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 Reappraisal and updated review of maggot debridement therapy in chronic lower extremity ulcers

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

- The Background: Dating back to the mid-1500s,
- Maggot debridement therapy (MDT) dates back to the mid-1500s, but has become part of the treatment armamentarium for chronic wounds. The proven efficacy of MDT raises the question of whether this treatment modality should be considered as a first-line option for all or a subset of chronic lower extremity ulcers.
- The authors examined current evidence for the use of MDT though a literature search.
- They found that the evidence showed that MDT reduced short-term morbidity in non-ambulatory patients with neuroischaemic diabetic ulcers and comorbidity with peripheral vascular disease. Larval therapy was associated with statistically significant bioburden reductions with *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Faster time to debridement was achieved when chronic venous or mixed venous and arterial ulcers were treated with maggot therapy versus hydrogels.
- The authors concluded that literature supports the use of MDT in decreasing the significant costs of treating chronic lower extremity ulcers, especially in people with diabetes. Additional studies with global standards for reporting outcomes are necessary to substantiate these results.

Shamloul G, Khachemoune A (2023) Reappraisal and updated review of maggot debridement therapy in chronic lower extremity ulcers. *Int J Dermatol* [Online ahead of print]

2 VIEW-VLU observational study of the effect of varithena on wound healing in the treatment of venous leg ulcers

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

- Chronic venous hypertension leads to skin changes and venous leg ulcers. Compression therapy is standard of care, but many wounds remain unhealed.
- The authors' objectives were to observe the effects of endovenous chemical ablation with 1% polidocanol injectable microfoam on venous leg ulcer (VLU) healing and recurrence rates.
- The VIEW VLU study was a multicentre, open-label, Phase 4 registry of patients with active VLUs resulting from venous insufficiency of the great saphenous vein and/or anterior accessory saphenous vein systems who underwent ablation with 1% polidocanol microfoam. Primary outcomes included wound healing rate, wound closure at 12 weeks post-treatment, and time to wound closure. Secondary outcomes included ulcer recurrence, pain, EuroQol quality of life index, and the Venous Clinical Severity Score. Patients were followed for 12 months.
- They enrolled 76 patients (80 ulcers) from 14 sites across the US and Canada (mean age 63.6 ± 13.7 years, 39.5% women, mean BMI 36.3); 96.3% presented with great saphenous vein incompetence. At first presentation, mean baseline wound perimeter was 117.2 ± 107.4mm; mean ulcer duration was 34.8 ± 51.8 weeks ; and mean compression therapy duration was 26.4 ± 35.9 weeks.
- Median wound perimeter decreased 16.3% from baseline in the first 2 weeks post-procedure, and 27% at 12 weeks. By 12 weeks, 53.8% of wounds were healed. Median time to ulcer closure was 89 days, and 88.9% remained closed 12 weeks post-closure. Mean pain scores improved by 41.0% at 12 weeks and 64.1% at 12 months post-procedure. The health-related quality of life index (scale of 0–1) improved from 0.65 ± 0.27 at baseline to 0.72 ± 0.28 at 12 weeks and 0.73 ± 0.30 at 12 months. By 12 weeks post-treatment, the mean target leg Venous Clinical Severity Score had significantly decreased by 5.8 points, and by 12 months had decreased by 10.0 points.
- Treatment with 1% polidocanol microfoam was associated with promising healing rates and low recurrence rates for venous leg ulcers, despite a challenging patient population with recalcitrant ulcers and high BMIs.

Shao MY, Harlin S, Chan B et al (2023) VIEW-VLU Observational study of the effect of varithena on wound healing in the treatment of venous leg ulcers. *J Vasc Surg Venous Lymphat Disord* [Online ahead of print]

3 Development and validation of a risk prediction model for breast cancer-related lymphedema in postoperative patients with breast cancer

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

- Breast cancer-related lymphoedema (BCRL) is a common post-operative complication in patients with breast cancer. The authors aimed to develop and validate a predictive model of BCRL in Chinese patients with breast cancer.
- Clinical and demographic data on patients with breast cancer were collected between 2016 and 2021 at an oncology hospital in China. A nomogram for predicting the risk of lymphoedema in postoperative patients with breast cancer was constructed and verified using R 3.5.2 software. Model performance was evaluated using area under the ROC curve (AUC) and goodness-of-fit statistics,

and the model was internally validated.

- A total of 1,732 postoperative patients with breast cancer were included, comprising 1,212 and 520 patients in the development and validation groups, respectively, were included. Of these, 438 (25.39%) developed lymphoedema. Significant predictors identified in the model were time since breast cancer surgery, level of lymph node dissection, number of lymph nodes dissected, radiotherapy, and postoperative BMI. Calibration plots showed a good match between predicted and observed rates.
- The authors concluded that their model has good discrimination and accuracy for lymphoedema risk assessment, which can provide a reference for individualised clinical prediction of the risk of BCRL. Multicentre prospective trials are required to verify the predictive value of the model.

Li MM, Wu PP, Qiang WM et al (2023) Development and validation of a risk prediction model for breast cancer-related lymphedema in postoperative patients with breast cancer. *Eur J Oncol Nurs* 63:102258

4 Using wearable technology to prevent pressure injuries: An integrative review

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

- Hospital-acquired pressure injuries (HAPIs) are a significant problem, decreasing quality of life and increasing care costs and staff workload. Regular, frequent turning is commonly used to prevent pressure injury, but compliance can be low. Wearable sensors have emerged as a way to increase turn compliance.
- The authors aimed to determine the clinical outcomes of using wearable sensors as a HAPI prevention intervention.
- The integrative review was appraised by two independent reviewers using the Johns Hopkins Nursing Evidence-Based Practice Research Appraisal Tool.
- Eleven articles were included in the review. Using wearable sensors increases compliance with frequent turn protocols while decreasing pressure injuries and reducing healthcare costs. However, the quality of turns did not improve. Staff feedback was positive, but training is needed to ensure proper use of the sensors.
- This innovation has the potential to transform how nursing staff prevent pressure injuries, but more research is needed to definitively state whether wearable sensors will be efficacious as a pressure injury prevention intervention.

Crotty A, Killian JM, Miller A et al (2023) Using wearable technology to prevent pressure injuries: An integrative review. *Worldviews Evid Based Nurs* [Online ahead of print]

5 Coenzyme Q10 as a potential add-on treatment for patients suffering from painful diabetic neuropathy

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

- The authors investigated whether the addition of coenzyme Q10 (CoQ10) to pregabalin would improve symptoms in patients with painful diabetic neuropathy.
- The authors randomly allocated subjects to receive either 100 mg CoQ10 and 150 mg pregabalin (n=57) or placebo and pregabalin (n=55). CoQ10 or matched placebo was given every 8 hours for 8 weeks. The primary outcome was the change in pain intensity.
- The authors found that the CoQ10 and pregabalin regimen resulted in significantly greater pain relief than the placebo and pregabalin regimen. By the end of week 2, the decrease in the mean pain score was similar in both groups. At the end of weeks 4 and 8, the decrease in the mean pain score was significantly greater in patients taking CoQ10 and pregabalin than in those taking placebo and pregabalin (p=0.01 and p<0.001, respectively).
- The authors concluded that their study supports the hypothesis that patients with painful diabetic neuropathy may benefit from using antioxidant and anti-inflammatory supplements such as CoQ10. However, further studies are required.

Amini P, Sajedi F, Mirjalili M et al (2022) Coenzyme Q10 as a potential add-on treatment for patients suffering from painful diabetic neuropathy: results of a placebo-controlled randomized trial. *Eur J Clin Pharmacol* 78(12): 1899–910

6 Health-related quality of life and associated factors in people with diabetes at high risk of foot ulceration

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

- The aim of this Dutch study was to assess health-related quality of life (HRQoL) and determine associated factors in people with diabetes at high risk of foot ulcers.
- A total of 304 participants were drawn from the Diabetic Foot Temperature Trial. HRQoL was measured by the RAND 36-Item Short Form Health Survey (SF-36). Participants were mostly men (72%), mean age 64.6 (±10.5) years, 77% type 2 diabetes and a mean diabetes duration of 20 (±14) years.
- The authors found that HRQoL was lower than Dutch population-based and general diabetes samples, but higher than in those with an ulcer. Use of a walking aid was associated with lower HRQoL across all SF-36 domains, and being of non-Caucasian ethnicity was associated with lower HRQoL in five domains. People who were not working, with higher BMI or of younger age had lower HRQoL in three domains.
- The authors concluded that people at high risk of diabetic foot ulcers have reduced HRQoL, with the physical domains most affected. Assessing mobility, ethnicity, BMI and job status may be useful to identify those who might benefit from interventions targeting HRQoL.

Perrin BM, van Netten JJ, aan de Stegge WB et al (2022) Health-related quality of life and associated factors in people with diabetes at high risk of foot ulceration. *J Foot Ankle Res* 15: 83