical care areas comparing the number of hospital-acquired pressure injuries (HAPIs) after implementation of a new silicone multi-layer foam dressing with the number of HAPIs developed during a period in the previous year within which other silicone multi-layer foam dressings were used for prevention. This study took place in three intensive care units (ICUs) including 326 patients from three community-
based hospitals in Massachusetts. The cumulative incidence during the study period was 0% as opposed to 0.02% from the previous year. Multi-layer foam dressings are beneficial for pressure ulcer prevention, taking into consideration the cost-effectiveness of care and optimal patient outcomes.

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The prevention and management of a pressure injury is a nurse-sensitive quality indicator in hospitals. Prevention and management of pressure injury practices have been found to be suboptimal despite the availability of interventions. Currently, there is a poor understanding of the mechanisms behind these interventions. The aim of the study was to explain a realistic portrayal of nurses' current practices to prevent and manage pressure injuries in one public hospital in Singapore. A realistic case study design was adopted. Twenty-four nurses were recruited. Audio-recorded interviews were transcribed verbatim to facilitate thematic analysis.

Prevention and management was generally facilitated through the timely escalation of care, effective communication, support from the wound nurses, and bridging of the knowledge-practice gap. However, factors such as nurses' intrinsic characteristics and organisational support may affect the outcomes of these facilitators. Overall, nurses strive to achieve patient safety, where pressure injuries are prevented to the best of their abilities. This study provides causal links between contextual factors, mechanisms of the prevention and management, and the outcomes achieved. Further refinement and testing of the specific mechanisms are needed and will contribute to a better understanding of how nurses prevent and manage pressure injuries; © 2018 Medicalhelplines.com Inc and John Wiley & Sons Ltd

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Background: Complication rates after flap coverage for pressure ulcers have been high historically. These patients have multiple risk factors associated with poor wound healing and complications including marginal nutritional status, prolonged immobilization, and a high comorbidities index. This study utilizes the National Surgical Quality Improvement Program (NSQIP) to examine perioperative outcomes of flap coverage for pressure ulcers.

Methods: Data from the NSQIP database (2005-2015) for patient undergoing flap coverage for pressure ulcers was identified. Demographic, perioperative information, and complications were reviewed. One-way analysis of variance and Pearson chi-square were used to assess differences for continuous variables and nominal variables, respectively. Multivariate logistic regression was performed to identify independent risk factors for complications.

Results: There were 755 cases identified. 365 (483%) sacral ulcers, 321 (425%) ischial ulcers, and 69 (91%) trochanteric ulcers. Most patients were older male, with some degree of dependency, neurosensory impairment, high functional comorbidities score, and American Society of Anesthesiologists class 3 or above. The sacral ulcer group had the highest incidence of septic shock and bleeding, while the trochanteric ulcer group had the highest incidence of superficial surgical site infection. There was an overall complication rate of 25% at 30-day followup. There was no statistical difference in overall complication among groups Total operating time, diabetes, and non-elective case were independent risk factors for overall complications.

Conclusions: Despite patients with poor baseline functional status, flap coverage for pressure ulcer patients is safe with acceptable postoperative complications. This type of treatment should be considered for properly selected patients.

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Deep tissue injuries (DTIs) are the manifestation of multiple layers of tissue necrosis and are often secondary to chronic mechanical stress on an area of bony prominence. The prevalence of these injuries among the chronically ill and patients in long-term care require a strong understanding of their etiology and a highly sensitive identification algorithm. Although the National Pressure Ulcer Advisory Panel (NPUAP) has released new guidelines with accurate descriptions as to how these injuries present, there is a significant segment of patients that present atypically and, as such, the treatment plan and prognosis are difficult to
Ultrasound (US) is frequently used for evaluating inflammation of subcutaneous tissue caused by pressure ulcers (PUs). We report two cases where inflammatory edema in subcutaneous fat and necrotic tissue in PUs were identified using small US equipment with CDM. Case 1: An 82-year-old male presented with cerebral infarction and a Category III PU in the sacral region. B-mode gray-scale US imaging distinguished the necrotic tissue, indicating a diffuse hypoechoic area with no layers, unclear borders, and uneven gray level (cloudy image) in the subcutaneous fat. Similar B-mode imaging findings were obtained in inflammatory edema with cobblestone appearance CDM did not detect a CS in the hypoechoic areas but confirmed peripheral hypervascularity. CDM imaging identified inflammatory edema in the subcutaneous fat and necrotic tissue in PUs. Specifically, CDM may better evaluate early-stage PUs with necrotic tissue by distinguishing necrosis from intense inflammatory edema.
Background: Patient-controlled analgesia (PCA) has become a common practice after surgery, but research has shown that the use of PCA is also a significant risk factor for pressure ulcers. However, no meta-analysis or conclusive review has investigated whether patients using PCA have a significantly higher prevalence of pressure ulcers. 

Objective: This study explores the association between the use of postoperative PCA and the prevalence of pressure ulcers.

Materials and Methods: PubMed, the Cochrane Controlled Register of Trials, Web of Science, China National Knowledge Infrastructure, Wanfang, and Vip databases were searched to identify studies, published up until November 2016, concerning the association between PCA and pressure ulcer prevalence. A manual search of the references of relevant studies also was performed.

Odds ratio (OR) and corresponding 95% confidence interval (CI) were used to evaluate the strength of association between the use of PCA after surgery and pressure ulcer prevalence. The methodological quality of included case-control studies and cohort studies was assessed by the Newcastle-Ottawa Scale.

The test of heterogeneity, subgroup analysis, meta-regression, Begg’s funnel plot, and Egger’s test also were used.

Results: Four cohort studies and 1 case-control study were included. In these 5 studies, 265 participants were identified. In pooled analysis, heterogeneity was 0 among the studies. In a fixed effects model, postoperative pressure ulcer was associated with PCA (pooled OR, 3.525; 95% CI, 1.655-7.509). Subgroup analysis of these 5 studies yielded an OR of 3.29 (95% CI, 1.47-7.40) for cesarean section, 5.10 (95% CI, 0.24-10.755) for general surgery, and 5.10 (95% CI, 0.24-10.755) for orthopedic surgery.

There was no heterogeneity among the 5 studies. Additional meta-regression of year and incidence did not find significant outcomes.

Conclusions: This meta-analysis shows PCA may be associated with an increased risk of postoperative pressure ulcer, especially after caesarean section. More evidence-based studies on this research field are needed to draw a firmer conclusion.

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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 asessment and prevention of pressure ulcers (2011 revised)

National Guideline Clearinghouse – predefined search
http://guideline.gov/search/search.aspx?term=%22pressure+ulcer*%22+or+%22pressure+injur*%22

European Pressure Ulcer Advisory Panel guidelines
http://www.epuap.org/guidelines/

“Pressure Ulcers Basics : education package” / Victoria. Department of Human Services

Cochrane Wounds Group
http://wounds.cochrane.org/our-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 Ulcer Advisory Panel
http://www.npuap.org/
e-Journals

- Advances in Skin and Wound Care (Tables of Contents only)
- Eplasty (formerly Journal of Burns & Wounds) (full text)
- EWMA Journal (full text)
- International Wound Journal (full text with 12-month delay)
- Journal of the American College of Clinical Wound Specialists (full text)
- Journal of Tissue Viability (full text)
- Journal of Wound Care (full text)
- Ostomy Wound Management (full text – internet access required)
- 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 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
- Australian Standards for wound management 2nd ed, 2010
- 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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