

Cellular subpopulations as predictors of tissue oxygenation response after autologous cell therapy in people with diabetes and severe ischemia

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Background: Autologous cell therapy (ACT) represents a treatment option for patients with no-option chronic limb-threatening ischemia (CLTI), particularly in those with diabetic foot disease. This study aimed to assess the association between cellular subpopulations of the final ACT product, including cell viability, and clinical treatment outcomes.

Methods: A retrospective analysis of 38 diabetic patients with CLTI treated with ACT was performed. The cellular composition of the final product was assessed using flow cytometry, focusing on CD34+, CD34+CD133+, CD34+CD133+CD309+, and CD34+CD31+CD309+ subpopulations, as well as cell viability. Primary outcomes included amputation-free survival (AFS), defined as time to major amputation or death, and limb salvage, defined as time to major amputation. Secondary outcomes included the change in transcutaneous oxygen pressure (ΔTcPO_2) between baseline and 3-month follow-up, and time to wound healing. Statistical analysis included Spearman correlation, Cox proportional hazards model, and multivariable linear regression adjusted for age, sex, and diabetes duration.

Results: The median age was 69 years and the median diabetes duration was 22.5 years. During follow-up, 6 major amputations (15.8%) and 6 deaths (15.8%) were observed. Spearman correlation analysis demonstrated a statistically significant correlation between CD34+CD133+ cells and ΔTcPO_2 ($r = 0.42$; $p = 0.024$), indicating that higher cell amounts were associated with greater improvement in tissue oxygenation after ACT. After adjustment for age, sex, and diabetes duration, this association remained statistically significant in the multivariable linear regression model ($p = 0.025$).

Conclusion: The cellular composition of the final ACT product, particularly the CD34+CD133+ subpopulation, representing an early, immature progenitor cell population with high angiogenic potential, is associated with improved tissue oxygenation and represents a clinically relevant predictor of treatment response in patients with diabetic foot disease and CLTI.

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Mid-term outcomes of percutaneous deep venous arterialization using the Limflow system

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Background & objectives: Chronic limb-threatening ischemia (CLTI) not amenable to conventional revascularization options (no-option CLTI) is associated with high rates of major amputation and mortality. Promising results were reported following percutaneous deep venous arterialization (pDVA) using the Limflow system. This study reports mid-to-long term clinical and patency outcomes of pDVA in real-life single-centre settings.

Design: Retrospective, single-arm cohort study.

Methods: The study included no-option CLTI patients (Rutherford class 5-6) who underwent pDVA using the Limflow between January 2020 and June 2024. Patients were designated “no-option” by a multidisciplinary team after exhausting conventional revascularization options. Primary outcome was amputation-free survival (AFS). Secondary outcomes included technical success, limb salvage (LS), primary and secondary patency (PP/SP), freedom from reintervention (FFR), and wound healing rates.

Results: Thirty-four patients (median age of 67 years; 79.4% diabetic) were included, with a median follow-up of 21 months (4-62 months). Technical success was 100%. At 24 months, AFS was 72% and LS was 88.6%. Full wound healing was achieved in 66% of patients, with a median time of 262 days from the index procedure. Kaplan-meier analysis showed 24-month PP and SP rates of 46.3% and 76%, respectively. FFR was 58% at 24 months. Four major amputations (11.7%) were required.

Conclusion: pDVA using the Limflow system provides acceptable mid-term outcomes. Satisfactory AFS, LS, PP, SP and wound healing rates were achieved in these no-option CLTI options. Strict post-procedure surveillance and reintervention protocols are essential to maintain satisfactory outcomes.

Impact of red cell distribution width on the clinical outcomes of autologous cell therapy in chronic limb-threatening ischemia

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Aim: Chronic limb-threatening ischemia (CLTI) in patients with diabetic foot carries a high risk of major amputation and death, even with advanced revascularization approaches. Red cell distribution width (RDW), a routinely available marker of erythrocyte size variability linked to systemic inflammation and oxidative stress, has shown prognostic value in cardiovascular disease but has not been studied in the context of autologous cell therapy (ACT). We aimed to evaluate whether RDW, measured in peripheral blood, bone marrow, and the final cell product, is associated with clinical outcomes after ACT in no-option CLTI patients.

Methods: We analyzed 139 treatment episodes in 126 patients. RDW was assessed in peripheral blood (BloodRDW), bone marrow aspirate (MatRDW), and the final cell product (ProdRDW). Outcomes included amputation-free survival (AFS; time to major amputation or death), event-free survival (EFS; time to re-application of cell therapy, or death), limb salvage, and time to complete wound healing. Bayesian Cox models with a patient-level random effect were adjusted for age, sex, immunosuppression, and baseline Wifl composite score. Results are reported as posterior median hazard ratios (HR) with 95% credible intervals (CrI).

Results: Higher BloodRDW (HR 7.06; 95%CrI 1.01–53.71) and MatRDW (HR 5.71; 95%CrI 0.93–39.89) were associated with increased hazard for AFS. For EFS, both MatRDW (HR 4.09; 95%CrI 1.19–14.27) and BloodRDW (HR 3.92; 95%CrI 1.01–14.36) showed credible evidence of effect. RDW showed no association with limb salvage or wound healing. Female sex (HR 2.66; 95%CrI 1.02–8.49) and higher baseline Wifl composite score (HR 1.29; 95%CrI 0.97–1.82) showed a trend toward increased hazard.

Conclusion: Higher RDW, particularly in peripheral blood and bone marrow, was associated with worse clinical outcomes after ACT in patients with CLTI. As an inexpensive and universally available marker of systemic inflammatory burden, RDW may support pre-treatment risk stratification in ACT candidates.

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The Minimal Invasive Novel Open Revascularisation (MINOR) Enables Successful Lower Limb Bypass and Wound Healing in Patients with Complex Co-morbidities

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Background & Aim: The recently described Minimal Invasive Novel Open Revascularisation (MINOR) approach, which uses key-hole access for vein harvest and minimal incisions for the lower limb bypass, does enable the procedure to be performed in otherwise complex co-morbid group of patients. The aim of this study was to evaluate the diabetic foot ulcer (DFU) healing outcomes after the use of MINOR approach.

Method: This was a retrospective cohort review of consecutive patients with ischaemic DFUs, who underwent the MINOR procedure over a two-year period at a single centre. Electronic medical records were reviewed for baseline demographics and wound healing at 12 weeks as a primary outcome (categorised as healed, improved, static or deteriorated). Secondary outcomes were time to healing (weeks), 12-week mortality, and incidence of further revascularisation or major amputation within 6 month follow-up post-procedure.

Results: There were 27 patients (mean age of 68 years, 74% male). Ulcer severity, categorised by SINBAD score, ranged from 1 to 5. Twelve patients presented with multiple DFUs on the same foot and five had concurrent leg ulcers.

At 12-weeks, six patients achieved complete ulcer healing whereas three patients died. Among the remaining patients, 16 had improved DFU healing, and five had static or deteriorated DFUs. Within 6 months follow-up post the MINOR surgical approach bypass, 12 patients required further angioplasty and one patient required a revision bypass surgery. Six patients underwent a toe amputation and one had a major amputation. Nineteen patients (70%) did progress to complete wound healing after the MINOR procedure and the median time to healing was 200 days (range 32 to 601 days).

Conclusion: The novel MINOR lower limb bypass approach is a viable option to revascularise DFU patients with critical limb ischaemia and complex co-morbidities and is associated with improved DFU healing rate and limb salvage.

Long-term outcome in patients with diabetic foot and no-option chronic limb-threatening ischaemia treated with peripheral blood mononuclear cells

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Background: Patients with ischaemic diabetic foot ulcers (DFUs) and no-option chronic limb-threatening ischaemia (NO-CLTI) had worse clinical outcomes, with a major amputation risk exceeding 30% and mortality up to 50%. Peripheral blood mononuclear cell (PB-MNCs) therapy has emerged as a promising adjunctive strategy, but long-term data remain limited. The study aimed to evaluate the long-term outcomes of in patients with DFUs and NO-CLTI managed with PB-MNCs therapy.

Methods: This prospective, single-center, observational, controlled study included patients with ischaemic DFUs and NO-CLTI enrolled between January 2017. NO-CLTI was defined by a technically failure of lower limb revascularization with the absence of any vessel below-the-ankle and/or indirect revascularization with TcPO₂ values <30 mmHg in the wound angiosome area. Patients were divided in two groups: those receiving PB-MNCs therapy plus standard of care (SoC) and those treated only by SoC based on conventional guidelines. PB-MNCs were administered by intramuscular injections along the anatomical area of the wound related artery (3 cycles 21-42 days apart). At 24 months of follow-up, outcomes assessed were healing, major amputation, and mortality. In the PB-MNC group, hospital readmission for recurrent CLTI requiring repeat revascularization was also recorded.

Results: Overall, 78 patients were included: 48 in the PB-MNCs group and 30 in the conventional therapy group. The mean age was 73.7 years, 84.6% were male, and most had type 2 diabetes (92.3%). At the assessment, 71.8% of DFUs were infected, 83.3% >5 cm², 88.5% had gangrene. At 24 months, the PB-MNCs group showed higher rate of healing (60.4vs20%,p<0.0001), lower rate of major amputation (12.5vs26.7%,p=0.0004), and lower rate of mortality (27.1 vs 46.7%,p=0.0002) than control group. CLTI recurrence requiring readmission occurred in 3/48 (6.2%) among PB-MNCs group.

Conclusions: In patients with ischaemic DFUs and NO-CLTI, adjunctive PB-MNCs therapy was associated with better long-term outcomes than those treated only by conventional therapy.

Mechanical thromboaspiration for distal thromboembolic complications during limb

salvage procedures in patients with critical limb ischemia and diabetic foot ulcers: A

high-volume single-center study

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Purpose: To assess the safety and effectiveness of mechanical thromboaspiration devices derived from neurointerventional procedures in the treatment of acute distal embolism occurring during percutaneous lower limb revascularization procedures in diabetic patients with critical limb ischemia.

Methods: A total of 743 lower limb angioplasty interventions carried out over a span of 5 years (2019-2024) in our center were analysed and looked for distal embolic complications treated with mechanical thrombectomy. Patients belonged to Rutherford–Becker stage V (23) or VI (18), Texas wound classification IIC: 8, IID: 11, IIIC:9, IIID: 13.

Results: 41 cases of thromboembolic complications (8.6%) were evaluated with digital subtraction angiography during endovascular procedures. Distal embolic complications/thrombosis were observed in 41 cases, 1 in the popliteal tract (2.4%) and the remainder all below-the-knee joint level (97.6%). In 3 cases(7.4%), the mechanical thromboaspiration was associated with intraarterial medical therapy to improve the clinical result. In one case (2.4%), likely due to underlying flow-limiting dissections of the distal vessels, the mechanical thromboaspiration was unsuccessful. In 29 cases (70.7%) AXS Catalyst 5 was used; in 10 cases (24.3%), Penumbra 4MAX System; and in 2 cases (4.8%), a Penumbra 3MAX. Overall procedural success was observed in 40 out of 41 cases (97.6%). Post-procedural TcPO₂ at one-week follow-up corresponded to 48.5 ± 7.4 mmHg and at one-month follow-up 41.2 ± 9.8 mmHg.

Conclusion: Our experience with neuro-derived catheters for clot retrieval in the lower limb arteries is encouraging, improving technical success of revascularization procedures in case of distal embolic complications.

Diagnostic test accuracy of pedal acceleration time

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Objective: The primary objective of this study was to assess the diagnostic accuracy of pedal acceleration time (PAT) in identifying peripheral artery disease (PAD) in a population with clinically suspected PAD, including a subgroup of people with diabetes.

Methods: This was a multicentre cross-sectional study to estimate the diagnostic test accuracy. Participants with clinically suspected PAD were recruited via consecutive sampling at four centres. Colour duplex ultrasound (reference standard) and toe brachial index (TBI) were measured by a vascular sonographer. A second vascular sonographer, blinded to all other measures, conducted the PAT measurements on the same limb. PAD was defined as a > 50% stenosis in any vessel from the distal aorta to the foot. Sensitivity, specificity, positive and negative predictive values, and positive and negative likelihood ratios were estimated for all PAT values. Receiver operating characteristic curves were also generated.

Results: One hundred and eighty-eight participants (227 limbs) were recruited, with a mean age of 71 years (standard deviation 10, range 43 e 93) with 56 women (29.8%) including 133 (70.7) limbs having PAD (59%) and 61 (32.4%) claudicants. Utilising the worst case PAT measure for the limb for identifying PAD had an AUC of 0.79 (0.74 - 0.85) and positive and negative predictive values of 0.81 (0.57 - 0.89) and 0.66 (0.57 - 0.75), respectively. Area under the curve for the toe brachial index was 0.78 (0.71 - 0.85) and that of ankle brachial index was 0.70 (0.62 - 0.77). The diabetes sub-group demonstrates a PAT AUC of 0.66 ((5%CI 0.52 – 0.79).

Conclusion: PAT had an acceptable diagnostic test accuracy as an assessment tool to identify PAD in a population with clinically suspected PAD. PAT performance was reduced in the diabetes group. PAT value yielded the highest diagnostic test accuracy of all PAD measures.

Objective assessment of footwear fit using pressure analysis in people with diabetes at high foot ulcer risk

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Background: Although many diabetes-related foot ulcers occur on non-plantar regions, no objective data exist on footwear effects in these regions. Understanding footwear fit through non-plantar in-shoe pressure analysis may help guide footwear design and ulcer prevention. We assessed non-plantar in-shoe pressures in people with diabetes at foot ulcer risk, with or without clinical signs of footwear misfit.

Method: In this cross-sectional study, participants at moderate-to-high foot ulcer risk wearing custom-made footwear were categorized as those with or without clinical signs of footwear misfit (i.e., ulcer or pre-ulcerative sign) immediately after shoe removal on the dorsal, medial or lateral forefoot. With participants walking at a preferred gait speed, in-shoe peak pressures were recorded on the dorsal, medial, and lateral aspects of the forefoot using the Novel pedar[®] pad (56 sensors, 0.5 sensor/cm²). Independent t-tests assessed overall group differences, and region-specific outcomes were interpreted descriptively due to the current small sample size.

Results / Discussion: Twenty participants were analyzed in this ongoing study (age 69.6±8.7 years, 75% male, 85% IWGDF risk 3). Mean non-plantar peak pressure was 35% higher in the 10 feet with footwear misfit compared to the 10 feet without misfit (43.9±35.7 vs. 32.5±19.3 kPa, p>0.05). The largest group difference was at the dorsal 5th metatarsal head (82.6±32.4 vs. 43.4±32.2 kPa), see Fig. 1. These preliminary results suggest an association exists between signs of footwear misfit and in-shoe non-plantar pressure, with some regions revealing large group differences.

Conclusion: Footwear misfit on the dorsal, medial and lateral aspects of the forefoot may show as regional increase in non-plantar peak pressure. This is a first step towards objective assessment of footwear fit, that may help to better understand occurrence, treatment and prevention of (pre-)ulcers in these regions.

EFFECTIVENESS OF THERAPEUTIC SPORT FOOTWEAR IN PREVENTING ULCER RECURRENCE IN PERSONS WITH DIABETIC FOOT DISEASE

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Background: Diabetic foot ulcer (DFU) recurrence remains a major clinical challenge in patients with diabetes. Therapeutic footwear is a cornerstone of secondary prevention as it reduces plantar pressure and mechanical stress. However, most available evidence focuses on traditional orthopedic footwear, while prospective data on therapeutic sport footwear designed for daily physical activities are poor (YDA model). This study aimed to evaluate the effectiveness of therapeutic sport footwear with a semi-rigid biomechanical sole with combined insole in preventing ulcer recurrence in patients with diabetes at high risk of re-ulceration.

Methods: This prospective, single-arm observational study included consecutive patients with diabetes and a history of DFU referred to a tertiary diabetic foot center between January 2024 and March 2025. All patients were managed through a multidisciplinary protocol including regular clinical follow-up, risk-factor monitoring, and structured patient education. Patients were evaluated at 3, 6, and 12 months. The study outcomes included: ulcer recurrence, minor and major amputations at 12 months of follow-up.

Results: 47 patients were included (68% male; mean age 68 years). Peripheral neuropathy was present in all patients and peripheral arterial disease in 55%. At 12 months, ulcer recurrence occurred in 14.9% of patients, minor amputation in 6.4%, and no major amputations were recorded. Multivariate analysis showed that discontinuous use of therapeutic footwear was strongly associated with ulcer recurrence (OR 8.9, 95% CI 2.1–37.5; $p < 0.0001$) and minor amputation (OR 10.5, 95% CI 2.0–55; $p = 0.004$). Peripheral arterial disease was independently associated with minor amputation (OR 5.2, 95% CI 1.3–20.6; $p = 0.02$).

Conclusions: The use of specific sport footwear with a semi-rigid biomechanical sole resulted in a low rate of re-ulceration rates and foot complications in persons performing daily physical activities. These preliminary findings could support the use of modern therapeutic footwear also in persons at high risk of DF recurrence.

Differences in cumulative plantar tissue stress between forefoot regions with and without pre-ulcers in people with diabetes

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Aim: Plantar foot ulcers are associated with abnormal biomechanical stress while bearing weight, thought to drive formation of pre-ulcers (i.e., abundant callus, hemorrhage, blister and skin fissure) before progressing to ulceration. Cumulative plantar tissue stress (CPTS) integrates multiple foot-loading factors into a comprehensive mechanical load measure, but its association with pre-ulcers remains poorly understood. This study aimed to investigate whether CPTS differs between forefoot regions with and without pre-ulcers in people with diabetes at high foot ulcer risk.

Methods: We prospectively observed 166 participants with diabetes at high foot ulcer risk. CPTS was calculated per forefoot region (metatarsal 1, metatarsal 2–3, metatarsal 4–5, hallux) by integrating in-shoe and barefoot plantar pressure–time integrals, measured at baseline, with daily weight-bearing activity, measured over seven consecutive days. Pre-ulcers were assessed from standardized foot photographs at baseline. Mann-Whitney U tests compared CPTS between regions with and without pre-ulcers per region.

Results/Discussion: Participants had a mean age of 64.9 ± 9.6 years and BMI 29.8 ± 5.3 kg/m²; 134 (81%) had type 2 diabetes. At baseline, 87 of 166 participants presented at least one pre-ulcer, affecting 135 of 1306 forefoot regions. CPTS was significantly higher at pre-ulcer regions for metatarsal 1 (0.90 vs 0.49 GPa·s/day, $r=0.50$), metatarsal 2–3 (0.84 vs 0.54 GPa·s/day, $r=0.40$) and metatarsal 4–5 (1.40 vs 0.58 GPa·s/day, $r=0.66$), but not for the hallux (0.49 vs 0.41 GPa·s/day, $r=0.31$), Fig.1. These findings support the mechanical pathway of plantar foot ulceration through pre-ulcer development at metatarsal regions, while the lack of association at the hallux may suggest that mechanical load components not captured by CPTS (e.g., shear stress) or tissue tolerance contribute to pre-ulcer development at this region.

Conclusion: CPTS was significantly higher at metatarsal regions with pre-ulcers, supporting the mechanical pathway of ulceration. Prospective follow-up may clarify whether mechanical load causes pre-ulcer development.

Behavioural patterns of physical activity by therapeutic footwear use and indoor/outdoor setting in individuals at high risk of diabetic foot ulceration

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Aim

While previous studies have investigated physical activity volumes and adherence to therapeutic footwear in individuals at high risk of ulceration, whether behavioural patterns of weight-bearing physical activity differ between wear and non-wear periods and between indoor and outdoor settings remains unclear. Understanding these patterns may help identify modifiable behaviours to reduce ulcer risk.

Methods

Data were from 55 participants (68±10 years, 46 male, 80% type 2 diabetes) at high risk of ulceration. Lower back-worn accelerometer data (MoveMonitor; McRoberts) was recorded continuously for one week to compute metrics capturing volume, intensity, bout characteristics and inactivity behaviour. Therapeutic footwear use (wear/non-wear) was measured continuously and objectively (OrthoTimer sensor; Rollerwerk) and setting (indoor/outdoor) was recorded. Differences in metrics for the four activity contexts were assessed using the Friedman test with post-hoc pairwise Wilcoxon signed-rank tests.

Results

Indoor walking without therapeutic footwear showed higher activity volume compared to both outdoor walking without and with therapeutic footwear, with more bouts, strides, active time and light-intensity activity. Average indoor active time without therapeutic footwear was 33.5 ± 24.3 minutes per day and 24.4 ± 21.1 minutes per day with footwear. Indoor walking without therapeutic footwear was associated with shorter bouts (14.4 vs 16.4 seconds, p<0.01), higher fragmentation (4.3 vs 3.9 bouts/active min, p<0.01) and higher inactivity-to-bout duration ratios (38.6 vs 15.1, p<0.01) compared to indoor walking with therapeutic footwear.

Conclusions

Indoor walking without therapeutic footwear accounts for a larger volume of activity compared to outdoor walking, potentially resulting in considerable unprotected plantar loading. Furthermore, indoor walking without therapeutic footwear was associated with shorter, more fragmented bouts of activity. This may suggest that non-wear activities indoors are more sporadic and unplanned, while wearing therapeutic footwear indoors could be indicative of planned tasks. Future analyses will expand the dataset and investigate the association with ulcer development.

OP12

Clinical efficacy of heel wedges in custom-made insoles for the prevention of recurrent plantar diabetic foot ulcers.

Final results of a randomized and controlled clinical trial.

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Aim: International Working Group Diabetic Foot (IWGDF) recommends the use of custom-made insoles in a person with diabetes who is at risk of foot ulceration. The aim of the present study is to evaluate the clinical efficacy of different rearfoot elements in custom-made insoles in the reduction in the prevention of plantar diabetes related foot ulcers (DFU).

Method: between January 2023 and December 2025 we conducted a randomized controlled parallel (1:1) clinical trial on 80 consecutive participants with diabetes and a previous plantar DFU. Participants were randomly assigned to group 1, those who were assigned plantar orthoses without a medial nor lateral heel wedge; and group 2 patients who were assigned insoles with medial or lateral heel wedge. The prescription of a rearfoot wedge was based on the foot position via the use of foot posture index. Primary outcome measures included recurrence rate and free survival time to recurrence. Secondary outcome measures included minor amputation. All the participants were followed up for 1 year one a month until they developed a recurrence event.

Results / Discussion: 23 participants resulted in a recurrent foot ulcer. The Control group experienced a higher number of recurrence events (n = 16; 40.0%) compared to the Experimental group (n = 7; 17.5%). The estimated survival probability at 365 days was 0.600 (95% CI [0.448–0.752]) in the Control group and 0.825 (95% CI [0.707–0.943]) in the Experimental group, representing an absolute difference of 22.5 percentage points in ulcer-free survival. The test demonstrated a statistically significant difference ($\chi^2 = 4.921$, $p = 0.027$), indicating that the Experimental intervention was associated with a significantly lower risk of ulcer recurrence relative to standard care over the 365day follow-up period.

Conclusion: Clinicians should use rearfoot wedges, as it has been proven that they reduce recurrence rate.

The effect of an integrated personalized multimodal intervention on footwear adherence in people with diabetes at high foot ulcer risk: a multicenter randomized controlled trial (DIASSIST)

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Introduction: Pressure-optimized custom-made footwear helps prevent foot ulcer recurrence in people with diabetes. This footwear protects the foot from high mechanical loads, by redistributing pressure underneath the foot. Adherence to wearing such footwear is essential for its biomechanical function to affect clinical outcome, yet is often too low. There is limited evidence for adherence-improving interventions. We assessed the effectiveness of an integrated personalized multimodal intervention on footwear adherence in people with diabetes at high risk of ulceration.

Methods: In a multicenter randomized controlled trial, we randomized 126 participants with diabetes, peripheral neuropathy, ulcer history and custom-made footwear to usual care or enhanced treatment. Enhanced treatment consisted of pressure-optimized custom-made footwear, provision of pressure-optimized indoor-specific custom-made footwear, foot temperature monitoring, structured education, and motivational interviewing including personalized feedback. The primary outcome was adherence, calculated as percentage of steps wearing prescribed footwear, and objectively measured using a temperature sensor in the shoe and a physical activity monitor. Adherence was measured at baseline (before intervention), at 6 and 12-months follow-up, and statistically tested using a linear mixed model. Secondary outcomes included objectively measured wearing time in hours/day, compared before and after study visits, statistically tested using paired t-tests.

Results: Adherence to wearing custom-made footwear was significantly higher in enhanced treatment compared to usual care (75% (SD:10) vs 56% (SD:22) at 6 months, and 58% (SD:18) vs 49% (SD:20) at 12 months, $p < 0.001$), with a relative improvement of 34% at 6 months (Fig.1). Wearing time was significantly increased after the provision of indoor-specific footwear (mean 7.7 to 9.4 hours/day, $p < 0.001$), and structured education (mean 7.8 to 8.2 hours/day, $p = 0.049$).

Conclusions: An integrated personalized multimodal intervention significantly increased footwear adherence compared to usual care. In addition, the results support emphasizing indoor-specific footwear and structured education in foot care, as adherence-improving interventions with the largest effects.

Clinical Efficacy of a Novel Minimal Offloading Dressing for the Treatment of Plantar Diabetes-Related Foot Ulcers: A Randomized Controlled Clinical Trial

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OBJECTIVE: To evaluate the clinical efficacy of a minimal offloading dressing (MOD) in comparison with felted foam for the treatment of diabetes-related foot ulcers (DFU) located beneath a metatarsal head.

METHODS: A monocenter randomized controlled parallel (1:1) clinical trial was performed with consecutively selected individuals with diabetes and active DFUs. Participants were randomly assigned to control or treatment groups. The experimental group received MOD treatments, and the control group received 15-mm felted foam treatments. All participants wore a removable ankle-high offloading device. The primary outcome measure was the 12-week healing rate. The time to healing was evaluated during a 12-week follow-up period. The secondary outcome measures included minor or major amputations related to the DFU during a follow-up period of 6 months.

RESULTS: Between December 2023 and September 2024, 40 participants (20 per group) were enrolled. All participants completed the planned study visits during the 12-week follow-up period. Of the total sample, 36 participants (90%) healed during the follow-up period. There were 17 participants (85%) who healed in the control group, whereas 19 participants (95%) healed in the experimental group. The median healing time was 21 days [interquartile range (IQR): 10.5-50 d] in the control group and 14 (7-28) days in the experimental group ($P = .292$).

CONCLUSIONS: The use of MOD in combination with an ankle-high offloading device resulted in similar healing rates compared with felted foam at 12 weeks. MODs should be considered in clinical practice to avoid design mistakes and reduce the variability in nonspecialized clinical settings.

Food as Medicine for diabetes-related foot ulceration: feasibility and acceptability of a personalised medical nutrition therapy intervention combined with medically tailored food packages.

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Aim: To evaluate preliminary feasibility and acceptability of a dietitian-led personalised medical nutrition therapy(MNT), combined with medically tailored food packages(MTFP). Secondly, assess preliminary impact on wound healing.

Method: A co-designed six-week pilot two-arm RCT conducted at two Australian high-risk foot services(HRFS). Individuals with diabetes-related foot ulcers(DFU) were randomised to intervention or control groups. The intervention group received three personalised MNT with a dietitian consults and two MTFPs. The wait-list control group received a healthy eating brochure. Both groups received standard wound care. A process evaluation determined intervention acceptability, presented as counts. Linear mixed-models with maximum likelihood estimation and robust confidence intervals were conducted for continuous variables. McNemar's test was utilised for categorical outcomes.

Results: Fifteen out of 17 participants completed the trial, were predominantly male, had insulin requiring type two diabetes and a median wound duration of five months. Process evaluation results showed all intervention participants agreed the intervention was acceptable, with no participant disagreeing on any question. All strongly agreed or agreed dietitian consults were beneficial in providing useful information about diet, and were satisfied with consults provided in addition to usual HRFS care. For healing outcomes, there were no significant differences within or between groups. However, when adjusting for two intervention participants who developed an infection, there was a significant within group reduction in cross-sectional wound area, width and length from baseline to end of trial in the intervention group(Table 1). Large effect sizes were evident for cross-sectional area(0.87) and width(0.87), with a medium effect size for length(0.69). Between group effect sizes for other healing outcomes were small(<0.50).

Conclusion: The dietitian-led intervention was feasible and deemed acceptable by participants, and shows promise for supporting DFU healing. A fully powered RCT is needed to evaluate this intervention on wound healing, biochemistry, QOL and glycemic control in people with DFU.

Does a Multidisciplinary Diabetic Foot Ward Round Improve patient care?

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Introduction

Patients with diabetic foot disease (DFD) are often admitted for unrelated conditions, with foot pathology managed as a secondary issue. Inpatient multidisciplinary team (MDT) ward rounds aim to deliver early, co-ordinated intervention to prevent limb loss. This study evaluates the impact of a weekly MDT review on delivery of treatment interventions and compares management between patients seen and not seen by the MDT.

Methods

A retrospective cohort study was conducted of patients admitted to a large university teaching hospital with DFD between December 2021 and August 2022. Patients were grouped based on review by the weekly MDT ward round, comprising a diabetologist, vascular surgeon, microbiologist, and podiatrist. Data collected included: optimisation of glycaemic control, antibiotic escalation, osteomyelitis management, surgical debridement, foot offloading and referral for limb revascularisation.

Results

147 patients were admitted with DFD, of whom 71% (n=104) were reviewed by the MDT. The cohort had a mean age of 64 years; 58% were male and the mean HbA1c was 87.4+/- 34.5 mmol/mol. Diabetes management was optimised in 48% (n=70), offloading advice was given in 18% (n=26), antibiotic regimens were adjusted in 14% (n=21), with 8% (n=12) referred for limb revascularisation and 5% (n=8) underwent surgical debridement.

MDT-reviewed patients were significantly more likely to receive targeted interventions, including diabetes management optimisation (63% vs 9%) and antibiotic escalation (19% vs 2%). Vascular referral, revascularisation, and wound debridement occurred exclusively in MDT-reviewed patients (p<0.001).

Conclusion

Inpatient multidisciplinary diabetic foot ward rounds improve outcomes through timely intervention and coordinated specialist care. Patients reviewed by the MDT were significantly more likely to receive optimisation of diabetes management and were exclusively referred for vascular assessment. These findings highlight the impact of structured MDT input on care delivery and support wider implementation of this model across healthcare settings to improve outcomes in patients with DFD.

A Moving baseline - Standard of Care Heterogeneity in Modern Diabetic Foot Ulcer Randomised Controlled Trials: Implications for Reproducibility and Clinical Translation - Is This the Next Frontier to Overcome?

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Background:

Randomised controlled trials (RCTs) in diabetic foot ulcer (DFU) management often report conflicting results. A major but under recognised contributor is the substantial heterogeneity in “standard of care” (SOC) delivered within control arms—an issue that directly affects reproducibility, interpretation of treatment effects, and cross trial comparisons.

Methods:

We reviewed 10 major DFU RCTs conducted between 2008 and 2025, spanning interventions including negative-pressure wound therapy (n=2), hyperbaric oxygen (n=2), topical oxygen therapy (n=1), leucocyte-platelet patches (n=1), and advanced dressings/applications (n=4). SOC protocols were extracted across five domains: wound care (dressing type, frequency, debridement quality), offloading (type, standardisation, adherence), infection control, vascular management, and clinical review frequency. Additional analysis comparing protocol-specified SOC versus investigator-discretionary SOC was performed using heterogeneity statistics.

Results:

A total of 1094 participants were included in the SOC arms across these studies. Marked SOC heterogeneity was present across all domains. Wound care ranged from basic gauze/saline to advanced moisture-retentive or antimicrobial dressings; offloading ranged from unspecified footwear to gold-standard total contact casting, mandated in only 20% of trials. Debridement intensity ranged from one-off at baseline to weekly sharp debridement by specialists. Eight of ten trials (80%) relied on investigator-discretionary SOC, yielding higher mean healing rates (40.0% vs 26.9%) but dramatically greater variability (22.0–58.2%; $I^2=90.5\%$) compared with tightly specified protocols (26.7–27.0%; $I^2=0\%$). Critically, no two trials used identical SOC, and most provided inadequate documentation of what care was actually delivered.

Conclusions:

SOC heterogeneity creates a moving, often undefined baseline that confounds the attribution of treatment effects and undermines reproducibility. Discretionary SOC can produce excellent outcomes but introduces > 60-fold greater variability. Future trials should mandate detailed reporting of delivered SOC- including offloading, debridement cadence, dressing strategies, and vascular/infection management - to enable accurate interpretation, comparison, and translation of DFU research.

Presentation patterns of returning diabetic foot ulcer patients in Belgium: a repeated audit analysis from the IQED-Foot registry

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Aim: Patients with a history of diabetic foot ulcers (DFU) frequently experience new ulcer episodes, and timely presentation is critical to reduce the risk of infection, hospitalization, and amputation. Therefore, patients with a DFU registered multiple times (i.e., returning DFU patients) in Belgium's national Initiative for Quality improvement and Epidemiology in multidisciplinary Diabetic Foot clinics (IQED-Foot, since 2005), were investigated. This study aimed to assess whether returning DFU patients: (1) present with a shorter presentation delay for new ulcer episodes, (2) present with less or more severe ulcers over audits, and (3) are more likely to be referred or to present on their own initiative.

Methods: IQED-Foot conducts biennial audits across multidisciplinary diabetic foot clinics (MDFCs) in Belgium. Eight audits (including 11088 unique patients) were analysed to identify returning DFU patients. Demographic characteristics were assessed, and statistical models for repeated measures were applied to evaluate presentation delay, ulcer severity (SINBAD classification) and referral pattern over audits among returning DFU patients.

Results: In IQED-Foot, 1214 returning DFU patients with a history of DFU, had a longer duration of diabetes, and were more likely to have a history of renal insufficiency and lower limb revascularization, as well as to be former smokers, compared to patients presenting once without a history of DFU (N=4434; $p<0.0001$). In returning DFU patients, presentation delay decreased significantly over successive audits ($\beta=-0.04$; 95%CI=-0.06, -0.01; $p<0.05$; approximately 1 day per audit), and ulcer severity decreased slightly though significantly ($\beta=-0.07$; 95%CI=-0.09, -0.04; $p<0.0001$). Returning DFU patients were increasingly referred to MDFCs rather than presenting on their own initiative (OR=1.26; $\beta=0.23$; 95%CI=0.17, 0.29; $p<0.0001$).

Conclusion: Returning DFU patients presented approximately one week earlier, and also tended to present with less severe ulcers over audits. Additionally, referrals by healthcare professionals seem to be more frequent than self-initiated presentations among returning DFU patients.

“Access Is the Intervention”: How an Open Access SOS Pathway Prevents Hospital Admission in Diabetic Foot Disease

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Background and Aim:

Delayed review of diabetic foot complications remains a key driver of ulcer deterioration and preventable hospital admission. Traditional scheduled models may fail to respond to the dynamic natural history of diabetic foot disease. This study examined why patients access an open access “SOS/urgent” pathway within a multidisciplinary foot service (MDFS), and whether such access functions as a proactive intervention rather than a reactive safety net.

Methods:

A retrospective three month review was undertaken of all SOS/urgent contacts resulting in face to face MDFS assessment. Data were obtained from electronic patient records. Diabetic foot ulcer (DFU) severity was verified using National Diabetes Foot Care Audit data and categorised using the SINBAD scoring system.

Results:

From 01/12/2025 to 02/02/2026, 108 SOS appointments were recorded in 94 patients (mean age 59±11.2 years; 70% male; 67% type 2 diabetes). Twelve patients required repeat SOS attendances. Presentations were evenly distributed across weekdays ($p > 0.05$). Overall, there were 1945 patient attendances.

DFU related pathology accounted for 73 SOS presentations, including new DFUs ($n=38$) and deterioration of existing DFUs ($n=35$). Drivers of deterioration included progression in size/depth ($n=8$), new or worsening infection ($n=21$), and new necrosis/gangrene ($n=6$). At presentation, 40% of ulcers were severe (SINBAD ≥ 3) and 56% were clinically infected. A further 21 SOS attendances related to management with total contact casts (TCC), most commonly due to pain or discomfort. SOS contacts resulted in 46 antibiotic reviews (42.6%), 31 emergency imaging requests (28.7%), and 31 TCC replacements (28.7%). Despite high clinical complexity, only three hospital admissions occurred (2.7%).

Conclusion:

An open access SOS pathway enables rapid intervention at early points of deterioration, reframing access itself as a therapeutic strategy. These findings support urgent access MDFS models as a scalable innovation to reduce admissions and improve diabetic foot outcomes through timely, responsive care.

THE ORGANIZATION OF DIABETIC FOOT (DF) CARE IN EUROPE: FIRST RESULTS OF THE EUROPEAN WOUND MANAGEMENT ASSOCIATION (EWMA) DF COMMITTEE ONLINE SURVEY

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Background – Despite an estimated prevalence of 3M cases, the organization of DF care in Europe is still not definite and the number of dedicated centers, as well their operational setting, unknown.

Aim – The DF committee of EWMA promoted an online survey to census DF-dedicated clinical centers in Europe and qualify their activities.

Methods – A 16-item online questionnaire was made available on EWMA website, with the invitation to fill it for all the centers/HCPs involved in DF care across Europe. The items related to the setting, staffing, frequency and types of activities, organization of care.

Results – June 1st - December 31st 2025, 514 responders (45% nurses, 30% doctors, 15% Podiatrists, 10% other HCPs) from 27 Countries completed the survey. 51% were settled in hospitals (10% university), 20% in community, 10% in specialized clinics, 4% in nursing homes and 8% in private practice. 61% of centers had a multidisciplinary team, meeting at least weekly in 53%, bi-weekly in 11%, monthly in 16%, quarterly in 13% of the cases, while the number of patients/week was ≤ 10 in 26%, 11-30 in 30%, >30 in 24% of cases, respectively. The delivered activities were local care (87%), follow up (74%), offloading (66%), urgencies (61%), NPWT (56%), surgery (55%), orthosis/shoes (52%), revascularizations (49%) of the responders, respectively. Referral for complicated DFUs was same day in 17%, ≤ 1 week 61%, >1 week 22% of cases, respectively. For CLTI was same day 25%, ≤ 1 week 41%, >1 week 34%, respectively. For foot surgery was same day 20%, ≤ 1 week 40%, >1 week 40%, respectively.

Conclusions – Our survey on DF care showed an unexpected number of centers already established at a continental level, with a high number of activities and consultations, with organizational gaps in revascularizations, surgery and urgencies still in need of improvement.

One Dose, Big Impact: Safety and Early Outcomes of a STAT-Ceftriaxone Admissions-Avoidance Programme for Diabetic Foot Infections

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Ambulatory management of moderate-to-severe diabetic foot infection (DFI) using early parenteral therapy may reduce avoidable hospital admissions while maintaining structured limb-salvage care. We evaluated our ambulatory intravenous (IV) ceftriaxone pathways for patients with significant soft-tissue DFI without systemic decompensation.

Retrospective analysis of 24 consecutive patients within a tertiary multidisciplinary (MDT) service who received an unplanned stat dose of IV ceftriaxone over a 12 month period. Patients were triaged to one of two pathways: Pathway 1: STAT IV ceftriaxone followed by oral antibiotics with a minimum of four outpatient MDT contacts per fortnight (n=15); Pathway 2: STAT ceftriaxone followed by home IV antibiotics with four contacts per fortnight (n=9). Primary outcome was unplanned hospital admission within 14 days; the secondary outcome was unplanned surgical debridement or amputation. Decision tree modelling explored predictors of pathway failure. Cost modelling estimated per-patient savings using standard NHS tariffs for 7- and 11-day admissions.

Mean age was 61.8 years; most cases involved forefoot/midfoot ulcer-related infections. Co-existent peripheral arterial disease (PAD) was substantial (75%), and MSSA (41.7%) was the most common organism. Overall, 21/24 patients (87.5%) avoided admission within 14 days and only 1/24 (4.2%) required unplanned surgery; no (0%) unplanned amputations. Decision tree analysis identified severe PAD (feature importance=0.54) and increasing age (0.41) as the strongest predictors of admission, while SINBAD score, microbiology, and diabetes status showed minimal predictive value. Outcomes were comparable between pathways. Estimated admission cost avoidance ranged from £1,132–£1,475 (7 days) and £2,436–£2,975 (11 days) per patient.

In carefully-selected individuals with significant soft-tissue DFI but no systemic compromise, this ambulatory IV pathways was safe, clinically-effective, and cost-effective, albeit with greater outpatient surveillance needs in a vasculopathic population. PAD severity and age are key determinants of pathway failure. These findings support transferrable evaluation of structured ambulatory foot management models within other multidisciplinary limb-salvage networks.

Auditing the foot clinics plays important role in improving the podiatric care

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Background: Regular national 3-years internal audits form important part identifying the availability and quality of comprehensive podiatric care in our republic with detection of potential gaps.

Aim: All diabetic foot clinics (42 totally) were asked to participate in the internal audit. They had to involve consecutively 30 patients with active diabetic foot ulceration (DFU), follow them for 6 months and describe the final current podiatric status.

Results: We obtained and processed data from 24 foot clinics (57%). In total, 570 patients with 778 active ulcerations on 706 legs were involved into statistical analysis (mean age 65.4 ± 12.5 years, 79.1% men, diabetes duration 18.6 ± 9.9 years, HbA1c 59.7 ± 14.5 mmol/mol). The basal characteristics of DFUs were following: mean composite Wifl score 2.9 ± 1.8 ; 18.2 % of DFUs complicated by osteomyelitis and 33.7% patients were previously revascularized, previous major amputations were performed on 4 extremities and minor on 115 extremities. After 6 months 52.3% of extremities was healed, however 35.7% of legs stayed ulcerated and new DFUs developed in 12% of extremities. During 6 months follow up 10 extremities (1.4%) underwent major amputation, minor amputations were performed in 111 (15.7%) legs, new osteomyelitis developed in 13.5% of patients. The mean composite Wifl score dropped from 2.9 to 2.5 ($p < 0.005$). One third of patients (190/570) were admitted to the hospital, 24.2% were revascularized and 18 (3.2%) patients died. The offloading devices were prescribed to 72.5% of patients, but only 61.8% of those patients used them. Systemic antimicrobial therapy was used in 58.4% of patients, predominantly for shorter time than 1 month.

Conclusion: Internal audit unmasked some gaps mainly in the use of offloading devices and performance of revascularization procedures. Resolving these gaps could improve healing of DFUs. Regular internal audits play a key role in the reform of podiatric care.

Amputation practices in Belgium: need for a critical appraisal?

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Aims. Belgium has a long tradition of providing structured care for individuals with diabetic foot pathology, with actually 38 recognised diabetic foot clinics (RDFC). People attending a RDFC, can be included in a Foot Convention (FC), an agreement between the patients and the national healthcare authorities, providing partial reimbursement of the visits at the RDFC.

We previously published data on temporal trends in the incidence of total, major, and minor lower extremity amputations (LEA) in people with and without diabetes in Belgium. The aim of present study was to highlight the place of RDFCs in amputation practice in Belgium.

Methods. Data on all Belgian citizens undergoing LEA in the decade 2009-2018 were collected from the InterMutualistisch Agentschap/Agence InterMutualiste (IMA/AIM).

Results. In the study period, 41 304 amputations were performed. Of these, 26 961 LEAs were done in 20 360 individuals with diabetes (7 500 major, 19 461 minor). The incidence of major LEAs decreased from 56.2 to 30.7/100 000 person-years ($p < 0.001$), whereas the incidence of minor amputations didn't change significantly (from 99.9 to 87.5/100 000 person-years, data previously published). The majority of LEAs were performed in a RDFC or in the context of a FC. Nevertheless, 44% of all amputations was not executed in a RDFC, or in the context of a FC, without difference between minor and major LEAs. Despite the significant reduction in major LEAs, no significant changes in amputation practices were noticed during the study period.

Conclusion. A significant decline in the incidence rate of major LEA in people with diabetes was observed in Belgium between 2009 and 2018. This decline was particularly successful since it was not accompanied by a significant rise in minor LEA. However, an important minority of LEAs was not performed in hospitals with a RDFC or within the context of a FC.

OP24 - Top 4 Oral

A personalized intervention integrating pressure-optimized footwear, self-management and education reduces the incidence of foot ulcer recurrence in diabetes: the DIASSIST multicenter randomized controlled trial

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Background: The prevention of foot ulcers in diabetes helps reduce the large patient and healthcare burden of diabetic foot disease. For this, guidelines recommend patient education, self-management, appropriate foot care and pressure-optimized custom-made footwear [1]. We assessed the effect of an integrated multimodal and personalized intervention on the incidence of diabetes-related foot ulcer recurrence.

Methods: In a parallel-group multicentre superiority randomized controlled trial in 5 hospitals in the Netherlands, 126 participants with diabetes, peripheral neuropathy, ulcer history, and custom-made footwear, were randomly assigned to usual care or enhanced treatment. Enhanced treatment consisted of pressure-optimized custom-made footwear, pressure-optimized indoor footwear; at-home foot temperature monitoring; and structured education, including motivational interviewing. Participants were followed for 12 months, with incident foot ulcer recurrence as primary outcome, which was assessed masked to group allocation and with all participants included.

Findings: 64 participants were assigned to usual care and 62 to enhanced treatment. On the basis of intention-to-treat, 20 (32.1%) participants in enhanced treatment and 34 (53.1%) in usual care had a recurrent foot ulcer (RR 0.607 [95%CI 0.396-0.931], $p=0.018$). There were significantly more ulcer-free days for enhanced treatment (mean $\pm$ SD 320 ± 87) than for usual care (298 ± 94 , $p=0.039$). Of the 10 participants in enhanced treatment who wore their pressure-optimized footwear >10 h/day and adhered to foot temperature-monitoring recommendations, 1 (10%) had an ulcer, significantly fewer than the 53.1% in usual care (RR 0.188 [95%CI 0.029-1.226], $p=0.015$).

Interpretation: Integrated multimodal and personalized treatment significantly reduces incidence of foot ulcer recurrence in people with diabetes, and this effect can be further improved when patients adhere to self-management recommendations and prescribed footwear use. These outcomes help reduce the burden of diabetic foot disease in high-risk persons.

References

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OP25 - Top 4 Oral

Patterns of vascular obstruction in patients with diabetic foot ulcers and chronic limb-threatening ischemia receiving major amputation

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Background: The obstructive patterns of chronic limb threatenig ischaemia (CLTI) in patients with diabetic foot ulcers (DFUs) is a mix of big artery disease and small artery disease (SAD). The big arteries are involved in the transmisson of the blood flow to the foot, while the small arteries are involved in the blood distribution into the foot. This study investigated the patterns of vascular obstruction in patients with DFUs and CLTI who underwent major amputation for non-reconstructable peripheral arterial disease and unsalvageable foot.

Methods: The study is a retrospective observational study including patients admitted for DFUs and CLTI who performed lower limb revascularization. The characteristics of vascular disease were recorded by the angiographies imaging performed during the revascularization procedures. The distribution of arterial lesions through the vascular tree was described for the presence of atherosclerotic plaques in the femoral-popliteal, infra-popliteal and below-the-ankle (pedal and plantar) arteries. In addition, also the presence of SAD involving plantar arch, digital, metatarsal, tarsal and calcaneal branches was recorded. The characteristics of arterial lesions in amputees and not amputees were compared.

Results: The study included 110 patients, 20 (18.2%) amputees and 90 (81.8%) not amputees. Overall, the mean age was 74 ± 8.9 years, the majority had type 2 diabetes (92.7%) with a mean diabetes duration of 22 ± 12 years; 74.5% had an ischaemic heart disease and 21.8% an end-stage-renal-disease. Amputees in comparison to not amputees reported higher rate of arterial lesions (6.3 ± 1.8 vs 4.1 ± 1.5 vessels affected, $p=0.002$), infra-popliteal disease (100 vs 77.8%, $p=0.0001$), below-the-ankle disease (95 vs 35%, $p<0.0001$), and higher rate of SAD (70 vs 47.8%, $p=0.0001$).

Conclusion: Arterial lesions in amputees were more frequently located in infra-popliteal and below-the-ankle arteries, and had a higher distribution in small arteries of the foot. The pattern of CLTI in amputees showed a multi-segmental distribution being more aggressive both in macro and microvascular districts.

OP26 - Top 4 Oral

Open Revascularisation Delivers a Greater Improvement in Pedal Acceleration Time Compared to Endovascular Revascularisation

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Objective:

Pedal acceleration time (PAT) is a novel sonographic method for assessing foot perfusion in peripheral arterial disease (PAD), which has been shown to correlate with wound healing and amputation-free survival. This study aimed to assess the response of PAT to open compared to endovascular revascularisation approaches. Secondary outcomes were major limb amputation (MLA) and death.

Methods:

This was a retrospective study that included patients who underwent a revascularisation procedure for PAD of any severity from 2021-2024 at a single tertiary-centre. PAT were obtained by trained sonographers prior to and after the revascularisation procedure. Data was collected on disease severity, renal function, diabetes, MLA, and mortality. Data was analysed using t tests and reported as % or mean $\pm$ SD.

Results:

There were a total of 1,111 revascularisation procedures over the study period, of whom 463 patients had pre- and post-PAT measurements and were included. Average age was 71.4 $\pm$ 10.3yr, 66.3% diabetic, creatinine 162.9 $\pm$ 203.1 μ mol/L and median Rutherford class 5. PAT improved with revascularisation in all groups, open (n=79) pre 241.6 $\pm$ 62.0 vs post 120.0 $\pm$ 42.3, endovascular (n=356) pre 192.3 $\pm$ 65.0 vs post 138.5 $\pm$ 48.1, hybrid (n=28) pre 235.2 $\pm$ 51.3 vs post 146.4 $\pm$ 45.6, all P <0.0001. Open revascularisation was associated with a greater change in PAT compared to endovascular revascularisation, change in PAT with open 109.0 $\pm$ 66.9 vs endovascular 53.1 $\pm$ 66.9, P <0.0001. Open revascularisation was associated with lower rates of MLA and 1yr mortality, 8.9% vs 14.0% and 5.0% vs 20.8%, respectively.

Conclusion:

This study showed that open revascularisation resulted in the greatest improvement in PAT. Future studies should seek to validate these findings in larger cohorts and assess the impact of disease severity on PAT.

OP27 - Top 4 Oral

TRENDS IN REDUCTION OF LOWER LIMB AMPUTATION IN PATIENTS WITH DIABETES AND PERIPHERAL ARTERIAL DISEASE MANAGED BY A MULTIDISCIPLINARY DIABETIC FOOT SERVICE: DATA FROM THE LAST TWO DECADES

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Background: Even though recent data documented a reduction of major amputation in patients with diabetic foot ulcers (DFUs) and peripheral arterial disease (PAD), there are few data on which therapeutic steps have contributed. The current study aimed to evaluate the trends on major amputation in the last two decades in patients with ischaemic DFUs.

Methods: The study is a retrospective monocentric study including patients with DFUs and PAD, comparing an historical group (HG) managed between 2002 and 2007 and a recent group (RG) managed between 2019 and 2023 in a specialized diabetic foot service. After 1 year of follow-up, the rate of healing, major amputation and mortality were recorded and compared between groups.

Results: Overall, 1322 patients were included, 510 belonging to the HG and 812 to the RG. The mean age was 73.2±9.5 years, the majority were male (65.4%) with a prevalence of type 2 diabetes (93.9%). RG patients reported higher rate of end-stage-renal-disease (27 vs 12.8%, p=0.0001), lower rate of active smoke (8.1 vs 21.4%, p=0.006) and ulcer size >5cm² (22.9 vs 46.3%, p=0.03). The RG reported also a higher use of dermal-epidermal substitutes (DES) (26.1 vs 0%, p<0.0001) and autologous mononuclear cell therapy (AMCT) for managing PAD (6.9 vs 0%, p=0.002) in comparison to the HG. RG had higher rate of healing (79.6 vs 60.8%, p=0.02), lower rate of major amputation (6.6 vs 15.8%, p=0.0001) and mortality (11 vs 16.2%, p=0.04). The use of DES [OR 5.1 (1.7-20.6), p=0.0001] and AMCT [OR 6.2 (2.2-36.5), p<0.0001] resulted independently associated to a reduced risk of major amputation.

Conclusions: Although more recent patients had worse clinical characteristics such as higher rate of end-stage-renal-disease, the study showed a trend in reduction of major amputation across the last two decades in patients with ischaemic DFUs. The availability of new technologies such as DES and AMCT seem to impact on limbs preservation.

Impact of Medical Therapy with Glucagon-like peptide-1 receptor agonists (GLP-1RAs) on Clinical Outcomes in Patients Admitted for Ischemic Diabetic Foot Ulcer

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Aim: To assess the impact of medical treatment with Glucagon-like peptide-1 receptor agonists (GLP-1RAs) on clinical outcomes in patients admitted for diabetic foot ulcers (DFUs) and peripheral arterial disease (PAD).

Methods: Retrospective observational study including consecutive patients admitted in 2024 to a tertiary-level multidisciplinary diabetic foot service for ischemic DFUs. Patients with type 1 diabetes, purely neuropathic DFUs, or those receiving dialysis were excluded. After the acute phase was managed using a limb salvage protocol based on guideline recommendations, patients were discharged and stratified into two groups according to their glucose-lowering therapy: those receiving GLP1-RAs (GLP1+), and those not treated with these agents (GLP1-). Patients were regularly followed as outpatients, and their one-year clinical outcomes (healing, major amputation, mortality) were analyzed.

Results: Overall, 170 patients were included (27% GLP1+ vs 73% GLP1-). The mean age was 72±10 years, most patients were male (76%) and had an average duration of diabetes of 22±14 years. No significant differences were observed between the two groups in terms of demographic characteristics, glucometabolic control, or ulcer features at baseline. At one-year follow-up, outcomes (GLP1+ vs GLP1-) were as follows: healing (80.4 vs 60.5%, p=0.01); major amputation (2.2 vs 8.1%, p=0.2); mortality (4.3 vs 14.5%, p=0.07). On multivariate analysis, treatment with GLP1-RAs (OR 1.4, p=0.04) and the absence of gangrene (OR 1.6, p=0.02) were independently associated with an increased likelihood of healing.

Conclusions: Patients with ischemic DFUs receiving GLP-1RA therapy showed better clinical outcomes, particularly improved wound healing.

Do systemic bone markers reflect radiological bone injury in active Charcot neuro-osteoarthropathy? MRI and X-ray tell different stories

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Aim: Active Charcot neuro-osteoarthropathy (CNO) is characterised by inflammatory bone destruction, yet the role of systemic bone markers in disease activity remains unclear. We evaluated associations between serum bone markers, skin foot temperature difference and radiological bone injury at presentation of CNO. Specifically, we examined procollagen type-1 N-terminal propeptide (P1NP, bone formation marker) and C-terminal telopeptide of type-1 collagen (CTX, bone resorption marker).

Methods: We conducted a post-hoc analysis of baseline data from 47 participants in a randomised controlled trial with active CNO (EudraCT:2009-016873-13). Assessment included systemic bone markers (vitamin D, alkaline phosphatase, P1NP and CTX), skin temperature, foot and ankle X-rays and magnetic resonance imaging (MRI). Radiological bone injury was assessed using semiquantitative MRI bone marrow oedema (BMO), MRI fracture and X-ray fracture scores. The associations between bone injury, systemic bone markers and temperature difference were examined with multivariable linear regression.

Results: Of 47 participants, 79% were male with mean age of 55. Higher concentrations of P1NP were associated with greater MRI-BMO score ($\beta=1.32$; 95%CI 0.51–2.12; $p=0.002$) and MRI fracture score ($\beta=1.65$; 95%CI 0.31–3.00; $p=0.017$) but not with X-ray fracture score (Table 1). CTX, vitamin D and alkaline phosphatase showed no association with measures of bone injury ($p>0.05$ for all analyses). Temperature difference was associated only with X-ray fracture score ($\beta=1.06$; 95%CI -0.24-1.88; $p=0.013$) but not with MRI scores (Table 1).

Conclusion: Systemic bone markers showed no association with X-ray fracture severity, while higher P1NP was associated with more severe MRI-defined bone injury. Temperature difference was associated only with X-ray fracture score. These findings highlight discordance between systemic bone markers, temperature difference and radiological bone injury in CNO. Temperature difference and X-ray appear to capture different aspects of bone injury to P1NP and MRI. The clinical utility of P1NP at presentation of active CNO warrants prospective evaluation.

Novel circulating metabolites associated with risk of Charcot's Neuroarthropathy in Type 1 Diabetes

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Background and aim: One of the most severe diabetic foot complications is Charcot's neuroarthropathy (CN). While comprehension of the underlying pathology and mechanisms is advancing there is still a glaring need for predictive markers and potential targets for CN treatment. This study aimed to identify circulating metabolites associated with the prevalence and incidence of CN in individuals with type 1 diabetes (T1D).

Methods: 75 serum metabolites were measured using Mass spectrometry in a T1D prospective cohort of 637 individuals. CN was defined using clinical diagnostic codes into prevalent (at baseline or previously) or CN ever and incident CN. Linear regression and cox proportional hazard models were used to determine metabolites associated with both prevalence and incidence of CN. Association testing comprised a crude model (unadjusted), followed by the multiple testing correction (pBH). Metabolites passing the (pBH < 0.1) were adjusted for relevant clinical confounders and p<0.05 was considered significant.

Results: In the cohort the median (interquartile range) age was 55 (47, 64) years, diabetes duration was 35 (25, 44) years and HbA1c levels 64 mmol/mol (56-72 mmol/mol; 8% (7.3%- 8.7%)). 26 participants had prevalent and 11 incident CN. Median follow up duration was 10 years. At baseline, 15 metabolites were associated with prevalent CN (pBH<0.1). Eight metabolites retained significance after adjustment for covariates. Four amino acids associated with a lower prevalence of CN while four other metabolites associated with higher prevalence of CN (p < 0.05). Regarding incident CN, only one amino acid out of eight (pBH<0.1) remained significantly (p < 0.05) associated with a decreased risk of CN (HR: 0.7, 95CI: 0.52-0.93), after adjustment.

Conclusion: This study identified novel circulating metabolites span multiple metabolic and neurovascular pathways including metabolic stress, connective tissue integrity, oxidative stress and energy metabolism that may contribute to the pathophysiology of CN.

Charcot Neuro-Osteoarthropathy identifies a very high-risk phenotype with increased ulcer recurrence and amputation risk

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Introduction: Charcot neuro-osteoarthropathy (CNO) is a severe complication of diabetic neuropathy. However, its role within current risk stratification systems and its impact on long-term outcomes remain insufficiently defined.

Aim: to evaluate whether patients with previous CNO represent a subgroup with particularly high risk of adverse clinical outcomes.

Methods: we conducted a prospective observational study including 211 patients followed at a tertiary diabetic foot clinic during a two-year follow-up. Two groups were analyzed:

- high-risk patients without CNO (HR group, n=184);
- patients with chronic CNO (Eichenholtz stage III, n=27).

Patients with previous CNO were excluded from the HR group and analyzed separately. Outcomes included re-ulceration, amputation, and revascularization during follow-up.

Results: During the first year of follow-up, patients with CNO showed higher rates of:

- re-ulceration (70.4% vs 33.1%);
- amputation (18.5% vs 7.6%)
- revascularization among PAD patients (21% vs 8%)

In the second year, with intensified follow-up (≤ 30 days), CNO patients showed reduced rates of re-ulceration (18.5%) and amputation (3.7%).

CNO patients frequently presented with severe neuropathy, structural deformity, altered biomechanics, and a high prevalence of peripheral artery disease.

Conclusion: Patients with previous CNO represent a particularly vulnerable subgroup within the diabetic foot population. The increased risk of complications reflects a multifactorial interaction between structural deformity, neuropathy, altered biomechanics, and vascular disease.

These findings support the need for dedicated follow-up strategies in patients with previous CNO, including closer surveillance and individualized preventive care.

CNO may therefore be interpreted as a clinical marker of a very high-risk phenotype not fully captured by current risk stratification systems.

25 years of Charcot neuro-osteoarthropathy: preliminary data from a register of a third-level diabetic foot clinic

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Background and aims: Charcot neuro-osteoarthropathy (CNO) is a severe complication of diabetic foot associated to low quality of life, high risk of amputation and death. Unfortunately, we don't have clear data on the actual incidence, prevalence and pathogenic mechanisms of CNO in the diabetic population. Aim of our study was to evaluate prevalence and characteristics of CNO patients followed in a third level diabetic foot clinic.

Materials and Methods: We retrospectively searched in our clinic database all CNO patients followed between 2000 and 2025, and described their demographic and clinical characteristics, acute episodes, presence of wounds, CNO-related surgery and outcomes in terms of amputations and mortality. We then compared characteristics according to gender and mortality.

Results: We collected data from 177 patients (1.49% of our entire outclinic population): male/female 53.7/46.3%, mean age 67.5 ± 7.1 yrs, type 1/2 diabetes 20.3/79.7%, with a mean follow up period of 8.6 ± 5.5 yrs. At diagnosis no differences between sides, 13.6% of patients developed bilateral CNO during their lifetime. 24.5% of CNO were class II and 45.2% class III, according to Sanders&Frykberg classification. 81.9% of patients presented only one episode during follow up (mean number of episodes 1.2 ± 0.5 , range 1-6). During the follow up, 60.5% developed a foot ulcer. Furthermore, 9.0% of patients underwent CNO-related surgery and 2.8% a major amputation. About mortality, 10.9% died at a mean age of 75.9 ± 8.3 yrs, 8.7 ± 1.4 yrs after the CNO diagnosis. Male patients had a higher incidence of wounds (71.6% vs 47.6%, $p < 0.001$). No significant differences at baseline were found between dead and alive.

Conclusions: This registry provides an initial overview of the general characteristics of CNO patients, limited to a small geographical area. Our preliminary data confirm the low prevalence of CNO in diabetes mellitus, with a correspondingly high rate of ulceration and a low rate of amputation.

Predicting Diabetic Foot Ulcer Healing Outcome: The effects of Wound Classification and Clinical History.

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Aim:

This prospective study aimed to investigate the baseline contributing factors to diabetic foot ulcer healing outcome.

Method:

Prospective cohort study of 1075 (M/F:664/441) patients with diabetic foot ulcer was conducted in a specialist diabetic service in Dar es Salaam, Tanzania. At baseline demographics, details of ulcer, amputation history, peripheral neuropathy, peripheral arterial diseases (PAD), ulcer classification were taken. During 167±408 days follow-up, 1039 ulcers healed, and 36 remained unhealed. Survival analysis was used to assess the effect of variables on ulcer healing.

Results / Discussion:

Cox proportional hazard model could predict ulcer healing with 98.5% precision, 68% accuracy and prediction power (AUC) 0.70. SINBAD wound classifications 4, 5 and 6 (compared to SINBAD-3) showed the highest increase in the risk of ulcer not healing by 50%, 60% and 70% respectively and increase in duration of healing by 2.2, 2.8 and 3.3 folds respectively. Deeper ulcer and ulcer history showed to increase the hazard of ulcer not healing by 68% and 47% respectively. For each day delay in presentation there was a 0.5% reduction in ulcer healing efficacy. The time to heal was 2.4 times longer for bigger ulcers (>1cm²). Deep ulcers, peripheral arterial disease, and history of previous ulcer increased the time to heal by 57%, 24% and 20% respectively. Ulcer depth significantly increased the wound healing time only in patients with no history of previous ulcer. In patients with history of ulceration (and not in the entire group), having PAD significantly increased median time to heal from 106 to 139 days. SINBAD classification showed the highest influence on both the chance of healing (to at least half) and on the healing duration (to at least twice as long). Despite this the influence of PAD and wound depth on the time to heal was different across the ulcer history sub-groups.

Effect Of Low-Level Laser Therapy (LLLT) For Treatment Of Neuropathic Diabetic Foot Ulcer: Randomized Controlled Trial

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Background and aim: Low-level laser therapy (LLLT) has been suggested to enhance wound healing, but evidence from randomized controlled trials, particularly for neuropathic ulcers, is limited. This study aimed to evaluate the effectiveness and safety of LLLT as an addition to standard wound care for patients with neuropathic diabetic foot ulcers.

Methods: This randomized controlled trial was conducted at the Mansoura Diabetic Foot Clinic from January to December 2024. Thirty-two patients with neuropathic diabetic foot ulcers classified as Texas grade 1A were randomly assigned to either Group 1 (LLLT plus standard care, n = 16) or Group 2 (standard care alone, n = 16). Standard care included surgical debridement every 2 weeks and proper offloading. LLLT was applied three times weekly for 12 weeks using wavelengths of 650–1000 nm and an energy density of 4–6 J/cm². The primary outcomes included complete ulcer healing and the time to complete healing.

Results: Complete ulcer healing occurred in 87.5% of patients in the LLLT group compared with 75.0% in the control group, with no statistically significant difference between the groups (p = 0.365). However, the average time to full healing was notably shorter in the LLLT group (7.14 ± 3.20 weeks) versus the control group (9.84 ± 2.48 weeks; p = 0.028). The number of treatment sessions was significantly higher in the LLLT group, and a strong positive correlation was found between the number of laser sessions and healing time (r = 0.739, p = 0.003). No adverse events related to LLLT were reported.

Conclusion: Low-level laser therapy significantly accelerates healing time in patients with neuropathic diabetic foot ulcers and demonstrates an excellent safety profile. These findings support the integration of LLLT as an adjunctive modality within multidisciplinary diabetic foot management protocols

Autologous Cytokine-Rich Serum for Prevention of Diabetic Foot Reulceration: A Prospective Pilot Study

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Background: Reulceration after diabetic foot ulcer (DFU) healing remains a major clinical challenge, with recurrence rates exceeding 40% within the first year. Despite complete epithelialization, structural and biochemical alterations persist, increasing susceptibility to recurrence. Autologous cytokine-rich serum (ACRS), an acellular product enriched with anti-inflammatory cytokines and growth factors, may enhance tissue stability and reduce reulceration risk.

Aim: To evaluate the safety, feasibility, and potential clinical effectiveness of ACRS infiltration in patients with recently healed DFU.

Methods: A prospective, single-arm pilot study was conducted including 25 patients with plantar DFU healed for at least 15 days. All patients had type 2 diabetes; mean age was 67.4 ± 8.4 years, and 24 (96%) were male. All ulcers were located on the plantar surface, 22 forefoot (88%) 3 midfoot (12%). Patients received a single perilesional infiltration of ACRS obtained using a closed, automated system. Follow-up was performed for 3 months. The primary outcome was reulceration rate. Secondary outcomes included time to reulceration and safety. Clinical follow-up and patient self-monitoring were performed throughout the study period. Thermographic monitoring was performed as part of the follow-up protocol.

Results: ACRS infiltration was well tolerated, with no adverse events related to the procedure. All patients reported an immediate subjective sensation of cushioning or shock absorption in the treated area, which was positively perceived. Reulceration occurred in 3 (12%) patients during follow-up, with a mean time to reulceration of 10 ± 2 weeks.

Conclusion: ACRS appears to be a safe and feasible intervention, associated with a low reulceration rate. The reported improvement in perceived plantar cushioning suggests a potential functional benefit. These findings support further investigation through larger controlled studies.

Optimizing the Multidisciplinary Care Pathway for Diabetic Foot Ulcers: A Retrospective Quality Control Study of Clinical Outcomes

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Background: From January 2020 to July 2022, Steno Diabetes Center Aarhus (SDCA), implemented an expanded diagnostic and treatment pathway at the Diabetic Foot Center, focusing on same-day diagnostics with peripheral toe pressure measurements, blood samples and multidisciplinary evaluation by podiatrists, wound nurses and endocrinologist and weekly joint consultations with vascular surgeons.

Objectives: To evaluate the impact of this pathway on wound healing time, diagnostic efficiency, and overall diabetes management.

Methods: A retrospective quality control study compared the intervention group (n=409) with a control group from 2018 (n=228).

Results: Wound healing time was reduced from 84.5(34;163) to 64.0(31;112) days (p<0.01) overall. For patients with severe circulatory impairment (toe pressure <40mmHg or non-palpable pulses), the reduction was more pronounced with a reduction from 136.5(66.5;291.5) to 74.5(46;139) days (p=0.01). The 12-month healing rate remained unchanged (76.0% vs. 72.3%, p=0.18) overall. In patients with severe circulatory issues, the healing rate tended to be higher in the intervention group (64.7% vs. 52.2%, p=0.08). Minor and major amputation rates remained unchanged (7.3% vs. 9.4%, p=0.23) and so did the proportion of patients treated with antibiotics (48.4% vs 53.1%, p=0.16). Diagnostic efficiency improved significantly, with the delay for distal blood pressure measurements reduced from 35.5±11.4 days to -0.4±3.0 days (p<0.01). Regarding diabetes care, the intervention group had a higher rate of lipid-lowering treatment adjustments (17.1% vs. 10.3%, p=0.02) and a higher proportion achieving target LDL levels (≤ 2.5 mmol/l) compared to the control group (75.1% vs. 66.7%, p<0.05), including patients with high cardiovascular risk (77.8% vs. 64.2%, p<0.05). Both groups achieved improved glycemic control (Δ HbA1c -6.7±1.2 vs -4.5±1.0 mmol/mol, p=0.18).

Conclusion: The expanded pathway significantly reduced healing times - particularly for high-risk circulatory patients - and improved lipid management and diagnostic speed. These results support the systemic dissemination of this clinical model across regional wound centers.

Accelerated Limb Loss and Disrupted Care Pathways in Homeless Adults with Diabetic Foot Disease

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Background:

Diabetic foot disease (DFD) is typically associated with older age and long-standing diabetes. People with diabetes experiencing homelessness (PwDEH) face major barriers to preventive care yet remain under-represented in DFD outcomes research. We evaluated clinical trajectories following first hospital presentation for DFD in this population, focusing on age, limb-salvage pathways, and healthcare utilisation.

Methods:

We conducted a retrospective service evaluation of PwDEH (n=14) presenting via Emergency Department attendance or unplanned inpatient admission for DFD at a South London NHS hospital. Demographics, presentation characteristics, surgical intervention, length of stay (LOS), readmissions, wound outcomes, and outpatient engagement over 12 months were analysed descriptively.

Results:

Fourteen individuals were included. The cohort was markedly younger than our DFD outpatient population (mean age 56.1 ± 7.7 vs 66.0 ± 13.1 years). Presentations were advanced (SINBAD ≥ 4 in 100%) and predominantly infection-driven. Index admission LOS was prolonged (median 22 days; range 7–106). Readmission burden was substantial, with 57% (8/14) readmitted within 12 months and 29% (4/14) experiencing ≥ 2 readmissions. Urgent surgical debridement was required in 11/14 (78.6%). Any amputation occurred in 8/14 (57.1%), with major amputation in 6/14 (42.9%). Notably, two-thirds (4/6) of major amputations followed prior minor amputation, indicating stepwise failure of limb-salvage. Engagement with care was frequently disrupted, with repeated documentation of self-discharge, missed follow-up, and inability to engage with planned care. Cumulative inpatient utilisation exceeded 400 bed-days over 12 months. Documented wound healing was uncommon.

Conclusions:

PwDEH present with advanced DFD at a substantially younger age, with high readmission rates and frequent progression from minor to major amputation. Disrupted engagement and lack of system response to unorthodox choices appear central to these trajectories. Improving outcomes will require integrated, supportive care models incorporating housing-enabled discharge, outreach foot services, and flexible follow-up pathways, alongside better understanding of those not reaching secondary care.

Embedding fracture-detection artificial intelligence into the diabetic foot pathway. A first-in-NHS evaluation enabling podiatry-led pathway optimisation and real-world iterative model evolution

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Aim

Timely decision-making in diabetic foot disease is critical, particularly when infection or osteomyelitis is suspected. While plain radiography is first-line, delays in formal reporting across the NHS contribute to diagnostic uncertainty and delayed escalation. Artificial intelligence (AI) tools offer near-real-time outputs, but their integration into diabetic foot pathways has not been evaluated. We report the first NHS deployment embedding a clinically utilised fracture-detection AI model into a podiatry-supported diabetic foot pathway.

Methods

A service evaluation was conducted across an integrated diabetic foot pathway. AI outputs from foot radiographs (n=100) were assessed alongside contemporaneous clinical interpretation. A parallel deployment evaluated feasibility within an acute assessment setting, focusing on turnaround time and impact on podiatrist decision-making. MRI informed escalation decisions but was not used as a comparator.

Results

AI outputs were available rapidly following acquisition (median ~11 minutes), preceding formal radiology reports (median 9–11 working days). Despite being trained for fracture detection, the model provided podiatrist actionable second-reader support at the point of care. Agreement with clinical interpretation was variable; the model was not sufficiently sensitive to exclude osteomyelitis, though specificity was high (>80%). Integration enabled earlier clinical deliberation and reduced reliance on delayed reporting. Deployment identified anatomical performance gaps (toes, midfoot/Lisfranc). Structured clinician feedback prompted vendor-led refinements, demonstrating a real-world learning cycle.

Conclusion

This first-of-its-kind NHS implementation shows that fracture-detection AI can be safely embedded into diabetic foot pathways to enhance podiatrist-led decision-making. While not suitable for ruling out osteomyelitis, it reduces diagnostic uncertainty and accelerates early management planning. Crucially, this work establishes a scalable clinician–AI–vendor feedback model for continuous optimisation. Prospective evaluation of pathway-level outcomes using the next iterative version is now underway, with the aim of creating a diabetic-foot-optimised AI radiology tool.

Artificial intelligence can help in correctly diagnosing acute Charcot neuroosteo-arthropathy in diabetic foot patients

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Background and aims: Charcot neuro-osteoarthropathy (CNO) diagnosis represents a challenge: in a retrospective analysis we found a discrepancy between clinical suspicion of acute CNO and magnetic resonance (MRI) confirmation. We investigated if a machine-learning artificial intelligence (AI) prediction model could help in diagnostic workup.

Materials and Methods: We analyzed clinical and MRI diagnoses of all patients with suspicion of acute CNO from 2023 and 2025. We searched for previous episode of acute CNO, oedema, erythema, pain and temperature difference (TD) greater than 1°C and 2°C. We divided patients according to MRI confirmation of activity (Group A) or not (Group B). We applied AI technique of random forest in regression modality with growing method exhaustive CHAID to define a decision tree-like hierarchical model. All the reported characteristics were introduced as model variables.

Results: We collected data from 103 patients: 54 in Group A (52.4%, age 65.4±2.0) and 49 in Group B (47.6%, age 67.8±1.6). CNO history was present in 46.3% in Group A and 53.1% in B (p=ns), pain in 61.1% in Group A and 46.9% in B (p=ns), oedema in 57.4% in Group A and 36.7% in B (p=0.028), erythema in 37.0% in Group A and 18.4% in B (p=0.029). TD was higher than 1°C in 75.9% of Group A and 55.1% of B (p=0.021) and than 2°C in 53.7% in Group A and 32.7% in B (p=0.025). The diagnostic AI-model included, hierarchically: TD greater than 1°C (p=0.026), oedema (p=0.003) and history of CNO (p=0.048) as confirmatory items for diagnosis of acute CNO.

Conclusions. According to the comprehensive CHAID method, a history of a previous acute episode of OCN should be considered a risk factor for recurrence, and clinicians should consider recurrence even if the temperature difference is greater than 1°C rather than just 2°C, as stated in the guidelines.

"Jailing" the Charcot Foot: Circular External Fixation as a Definitive Solution for Deformity and Instability

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Background: Charcot neuroarthropathy (CN) is a debilitating condition that alters the anatomical and mechanical structure of the foot, leading to deformity, instability, and abnormal loading. These factors frequently trigger soft tissue breakdown, ulceration, and osteomyelitis. Surgical reconstruction is indicated when conservative treatments fail, or when severe instability and pathological plantar pressure persist.

Materials and Methods: Between 2023 and 2025, we treated 15 patients with CN. Type 2 diabetes was present in 93.3% (n=14); 66.7% were male, with a mean age of 65±14 years. Clinical features included neuro-ischaemia (13.3%), ischaemic heart disease (26.6%), and peritoneal dialysis (6.7%). According to the Sanders classification, 33.3% were Pattern II, 26.6% Pattern III, and 40% Pattern IV. Eichenholtz staging showed 6.7% at Stage 1, 13.3% at Stage 2, and 80% at Stage 3. Surgical indications were deformity (86.6%) or combined deformity-instability (13.4%). All patients underwent open surgery with circular external fixation (14 direct corrections, 1 progressive).

Results: Successful axial correction was achieved in 80% of cases, with 13.3% rated as satisfactory. Surgical site stability was reached in 86.7%, and 93% of patients returned to ambulation. No major complications occurred; manageable minor complications were reported in 73.3% of cases.

Conclusions: Multiaxial and multilevel reconstruction using circular external fixation, offers, without leaving any internal hardware, a flexible and effective solution for complex Charcot foot and ankle collapse, even in the presence of infection.

Gastrocnemius Release in Forefoot Diabetic Foot Offloading: Effect on Ulcer Healing and Recurrence

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Aims: Gastrocnemius release is used as an adjunctive off-loading procedure for equinus contracture deformity; however, published orthopaedic evidence remains limited, particularly in the context of diabetic foot ulceration (DFU). This study evaluated ulcer healing and subsequent recurrence following gastrocnemius release.

Methods: We conducted a single-centre retrospective cohort study of consecutive patients with diabetes mellitus who underwent gastrocnemius release. Baseline characteristics were analysed at the patient level. DFUs were classified using the University of Texas (UT) system. The primary outcomes were ulcer healing and recurrence. We also explored associations between outcomes and key DFU-related factors, including UT grade and stage, peripheral arterial disease (PAD), osteomyelitis, smoking status, HbA1c, and body mass index (BMI).

Results: The cohort comprised 24 patients who underwent 26 procedures. Eighteen patients (75.0%) had type 2 diabetes mellitus, and 16 (66.7%) had PAD. Diabetic foot osteomyelitis complicating DFU was present in 19 of 26 cases (73.1%) before the procedure. Ulcer healing was achieved in 21 of 26 episodes (80.8%). The median time to healing was 3.0 months (range, 2-35 months). During follow-up of up to 48 months, 9 of 21 healed ulcers (42.9%) recurred at the same site, while 1 of 21 patients (4.8%) developed a transfer ulcer. No reports of Achilles tendon rupture were recorded.

Conclusion: In our series, gastrocnemius release was associated with a high rate of initial ulcer healing and appears to be a useful adjunctive off-loading procedure in DFU complicated by equinus contracture deformity. It may also offer an advantage over percutaneous tendo-Achilles lengthening by reducing the risk of tendo-Achilles rupture. However, the recurrence rate over longer-term follow-up was substantial, underscoring the chronic and relapsing nature of diabetic foot pathology. Larger, multicentre, preferably randomised studies comparing gastrocnemius release with percutaneous Tendo-Achilles lengthening are warranted.

Adipose Tissue Grafting versus Artificial Dermis in the Treatment of Chronic Diabetic Foot Ulcers: A Retrospective Comparative Analysis

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Background: Chronic diabetic foot ulcers (DFUs) are frequently complicated by peripheral neuropathy, vascular insufficiency, and osteomyelitis, posing significant therapeutic challenges. This study evaluates the safety and regenerative potential of autologous adipose tissue grafting compared to artificial dermis grafts in promoting healing in these complex lesions.

Methods: We conducted a retrospective study of patients treated for chronic DFUs with a minimum follow-up of six months. Outcomes were compared between an adipose graft group (n=45) and a control group treated with artificial dermis (n=39). Primary endpoints included healing rate and time to closure.

Results: Baseline characteristics were comparable between groups, although the adipose group presented more frequent heel involvement. No major adverse events were reported; minor donor-site hematomas occurred in 9% of the adipose group and resolved spontaneously. At a mean follow-up of 12 ± 5 months, the adipose group achieved a significantly higher healing rate than the control group (67% vs. 51%; $p=0.04$). Furthermore, mean healing time was significantly shorter in the adipose group (202 ± 82 days) compared to the control group (275 ± 132 days; $p=0.02$). Adipose grafting demonstrated particular clinical efficacy in treating rearfoot and heel lesions.

Conclusions: Autologous adipose tissue grafting is a safe, minimally invasive, and effective regenerative therapy for chronic DFUs. Our results indicate superior healing outcomes and reduced recovery times compared to artificial dermis, even in the presence of osteomyelitis and weight-bearing site involvement.

Progression from Charcot Foot Reconstruction to Footwear can be intense but rewardingly successful: Results from a service evaluation

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Background & Aim: Charcot foot reconstruction is increasingly becoming a plausible option for limb salvage. More information is needed to guide and advise patients during the recovery phase. The aim of this study was to investigate patient's progression to footwear following Charcot foot reconstruction.

Methods: This is a retrospective analysis of patients with diabetes who underwent Charcot reconstruction between November 2023 to March 2025. Patients were identified from electronic records and clinical notes were reviewed for baseline demographics. Patients' outcomes were compared between two types of reconstruction: (a) mid-foot reconstruction (MF) and (b) combined mid-foot and ankle fixation (MF&A) for the primary outcome of time to full weight-bearing and footwear. The secondary outcome was the rate of major amputation and need for revision surgical intervention.

Results: A total of 47 patients, of whom 25 with diabetes, underwent metal work reconstruction. The average HbA1c was 69 mmol/mol and the average body mass index was 33.7 kg/m² (range 21.5-46.9). Sixteen patients (64%) had MF, while 9 (36%) had MF&A. The median time to return to full weight-bearing was 25 weeks, (mean 31±19 weeks). Twenty-one patients (84%) were offered bespoke orthotic shoes in 12 months.

There was a 100% amputation-free survival at 12 months post-operatively. Overall, in 17 patients (68%) wounds healed within 12 weeks post-operation. Patients with intact feet pre-operatively (n=13) had a significant better post-surgical wound healing rate at 12 weeks compared with those who had active ulcers (n=12), (85% vs 50%, p=0.032, respectively). Seven patients (28%) needed revision surgery. There was no significant difference in the healing outcome and weight-bearing time between the two types of Charcot reconstruction.

Conclusion: Recovery after Charcot foot reconstruction can be uncertain with regards to patient's progression into footwear. The surgery delivers significant amputation-free survival, but patient complexities demand ongoing specialists multidisciplinary team review.

Chopart amputation: an extreme limb-savage attempt in severely frail patients

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Aim: Chopart amputation is the most proximal of diabetic foot salvage surgery and is reserved for cases in which the midfoot must be removed for ischemic and/or infectious reasons. Outcomes in severely frail patients with low life-expectancy are unknown.

Method: We analysed retrospectively patients that underwent Chopart amputation from April 2015 to April 2025 in Diabetic Foot Center in Monfalcone, Italy. We divided patients in two groups depending on Clinical Frailty Scale: frail (CFS 4-6) and severely frail patients (CFS 7-9). In severely frail patients major amputation was not feasible because of high-risk for anaesthesia or patient refusal. All patients were bedridden or were able only to do functional transfers. We analysed outcomes (death, major amputation, ulcer recurrence, healing) and potential predictive variables (age, sex, BMI, HbA1c, CHD, CKD and dialysis, phlegmon at admission, CLI, no-option CLI or ischemic recurrence).

Results / Discussion: We identified 98 patients that underwent Chopart amputation. 24 patients were classified as severely frail. Severely frail patients were older (84 ± 8 vs 75 ± 11 years), more affected by CHD (50.0 vs 45.3%), HF (62.5 vs 41.8%), and CLI (75.0 vs 68.0%). 8 patients had a failure of a previous minor foot amputation (33.3% vs 33.6%). Healing rate was lower in severely frail group (29.1% vs 41.8%). 19 patients died (79.1%) with slightly lower life expectancy after surgery (1.28 ± 1.60 vs 1.76 ± 1.98 years). Major amputation rate was similar to frail patients group (25.0 vs 27.5%). Risk factors for major amputation and death < 6 months were similar between two groups: phlegmon at admission, dialysis, no-option CLI or ischemic recurrence.

Conclusion: Chopart amputation represents the last therapeutic alternative to avoid major amputation. Severely frail patients could benefit from this limb-savage attempt to prevent progression of gangrene and infection.

Incidence and Causes of Depression in Patients with Diabetic Foot

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Incidence and Causes of Depression in Patients with Diabetic Foot

Introduction: Depression is one of the most common comorbidities in patients with diabetes, with negative impact on treatment adherence and clinical outcomes. In patients with diabetic foot (DF), the psychological burden associated with the disease can amplify emotional distress and the compromise quality of life.

Objectives: The study aimed to investigate the incidence and severity of depressive symptoms, measured by the PHQ-9 (Patient Health Questionnaire 9)¹, in patients with DF who had a history of diabetic foot ulcers (DFUs). In addition, authors explored factors associated with depression in this cohort of patients.

Methods: An observational study was conducted on a sample of patients referred to a specialized DF center with a history of DFUs. A questionnaire consisting of a demographic section and the PHQ-9 was administered to enrolled participants. The incidence of depression and its severity was assessed, as well as the correlation between depression and clinical and demographic characteristics of patients.

Results: Overall, 101 patients were included, the mean age was 70.2 ± 9.2 years, the majority of them had type 2 diabetes (91%) with a mean diabetes duration of 20.7 ± 12 years; 100% had peripheral neuropathy and 65.3% peripheral arterial disease. A history of depression was recorded in 63.4% of patients. In most cases, depression was presented as mild (44.5%) or moderate (12.8%), while moderate-to-severe forms were less frequent (6%). The study showed a significant association between depression and dialysis treatment (OR 4.03, 95% CI: 1.26–12.87; $p = 0.017$), female gender (OR 5.94, 95% CI: 1.64–21.6; $p = 0.003$), and among patients requiring assistance for limited autonomy (OR 2.56, 95% CI: 1.11–5.90; $p = 0.028$).

Conclusion: Depression is common among patients with DF, and it seems strongly associated with renal impairment, female gender, and functional disability.

Impact of Hemodialysis on Diabetic Foot Outcomes in Patients with Advanced Chronic Kidney Disease: A Retrospective Cohort Study

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Aim: To evaluate the impact of hemodialysis (HD) on the progression of diabetic foot (DF) in patients with diabetes mellitus and advanced chronic kidney disease (ACKD), and to compare clinical characteristics, inflammatory profile, and major outcomes between patients with and without DF.

Method: A retrospective cohort study (May 2017–November 2024) compared patients with and without DF undergoing HD. Clinical, laboratory and HD-related variables were analysed over 12 months. Patient selection and inclusion are illustrated in Figure 1.

Results / Discussion: Fifty-three patients (66.7 ± 12.3 years; 71.7% male) were included; 41.5% (n=22) had DF. DF was significantly associated with peripheral arterial disease (22 vs. 5, $p < 0.001$), neuropathy (5 versus 1, $p = 0.027$) and longer dialysis vintage (5.18 ± 3.02 vs. 3.19 ± 1.76 years, $p = 0.004$). Patients with DF showed high rates of ulcer recurrence (31.8%) and amputation (50%). Furthermore, DF was associated with increased hospitalisations (2.5 ± 1.6 vs. 0.7 ± 0.9 , $p < 0.001$) and higher mortality (31.8% vs. 0%, $p = 0.002$). Multivariable logistic regression identified DF as a strong independent predictor of mortality (OR 12.42; 95% CI: 2.14–72.11) after adjusting for age, dialysis vintage and C-reactive protein.

Conclusion: In hemodialysis patients, DF is not merely a local complication but a critical marker of systemic frailty and a strong independent predictor of mortality. These findings emphasise the need for intensive foot surveillance and multidisciplinary management to improve survival among this high-risk population.

Characteristics of Foot Bone Mineral Density in Patients with Diabetic Foot Ulcers and Their Correlation with Systemic Bone Metabolism and Clinical Indicators

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Background: Diabetic foot ulcer (DFU) is a severe diabetic complication. Foot osteoporosis is common in DFU and may affect ulcer healing, but systematic data on bone mineral density (BMD) changes, especially asymmetry and systemic links, remain limited.

Objective: To evaluate foot BMD (calcaneus and tarsometatarsal bones) on affected and unaffected sides in DFU patients using DXA, compare with type 2 diabetes (DM) patients with/without osteoporosis (OP), and analyze clinical factors influencing foot BMD.

Methods: 66 patients were enrolled (DM, n=32; DFU, n=34). DXA measured lumbar spine, femoral neck, calcaneus, and tarsometatarsal BMD. Clinical and laboratory data were collected. Statistical analyses included t-test, Mann-Whitney U, χ^2 , and correlation analyses.

Results: No significant BMD differences were found between affected and unaffected sides in DFU patients ($P>0.05$), indicating no asymmetric foot bone loss. DFU patients had significantly lower calcaneal and tarsometatarsal BMD than DM without OP ($P<0.05$), similar to DM with OP, but no differences in spine or femoral neck BMD, suggesting site-specific bone loss. DFU showed longer diabetes duration, higher inflammatory markers (WBC, NEUT, CRP), worse nutritional status (prealbumin, albumin), renal impairment (urea, UACR), and altered parathyroid hormone (PTH) levels versus DM ($P<0.05$). Correlation analyses revealed calcaneal BMD negatively correlated with age, duration, inflammation, and proteinuria, and positively correlated with hemoglobin, nutrition, and PTH.

Conclusion: Foot bone loss in DFU reflects systemic bone metabolic abnormalities with local site specificity, predominantly affecting weight-bearing bones. Inflammation, malnutrition, renal dysfunction, and PTH levels are key clinical correlates. These findings provide insight into DFU-related bone metabolic disorders.

The Increased Excess Mortality in Dialysis Patients with Diabetes Foot Ulceration Warrants Extra Efforts towards Ulcer Prevention in this Cohort: Results from a Service Evaluation

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Background: Renal Dialysis patients are known to have high morbidity and mortality, which could be further compounded by concurrent diabetes mellitus and foot ulceration. This service evaluation aimed to quantify the demographic disparities and mortality rates between haemodialysis patients with and without diabetes, and the possible clinical impact of foot ulceration.

Method: This was a retrospective and cross-sectional evaluation of all haemodialysis patients within our hospital catchment area over a 20-month period. Patients were identified via the Electronic Patient Records, baseline demographics and survival outcomes were compared between three groups: (a) Non-Diabetic, (b) Diabetic without foot ulceration and (c) Diabetic with foot ulceration.

Result: The cohort comprised of 1032 haemodialysis patients, of which 666 (64.5%) were non-diabetic, 276 (26.7%) diabetics with no ulcer and 90 (8.7%) diabetics with ulcers. Their mean age was 59±14, 66±13 and 61±12 years respectively. There was no significant difference between the proportion of men across groups: 62.6%, 62.1% and 63.6%. Notably, Black/black British patients formed the largest demographics within Non-Diabetics (42.6%) and Diabetics-(No Ulcer) (38.8%) cohort; while this dominance shifted to a White majority in the Diabetics-(Ulcer) cohort (50%). The prevalence of ulceration was almost 5-fold higher in diabetic cohort: 23% vs 5% [$p<0.0001$]. Overall, mortality was significantly higher in diabetic than non-diabetic group; 22.8% vs 14.7% [$p=0.003$]. Importantly, within the diabetic cohort, the presence of foot ulcers had a significantly higher mortality rate than those with no ulceration: 33.0% vs 18.7% [$p<0.0001$]. In line with this excess mortality, a Renal Cardio-metabolic MDT has been instigated to help address this.

Conclusion: Renal dialysis patients with diabetes and a concurrent foot ulceration have an increased mortality. These findings support the need for a Renal Cardio-metabolic MDT as well as a regular foot screening programme, and measures to prevent foot ulceration across the dialysis network.

A Danish Nationwide Cohort of Foot Health in Individuals with Diabetes From the Danish Foot Status Database

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Abstract

Objectives

This study presents a nationwide cohort description of individuals with diabetes attending a state-authorized podiatrist in Denmark, based on the Danish Foot Status database.

Research Design and Methods

This nationwide cohort description used data from the Danish Foot Status Database, which contains data on individuals with diabetes attending annual consultations with state-authorized podiatrists. Individuals were identified via their unique central person register number. Data were collected from initiation of the database September 2015 till the end of June 2025. Data was collected and presented from the individual's first annual consultation with a state-authorized podiatrist.

Results

The Danish Foot Status Database includes 1,104,889 unique entries from 241,599 individuals with diabetes. Of individuals attending their first consultation with a state-authorized podiatrist, 43% were male, 6.0% had type 1 diabetes, and the median diabetes duration was 2 years. Neuropathy assessed by biothesiometry >25V was present in 48%, 12% had absent pedal pulse in arteria dorsalis pedis and 19% absent pulse in arteria tibialis posterior, and 91% had at least one malalignment of the foot. Current diabetic foot ulcer was recorded in 4.2%, prior diabetic foot ulcer in 2.7%, and amputation in 0.5%.

Conclusion

This cohort description outlines foot health on a Danish nationwide level among individuals with diabetes. The Danish Foot Status Database offers valuable data and a unique foundation for future research, due to extensive clinical detail on a nationwide population.

Burden, temporal trends and risk factors for ulcer recurrence in adults with diabetic foot ulceration: a scoping review.

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Patients with diabetic foot ulcers (DFUs) are characterized by a high risk of recurrence after wound healing. This scoping review is warranted to map the available evidence on the burden, patterns, and determinants of ulcer recurrence in adults with diabetes and a history of DFUs.

Methods

The scoping review was conducted in accordance with the JBI methodology, using PRISMA-ScR. Databases considered were PubMed, EMBASE, CINAHL, and Cochrane. Grey literature sources included TripMedical Database, NICE, and GIN. Studies published from 2000 to 2025 were considered.

Eligibility criteria as follows: population: adults with diabetes and history of DFU; concept: burden, patterns, and determinants of DFU recurrence; context: any health context. Any study design and setting was considered, no language restrictions were applied. The review question: "what is known from the literature about the determinants, patterns, and burden of DFU recurrence in adults with diabetes?"

Results

The study identified 633 records, 250 eligibles after title and abstract screening, and 55 included in the final analysis. Most studies were observational research (63%) including prediction model studies and register studies, with an alongside a limited number of randomized controlled trials (18%) and secondary research (18%). Most studies focused on clinical factors (67.4%), followed by economic burden (90.7%), organizational aspects and epidemiological patterns (both 39.5%). The main risk factors of ulcer recurrence included peripheral neuropathy, age, peripheral arterial disease, poor glycaemic control, smoking, plantar ulcer location, osteomyelitis, previous amputation, callus formation, poor hygiene. The reported annual recurrence rate was 24.9% in Europe (95% CI, 20.0%-29.7%), 17.8% in North America (95% CI, 12.7%-22.9%), 16.9% in Africa (95% CI, 4.7%-29.0%), and 17.0% in Asia (95% CI, 11.1%-23.0%).

Conclusion

Evidence supports that several factors are involved in the DFU recurrence. Healed ulcers require long-term and continuous surveillance and preventive interventions mainly in patients with higher risk.

Age-Stratified Mortality in Diabetic Foot Ulceration: PAD as a Persistent Risk Marker and the Limits of Limb-Based Prognostication in Patients Aged Over 80 Years

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Background: Mortality in diabetic foot ulceration (DFU) is substantial, yet how risk evolves across the age spectrum, and if classical limb-related predictors retain prognostic value in the very elderly, remains poorly elucidated.

Methods: We analysed 359 consecutive referrals with a 12-month follow-up. Patients were stratified into <40 (n=16, 4.5%), 40–60 (n=102, 28.4%), 60–80 (n=186, 51.8%) and >80 years (n=49, 13.6%). Mortality associations were assessed using logistic regression. Peripheral arterial disease (PAD), SINBAD score, amputation (any), and comorbid variables were evaluated. Patients aged >80 years were retained and interpreted within a competing-risk framework.

Results: Overall mortality was 26.5% (95/359) and increased stepwise with age: 0.0% (<40), 16.7% (40–60), 28.5% (60–80) and 49.0% (>80) (p<0.001). Across the cohort, independent predictors of mortality were age (adjusted OR 1.05 per year, p<0.001), PAD (adjusted OR 3.67, p<0.001) and SINBAD score (adjusted OR 1.27 per point, p=0.018). PAD demonstrated the strongest and most consistent association with mortality, particularly in the 40–60 (OR 8.34, p<0.001) and 60–80 groups (OR 4.70, p<0.001). Mortality was higher among patients undergoing any amputation than among those without amputation (38.9% vs 22.5%; OR 2.18, 95% CI 1.29–3.69; p=0.004), supporting a limb–mortality linkage in younger cohorts. However, in patients aged >80 years, mortality approached 50% irrespective of PAD status, ulcer severity, or amputation, and no independent predictors of death were identified.

Conclusion: DFU demonstrates a continuous age–mortality gradient, with PAD as the dominant and persistent high-risk variable and ulcer severity at baseline review at the specialist unit providing additional prognostic signal. Risk stratification and reporting models must therefore move beyond uniform models and adopt an ‘age-aware’ approach across the full patient spectrum.

Clinical frailty is a key determinant of survival in people with a diabetic foot ulcer: Implications for management?

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Aims: Diabetic foot ulcers are associated with high morbidity, reduced quality of life and a five-year mortality rate exceeding many cancers. Identifying survival predictors is crucial for risk stratification and guiding care pathways. The aim of this study was to analyse the impact of frailty and other risk factors on healing, amputation and mortality in patients with diabetic foot ulcers managed at Sheffield Teaching Hospitals.

Methods: We retrospectively analysed 283 individuals presenting with a diabetic foot ulcer between 01/01/2015 and 31/12/2016. Demographics, comorbidities, metabolic control, QRISK3, clinical outcomes and investigations, ulcer severity (SINBAD score) and frailty (Clinical Frailty Scale [CFS]: 1=very fit to 9=terminally ill) were assessed as baseline. Binary logistic regression models were constructed, then COX regression was used to examine predictors mortality after adjusting for confounding variables.

Results: At 10-year follow-up, 69.3% (n=196) of individuals had died. Non-survivors were older (73.7vs60.7years; $p<0.001$), frailer (CFS:5.2vs3.8; $p<0.001$), and had higher comorbidity burden (Charlson Index: 7.6vs4.8; $p<0.001$). Binary logistic regression showed that ulcer severity predicted healing time (SINBAD score 2.1 (≤ 12 weeks) vs 2.6 (>12 weeks); $p<0.001$). COX regression post-confounder adjustment identified Charlson Comorbidity Index (HR 1.165, 95% CI 1.038-1.308; $p=0.009$) and Clinical Frailty Score (HR 1.468, 95% CI 1.200-1.796; $p<0.001$) as key independent predictors of 10-year mortality.

Conclusions: SINBAD score independently predicted delayed healing, while frailty and comorbidity predicted long-term mortality following a diabetic foot ulcer. Notably, frailty emerged as a novel and robust predictor, highlighting the importance of assessing physiological reserve alongside traditional risk factors. Incorporating routine frailty assessment and interventions to maintain physical function in foot care pathways may improve individuals' outcomes.

Survival after initial lower limb amputation in Sweden

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Aim: To examine the association between initial lower limb amputation (LLA) and mortality risk and whether this association varied by amputation level.

Method: We used prospectively recorded population-based data from national registers in Sweden for initial LLAs (excluding toe amputations) performed 2008–2017 on people 18+ years. Every person with a LLA was age-, sex- and county- matched with 10 randomly selected individuals without LLA. Amputations were categorized into 1) high proximal (through or above knee), 2) low proximal (transtibial or through ankle amputation) and 3) partial foot amputations. Cox proportional hazards regression analysis was used to estimate hazard ratios (HR) with 95% confidence intervals (CI).

Results/Discussion: The study population consisted of 16,757 people with LLA and 165,555 without LLA. During the follow-up (until December 31, 2018), there were 12,757 (76.1%) deaths among people with amputation and 62,293 (37.6%) deaths among people without LLA. The most common death causes were vascular disease (44.7%), diabetes (35.5%), heart failure (34.1%), and ischemic heart disease (28.0%) among people with LLA, and heart failure (30.3%), dementia (22.7%), ischemic heart disease (22.5%) and cancer (20.8%) among people without LLA.

Individuals with LLA had 4.48 times higher mortality risk (95% CI 4.39–4.57) than individuals without LLA after adjusting for age, sex, marital status, education and born in Sweden (yes/no). When level of amputation was distinguished, HRs were: 5.19 (5.05–5.33) for high proximal, 4.05 (3.94–4.16) for low proximal, and 3.93 (3.69–4.19) for partial foot amputations.

Conclusion: LLA was strongly associated with higher mortality, with a clear gradient by amputation levels, with high proximal amputations being associated with highest mortality and partial foot amputation with lowest. The association remained after adjustment for demographic and socioeconomic factors, supporting the interpretation that amputation primarily may reflect advanced systemic disease and calls for comprehensive secondary prevention strategies.

EP01 - Top 10 E-Poster

Primary Care Engagement with Diabetic Foot Education and Major Amputation Rates: A County-Wide Observational Review

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Background

Education and early recognition of diabetic foot disease in primary care are essential to preventing avoidable major amputations. The Diabetic & High Risk Foot Service in Northamptonshire employs a clinical educator who delivers in-practice education to GP surgeries, focusing on referral pathways, diabetic foot updates, and neurovascular assessment.

Method

All 86 GP surgeries in the county were included. Approximately 7% of adults in England have diagnosed diabetes, equating to around 53,000 individuals locally based on population estimates. Engagement was defined as attendance at an education session delivered during 2025/26, while non-engagement was defined as no response to education offers. Major lower-limb amputation data for patients registered to these practices were reviewed for the combined periods 2022–2023 and 2023–2024. Amputation rates were compared between engaging and non-engaging practices using amputations per surgery.

Results

Seventy-eight GP surgeries (90.7%) engaged with the education programme, while eight (9.3%) did not. Across the county, 46 major amputations occurred over the two-year period. Thirty-seven amputations were attributed to patients registered at engaging practices, equating to 0.47 amputations per surgery. Nine amputations occurred in patients registered at non-engaging practices, equating to 1.13 per surgery. Although non-engaging practices represented fewer than one in ten surgeries, they accounted for 19.5% of all amputations. The amputation rate was 2.37 times higher in non-engaging practices (rate ratio 2.37, $p = 0.02$).

Conclusion

This observational review suggests an association between engagement with specialist diabetic foot education and lower major amputation rates. While causation cannot be inferred, findings indicate structured education may support improved assessment, earlier recognition, and timely referral. Improving engagement should be a patient safety priority to reduce avoidable limb loss.

EP02- Top 10 E-Poster

Mechanical Validity of Randomised Controlled Trials Supporting the 2023 IWGDF healing of foot ulcers Recommendations: A Meta-Research Audit

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Introduction: The 2023 International Working Group on the Diabetic Foot (IWGDF) provides recommendations regarding interventions to enhance the healing of foot ulcers, but the methodological robustness of mechanical offloading in the supporting randomised controlled trials has not been assessed.

Aim: To quantify the degree of mechanical standardisation, monitoring, and the risk of exposure confounding across these trials.

Methods: A structured meta-research audit was conducted on 43 RCTs cited in the 2023 IWGDF guideline. A five-block methodological framework was applied: study identification, offloading system characteristics, monitoring of adherence and activity, implementation and protocol symmetry, and global mechanical confounding risk using a 10-point Offloading Quality Score (OQS) (Table 1). Descriptive statistics and group comparisons were performed using independent-samples t-tests and chi-square tests. Associations were analysed using Spearman correlation, with statistical significance ($p < 0.05$).

Results:

The mean OQS was 2.11, with a median of 0 and an interquartile range of 0–4. Twenty-nine trials (66%) scored $\leq 2/10$, while three trials (7%) achieved scores $\geq 8/10$. Removable offloading were used in 11 trials (25.6%), whereas non-removable devices were used only in 3 trials (7%), in 22 trials (51.2%), offloading was not specified or mentioned and 7 (16%) used mixed strategies. Objective adherence monitoring was absent in 32 trials (82%). No significant association was observed between offloading type and low OQS classification (Welch t-test ($p = 0.371$), Nevertheless, linear regression identified non-removable device type as the only significant predictor of OQS ($\beta = 0.82$, $p < 0.001$).
Conclusions: Most trials underpinning the 2023 IWGDF healing recommendations demonstrate limited mechanical standardisation and lack objective exposure monitoring. Mechanical load therefore remains largely unquantified, potentially compromising internal validity and treatment effect attribution in DFU research. These findings suggest that a substantial proportion of the evidence base informing current guideline recommendations may be vulnerable to mechanical exposure confounding.

EP03- Top 10 E-Poster

TRANSCUTANEOUS CO₂ THERAPY IMPROVES HEALING, TISSUE OXYGENATION AND PAIN IN RECURRENT HARD-TO-HEAL DIABETIC FOOT ULCERS: A RANDOMIZED CONTROLLED TRIAL

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Aim: To evaluate the efficacy of transcutaneous carbon dioxide (CO₂) therapy in improving healing and tissue oxygenation over 4 weeks in recurrent hard-to-heal diabetic foot ulcers (DFUs), compared with standard of care (SOC) alone.

Methods: In this prospective randomized controlled trial, 30 patients with recurrent hard-to-heal DFUs were randomized 1:1 to standard of care (SOC) alone or SOC plus daily transcutaneous CO₂ therapy for 20 sessions over 4 weeks. Ulcers were neuroischaemic (n=10), ischaemic (n=8) or neuropathic (n=12). Groups were comparable in age, HbA1c, wound area and ulcer duration, although previous minor amputation was more frequent in the CO₂ group (8/15 vs 4/15). The primary endpoint was complete healing at 4 weeks. Secondary endpoints were relative change in superficial tissue oxygenation (StO₂) and pain intensity. Supportive endpoints included percentage wound-area reduction, proportion of ulcers achieving ≥50% area reduction, and wound-bed appearance/exudate.

Results: After 4 weeks, 46.7% (7/15) of ulcers in the CO₂ group were completely healed, whereas none healed in the control group (0/15; p=0.005). Median wound-area reduction was 85.7% (IQR 54.9–100) with CO₂ therapy versus 17.2% (IQR 0.9–33.5) with SOC alone (p<0.001). A clinically relevant ≥50% wound-area reduction was achieved in 93.3% versus 20.0% of ulcers, respectively (p<0.001). Complete granulation and minimal/no exudate were significantly more frequent in the CO₂ group (both p<0.001). StO₂ increased by 29.6±19.6% in the CO₂ group but decreased by 2.2±6.9% in controls, corresponding to a between-group difference of 31.8% (95% CI 20.5–43.0; p<0.001). Pain also improved significantly: 40.0% of CO₂-treated participants became pain-free versus 0% in the control group (p=0.002). No adverse events were observed.

Conclusions: transcutaneous CO₂ therapy significantly improved healing, tissue oxygenation and pain in recurrent hard-to-heal DFUs compared with SOC alone. These findings are consistent with previously published clinical studies and support further evaluation of this microvascular-targeted therapy.

MULTICENTRE RANDOMISED CONTROLLED TRIAL OF TRANSCUTANEOUS CO₂ THERAPY FOR NON-HEALING DIABETIC FOOT ULCERS

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Aim: To evaluate whether transcutaneous carbon dioxide (CO₂) therapy improves healing of non-healing diabetic foot ulcers (DFUs) over 4 weeks compared with standard of care alone.

Methods: A total of 115 adults with non-healing, non-infected DFUs were included in this multicentre randomised controlled trial and randomised in a 2:1 ratio to transcutaneous CO₂ therapy plus standard of care (n=76) or standard of care alone (n=39). CO₂ therapy was administered once daily on weekdays for 4 consecutive weeks (20 sessions). The primary outcome was complete ulcer healing after 4 weeks. The secondary outcome was percentage ulcer area reduction after 4 weeks. Ulcer area was measured using a non-contact 3D laser scanner and wound-bed status was assessed using the Falanga classification. Multivariate logistic regression was performed to assess predictors of healing.

Results: After 4 weeks showed significantly improved healing in the CO₂ intervention group, with 64.5% of wounds achieving complete closure compared to 7.7% in the control group. Median percentage ulcer area reduction was 100.0% in the intervention group and 40.0% in the control group (p<0.001). Ulcer area after 4 weeks was significantly smaller in the intervention group (p<0.001) and wound-bed appearance improved significantly more than in controls (p<0.001). Patients receiving CO₂ therapy were 35 times more likely to achieve complete wound healing than those receiving standard care alone (OR 35.4, 95% CI 6.68–187.53; p<0.001).

Conclusions: Transcutaneous CO₂ therapy significantly improved healing outcomes in patients with non-healing DFUs. These multicentre findings are consistent with previously published clinical studies and strengthen the evidence base for CO₂ therapy by confirming reproducible benefit across different clinical settings, supporting its use as a safe, non-invasive and effective addition to standard treatment protocols.

EP05- Top 10 E-Poster

Outpatient Parenteral Antimicrobial Therapy (OPAT) for Diabetic Foot Infections: Clinical Outcomes and Hospital Admission Avoidance in a Single-Centre Experience

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BACKGROUND: Diabetic foot infections (DFIs) are a leading cause of hospitalisation and lower limb amputation. Our centre has delivered Outpatient Parenteral Antimicrobial Therapy (OPAT) for 11 years, providing an effective alternative to prolonged inpatient care. Indications for OPAT include moderate-to-severe infection with multi-resistant organisms, failed treatment with oral antibiotics, allergies or intolerance to oral medications, and psychological difficulties associated with prolonged hospital stay. We aimed to evaluate the clinical outcomes, safety, and hospital admission avoidance rates of OPAT in patients with DFIs complicated by infection.

METHODS: Retrospective review of consecutive patients with DFIs managed through our OPAT service (2023-Present). Data included demographics, diabetes type, ulcer severity by International working group on the Diabetic Foot classification (IWGDF), presence of osteomyelitis, vascular status, renal function, IV antibiotic regimen and duration, wound healing outcomes, amputation rates, and recurrence. All patients received multidisciplinary team (MDT) review.

RESULTS: 38 patients were reviewed (74% male; mean age 62.6 years). 82% had Type 2 diabetes. Moderate-to-severe infection was present in all cases per IWGDF criteria. Osteomyelitis was confirmed in 63%. Over 40% had renal impairment (eGFR <60). The majority (61%) received combination IV antibiotic therapy most commonly piperacillin-tazobactam +/- Teicoplanin; median treatment duration was 42 days (range 7-98).

Key outcomes: Hospital admission avoided: 79%; Wound healing/improvement: 66%; Treatment adherence: 100%; Major amputation rate: 3%; Zero line-related complications. Patients with osteomyelitis achieved lower amputation rates (29% vs 57%) despite longer treatment courses, demonstrating effective bone infection management. Charcot patients (n=5) showed excellent outcomes with 80% healing/improving and no amputations.

CONCLUSIONS: This evaluation demonstrates that complex DFIs can be safely and effectively managed in the outpatient setting. OPAT offers patients high-quality care while maintaining their independence and quality of life. These results support OPAT as a valuable, patient-centred approach for managing moderate-to-severe DFIs in appropriately selected patients.

EP06- Top 10 E-Poster

Evaluation of an outpatient parenteral antibiotic therapy (OPAT) service for patients with diabetic foot infections (DFIs).

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AIM: To examine the outcomes of patients with DFIs referred for OPAT.

INTRODUCTION: The Irish National OPAT Programme is a centralized system which co-ordinates OPAT care. It was established in 2013 and is entirely funded by the Health Service Executive (HSE). Since its inception, increasing numbers of patients presenting with diabetes-related foot infections have been referred for OPAT.

METHOD: Patients admitted to Cork University Hospital with diabetic foot infections, within a 12month period, and subsequently referred to the Infectious Disease (ID) team for OPAT were identified. The service was evaluated using the aims and outcome measures recommended by the Irish National OPAT Guidelines. The aims of OPAT were defined as (i) cure, (ii) improvement or (iii) palliation; the outcomes were defined as (i) attained and uncomplicated (ii) attained but complicated or (iii) not attained.

RESULTS: From January to December 2025, 26 in-patients with DFIs were referred to the ID team for OPAT (male=21; Type 2 diabetes=17; underlying osteomyelitis=24; mean age = 58.2years [range: 28-83]). The aim of treatment for all patients was cure, which was achieved for 92% of the patient cohort. Of the patients where cure was achieved, 8% was attained, but complicated. The mean length of OPAT was 21.9days [range: 7-38 days], suggesting a total of 547 bed days saved. Based on presentation and microbiological isolates, 40% of the cohort were treated with one intravenous (IV) antibiotic, 40% with a single IV agent supplemented with an oral antibiotic, 16% with two IV agents, and 1% required two IV agents and one oral agent. On completion of OPAT, 52% of patients 'stepped down' to an oral agent for a specified time frame.

CONCLUSION: This evaluation adds to the established evidence, indicating the value of OPAT as a successful, well-tolerated, cost-effective treatment for DFIs.

EP07- Top 10 E-Poster

Post-Operative Outcomes following Ambulatory Diabetic Foot Surgery: A 5-Year Retrospective Cohort Analysis Study

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Background: Minor forefoot surgical procedures have been proven to be effective as an intervention for diabetic foot pathology, as well as a limb preservation technique. These procedures are typically conducted in a hospital setting, and literature regarding outcomes for similar procedures conducted in ambulatory clinics is limited. The objective of this study was to evaluate healing trajectories, post-operative complications, and estimated cost-to-heel following common forefoot procedures in patients with diabetic foot wounds performed in an ambulatory clinic setting.

Methods: We conducted a retrospective cohort study of patients undergoing toe amputation, ray resection, Keller arthroplasty, or metatarsal head resection in a single center ambulatory clinic between January 2020 and December 2025. Primary outcomes included time to wound healing, healing at 42 days, and healing at 1 year. Secondary outcomes included postoperative complications, major amputation, and estimated cost-to-heel based on procedural and follow-up associate costs.

Results: A total of 413 procedures in 335 patients were analyzed. Median time to healing differed across procedures ($p < 0.05$), with an observed healing rate of 32.9% at 42 days. The overall healing rate at 1 year was 80%, with increasing healing probability across all procedures. Post-operative complication rates were low, and major amputation occurred in 1.7% of cases. Estimated mean cost-to-heel was \$2,747.5 and increased with prolonged healing but remained lower than reported hospital costs for diabetic procedures.

Conclusions: Ambulatory forefoot surgery for diabetic foot pathology in this cohort achieved favourable healing outcomes, low complication rates and substantial cost-savings, supporting ambulatory care models for limb preservation.

EP08- Top 10 E-Poster

It's Time to Bridge the Gap in Footcare Provision for Haemodialysis Patients: A Network Wide Service Evaluation

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Background: Diabetic haemodialysis patients face profoundly higher risk of severe foot complications, as such a holistic and integrated specialist foot care is needed. This evaluation aimed to assess the diabetic footcare provision across our dialysis network.

Method: A retrospective review was conducted on haemodialysis patients within our service catchment area over a 20-month period. Electronic data were captured with review of patient demographics and diabetes status. Additionally, an anonymised survey was conducted among the podiatry leads within the network regarding existing foot services and their input in dialysis units. The cohort was divided into diabetic patients dialysing at the main hospital unit (Hub), and 5 satellite units.

Result: Overall, there were 653 haemodialysis patients, of which 251 had diabetes: 76 (38%) were treated in the Hub and 175 (38.6%) in the satellite units. The mean age was similar between the two groups (66±14 years vs 68±12 years, p=0.588). The proportion of men was significantly higher in the Hub compared with the satellite units (72.2% vs 57.1%, p=0.034). More patients with type 1 diabetes were treated in the Hub compared with the satellite units (14.5% vs 8.6%, p>0.05).

The survey revealed the main hub received specialist podiatry review 1-2 weekly and had immediate access to other specialists. The hub also benefited from a twice-monthly joint meetings involving renal, diabetes, microbiology, and podiatry specialists. In contrast, all satellite units reported a lack of active foot screening and no formal integration of renal teams into the diabetic foot MDT.

Conclusion: There is an apparent disparity in the specialist input for diabetic haemodialysis patients based on their locations. While satellite units had a comparable diabetic cohort, integrated foot MDT support and proactive screening were lacking. As such more resources are needed to be invested in satellite units to bridge this critical gap.

EP09- Top 10 E-Poster

The relationship between the screening examination of large and small nerve fibers and the risk of diabetes-related foot disease

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Background and aim: Accurate screening for diabetic peripheral neuropathy is critical for stratifying the risk of diabetes-related foot disease (DFD). Current screening predominantly targets large nerve fibers testing using a 10g monofilament and a 128 Hz tuning fork. However, recent guidelines suggest incorporating small nerve fibers assessment to detect earlier neuropathy stages. This study aimed to compare the diagnostic performance of large and small nerve fibers screening tools in relation to DFD risk categories in diabetic patients who were consecutively examined at a single workplace within one year.

Methods: We prospectively evaluated 92 consecutive diabetic patients (mean age 65 ± 12 years; 63% male; 78% T2DM) at a single diabetes clinic over a 12-month period (1/2024–12/2024). DFD risk was stratified according to the IWGDF Guidelines. The examination of large nerve fibers was performed using 10g monofilament and a 128 Hz tuning fork; small nerve fibers impairment was evaluated using the Neurotips™ 40g pressure test.

Results: Subjects were distributed across DFD risk categories as follows: 31% very low, 29% low, 30% moderate, and 5% high risk (5% unclassified) based on a comprehensive medical examination. Sensitivity for detection of moderate or high risk of DFD (where neuropathy has always been present), was 32% for monofilament test, 49% for tuning fork assessment, and 78% for Neurotips™ evaluation. On the other hand, specificity for excluding neuropathy (it means that the test was negative if the patients was assessed in very low DFD risk category) was 100% for the monofilament, 79% for the tuning fork, and 71% for Neurotips™ 40g pressure test.

Conclusion: Our findings suggest that incorporating small nerve fibers assessment significantly increases the sensitivity of DFD risk screening and appears essential for the early identification of at-risk patients, potentially allowing for more timely preventive interventions.

EP10- Top 10 E-Poster

Minimally injurious surgery in diabetic foot: Efficacy in patients with ischaemia and osteomyelitis

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Background and Aim:

Ischaemia and osteomyelitis represent major challenges in the management of the diabetic foot, particularly in patients with limited distal perfusion, tissue hypoxia or no options for revascularisation. This study aimed to evaluate the efficacy of minimally injurious surgery in treating bone infection and promoting wound healing whilst preserving foot function in ischaemic diabetic patients.

Methods:

A prospective observational study was conducted on 152 patients treated between January 2022 and January 2025 using minimally injurious surgical techniques designed to control bone infection and prevent major amputation. Vascular status was assessed by ankle-brachial index (ABI), toe-brachial index (TBI) and transcutaneous oxygen pressure (TcPO₂). Moderate-to-severe ischaemia was defined as ABI <0.59, TBI <0.49, TcPO₂ <30 mmHg; severe ischaemia as ABI <0.39, TBI <0.20, TcPO₂ <20 mmHg.

Results:

Most ulcers (90.1%) were located in the forefoot; 41.4% of patients presented ischaemia. According to the IDSA classification, 40% had grade 3 and 1% grade 4 infection. The application of minimally injurious surgical techniques approaches achieved complete healing in 82% of cases, with a mean healing time of 4.8 weeks. In the moderate-to-severe ischaemia group (n=63), 81% achieved closure within 2.4 weeks; in those with severe ischaemia (n=24), 75% healed in 1.9 weeks. At one year, 75% remained ulcer-free and 89% required no further surgical.

Conclusion:

Minimally injurious surgery techniques constitute an effective, limb-preserving strategy for ischaemia diabetic foot patients with and osteomyelitis. This approach facilitates infection control, promotes wound closure, and preserves foot function, thereby improving long-term clinical outcomes and patient quality of life.

Unlocking First-Line Therapy: Penicillin De-labelling Improves Antimicrobial Optimisation in Diabetic Foot Patients

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Background:

Penicillin allergy labels affect 6–10% of UK patients, yet fewer than 10% represent true allergy. Spurious labels are particularly common in diabetic foot (DF) patients, limiting access to first-line β -lactams and driving broader-spectrum antimicrobial use. To improve antimicrobial optimisation, Kettering General Hospital (KGH) introduced a collaborative de-labelling initiative between the DF multidisciplinary team and the Antimicrobial Stewardship (AMS) team, using a structured outpatient oral penicillin challenge pathway.

Methods:

From autumn 2024, the team implemented a locally adapted direct oral penicillin challenge within the DF clinic, despite having no on-site immunology department. Patients with unclear or low-risk penicillin allergy histories underwent formal risk assessment using a locally adapted SOP based on SAPG, BSAC and Midlands regional guidelines. Assessment included PEN-FAST scoring, review of GP and pharmacy records, and detailed allergy history. Following clinical assessment, patient education, and informed consent, eligible individuals underwent a supervised oral amoxicillin 500 mg challenge in the elective planned care unit. Outcomes included challenge completion, tolerance, initiation of penicillin-based therapy, and de-labelling across electronic prescribing systems.

Results:

Nine diabetic foot patients completed the oral challenge to date. Most had vague childhood reactions or undocumented historical labels. The majority ($n \approx 7$) tolerated the challenge without allergic symptoms and were successfully de-labelled on the hospital electronic prescribing system, enabling commencement of appropriate penicillin-based regimens. Some patients were not fully de-labelled due to persisting intolerance rather than allergy. Embedding AMS support within clinic workflow e.g. pre-screening by diabetic specialist podiatrists and AMS technician was identified as further improvement work.

Conclusion:

Implementing a clinician-led penicillin de-labelling pathway with direct oral penicillin challenge within the DF outpatient setting is feasible, safe, and enhances antimicrobial optimisation. Despite financial constraints precluding a formal Trust-wide Penicillin de-labelling service, this targeted initiative demonstrates measurable benefits in antibiotic stewardship and patient-centred care for high-risk DF populations.

Tenotomy positively affect as the prognosis of patients with diabetic foot as economic demand of podiatric care (bicentric study)

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Tenotomies belong to one of the most effective surgical off-loading methods that can improve the prognosis of patients and even reduce the costs of podiatric care. The aim of our study was to assess the incidence of tenotomies in two czech podiatric centers and to evaluate their impact on prognosis of patients with toes diabetic foot ulcerations (DFUs) and the possible economic impact on therapy. Methods: In total, 259 patients with DFUs (mean age 67 ± 11.2 years, BMI 30.9 ± 11.1 kg.m⁻², diabetes duration 24.7 ± 12.9 years, HbA1c 57.7 ± 17 mmol/mol) treated in our foot clinic between 1/2024 and 12/2024 were enrolled in this bicentric study. Epidemiological characteristics, DFUs healing and therapy costs were compared between patients treated by tenotomies and those treated by standard of care (SOC) in 3-month follow-up. Results: Tenotomy was performed in 13.1% of patients (34/259). Compared to study subjects treated by SOC these patients were significantly younger ($p=0.04$) with a shorter duration of diabetes ($p<0.0001$) and DFUs ($p=0.04$) and better microcirculation ($p=0.0004$). During the follow-up period, no amputation occurred in tenotomized individuals, while in the SOC treated cohort amputation was performed in 25.8% of patients (58/225, $p<0.0001$). We observed a positive trend toward faster healing ($p=0.17$) and shorter ATB therapy ($p=0.17$) in patients after tenotomies compared to SOC. Tenotomies significantly reduced the costs of therapy in comparison to SOC treatment (394.8 ± 413.9 with a median of 210Euro vs. 565.3 ± 745.3 with a median of 307Euro; $p=0.05$). Amputees healed significantly longer (2.6 ± 1 months; $p=0.003$), with the longest ATB therapy (2.2 ± 1.1 months; $p<0.0001$) and significantly higher financial demands (1100.5 ± 996.6 with a median of 829.9 Euro; $p<0.0001$) in contrast to SOC treated subjects without amputation. Conclusion: Our study showed that tenotomy enhanced wound healing, reduced the number of amputations and the costs associated with podiatric care. This method of surgical off-loading should be more widely implemented into clinical podiatric practice

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EP13

A retrospective service evaluation of the observed venous thromboembolism (VTE) incidence rate in below knee total contact casting for the management of active neuropathic foot disease.

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Introduction:

- Lower limb immobilisation via non-removable below knee casting carries increased risks including venous thromboembolism (VTE); deep vein thrombosis (DVT) and pulmonary embolism (PE).
- Utilising non-removable below knee casts is gold-standard treatment of plantar neuropathic foot ulcerations and Charcot neuroarthropathy and can continue for many months.
- Current clinical guidelines lack specific recommendations for use of direct oral anti-coagulants when using non-removable casts in management of active neuropathic foot disease.

Aim:

- To investigate the observed VTE incidence rate (DVT/PE) in patients where total contact casting was utilised in the management of active neuropathic foot disease, including foot ulceration and Charcot neuroarthropathy, during the casting episode and 3-months post casting.

Method:

- Retrospective observational study.
- Data collected = demographics (age, gender, diabetes and neuropathic status, anticoagulant status and prescribing team), cast episode duration, cast applied and reasoning, VTE event reporting and positivity/negativity imaging from radiological reports.

Results:

- Participants = 216; 172 (80%) male, 44 (20% female). Average age 57.9 years).
- Casting episodes = 411 (average 61 days).
- Cast reason = 320/411 (78%) diabetic foot ulcer, 81/411 (20%) Charcot neuroarthropathy, 10/411 (2%) DFU/post-surgical + Charcot neuroarthropathy.
- Cast type = 76/411 (19%) total contact cast + Bohler's iron, 260/411 (63%) total contact cast only, 75/411 (18%) either total contact cast + Bohler's iron or total contact cast only during casting episode.
- DOAC prescribed = 133/411 (32%)

Outcome measure 1:

- Radiological imaging for VTE (DVT/PE) event symptoms = 10/409* (2.4%).

*Adjusted for 2 participants lost to follow-up.

Outcome measure 2:

- VTE (DVT/PE) confirmed on imaging = 0/10 (0%).

Observed VTE incidence rate = 0/411 cast episodes.

Conclusion:

- Non-removable below knee casting for active neuropathic foot disease does not increase VTE (DVT/PE) risk in this cohort. Limitations to this study apply.

Radiological Detection of Advanced Gout in Patients with Diabetes and Foot Ulcers

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Background:

Gout remains undiagnosed and undertreated in up to 20% of individuals with diabetes, as peripheral neuropathy and ischemia mask classical inflammatory symptoms. If left untreated, gout frequently progresses to chronic monosodium urate deposition and tophus formation, commonly affecting the feet. Tophi may ulcerate and can mimic diabetic foot ulcers and, in some cases, contribute to amputations. This underscores a need for improved methods for diagnosing advanced gout within this population. While conventional radiography (CR) and dual-energy computed tomography (DECT) can detect advanced gout with osseous changes, their diagnostic utility in people with diabetes and foot ulcers remains unexplored.

Methods:

This study enrolled 39 patients with diabetes referred to a tertiary foot-ulcer clinic. Participants underwent foot CR, supplemented by DECT, where available. Radiological findings were assessed blinded to clinical gout status and classified as consistent or inconsistent with gout. Clinical gout, defined as ongoing urate-lowering therapy the time of ulcer presentation or initiated after ulcer treatment, served as the reference standard for diagnosis.

Results:

Radiological findings were consistent with gout in 21 of 39 participants and inconsistent in 18. CR alone enabled classification of 30 cases (18+12, respectively), while DECT resolved the remaining 9 ambiguous cases. Radiological assessment correctly identified gout in 17 (94%) of the 18 participants with clinically confirmed gout. Four of the 21 participants with radiological findings consistent with gout did not have clinically confirmed gout. Notably, 15 of 18 (83%) participants with clinical gout had previously unrecognized or undertreated gout.

Conclusions:

Advanced gout with osseous changes appeared prevalent in people with diabetes and foot ulcers in our study. Radiological assessment identified clinically undiagnosed gout; however, prevalence estimates are limited by selection bias and the exploratory study design. The utility of CR plus/minus DECT to diagnose gout in people with diabetes and foot ulcers merits further investigation.

Visual Education for Diabetic Foot Ulcer Prevention: A Randomized Controlled Trial (Baseline)

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Background: Persons with diabetes and risk of developing a foot ulcer needs a thorough guidance and education in good selfcare to prevent occurrence of foot ulcers.

Aim: To implement a peak pressure measurement system as a visual feedback tool in the annual foot education and aiming to prevent foot ulcers.

Methods: A randomized controlled trial was conducted in the foot clinic in our center, by using the Novel® peak planta measurement systems as a part of the preventative education vs. standard education alone. Persons with diabetes and moderate to high risk of developing a planta foot ulcer were included between May 2024 to September 2025. Both groups received a WHO-5 questionnaire the day of, a 4-month post-visit questionnaire about behavior and a follow up visit after 10-18 months.

Results: 300 persons were included 235 (78%) were male, average age 66 years $\pm$ 10 years, 118 (39%) had type 1 diabetes, diabetes duration was 24 ± 15 years, HbA1c was $57,9 \pm 12$ mmol/mol, eGFR was 73 ± 25 ml/min, all had neuropathy (vibration threshold > 25 mV), 46 (15%) had painful neuropathy and 267 (89%) had palpable foot pulses. 127 (42%) were still in employment. 148 were randomly assigned to intervention and given visual data to take home. All persons replied to the WHO-5 questionnaire and 91 (30%) to the questionnaire about behavior after 4 months 67 (74%) from the intervention group and 24 (26%) from standard group).

Discussion: This is the first data from our study and representing a cohort of predominantly male, many with impaired kidney function and a long duration of diabetes. Our hypothesis is that if persons with diabetes are visually stimulated, this will empower them to actively prevent development of foot ulcers. Further analysis of all data will be done later this year.

Diabetic Foot Disease Admission Rates: A Prospective Cohort Analysis from a Single Tertiary Vascular Centre

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Aim: To analyse the inpatient admissions data over a 6-month period at a single tertiary vascular centre

Methods: A prospective observational study was conducted over six months (September 2025 – February 2026) at a single tertiary vascular centre, looking at inpatient admissions with diabetic foot disease. Data collected included patient demographics, diabetes type and duration, glycaemic control (HbA1c), comorbidities, admission source and type, treatment plan, length of stay (LOS), and re-admission rates. Multidisciplinary foot team (MDFT) involvement was recorded pre- and post-admission.

Results: A total of 167 patients were admitted (mean age 67.8 ± 11.6 years; 77% male). The majority had Type 2 diabetes (94%), with a median duration of 17 years and average HbA1c of 8.4% (68 mmol/mol). Diabetic neuropathy was present in 60% of the patients.

Most admissions were emergency presentations (73%) with 57% of referrals from the emergency department, 22% from the Vascular Limb Salvage and Emergency Clinic (VaLS), and 18% from the diabetic foot clinic (DFC). Over half (52%) of the patients had previous diabetic foot related admissions.

78% of the emergency admissions were treated for diabetic foot infection (DFI), of which 48% had radiological osteomyelitis. Along with antibiotic therapy, 55% required debridement or amputation for source control. 25% of the patients also had revascularisation procedures to improve blood flow and promote wound healing. 43% of the patients were not previously known to the MDFT clinic. The average length of stay was 12.5 days (0 – 55), and the 30-day readmission rate was 25%.

Conclusion: The fact that approximately 40% of patients presenting as an emergency with a DFI had no prior MDFT involvement highlights a key area for improvement. This underscores the importance of community-based foot surveillance in early identification and involvement of the MDFT, to improve patient outcomes.

Delivering High-Volume Multidisciplinary Diabetic Foot Care: The Madhira Mega Camp Experience

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Diabetic foot disease remains a leading cause of preventable morbidity and amputation worldwide, particularly in low-resource settings where access to timely, specialist care is limited. Innovative, scalable care delivery models are required to address this growing burden. We report on a large-scale, single-day free "mega diabetic foot camp" conducted on 20th January 2026 in Madhira, Khammam district, India.

The camp brought together a multidisciplinary workforce of 50 doctors, 50 nurses, and numerous volunteers, enabling the rapid assessment of approximately 2,500 patients within a single day. All of these patients underwent comprehensive evaluation and received immediate treatment through a structured, high-throughput care pathway designed to optimise efficiency without compromising quality.

Patients received a holistic diabetic assessment, including optimisation of glycemic control with on-site provision of medications, and comprehensive foot screening. Dedicated surgical teams provided specialist review, identifying patients requiring urgent or elective intervention; 16 of these patients have subsequently undergone operative management. Integrated ulcer care services delivered wound debridement, dressing, and infection management to 120 patients, while physiotherapy input supported mobility and rehabilitation.

A strong emphasis was placed on patient education, focusing on foot care practices, early recognition of complications, and long-term diabetes management. In addition, 130 patients were provided with appropriate therapeutic footwear to reduce pressure-related injury and prevent recurrence.

This mega camp demonstrates that a coordinated, multidisciplinary, high-volume model can successfully deliver comprehensive diabetic foot care in a resource-constrained environment. Such initiatives have the potential to significantly reduce complications, prevent amputations, and improve patient outcomes, and may serve as a replicable model for similar high-burden regions globally.

Implementing Value-Based Health Care in Diabetes and Diabetic Foot Management: A Real-World Experience from a Local Health Authority

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Diabetic foot is one of the most complex and costly complications of diabetes mellitus, associated with high morbidity, risk of amputation, and a substantial impact on quality of life. Traditional care models, often fragmented and volume-driven, are insufficient to ensure optimal outcomes and long-term sustainability. In this context, Value-Based Health Care (VBHC) has emerged as a strategic approach aimed at maximizing clinical outcomes and patient-relevant outcomes relative to the resources used.

Within the Local Health Authority South East Tuscany, a structured initiative was undertaken to apply the VBHC framework to diabetes and diabetic foot care pathways. This process involved the establishment of a multiprofessional working group, led by industrial engineers, including clinicians, administrative personnel, and executive management staff, with the goal of redesigning care delivery according to value-based principles.

Key actions included the analysis and standardization of clinical pathways, the identification of relevant outcome indicators (including patient-reported outcome measures), and the evaluation of resource utilization across the full cycle of care. Particular attention was given to early risk stratification, timely access to specialized care, and the integration between hospital and community services.

This organizational approach aims to improve clinical outcomes, reduce variability in care, and enhance resource allocation efficiency. Preliminary observations suggest that the adoption of a VBHC-oriented model may support a more coordinated, patient-centered management of diabetic foot, while fostering greater alignment between clinical and managerial perspectives.

The experience highlights both the potential benefits and the operational challenges of implementing VBHC in a real-world setting, emphasizing the need for cultural change, data integration, and sustained institutional commitment.

IMPLEMENTATION OF A COORDINATED PRIMARY-CARE-BASED MDT-MODEL

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Aim: This study was designed to evaluate the effect of implementing a multi-disciplinary-team (MDT) across the primary and secondary care sectors in the Danish health care system on healing of hard-to-heal ulcers.

Method: This prospective multi-center cohort study was conducted between March and December 2025. Participants were included from three nursing clinics in the primary sector belonging to the capture area for North Zealand Hospital. The intervention consisted of implementation of an MDT approach, consisting of a wound care nurse and an orthopedic surgeon from the hospital setting and a wound care nurse from the primary sector. Participants were adults with either a diabetic foot ulcer or ulcer of any etiology that had not healed 3-months from occurrence. Participants were treated at least 3 times over a 3 month period (treatment period), and data was collected until study closeout (observation period).

Results / Discussion: A total of 153 individuals were screened, 43 were included, and 32 completed the study. 22 (68.8%) were male and the mean age was 73 (SD(+20)) years. Median ulcer duration before inclusion was 156 (Q1-Q3(94-404)) days. 15 (47%) of participants achieved healing during the treatment period, and a further 6 (19%) in the observation period. Specific to diabetes; 16 of the 32 participants had diabetes, with a median diabetes duration of 16.5 (12-24.5) years, median HbA1c of 58 (45.5-71) mmol/mol and 15 (93.8%) had neuropathy. Of the 16 participants with diabetes 12 (75%) achieved healing during observation period.

Conclusion: This study found a potential of addressing some of the challenges that is facing the organization and treatment of individuals with hard-to-heal ulcers, including individuals with diabetes, through a cross-sectional-MDT. If the positive effects are reproduced in a randomized-clinically-controlled trial, this MDT format could be implemented across Danish and, in time, international health-care systems.

The impact of structured physical activity program on biomechanics and fitness in patients with diabetic foot

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Diabetic foot (DF) is a late diabetic complication, often resulting into a long-term need for off-loading, reducing fitness status and altering biomechanic characteristics due to muscle atrophy.

The aim of this study was to evaluate an impact of a 4 months lasting structured exercise program on foot biomechanic parameters and fitness (BPF) in patients with DF.

Methods: In total 31 patients with active DF or DF in remission (age 61,7 years, 24 men (77%), HbA1c 60.2±19,5mmol/mol, BMI 32,2±5,7 kg/m², diabetes duration 23,7±16,14 years,) were enrolled.

Patients were randomized into group (A) with implementation of structured physical activity and a control group (B). The 4 months lasting exercise in group A was focused on ankle and foot small-joint mobility, strengthening and stretching of the lower extremity muscles, and improvements in fitness. Study groups were compared in: BPF assessed by using telemetry (Apple Watch), joint mobility by goniometry, muscle strength by dynamometry, and fitness by using modified Senior Fitness Test.

Results: Overall, 24 patients (77%), divided into groups of 12 subjects, completed the program. 7 patients (23%) were excluded due to DF complications or death of unrelated cause.

We observed a significant improvement of feet flexibility (plantar flexion, $p=0.007$) and positive trend in the enlargement of body flexibility ($p=0.063$) in group A compared to group B. No significant difference was observed in other BPF parameters among the study groups. We proved no significant correlations between physical activity and detected parameters of BPF. Based on Apple Watch data, group A was slightly more active compared to group B (6640.9±3713 vs. 5301.4±3026 steps per day, NS).

In conclusion: Our structured exercise program pilot data showed that mild exercise was well-tolerated by both patients with active DF or DF in remission. Moreover, there was positive impact of such intervention on feet and body flexibility.

Comparison of three personalized 3D-printed insole designs for targeted plantar pressure offloading

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Diabetes-related foot ulceration is a common and costly complication of diabetes. Custom insoles are prescribed to redistribute plantar pressure and reduce ulceration risk. This study evaluates the offloading performance of three personalised insole designs.

Fifteen healthy participants with elevated forefoot peak pressure (PP) were recruited. Three sets of personalised insoles were designed using 3D-scanning and barefoot pressure data and manufactured through 3D-printing. All insoles shared a common 3¼-length total-contact base. Each design incorporated an attachment with targeted offloading modification at highest-pressure site: (1)U-shaped cut-out, (2)circular-shaped cut-out, and (3)multi-density structure with reduced infill (no cut-outs). A repeated-measures randomized crossover design was employed, with participants testing all three designs alongside a control flat insole with standardized footwear. The offloading performance was analysed for forefoot regions using in-shoe pressure measurements.

Across 37 regions of interest (ROI), the three personalized insole designs produced significantly different PP reductions. A repeated-measures ANOVA revealed a significant effect of design ($F(2,35)=23.59$, $p<0.001$, $\eta^2=0.574$). U-shaped design produced the greatest offloading, reducing PP by $33.1\pm27.7\%$, equivalent to 132.8kPa ($p<0.001$, $95\%\text{CI}$ [92.1 , 173.4]) relative to control. Multi-density design achieved moderate offloading, reducing pressure by $7.8\pm36.1\%$ equivalent to 48.6kPa ($p<0.001$, $95\%\text{CI}$ [8.5 , 88.8]), whereas the circular-shaped design produced minimal reduction (8.9kPa ; $p<0.001$, $95\%\text{CI}$ [-23.9 , 41.6]). U design significantly outperformed both alternatives ($p<0.001$) while producing the largest pressure increase in non-targeted areas (19.1%), indicating pressure redistribution. A responder analysis was performed to assess clinical relevance, defining successful offloading as a $\geq 30\%$ reduction in PP in ROIs. U-shaped design achieved successful offloading in 59.5% of the ROIs, compared with 18.9% for the multi-density design and 10.8% for the circular-shaped design.

U-shaped design provided the most effective targeted pressure offloading and greater redistribution compared to the other designs. This represents the first evidence of an innovative design that improves offloading compared with off-the-shelf insoles.

Achilles Tendon and Plantar Fascia in Diabetic Foot: Biomechanical and Ultrasound Predictors of Ulcer Risk

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Background:

Diabetic foot ulcers (DFUs) are among the most severe complications of diabetes mellitus, significantly impacting morbidity, quality of life, and risk of lower-limb amputation. Increasing evidence highlights the role of soft tissue structures—particularly the Achilles tendon (AT) and plantar fascia (PF)—as key biomechanical contributors to plantar pressure overload and potential predictors of ulceration risk.

Methods:

A systematic review was conducted in accordance with PRISMA 2020 guidelines. A literature search was performed on PubMed between May and August 2025. Original studies involving adult patients with diabetes were included if they investigated:

(Q1) the association between AT/PF tendinopathies and biomechanical or plantar pressure alterations;

(Q2) ultrasound and sonoelastographic features as predictive markers of ulceration risk.

Results:

Out of 21 identified records, 8 studies were included in the final qualitative analysis.

For Q1, AT and PF tendinopathies were associated with increased forefoot plantar pressures and reduced tendon compliance. Achilles tendon lengthening (TAL) was shown to significantly reduce plantar loading and improve ulcer healing, although long-term effectiveness remains variable.

For Q2, ultrasound and sonoelastography consistently demonstrated tendon thickening and reduced elasticity in diabetic patients, supporting their potential role as predictive biomarkers of ulceration risk.

Conclusions:

Alterations of the Achilles tendon and plantar fascia represent key biomechanical and structural factors in the pathogenesis of diabetic foot ulcers. Integrating tendon assessment into screening protocols may enhance early risk stratification. Advanced imaging techniques, particularly sonoelastography, appear promising for early detection, although large-scale prospective studies are needed to validate their clinical utility and establish standardized screening protocols.

Postural Control in Patients with a History of Diabetic Foot Ulcers: A Pilot Study

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Background: Diabetic peripheral neuropathy (DPN) impairs proprioception, leading to reduced balance control and an increased risk of falls. Patients often compensate for sensory deficits by relying on visual input.

Objective: This study aimed to evaluate the effect of prescription footwear with insoles on postural stability in patients with DPN and to determine the extent of visual dependency in balance control.

Methods: A pilot study leading to a large scale study was conducted in four participants with a history of diabetic foot ulcers. Postural stability was assessed using the Biodex Balance System and the Zebris FDM system. Measurements were performed under four conditions: barefoot and footwear (Lucro by Schein with DiabetiX insoles by Talarmade), each with eyes open (EO) and eyes closed (EC). Primary outcomes included the Stability Index (SI), the 95% confidence ellipse (sway) area, and Load Distribution.

Results: A pronounced visual dependency was observed in all participants. EC resulted in a substantial increase in postural sway. Footwear with insoles demonstrated condition-dependent and highly individual effects on postural stability. In the Biodex assessing Fall Risk Test, footwear slightly improved stability under EO (mean change $\approx -10\%$), but increased fall risk under EC ($\approx +12\%$). Zebris analysis revealed a substantial increase in sway (Ellipse area) in footwear during EO ($\approx +148\%$), while differences between barefoot and footwear were reduced when visual input was removed. Plantar load distribution showed a tendency toward a more symmetrical forefoot-rearfoot pattern in footwear, though responses varied across participants.

Conclusions: Specialised insoles may act as an external stabilising interface, enhancing mechanical support and increasing sensory input. This may partially compensate for proprioceptive deficits, particularly under reduced visual conditions. These findings highlight the importance of appropriate footwear not only for pressure offloading but also as a potential strategy for fall risk reduction in patients with diabetic foot complications.

Movement and Off Loading strategies in Patients with Previous Foot Ulceration: A Case Series

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Background: Patients with a history of diabetic foot ulceration require offloading strategies to prevent recurrence. Recurrence remains high, reported in 40% of patients within 1 year of healing and 65% within 3 to 5 years. Therapeutic footwear and or specialised insoles are commonly prescribed to redistribute plantar load and reduce mechanical stress on vulnerable tissues, but biomechanical effects are likely to vary between individuals.

Objective: The aim of this study was to evaluate the effect of a footwear-orthosis combination on plantar pressure distribution and gait parameters in patients with a history of diabetic foot ulcers.

Methods: A case series of four participants with previous diabetic foot ulceration was conducted. Gait and plantar pressure were assessed using the Zebris FDM system under two conditions: barefoot and footwear with specialised insoles (Lucro shoes by Schein with DiabetiX insoles by Talarmade). Parameters included regional plantar forces (forefoot, midfoot, heel), load distribution, and spatiotemporal gait variables. Static stance analysis assessed forefoot and rearfoot load distribution.

Results: The intervention produced heterogeneous biomechanical responses across participants. A consistent trend toward increased midfoot loading was observed in most cases, accompanied by partial reduction of forefoot loading. However, this redistribution was not uniform: some participants demonstrated compensatory increases in rearfoot loading or minimal changes in forefoot pressure. In stance, footwear tended to normalise load distribution toward a more symmetrical forefoot rearfoot pattern (~50/50), though variability persisted. Gait parameters showed modest improvements in step and stride length and velocity.

Conclusions: Footwear and orthosis combination did not uniformly reduce plantar pressure. Instead, it produced individual redistribution patterns that shifted load between foot regions. These findings suggest that therapeutic footwear should be evaluated on an individual basis, as offloading may be achieved through different redistribution patterns rather than a uniform reduction in forefoot load.

Biomechanical Evolution in the Neuropathic Diabetic Foot: a Scoping Review(SR) of Gait and Kinetic-Kinematic-Structural Adaptations in Diabetes.

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Background: The available evidence does not provide a comprehensive overview of how foot biomechanics transition from normal to pathological patterns over the course in Neuropathic diabetic Foot(NDF). Mapping this progression may support improved understanding of biomechanical mechanisms underlying increased ulceration risk. The aim of this SR is to explore and synthesize the existing literature on changes in gait and foot biomechanics in people with diabetes, after the onset of peripheral diabetic neuropathy

Methods: The scoping review has been conducted in accordance with the JBI methodology and in line with the PRISMA-ScR checklist. The population included adults with diabetes and peripheral neuropathy, without DFU, managed in community or outpatient settings. The concept is the evolution of gait patterns and foot biomechanics associated with neuropathy, within clinical and biomechanical assessment contexts. Database considered was PubMed, EMBASE, CINAHL, PEDro and the Cochrane, grey literature sources including the Trip Medical Database, NICE and GIN. Studies published within the last ten years was considered.

Results:

From 2144 initial records, 45 studies were included. Most were observational studies (86%), predominantly cross-sectional (67.4%), followed by clinical trials (4%) and secondary research (11%). No longitudinal or prospective cohort studies were identified that could adequately describe the temporal progression of biomechanical alterations in the neuropathic diabetic foot. This represents a key finding, as it significantly limits causal inference. In individuals with neuropathic diabetes, gait alterations were consistently observed. Kinematic studies showed a recurring pattern characterized by reduced walking speed, shorter step length and increased step width, suggesting reduced propulsion efficiency. Kinetic alterations mainly involved increased plantar loading and reduced propulsive forces. The structural domain was the most represented, reported in 39 out of 44 studies (90.7%).

Conclusions:

The evidence suggests a potential model in which sensorimotor impairment leads to gait adaptations, followed by load redistribution and subsequent structural changes.

A Novel Dual-Sensor Method Demonstrates Near-Zero Pressure at Plantar Diabetic Foot Ulcer Sites Offloaded by Standardized Felt Padding

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Background

Felt-based distant padding is widely used to offload plantar diabetic foot ulcers, yet heterogeneity in material, thickness, and layering hampers evaluation and guideline development. The Pro-3F working group has standardized the method, including manual verification of the cavity by digital palpation under weight-bearing. However, instrumental proof of pressure elimination remains challenging, as sensors under dynamic conditions register bending and tensile forces as pressure artifacts.

Methods

Plantar pressure at three points of interest (POI) — metatarsal head (MTH) 1 and MTH 5 in a healthy volunteer, and MTH 5 in a patient with diabetic foot syndrome — was measured using two complementary systems: (1) Pedar X (Novel GmbH; sensor area 2 cm²), a conventional in-shoe pressure sensor positioned between felt and skin, and (2) TexSense (Novel GmbH, sensor area 78 mm²), a high-sensitivity textile contact pressure sensor placed inside the felt cavity. For each POI, 24 steps were recorded during level walking, stair ascent, and stair descent, immediately after felt application and after two days of continuous use. TexSense measurements were limited to the offloaded condition due to sensor fragility.

Results

Aggregated across all POIs and activities, Pedar X recorded a median peak pressure (MPP) of 164.6 kPa without offloading, decreasing to 73.2 kPa upon initial application (–55%) and remaining stable at 71.3 kPa after two days. TexSense recorded an MPP of 6.8 kPa immediately after application and 24.8 kPa after two days.

Discussion

The dual-sensor approach demonstrated both clinically relevant pressure reduction and near-zero absolute pressure within the felt cavity. Standardized felt offloading proved effective during level walking and stair climbing, with sustained efficacy after two days of continuous use. The TexSense increase after two days may reflect cavity compression and warrants further investigation. This was a pilot study with two subjects, a larger study is ongoing.

Exploring falls in people with diabetes and neuropathy: associations with demographics, gait quality and physical activity

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Introduction

People with diabetes-related neuropathy are not only at risk of foot ulceration, but also at increased risk of falling due to loss of sensation, altered gait biomechanics, and advanced age. Despite this increased risk, there are limited studies on falling in this field, hindering the development of interventions to prevent falls. This study aimed to determine the incidence of falls and their association with demographic and gait characteristics and physical activity in people with diabetes and neuropathy.

Methods

From two prospective studies, we included 115 participants with diabetes and peripheral neuropathy and followed them for one year. Demographic and clinical characteristics were obtained from questionnaires and clinical testing at baseline. Falls were reported in a fall diary, and only those resulting in injury were classified as falls to focus on clinically relevant incidents. Gait quality and physical activity were measured with a tri-axial accelerometer, worn for seven consecutive days. Association between falls and demographic and clinical characteristics, gait quality and physical activity were evaluated using forward multivariate logistic regression analysis.

Results

Of 115 participants (10% female, 66 (SD: 9.4) years, 30 (SD: 5.7) kg/m²), 24% (n=28) reported at least one fall in one year follow-up resulting in injury. Of these 28 participants, 18% (n=5) reported two or more falls. Explained variance in the multivariate analysis was 8.2% (R²=0.082), with higher values of Lyapunov per stride, indicative of lower gait stability, associated with a higher likelihood of falls (OR=4.75; p=0.01).

Discussion

In one year, a quarter of people with diabetes-related neuropathy reported a fall that resulted in injury. Demographic and clinical characteristics as well as most gait and physical activity measures did not discriminate fallers in this population. The relationship with gait stability may suggest that neuromuscular impairments underlie falling, representing a topic of interest for future research.

Charcot Knee in Diabetes: Imaging Features and Diagnostic Challenges in a Rare but Serious Complication

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Aims:

Charcot osteoarthropathy of the knee is a rare but serious complication of diabetic neuropathy. Delayed diagnosis may result in joint destruction and major surgical intervention. This study describes clinical presentation and imaging characteristics of suspected Charcot knee, emphasising the role of advanced imaging in early diagnosis.

Methods:

We performed a retrospective review of medical records and imaging studies of six people with diabetes presenting with knee swelling and pain who were subsequently diagnosed with Charcot knee. Clinical context, radiographic findings, magnetic resonance imaging (MRI) features and management strategies were analysed.

Results:

Nine Charcot knee presentations were identified in four men and two women (mean age 54±9 years). Knee symptoms developed during ipsilateral offloading for an active Charcot foot using a total contact cast in two cases and following Charcot foot reconstruction in one case. In the remaining three individuals, all with type 1 diabetes, symptom onset was unrelated to trauma or active offloading. These patients had bilateral inactive Charcot feet and subsequently developed bilateral Charcot knees at intervals of three months, six months and fifteen years.

Initial plain radiographs were normal in most cases, with occasional findings of linear sclerosis (1) or joint space narrowing (1). In contrast, MRI demonstrated bone marrow oedema in all knees, fractures in eight, joint effusion in six and ligament injury in three. Management included total contact casting with knee bracing in all cases, with additional wheelchair or crutches support where indicated. One individual required knee joint replacement due to progressive joint destruction.

Conclusion:

Charcot knee can occur in people with existing/active or previous/inactive Charcot foot disease, even without trauma or abnormal initial radiographs. New-onset knee swelling and pain in this population should prompt urgent MRI assessment. Early diagnosis and appropriate offloading may limit progression, preserve joint integrity and reduce the need for surgery.

Factors Associated With Poor Response to Electroacupuncture in Painful Diabetic Peripheral Neuropathy and Development of a Risk Prediction Model

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Background PDPN was one of the most common chronic complications of T2DM, and electroacupuncture therapy was reported to be effective in alleviating neuropathic pain.

Objective This study aimed to identify factors associated with a poor response to electroacupuncture in patients with PDPN and to develop a prediction model. Methods PDPN who received electroacupuncture at Chongqing Nan'an District Hospital of Traditional Chinese Medicine between January 2023 and June 2025 were retrospectively identified (n=106). Patients with a poor treatment response were assigned to the study group (n=40), whereas those with a favorable response were assigned to the control group (n=66). Results The mean age (57.5±9.3 years vs 59.8±9.0 years) did not differ significantly between the two groups (P>0.05). The baseline NRS pain score (7.2±1.1 vs 6.4±1.1), MNSI score (8.1±1.8 vs 7.2±2.1), and the proportion of patients with good treatment compliance [30.0% (12/40) vs 59.1% (39/66)] were significantly different between the study and control groups (P<0.05). Multivariate logistic regression analysis showed that a higher baseline NRS score [aOR=2.70 (95%CI, 1.50–4.86), P=0.01] and MNSI score [aOR=1.35 (95%CI, 1.04–1.75), P=0.02] were independent risk factors for poor efficacy of electroacupuncture in treating PDPN, while good treatment compliance [aOR=0.25 (95%CI, 0.08–0.76), P=0.02] was an independent protective factor. The combined prediction model showed good performance [AUC=0.83 (95%CI, 0.74–0.91)].

Conclusion Higher baseline pain severity and more severe neuropathy were closely associated with poor efficacy of electroacupuncture treatment for PDPN, while good treatment compliance significantly reduced the likelihood of poor treatment outcomes.

【Keywords】 PDPN, Electroacupuncture

GAPS BETWEEN GUIDELINES AND CLINICAL PRACTICE IN DIABETIC FOOT ULCERS (DFU) ACROSS EUROPE: A SURVEY FROM THE EWMA DIABETIC FOOT COMMITTEE

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Background – Although international guidelines for diabetic foot ulcer (DFU) management (IWGDF) are well established, their application in routine clinical practice across Europe remains inconsistent and not well characterized.

Aim – To evaluate current clinical practices in the implementation of the standard of care (SoC) for DFU management across Europe, focusing on offloading, debridement, advanced therapies, and barriers to guideline implementation.

Methods – A 39-item online survey developed by the EWMA Diabetic Foot Committee was distributed among healthcare professionals involved in DFU care across Europe. The questionnaire explored offloading strategies, wound care practices, advanced therapies, and vascular assessment. Responses were analyzed descriptively.

Results – A total of 89 responses were received, with 54 complete datasets analyzed. Removable knee-high offloading devices were the most frequently used (75%), followed by removable ankle-high devices (71.15%), post-surgical shoes (71.15%), and felted padding (69.23%). Total contact casts were used in 67.31% of cases, and non-removable knee-high devices in 63.46%. Regarding vascular assessment, the ankle-brachial index (ABI) was used in 22.64% of cases, Doppler waveform analysis in 20.75%, and transcutaneous oxygen pressure (TcPO₂) in 18.87%. Sharp debridement was the most commonly used technique (52.94%), followed by surgical debridement (33.33%). Antimicrobial dressings were routinely used by 79.63% of respondents. Among advanced therapies, negative pressure wound therapy (NPWT) was widely adopted (75.47%), whereas sucrose octasulfate dressings were used by 45.28%. In contrast, topical oxygen therapy (13.46%), autologous biological patches (16.98%), and placental-derived products (20.75%) showed limited uptake.

Conclusions – Significant variability exists in the implementation of SoC for DFUs across Europe, with a clear gap between guideline recommendations and real-world practice, particularly in offloading strategies and the adoption of advanced therapies. These findings highlight the need for improved implementation strategies to enhance adherence to evidence-based care.

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To Walk or Not to Walk Again after Major Limb Amputation: A Review of the Successful Progression to a Functional Prosthetic Limb Use

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Background and Aim:

Outcomes after major amputation are well reported in terms of mortality and financial cost. Despite availability of good Standard of Care, some diabetic foot complications progress to major amputation. The aim was to review patient outcomes after major amputation and evaluate progression to successful prosthetic limb use.

Method:

A retrospective cohort analysis of consecutive patients who underwent major amputation from 2023- 2025 included data extracted from electronic records of theatre procedures. Patients with diabetes and living within our local catchment area was analysed for baseline demographics and review of clinical notes for, amputee rehabilitation assessment, rehabilitation plan and progression post-op. Amputee rehabilitation assessment includes use of SIGAM classification grade for anticipated prosthetic use from grade A (Non-functional use of a prosthesis) to grade F (Normal or near normal independent ambulation) based on their walking ability.

Results:

A total of 34 patients, mean age of 65years (range 29–87years), 74% males, 79% with type-2-diabetes. Eight patients (24%) had Above Knee Amputation, 76% had Below Knee Amputation, and 82% were seen by Amputee Rehab Team before their amputation. 62%(18/29) were SIGAM grade A. Overall, 13(38%) had their specialist rehabilitation as an in-patient within the ARU, 11(32%) within community setting and 5(15%) at the out-patient prosthetic centre. Only 53%(18/34), met the assessment criteria for prosthetics. Of these 2 died within 12 months, 4 had moved out of area, only 10 were using a prosthetic limb. Thus, 55% who met criteria and 33%(10/30) of the cohort (excluding 4 who moved out of local area).

Conclusion:

The successful progression of diabetic foot patients into prosthetic limb use is low. It's important to maintain good core body strength whilst managing patients with diabetic foot complications; to improve the possibility of successful prosthetic limb use should they end up with a major amputation.

PREVALENCE AND RISK STRATIFICATION OF DIABETIC FOOT RELATED DISEASE A CROSS-SECTIONAL STUDY IN GATUNDU AND MBAGATHI REFERRAL HOSPITALS IN KENYA USING IWGDF 2023 GUIDELINES

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Background: Diabetes foot related disease remains the leading cause of foot ulcerations that results to preventable amputation in sub-Saharan Africa, yet data comparing risk profiles across diverse demographic settings is scarce. While the International Working Group on the Diabetic Foot (IWGDF) 2023 guidelines provide a global standard for risk stratification in low-resource settings like Kenya is under-documented. This study analyses the risk profiles of patients with diabetes in urban and rural Kenya.

Methods: Data was collected between July and December 2025 with ethical approval KEMRI/SERU/CPHR/88-10-2024/506/NACOSTI licence 932854, involving a sample of 363 adults consenting to participate in the study. History of foot ulceration/amputation, assessment of peripheral neuropathy (10 g monofilament and 128 Hz tuning fork), peripheral artery disease (palpation of pedal and dorsalis) pulses and presence of end stage renal disease with eGFR ≤ 15 mL/min/1.732 were recorded. Patients were stratified using the IWGDF 2023 Risk Stratification: Risk 0 (Very Low), Risk 1 (Low), Risk 2 (Moderate), and Risk 3 (High).

Results: Out of the 363 sampled patients, 119 (32.8%) men and 244 (67.2%) women, mean age from the 2 facilities was 61(14.8% and 55 (10.8%) years with a significant of ($p = <0.001$) between the two facilities. 225 (62%, 95% CI: 56.9% - 66.8%) had very low risk (risk 0), 93 (25.6%, 95% CI: 21.4% - 30.3%) had low risk (risk 1) while with moderate (risk 2) and high risk (risk 3) accounting to 25 (6.9%, 95% CI: 4.7% – 10%) and 20 (5.5%, 95% CI: 3.6% -8.4%) respectively

The risk indicator drivers were loss of protective sensation (LOPS, 27%, CI:22.4% – 31.2%), foot deformity (3%, CI:1.7% – 5.7%) and peripheral artery disease (PAD, 13%, 10.1% –17.1%), with both age category and gender being statistically significant at ($p = 0.024 = p = 0.009$) respectively.

Conclusion: Majority of patients with diabetes attending the two public hospitals had a risk category 0 with slightly over a quarter had at least 1 risk feature as per 2023 IWGDF guidelines. This calls for implementation of structured and routine foot screening protocols and preventive programs. The study further recommends capacity building to healthcare workers and task-shifting of foot screening to Community Health Workers and piloting telemedicine referrals for high-risk patients to reduce preventable amputations.

Keywords: diabetic foot, risk stratification, IWGDF 2023, Kenya, amputation prevention, diabetes foot related disease.

Randomized Trial of Adjunctive Cold Atmospheric Plasma for Diabetic Foot or Venous Leg Ulcers. (COSMAS)

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Introduction: Chronic wounds such as diabetic foot ulcers (DFUs) and venous leg ulcers (VLUs) represent a major clinical and economic burden due to delayed healing, high recurrence rates, and prolonged treatment. Despite adherence to standard wound care (SWC), many patients do not achieve timely wound closure.

Methods: Cold atmospheric plasma (CAP) is an emerging, CE-certified technology with antimicrobial and tissue-stimulating properties. Preclinical studies have shown CAP to reduce bacterial biofilm and increase pro-healing growth factors such as Vascular Endothelial Growth Factors. Early clinical trials suggest that CAP may accelerate healing, but data from larger studies remain limited. We aim to conduct a pragmatic study on the clinical effect of CAP for DFU and VLU patients. The protocol was based by previous studies and optimized for patient relevance with a longer follow up and real-world inclusion criteria.

Results: We are conducting a multicentre, open-label, randomized controlled trial to evaluate the clinical and cost-effectiveness of CAP as an adjunct to SWC. Around 500 adult patients with slow or non-healing DFU or VLU will be enrolled and randomized 1:1 to receive either SWC alone or SWC plus CAP, stratified by wound type and study site. The intervention group receives CAP therapy twice weekly via homecare professionals, in addition to SWC, for up to 12 weeks or until complete wound closure. The follow-up period is 180 days. The primary endpoint is ulcer-free survival days. Secondary outcomes include time to wound healing, recurrence, pain, infection, quality of life, adverse events, and cost-effectiveness. The recruitment phase is from November-2025 until October-2027.

Conclusion: We aim to provide high-quality evidence on the clinical benefits and economic value of CAP therapy in DFUs and VLUs. If effective, CAP could represent an innovative addition to standard wound care that enhances healing and reduces healthcare, social and economic burden.

Cultural adaptation of digital health interventions for improving foot health literacy and self-management in adults with diabetes: a rapid scoping review

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Introduction: Digital health interventions are scalable and cost-effective solutions for improving foot health literacy and self-management in adults with diabetes. The acceptance and adoption of these interventions is influenced by cultural factors and community norms, and their implementation requires deliberate strategies to ensure relevance and acceptability. The aim of this rapid review was to map cultural adaptation of digital interventions seeking to improve foot health literacy and / or self-care behaviours in adults with diabetes.

Methods: A systematic literature search was conducted in MEDLINE and CINAHL in July 2025. The search was limited to studies published in English from 2015 onwards. Grey literature was not searched. Study selection was conducted independently by two reviewers at both title/abstract screening and full-text review, and conflicts were resolved through discussion. Cultural adaptation was mapped against pre-determined taxonomy adapted from Spanhel et al. (2021).

Results: From 1169 records screened, 13 studies and six literature syntheses were identified. Of the original research studies, seven focused on foot care in people with diabetes and six reported on diabetes management (inclusive of foot care). Language adaptations were the most common and included translation (12/13; 92%) and language tailoring (6/13; 46%). Intervention goals were reported (5/13 studies; 38%) but intervention concepts and methods were missing in all studies (0/15). Involvement of the target group and professionals was reported in 10 of 13 (77% of studies). No study reported a cultural framework.

Discussion: Culturally adapted interventions are important for improving foot health outcomes and supporting long term behaviour change in adults with diabetes. Surface level adaptations were the most common in the literature, but cultural and population level adaptations were sparsely reported. We recommend the development of a foot care oriented cultural adaptation framework to inform the inclusive design of future digital foot health interventions.

Dexcom Continuous Glucose Monitoring in Diabetic Foot Disease: A Real-World Observational Study

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BACKGROUND

Diabetic foot disease (DFD) carries a high risk of amputation and mortality, driven partly by suboptimal glycaemic control. Continuous glucose monitoring (CGM) provides real-time glucose data that may support improved management. We present a real-world evaluation of Dexcom CGM in patients with active DFD attending a specialist NHS diabetic foot clinic.

METHODS

An observational study was conducted at a single tertiary diabetic foot clinic. Patients with active DFD were offered Dexcom CGM and followed for up to six months. Outcomes included Time in Range (TIR), HbA1c, LDL cholesterol, hospital admissions, antibiotic courses, and foot ulcer healing status.

RESULTS

Forty patients were enrolled (mean age 64.8 years; 80% male; 97% T2DM; 91% insulin-treated). Only 35% maintained active CGM engagement; 32.5% discontinued and 30% never uploaded data. Mean HbA1c improved from 9.5% to 7.9% at three months, and mean TIR rose from 48.7% to 58.2%, though both remained below recommended targets (HbA1c $\leq 7.5\%$; TIR $\geq 70\%$). LDL cholesterol showed no significant change (2.06 $\rightarrow$ 1.93 mmol/L), remaining above NICE high-risk targets. Hospital admissions fell by 55% during the study (29 $\rightarrow$ 13 episodes). Antibiotic use was unchanged (43 $\rightarrow$ 53 courses), reflecting ongoing infective burden. Foot ulcer outcomes were favourable: 70% of patients healed or were actively improving at last review, with 10 patients fully discharged from the foot clinic.

CONCLUSIONS

CGM use in diabetic foot disease is feasible and associated with meaningful improvements in glycaemic metrics and a substantial reduction in hospital admissions. Foot ulcer healing rates were encouraging. However, patient attrition was high, and lipid management remains suboptimal in this complex population. Prospective controlled studies are needed to isolate the effect of CGM from intensive multidisciplinary follow-up.

Acknowledgment: this study is funded by Dexcom

Mechanisms of bone regeneration: The influence of PADI4 gene polymorphisms on the activity of Charcot osteoarthropathy

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Wound/fracture healing are significantly influenced by changes in the immune system. PADI4 regulates histone citrullination and promotes chromatin decondensation in neutrophils, as well as the subsequent formation of neutrophil extracellular traps (NETs). NETs consist primarily of DNA, histones, and antimicrobial peptides. In patients with DFU, a positive correlation has been demonstrated between circulating NET components in the blood and the clinical presentation. Neutrophils from diabetic patients exhibit elevated PADI4 levels and are therefore more susceptible to NETosis. It has been shown that the minor haplotype of the PADI4 gene (SNPs: 163A>G, 245C>T, 335C>G) influences the activity of the PADI4 enzyme.

Aim of this study was to investigate whether the minor variant of the PADI4-haplotype is associated with a more unfavorable clinical course of active DNOAP.

Methodology

44 diabetic patients and acute DNOAP were enrolled (Ethics-Committee 843-2020BO2). The activity of DNOAP was assessed clinically and by MRI (at enrollment and 4 months later). After four months, disease activity, extent of foot deformity, wound situation were evaluated. DNA-material was collected via buccal swabs. PADI4-polymorphisms were detected using the ARMS-PCR test. Distribution of haplotypes was compared with that of the general population; subsequently, a possible correlation between the healing process of acute DNOAP and the various PADI4-polymorphisms was analyzed.

Results

Percentage of minor homozygotes was 9.1%. An increased prevalence of the minor variant was not found. Majority of patients showed a decrease in DNOAP activity regardless of the PADI4-haplotype. With regard to foot deformity, wound healing disorders, and overall outcomes, patients homozygous for the major variant of the PADI4-haplotype tended to show higher rates of improvement (all without statistical significance).

Conclusion

This study provides evidence of a possible influence of the PADI4-polymorphism on the clinical outcome of DNOAP. However, studies involving a larger number of patients are needed to draw definitive conclusions.

Adherence to therapeutic footwear and its impact on the recurrence of diabetic foot ulcers

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Introduction: The aim of this study was to analyze the adherence to therapeutic footwear in diabetic patients with a previous diabetic foot ulcer (DFU) followed in a "diabetic foot risk" service.

In addition, the impact of therapeutic adherence in reducing the risk of ulcer recurrence was evaluated.

Methods: The study is a monocentric retrospective study including outpatients with a history of DFU and currently in secondary prevention. Enrolled patients were monitored every 1-3 months and managed in the respect of international guidelines. To assess the therapeutic adherence, patients

underwent a pre-set questionnaire based on the Likert scale 1 that analyzes the patients adherence through the daily use time of footwear. Extrapolated data were divided into 4 grades of adherence: excellent, good, partial and poor. The correlation between adherence and ulcer recurrence at 1 year of follow-up was also reported.

Results: Overall, 106 patients were included. The mean age was 71.5±9.6 years, the majority were male (64.5%), 91.5% were affected by type 2 diabete, 82.1% had peripheral neuroapthy and 42.4% vascular disease; 54.7% of patients reported excellent adherence, 33% good adherence, 12.2% partial/poor adherence. Fifteen (14.1%) patients reported ulcer recurrence at 1-year of follow-up. The rate of recurrence was 5.2% in patients with excellent adherence, 11.4 % in those with good adherence, and 61.5% in those with partial/poor adherence (X2-ANOVA,p=0.0001 excellent vs partial/poor adherence).

Conclusions: The study showed an excellent-good adherence to therapeutic footwear (nearly to 90%) in patients closely followed in a diabetic foot risk service. The risk of ulcer recurrence was significantly higher in those with poor adherence. Reinforcing the adherence to therapeutic footwear could further reduce the risk of ulcer recurrence.

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INFLUENCE OF WOUND DRESSING COMPOSITION ON PH AT THE DRESSING–WOUND BED INTERFACE

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Introduction

Desloughing dressings for chronic wounds use nonwoven fabrics composed of fibers such as carboxymethylcellulose (CMC), alginate, ammonium polyacrylate, polyvinyl alcohol, or cellulose ethylsulfonate. Electrostatic interactions can occur with exudates, mainly between anionic fiber charges of wound dressings (most often carboxylates) and cationic protein charges of exudates (e.g., fibrin). Depending on the isoelectric point of the proteins, cationic charges will be in greater quantity at low pH. However, since the pH of chronic wounds is between 7 and 9, it will be beneficial to locally reduce the pH of the exudate in contact with the non-woven fabric to ensure that more cationic charges can interact with the anionic charges of the non-woven fabric.

Methods

Dressings were immersed for 30–60 s in buffer solutions (pH 7 and 9), drained, and surface pH measured using a Cutometer with a pH probe over 20 s (average value recorded).

Results

Commercial dressings based on CMC, alginate, and ammonium polyacrylate were tested. All induced a pH decrease at the interface of the dressing and the medium, with the most significant shift observed for ammonium polyacrylate fibers compared to alginate or CMC. It was shown that the nature of wound dressing fibers affects the pH values measured.

Conclusions

This reliable and repeatable method enables to examine the relationship between the nature of wound dressing fibers and the pH at the interface of the dressing and the wound bed. This improves our understanding of desloughing mechanisms in chronic wound management, ultimately leading to more effective clinical wound care.

Well-being in Persons at Risk of Diabetic Foot Ulcers

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Background: Maintaining well-being in persons at risk for diabetic foot ulcers is a recognized and frequently neglected challenge.

Aim: This study aimed to assess the psychological well-being in a cohort of persons at risk of developing diabetic foot ulcers.

Method: A randomized controlled trial was conducted at our center's foot clinic from May 2024 to September 2025. The study included persons at risk of plantar foot ulcer and compared standard care vs. an intervention using Novel® peak plantar measurement system. All persons were asked to reply to the WHO-5 well-being questionnaire at the time of inclusion.

Results: Overall, 300 persons with diabetes were included. 118 (39%) persons had T1 diabetes; mean duration 24 years $\pm$ 15; 235 (78%) were men, mean age was 66 years $\pm$ 10 and 127 (42%) were still in employment. All had neuropathy (vibration threshold $>$ 25 mV), 46 (15%) experienced painful neuropathy and 267 (89%) had palpable foot pulses.

A total of 300 (100%) persons replied to the WHO-5 questionnaire, 35 (12%) persons with a score under the 50-points well-being threshold.

Conclusion: Despite the risk of diabetic foot ulcers, the majority of the study population reported high levels of psychological well-being, as measured by the WHO-5. Persons with a lower score should be referred to relevant health care providers.

Perception of psychosocial and contextual challenges influencing engagement in diabetic foot care: A qualitative study of podiatrists' perspectives

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Introduction

Diabetic foot disease management requires consistent patient engagement in foot care. However, psychosocial and contextual challenges can influence people's ability to engage. Podiatrists encounter these challenges in clinical practice, yet their perspectives remain underrepresented in the literature. This study aimed to explore how podiatrists perceive the psychosocial and contextual challenges faced by patients at medium to high risk of diabetic foot ulceration in relation to foot care.

Methods

This qualitative study followed an interpretive description approach. Fifteen semi-structured individual interviews were conducted with certified podiatrists working with people at medium to high risk of diabetic foot ulceration from four countries across Europe. Data were analyzed using thematic analysis.

Results

Podiatrists described psychosocial challenges as multifaceted and interrelated. Five main themes were identified, reflecting a gradient from intrapersonal determinants to broader contextual conditions contributing to engagement. First, emotional and psychological responses, particularly fear, denial, and distress, were perceived as drivers of both engagement and avoidance behaviors. Second, gaps in knowledge, health literacy, and communication were identified as barriers, with misunderstandings and information overload limiting self-foot care. Third, variations in self-efficacy emerged, with some patients actively engaging in care while others deferred responsibility to the podiatrist. Fourth, socioeconomic contexts, including social support and competing life priorities, were perceived to shape patients' capacity to engage. Fifth, podiatrists noted an unequal capacity to engage in foot care, with factors such as age, comorbidities, cognitive limitations, and physical constraints restricting patients' ability to follow care recommendations.

Conclusion

Podiatrists perceive psychosocial challenges in diabetic foot care as complex and embedded within patients' psychological, emotional, and socioeconomic contexts. These findings highlight the need for tailored, patient-centered approaches that address not only knowledge deficits but also psychosocial and contextual barriers to engagement.

Association between Glycated Hemoglobin/High-Density Lipoprotein Cholesterol Ratio and Cognitive Impairment in Elderly Heart Failure Patients

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Objective: With the population aging, the prevalence of heart failure (HF) in elderly patients was increasing. Cognitive impairment, a common complication of elderly HF patients, severely affects quality of life, treatment adherence, and prognosis. Glycated hemoglobin (HbA1c) and high-density lipoprotein cholesterol (HDL-C) are closely associated with vascular cognitive impairment. The HbA1c/HDL-C as a composite indicator integrating metabolic and lipid disorders, can more comprehensively reflect systemic metabolic imbalance. However, the relationship between HbA1c/HDL-C and cognitive impairment in elderly HF patients remains scarce. This study aimed to investigate the association between HbA1c/HDL-C and cognitive impairment in elderly HF patients.

Methods: This retrospective cohort study enrolled 210 elderly HF patients admitted between January 1, 2023, and June 30, 2023. HbA1c and HDL-C were collected, and patients were stratified into three groups (T1, T2, T3) according to tertiles of HbA1c/HDL-C. Follow-up was completed by December 20, 2025. The endpoint was cognitive impairment, which was assessed using the Montreal Cognitive Assessment scale.

Results: During a median follow-up of 27.3 months, the incidence of cognitive impairment was significantly higher in the T3 group compared with the T1 and T2 groups ($P < 0.05$). The area under the receiver operating characteristic curve of the HbA1c/HDL-C for cognitive impairment was 0.608 (95%CI: 0.531–0.719). Multivariable Cox regression showed that each 1-standard deviation increase in HbA1c/HDL-C was associated with a 123.8% higher risk of cognitive impairment (HR=2.238; 95%CI:1.547–3.467). When using the T1 group as the reference, the HR for cognitive impairment in the T3 group was 3.985 (95% CI:1.944–6.253).

Conclusion: Elevated HbA1c/HDL-C was independently associated with a higher risk of cognitive impairment in elderly HF patients.

Keywords: HbA1c/HDL-C; cognitive impairment; elderly; heart failure; predictor

Early Experience Delivering In-hospital Topical Wound Oxygen Therapy in Complex Diabetic Foot part of a multimodal limb-salvage algorithm

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Effective limb salvage hinges on sustained, high-quality management of accompanying hard-to-heal complex diabetic foot wounds, which often determines whether even the most advanced limb-salvage efforts succeed. Topical Wound Oxygen (TWO2) therapy is recognised by NICE as an evidence-based adjunct for selected lower-limb wounds. This evaluation presents outcomes treated with TWO2 therapy in-hospital (n=5) as part of the limb-salvage algorithm. TWO2 was delivered twice daily, for 90 minutes each.

A Charcot foot and ankle patient at high risk of delayed healing was treated in two distinct stages (first and second) as part of the reconstruction process. Both stages resulted in complete wound closure; however, the addition of TWO2 in the second stage led to a faster clinical improvement, with healing achieved in 21 days compared with 30 days using standard of care alone, representing an apparent 30% relative reduction in healing time. Additionally, outcomes from four complex inpatients treated with TWO2 were reviewed. Total healing times ranged from 21 to 90 days, reflecting heterogeneity in comorbidity and wound complexity. Three patients achieved full healing. The most medically complex inpatient required an additional limb salvage approach and was subsequently transferred for ongoing community care. Importantly, no adverse events were noted, and hospital staff and patients easily adapted to the regimen.

In our cohort, the application of adjuvant TWO2 therapy demonstrated valuable benefit across diverse diabetic foot wound phenotypes, when combined as part of a limb salvage algorithm, including post-debridement open wounds, and long orthopaedic post-reconstruction sutured wound areas. These findings, along with the safety and relative ease of use, support its integration into multidisciplinary limb preservation pathways within specialist services.

The role of nitric oxide in diabetic foot ulcer healing: A review

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Aim: Up to 30% of diabetic foot ulcers (DFUs) remain unhealed after 24 weeks, with 50% becoming infected and 25% resulting in amputation.^{1,2} These statistics underscore the urgent need for advanced and effective wound care strategies. This review aimed to analyze the potential effects of nitric oxide (NO) on improving healing outcomes in DFUs.

Methods: A narrative review was conducted using the PubMed electronic database up to March 2026. Search terms included combinations of “nitric oxide,” “diabetic foot ulcer,” and “wound healing,” with Boolean operators (AND/OR) used to refine the search. Studies included involved original preclinical research in diabetic animal models and in vitro cell models, as well as clinical studies involving patients with DFUs.

Results: Preclinical studies consistently demonstrate that NO supports DFU healing by exhibiting antimicrobial and antibiofilm activity, thereby limiting wound bioburden and reducing oxidative stress during the inflammatory phase. Followed by the promotion of fibroblast, keratinocyte, and endothelial cell activity during the proliferative phase, and supporting organized matrix remodeling and sustained wound closure during the maturation phase.

Independently, clinical studies using a novel NO-generating dressing reported superior healing outcomes compared to standard care dressings, including greater wound area reduction and higher rates of complete healing at 12 weeks.

Conclusion: The critical role of NO in DFU healing has stimulated significant research interest in NO-based therapies. NO is a promising antimicrobial agent that is emerging as a novel and effective option for DFUs, particularly in those infection-prone contexts.

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PERFORMANCE OF DRESSINGS WITH CHARGED POLYABSORBENT FIBERS IN THE CONTINUOUS DEBRIDEMENT OF 90 PATIENTS WITH DIABETIC FOOT ULCERS – A MULTICENTER, PROSPECTIVE, REAL-LIFE STUDY

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Aim: To evaluate the performance of dressings with charged polyabsorbent fibers in the local treatment of exuding cutaneous wounds, under real-life conditions.

Methods: A prospective observational clinical study was conducted in Germany (May 2025 - February 2026). Wounds were treated with the dressings for a maximum of three follow-up visits or eight weeks. Main endpoints included changes in wound healing progression and wound's characteristics, acceptability and tolerance of the dressings. The results will focus on diabetic foot ulcers (DFUs).

Results: Among the 782 patients included in this study, 90 patients (aged 35-99 years, 79% male) had a DFU treated with the evaluated dressings for a mean period of 44 ± 24 days. At the initial visit, 91% of wounds showed slough or necrotic tissue on their wound bed, 62% were at the debridement stage (<50% granulation tissue), 68% were at risk of local infection and 18% were infected. Dressings were changed on average 2.7 times a week, mechanical debridement was performed 1.6 times a week, and surgical debridement 1.7 times a month. At the final visit, 26% of DFUs healed, 51% improved, 9% remained unchanged or worsened (14% missing). The dressings were found to be effective in removing sloughy tissue, enabling 73% of wounds that were initially at debridement stage to show $\geq 70\%$ granulation tissue after a median treatment of 29 days. The dressings were very well tolerated and accepted by most patients (90% and 88%, respectively) and judged extremely useful by most physicians (74%).

Conclusions: These results are consistent with previous clinical evidence on these dressings with charged polyabsorbent fibres and reinforce their good efficacy in continuous debridement and promotion of healing of cutaneous wounds. Their good tolerability and acceptability support their use in the management of patients with DFU.

Use of Fish Skin Grafts in the Management of Diabetic Foot Ulcers: A Case Series.

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Aims: Intact fish skin grafts are acellular dermal matrices derived from decellularized North Atlantic cod skin, preserving a natural three-dimensional structure that supports cellular migration and tissue regeneration. This study aimed to evaluate the clinical effectiveness of intact fish skin grafts (Kerecis®) applied after surgical or ultrasonic debridement in diabetes-related foot ulcers (DFUs).

Method:

We performed a prospective pilot study including five adults (N=5) with a DFU treated at a Diabetic Foot Unit between January and March 2026. All ulcers underwent ultrasonic debridement to prepare a viable wound bed before graft placement. The graft was rehydrated, cut to fit the ulcer, sutured to the wound edges, and covered with a non-adherent dressing. Standard DFU care (offloading, dressings, metabolic and vascular control) continued throughout follow-up. Patients were reviewed weekly for 12 weeks or until complete healing, with the option of a second application at week 4. The primary outcome was complete healing at 12 weeks; secondary outcomes included time to healing and adverse events.

Results/Discussion:

Five patients (80% male; median age 70 [IQR 65–71] years) were included. All had type 2 diabetes, and the median ulcer duration was 39 [IQR 24–51] weeks. Ulcers were neuroischemic, with a median ABI of 0.96 [0.57–1.12] and TcPO₂ of 40.5 [34–52] mmHg. Three ulcers were located in the heel and two in the midfoot. Two patients healed before 12 weeks. Complete healing occurred in 4/5 cases (80%). One patient died due to oncologic process during the follow up. Median time to healing was 14 weeks [IQR 11.5–21.5]. No graft-related adverse events were observed. One patient required a second application at week 4.

Conclusion: Intact fish skin grafts appear to be a safe and potentially effective option for neuroischemic DFUs following ultrasonic debridement, supporting their use as an advanced therapy in hard-to-heal ulcers.

Post-operative neutrophil-to-lymphocyte ratio predicts healing in surgically treated diabetic foot ulcers

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Background and Aims – Neutrophil-to-Lymphocyte ratio (NLR) is associated with delayed healing of chronic wounds. Emerging theories are investigating whether peri-procedural rise may instead promote healing. Aim of our study was to evaluate the correlations of NLR with healing in diabetic foot ulcer (DFU).

Materials and Methods - We retrospectively analyzed data of all DFU patients admitted to our department in 2024 for foot surgery. We collected data regarding demographic, clinical characteristics, procedures and outcomes. We divided patients into two groups according to complete healing within 6 months (group A) or not (group B). We compared groups for clinical and demographic characteristics, focusing on post procedural-NLR (ppNLR) both as absolute value and according to literature cutoff (3.5).

Results - Data were obtained from 201 patients: 68.0% in Group A [mean age 67.9±9.9 years; DM2 92.7%; Hba1c 62.2±20.8 mmol/mol] and 32.0% in Group B [mean age 64.9±10.7 years; DM2 94.6%; Hba1c 67.3±31.9 mmol/mol]. No statistical differences in these parameters. Group B had a higher prevalence of ischemic cardiopathy ($p<0.05$), and retinopathy ($p<0.05$). ppNLR was higher in Group A vs B (7.9 ± 1.5 vs 3.3 ± 0.8 , $p=0.010$) and 53.7% of Group A has a ppNLR above the cutoff vs 30.8% of B ($p=0.020$). In Cox logistic multivariate regression, healing was positively correlated to Age (HR 1.484, $p=0.043$) and ppNLR (HR 1.743, $p=0.004$) and negatively to diabetic retinopathy (HR 0.574, $p=0.013$). Survival Kaplan Meier analysis showed an association between ppNLR and healing (log rank 0.017). Healing time [78 ± 12 days in Group A and 284 ± 30 in B ($p<0.05$)] correlated to ppNLR values both in logistic regression (HR 2.605, $p=0.020$) and in Spearman correlation (Rho -0.209, $p=0.022$).

Conclusions – Our data suggest a positive prognostic role of ppNLR in predicting wound healing, most likely correlated to the positive impact of surgical procedures in healing chances of DFU.

Clinical evolution of diabetic foot ulcers with continuous transdermal oxygen therapy: a case series assessed by hyperspectral imaging.

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Aim: To evaluate the clinical evolution and wound area reduction of diabetic foot ulcers (DFUs) treated with continuous transdermal oxygen therapy (TTOT) using hyperspectral imaging to assess changes in tissue oxygenation and perfusion over a 12-week follow-up.

Methods: A prospective case series including four patients with neuroischemic DFUs was conducted. The cohort comprised two males and two females, with ulcer locations including two posterior heel ulcers, one post-amputation site (3rd–5th toes), and one lateral foot ulcer. All ulcers were classified as grade 2D according to the Texas classification. Median age was 72 years (IQR 6.25), with a median diabetes duration of 17.5 years (IQR 19.25) and median ulcer duration of 12.5 weeks (IQR 4.3). All patients presented absent pedal pulses, with a median ankle-brachial index (ABI) of 0.53 (IQR 0.32) and toe-brachial index (TBI) of 0.30 (IQR 0.18).

All patients received standard care combined with continuous TTOT (NatroX™). Weekly assessments over 12 weeks included wound area, Wollina score, and granulation tissue percentage. Hyperspectral imaging (TI-CAM, Diaspective Vision GmbH, Germany) measured tissue oxygen saturation (StO₂, %) and near-infrared perfusion index (NIR, a.u.); baseline-to-week-12 differences (Δ) were calculated. Results/Discussion: All patients completed follow-up and improved clinically. Baseline wound area was 8.51, 7.67, 13.94, and 12.34 cm², with reduction in all cases (Δ : 4.95, 5.26, 4.44, and 9.13 cm²), and increased granulation tissue (Δ : 17%, 87.87%, 85.35%, and 57.55%). Wollina scores improved from 0 to 4, 1 to 7, 1 to 5, and 0 to 6.

StO₂ increased (Δ : 10%, 19%, 2%, and 20%) and NIR improved (Δ : 10, 15, 9, and 6 a.u.), indicating enhanced microcirculation.

Conclusion: TTOT may promote healing in neuroischemic DFUs by improving local oxygenation and perfusion. Hyperspectral imaging is a useful non-invasive tool for monitoring these changes and supporting clinical decision-making.

Er:YAG Laser Therapy for Diabetes-Related Foot Ulcers: A Case Series with Hyperspectral Imaging Assessment

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Aim: To evaluate the clinical and physiological effects of Er:YAG laser therapy as an adjunctive treatment in diabetes-related foot ulcers (DFUs) using hyperspectral imaging (HSI).

Method: A prospective case series including five patients with DFUs was conducted. All patients received weekly Er:YAG laser therapy for 8 weeks in addition to standard of care. Clinical outcomes included wound area, percentage of wound area reduction, and wound bed quality assessed using Wollina wound score. Physiological outcomes were evaluated using HSI-derived parameters, including tissue oxygen saturation (StO₂), oxyhemoglobin (OxyHb), deoxyhemoglobin (DeoxyHb), and total hemoglobin (THb), measured before and after laser treatment during follow-up visits.

Results / Discussion: Wound area showed a progressive reduction during follow-up, with a mean percentage reduction of $33.06 \pm 44.9\%$ at week 8. Wound bed quality improved significantly over time, with Wollina wound score increasing from a median of 5 at baseline to 7 at week 8 ($p=0.024$). HSI analysis demonstrated significant increases in THb (from 1.31 ± 0.42 at baseline to 1.62 ± 0.35 at week 8, $p=0.009$), and OxyHb (from 1.01 ± 0.39 at baseline to 1.24 ± 0.28 at week 8, $p=0.004$), suggesting improved tissue perfusion and oxygen delivery. No statistically significant changes were observed in StO₂ or DeoxyHb.

Conclusion: Er:YAG laser therapy was associated with improved wound bed quality, reduction in wound size, and favorable changes in perfusion-related HSI parameters. These findings support the potential role of Er:YAG laser therapy as an adjunctive treatment in DFUs and highlight the usefulness of HSI as a non-invasive tool for monitoring physiological changes during wound healing.

Melanoma and the diabetic foot

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Malignant melanoma can present in chronic ulcerations and are often misdiagnosed as diabetic foot ulcers (DFU). Early biopsy and diagnosis are key for better outcomes. We highlight two cases of melanoma in patients referred to a diabetic foot clinic over a 6-month period.

Case Reports

1. A 91 year old male, with previous history of DFU, presented with a 2week history of ulceration in the left 4th- 5th interdigital space. He was initially treated with standard wound management. The ulceration healed within 12 weeks, leaving an area of scar tissue. Within 6 weeks the area reulcerated with an atypical presentation: tissue friability, heavy exudate and hypergranulation. A punch biopsy showed a stage 2c malignant melanoma with a Breslow score of 8mm. He was referred to plastic surgery who performed a wide excision of the melanoma including 5th toe amputation. Further investigations showed no evidence of metastatic disease.
2. An 88-year-old patient presented to clinic with an unclear history of subungual ulceration that had been managed at home, likely present 7-8 months. The ulceration was initially treated for a Pseudomonas infection which required admission due to intolerance of oral antibiotics. The ulcer site healed post infection management, but subsequently re-ulcerated. It was suggested that the presence of a nail fragment was the likely cause of recurring infection and poor healing. While awaiting surgical review the podiatry team advocated for biopsy due to the atypical presentation. Biopsy confirmed an in situ invasive melanoma and the patient is awaiting surgical treatment.

Conclusion

These cases highlight the importance of maintaining a high level of suspicion when patients present with atypical wounds, not responding to usual care. Early diagnosis avoids prolonged episodes of inadequate care. A hierarchical or fragmented multidisciplinary team structure may present challenges to timely diagnosis.

Outcomes from a single-dressing strategy using a hydroactive gelling fibre dressing with silver nanoparticles (HGF-Ag) in diabetic foot ulcer care.

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Background:

Dressing selection for diabetic foot ulceration (DFU) is guideline-directed to be largely empirical, with frequent changes based on exudate and wound-bed characteristics, despite limited evidence supporting this adaptive approach. A hydroactive gelling fibre dressing with silver nanoparticles (HGF-Ag) has the potential to be a unified, single-dressing approach across the wound-healing continuum. We assessed whether this simplified approach yields outcomes comparable to those of standard variable dressing regimens.

Methods:

In this retrospective service evaluation, patients with DFU treated solely with HGF-Ag (Liquacel Ag®) throughout the wound episode (n=30) were compared with a control group receiving standard care with guideline-directed dressing adjustments (n=37). All received high-standard multidisciplinary care, including offloading, infection control, and vascular support as indicated. Baseline characteristics, wound bed composition, and healing outcomes were analysed. Primary endpoints were the proportion healed and the time to healing.

Results:

Baseline demographics and glycaemic control were comparable, although the control group had higher rates of peripheral arterial disease and infection. HGF-Ag was associated with a markedly higher proportion of ulcers healed at 6 weeks (40.0% vs 5.4%, $p<0.001$) and a shorter median time to healing among healed ulcers (8 [6–13] vs 12 [12–16] weeks, $p=0.017$). However, by 12 weeks, healing rates were similar (50.0% vs 35.3%, $p=0.312$), with no difference in overall healing during follow-up (70.0% vs 60.0% at 26 weeks, $p=0.445$). Trajectories of granulation percentage and slough reduction were comparable between groups at 12 and 26 weeks.

Conclusions:

A single-dressing strategy using HGF-Ag achieves comparable overall healing outcomes to standard adaptive regimens while significantly accelerating early healing. These findings challenge the paradigm of frequent dressing changes in DFU and support simplifying otherwise complex pathways. Prospective, controlled studies are warranted to confirm these observed clinical benefits and understand cost-effectiveness.

Acellular dermal graft derived from fish skin in the treatment of diabetic foot ulcers: real-world efficacy and impact on healing

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AIM

The objective of the study was to evaluate the clinical outcomes of patients with diabetic foot ulcers (DFUs) treated with acellular dermal graft derived from fish skin in a real-world setting.

METHODS

A single-center, retrospective observational study was conducted on consecutive patients with DFU treated with acellular dermal grafts derived from fish skin at the Diabetic Foot Unit of the IRCCS Multimedica Hospital. Prior to graft application, all patients were treated in accordance with the guidelines of the International Working Group on the Diabetic Foot (IWGDF). The primary endpoints were complete healing at 12 weeks and a reduction in ulcer surface area >50%. Secondary endpoints included major amputations.

RESULTS

Ten patients were included, with a mean age of 70.7 ± 12.4 years, 50% male, all with type 2 diabetes mellitus and diabetes duration of 10.9 ± 2.77 years. The ulcers, located on the forefoot or midfoot, had a mean basal diameter of 4.2 ± 1.1 cm. 60% had infection, 20% had osteomyelitis, and 50% had peripheral artery disease. After 12 weeks, complete healing occurred in 6 patients (60%). The remaining patients achieved a reduction in ulcer surface area >50%, resulting in an overall clinical improvement rate of 100%. No major amputations were recorded during follow-up.

CONCLUSIONS

The use of acellular dermal grafts derived from fish skin is associated with significant improvement in lesions and the absence of major amputations, confirming a potential role as a regenerative strategy in complex DFUs.

Effectiveness of sucrose-octasulfate impregnated dressing as first-line treatment in patients with diabetic foot ulcers

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Background: To evaluate the effectiveness of Technology Lipido-Colloid (TLC) dressing impregnated with sucrose-octasulfate (NOSF compound, Nano-Oligo-Saccharide Factor) as first line treatment in patients with diabetic foot ulcers (DFUs).

Method: The study is a prospective real-world study including consecutive patients affected by non-infected neuropathic/neuro-ischaemic DFUs with ulcer duration < 4 weeks, ulcer surface between 1 and 30 cm², absence of severe limb ischaemia (TcPO₂ > 30 mmHg), without indication to reconstructive surgery (1st intention surgery or reconstruction of tendons, muscles and bone). After the first assessment, all patients have been treated by TLC-NOSF dressings in association to the standard of care according to international guidelines. The primary endpoint was considered the complete healing (100% re-epithelialization) after 20 weeks of treatment. Secondary endpoints were considered the healing time, the rate of wound area regression >50%, the safety of the treatment (local adverse events).

Results: Overall, 60 patients were included. The mean age was 69.4±11.4 yrs, 46 (76.7%) patients were male, the majority had type 2 diabetes 58 (96.7%), 44 (73.3%) had neuro-ischaemic DFUs, the mean ulcer area was 10±5.5 cm² (most of them were post-surgical wounds). After 20 weeks, 41 (68.3%) achieved complete healing, the mean healing time was 14±5 weeks, 45 (75%) had a wound regression >50%, 3 (5%) patient developed local adverse events (2 local infection, 1 skin aspecific inflammation). None of them required hospitalization.

Conclusion: TLC-NOSF dressings showed high rate of healing and wound regression when used as first line treatment in non-infected neuropathic and ischaemic DFUs. In addition, TLC-NOSF reported a good safety profile. Further studies with a control group will be useful for reinforcing these findings.

A New Breath for Chronic Wounds: The Role of an Oxygen-Enriched Oleic Matrix in Diabetic Foot Ulcer Healing

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BACKGROUND:

The aim of this study is to evaluate the clinical efficacy of a dressing impregnated with an oleic matrix-based gel releasing Reactive Oxygen Species (ROS). In the treatment of diabetic foot ulcers (DFUs), by leveraging the anti-inflammatory, and reparative properties of stable ozonides released topically.

MATERIALS AND METHODS:

A retrospective observational study was conducted on patients with diabetic foot ulcers (DFUs) of neuropathic or neuroischemic origin at the Diabetic Foot Unit of the IRCCS Multimedica S.p.A. Hospital, treated with a dressing impregnated with an oleic matrix-based gel releasing ROS between September 2025 and January 2026. The protocol involved applying the dressing during scheduled clinical visits. The endpoints included complete healing, a >50% reduction in ulcer surface area, and healing time.

RESULTS:

20 patients were included, with a mean age of 70.5 ± 11.0 years, 60% of whom were men. All patients had type 2 diabetes, with a mean diabetes duration of 15.6 ± 9.6 years. 60% of patients had neuro-ischaemic ulcers and 40% had neuropathic ulcers. Complete healing was achieved in 12 patients (60%), while a reduction in ulcer surface area >50% was recorded in another 5 patients (25%), bringing the overall clinical improvement rate to 85%. In 3 patients (15%), neither healing nor significant improvement was observed during the study period. The mean time to healing or improvement was 5.1 ± 3.4 weeks.

CONCLUSIONS

The use of dressing impregnated with an oleic matrix-based gel releasing ROS has proven to be an effective therapeutic option in the treatment of diabetic foot ulcers, promoting healing or significant clinical improvement in 85% of cases. Its integration into standard wound care represents a promising strategy for optimizing outcomes and reducing the duration of chronic wound management in diabetic patients.

Patient Perceptions and Satisfaction with a Multidisciplinary Same-Day Diagnostic and Treatment Pathway for Diabetic Foot Ulcers

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Background: Between January 2020 and July 2022, the Steno Diabetes Center Aarhus (SDCA) implemented an expanded diagnostic and treatment pathway at the Diabetic Foot Center. This initiative focused on same-day diagnostics with peripheral toe pressure measurements, blood samples and multidisciplinary evaluation by podiatrists, wound nurses and endocrinologist and weekly joint consultations with vascular surgeons.

Objectives: To evaluate the patient perception and satisfaction of the new clinical setup for the treatment of diabetic foot ulcers.

Methods: A qualitative study was conducted with seven patients (including relatives in three cases) to evaluate their experience of the expanded treatment pathway and same-day diagnostic approach. Interviews were guided by the project's operational manual and clinical observations. A visual tool using pictograms with red, yellow, and green "smileys" was used to let patients rate activities, prioritizing the discussion of "red" and "yellow" areas to identify improvement potentials. Data were analyzed through thematic analysis of transcribed interviews.

Results: Patients generally perceived the expanded pathway positively. Key findings include:

Consultations: Patients reported high levels of professionalism and felt well-informed. The simultaneous presence of multiple professional groups was praised for creating a better "flow" and more efficient communication. The patients were very satisfied with the logistics of the same-day diagnostics and did not mind the extra time at hospital.

Patient-Centered Care: The approach was described as holistic and flexible, with a friendly tone that made patients feel seen and heard as individuals.

Challenges: Practical barriers were identified, specifically regarding parking accessibility and navigating the hospital, as well as occasional communication gaps between the hospital and home care.

Conclusion: The implementation of a multidisciplinary, patient-centered model has been well-received and has improved the patient experience. While clinical and relational outcomes are positive, further optimization of practical logistics and intersectoral communication is recommended to fully enhance the patient journey.

Topical Wound Oxygen Therapy could be an adjunct to management of Ischaemic Diabetic Foot while awaiting definitive vascular intervention: A single centre case series

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Background & Aim: Randomised controlled trials, have demonstrated the benefit of at home Topical Wound Oxygen (TWO2) therapy as an adjunct to Standard of Care (SOC) for diabetic foot ulcers. The aim was to demonstrate the possibility benefit of TWO2 therapy as an adjunct for the management of patients with ischaemic foot ulcers.

Method: This was a retrospective review of 3 cases with acutely ischaemic foot, who underwent TWO2 therapy in addition to SOC while awaiting or undergoing vascular intervention.

Results: Patient 1: 67-year-old male with an infected right forefoot gangrene, an enlarged abdominal aortic aneurysm, ischaemic heart disease with triple vessel disease. Operation on aortic aneurysm cannot be proceeded due to infection risk from the foot and high risk for general anaesthesia for a major surgery. He underwent amputation of 5th toe to control infection, started on TWO2 therapy at 150-min three times a week for 12 weeks and subsequent trans-metatarsal amputation (TMA). Controlled swelling, pain and granulation of forefoot tissues were observed. Patient 2: 62-year-old male with an ischaemic right forefoot, with significant rest pain, recurrent blocked bypass surgery to foot. Improvement in rest pain and forefoot TcpO₂ on initiating TWO2 therapy were observed. It helped to bridge the gap until he had his redo-bypass and toe amputation. Patient 3: 55-year-old male with a pre-existing right above knee amputation and left foot TMA and non-healing forefoot ulcer. Angioplasty to right Superficial Femoral Artery was successful but unsuccessful for Anterior Tibial Artery. He was started on TWO2 therapy with improvement of skin texture and wound progressing to near full closure, after 12 weeks of TWO2 treatment.

Conclusion: There is the scope to use TWO2 treatment as an adjunct to SOC in complex ischaemic diabetic foot, in both pre/post revascularisation or pre-amputation with potential to improve skin quality and swelling.

HEALING SEVERELY INFECTED DIABETIC FOOT ULCER USING AUTOLOGOUS STAMP-SHAPED SKIN MICROGRAFTS. A PROSPECTIVE CASE SERIES.

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Aim:

To evaluate the clinical outcome using autologous stamp-shaped skin micrografts after limb salvage surgery in diabetic foot ulcers (DFU) with moderate/severe infection.

Method:

Fourteen diabetic patients with neuropathic or neuroischemic ulcer and moderate/severe infection, who required a large debridement and drainage, were included from May 2023 to September 2024. Patients were included after surgical drainage for moderate/severe infection of neuropathic or neuroischemic DFU. If necessary, revascularization was performed. Ambulatory autologous stamp-shaped skin micrografts containing epidermis and the papillary dermis and placed on DFU to improve healing was used. In addition to enhance healing time, it improves pain, anti-inflammatory response, and the release of growth factors and cells to promote epithelization. In all cases the anterolateral aspect of the thigh was used as donor site. Wound size, degree of infection, revascularization, mean time for complete wound healing, and possible graft complications were collected.

Results / Discussion:

Thirteen patients (92.9%) were male, with a mean wound size of $24.6 \pm 16 \text{ cm}^2$; nine (64.3%) presented with absent distal pulses, Ankle Brachial Index (ABI) was not compressible in 4 patients and another 3 patients had ABI >1 , and eight (61.5%) underwent surgical (37,5%), endovascular revascularization (37,5%) and deep venous arterialization (25%). On admission, nine patients (64.3%) had a severe infection according to IDSA classification. The most frequent grafting site was the transmetatarsal amputation level (64.3%). Two patients (14%) required repeat grafting due to incomplete adhesion. All patients achieved complete healing, with a mean closure time of 3.0 ± 2.4 months and with enhance pain control in DFU.

Conclusion:

Autologous stamp-shaped skin micrografts have demonstrated to be an ambulatory, effective and safe technique for quickly healing on large ulcers in diabetic foot with a previous moderate/severe infections.

The use of Topical Wound Oxygen Therapy Could be Implemented for Patients with Diabetic Foot Ulceration while on Haemodialysis: A proof-of-concept study

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Background & Aim: Randomised control trials, have demonstrated the benefit of at home Topical Wound Oxygen (TWO2) therapy as an adjunct to Standard of Care (SOC) for diabetic foot ulcers (DFU). Renal patients on dialysis have some of the most challenging DFUs. The aim was to evaluate the possibility of delivering TWO2 therapy for patients with DFUs on haemodialysis as a proof of concept.

Method: This was a retrospective review of a cohort of consecutive DFU patients who were initiated on TWO2 therapy while on haemodialysis. attending a single centre with a range of non-healing DFUs despite having a good standard of care (SOC). Patients were initiated on the TWO2 while on dialysis 2 – 3 times a week. Clinical notes were reviewed retrospectively for patients baseline demographics and wound progress, between March 2025 and March 2026.

Results: Nine wounds assessed in 7 patients, mean age 62±14yrs [range 36 – 80years], 57% females, mean HbA1c of 60±23. With the exception on one patient all patients were wheelchair dependent. All ulcers were severe as per SINBAD classification with a score ≥3. Four participants received treatment twice a week, while the other 3 had treatment three times a week. Four of the participants had all of their treatment concurrently while on the dialysis machine. The remaining 3 who were not dialysing at the main hospital unit, attended 2-3 times a week to the diabetic foot clinic to receive the TWO2 treatment on their non-dialysis days. All ulcers improved upon initiation of the TWO2 therapy.

Conclusion: There is a cohort of frail but complex DFU patients on haemodialysis who could benefit from TWO2 treatment. If there is the scope to deliver TWO2 for DFU concurrently while on haemodialysis two to three times a week, it could deliver improvement in DFU healing.

Nitric Oxide Therapy for distal tissue hypoxia in diabetic foot ulcers with peripheral arterial disease: A five-case series

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Background and Aim

Peripheral arterial disease (PAD) in the diabetic foot compromises distal tissue oxygenation, impairing wound healing and increasing amputations risk. Nitric oxide (NO) deficiency is a recognised contributor to endothelial dysfunction, diminished angiogenesis and chronic wound hypoxia in this population. Exogenous NO delivery has demonstrated vasodilatory, pro-angiogenic and antimicrobial properties in preclinical and early clinical studies. This case series aimed to evaluate the effect of topical NO therapy on wound healing time in diabetic foot ulcers (DFUs) complicated by PAD and distal tissue hypoxia.

Methods

Five consecutive patients with diabetic foot ulcer and confirmed PAD (ABI < 0,7) , absent pulses were treated with topical NO releasing therapy as an adjunct to standard wound care. All patients presented with clinical and transcutaneous oximetry (TcPO₂) < 30 mm Hg evidence of distal tissue hypoxia. Ulcer were classified using the SIMBAD and Wifi systems. Wound area reduction, time to complete healing and adverse events were recorded.

Results

Mean patient age was 69,6 years, with a mean diabetes duration 30 years. Baseline mean ulcer area was 3.1 cm² Following adjunctive topical NO therapy, 5 patients achieved complete wound closure within a mean of 6 weeks, representing a 50% wound area reduction compared with expected healing trajectories under standard care alone. No treatment related adverse event were observed.

Conclusion

Topical NO therapy appears to accelerate wound healing in ischaemic diabetic foot ulcers with distal tissue hypoxia. By addressing NO deficiency at the wound level, this approach may complement existing strategies for managing PAD-related DFUs.

Post-Surgical Diabetic Foot Ulcers: Effectiveness of Injectable Sodium Hyaluronate and Collagen Amino Acids in Clinical Practice.

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Background: Post-surgical diabetic foot ulcers (DFUs) represent a major clinical challenge. These lesions are often characterized by delayed healing and high risk of complications. Innovative wound care strategies may improve outcomes in this condition.

Objective: To evaluate the efficacy and safety of an injectable treatment based on sodium hyaluronate combined with collagen amino acids in the management of post-surgical DFUs.

Methods: The study is a dual-center, retrospective, single-arm study including patients with post-surgical DFUs. All patients have been treated by weekly injection of injectable sodium hyaluronate combined with collagen amino acids, in addition to the standard of care. A secondary neutral dressing has been used. After 12 weeks of follow-up, outcomes assessed included: complete healing, time to healing, $\geq 50\%$ ulcer reduction, granulation tissue formation, infection occurrence, adverse events, and need for re-intervention.

Results: Ten patients were included. The mean age was 74.3 ± 7.6 years; 8 (80%) were male, all patients had type 2 Diabetes with a mean disease duration of 23 ± 4 years. Diabetic neuropathy was present in all cases, while peripheral vascular disease was observed in 8 (80%) patients. The mean ulcer size at baseline was 7.2 ± 2.3 cm². Complete healing was achieved in 4 out of 10 patients (40%), with a mean healing time of 9 ± 1 weeks; 7 (70%) reported a wound regression $>50\%$, granulation tissue formation occurred in 8/10 (80%) of cases. No infections in ulcer site were reported during the follow-up period. Additionally, no adverse events or need for re-intervention were observed.

Conclusions: The combined therapy with injectable sodium hyaluronate and collagen amino acids appears to be a safe and effective option for promoting wound regression in post-surgical DFUs. Further studies with a control group will be useful for reinforcing these preliminary findings.

Association Between Medial Arterial Calcification (MAC) Score in Pedal Arteries and Healing Outcomes in Diabetic Foot Ulcers (DFUs): A Retrospective Study

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Background:

Medial arterial calcification (MAC) in pedal arteries is common in people with type 2 diabetes (T2D), and impairs distal perfusion, contributing to poor wound healing. Understanding its prognostic significance might enhance clinical decision-making in the management of DFUs.

Objective:

To assess relationship between pedal artery MAC score and healing outcomes in T2D with DFUs.

Methods:

In a retrospective study (n=233, 160 males; mean age 57.1±10.3) with T2D with DFUs were included. MAC scores were calculated from the X-ray of the foot (AP and lateral view) and graded as absent (grade 0), mild (grades 1-2) and moderate to severe (grades 3-5). Healing outcomes at 6 months and rates of lower limb amputation (major and minor) were recorded.

Results:

Healing rates at 6 months declined with increasing MAC scores: 86.4% for MAC 0 (95/110), 74.6% for MAC 1–2 (44/59), and 70.3% for MAC 3–5 (45/64) (p=0.027). Amputation rates were 6.4%, 11.9%, and 20.3%, respectively (p=0.021). Binary logistic regression showed that the overall model was statistically significant ($\chi^2=23.909$, p = 0.021) with good calibration (Hosmer–Lemeshow p=0.979). The model explained 10–15% of the variance (Nagelkerke R² =0.152) and correctly classified 78.5% of cases. Two variables emerged as independent predictors of the outcome. Higher MAC values (OR=0.76, p=0.012) and higher duration of ulcer (OR=0.92, p=0.008) were associated with reduced odds of the outcome. Other variables, including age, sex, Wagner grade, peripheral vascular disease, peripheral neuropathy, smoking status, BMI, eGFR, and HbA1c, were not significant contributors in the adjusted model.

Conclusion:

Greater severity of medial arterial calcification correlates with poorer healing outcomes in people with DFU, suggesting that MAC scoring may serve as a valuable prognostic indicator. Routine assessment of pedal arterial calcification could aid in risk stratification and guide management strategies in diabetic foot care.

Keywords:

Diabetic foot ulcer, medial arterial calcification, pedal arteries, wound healing, amputation, prognosis

Prevalence of antibiotic resistance in diabetic foot infections and reassessment of empiric antibiotic therapy protocols

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Background:

Antibiotic (AB) resistance of causative pathogens in diabetic foot infections (DFI) is well known problem that needs constant monitoring.

Methods:

We analyzed 142 consecutive wound cultures in 115 admissions with moderate to severe DFI in tertiary DF center in Mar/2025-Feb/2026. Culture obtaining (deep swab or tissue) and bacteriology studies (with antibiotic sensitivity testing in aerobes) were made according to the hospital protocol. Empiric AB therapy included Amoxicillin/clavulanate (CoAmoxi) in 74%, CoAmoxi+Ciprofloxacin (if AB resistance was clinically suspected) in 24%, others in 12%.

Results:

367 pathogens were revealed, median 2.6 (0-5) per culture. 32% of pathogens were Aerobic Gram-Pos, 44% - Gram-Neg, 23% - Anaerobes, 1% - Fungi. Negative were 2% of cultures. Of all patients 36% had Multidrug-Resistant Organisms (MDRO). Species with basal AmpC production (Pseudomonas, Morganella, Enterobacter etc.) took place in 19% of all cultures. MRSA represented 23% of all Staphylococcus aureus, ESBL – 6% of all Gram-Negatives. Empiric AB therapy was changed/modified upon the culture results in 50% patients (for Co-Amoxi – in 45%, for CoAmoxi+Cipro – in 54%)

Second-line AB (cephalosporines 3rd generation, carbapenems, Pip/Tazo) demonstrated high degree of sensitivity (from 82% in Cefotaxime to 96% in Meropenem, 100% in Linezolid), while Co-Amoxi was effective only against 44% of tested (estimation for all pathogens – 61%), Ciprofloxacin - against 69%.

Susceptibility to Azitromycin was 76%, Levofloxacin – 81%, Trim/Sulfamethoxazole – 77%, Clindamycin (in Staph) - 81%, Vancomycin (in Staph, Strep, Enterococcus) – 99%

Conclusions:

- 1). Gram-Neg bacteria were predominant in our cohort.
- 2). Prevalence of bacteria with acquired or natural multiple resistance to antibiotics in our cohort was quite high.
- 3). Efficacy of Co-Amoxi appeared to be low, that needs renewal of empiric AB protocol.
- 4). Taking into account growing AB-resistance of anaerobes, implementation of susceptibility testing in this group is reasonable.

Could antibiotic bone graft substitutes reduce reulceration rates in patients with diabetic foot osteomyelitis after metatarsal head resection surgery? A case series

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Aim:

To evaluate clinical outcomes and the functional effect of bone graft substitutes in reducing reulceration rates in patients with diabetic foot osteomyelitis undergoing metatarsal head resection (MHR).

Methods:

A prospective case series study was conducted between April 2023 and March 2026, including patients who underwent MHR (curative or emergent indication) for the treatment of diabetic foot osteomyelitis in a specialized diabetic foot unit. Osteomyelitis was diagnosed using a combination of the probe-to-bone test and plain radiography. Patients with critical limb ischemia were excluded. An injectable biocompatible bone graft substitute composed of calcium sulphate and hydroxyapatite loaded with gentamicin was used to fill the bone defect following resection. Patients were followed until complete healing to assess postoperative complications (dehiscence, infection, reintervention, and minor amputation). After healing, patients were followed for period of one year to evaluate reulceration and recurrence.

Results:

A total of 20 patients were included, 16 (80%) male, with a mean age of 69.10 ± 13.59 years. Most patients had type 2 diabetes (84.2%), and peripheral arterial disease was present in 60%. Osteomyelitis was radiologically confirmed in 80% of cases. The most frequent MHR locations were the 5th metatarsal head (35%) and 2nd metatarsal head (20%). Early postoperative complications included wound dehiscence (75%), erythema (25%), inflammation (20%), and cellulitis (10%). All patients achieved complete wound healing (100%), with a median healing time of 7.55 [4–11] weeks. During follow-up, reulceration occurred in 4 patients (20%). The mean time to reulceration was 6.5 months [IQR 7–12], with no cases of osteomyelitis recurrence or major/minor amputation.

Conclusion:

Gentamicin-loaded bone graft substitutes appear to be a promising adjunctive treatment in MHR for diabetic foot osteomyelitis, achieving high healing rates and no infection recurrence. Further studies with larger samples are needed.

Optimising Diabetic Foot Infection Management with Antibiotic-Loaded Calcium Sulfate: Healing, Antibiotic Reduction, and Limb-Salvage Outcomes

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Background and Aims:

Diabetic foot ulcer (DFU) and osteomyelitis (DFO) are major drivers of morbidity and amputation, with infection eradication complicated by polymicrobial biofilms, neuropathy and peripheral arterial disease. Antibiotic-loaded calcium sulfate (ALCS) beads provide high local antibiotic delivery and dead-space management as an adjunct to standard care. The aim was to identify clinical pathways for ALCS use in DFU±DFO and address potential management challenges.

Methods:

A retrospective review of 76 patients with newly registered DFUs (01/07/2024–25/02/2025) was undertaken. Sixty-one received standard care and 15 received adjunctive ALCS, forming the basis for pathway analysis of either curative or palliative intent.

Results:

Pathway 1: Curative intent

Seven patients presented with toe DFO (mean age 64 years; four interphalangeal and three apical ulcers; SINBAD score ≥3). Infection clearance occurred within 22 days. ALCS therapy averaged 44 days, and systemic antibiotic duration was reduced to a mean of 34 days. All seven ulcers healed within 77 days (range 44–122), with 100% amputation avoidance.

Two patients with peripheral arterial disease and toe amputation underwent post-surgical management with ALCS alone and one with ALCS plus a shortened systemic antibiotic course. Both healed within 200 days.

Two patients presented with plantar metatarsal head DFO. One healed within 100 days, while one experienced infection recurrence.

Pathway 2: Palliative intent

Four patients received ALCS as a palliative strategy due to frailty, no-option ischaemia, multiple morbidities and multi-drug resistant gram-negative DFO. ALCS contributed to longer infection-free intervals, reduced systemic toxicity, avoidance of hospital admissions, and improved quality of life.

Conclusion:

Integration of ALCS beads into outpatient diabetic foot pathways supported improved healing, reduced systemic antibiotic exposure and associated antimicrobial-resistance risk, enhanced limb salvage and cost-efficiencies. This approach is particularly valuable for complex patients with multiple morbidities, antibiotic intolerance, multi-drug resistant DFO, non-compliance or no surgical options.

Distribution and Determinants of Infection Severity at First Assessment of Diabetic Foot Ulcers: Real-World Data from a Tertiary Center

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Introduction:

Diabetic foot ulcer (DFU) is a common and serious complication of diabetes, associated with high morbidity and mortality, increased risk of amputation, and reduced quality of life. Infection is a major determinant of poor prognosis and may require differentiated levels of care. The International Working Group on the Diabetic Foot/Infectious Diseases Society of America (IWGDF/IDSA) classification provides a standardized framework to assess infection severity and guide management.

Objectives:

To characterize the distribution of infection severity according to the IWGDF/IDSA classification and to identify factors associated with moderate-to-severe infection.

Methods:

We conducted a retrospective observational study including all patients evaluated at their first diabetic foot clinic visit in a tertiary care hospital during 2022. Demographic, clinical, and biochemical data were collected from electronic medical records. The primary outcome was the distribution of IWGDF/IDSA grades. For secondary analysis, patients were grouped into no/mild infection (grades 1–2) and moderate-to-severe infection (grades 3–4), and clinical variables were compared between groups. Statistical analysis was performed using SPSS® version 29.0, with $p < 0.05$ considered statistically significant.

Results:

Of 499 initially referred patients, 116 (23.2%) were excluded due to inappropriate referral. The final sample included 383 patients: 14.4% (n=55) had unclassifiable lesions; 40.5% (n=155) grade 1; 28.2% (n=108) grade 2; 13.6% (n=52) grade 3; and 3.4% (n=13) grade 4. Overall, 17.0% (n=65) had moderate-to-severe infection. This was significantly associated with prior antibiotic therapy, older age, and a neuroischemic (vs. neuropathic) foot pattern. No significant differences were observed regarding diabetes type, sex, HbA1c, or diabetes-related complications.

Conclusion:

In this real-world cohort, most DFUs presented without infection or with mild infection, suitable for outpatient management. Identifying factors associated with greater severity may improve referral pathways and enable earlier targeted care for high-risk patients.

Review of the effectiveness of locally applied calcium stimulan in complex diabetic foot ulcers with osteomyelitis.

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Aim and background: The management of diabetic foot osteomyelitis frequently presents with a significant clinical challenge, largely due to the presence of complex comorbidities, challenging microbiology and the high risk of adverse outcomes. Local application of calcium sulphate beads (Stimulan®) offers an adjunctive treatment by enabling a high concentration of antimicrobial delivery individually tailored to the patient's needs. This review evaluates local practice at Kettering General Hospital multidisciplinary team (MDT) regarding bedside use of calcium sulphate for local antibiotic delivery and treatment.

Methodology: Retrospective service evaluation of diabetic foot patients with osteomyelitis over a 24-month period (1/4/24 to 31/3/26). All patients were selected by the diabetic foot MDT and had radiological confirmation of osteomyelitis. Clinical records, imaging, and MDT outcomes reviewed. All patients received standard treatment, (NICE 19). All patients had a combination of antibiotics based on bone/tissue microbiology isolated. Vancomycin and tobramycin were used in 59% of cases. 18% had additional ambisone used as a separate calcium sulphate bead pack. Patients were seen and treated on a weekly basis within an MDT outpatient clinic setting.

Results : 14 patients were treated with weekly therapy. Age range was 44 to 81 (mean = 64). Sinbad scores ranged from 4-6 for this cohort. Predominant co morbidities were PVD and CKD. The mean duration of weekly treatment was 7 weeks. The mean healing time was 17 weeks ranging 3 – 30 weeks. 2 patients were lost to follow up and one underwent amputation. No reported adverse effects.

Conclusion : Within the context of standard care delivery, (NICE 19): Antibiotic and ambisone loaded calcium sulphate beads were observed to be a safe adjunctive treatment option. Use was comparable with other studies undertaken. The evaluation was limited by small numbers and no control or comparable group. Further larger prospective studies are advisable.

Do Resistance Patterns Change After Carbapenems Exposure? A retrospective review of Diabetic Foot Infections

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Background

Antimicrobial resistance (AMR) is a growing global health threat, particularly in diabetic foot infections (DFIs), where prolonged and repeated antibiotic exposure is common. This study reviewed carbapenem use and outcomes in patients managed through an outpatient parenteral antimicrobial therapy (OPAT) service.

Methods

A retrospective review was conducted on 100 patients with severe DFIs referred to OPAT between June 2023 and June 2025. Thirty three patients prescribed a carbapenem: Ertapenem (n=30) or Meropenem (n=3), were included. Demographic data, microbiology, vascular assessment, treatment duration and 6 month outcomes were analysed.

Results

Mean age was 68 years; 81% were male and 96% had type 2 diabetes (mean HbA1c 61 mmol/mol). Prior antibiotic exposure was documented in 94%. 36% reported penicillin allergy and 51% had a history of antibiotic intolerance. 75% of DFIs involved the forefoot and 88% were treated for confirmed osteomyelitis. Twenty microbial species were isolated. The commonest were *Staphylococcus aureus* (n=12) and *Klebsiella* spp. (n=10). 76% of DFIs were polymicrobial. Resistance to at least one antibiotic was observed in 85% of isolates and 60% demonstrated multidrug resistance. Three patients discontinued carbapenem therapy due to adverse effects and one due to OXA-48 carbapenemase detection. Median carbapenem duration was 4 weeks. Angioplasty was performed in 52% of patients. At 6 months follow up, 45% achieved healing. Non healing wounds (55%) showed a shift in microbial profile, with *Pseudomonas* predominating and 6 isolates exhibiting multidrug resistance. 11 patients grew new organisms not present on initial culture.

Conclusion

Carbapenem treated DFIs demonstrated high rates of polymicrobial infection and multidrug resistance, with frequent emergence of new organisms during follow up. More than half of patients failed to achieve wound healing at 6 months, underscoring the complexity of managing severe DFIs and the need for strengthened antimicrobial stewardship, early vascular optimisation and close microbiological surveillance.

A Nitric Oxide-Generating Multimodal Wound Dressing could be Beneficial in a wider range of Diabetic Foot Ulceration: Results from a product evaluation

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Background & Aim: Results from a randomised control trial have reassuringly demonstrated the safety and efficacy of a nitric oxide (NO)-generating multimodal wound dressing for a selected group of diabetic foot ulcers (DFUs). The aim was to evaluate the possible benefit of the treatment on a wider spectrum of complex DFUs.

Method: This was a retrospective review of a cohort of consecutive patients attending a single centre with a range of DFUs that were non-healing despite having a good standard of care (SoC). Patients were initiated on the NO-generating wound dressing in addition to their SoC as part of a product evaluation. Clinical notes were reviewed retrospectively for patient baseline demographics and wound progress, categorised as healed, improved, static or deteriorated.

Results: There were 12 wounds assessed in 10 patients, mean age 64±16 [range 31–81 years], 70% males, 80% with type 2 diabetes. Ulcer duration ranged from 2 weeks to 2 years. With the exception of one ulcer, all ulcers were severe as per SINBAD classification with a score ≥3. Ulcers could be categorised into 4 main groups: (a) Superficial non-infected, n=2, (b) Deep non-infected, n=4; (c) Superficial Infected, n=3; (d) Deep Infected DFUs, n=3. Two-thirds (8/12) of the wounds were infected, 5 with IWGDF infection classification score of 2 (mild infection), and 3 with a score of 3 (moderate infection) which needed oral antibiotic treatment. However, mild infection (Score 2), were successfully managed without antibiotics. All ulcers improved upon initiation of the NO dressings, and 50% (6/12) of the DFUs progressed to healing.

Conclusion: There is the possibility to broaden the scope of use for the NO-generating multimodal wound dressing to be helpful in the management of a wide range of diabetic foot ulcerations, be they infected or non-infected.

An Outpatient Parenteral Antimicrobial Therapy (OPAT) service saves significant bed-days and admission avoidance even in patients with complex Diabetic Foot Infections: Results from a service evaluation

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Background & Aim: Despite the OVIVA trial demonstrating non-inferiority of oral compared to intravenous (IV) antibiotics, diabetic foot infections (DFI) often require many weeks of IV antibiotics. An OPAT service can assist in management by administration of the IV antibiotics in the community when patients are medically stable. We evaluated the OPAT service delivered within our unit over a two year period.

Method: Retrospective cohort review of consecutive patients with DFI, referred to our OPAT service 12/2023 – 12/2025. Data was obtained from the OPAT service database and the hospital electronic health records were reviewed for patient demographics, treatment given and clinical outcomes.

Results: There were 42 OPAT episodes by 32 patients (mean age 63 years, 71% male), with six patients having more than one episode over the two years. Patients received OPAT for a mean duration of 23 days (range 1-67, median 18). Thirty-three of the episodes (77%) were for treatment of a monomicrobial infection; 10 Gram-positive organisms, predominantly Staph aureus (1 MRSA), and 23 Gram-negative infections (17 *Pseudomonas aeruginosa* and 3 ESBL E-coli). No anaerobe infections were specifically targeted. Ten episodes (24%) were associated with an OPAT related complication including three *C. difficile*-negative diarrhoea, three with acute kidney injury, two with line-associated deep-vein thrombosis, one eosinophilia and one liver dysfunction. These were managed without re-admission. All cases were regularly discussed within both the foot and OPAT multi-disciplinary team (MDT) meetings. 35 episodes enabled early discharge from hospital and 7 episodes enabled admission-avoidance by initiation of OPAT within the clinic. A total of 972 hospital bed-days were saved.

Conclusion: An OPAT service is a key partner in the successful management of complex DFI and delivers significant bed-days savings and admission avoidance. Patients should have close follow-up within an MDT in view of the risk of drug or line-related complications

Microbiological patterns in hospitalized diabetic foot infections: clinical implications

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Introduction: Diabetic foot infections (DFI) are a major cause of hospitalization and are associated with increased risk of lower limb amputation and reduced quality of life. Characterizing local epidemiology and resistance patterns is crucial to optimize treatment and address complex DFI.

Aim: To characterize the clinical and microbiological profile of hospitalized patients with DFI.

Method: Retrospective observational study including patients admitted for DFI between January 2021 and December 2023 at a tertiary hospital. Patients without microbiological sampling were excluded. Clinical and microbiological data were collected and descriptive statistical analysis was performed.

Results: A total of 145 patients were included. Patients were predominantly male (75.2%), with mean age of 63 ± 12 years. Most had type 2 diabetes (62.8%), with median disease duration of 22 years (IQR 15–30) and median HbA1c of 8.4% (IQR 6.9–10.0). Neuroischemic foot was present in 55.9% of cases. 99 patients (68.3%) had received prior oral antibiotic therapy. A total of 227 pathogens were isolated. Infections were frequently polymicrobial (55.7%), often involving both Gram-positive and Gram-negative organisms. Although Gram-positive organisms slightly predominated ($n=121$; 53.3%), Gram-negative bacteria accounted for 105 isolates (46.3%). Enterobacteriaceae were the most frequently identified group ($n=77$; 33.9%). *Pseudomonas aeruginosa* was isolated in 15 cases, of which 60.0% ($n=9$) were resistant to fluoroquinolones. Carbapenemase-producing Enterobacteriaceae were identified in 5 cases (6.5%), including 4 *Klebsiella pneumoniae* carbapenemase-producing strains. Among Gram-positive organisms, *Staphylococcus aureus* was the most frequently isolated pathogen ($n=48$), accounting for 21% of all isolates, of which 23% were methicillin-resistant, followed by *Streptococcus* spp. and *Enterococcus* spp.

Conclusion: This study highlights the microbiological profile of hospitalized complex DFI, with a high prevalence of polymicrobial infections and substantial antimicrobial resistance, particularly among Gram-negative bacteria. These findings underscore the importance of local microbiological knowledge to guide proper empirical antibiotic selection and improve patient outcomes.

Antimicrobial stewardship in diabetes-related foot ulcers; development and evaluation of a pathway implementing guideline recommendations using microbial-binding dressings for infection prevention, early intervention and treatment

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Background: Antimicrobial resistance (AMR) is a growing concern in diabetes-related foot ulcers (DRFU) with prevalence of multi-drug-resistant organisms as high as 63%.⁽¹⁾ Topical antimicrobial dressings are not recommended for treatment of diabetes-related foot infections (DFRI),⁽²⁾ however a recent survey found 41.8% of healthcare professionals managing hard to heal wounds used antimicrobials prophylactically, while 37.2% did not follow antimicrobial stewardship (AMS) guidance, indicating a gap in best-practice.⁽³⁾ Early diagnosis and treatment are essential to minimise delayed healing and complications, improving outcomes. This should be balanced with a reduction of inappropriate use of antimicrobials to minimise AMR. Widely supported by clinical evidence, microbial-binding dressings (MBD), with a Dialkylcarbamoyl chloride (DACC) coating, physically binds bacteria and fungi, and are a validated option for infection prevention and control (IPC) in DRFI to manage bioburden before antibiotics are indicated.^(4–8)

Objectives: To translate evidence-based recommendations⁹ on the role of MBDs in AMS in wound care into practical simplified guidance on early intervention with MBDs and to evaluate its impact to prevent, control and treat wound infection, supporting more appropriate use of antimicrobials in DRFU.

Methods: An evidence-based clinical pathway was developed, incorporating the use of MBDs combined with current best-practice for DRFU. This pathway was evaluated clinically to support implementation of recent guideline recommendations and practical application of MBDs in the management of DRFUs.

Results: The AMS-DRFU pathway was evaluated in specialist wound clinics globally and was well-received by clinical teams, supporting decision-making on early intervention and first-line treatment using MBDs. Implementation of MBDs as part of an AMS treatment strategy supported proactive management of microbial burden and infection control allowing wounds to progress.

Conclusion: The AMS-DRFU pathway aids proactive management of bioburden and infection while reducing inappropriate use of active antimicrobials agents, thus minimising the potential for AMR and strengthening AMS across DRFU care.

Optimising Outcomes in Urgent Surgery for Diabetic Foot Infection

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Background:

Diabetic foot attacks and severe infections are time critical. Early debridement is essential to control infection, remove necrotic tissue, and prevent limb or life-threatening complications. Delays in surgical intervention can result in rapid spread of infection to deeper tissues and bone, increased risk of major amputation, and prolonged hospital stay with higher healthcare costs. We evaluated time to surgery at our institution and its relationship with outcomes and inpatient costs.

Methods:

Retrospective review of patients admitted with a severe diabetic foot infection between January 2024 and January 2025 requiring urgent surgical debridement. Data collected included demographics, time from admission to surgery, length of stay, re-operations, major amputation, mortality and estimated inpatient cost. Thirty-two patients were included and divided into two groups, those treated in <48h (9 patients) and those where treatment was delayed >48h (23 patients).

Results:

The mean age was 60.1 years and 72% were male. Mean time from admission to surgery was 7.5 days. Patients who underwent delayed surgery had a significantly ($p=0.026$) longer mean length of stay than those treated <48h (46 versus 21 days). Avoiding delay in this cohort could have reduced inpatient costs by approximately £276,000 in this group. Five of 23 patients (22%) in the delayed group died during the follow up period, compared with none in the early surgery group. Major amputation was required in 6 patients whose surgery was delayed compared to 1/9 cases where it was carried out in <48h.

Conclusion:

Delayed access to surgery was associated with increased morbidity, mortality, and healthcare cost. Prioritising urgent theatre access and developing dedicated diabetic foot attack pathways may improve limb salvage, reduce admissions, and improve survival in this high-risk patient group.

Multiple spinal epidural abscesses mimicking diabetic neuropathy: a case of diagnostic overshadowing

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An 86-year-old man with 18 years of poorly controlled type 2 diabetes mellitus, chronic diabetic foot ulceration, and a prior myocardial infarction presented after a mechanical fall. He was initially managed for right-leg cellulitis, and his progressive lower-limb weakness over six weeks had been attributed in primary care to diabetic peripheral neuropathy. On inpatient review, however, neurological examination demonstrated bilateral lower-limb hyperreflexia, sustained ankle clonus, extensor plantar responses, mild spasticity, and a subtle dermatomal sensory level, findings inconsistent with peripheral neuropathy and concerning for spinal cord pathology.

Urgent magnetic resonance imaging of the entire spine revealed three separate epidural collections at T7–T9, L2–L3, and L4–L5, with significant thecal sac indentation and adjacent inflammatory change. Blood cultures and wound swabs grew methicillin-sensitive *Staphylococcus aureus*, strongly suggesting haematogenous spread from the chronic diabetic foot ulcer. In the absence of cord infarction or progressive motor collapse, and after multidisciplinary discussion, the patient was managed non-operatively with prolonged intravenous flucloxacillin, followed by an oral course, together with physiotherapy and intensive diabetic foot care. Close neurological monitoring was maintained throughout admission, and serial examination showed gradual improvement in tone, strength, and gait.

His neurological function improved steadily during admission, and by three months, he had returned to independent ambulation. This case illustrates how spinal epidural abscess may present insidiously in patients with diabetes and be mistaken for diabetic neuropathy, particularly when infection and mobility decline coexist. The presence of upper motor neuron signs, asymmetry, and a rapid functional trajectory should prompt urgent spinal imaging. Early recognition is critical because timely treatment can prevent irreversible neurological injury, and selected patients with multifocal disease may recover fully without surgery when diagnosed promptly.

Presence of Reduced Functional Independence in Patients with Prolonged Immobilisation warrants the Development and Implementation of a Tailored Exercise Plan

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Background & Aim: The gold standard for off-loading in patients with neuropathic plantar ulcers and Charcot neuroarthropathy is with Total Contact Casting(TCC), with excellent limb salvage rate. However, the duration of treatment can be prolonged in some hard-to-heal patients. The aim was to evaluate the impact of prolonged immobilisation on muscle strength, identify key muscle groups and possibility of implementing a tailored exercise plan for such cohort of patients.

Methods: We report outcome on two patients undergoing prolonged offloading, assessed by a physiotherapist. Functional status was evaluated using the Modified Barthel Index (MBI). Muscle strength was assessed clinically and graded out of five across major lower limb muscle groups. A patient-reported questionnaire was used to assess perceived functional limitations.

Results: Patient one, 67-year-old male with type-2-diabetes, dialysis dependent, post distal bypass with an ischaemic left heel ulceration, and awaiting hide-foot/midfoot Charcot reconstruction. Had an MBI score of 14/20. Patient two(MBI 12/20), 80-year-old with type-2-diabetes and bilateral Chronic Charcot neuroarthropathy complicated by bilateral heel/plantar ulcerations, needing bilateral TCC. Both patients had an average of 12 months of reduced mobility with TCC.

Both patients demonstrated reduced functional independence. Muscle weakness predominantly affected proximal lower limb muscle groups. Deficits were observed in hip flexors(3–4/5), hip extensors(3–4/5), and hip abductors(3–4/5), with involvement of knee extensors(4–5/5). Hip adductors showed more marked weakness in one patient (as low as 2/5). Distal muscle groups, including ankle dorsiflexors and plantar flexors, were preserved (5/5). A tailored exercise plan was devised to improve patient core body strength without impacting on plantar pressures.

Conclusion: Prolonged offloading in diabetic foot complications can have significant proximal muscle deconditioning. These findings highlight the importance of early, targeted physiotherapy focusing on proximal muscle groups to optimise functional recovery. Integration of rehabilitation strategies within the MDT pathway could improve patient outcomes and reduce long-term disability.

The adjunct use of a Böhler Walker together with a Total Contact Cast has the potential to broaden the scope of use of Total Contact Casting

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Background & Aims: Offloading with a below knee total contact cast (TCC) remains the gold standard for diabetic foot ulcer (DFU) and Charcot foot. However, its uptake is sometimes restricted or suboptimal. We had noted an increased use of Böhler Walker together with TCC. Hence, the aim of the study was to review the various indications for the use of Böhler walker with TCC within our service.

Method: This was a retrospective cohort review of patients who were offloaded with a combination of a Böhler walker and TCC. We reviewed the clinical notes and analysed patients' demographics and categorised the indications for use to determine its effectiveness and tolerance by the patients.

Results: Twenty four patients had treatment with TCC and Böhler Walker between October 2023 and March 2026. Mean age was 62 ± 7 years [range 51-80], 83% were male and 79% had type 2 diabetes. Their mean body mass index (BMI) was 33 ± 8 kg/cm² [range 23.1-52.7]. The majority of patients (54%) treated with TCC + Böhler Walker were offloaded for post-surgical debridement wounds, 33% were managed for post-complex Charcot foot reconstruction, and 13% were managed for chronic DFUs.

The indications for advancing to Böhler walker were (a) poor patient balance, (b) sub-optimal offloading with TCC alone, (c) patients with high BMI, and (d) patients with an inability to be fully non-weight bearing. No serious adverse incidents were reported by the patients. The TCC + Böhler walker was tolerated well even by the elderly and facilitated early discharge from hospital.

Conclusion: The use of Böhler Walker can be safely considered together with a TCC as an offloading option for complex DFUs not responding to standard TCC. Plus, it can be used for patients with poor balance, or those who cannot manage full non-weight bearing after foot and ankle surgery.

Snapshot review of podiatric surgeon-led day-case procedures under local anaesthetic for complex foot ulceration

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Background

Complex chronic foot ulceration is associated with prolonged disease course, infection, osteomyelitis, hospitalisation, and substantial morbidity. The contribution of podiatric surgeon-led procedures within the multidisciplinary foot team may be underestimated because access to these services is limited. We reviewed snapshot outcome data following podiatric surgical intervention to assess whether these procedures support limb preservation and resolution of chronic ulceration in a high-risk cohort.

Methods

We performed a single-centre retrospective snapshot audit of podiatric surgical procedures undertaken in 2024. Demographic, comorbidity, operative, and post-operative outcome data were reviewed. The primary outcome was ulcer healing; secondary outcomes were time to healing, re-ulceration, and post-procedure antibiotic use.

Results

Thirty-four procedures were identified. Median age was 67.5 years (IQR 62.0-75.5), 82.4% of patients were male, 79.4% had type 2 diabetes, 52.9% chronic kidney disease, 20.6% peripheral arterial disease, and 38.2% previous amputations, mostly minor (12/13). Osteomyelitis was present in 64.7%, and surgery was performed for a non-healing ulcer in 94.1%. All procedures were day-case interventions under local anaesthetic.

Procedures included amputation (61.8%), debridement (20.6%), resection (8.8%), arthroplasty (5.9%), and arthrodesis (2.9%). STIMULAN® antibiotic beads were used in 76.5% of procedures; among these, 46.2% required oral antibiotics post-procedure, while 53.8% did not. Intravenous antibiotic escalation via OPAT was uncommon (5.9%). Median pre-operative ulcer duration was 23.0 weeks (IQR 14.8-39.6). Among cases with follow-up data, ulcer healing occurred in 15/16 (93.8%) with median time to healing of 6.0 weeks (IQR 4.4-12.9). Re-ulceration was absent in 12/15 (80.0%). Two patients required hospital admission during follow-up for infected ulcer, and one immediate post-operative bleeding complication was recorded.

Conclusion

This snapshot review suggests that podiatric surgeon-led, day-case procedures performed under local anaesthetic can support healing and limb preservation in complex chronic foot ulceration, while potentially reducing inpatient bed use and associated healthcare costs.

One-year evolution of macrovascular and microvascular parameters after endovascular revascularization in diabetic foot ulcers: a prospective multicenter study

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Aim: To evaluate the prognostic value of non-invasive hemodynamic parameters in predicting diabetic foot ulcer (DFU) healing after endovascular revascularization, and to analyze their longitudinal evolution during follow-up.

Method: a multicentric prospective study included 57 participants with ischemic and neuroischemic DFU who underwent endovascular revascularization between 2022 and 2025. Following inclusion and prior to revascularization, non-invasive vascular parameters (ankle systolic pressure, toe systolic pressure, ABI, TBI, TcPO₂ and SPP) were assessed at baseline (Visit 0) and during follow-up (Visits 1–7) using the PeriFlux System 600. The primary outcome was wound healing, defined as complete epithelialization of the DFU confirmed at least 2 weeks after closure.

Results/Discussion: At visit 1 (four weeks after revascularization), TcPO₂ and toe systolic pressure were significantly higher in the healed group ($p=0.019$ and $p=0.049$), increasing from 29.2 to 37.5 mmHg and from 33.2 to 51.1 mmHg, respectively. ROC analysis identified optimal cut-offs for healing of 23.5 mmHg for TcPO₂ and 46.5 mmHg for toe systolic pressure. At visits 2 and 3, TcPO₂ remained significantly associated with healing, demonstrating high discriminative capacity. Longitudinal analysis showed that all hemodynamic parameters increased over time. Among them, toe systolic pressure and TcPO₂ demonstrated the strongest association with wound healing. TcPO₂ showed an early increase followed by stabilization, suggesting oxygenation remodeling, whereas toe systolic pressure exhibited a sustained increase across all visits, reflecting progressive perfusion improvement.

Conclusion: TcPO₂ emerged as the most clinically relevant non-invasive predictor of DFU healing after revascularization, particularly during early follow-up. While toe systolic pressure reflects sustained macrovascular perfusion improvement, TcPO₂ captures dynamic changes in tissue oxygenation, supporting its role in early risk stratification and monitoring of healing trajectories.

A multidisciplinary consensus on venous thromboembolism risk and thromboprophylaxis during total contact casting for diabetes foot disease: Recommendations from the CAST-VTE-DF expert panel.

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Aim:

Lower-limb immobilisation is a known risk factor for the development of venous thromboembolism (VTE), however the risk associated with total contact casting (TCC) within the population with diabetes foot disease (DFD) is not well delineated in literature, leading to variation in clinical practice regarding the use of prophylactic anticoagulation. An expert consensus group within England was formed to develop recommendations for VTE risk management within this population.

Methods:

Due to the absence of guidance within this area of clinical practice, a multidisciplinary Consensus on Assessment and Safety in Total contact casting and Venous Thromboembolism in the Diabetes Foot (CAST-VTE-DF) expert panel was developed in order to explore and evaluate published literature, current national and international guidance, and observational data on VTE incidence and risk among individuals with diabetes undergoing TCC management for DFD. Evidence was synthesised and discussed to develop pragmatic, consensus-based recommendations.

Results:

Available published evidence indicates a low incidence of symptomatic VTE among ambulatory patients treated with weight-bearing total contact casts, despite prolonged periods of immobilisation and a high comorbidity burden. However, data regarding the DFD population are limited, heterogeneous, and largely observational. No validated VTE risk stratification tools exist, specifically for the diabetes foot population.

Conclusions:

The routine use of pharmacological thromboprophylaxis for all patients undergoing management with TCC therapy for DFD is not indicated by current evidence. A structured, individualised approach to VTE risk assessment, patient education and clinical monitoring is recommended, with thromboprophylaxis considered on a case-by-case basis where the risk of VTE development outweighs the bleeding risk.

A novel use of TWO2© treatment to bridge delays in vascular intervention.

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Background

NICE guidance recommends TWO2© as an adjunct therapy in non-healing diabetic foot ulcers with mild/moderate peripheral arterial disease (PAD). National guidance recommends vascular intervention within 2 weeks from when critical limb ischaemia (CLI) is identified. Locally the median wait is 8 weeks with emergency admissions in the interim in order to deal with the CLI. This is on the trusts risk register but to mitigate this risk in the short term, TWO2© therapy was proposed as an alternate treatment that could be used to bridge the time delay to intervention to prevent harm, complications and adverse outcomes.

Methods

A successful grant application was used to fund this innovative concept for 6 patients between November 24 and June 25, in addition to standard care. Patients were aware of the delays in angioplasty as well as the primary indication of TWO2 versus the proposed use. Analysis included duration of use of the TWO2, pain score level monitoring, use of antibiotics and hospital admissions.

Results

Mean age was 77, with 4 out of 6 men. All had type 2 diabetes with mean HbA1c of 60mmol/mol. All patients described a significant reduction in pain with dependence on opioids reducing by at least 50%. None of the patients had a related emergency admission before their vascular intervention. The median wait to vascular intervention was 8 weeks and mean 6.3 weeks. Half of the patients needed antibiotics during their wait whereas historically >75% of patients waiting would have been prescribed antibiotics.

Conclusions

Reduction in Ischemic pain was an invaluable patient benefit. Furthermore, although the sample size was small, admissions and harm from delay in intervention was prevented in all cases. Lastly, antibiotic stewardship was addressed with the reduced use of antibiotics. In summary there may well be other benefits of TWO2© which warrant further exploration.

Determinants, temporal trends and burden of Hospital readmission in adults with diabetic foot ulceration (2000–2025): a scoping review protocol

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BACKGROUND

Diabetic foot ulceration (DFU) carries a high risk of recurrence, significant morbidity, and substantial hospital readmission rates. Variation in definitions and outcome measures across studies has hindered comparability. This scoping review (SR) aims to map the available literature on hospital readmission factors, examining demographic, clinical, local and organizational factors which influence the risk of hospital readmission in the last 2 decades.

METHODS.

The proposed scoping review will be conducted in accordance with the JBI methodology for SR, using PRISMA-ScR. Database considered will be PubMed, EMBASE, CINAHL, Cochrane, and PeDRO. Grey literature sources will be the TripMedical Database, NICE, and GIN. Studies published from 2000 to 2025 will be considered. The results will be presented in tabular form by a narrative summary.

Question search: “What is known from the literature about the determinants, patterns, and burden of hospital readmission in adults with DFU? What clinical, local, organisational factors associated with an increased risk of diabetic foot hospital readmission have been reported in the literature, including the economic impact on health system?”

Inclusion criteria. Population: Adult patients with a history of DFU and event of hospital readmission.

Concept: Burden, patterns, and determinants of Hospitals readmission. Context: any health context.

Types of sources of evidence. Any study will be considered. No geographical, setting, or language restrictions will be applied.

Start date: April 2026- End date: September 2026

EXPECT RESULTS

This SR will provide a comprehensive mapping of the existing literature on associated factors of DFU readmission including clinical, organizational and economic burdens.

CONCLUSION

A scoping review is needed to systematically map definitions, ranges, and related risk factors across two major time periods, providing clarity for clinical practice and research planning. The complete data will be ready for discussion in September.

Broken Wing Sign and Diabetic Foot: Association with Ulceration and Amputation in a Case–Control Study

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Background:

Diabetic foot ulcers result from the interplay of neuropathy, biomechanical alterations, and abnormal plantar loading. Increasing evidence suggests that proximal dysfunction, particularly involving the gluteus medius, contributes to altered gait patterns, including medialized progression line, prolonged mid-stance, and increased forefoot pressure. The Broken Wing Sign (BWS), recently described as a clinical test for gluteus medius insufficiency, has not yet been investigated in diabetic patients.

Aim:

To evaluate the association between the Broken Wing Sign and the presence of diabetic foot ulcers and/or lower limb amputations.

Methods:

This is an observational cross-sectional case–control study. Adult patients with diabetes mellitus (type 1 or 2) will be consecutively recruited in diabetic foot clinics. Cases include patients with active or previous foot ulcers and/or diabetes-related amputations. Controls include diabetic patients without any history of ulceration or amputation.

All participants will undergo standardized clinical assessment, including evaluation of the Broken Wing Sign (positive/negative). Clinical variables such as age, diabetes duration, neuropathy, vascular status, and foot deformities will be recorded.

The primary outcome is the association between BWS positivity and case/control status. Statistical analysis will include chi-square test and calculation of odds ratios (OR) with 95% confidence intervals. Multivariate logistic regression will be performed to adjust for potential confounders.

Results:

Data collection is ongoing. We hypothesize that BWS positivity will be significantly higher in patients with ulceration and/or amputation compared to controls, reflecting a proximal biomechanical impairment associated with increased forefoot loading.

Conclusions:

The Broken Wing Sign may represent a simple, rapid, and non-invasive clinical marker of proximal dysfunction in diabetic patients. If confirmed, it could improve early risk stratification for foot ulceration and support targeted preventive strategies focusing on proximal biomechanical control.

Smoking in Diabetes-Related Foot Disease: Bridging the Gap Between Guidelines and Clinical Practice

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Background/Aims: Smoking significantly increases the risk of peripheral artery disease, impaired wound healing, and lower-limb amputation in people with diabetes, making it a key modifiable factor in diabetes-related foot disease. Smoking is also a major contributor to preventable amputations in this population. Current evidence-based recommendations emphasize smoking cessation as a priority in diabetes care; however, in routine practice and even in guidelines, this is often limited to general advice without practical instruction on how to intervene. We aimed to develop and implement simple, practice-oriented educational tools to support structured smoking cessation in diabetology and foot care.

Methods: Within a project under the national Diabetes Society, two complementary educational leaflets were developed for patients and healthcare professionals. The professional leaflet includes a concise 3-step brief intervention model (ask–advise–refer), key clinical information, and treatment options, while the patient leaflet focuses on motivation and available support.

Results: The materials enable integration of brief smoking cessation interventions (≤10 minutes) into routine clinical care. They emphasize the role of smoking in vascular complications relevant to diabetes-related foot disease and provide clear guidance for structured intervention and referral. A key component is the combination of brief intervention with accessible contacts to specialized cessation services and quitlines, known to improve cessation success. The materials were distributed in printed form to diabetology/foot care centres and outpatient clinics and are freely available online via the national Diabetes Society website. Printed distribution supports direct use during patient encounters, while online availability facilitates broader dissemination among healthcare professionals and patients.

Conclusions: Smoking cessation remains an under-addressed component of diabetes-related foot disease prevention despite strong evidence of harm. Practical tools translating general recommendations into actionable steps may improve implementation in routine care. Continued efforts are needed to increase awareness and actively support smoking cessation among both patients and healthcare professionals.

NOT EVERY PERIPHERAL NEUROPATHY IN PEOPLE WITH DIABETES IS DIABETIC NEUROPATHY: A CASE REPORT

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Introduction: Diabetic neuropathy presents as sensory, motor and autonomic neuropathy. Although diabetes is the most common form of chronic sensorimotor neuropathy, clinicians should always consider and exclude other etiological factors, such as alcohol, nutritional deficiencies, toxins, malignancy, genetic conditions or hypothyroidism.

Case report: A 44-year-old, with a 27-year history of type 1 diabetes, hypertension and dyslipidemia was admitted to our department due to symptoms of DPN. He complained for numbness, burning sensation, aching, hyperalgesia and allodynia. Patient suffered these symptoms, as well as weakness of limbs since 2018. During the last 5 years he had visited several clinicians, following symptomatic therapies for the painful symptoms ineffectively, even orthopedists suggesting herniated disk surgery.

Laboratory tests showed poor glycemic control (HbA1c 8.2%), while lipids, urinary albumin, folic acid, methylcobalamin and thyroid stimulating hormone ranged in normal levels. Clinical assessment of both small fiber sensation with temperature changes or pinpricks and large fiber sensation with vibrations and pressure testing using the standard Semmes-Weinstein 5.07 10 g monofilament, revealed serious sensory deficits. Additionally, a slight distal muscle atrophy at lower limbs as well as a bilateral pes cavus and hammer-toe deformity were observed. Reflexes of bilateral knee and ankle were absent. Due to severe and rapidly progressive symptoms and motor weakness affecting also the upper extremities, we performed neurological consultation. Meanwhile, electromyography recognized a peripheral neurogenic impairment to all four extremities, and severe injuries to motor and sensory fibers, especially in the lower limbs. Based on the aforementioned information, genetic testing for the patient were conducted revealing Charcot-Marie-Tooth neuropathy, X-linked dominant,1 (CMT1), due to GJB1 gene mutation. CMT1 results in sensory and motor neuropathy, combining demyelinating and axonal characteristics.

Conclusion: Sufficient medical history and thorough clinical examination represent the cornerstone for accurate diagnosis.

Association Between Foot Deformities and Amputation Risk in a Danish Diabetic Population

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Introduction

Foot deformities are recognized as a major contributor to the development of diabetic foot ulcerations, which leads to increased risk of lower-extremity amputations. However, research on foot deformities and their correlation with foot ulcerations and amputation risk individuals with diabetes is still limited.

Objectives

This study aims to investigate the overall prevalence of foot deformities and the associated risk of complications among adults with diabetes registered in the Danish national database, The Foot Status Database, maintained by state-authorized podiatrist and linked to other national health registries.

Methods

A case-control study will be conducted among patients with diabetes, comparing individuals with a history of amputation to those without prior amputation. The study population will be identified through amputation procedure codes from the Danish National Patient Register (Landspatientregistret) and subsequently linked to data from the Danish Foot Study Database. Data in the Foot Status Database are based on a standardized foot assessment protocol that is performed during annual consultations for individuals with diabetes. Conditional logistic regression will be performed to assess the association between covariates and outcomes.

Results and conclusion

Data processing and statistical analysis are currently ongoing. Based on the predefined analysis plan, we expect the results to describe which foot deformities are most frequently associated with lower limb amputation. The forthcoming analysis will quantify the strength of these associations and identify which deformity profiles represent the highest risk for progression towards diabetic foot complications. With this information, the goal is to improve prevention strategies and reduce the progression of severe, life-altering outcomes such as amputation.

Dose–response effects of segmented, customised 3D-printed foot orthotics on plantar pressure in participants with diabetes and a central forefoot pressure pattern

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Title: Dose–response effects of segmented, customised 3D-printed foot orthotics on plantar pressure in participants with diabetes and a central forefoot pressure pattern

Background: Diabetes-related foot disease is characterized by elevated plantar pressures, increasing ulceration risk. Custom-made foot orthotics are widely prescribed to reduce these pressures; however, their design remains largely empirical. A possible limitation is the lack of quantitative dose-response insights linking orthotic geometry and material properties to biomechanical outcomes like plantar pressure redistribution.

Objective: The study aims to evaluate the dose-response effect of customised, segmented 3D-printed foot orthotics (CSFO) on plantar pressure in people with diabetes and a central forefoot pressure pattern (CFPP) (Metatarsal 2-3, high-resolution established peak pressure >400 kPa), with emphasis on reducing peak pressure in this region.

Methods: A prospective monocentric interventional study was conducted in participants (N=21) with diabetes (Risk 0-3(a)) and a CFPP. Following baseline assessment, participants were tested with multiple CSFO designs incorporating variations in segmentation, geometry, and gyroid infill density, targeting this specific region. Plantar pressure was measured during walking, using an in-shoe system. Dose-response effects will be evaluated using within-subject repeated measures ANOVA.

Results: Data collection was completed in all participants, and statistical analyses are ongoing. Preliminary observations indicate that variations in orthotic segmentation, geometry, and material stiffness are associated with region-specific alterations in plantar pressure distribution. A consistent trend towards reduced peak pressure in the metatarsal 2–3 region was observed across orthotic configurations. These reductions appear accompanied by a redistribution of load towards adjacent plantar regions, suggesting a measurable dose–response relationship between orthotic design parameters and biomechanical outcomes. Results of the repeated-measures ANOVA will be presented at the conference to quantify within-subject differences across orthotic conditions.

Conclusion: The findings are expected to provide quantitative insights into the relationship between orthotic design parameters and plantar pressure outcomes. This study may contribute to the understanding of dose-response relationships in foot orthotics, supporting more predictable and personalised orthotic interventions and improving strategies for pressure offloading in populations at risk of foot ulceration.

Keywords: 3D-printing, custom foot orthotics, plantar pressure, dose-response, biomechanics

A person with diabetes comes to a pedicure practice: what is going on there?

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Background:

In countries without (well-)established medical podiatry service, many patients with diabetes (DM) that need foot care, apply to pedicurists. Our study analyzed in what situations pedicurists can provide safe care in DM.

Methods:

5 pedicure practices in 4 countries (Israel, Russia, Kazakhstan, Chekh Republic) collected data during 5 months since Oct/2025. Besides demographic data for all clients, for DM we analyzed reasons for and methods of footcare, collaboration between pedicurists and medical specialists.

Results:

During the study, 3195 clients received footcare. Of them 156 (4.9%), had DM (from 1.4% to 16.6% among practices). DM clients were older than others (mean 63 vs. 45 years, $p < 0,01$), 44% vs 25% were men ($p < 0,01$).

Reasons for pedicure (in DM clients) and severity of problems are in the Table.

Of DM clients, 15% were referred by doctors. Vice versa, 22% got referral to medical care from pedicure practice.

Conclusions:

- In countries without established medical podiatry, pedicure practices, at least in the nearest 5-7 years, will have to provide footcare for clients with diabetes.
- It is reasonable to educate pedicure specialists about “red flags” of diabetic foot, first aid in pre-ulcerative conditions, and develop pathways of collaboration with wound clinics.

Interdisciplinary Collaboration Between Podologists and Wound Care Specialist Nurses in the Management of Diabetic Foot

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Diabetic foot syndrome is one of the most severe complications of diabetes mellitus and a leading cause of non-traumatic lower limb amputation worldwide. Its multifactorial pathophysiology requires timely and integrated management [1,2].

This study aimed to evaluate the impact of interdisciplinary collaboration between podologists and wound care specialist nurses on clinical outcomes in diabetic foot management. A structured narrative review was conducted, including studies and guidelines published between 2017 and 2025. The search strategy used terms such as “diabetic foot”, “diabetic foot ulcer”, “podologist”, “wound care nurse”, and “interdisciplinary care”. Seventeen relevant studies and guideline documents were analyzed.

Evidence indicates that integrated care models improve prevention, early detection, and treatment outcomes. Podologists contribute through biomechanical assessment, pressure redistribution, callus management, and off-loading strategies [3]. Wound care specialist nurses provide advanced wound assessment, infection monitoring, wound bed preparation, and evidence-based dressing management, including the TIME framework [4]. Their coordinated approach enhances early intervention, optimizes healing conditions, and ensures continuity of care.

Interdisciplinary management is associated with reduced ulcer recurrence, lower infection rates, fewer amputations, and improved patient adherence [1,5].

Collaboration between podologists and wound care specialist nurses is therefore essential to optimize outcomes and improve the sustainability of diabetic foot care pathways.

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CONTINUOUS INTEGRAL DEBRIDEMENT

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Introduction

In 2024, Journal of Wound Care (JWC) published guidance on best practice for wound debridement¹. This introduced the concept of integral debridement, the combined used of different but complementary methods of debridement on the same wound to optimise outcomes. In practice, this typically involves supplementing a less invasive type of debridement, such as autolytic dressings, with a more invasive adjunct, such as mechanical debridement.

Methods

In 2026, JWC convened an expert panel to discuss how to embed this guidance into non-specialist practice.

Results

The panel determined that integral debridement is most effective when implemented repeatedly throughout the healing process. It therefore developed the term continuous integral debridement (CID) which describes the four-step sequence of pre-cleanse, debride, re-cleanse and dress, which it recommends be implemented in a cyclical fashion throughout the wound healing trajectory. In this way, the microbial and non-microbial barriers to healing can be consistently removed to create a clean wound environment. CID concept is compatible with frameworks such as TIME/TIMERS and antibiofilm strategies like Wound Hygiene and should be incorporated into holistic care.

Conclusions

This document provides guidance on how to implement CID into routine wound practice, whatever the setting or clinician's level of expertise. There are recommendations on the selection and use of cleansing solutions, debridement methods and wound dressings, with the overall aim of promoting evidence-based practice and improving patient outcomes.

Is there a more cost-effective method for performing lower-limb vascular assessment when comparing traditional Ankle Brachial Pressure Index (ABPI) with BlueDop?

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Aim

Is there a more cost-effective method for performing lower-limb vascular assessment when comparing traditional Ankle Brachial Pressure Index (ABPI) with BlueDop?

Methods

We reviewed the UK national database provided by the Agenda for Change framework and chose a mid-band salary to provide us a conservative cost per clinician: £50/hour(1). We then reviewed a number of clinical papers and observed that the range in time for a traditional ABPI (including rest) was 20-30 minutes(2). Following our conservative model and reducing bias, we decided to opt for 20 minutes as our standard of care time. All participants received a BlueDop vascular assessment at their routine appointment, following standardised guidelines.

Results

BlueDop Rapid average assessment time (rest time not required):

Single leg: 1 minute (average time of 205 single limbs)

Both legs: 3 minutes (average time of 76 bilateral limbs)

Cost Per Assessment

Traditional ABPI: -

20 minutes = 0.33 hours

Cost per patient: £16.50

BlueDop Assessment: -

Single leg 1 min = 0.017 hrs

Cost per patient: £0.85

Both legs 3 min = 0.05 hrs

Cost per patient: £2.50

Per-Patient Saving

Assessment Type	Traditional	Rapid	Saving Reduction
Single leg	£16.50	£0.85	£15.65 95%
Both legs	£16.50	£2.50	£14.00 85%

Annual Service Impact

	Average Annual Assessments per clinic (4.6million diagnosed diabetics(3))		Annual Clinician Time Saving	National Saving
Single-Leg	2,000	£31,300	£71.99 million (≈ £72.0m)	
Bilateral-Legs	2,000	£28,000	£64.4 million	

Conclusion

Implementing BlueDop into a High-Risk Foot clinic not only had a substantial impact on time savings, which translated into increased clinical capacity. Using BlueDop as a first-line assessment and rapid triage tool led to NICE Guidance 19(4) compliance and cost avoidance achieved without the addition of extra staff.

Ulcer free survival days: a clinically relevant outcome measure and its translation to daily practice in wound care of Diabetic patients

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Introduction: Ulcer-free survival, also expressed as ulcer-free days (UFD) has been described in recent literature. However, it is rarely used as a primary endpoint to evaluate treatment effectiveness and sustained wound healing. In patients with diabetic ulcers, the incidence of ulcer recurrence and new-ulcer formation is high. Therefore, assessment of healing using a more sustainable and longitudinal outcome measure is warranted. The aim of this study is to prospectively investigate the UFD in the diabetic foot ulcer population of a specialized wound expertise center.

Methods: This prospective study included all the diabetic foot ulcers presented to the clinic during 2023 and 2024. Following a predefined screening process, eligible patients were included in the final analysis. Ulcer-free survival days were defined as the number of days within a 12-month follow-up where the participant is alive and ulcer-free.

Results: Of the approximately 700 patients assessed, around 500 patients met the inclusion criteria. Preliminary analysis of the 2023 cohort (n=315) demonstrated that 259 (82.2%) had neuropathy, 182 (57.8%) had peripheral arterial disease, 225 (71.4%) had chronic kidney disease and 237 (75.2%) presented with a foot deformity. More than 1/3 of the patients 119 (37.8%) had multiple ulcers at first presentation. The median ulcer-free survival was 225.5 (IQR 121-294.5) days over a follow-up period of 12 months. Further analysis of the full cohort is ongoing, including calculation of the one year UFD rates. Potential predictors of ulcer-free survival, including wound location, presence of peripheral arterial disease, cardiovascular and other comorbidities will be evaluated for their association to UFD.

Conclusion: UFD is an outcome measure that has promising abilities to capture both clinical relevance and long-term patient-centered outcomes in diabetic foot care. The findings support the incorporation of UFD as a key outcome in upcoming future clinical research.

There is a Promising use of Nitric Oxide-Generating Multimodal Wound Dressing in highly Ischaemic Diabetic Foot Ulcers: A Single Centre Case Series

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Background & Aim: The favourable use of a nitric oxide (NO)-generating wound dressing for a selected group of diabetic foot ulcerations (DFUs) has been well demonstrated. Aim was to evaluate the possible benefit of NO-generating dressing on highly ischaemic DFUs.

Method: A retrospective review of a series of 3-cases with ischaemic DFUs (Wagner Grade-4 with localised necrosis), which had become static despite successful revascularisation and best standard of care (SoC).

Results:

Case-1: GE 60yr-old female, with PAD and rheumatoid arthritis of multiple joints and bilateral forefoot necrosis. Underwent ultra-distal bypass of left popliteal artery to pedal artery and a transmetatarsal amputation (TMA) of left in June 2025. Despite good revascularisation, TMA site remained non-healing after 4months of wound care, with recurrent die-back and soft tissue necrosis on podiatry debridement. Upon introduction of NO-generating dressing there was instant decrease in suspected biofilm, good granulation, and the ulcer progressed to healing within 12weeks.

Case-2: EB 78yr-old male with type-2-diabetes who had femoral endarterectomy and above the knee popliteal to dorsalis pedal artery bypass, plus amputation of right 4th and 5th toes ray amputation in September 2025. He had 3months of a persistent right lateral foot non-healing ulcer despite VAC dressing, with recurrent wound die-back and necrosis. Good wound progression with the use of the NO-generating dressing between November 2025 and January 2026.

Case-3: DW 62yr-old with an ischaemic forefoot and a necrotic hallux, with recurrent die-back of amputation site despite revascularisation. After introduction of the NO-generating dressing there was good granulation of the stump, no further die-back or necrosis and he progressed to heal successfully within 8weeks.

Conclusion: This case series gives an inclination that NO-generating dressing may support healing in ischaemic wounds that die-back despite revascularisation. Further dedicated studies are needed to better demonstrate these clinical benefits of the NO-generating dressing.

High Graft Take and Infection-Free Healing in Diabetic Foot Surgery: Experience with OEOD-enriched Dressings.

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Chronic diabetic foot ulcers remain a clinical challenge, particularly in advanced stages requiring combined surgical and medical approaches. This case series evaluates the use of an Oxygen enriched oil-based (OEOD) enriched dressing in five diabetic patients presenting with Texas University Classification (TUC) grade IIID foot lesions.

All patients underwent a standardized multidisciplinary treatment protocol, including surgical debridement, revascularization procedures, and negative pressure wound therapy (NPWT) to optimize the wound bed. Definitive coverage was achieved with pinch grafting harvested from the ipsilateral thigh. The OEOD-enriched dressing was applied both to the graft recipient sites and to the donor sites.

The mean age of the patients was 71 ± 7 years, with a mean diabetes duration of 13 ± 10 years. Mean glycated hemoglobin (HbA1c) was 52 ± 6 mmol/mol. Lesions were located on the dorsal mid-forefoot in four cases and on the plantar surface in one case.

Complete graft take was observed in all five patients within the first 14 days. Full wound closure was achieved in a mean time of 65 ± 21 days. No infections were recorded during the treatment period.

The dressing was well tolerated, with no significant adverse events reported. A mild maceration was observed in the patient with a plantar lesion, which resolved without complications.

These preliminary findings suggest that OEOD-impregnated dressings may represent a safe and effective adjunct in the management of complex diabetic foot wounds treated with pinch grafting.

The absence of infection and the high rate of graft take support a potential role in enhancing wound healing and protecting both recipient and donor sites. Further studies with larger cohorts are warranted to confirm these results and to better define the mechanisms underlying its clinical benefits.

Interdisciplinary Management of Diabetic Foot: A Case Report on Collaboration between Podologist and Wound Care Specialist Nurse

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Background: Diabetic foot syndrome is a severe complication of diabetes mellitus and a leading cause of hospitalization, disability, and non-traumatic lower-limb amputation worldwide. Its pathogenesis is multifactorial, involving peripheral neuropathy, vascular impairment, repetitive mechanical stress, and altered plantar pressure distribution (1,2). Interdisciplinary management is essential to improve outcomes and prevent recurrence.

Case Presentation: A 62-year-old man with a 32-year history of type 2 diabetes mellitus presented with recurrent plantar pre-ulcerative lesions in high-pressure areas. Clinical assessment revealed marked hyperkeratosis, subcallous hematoma, peripheral sensory neuropathy, and multiple risk factors for skin breakdown (fig. 1,2). Diagnostic evaluation included wound assessment, Semmes–Weinstein monofilament testing, laboratory tests, and biomechanical examination.

Management: An interdisciplinary approach involving a podologist and a wound care nurse was implemented. Podologist management focused on biomechanical evaluation, pressure redistribution, and offloading strategies to reduce repetitive stress (3). Nursing care included wound cleansing, infection surveillance, topical antiseptic treatment, and debridement of non-viable tissue (fig.3) according to the TIME framework (4). Patient education on foot care and pressure avoidance was provided.

Outcome: After three months, the lesion showed progressive improvement, with reduced tissue damage, formation of healthy granulation tissue, and re-epithelialization (fig.4,5). The combined approach contributed to healing and reduced recurrence risk factors.

Conclusion: This case highlights the value of interdisciplinary collaboration in diabetic foot management. Integrating podiatric and nursing expertise improves healing and supports long-term prevention in high-risk patients (2,5).

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Diabetes related foot ulcers (DRFU) managed with polyabsorbent fibre dressings as part of holistic care – a case series.

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Introduction

The stalwarts of treatment regarding local DRFU wound care includes debridement, advanced dressings to promote healing, wound off-loading, and prevention of and treatment of active infection^{1, 2}. The principles of wound management, wound bed preparation and newer technologies involving alternation of wound physiology to facilitate healing, are of utmost importance when attempting to heal a chronic DRFU³.

Method

A 3-case series involving DRFU where the patients' wounds were managed with a polyabsorbent fibre dressing range, including a neutral fibre rope, silver polyabsorbent fibre pad dressing (TLC-Ag: used in cases where there is a risk of infection) and polyabsorbent fibre pad dressing with TLC-Nano Oligo Saccharide Factor. The polyabsorbent fibres are indicated to be used for the continuous debridement of slough^{4, 5}, while TLC-NOSF possesses matrix metalloproteinases (MMP)-reducing properties and promote healing⁶.

Conclusion

In all cases the wounds had been managed with other dressings without any real positive outcomes and the application of the TLC-Ag polyabsorbent fibre pad dressings and the TLC-NOSF polyabsorbent fibre pad dressings achieved the desired outcomes.

Management of a complex DFU with NPWT and TLC-Ag interface layer followed by TLC-NOSF dressings.

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Title

Management of a complex DFU with NPWT and TLC-Ag interface layer followed by TLC-NOSF dressings.

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Introduction

Several studies have demonstrated that negative pressure wound therapy (NPWT) can accelerate healing rates in DFUs, particularly in complex and nonhealing wounds¹. Wound contact layers are placed between the wound bed and the foam dressing in NPWT to support the granulation process, protect the vulnerable area, and helping prevent new tissue from growing into the wound filler². Cases have been reported of the use of TLC-Ag contact layer dressing as an interface in the management of wounds of other aetiologies³.

Method

The management of a wound at risk of infection using NPWT and TLC-Ag dressings will be presented. 56-year-old male post-surgical debridement of all tissue on the lateral aspect of the foot and on the sole, extending from the metatarsophalangeal joint. NPWT at -125mmHg was applied, with the TLC-Ag dressing used as an interface layer.

By week 10, the wound appeared healthier, and the treatment was changed to TLC-NOSF dressings, with wound closure achieved by week 13.

Conclusion

The TLC-Ag interface layer provided an antimicrobial effect as well as acted as an interface layer to prevent adherence of the reticulated NPWT foam. The use of TLC-NOSF assisted in rapid granulation and final closure after resolution of infection.

Evaluation of polyabsorbent fibre dressings with technology lipidocolloid matrix with silver (TLC-Ag) or nano oligosaccharide factor (TLC-NOSF): A case series from the United Arab Emirates

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Introduction:

For wound management to be successful, clinicians need to not only address systemic factors but also select suitable wound care products to address local wound factors that significantly influence wound healing, including wound infection, devitalised tissue^{1,2}. Moreover, chronic wounds exhibit a chronic pro-inflammatory environment with high levels of extracellular matrix-degrading matrix metalloproteases (MMPs)³.

The multidisciplinary teams at Al Qassimi Hospital, Sharjah, United Arab Emirates, strive to provide evidence-based care to their patients to achieve the best possible outcomes.

Method:

Case series to evaluate outcomes of inclusion of polyabsorbent fibre dressings with technology lipidocolloid matrix with silver (TLC-Ag) or nano oligosaccharide factor (TLC-NOSF) in the standard of care in the management of complex wounds.

Results:

The dressings in the cases portrayed in this article have shown positive results, resonating with the published evidence and clinical studies assessing their performance, with a noticeable rapid resolution of local infection, reduction in slough and level of exudate and faster healing. Most of the wounds had been managed with other dressings without any real positive outcomes and the application of the dressings under evaluation achieved the desired results.

Healing of a Neuropathic Diabetic Heel Ulcer Complicated by Infection and Achilles Tendon Rupture Using a Multidisciplinary Approach: A Case Report

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A 77-year-old polymorbid woman with T2DM (HbA1c 66 mmol/mol) was first examined at a foot clinic in October 2025 for a necrotic neuropathic ulcer of the left heel measuring 4.6 × 6 cm, which had developed in 10/2025 from a shoe-induced blister.

On initial assessment, peripheral neuropathy was confirmed, with preserved toe pressures and no evidence of ischemia. The patient was indicated for larval therapy during hospitalization, and antibiotic treatment was initiated according to culture sensitivity. The left lower limb was offloaded using an orthosis, and antidiabetic therapy was optimized, resulting in improved glycemic control. The heel ulcer showed gradual healing; however, a pocket with fluid retention developed along the Achilles tendon (AT). X-ray imaging raised suspicion of calcaneal osteomyelitis.

In 12/2025, rupture of the AT occurred, accompanied by the formation of a new dorsal defect approximately 10 cm proximal to the tendon insertion. Orthopedic evaluation did not confirm osteomyelitis. Due to the defect and infection at the rupture site, the patient was indicated for surgical revision, extensive debridement, and subsequent secondary healing; below-knee amputation was considered in case of treatment failure.

During surgery, the necrotic portion of the AT protruding from the wound was excised, along with fistula excision, extension of the incision proximally and distally, and debridement of non-viable soft tissues. Adaptation sutures were placed, and an instillation negative pressure wound therapy system was applied.

During hospitalization, repeated wound dressings and VAC exchanges were performed. After discharge, outpatient care continued with gradual suture removal and moist wound healing. The heel ulcer healed completely in 2/ 2026, and the Achilles tendon defect in 4/2026.

Conclusion: This case report describes a complicated healing process of an extensive diabetic neuropathic heel ulcer complicated by infection and Achilles tendon rupture. Successful limb salvage was achieved through intensive and coordinated multidisciplinary care.

Orthonyxia as a Preventive Strategy for Nail-Related Pressure Injury in Diabetic Patients: A Case Series

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Background:

Nail-related pressure and ingrown toenails are a frequent but often under-recognized source of local tissue stress in patients with diabetes mellitus, potentially contributing to soft tissue injury and increasing the risk of complications. Conservative, non-invasive strategies aimed at reducing mechanical load may play an important role in preventive care for high-risk patients.

Methods:

We present a case series of 32 patients managed in a private podology center. All patients underwent orthonyxia using a fiberglass brace system to address nail-induced periungual pressure. Patients were followed at regular intervals, with a median visit frequency of approximately 6 weeks. Long-term follow-up was available, with several cases monitored over extended periods.

Results:

Orthonyxia was associated with consistent reduction of periungual pressure and improvement of local clinical symptoms across the cohort. Regular follow-up enabled maintenance of nail configuration and minimized recurrent nail-edge trauma. No clinically significant periungual injury was reported in the available follow-up data. These findings were supported by photographic documentation in a subset of representative cases, demonstrating sustained clinical improvement over time.

Conclusion:

Orthonyxia appears to be a safe, well-tolerated, and non-invasive intervention for reducing nail-related mechanical stress in patients with diabetes. By minimizing localized pressure and repetitive trauma, it may contribute to preventive strategies in diabetic foot care, particularly in patients at increased risk of tissue injury. Further prospective and controlled studies are needed to better define its clinical effectiveness and role within standardized diabetic foot prevention protocols.

Topical Probiotics for Diabetic Foot Ulcers: A Comparative Case Report

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Background

Diabetic foot ulcers (DFUs) are a common and serious complication of diabetes, often associated with delayed healing due to neuropathy, impaired microcirculation, and persistent inflammation.

Recently, interest has grown in microbiome-based approaches, with topical probiotics emerging as a potential adjunctive strategy to improve wound healing.

Case Presentation

We present the case of a 62-year-old man with a 5-year history of poorly controlled diabetes (HbA1c 8.7%), who developed two chronic diabetic foot ulcers over a period of approximately two months. One ulcer was located on the plantar surface of the left foot, while the second was at the lateral ankle region. Laboratory findings indicated systemic inflammation, including elevated C-reactive protein (13.9 mg/L) and leukocytosis.

An intra-patient comparison was performed. One ulcer was treated with topical probiotics (*Enterococcus faecium* and *Saccharomyces boulardii* applied with hydrogel), while the other received standard care with silver-impregnated dressings. Both wounds were managed using the same cleansing protocol and followed for 8 weeks, with healing assessed using the RESVECH 2.0 scale. No systemic antibiotics or surgical debridement were used.

Results

The ulcer treated with probiotics showed steady and clinically meaningful improvement, progressing from a RESVECH score of 9 at baseline to complete closure by week 8. In contrast, the ulcer receiving conventional treatment demonstrated slower and less pronounced healing, with the RESVECH score improving from 16 to 11 and the wound remaining partially open at the end of follow-up.

Conclusion

This intra-patient comparison suggests that topical probiotics may support healing in diabetic foot ulcers, possibly by improving the local wound environment. Although these findings are encouraging, they are based on a single case and should be interpreted with caution. Larger, controlled studies are needed to further evaluate the role of probiotics in the management of DFUs.

Management of a large leg ulcer and trans-metatarsal am

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Introduction

Multidisciplinary approaches significantly enhance the management of DFUs by improving clinical outcomes and reducing complications¹. Moreover, proper use of dressings can promote DFU healing, reduce the cost of treating DFU, and reduce patient suffering².

Method

Case study presentation of a 52-year-old male, living with obesity, hypertension, type II diabetes, hyperlipidaemia, smoking, and leading a sedentary lifestyle. In January 2021 patient presented with acute ischemia of the right lower limb due to occlusion of the superficial femoral artery, with an ensuing trans-metatarsal amputation in April 2021. As the wound was at risk of infection, the first local therapy was provided by a technology-lipido colloid polyabsorbent fibre pad dressing with silver (TLC-Ag). TLC-Ag enables the continuous debridement of slough and antimicrobial activity³. The dressing was changed later to a polyabsorbent fibre pad dressing with TLC-NOSF which is indicated to promote healing with a reduction of MMPS³.

Result

The patient was followed-up and continued with the same local management at the Vascular Ulcer Clinic, achieving healing after approximately 18 months.

Conclusion

A multidisciplinary evidence-based approach was key to heal this challenging case. The combination of vascular management and local wound management provided the basis to heal this wound and avoid a major amputation.