

Wounds digest

In this section, a brief synopsis is presented of a range of recently published articles that may be of interest to healthcare professionals working in the wound care setting. The aim of this round-up is to provide an overview, rather than a detailed summary and critique, of the research papers selected. Full references are provided should you wish to look at any of the papers in more detail.

1 Strategies to support pressure injury best practices by the inter-professional team: a systematic review

Readability	✓	✓	✓	✓	✓
Relevance to daily practice	✓	✓	✓	✓	✓
Novelty factor	✓	✓	✓		

- A confluence of organisational resources, infrastructure and policies are key facets of optimal pressure injury management. The authors undertook a systematic review on pressure injury care-related education and health care system-/organisation-level strategies.
- The authors conducted a search on eight different databases for articles between January 2006 and October 2014. A total of 22 articles were found relating to education and training, while 12 papers were discovered relating to healthcare system and organisational support for pressure injury care.
- The overarching theme found by the authors in the literature was a lack of pressure injury assessment, as well as management knowledge by clinicians. Those educational methods that were most favoured were e-learning, as well as high-quality photographs of wounds.
- Despite evidence being relatively sparse, obstacles were found in terms of system- and organisation-level processes, including inter-professional communication and investment in human resources. Further investigation is required in terms of education and system-level enablers, while the authors recommend that a more multi-faceted and evidence-based approach should be adopted in order to enhance healthcare and patient-related outcomes.

Suva G, Sharma T, Campbell KE et al (2018) Strategies to support pressure injury best practices by the inter-professional team: a systematic review. *Int Wound J* doi: 10.1111/iwj.12901. [Epub ahead of print]

2 Multicenter, randomized controlled, observer-blinded study of a nitric oxide generating treatment in foot ulcers of patients with diabetes - ProNOx1 study

Readability	✓	✓	✓	✓	
Relevance to daily practice	✓	✓	✓	✓	
Novelty factor	✓	✓	✓	✓	

- This study set out to determine the safety and efficacy of EDX110, which is a nitric oxide-generating medical device used to treat diabetic foot ulcers. The multi-centre, prospective, observer-blinded, parallel group, randomised controlled trial (RCT) used a patient group reflecting 'real world' clinical practice and was compared to optimal standard care.
- Those with diabetic foot ulcers were enlisted from 10 different

hospital sites in multidisciplinary foot ulcer clinics and all of the ulcers encountered were full thickness with an area of between 25-2,500 mm². Ulcers had either a palpable pedal pulse or ankle brachial pressure index >0.5, and infected ulcers were included in the study.

- A total of 135 participants were included in the study with a total of 148 ulcers between them and treatment lasted for 12 weeks or until the ulcer healed, with a 12-week follow-up period. While participants in both groups were provided with optimal debridement, antimicrobial treatment and offloading, those included in the test group were treated with EDX110 as a wound dressing.
- The EDX110 group had a median percentage area reduction of 88.6%, compared to 46.9% in the control group ($P=0.016$). No significant difference was found in terms of wound size reduction between the EDX110 group and the control group and there were 12 serious adverse events reported in the EDX110 group (four related to the ulcer), with 18 in the control group (10 were definitely related to the ulcer and one possibly related). There was a significant reduction in serious adverse events that were ulcer related in the EDX110 group.
- Although no significant difference was found in terms of adverse events, this real-world RCT discovered that EDX110 exhibited the aptitude to improve healing rates when compared to current best practice, as evidenced through the significant reduction in ulcer area.

Edmonds ME, Bodansky HJ, Boulton AJ et al (2018) Multicenter, randomized controlled, observer-blinded study of a nitric oxide generating treatment in foot ulcers of patients with diabetes - ProNOx1 study. *Wound Repair Regen* doi: 10.1111/wrr.12630. [Epub ahead of print]

3 Contact sensitivity in patients with venous leg ulcer: A multi-centric Indian study

Readability	✓	✓	✓	✓	
Relevance to daily practice	✓	✓	✓	✓	
Novelty factor	✓	✓	✓	✓	

- Owing to the fact that venous leg ulcers are the most common type of non-healing leg ulcer, the authors set about discovering how the exposure to allergens in topical medications, dressings and compression therapies may contribute to poor ulcer healing.
- Patients with venous leg ulcers were chosen from six different centres in India whose leg ulcer duration was longer than 6 weeks. These patients (172 in total) then underwent patch testing in order to detect various contact sensitizers.
- The patch test checked for 27 antigens. Of the 172 patients enrolled in the study, 82 tested positive for at least one antigen through patch testing; polyvalent sensitisation was present in 71% of

patients. The most common allergens found were wood tar mix (found in 10.4% of patients) and framycetin (found in 8.7% of patients).

- The authors found that there is a high degree of allergic sensitisation to various ingredients used in topical therapies in the management of venous leg ulcers, which have been found to interfere with wound healing. By avoiding these, clinicians can obtain better therapeutic outcomes.

Rai R, Shenoy MM, Viswanath V et al (2018) Contact sensitivity in patients with venous leg ulcer: A multi-centric Indian study. *Int Wound J* doi: 10.1111/iwj.12905. [Epub ahead of print]

4 Pressure ulcer prevalence and perceptions on prevention: a hospital-wide survey of health professionals

Readability	✓	✓	✓	✓	
Relevance to daily practice	✓	✓	✓	✓	✓
Novelty factor	✓	✓	✓		

- Due to hospital-acquired pressure ulcers (HAPUs) being problematic in the healthcare setting, the authors undertook to determine healthcare professionals' perceptions relating to prevention strategies and how these work in practice. It was hypothesised that positive perceptions of existing initiatives would not correlate with low HAPU prevalence.
- The authors devised a two-part online survey, which was given to nurses, in-training physicians and attending physicians, in one academic hospital. The first part of the survey included an Agency for Healthcare Research and Quality (AHRQ) Staff Attitude Scale regarding the perceptions of clinician on pressure ulcer prevention. The second part included additional questions relating to the effectiveness of current prevention protocols. The survey results were then compared to quarterly HAPU prevalence data by hospital unit.
- A total of 839 clinicians completed the survey, comprising 579 nurses, 131 residents and 119 attending physicians. With a score of ≥ 40 indicating positive perceptions, the mean score for the AHRQ survey was 42.5. The correlation between the scores of the AHRQ and the prevalence of HAPUs was found to be moderate ($r = -0.60$, $P = 0.402$).
- The most effective intervention to avoid HAPUs was found to be repositioning (mean: 4.54, standard deviation (SD): 0.64). On the other hand, educational posters were found to be the least effective intervention (mean: 3.31, SD: 0.99).
- Prevention methods for HAPUs may well not be as effective as initially thought, considering the high HAPU prevalence, or else they are not being rolled out as widely or effectively as they should be.

Wong AL, Walia GS, Bello R et al (2018) Pressure ulcer prevalence and perceptions on prevention: a hospital-wide survey of health professionals. *J Wound Care* 27(Sup4): S29-S35

5 The Impact of an acute, traumatic wound dehiscence on clinical outcomes following primary knee arthroplasty

Readability	✓	✓	✓		
Relevance to daily practice	✓	✓	✓		
Novelty factor	✓	✓	✓	✓	✓

- There is an increased risk of infection occurring in patients that have had a knee arthroplasty due to early wound healing complications, as well as persistent drainage. The authors set out to discover the outcomes of acute traumatic wound dehiscence following arthroplasty when the patient was treated with an urgent irrigation, and debridement and primary wound closure.
- Following a search of the arthroplasty registry in a single institution, the authors included those patients who had sustained an acute, traumatic wound dehiscence within 30 days. In terms of exclusion criteria, patients who had experienced chronic wound drainage without injury or a history of prior infection were not included in the study.
- Between 2006 and 2016, just 14 patients out of 25,819 eligible patients (0.05%) were found to have a traumatic wound dehiscence. From arthroplasty to wound dehiscence, the mean time was found to be 9.3 days. Thirteen of these 14 patients were treated operatively within 24 hours of dehiscence. Twenty-one days was the mean period of time that postoperative antibiotics were administered for.
- Patients experiencing an acute traumatic wound dehiscence following knee arthroplasty had high rates of reoperation for instability, periprosthetic infection and clinical failure.

Sershon RA, Tecle N, Della Valle CJ et al (2018) The Impact of an Acute, Traumatic Wound Dehiscence on Clinical Outcomes Following Primary Knee Arthroplasty. *J Arthroplasty* doi: 10.1016/j.arth.2018.02.090. [Epub ahead of print]

6 Autofluorescence imaging for evaluating debridement in military and trauma wounds

Readability	✓	✓	✓	✓	
Relevance to daily practice	✓	✓	✓	✓	
Novelty factor	✓	✓	✓	✓	

- Although debridement is the gold standard for preparing a clean wound bed to decrease the bacterial load, although bacteria can be found to remain in military wounds.
- By using the principle of autofluorescence to detect for bacteria under violet light, the MolecuLight i:X Imaging Device can be used in such wounds. The authors explain that this device can help to enhance traumatic wound management by targeting debridement and assessing its quality, as the MolecuLight i:X can guide clinicians when debriding after visualising bacteria.
- The authors used three case studies to highlight how the device works in practice. Images of the wound were taken before and after debridement. Microbiology swabs were also collected to correlate the bacteria that was found in the images to the wounds themselves. The authors ascertained from the images that there was a significant decrease or else a complete removal of bacteria from the wounds encountered.
- There were positives associated with the MolecuLight i:X device in terms of debridement evaluation. The device was found to reduce the chances of infection occurring, making it a potentially useful device in the treatment of military and trauma wounds.

Blumenthal E, Jeffery S (2018) Autofluorescence Imaging for Evaluating Debridement in Military and Trauma Wounds. *Mil Med* 183(Suppl 1): 429-32