

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 Factors associated with pressure ulcer and dehydration in long-term care settings in Ontario, Canada

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

- Pressure ulcers and dehydration are common in residents of long-term care facilities. The authors conducted a retrospective cohort study to examine factors associated with pressure ulcers and dehydration among long-term care residents in Ontario, Canada.
- Nearly one-fifth of residents were dehydrated (17.3%) or had a pressure ulcer (18.9%) during the study period. Advanced age was significantly associated with the presence of pressure ulcers and dehydration for both men and women. However, men were more likely to present with a pressure ulcer while women were more likely to exhibit symptoms of dehydration.
- Interestingly, the authors also found that the presence of both conditions was higher in municipal and not-for-profit homes than in for-profit homes. These findings contrast with other studies reported in the literature. The significant differences observed require further investigation to identify the most relevant factors in preventing these two conditions.
- The authors conclude that pressure ulcers and dehydration are preventable conditions that warrant attention from policymakers to ensure quality of care and resident safety are prioritised.

Crea-Arsenio M, Baumann A, Antonipillai V, Akhtar-Danesh N (2024) Factors associated with pressure ulcer and dehydration in long-term care settings in Ontario, Canada. *PLoS One* 19(1): e0297588

2 Elimination of lymphatic filariasis as a public health problem in Malawi

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

- Lymphatic filariasis (LF) is a parasitic disease transmitted by mosquitoes. It causes pain, disfigurement and lymphoedema, and is a global public health problem. Since 2000, the WHO has led the Global Programme to Eliminate Lymphatic Filariasis. The authors outline the success of Malawi's programme to eliminate LF.
- The Malawi LF Programme addressed the widespread prevalence of LF infection and disease across the country, using the recommended WHO strategies.
- To stop the spread of infection and reduce the circulating

filial antigen prevalence from as high as 74.4% to below the critical threshold of 1-2%, mass drug administration using a two-drug regime was implemented at high coverage rates, reaching >65% of the population.

- The decline in prevalence was monitored and confirmed using impact assessment and post-treatment surveillance tools.
- To alleviate the effects of LF, a morbidity management and disability prevention (MMDP) package of care was implemented. Clinical case estimates were obtained via house-to-house patient searching; healthcare professionals and patients were trained in self-care protocols for lymphoedema and/or referrals to hospitals for hydrocoele surgery; and the quality of treatment and services were assessed with new survey tools.
- Malawi's elimination of LF is to be commended. However, the authors caution that it will be critical that the programme continues, focusing on post-elimination surveillance and MMDP implementation and integration into healthcare systems to support long-term sustainability.

Chiphwanya J, Mkwanda S, Kabuluzi S et al (2024) Elimination of lymphatic filariasis as a public health problem in Malawi. *PLoS Negl Trop Dis* [Online ahead of print]

3 Development of a head and neck lymphoedema specific quality of life tool: The Comprehensive Assessment of Lymphoedema Impact in the Head and Neck

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

- The authors aimed to develop a head and neck lymphoedema (HNL) specific quality of life instrument to assess physical, functional, and social/emotional impacts of HNL.
- Patients with HNL and clinicians reviewed instrument candidate items and these rated for importance, clarity, and invasiveness. Interviews were conducted with HNL patients to validate the items, survey format and instructions.
- Initially, 130 candidate questions were developed. Following item reduction, 52 items progressed to three-step cognitive interviews. After the interviews, the Comprehensive Assessment of Lymphoedema Impact in Head and Neck (CALI-HaN) included 33 items; 1 global, 10 physical, 7 functional, and 15 emotional.
- The authors concluded that physical, functional, and socio-emotional effects need to be considered when

measuring quality of life in patients with HNL. The CALI-HaN is an instrument that shows promise for clinical and research applications, but future validation is needed.

Starmer HM, Patterson J, Young B et al (2024) Development of a head and neck lymphoedema specific quality of life tool: The Comprehensive Assessment of Lymphoedema Impact in the Head and Neck. *Head Neck* [Online ahead of print]

4 Prediction of tissue deformation based on mechanical and physiological factors in the prone position during surgery

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

- The authors aimed to predict tissue deformation based on the pressure applied while lying in the prone position during surgery and physiological factors.
- Healthy volunteers were instructed to lie on mattresses of four different hardness levels. Pressure at the iliac crests was measured using a pressure mapping sensor sheet. Participants were placed in the prone position for 10 minutes. Multiple regression analysis was used to identify predictive mechanical and physiological factors.
- The results showed that the distance between the left and right greater trochanters, maximum interface pressure and age were significant predictors for compression of the skin and soft tissue. Significant predictors of internal soft tissue displacement were the distances between the left and right anterior superior iliac spines and greater trochanters. No factors predicted skin surface displacement.
- The authors concluded that this study provides predictive factors that may be measured easily in a clinical setting to reduce the risk of pressure ulcers during surgery in the prone position.

Kumagai A, Ohno N, Miyati T, Sugama J (2024) Prediction of tissue deformation based on mechanical and physiological factors in the prone position during surgery. *J Tissue Viability* [Online ahead of print]

5 Evaluating the prognostic performance of bedside tests used for peripheral arterial disease diagnosis in the prediction of diabetic foot ulcer healing

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

- The authors evaluated the prognostic performance of bedside tests used for diagnosing peripheral arterial disease to examine if these could also predict diabetic foot ulcer (DFU) healing.
- The authors included 123 subjects. The primary outcome was sensitivity for predicting ulcer healing. Secondary endpoints were specificity, predictive values, and likelihood ratios for ulcer healing.
- In 12 months, 52.8% of ulcers healed. The best negative diagnostic likelihood ratio was observed for the podiatry ankle duplex scan (PAD-scan) monophasic or biphasic with adverse features. The highest positive likelihood

ratios were observed for toe brachial pressure index ≤ 0.2 and transcutaneous O₂ pressure ≤ 20 mm Hg. Cox proportional hazards modeling demonstrated significantly greater probabilities of healing with triphasic waveforms and biphasic waveforms with non-adverse features on PAD-scan.

- The authors concluded that no single test performed well enough to be used in isolation as a prognostic marker for predicting DFU healing.

Elghazaly H, Howard T, Sanjay S et al (2023) Evaluating the prognostic performance of bedside tests used for peripheral arterial disease diagnosis in the prediction of diabetic foot ulcer healing. *BMJ Open Diab Res Care* 11: e003110

6 Efficacy and safety of autologous platelet-rich plasma for diabetic foot ulcer healing

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

- Autologous platelet-rich plasma (Au-PRP), a substance abundant in various growth factors and cytokines, is increasingly being recognised as a promising method for promoting ulcer healing due to its similarities to the physiological wound healing process
- The authors performed a systematic review and meta-analysis of randomised controlled trials, searching Medline, EMBASE, PubMed and the Cochrane Library. Results were scrutinised, data were extracted and research quality was investigated by two independent authors. Primary outcome was the proportion of complete ulcer healing. Secondary outcomes included both the mean time to complete healing and the incidence of adverse events.
- The results of the meta-analysis indicated that au-PRP has a significant positive effect on healing rate, reduces the healing time, accelerates the reduction of ulcer area, decreases the rate of amputation, and does not increase the incidence of adverse events when compared to conventional therapy
- Au-PRP therapy has been shown to facilitate the process of wound healing and represents a viable and secure therapeutic alternative for individuals with DFU.

Su YN, Li J, Feng DH et al (2023) Efficacy and safety of autologous platelet-rich plasma for diabetic foot ulcers: a systematic review and meta-analysis. *J Wound Care* 32(12): 773-86