

## 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 Pressure ulcer prevalence and prevention interventions – a ten-year nationwide survey in Sweden

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

- This study describes pressure ulcer prevalence and prevention interventions in hospital care in Sweden based on nationwide annual hospital surveys carried out over a 10-year period. These surveys were part of a new national patient safety programme.
- Data was collected on sex, age, skin assessment, risk assessment, and preventive interventions. In total, more than 130,000 patients were included in the 10 prevalence surveys.
- The prevalence of pressure ulcers in Swedish hospital patients decreased significantly from 17.0 % to 11.4% between 2011 and 2020 and hospital-acquired pressure ulcers decreased from 8.1% to 6.4% between 2018 and 2020. There was no significant decline in medical device-related pressure ulcers during the same period.
- The proportion of patients who received risk and skin assessments increased, as did the use of pressure-reducing mattresses, sliding sheets, heel protection and repositioning plans.
- This study shows that the implementation of a national patient safety programme has had an impact on the nationwide prevalence of pressure ulcers in hospital care and the occurrence of prevention strategies.

Källman U, Hommel A, Borgstedt Risberg M (2022) Pressure ulcer prevalence and prevention interventions – a ten-year nationwide survey in Sweden. *Int Wound J* (online ahead of print)

### 2 Living with lymphoedema: children's and young people's perspectives

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

- The authors sought to explore the perspectives of children and young people living with lymphoedema and those of their families, as well as their experiences of the national paediatric lymphoedema service in Wales.
- They used semi-structured interviews with participants who had been referred to the national paediatric lymphoedema service.
- From the 15 families who were interviewed, five themes were identified. These were: a lack of professional awareness of paediatric lymphoedema; a journey to diagnosis as lost in the system; 'being me' - what it feels like to have lymphoedema; managing

lymphoedema and feeling supported; and the benefits of a national paediatric lymphoedema service. Two sub-themes were identified within the 'being me' theme - body image and self-esteem, and loss of control.

- Participants tended to be resilient and determined to continue with their lives.
- The authors found that the national paediatric lymphoedema service was of importance for the children and young people, and that they valued being under the care of a service that understood their condition.

Thomas M, Gabe-Walters M, Coveney E (2022) Living with lymphoedema: children's and young people's perspectives. *Nurs Child Young People* 34(1): 12–17

### 3 Bacterial protease activity: a prognostic biomarker of early wound infection

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

- This clinical trial evaluated the use of bacterial protease activity (BPA) as a biomarker to detect whether a wound was in the period of pathogenicity, prior to overt clinical signs.
- Participants at six US wound centres had their wounds assessed clinically for infection. Samples were analysed for BPA, inflammatory cytokines (interleukin-1 $\beta$  and interleukin-6) and tumour necrosis factor- $\alpha$  (TNF- $\alpha$ ).
- A total of 366 patients were recruited. The median BPA level increased with the increasing number of signs of infection. The majority of wounds tested positive for elevated BPA prior to exhibiting at least three clinical signs and symptoms of infection.
- BPA tended to increase with bioburden, although some wounds with high bioburden were negative for BPA, and others with low bioburden were positive for BPA. The mean levels of interleukin-1 $\beta$  and TNF- $\alpha$  were significantly higher in BPA-positive wounds ( $p < 0.0001$  and  $p = 0.0002$ , respectively).
- In a large percentage of cases, BPA detected virulent bacteria in the absence of clinical signs and symptoms of infection. As a biomarker, BPA has an advantage over measuring bacterial load because hard-to-heal wounds are often colonised with non-pathogenic bacteria that do not inhibit wound healing.
- The authors concluded that measuring BPA can lead to the early detection of pathogenic bacteria in a wound that impede wound healing and may progress to invasive infection.

Serena TE, Bayliff SW, Brosnan PJ (2022) Bacterial protease activity: a prognostic biomarker of early wound infection. *J Wound Care* 31(4): 352–5

## 4 Superabsorbent charcoal dressing versus silver foam dressing in wound area reduction: a randomised controlled trial

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

- The authors compared the effect of a novel sterile polyacrylate wound pad with activated carbon cloth treatment with a standard non-adhesive hydrocellular foam dressing with silver in reducing wound area.
- They conducted a multicentre randomised controlled open-label wound-dressing trial in two wound care outpatient clinics in Switzerland from November 2018 to March 2020.
- A total of 77 successive patients were randomised to receive either a sterile polyacrylate wound pad with activated carbon cloth treatment (n=38) or the standard non-adhesive hydrocellular foam dressing with silver (n=39).
- The primary outcome was a reduction in wound area, and secondary outcomes were the application period of the dressing, odour, maceration and pain. Wound area was measured at baseline and during each wound dressing change until the dressings were no longer indicated.
- Wound area reduced faster in the intervention group than in the control group (0.45 cm<sup>2</sup> versus 0.2 cm<sup>2</sup> per day), although the application period was longer in the intervention group compared with the control group (9.5 versus 8.1 days). Maceration reduction was greater in the intervention group than in the control group. Odour, pain and infection were similar in both groups.
- The authors concluded that sterile polyacrylate wound pad dressings with activated carbon cloth reduced wound area and maceration area faster than the non-adhesive hydrocellular foam dressing with silver.

Probst S, Saini C, Rosset C, Skinner MB (2022) Superabsorbent charcoal dressing versus silver foam dressing in wound area reduction: a randomised controlled trial. *J Wound Care* 31(2): 140–6

## 5 Multi-centre prospective randomised controlled clinical trial to evaluate a bioactive split thickness skin allograft vs standard of care in the treatment of diabetic foot ulcers

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

- Advanced wound therapies including human skin allografts have shown promise in treating diabetic foot ulcers (DFUs). A randomised, prospective study was conducted to compare the response of 100 subjects with non-healing DFUs. Fifty were treated

with a cryopreserved bioactive split-thickness skin allograft (BSA) compared with 50 subjects treated with standard of care (SOC) at 12 weeks.

- Individuals in the two groups received standardised care. The aim was to find out the proportion of full-thickness wounds healed at 12 weeks, while secondary endpoints included differences in percent area reduction (PAR) at 12 weeks, changes in Semmes-Weinstein monofilament score, VAS pain and w-QoL.
- A total of 76% (38/50) of the BSA-treated DFUs healed compared with 36% (18/50) treated with SOC alone. Mean PAR at 12 weeks was 77.8% in the BSA group compared with 49.6% in the SOC group.
- Adding BSA to SOC significantly improved wound healing with a lower incidence of adverse events related to treatment compared with SOC alone.

Armstrong DG, Galiano RD, Orgill DP et al (2022) Multi-centre prospective randomised controlled clinical trial to evaluate a bioactive split thickness skin allograft vs standard of care in the treatment of diabetic foot ulcers. *Int Wound J* 19(4): 932–44

## 6 Re-ulceration is common in persons with diabetes and healed foot ulcer after participant-driven education in group: a randomized controlled trial

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

- The authors set out to compare the number of ulcer-free days that individuals with diabetes and a healed foot ulcer below the ankle experienced during a period of 24 months when one group were provided with adjusted therapeutic shoes, standard information and participated in participant-driven group education, while the other were provided with standard information alone.
- A randomised controlled trial was used to evaluate the number of ulcer-free days in both cohorts. A total of 138 persons with diabetes and previously healed foot ulcer were recruited (age median 63 years [34–79], 101 men/37 women) and 107 (77.5%) completed the study, 7 (5%) dropped out, and 12 (9%) died.
- No statistically significant difference was found between the intervention group compared with the control group after 6, 18 or 24 months. After 12 months, more patients in the intervention group had developed ulcers.
- In conclusion, patient-driven education in groups did not give better results than standard information in this underpowered study. The challenges to perform comparative preventive studies in this group of patients with extensive comorbidity were illustrated.

Annersten Gershater M, Apelqvist J, Alm Roijer C (2022) Re-ulceration is common in persons with diabetes and healed foot ulcer after participant-driven education in group: a randomized controlled trial. *Adv Wound Care (New Rochelle)* [Online ahead of print]

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Originally published in *Wounds International* 2022 13\_2