

Wounds digest

In this section, we present brief synopses 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 Effect of local oxygen therapy combined with vacuum sealing drainage on the healing of stage IV sacrococcygeal pressure ulcers

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

- The authors aimed to investigate the effect of local oxygen therapy combined with vacuum sealing drainage (VSD) on the healing of stage IV sacrococcygeal pressure ulcers.
- They enrolled 98 patients, randomly divided into two groups. The study group received local oxygen therapy combined with VSD and the control group received conventional treatment. Wound healing time and length of hospital stay were compared. Wound area, tissue type, exudate and pain were assessed before treatment, and at 10, 20, 30 and 40 days after treatment.
- The study group had significantly shorter wound healing times and hospital stays compared to the control ($p < 0.05$). Before treatment, there were no significant differences in wound area, tissue type and exudate between the two groups. After treatment, smaller wound areas, improved tissue types and reduced exudate were observed in the study group compared to the control ($p < 0.05$). Before treatment, there was no significant difference in pain between the two groups; after treatment, lower pain intensity was seen in the study group than in the control ($P < 0.05$).
- The authors concluded that local oxygen therapy combined with VSD effectively accelerates the healing process of stage IV sacrococcygeal pressure ulcers. They suggest that this combined therapy shows promise for widespread application.

Zhao Y, Zhang M, Zhang C, Yan H (2023) Effect of local oxygen therapy combined with vacuum sealing drainage on the healing of stage IV sacrococcygeal pressure ulcers. *Int Wound J* 20(10): 4253–61

2 Sleep, fatigue, and inflammatory biomarkers in older adults with chronic venous leg ulcers (CVLUs) receiving intensive outpatient wound care

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

- People with chronic venous leg ulcers (CVLUs) commonly report sleep disturbances and fatigue. There has been limited research examining these symptoms in relation to inflammatory biomarkers.
- The authors aimed to examine the symptoms of sleep and fatigue in 84 older adults with CVLUs receiving intensive wound treatment with weekly debridement, and explore the relationships between

these symptoms and tumour necrosis factor- α (TNF- α), C-reactive protein (CRP) and interleukin-6 (IL-6).

- They collected demographics, clinical characteristics, Pittsburgh Sleep Quality Index scores, Brief Fatigue Inventory, TNF- α , CRP, and IL-6 levels at baseline, week 4 and week 8.
- There was a consistent pattern of poor sleep quality and mild fatigue among the study subjects. Lower IL-6 levels at week 4 and higher CRP levels at week 8 were linked to poor sleep quality. Higher CRP levels were linked to greater fatigue at baseline and week 8. Sleep and fatigue were correlated at all time points.
- The authors concluded that this study highlighted the importance of clinicians evaluating sleep and fatigue in patients with CVLUs.

Winders S, Lyon D, Kelly DL et al (2023) Sleep, fatigue, and inflammatory biomarkers in older adults with chronic venous leg ulcers (CVLUs) receiving intensive outpatient wound care. *Adv Wound Care (New Rochelle)* [Online ahead of print]

3 Bacterial profile and antimicrobial resistance patterns of infected diabetic foot ulcers in sub-Saharan Africa: a systematic review and meta-analysis

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

- As diabetes increases across sub-Saharan Africa, the number of patients with diabetic foot ulcers (DFUs) is also substantially rising. The data on the regional prevalence of bacteria and their antimicrobial resistance patterns is crucial for its proper management.
- The authors performed a systematic review and meta-analysis to determine the pooled prevalence of bacterial profiles and antimicrobial resistance patterns of infected DFUs in the region.
- Eleven studies with a total of 1,174 study participants and 1,701 bacteria isolates were included. The most common bacterial isolates obtained from DFUs were *Staphylococcus aureus* (34.34%), *Escherichia coli* (21.16%), and *Pseudomonas aeruginosa* (20.98%). The highest pooled resistance pattern of *S aureus* was towards gentamicin (57.96%) and ciprofloxacin (52.45%). *E coli* and *Klebsiella pneumoniae* showed more than a 50% resistance rate for the most common antibiotics tested.
- Both Gram-positive and Gram-negative bacteria were associated with DFUs in sub-Saharan Africa. The authors note that their findings are important for planning treatment with the appropriate antibiotics. The high antimicrobial resistance prevalence rate indicates the need for context-specific effective strategies aimed at infection prevention and evidence-based alternative therapies.

Wada FW, Mekonnen MF, Sawiso ED et al (2023) Bacterial profile and

antimicrobial resistance patterns of infected diabetic foot ulcers in sub-Saharan Africa: a systematic review and meta-analysis. *Sci Rep* [Online ahead of print]

4 Risk of congestive heart failure and mortality following lymphovenous anastomosis: a nationwide population-based retrospective cohort study

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

- Lymphovenous anastomosis (LVA) enables lymphatic fluid to drain into the venous system. However, no study has investigated the association between LVA and heart failure caused by fluid overload in blood circulating system. The authors aimed to determine whether LVA increases the risk of heart failure and mortality.
- This was a retrospective study of 1,400 lymphoedema patients who underwent LVA and two control cohorts — 28,000 lymphoedema patients who did not undergo LVA and 70,000 age- and sex-matched participants from the Korean National Health Insurance database. Blood pressure, body mass index (BMI), glucose and cholesterol levels, smoking history and comorbidities were obtained.
- Adjusted HRs for heart failure were 1.20 and 1.30 referenced by the general population control cohort and patients with lymphoedema without LVA, respectively. A greater risk of heart failure was evident across all sexes and age groups, encompassing individuals with various smoking statuses and those with a BMI of ≥ 18.5 . The risk was notably greater in men compared to women, higher in younger individuals (< 50 years) as opposed to older ones, and elevated for those with a BMI of 18.5 to 25.
- The authors concluded that LVA is associated with an increased HF risk, independent of cardiovascular risk factors and associated comorbidities. Among patients with lymphoedema, LVA did not significantly affect mortality.

Lee JS, Kang HS, Chung JH, Ryu JY (2023) Risk of congestive heart failure and mortality following lymphovenous anastomosis: a nationwide population-based retrospective cohort study. *Int J Surg* [Online ahead of print]

5 Use of the SINBAD score as a predicting tool for major adverse foot events in patients with diabetic foot ulcer: A French multicentre study

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

- The authors examined the relationship between the site, ischaemia, neuropathy, bacterial infection, area, depth (SINBAD) score and major adverse foot events (MAFE) in patients with diabetic foot ulcers (DFUs).
- This was a retrospective ancillary study of 537 patients with a DFU in six French hospitals were included between February 1, 2019 and March 17, 2019, and between February 1, 2020 and March 17, 2020. The SINBAD score was assessed at inclusion. The frequency of a composite outcome consisting of eight MAFE was assessed after 5–6 months of follow-up: hospitalisation for DFU, septic surgery,

revascularisation, minor amputation, major amputation, death, secondary infection and ulcer recurrence. A logistical regression explored the link between the SINBAD score and MAFE and each of its components.

- There were 61% of patients with a low SINBAD score (0–3) and 39% had a high score (4–6). MAFE occurred in 24% and 28% of these patients, respectively. Multivariate analyses showed a significant relationship between the SINBAD score and MAFE. The SINBAD score (continuous or dichotomic) at inclusion was also significantly associated with six out of the eight components of the MAFE.
- The authors concluded that the SINBAD score is a useful tool for predicting major adverse foot events.

Ha Van G, Schuldiner S, Sultan A, et al (2023) Use of the SINBAD score as a predicting tool for major adverse foot events in patients with diabetic foot ulcer: A French multicentre study. *Diabetes Metab Res Rev* 39(8): e3705

6 Enhancing skin health and safety in aged care (SKINCARE trial): A cluster-randomised pragmatic trial

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

- Older nursing home residents are prone to develop different skin conditions at the same time, including xerosis cutis, skin tears, pressure ulcers and incontinence-associated dermatitis. The aim of this study was to measure the effects of the implementation of a skincare and prevention package.
- A random sample of 17 nursing homes in Germany was drawn and randomised in intervention ($n=9$) and control groups ($n=8$). In nursing homes assigned to the intervention group, an evidence-based and structured skincare and prevention programme was implemented for 6 months, while nursing home residents in the control group received standard care.
- In total, 165 participants were allocated to the intervention, and 149 participants to the control group. The cumulative incidence of skin tears (19.2%), pressure ulcers (13.6%) and intertrigo (27.0%) was lower in the intervention compared to the control group, with the latter having incidences of 27.2% for skin tears, 16.9% for pressure ulcers, and 37.8% intertrigo. Incontinence-associated dermatitis was higher in the intervention group (26.3%) than the control group (23.1%). Mean skin dryness was lower in the intervention group but showed variation. The impact on pain, itch, and quality of life was trivial.
- The authors concluded that these results indicate that the implementation of tailored and evidence-based nursing routines improves skin health and safety in residential long-term care.

Völzer B, El Genedy-Kalyoncu M, Fastner A, et al (2024) Enhancing skin health and safety in aged care (SKINCARE trial): A cluster-randomised pragmatic trial. *Int J Nurs Stud* 149:104627