CASE STUDY

CS-001

Addressing Infection Risk in Hard-to-Heal Wounds With a Bioresorbable Antimicrobial Matrix: A Case Series

Raymond Abdo

Introduction: Evidence suggests a fully synthetic, bioresorbable antimicrobial matrix containing metallic and ionic silver can enhance healing of diabetic foot ulcers (DFUs) and potentially reduce surgical site infection risk. This porous, ultra-thin matrix conforms to wound-bed microtextures, potentially allowing more effective bacterial clearance at the tissue surface than traditional antimicrobial products. This seven-patient case series reports on the use of this matrix to address infection risk and delayed healing in high-risk patients with DFUs.

Methods: Retrospective data were collected from operative notes and clinical follow-up notes for a total of seven patients. Following excisional debridement of the presenting wounds, the matrix was applied per manufacturer instructions and secured with petrolatum gauze and adhesive strips. Wounds were dressed with alginate, gauze, and compression bandages, and patients were instructed to offload. Weekly follow-ups included evaluation of the wound bed, re-debridement, and matrix re-application if clinically indicated.

Results: Patients were 53–76 years old and presented with DFUs secondary to amputations or recurring abscesses. Several also presented with risk factors for delayed wound healing (e.g., congestive heart failure, anticoagulant use). Following application of the matrix, all wounds showed progress towards healing, ranging from slight wound area reduction with improved granulation tissue in 2 weeks to 90% wound area reduction in four weeks. Wound healing outcomes for all seven cases will be presented.

Discussion: Wound healing progress was observed in all seven high-risk patients with diabetes after DFU management with the bioresorbable antimicrobial matrix. This case series highlights the matrix's potential to address infection risk and delayed healing in chronic wound management.

CS-002

The Impact of Home Parenteral Nutrition on Wound Healing Outcomes: A Case Series

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Introduction: Chronic wounds affect approximately 8 million individuals in the United States. Healing depends not only on effective wound care interventions but also on adequate nutrient intake and availability to support tissue repair and regeneration. In chronic wounds, protein needs may increase by up to 250% due to significant protein losses. Timely and effective nutrition care is therefore an important part of supporting wound healing. Nutrition counseling to optimize oral intake, along with nutrient-dense oral nutrition supplements, are typically used as first-line interventions. When oral intake and supplements are not enough, advanced nutrition support, including parenteral nutrition, may be considered part of an individualized plan to support nutrition status and wound healing goals.

Methods: Four patients were included in this case series, each presenting with chronic non-healing wounds. All patients had previously received advanced wound care interventions from their local wound care providers; however, wound healing had plateaued and was classified as non-healing at the time home parenteral nutrition (HPN) was initiated. Patients received HPN administered through the peripherally inserted central catheter (PICC) over a 12-hour nocturnal infusion period. Laboratory values were assessed weekly to optimize individualized parenteral nutrition formulations, with adjustments made based on biochemical trends and patient tolerance.

Results: Prior to initiating HPN, patients had been managing chronic, nonhealing wounds for 13-37 weeks (average 32 weeks). All four patients experienced improved wound healing after initiating HPN with wound closure after 7-8 weeks. HPN therapy was continued for an additional 2 weeks after wound closure to support complete tissue recovery and reduce the risk of recurrence. HPN therapy was administered for an average duration of 7.25 weeks.

Discussion: A comprehensive nutrition assessment of all four patients revealed that each was either clinically malnourished or had an underlying condition impairing nutrient absorption resulting in insufficient nutrients to support wound healing. Individualized HPN formulations ensured delivery of required nutrients to promote optimal wound healing.

CS-004

Histopathologic Confirmation of Fungal Osteomyelitis Following Recovery of an Atypical Organism From Bone Culture

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Introduction: Fungal osteomyelitis is an uncommon cause of chronic wounds and may be difficult to recognize when atypical environmental organisms are recovered from culture. Alternaria species are environmental fungi that may be encountered as contaminants or colonizers, creating diagnostic uncertainty when isolated from chronic wounds or exposed bone. This case highlights the role of histopathologic evaluation in establishing the significance of an atypical fungal isolate recovered from bone culture.

Methods: An immunocompromised patient with a chronic foot wound and exposed bone underwent surgical debridement and resection of the involved bone. Tissue specimens were submitted for microbiologic and histopathologic evaluation. Additional fungal staining was performed following identification of an atypical fungal organism in culture.

Results: Bone culture grew Alternaria species. Histopathologic evaluation demonstrated acute osteomyelitis with neutrophilic inflammation involving bone. Periodic acid-Schiff (PAS) and Gomori methenamine silver (GMS) stains highlighted septate fungal hyphae extending into and through cortical bone, confirming invasive fungal osteomyelitis. Histopathologic findings established the clinical significance of the culture result and supported true fungal infection rather than contamination or superficial colonization. A proximal bone margin was negative for fungal involvement. Follow-up demonstrated progressive wound healing without clinical or radiographic evidence of recurrent osteomyelitis.

Discussion: Recovery of atypical organisms from chronic wounds and bone cultures can present a diagnostic challenge. In this case, culture alone could not determine whether Alternaria represented contamination or true infection. Histopathologic evaluation with fungal stains demonstrated invasion of bone and established the organism as a clinically significant pathogen. This case highlights the importance of maintaining suspicion for atypical organisms in chronic wounds, particularly in immunocompromised patients, and correlating microbiologic findings with histopathology when unusual organisms are recovered.

CS-006

Rapid Healing of Extensive Aplasia Cutis in a Newborn Using Intact Fish Skin Grafts: A Case Report

Rene Amaya, MD; Emily Heisler, MSN, APRN

Introduction: Extensive congenital skin defects associated with aplasia cutis congenita (ACC) can result in significant morbidity in newborns. Treatment is particularly challenging when underlying epidermolysis bullosa (EB) contributes to ongoing tissue fragility and wound breakdown. Published experience describing the use of intact fish skin grafts (IFSGs) in neonates with ACC and EB is extremely limited.

Methods: A full-term male newborn presented at birth with extensive congenital skin defects involving the upper and lower extremities, initially consistent with ACC. Subsequent clinical progression and genetic testing identified a KLHL24 mutation consistent with Bart Syndrome associated with EB type VI. Due to the extent of the tissue loss and con-

cern for long-term functional impairment, IFSGs were applied to upper extremity wounds at 4 days of life during a bedside neonatal wound care procedure. Following initial treatment of the upper extremities, IFSGs were subsequently applied to lower extremity wounds during a second bedside procedure. No operative intervention or additional IFSG applications were required.

Results: Upper extremity wounds achieved complete closure within 10 days following a single IFSG application. Lower extremity wounds achieved complete closure within 17 days following a single IFSG application. No operative intervention, repeat grafting procedures, wound-related complications, including infection or graft-related adverse events were observed. Long-term follow up at approximately 6 months demonstrated durable wound closure with preservation of limb function, preservation of range of motion, and favorable cosmetic outcomes with minimal residual scarring.

Discussion: This case demonstrates that IFSGs may represent a useful treatment option for extensive ACC in neonates. Successful healing occurred despite the presence of genetically confirmed EB, a condition characterized by ongoing tissue fragility and susceptibility to skin injury. The ability to achieve durable wound closure following bedside application without operative intervention may be particularly advantages in medically vulnerable newborns. Additional investigation is warranted to better define the role of IFSGs in neonates with ACC and other complex congenital skin defects.

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CS-007

Safety of Pure Hypochlorous Acid Hydrogel in Neonates and Preterm Infants With Wounds

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Introduction: Neonatal and preterm infants possess an immature skin barrier that increases susceptibility to cutaneous injury from topical wound care products. Pure hypochlorous acid (pHA) solution has previously demonstrated a favorable safety profile in neonatal wound care; however, safety data regarding pHA hydrogel formulations in this fragile population remain limited. The objective of this study was to evaluate the safety of pHA hydrogel when used in neonates and preterm infants with wounds.

Methods: A retrospective safety review was performed of NICU patients with wounds or localized skin infections treated with pHA hydrogel as part of routine wound care. Wound types included surgical wounds, surgical wound dehiscence, gastrostomy-associated wounds or infection, tracheostomy-associated skin breakdown, and severe irritant diaper dermatitis. The hydrogel was applied directly to affected skin or wound beds according to clinical need. Medical records and wound photographs were reviewed for cutaneous adverse effects temporally associated with pHA hydrogel use, including contact dermatitis, erythema, chemical irritation, secondary skin breakdown, wound deterioration, or treatment intolerance.

Results: No cutaneous adverse effects associated with pHA hydrogel use were identified. Specifically, no cases of contact dermatitis, treatment-related erythema, chemical irritation, secondary skin breakdown, wound deterioration, or treatment intolerance were observed. The hydrogel was well tolerated across all patients and wound types. Clinical improvement was observed in all treated wounds and skin conditions during the treatment period. No adverse interactions were identified when pHA hydrogel was used in conjunction with advanced wound dressings or negative pressure wound therapy.

Discussion: This experience suggests that pHA hydrogel may represent a safe and well-tolerated wound care adjunct for neonates and preterm infants with wounds. No cutaneous adverse effects or treatment-related complications were identified, including when used in conjunction with advanced wound dressings and negative pressure wound therapy. The hydrogel formulation may offer practical advantages in wound management by facilitating prolonged contact with the wound bed and maintaining a moist wound environment. These findings extend the favorable neonatal safety experience previously reported with pHA solution and support further evaluation of pHA hydrogel in larger neonatal populations.

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CS-008

Bio-Burden Management: Efficacy of PHMB & EDTA in the Treatment of Acute & Chronic Wounds.

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Introduction: Acute and chronic wounds frequently harbor polymicrobial communities that may impair healing. Despite widespread use of topical wound cleansers, limited molecular evidence exists regarding their immediate effects on wound microbial burden. This paired pre/post case series evaluated a topical wound cleanser containing PHMB and EDTA, with changes in microbial burden, organism count, and microbial profile assessed using PCR testing.

Methods: Five adult patients with open wounds were enrolled, with one wound evaluated per patient. Baseline specimens were collected using Levine's technique and swabs prior to cleansing. A topical wound cleanser containing PHMB and disodium EDTA was applied to the wound for 60 seconds using sterile gauze, followed by collection of a second specimen from the same wound area approximately 5 minutes later. Paired samples were analyzed using a semi-quantitative real-time PCR wound panel to assess changes in total microbial burden (GCE/mL), organism count, and microbial profile.

Results: All five wounds demonstrated a reduction in total PCR-detected microbial burden following cleansing. The combined microbial burden decreased from 73,216,860 GCE/mL at baseline to 13,630,875 GCE/mL post-cleansing, representing absolute reduction of 59,585,985 GCE/mL and an overall reduction of 81.4%. Individual wound reductions ranged from 50.76% to 95.44%, with three of five wounds exhibiting reductions exceeding 85%.The total number of PCR-detected organisms decreased from 38 at baseline to 24 following cleansing, corresponding to a 36.8% reduction. Organism count decreased in four wounds and remained unchanged in one wound. Commonly detected organisms included Corynebacterium striatum, Enterobacter cloacae, Ente. faecalis, P. magnus, and Staphy. aureus. Findings suggest that a 60-second application of a PHMB- and EDTA containing topical wound cleanser was associated with substantial reductions in both total microbial burden and organism diversity as measured by PCR.

Discussion: A standardized 60-second application of a PHMB and disodium EDTA containing wound cleanser was associated with an immediate reduction in PCR-detected microbial burden across all five wounds, with decreases in organism count in most cases. Because PCR detects microbial DNA rather than organism viability, these findings should be interpreted as reductions in detectable molecular burden rather than direct evidence of bactericidal effect. In the absence of a comparator group, the relative contributions of antimicrobial activity, physical removal of microorganisms, dilution effects, and repeat-sampling variability cannot be determined independently. While these preliminary findings support the potential impact of wound cleansing on the wound microbiome, larger controlled studies are needed to confirm reproducibility, establish clinical

significance, evaluate viability-sensitive microbiological endpoints and wound-healing outcomes.

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CS-010

Utilization of Resorbable Synthetic Electrospun Fiber Matrix* in Soft Tissue Defects in Foot Trauma With Infection: A Case Study

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Introduction: Restoring the soft tissue envelope of extensive foot and ankle traumatic wounds with superimposed infection is especially challenging. Traumatic wounds present with contamination to some extent, which can impede wound healing and may result in further infection and operation. When primary closure is not feasible, reconstruction approaches including skin grafts and substitutes are considered. However, wound bed preparation is required prior to application and must be staged. Resorbable synthetic electrospun fiber matrix has been gaining favor as it combines the biomechanical advantages of synthetic meshes with the biocompatibility benefits of resorbable materials, while their electrospun nanofiber architecture uniquely mimics the native extracellular matrix (ECM) to promote cellular ingrowth and neovascularization. It also minimizes risks associated with biological products and thus may be applied directly to hostile wound environments with exposed structures.

Methods: This case report investigates this advanced wound matrix in secondary healing of a traumatic shear foot injury with superimposed cellulitis. A surgical excisional wound debridement was performed in this case resulting in a large soft tissue deficit with an exposed blood vessel. Non-woven resorbable synthetic electrospun fiber matrix followed by a non-adherent dressing were applied with initiation of negative pressure wound therapy (NPWT). NPWT was utilized for 20 days until adequate granulation and coverage of the exposed blood vessel, and local wound care continued thereafter with biodegradable oxidized regenerated cellulose/collagen dressing with silver.**

Results: 92.2% reduction in wound size was observed over approximately two months without reoperation, severe bleeding or ischemic complications.

Discussion: This case demonstrates durability of this particular wound matrix to withstand an acute complex wound environment while providing a physical barrier and allowing granulation over exposed structures. Moreover, synthetic electrospun scaffolds may reduce additional surgical intervention, procedural time and hospital stays, which may benefit resource-limiting settings.

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CS-011

Small Particles, Big Impact: A Case Series on Topical Transforming Powder Dressing for Wound Care

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Introduction: Acute and chronic wounds present a major global healthcare challenge due to significant costs, delayed healing, comorbidities, infection risks, and frequent dressing changes.1 This study investigates an alternative: An extended-wear (up to 30 days) topical transforming powder dressing (TPD) to improve healing outcomes and reduce the burden of frequent dressing changes.

Methods: A collaborative case series across inpatient acute care and outpatient general surgery services was used. Adult patients with acute and chronic wounds exhibiting delayed healing were selected for treatment with a topical transforming powder dressing. The evaluation included five wounds: Three postoperative surgical wounds, one tube site wound, and one left flank wound of unknown etiology. The dressing was applied per manufacturer guidelines with routine clinical visits assessing wound progression, tissue characteristics, drainage, pain, peri-wound condition, and signs of infection. Key outcome measures included wound healing progression, size reduction, time to closure, dressing change frequency, patient tolerance, and the need for further interventions. Data were collected from clinical documentation and serial wound assessments.

Results: TPD was primarily initiated for wounds 2-4 weeks old, often after treatments like negative pressure wound therapy (NPWT) or silver alginate. It significantly reduced dressing change frequency from daily or twice weekly to predominantly once weekly applications. While TPD generally did not affect patient length of stay, all five respondents reported faster healing times. Patient-reported pain improved for three respondents, with two noting no change. All respondents strongly recommended TPD system wide adoption.

Discussion: TPD has demonstrated several benefits, including accelerated healing rates, with documented increases exceeding 20%. It has also shown successful as a transition therapy after the removal of NPWT. Patients experienced improvements in their quality of life, including increased mobility, reduced pain, and fewer dressing changes. TPD's shorter application time compared to NPWT also reduced treatment costs and labor. TPD is particularly useful when NPWT is problematic (e.g., painful, difficult to seal) or when other topical dressings are ineffective.

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CS-012

A Borate-Based Bioactive Glass Advances Wound Healing in Non-Healing Wagner Grade 1 Diabetic Foot Ulcers: A Randomised Controlled Clinical Trial

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Introduction: A novel advanced synthetic bioactive glass matrix was studied in patients with non-healing diabetic foot ulcers (DFUs). Bioactive glasses can be constructed to be biocompatible, with water-soluble

materials in multiple geometries including fiber scaffolds that mimic the 3D architecture of a fibrin clot. This scaffold allows for infiltration and proliferation of native cells and maintains sufficient space for native collagen deposition and blood vessel formation.1 As the matrix dissolves into its base constituents such as boron and calcium, a further environmental effect in the wound bed occurs, stimulating critical processes like angiogenesis, which may be facilitated via upregulation of VEGF due to the addition of bioactive glass fibers.2,3

Methods: In this trial, chronic, Wagner Grade 1 DFUs were randomized to receive borate-based bioactive glass Fiber Matrix (BBGFM) plus standard of care (SOC) therapy for 12 weeks or SOC alone. The primary study endpoint was the proportion of subjects that obtained complete wound closure at 12 weeks. Secondary endpoints included time to achieve complete wound closure at 12 weeks.

Results: In the per protocol population, 73% (32/44) of subjects treated with BBGFM plus SOC healed at 12weeks compared to 42% (16/38) in the SOC group (p=0.007) and the mean time to heal within 12weeks for the BBGFM plus SOC was 8.2weeks (95% CI: 7.0–9.4) compared to 9.7weeks in the SOC group (95% CI: 8.6–10.7) (adjusted p=0.084 [not statistically significant]). In the modified intent-to-treat (mITT) population, 48% (32/67) of subjects treated with BBGFM plus SOC healed at 12weeks compared to 24% (16/66) in the SOC group (p=0.007) and the mean time to heal within 12weeks for the BBGFM plus SOC group was 9.1weeks (95% CI: 8.1–10.0) versus 10.4weeks in the SOC group (95% CI: 9.6-11.1) (adjusted p=0.042).

Discussion: Based on the success of this trial, BBGFM demonstrates faster healing of DFUs compared to SOC and should be considered in the treatment armamentarium for Wagner Grade 1 DFUs. The significantly increased healing rates and rapid wound area reduction demonstrate that BBGFM can promote wound healing in multiple phases, particularly granulation tissue formation and re- epithelialization in the proliferative phase.

CS-013

Beyond Sharp Debridement: Early Clinical Experience With a Powered Mechanical Wound Cleansing Device Across 23 Complex Wounds

Kristof Balliu; Bert Drijkoningen, MSc/RN/WOCN

Introduction: Chronic wounds frequently contain slough, fibrin, debris, and biofilm that impair healing and increase the risk of infection. While sharp debridement remains the gold standard for removing non-viable tissue, repeated wound bed preparation between debridement sessions remains a significant clinical challenge. Current cleansing approaches may be painful, inconsistent, or difficult to perform in outpatient and home-care settings. A powered rotating silicone-bristle wound cleansing device was developed to support routine wound bed preparation while preserving viable tissue and improving patient comfort.

Methods: A retrospective review was conducted on the first 23 consecutive patients treated using the Yarrow™ Wound Brush in community and outpatient wound care settings. Wound types included diabetic foot ulcers, venous leg ulcers, traumatic wounds, burn wounds, post-surgical wounds, wound dehiscence, arterial ulcers, and wounds following severe soft tissue infection.

Results: The device was successfully integrated into routine wound care across all wound categories. Clinicians consistently reported effective removal of slough, fibrin, exudate, and superficial contaminants while preserving healthy granulation tissue.

Across the evaluated cases, visual assessment demonstrated an average reduction of approximately 90% of superficial slough and fibrin immediately following cleansing. Clinicians reported improved wound bed quality, facilitating subsequent wound management interventions and maintenance between episodes of sharp debridement.

The most commonly observed benefits included: • Rapid removal of slough and fibrin. • Preservation of viable granulation tissue. • Improved patient tolerance compared with traditional mechanical cleansing techniques. • Consistent wound bed preparation in outpatient and home-care settings. • Ease of use by wound care nurses and clinicians. • Support of ongoing biofilm management between sharp debridement sessions. Representative Case: A 74-year-old female with advanced COPD presented with a traumatic lower-leg wound following surgical evacuation of an infected hematoma. Severe pain sensitivity and anxiety limited tolerance to conventional wound care. Following introduction of the powered wound cleansing device, wound hygiene could be maintained with minimal discomfort, allowing consistent treatment adherence. Progressive granulation tissue formation and eventual wound closure were achieved without interruption of care.

Discussion: This early real-world case series demonstrates that powered mechanical wound cleansing may provide a valuable adjunct to contemporary wound bed preparation strategies. The device effectively removed slough and fibrin while preserving healthy tissue and improving patient tolerance across a broad range of wound types. The observed average reduction of approximately 90% of superficial slough following treatment suggests potential utility as a maintenance wound bed preparation tool between sharp debridement procedures.

CS-014

Pedicled Sartorius Muscle Flap for Chronic Lymphatic Groin Wounds: A Single-Stage Reconstructive Strategy

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Introduction: The sartorius muscle flap has been successfully employed as a single-stage therapy for infections and complex lymphatic complications of groin wounds following arterial revascularization. While its role in managing postoperative groin wound complications is well documented, its utility in treating chronic lymphatic leaks remains largely unexplored. The goal of this study was to evaluate the efficacy and outcomes of sartorius muscle flap reconstruction in patients with chronic lymphatic groin leaks.

Methods: This retrospective case series includes two adult patients with chronic lymphatic groin wounds who underwent single-stage wound reconstruction with a sartorius muscle flap between March 2024 and September 2025. Data on demographics, wound characteristics, treatment strategies, and outcomes were collected from medical records. Key variables included wound location, size, and classification. Primary outcomes analyzed were time to closure, complications, and need for unplanned reoperation. Descriptive statistics were used for data analysis.

Results: Both patients presented with groin lymphatic leaks persisting for over six months, one complicated by chronic lymphocele and the other complicated by cellulitis. Each underwent single-stage operative management with a pedicled sartorius muscle flap to cover the site of leakage. Mean hospital length of stay was five days, and average time to complete cutaneous healing was five weeks. No postoperative complications or unplanned reoperations occurred. Over an average six-month follow-up period, both patients demonstrated successful wound closure and complete resolution of the lymphatic leak.

Discussion: This series represents the first report of a pedicled sartorius muscle flap used to address chronic lymphatic leakage of the groin. These findings highlight the flap's versatility and suggest it may serve as an effective treatment option for this challenging condition, particularly when reoperation risk and prolonged wound care burden are clinical concerns. Prospective studies with larger cohorts are warranted to validate these outcomes and better define the role of sartorius muscle flaps in managing chronic groin lymphatic leaks.

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CS-015

A Patient-Managed Dual-Product Dressing Strategy Post Mohs Surgery: Collagen-Mānuka Honey-Hydroxyapatite With Silicone Bordered SAP Dressing

Rachel Beem; Isaac Rodriguez; Chrystalbelle Rogers; Gwen Beard

Introduction: Mohs micrographic surgery (MMS) is a skin cancer removal procedure that produces postoperative wounds that can often be difficult to heal due to reduced vascularity, fragile/thin skin, and coexisting medical conditions. Although secondary intention healing (SIH) remains a standard management approach, it may be associated with prolonged healing and less favorable cosmetic outcomes. Published wound care strategies in this setting traditionally emphasize wound closure (surface area) using a single-product intervention. In contrast, an affordable deliberate dual-dressing strategy, pairing a bioengineered primary dressing with a proactive yet gentle super absorbing secondary cover, may more effectively support both deep tissue repair and surface healing in post-MMS cases. This case series highlights the clinical success observed with a specific combination treatment plan: daily reapplication of a collagen-Mānuka honey-hydroxyapatite dressing* (CHD) used as the primary contact layer and a silicone bordered SAP (superabsorbent polymer) cover+ used as the secondary wound dressing, together enabling consistent, patient-managed wound progression after MMS.

Methods: This case series evaluated an insurance-reimbursed, dual-product approach using the CHD with a silicone bordered SAP cover in nine post-MMS wounds managed by SIH. Patients received both dressings and an antimicrobial wound irrigation solution via a durable medical equipment (DME) home-delivery model and self-applied the dressings at home according to manufacturer guidelines. Healing progression was documented with before-and-after images and assessed qualitatively for granulation tissue formation, erythema/inflammation, and epithelialization and quantitively for wound depth.

Results: The average wound area was 8.4cm2 with an average depth of 0.6cm. Across all cases, the CHD + silicone bordered SAP dual-dressing regimen was associated with clear clinical improvement, including full re-volumization within 6 weeks (average), increased granulation tissue, reduced erythema, and progressive closure, even in wounds with exposed underlying tissue.

Discussion: These real-world findings suggest that the specific combination of the CHD and a silicone bordered SAP can support effective healing in post-MMS wounds managed by SIH. Beyond wound progression, the affordable, insurance-covered DME home-delivery model may improve access and support adherence in an older, comorbidity-burdened patient population. Collectively, this two-product, patient-managed approach represents an accessible, clinically effective, low-cost, and patient-centered option for enhancing outcomes in dermatologic surgery.

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CS-016

Wound Healing of Auricular Defects After Mohs Surgery Using an At-Home, Patient-Applied Collagen-Mānuka Honey-Hydroxyapatite Dressing

Isaac Rodriguez, PhD; Rachel Beem, BS; Nathalie Dhir, BSN; Anir Dhir, MD

Introduction: Auricular wounds following Mohs micrographic surgery (MMS) present unique healing challenges due to the complex three-dimensional anatomy of the ear, minimal soft tissue coverage, and the avascular nature of the underlying cartilage. Secondary intention healing (SIH) is commonly employed but typically requires 6-10 weeks for full epithelialization, with a recent multicenter study reporting a mean closure time of 56.9 days across 54 auricular cases. Traditional reconstructive approaches, including full-thickness skin grafts, are associated with secondary donor site morbidity and poor graft take on avascular cartilage. A collagen-Mānuka honey-hydroxyapatite dressing* (CHD) has demonstrated clinical efficacy across multiple wound types and was evaluated here as a patient-applied, at-home treatment option for auricular MMS defects.

Methods: Three patients underwent MMS for non-melanoma skin cancer of the ear, with wounds managed by advanced SIH. The CHD was dispensed directly by the treating physician for immediate home use under a patient-pay model. Patients self-applied the CHD every 3–4 days, covered with a hydrocolloid secondary dressing. Routine wound evaluations were conducted at weeks 2 and 4. Wound dimensions were documented at each visit, and all patients consented to use of de-identified clinical images.

Results: Initial wound defects measured 6.25 cm^2, 3.61 cm^2, and 1.0 cm^2 across the three patients, who presented with comorbidities including advanced age, prior failed skin graft, and chronic immunosuppression. All wounds demonstrated healthy granulation tissue at week 2 and achieved complete epithelialization by day 28, with minimal to no visible scarring. These results represent epithelialization approximately 2-fold faster than the multicenter SIH benchmark of 56.9 days. Average CHD treatment cost was approximately $125 per patient, compared to $957.40 for full-thickness skin graft reconstruction under Medicare reimbursement in this region.

Discussion: CHD-assisted SIH achieved markedly accelerated auricular wound closure compared to published SIH benchmarks, even in high-risk patients. The at-home, patient-directed application model reduced the need for frequent clinic visits while maintaining favorable outcomes. The cost differential between CHD and skin graft reconstruction, an average savings of $832 per patient, highlights the potential for meaningful healthcare resource reduction. These findings support the CHD as a practical, affordable, and effective option for auricular MMS wound management. Prospective studies with larger cohorts are needed to confirm these results and evaluate long-term cosmetic and functional outcomes.

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CS-017

This Wound Will Never Heal!" ...But It Did, With Polymeric Membrane Dressings

Linda Benskin

Introduction: An otherwise healthy (muscular, BMI 27.2) 49-yr-old self-employed roofer ("JM") suffered a complex right ankle fracture (and other injuries) playing indoor soccer. ~7 weeks after ORIF (with a plate), infection led to emergency surgery. A week later, skin grafting was conducted; one edge dehisced. JM took cefadroxil and rifampin, plus hydrocodone for pain. Over 5 weeks post-grafting, multiple open wound areas extended from medial malleolus to mid-calf. The largest was 3.0cm by 8.0cm by 1.5cm deep. Embedded sutures were clearly visible. Hydrofiber and honey dressings provided no improvement. JM contacted the author after his caregivers suggested that his remaining wounds would never close. This was completely unacceptable to this working man, who relied on his physical prowess to feed his family.

Methods: JM sought guidance in using polymeric membrane dressings* ("PMDs"), which his friend had used to facilitate closure of a chronic pyoderma gangrenosum wound. PMDs' built-in wound debriding system eliminate the need for wound cleansing or even rinsing. PMDs control inflammation and help eliminate the resultant edema, improving circulation. In addition, glycerol in the dressings provides nutrients directly to the cells. PMDs effect the pain-sensing nerves (the nociceptors), providing dramatic pain relief. A color change indicates when dressings should be changed. All of this made it possible to empower JM to use PMDs for himself, despite the skepticism of JM's local trauma center. JM used standard, extra-thick, and cavity filler PMDs.

Results: JM required frequent guidance via an encrypted messaging system* for the first two weeks. After 6 weeks, JM confessed to cleaning with alcohol, despite being told repeatedly not to even rinse, at dressing changes. This explained why the wounds were dry despite PMD's moisture-balancing system. After this ceased, the wounds closed rapidly. The trauma center physician assessed monthly, but remained skeptical even as the wounds steadily closed. Complete closure (no scab, no crust, and no stain on a paper towel pressed against the scar) occurred at 3 months.

Discussion: JM felt as if he had been thrown away by the trauma center. PMDs empowered him and led to steady and complete closure of his challenging wounds.

*Signal

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Disclosure: The patient purchased the dressings from the internet and did his own dressing changes. The author provided remote guidance. Ferris Mfg, Corp. will support the poster presentation if the abstract is accepted.

CS-018

Self-Assembling Peptide Biomimetic Matrix for Managing a Stalled Wound Bed Following Failed Tissue Grafting

Scott Boynton; Melina Butuci, PhD; Jonash Loh, MD; Dennis McMahon, MD

Introduction: A 58-year-old male with Type 2 Diabetes, peripheral neuropathy, and peripheral arterial disease presented with a stalled wound after a partially failed Split-Thickness Skin Graft (STSG). Despite a history of balloon angioplasty, minor amputation, and an open transmetatarsal amputation (TMA) managed with negative pressure therapy, the wound bed remained compromised with heavy slough and biofilm 8 weeks after the STSG.

Methods: To optimize the wound bed, authors performed sharp debridement followed by an intraoperative application of self-assembling peptide biomimetic matrix (BMM)* via a tip applicator directly to the failed STSG site. This BMM is a biosynthetic, flowable matrix composed of synthetic Self-Assembling Peptides that form a 3D hydrogel scaffold mimicking native extracellular matrix while providing an antibacterial barrier. The clinical objective was to eliminate dead space, provide a barrier to prevent bioburden reforming, and accelerate granulation tissue formation to prepare the stalled defect for secondary advanced therapies.

Results: At baseline, the wound measured 1.9 cm × 1.6 cm × 0.3 cm. By day 8, the wound bed demonstrated no biofilm, product incorporation, and contraction to 1.5 cm × 1.3 cm × 0.2 cm, achieving a 57.2% Percent Volume Reduction (PVR). By day 15, excellent granulation was achieved, reducing the defect to 1.0 cm × 0.8 cm × 0.2 cm (82.5% total PVR), allowing for successful transition to a dehydrated amnion chorion membrane sheet.

Discussion: This case demonstrates that G4Derm Plus serves as an effective adjunct for complex, full-thickness defects by driving rapid granulation over exposed structures. Clinicians can learn that its flowable, synthetic SAP matrix provides a reliable, easy-to-use alternative negative pressure or acellular scaffolds for filling structural deficits and restoring tissue volume. This technology offers a predictable biomaterial solution in challenging clinical scenarios, providing an ideal bridge to prepare compromised tissue beds for successful wound closure.

CS-019

Use of a Borate-Based Bioactive Glass Fiber Matrix in a Paraspinous Muscle Flap Closure Over Cervical Spine Hardware: A High-Risk Revision Case Report

Donald W. Buck II, MD, FACS

Introduction: Posterior cervical closure after a multi revision spine surgery is high-risk with a scarred, poorly vascularized soft-tissue envelope, spinal instrumentation, and exposed spinous processes leaving little tolerance for dehiscence, which can precipitate hardware contamination and deep infection. Advanced biologic matrices are increasingly used as adjuncts to support healing of these vulnerable closures. Borate-based bioactive glass fiber matrices (BBGFM) act through a distinct mechanism whereby they create a microenvironment conducive to angiogenesis and quality granulation tissue formation, while their conformable form factor allows for placement into deep, difficult-to-access wound architecture. This report describes such use over a paraspinous muscle flap closure.

Methods: A male with four prior cervical spine procedures underwent a fifth operation requiring re-entry through a heavily scarred posterior field. Reconstructive consultation was requested for coverage of the spinous processes and instrumentation, where there was low tolerance for dehiscence given the downstream threat of hardware contamination. A paraspinous muscle flap was raised and closed to provide vascularized soft-tissue coverage of the hardware. A BBGFM was then applied intraoperatively along the muscle closure; its conformable form factor allowed it to be placed into the deep, narrow architecture overlying the instrumentation to foster a supportive healing environment

Results: The closure healed uneventfully. At follow-up, there was no evidence of muscle or incisional dehiscence, despite four previous operations in the same anatomic region, and the overlying skin incision

healed without breakdown. No additional reconstructive intervention was required.

Discussion: In a high-risk revision cervical closure with exposed hardware and a compromised, poorly vascularized envelope, applying a BBGFM along a paraspinous muscle flap closure to facilitate angiogenesis and quality granulation was associated with durable, dehiscence-free healing. Notably, the closure healed without breakdown despite four prior operations in this area. These findings support the use of BBGFM in deep, difficult-to-access surgical fields with exposed instrumentation.

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CS-020

Biomimetic Matrix for Complex Wounds in High-Risk Anatomical Locations: A Three-Case Series

Michelle Butterworth, DPM

Introduction: Lower extremity wounds in anatomically high-risk locations, particularly near tendons, joints, and bony prominences, present significant challenges when standard of care (SOC) fails. A novel dual-action flowable biomimetic matrix (BMM)* that supports healthy tissue regrowth via an ECM-like scaffold while providing durable antibacterial protection is well-positioned to treat high-risk wounds. This case series describes the use of BMM in three patients with complex lower extremity wounds that were non-responsive to conservative management.

Methods: Three patients presented with distinct wound etiologies in high-risk locations: a traumatic crush injury to the posterior heel; a stalled dog bite wound overlying the lateral malleolus; and multiple concurrent ulcers at a transmetatarsal amputation site, heel, and leg. All wounds received surgical debridement prior to BMM application in the operating room. Wound dimensions were recorded at each visit, with percent area reduction (PAR) and percent volume reduction (PVR) calculated from baseline.

Results: All three patients demonstrated rapid healing progression. The first patient, with a crush injury with exposed fascia and high-risk of Achilles tendon exposure, achieved wound depth resolution at 3 weeks and complete closure at 7.5 weeks following two BMM applications, enabling early return to footwear and work. The second patient, with complex ankle history and chronic arthritis, presented with a month-long stalled traumatic wound overlying the lateral malleolus; complete closure was achieved at 5.5 weeks after one application, with concomitant reduction in pain and perilesional edema. The third patient, with severe peripheral vascular disease and active tobacco use, presented with four concurrent non-healing wounds at a transmetatarsal amputation site, heel, and leg, achieved 60–86 PAR and 78–100 PVR across all wounds by week 4 following two applications.

Discussion: These cases demonstrate that BMM can facilitate healing in diverse, high-risk lower extremity wounds where SOC has been insufficient. Ease-of-use and efficacy was observed across different wound etiologies, anatomical locations, and patient profiles. Early use of the advanced BMM in high-risk wounds may reduce complications and promote timely closure, suggesting a viable strategy for challenging cases in surgical and/or wound care practice. Further studies are needed to confirm and expand on these findings.

CS-021

Collagen for Chronic Wound Healing in Venous Leg Ulcers Evaluated With Near-Infrared Spectroscopy Imaging

Hailey Caprara, BSN, RN, CWS, DAPWCA; Nirman Tulsyan, MD, FACS, RPVI

Introduction: Chronic wounds often exhibit impaired extracellular matrix formation, persistent inflammation, and reduced tissue oxygenation. Collagen-based wound matrices have been shown to support granulation tissue formation, modulate protease activity, and facilitate cellular migration essential for healing. Near-infrared spectroscopy (NIRS) imaging provides a non-invasive method for assessing tissue oxygenation and perfusion within chronic wounds. This study evaluated the effectiveness of collagen* in promoting wound healing and enhancing local tissue perfusion, as measured by multispectral NIRS imaging†.

Methods: This prospective observational case series evaluated 10 patients with chronic lower-extremity venous leg ulcers. Following sharp debridement and standard wound bed preparation, collagen* was applied according to the manufacturer's protocol. Wounds were monitored weekly over a 4-week period using digital planimetry, clinical photography, and NIRS imaging to assess tissue oxygen saturation (StO_2), perfusion patterns, and peri-wound vascular response.

Results: Treatment was associated with progressive granulation tissue formation, reduction in wound surface area, and improved peri-wound tissue quality. NIRS imaging demonstrated rising localized tissue oxygenation and perfusion throughout the 4-week study period (above 17% StO2 rise in the wound bed), consistent with enhanced microvascular activity and improved wound-bed viability. Wounds exhibiting earlier perfusion gains followed more favorable healing trajectories. These findings are descriptive and uncontrolled; no statistical inference is drawn from this small cohort.

Discussion: In this exploratory series, a collagen-based matrix provided a favorable extracellular scaffold that supports chronic wound healing while improving local tissue perfusion. Multispectral NIRS imaging proved valuable for objectively monitoring physiologic wound changes and may assist clinicians in predicting healing potential and treatment response. These hypothesis-generating observations warrant confirmation in a controlled, adequately powered study.

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CS-022

Retrospective Observational Evaluation of a Multimodal Wound Matrix as Primary Therapy for a Thermal Burn in an Adult Private Practice Wound Setting

Shaun Carpener, MD; Angelina Ferguson, DNP, FNP, CWS; Christopher Keaton, APRN, NP-C, CWS; Sarah Moore, BSN, MBE

Introduction: Recent advances in wound care have generated growing interest in multimodal matrixes capable of simultaneously addressing the multiple barriers that obstruct wound healing. In the case study presented here, a multimodal wound matrix (MWM) was incorporated into a comprehensive treatment regimen that included meticulous wound bed preparation and protective skin care for a partial thickness thermal burn. A 57-year-old male with a medical history of L1 paraplegia, hypertension, nicotine use, lymphedema, and venous insufficiency sustained a second-degree thermal burn to the anterior right lower extremity (RLE) shin. The patient initially presented to the emergency department, where he was prescribed silver sulfadiazine (Silvadene) cream and referred to outpatient wound care. Evaluation at the MedCentris Wound Healing Institute by a Certified Wound Specialist measured the burn at 190.3cm2.

Methods: The patient underwent SOC treatment for a total of five months, consisting of weekly surgical sharp debridement, exudate management with appropriate dressings, multilayer compression therapy, nutritional optimization, and regular infection screening and management. At this time, the application of MWM was included alongside continuation of the SOC treatment. Following each debridement, MWM was applied directly to the prepared wound bed and covered with a silicone contact layer, followed by a secondary dressing for exudate management. As drainage decreased, soft silicone foam dressing was utilized.

Results: With 15 applications of MWM, the wound achieved full closure over a 17.86-week duration. Both the patient and treating clinician expressed high satisfaction with the clinical progress, observing minimal tissue scarring, retained elasticity and minimal fibrosis. No adverse events or safety concerns were observed with the adjunctive use of MWM alongside SOC.

Discussion: This case demonstrates the clinical benefit of incorporating a multimodal, biological active matrix that simultaneously addresses inflammation, bioburden, and tissue regeneration in a complex wound environment complicated by paraplegia, venous insufficiency, lymphedema, and nicotine use. The accelerated healing trajectory observed in this case study supports further investigation of the MWM as an adjunctive therapy in refractory lower extremity wounds. Larger prospective studies are warranted to validate these findings and better define the role of this matrix in multimodal wound management.

CS-023

Healing Without Harm: Atraumatic Management of Skin Tears in Three Patients

Lillie Castro; Rachel D Guerrero, BSN, RN, WCC; Doria D Bugarin, BSN, RN

Introduction: Skin tears are acute traumatic wounds frequently encountered in the elderly population and individuals with fragile skin. These wounds can be difficult to manage due to pain, tissue fragility, and the potential for additional trauma during dressing changes. Selecting dressings that protect the wound bed while minimizing disruption to newly formed tissue is essential for promoting timely healing. This case series evaluated the effectiveness of a soft silicone wound contact layer dressing in supporting healing outcomes for patients with skin tears.

Methods: Three patients presenting with skin tears of varying severity were treated using a soft silicone wound contact layer, followed by dry gauze and roll gauze, as part of a standardized wound care plan. Wounds were assessed regularly for progress toward closure, condition of the wound bed, peri-wound skin integrity, and tolerance to treatment.

Results: Our findings align with ISTAP recommendations for use of a soft silicone contact layer as a primary dressing for skin tear treatment. All three patients achieved complete wound closure within four weeks treatment. The dressing remained intact and well tolerated throughout the treatment period. No dressing-related complications, wound deterioration, or signs of infection were observed. The atraumatic properties of the dressing allowed for dressing changes with minimal disruption to the wound bed and surrounding skin. Wound progression was consistent across all cases, demonstrating favorable healing outcomes within the evaluation period.

Discussion: This case series suggests that soft silicone wound contact layer dressings may be an effective option for managing skin tears in patients with fragile skin. The ability to protect the wound bed while minimizing trauma during dressing changes may contribute to successful healing outcomes. Although limited by the small sample size, these findings support further investigation of soft silicone wound contact layer dressings in larger patient populations to better evaluate their impact on healing, patient comfort, and clinical practice.

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CS-024

Use of a Transforming pHEMA-Based Powder in Chronic Wounds of Diverse Etiologies: A Single-Center Case Series

Nishitha Chaayanath, BS; Neil Reddy, BS; Imelda de Vera Guimary, APN; Mark Granick, MD

Introduction: Chronic wounds are wounds that resist progression through the stages of healing despite standard medical therapy. They affect more than 10.5 million Medicare beneficiaries and cost an estimated $22.5 billion annually [1]. These wounds can result in persistent pain, impaired mobility, infection, reduced quality of life, and increased mortality rates. Consequently, the development of novel wound care modalities is critical to reducing the burden of this epidemic. In this study, we present a case series describing the effectiveness of a transforming poly-2-hydroxyethyl methacrylate powder (TMP)* in patients with diverse chronic wound etiologies at a single wound center.

Methods: This case series included patients treated with TMP for chronic wounds at a wound center at University Hospital in Newark, New Jersey, between October 2024 and November 2025. Inclusion criteria included: (1)Presence of a chronic wound that failed to progress within four weeks of standard wound care (2)Receipt of at least one documented TMP* application, (3)At least one follow-up visit after initiation of treatment, and (4)Availability of baseline and follow-up wound assessments. Patient information was de-identified prior to analysis. No monetary incentivization was offered for participation.

Results: Ten patients with chronic wounds of diverse etiologies, including venous stasis ulcers (50%), calciphylaxis-associated wounds (10%), traumatic wounds (10%), inflammatory ulcerations (10%), vasculitic wounds (10%), and wounds associated with autoimmune disease (10%), were treated with TMP*. All patients had wound-healing risk factors, including hypertension (60%), diabetes mellitus (50%), venous insufficiency (30%), BMI >40 (20%), and immunologic comorbidities (20%). Among wounds with available measurements, the mean reduction in wound area was 75.9%, with individual reductions ranging from 66.7% to 100%. Three patients achieved complete wound resolution, while the remaining

demonstrated progressive granulation tissue formation, epithelialization, and contraction. Clinical benefits included improved tissue quality and decreased pain, with no major wound-related complications or infections observed during treatment.

Discussion: TMPs* are designed to conform to irregular wound contours, maintain a moist wound environment, and permit oxygen diffusion, characteristics that may facilitate progression through impaired phases of wound healing [2,3]. Although prior studies have demonstrated promising results in selected wound types, their generalizability is limited by homogenous wound etiologies and small patient populations.[4] The present series contributes to this growing body of literature by examining the application of a pHEMA-based transforming powder* in a real-world patient population. Larger prospective controlled studies are needed to more precisely define the role of this treatment.

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CS-025

Office-Based Management of Complex Volumetric Wounds Using a Three-Dimensional Porcine Liver-Derived Acellular Scaffold: A Two-Case Experience

Stephanie D. Clark, MD, MPA

Introduction: Complex wounds with depth, undermining, tunneling, or dead space may have wound burden underestimated by surface-area measurement alone. In office-based wound care, product selection must align with wound geometry, infection status, offloading or pressure management, and dressing workflow. This two-case experience describes use of a conformable three-dimensional porcine liver-derived acellular scaffold* as part of multimodal management for complex volumetric wounds.

Methods: A retrospective review was performed of two high-risk wounds treated in an outpatient wound care setting: a Stage 4 lumbar pressure injury with communicating defects, osteomyelitis/paraspinal abscess history, undermining, and exposed deep structures; and a traumatic Wagner grade 4 diabetic forefoot wound with necrosis, infection, depth, and undermining/tunneling. Serial measurements, calculated wound volume, photographs, wound-bed appearance, depth/undermining findings, and treatment transitions were reviewed. The scaffold* was incorporated when wound geometry and residual dead space remained clinically important.

Results: In the lumbar pressure injury case, early area measurements included 12.16 cm^2 at presentation and superior/inferior defects measuring 17.23 cm^2 and 8.87 cm^2 after eschar removal. After debridement, irrigation, packing, antibiotics, and negative pressure wound therapy, scaffold* applications addressed tracts, undermining, and wound-bed voids. The course was nonlinear, including wound merge and temporary surface-area increase, but later follow-up showed marked reduction in depth, undermining, and wound burden. In the diabetic forefoot case, the wound initially measured 26.52 cm^2 with 4.0 cm depth and calculated volume of 106.08 cm^3. Following infection management, debridement, and scaffold* incorporation, the wound demonstrated resolution of undermining/tunneling, depth reduction to approximately 0.3 cm, and healing by Day 49.

Discussion: These cases suggest that complex wounds may require strategies based on three-dimensional architecture rather than surface dimensions alone. Incorporating a conformable three-dimensional scaffold shaped to the wound's geometry may contribute to dead-space management, depth reduction, and progression toward closure when used as part of multimodal care. Although both cases required broader wound management, the scaffold was incorporated when residual wound geometry remained clinically important. Ongoing reassessment of wound architecture may help guide advanced therapy selection as complex wounds evolve.

CS-026

Use of a Synthetic Borate-Based Bioactive Glass Fiber Matrix in the Management of a Complex Posterior Ankle Wound Overlying the Achilles Tendon

Cory Collins, NP

Introduction: Wounds overlying the Achilles tendon in older adults with diabetes and peripheral arterial disease are difficult to heal because of compromised perfusion, minimal soft-tissue coverage over tendon, and an impaired proliferative response. Tissue-derived skin substitutes are frequently selected for such wounds but carry the biologic or cultural considerations inherent to human- or animal-sourced material. This case describes a fully synthetic, borate-based bioactive glass fiber matrix (BBGFM) used in a complex posterior ankle wound.

Methods: : An 83-year-old man with type 2 diabetes mellitus, hypertension, elevated immunoglobulin, and atherosclerosis of the native arteries of the left leg presented with an ulceration of the left posterior ankle overlying the Achilles tendon. After wound bed preparation, BBGFM was applied; its conformable fiber form factor allowed it to be packed into the deep wound architecture and to remain in place. Applications were repeated at follow-up visits with standard wound care, and progress was tracked by sequential photographic documentation over approximately four months.

Results: : At the first application, the wound bed was mixed, with fibrinous slough, early granulation, and surrounding hyperpigmented, devitalized periwound tissue. Across the documented course, photographs showed progressive formation of healthy, well-vascularized granulation tissue filling the wound base, followed by contraction and advancing re-epithelialization from the wound margins, consistent with orderly progression through the proliferative phase of healing. The defect transitioned from a deep, sloughy wound to a shallow, predominantly epithelializing wound with a small residual granular base, and surface area decreased substantially. The matrix conformed to the irregular geometry, was straightforward to apply at the bedside, and was well tolerated throughout treatment.

Discussion: : In this complex, comorbid posterior ankle wound, the synthetic BBGFM supported a clear healing trajectory defined by quality granulation tissue formation, wound contraction, and re-epithelialization despite significant vascular and metabolic disease. Because the matrix is fully synthetic, it avoids the biologic-tissue–associated risks, such as disease transmission and immunogenicity, inherent to human- or animal-derived skin substitutes, while offering a conformable, easy-to-apply form factor suited to deep wounds overlying tendon.

CS-027

Pemphigus Vulgaris: Advancing Wound Care Strategies for Patients With Severe Cases

Kristina Collins, BSN; Julie Tyrrell, MSN, CRNP, CWCN-AP; Ross Vander Noot, MD

Introduction: Pemphigus Vulgaris (PV) is a rare autoimmune disease with cutaneous involvement that causes flaccid blisters on erythematous skin. While uncommon, PV can become life-threatening and progress to sepsis. Caring for patients with severe PV is a multidisciplinary effort led

by a dermatologist. Standardized treatment involves immunosuppressants, anti-inflammatory medications, and high potency topical corticosteroids. In severe cases of PV, moderate sedation is often necessary due to the significant pain associated with dressing changes.

Methods: A 31-year-old woman with past medical history of PV was admitted to the hospital for sepsis due to a severe PV flare. Treatment began with broad spectrum antibiotics, systemic steroids, and topical corticosteroid ointment. Due to the severity of pain, patient underwent daily dressing changes with moderate anesthesia care (MAC). The Wound Ostomy Continence Team (WOCT) was consulted for an alternative topical dressing that decreased the patient's pain and eliminated the need for MAC. Considering the patient's pain, risk of infection, and incontinence, the WOCT began cleansing lesions with a pure hypochlorous acid (pHA) solution and applying a hydrophilic wound cream twice weekly.

Results: Initiating a pHA and hydrophilic wound cream regimen reduced the intravenous (IV) pain medication required during dressing changes. Over the course of three weeks, the IV pain medication needed was reduced from 2mg to 0.4mg of hydromorphone per dressing change. Due to the use of a nonadherent dressing, the WOCT was able to gently remove the previous cream, cleanse open lesions, and reapply the hydrophilic wound cream all while preventing unnecessary trauma to the healing lesions. The patient progressed to ambulating in the hallway with physical therapy and eventually achieved independent showering.

Discussion: With the implementation of a pHA solution and a hydrophilic wound cream as topical treatment for severe PV, the WOCT was able to improve the patient's outcomes by decreasing pain during dressing changes, reducing the need for intravenous pain medication, and increasing her ability to partake in her activities of daily living.

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CS-028

Peptide Biomimetic Matrix Promotes Rapid Regranulation in 11 Complex Wounds With Exposed Structures Requiring Surgical Intervention

Anitha Anbalagan, DPM; Shylla Taqi, DPM; Anthony Colonna, DPM

Introduction: Hard-to-heal wounds, such as diabetic foot ulcers, are at high risk of local infection. A multimodal nitric oxide-generating dressing (NOGD) has been designed to generate antimicrobial nitric oxide within the dressing. The aim of this study was to evaluate the sustained nature of the antimicrobial activity within NOGD following repeated inoculations of antibiotic-resistant pathogens into the same test dressings over 168 hours.

Methods: Eleven patients with serious comorbidities presenting with complex, difficult-to-treat wounds - including diabetic foot ulcers, venous leg ulcers, and amputation wounds - requiring operating room procedures for surgical management / limb salvage, were selected to receive BMM. All wounds were extensive and full-thickness, involving exposed tendon and/or bone. Six cases were complicated by infection, and four presented with deep tunneling. Wounds were extensively debrided surgically using a hydrosurgery system for removal of devitalized tissue prior to BMM application (1-2 total applications). Wound characteristics were assessed at baseline and during follow-up visits. The primary endpoint was coverage of the originally exposed structures.

Results: Despite the severity and complexity of the wounds, all patients responded positively to BMM, showing rapid healing progression with complete (10/11) or partial (1/11) coverage of the originally exposed structures. In all cases, a clinically meaningful reduction in wound depth with healthy granulation tissue was observed (full regranulation as early as 2-weeks after a single application). Easy access to hard-to-reach areas was also noted, resulting in resolution of tunneling as early as one-week post-treatment. Moreover, within 2 weeks, signs of reepithelialization, exudate improvement, and intact peri-wound skin were observed. In all cases, the post-BMM treatment visits recorded no signs of (re)infection and no product-related adverse events.

Discussion: This case series demonstrates the potential of BMM in surgical management of complex wounds with exposed structures. BMM conformed to the wounds, including deep tunnels, achieving rapid tissue regrowth over the exposed structures and preventing re-infection. Larger clinical studies are needed to expand on these findings.

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CS-029

Breaking the Cycle for Non-Healing Wounds: A Case Series on the Impact of a Borate-Based Bioactive Glass Fiber Matrix

Jenny Gutierrez, RN, BSN; Danna Conner, MD

Introduction: Chronic wounds such as venous leg ulcers (VLUs) and diabetic foot ulcers (DFUs) pose substantial clinical challenges, especially among medically fragile and mobility-limited patients. These wound types are often recalcitrant to standard care, prompting increased use of advanced wound therapies to stimulate healing. Effective wound bed preparation, including debridement of nonviable tissue, control of bioburden and exudate, and optimization of the local microenvironment, is essential to support granulation and re-epithelialization.[1,2]

Methods: Wound progression was monitored through serial measurements and photographic documentation. The BBGFM was applied following clinical recommendation until closure or evidence of meaningful progression was observed.

Results: Case 1: A 69-year-old male presented with a chronic Wagner Grade 3 DFU located on the posterior aspect of the left heel with previous treatments consisting of several hyperbaric oxygen therapy (HBOT) sessions and three applications of a dehydrated human umbilical cord allograft which was used as the primary dressing. The first application of the BBGFM took place on 8/28/2025 with second application taking place on 9/12/2025. A significant wound size reduction was observed on 9/25/2025. Case 2: A 35-year-old male presented with two VLUs one located on the left lower extremity (LLE) and the other on the right lower extremity (RLE). The BBGFM was applied to both VLU sites, covered with a secondary dressing, and the treatment was completed with the application of a compression wrap system. Following five applications of BBGFM on the LLE VLU and four applications of the BBGFM on the RLE VLU, the appearance of significant quality granulation tissue had become evident with a reduction in wound bed size. Case 3: A 74-year-old female presented with a chronic non-healing full thickness VLU on the posterior aspect of the RLE. The initial application of BBGFM took place on 10/20/2025, with a second application on 10/27/2025, and a third and final application on 11/04/2025. The appearance of robust granulation tissue within the wound bed was evident on 12/01/2025.

Discussion: The case series highlights the utility of the BBGFM across difficult to heal and large wounds. The cases showed marked wound size improvement as well as appearance after prolonged stagnation.

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CS-030

Nonsurgical Closure of a Traumatic Foot Wound With Significant Tendon Exposure Within Nine Weeks: A Novel Approach

Sarah Coon, BS; Amy Pate, MD, MPH, CWSP

Introduction: Wounds with significant tendon exposure are considered challenging to treat. Traditional approaches include surgical intervention such as flap procedures or negative pressure wound therapy (NPWT). Flap procedures are associated with potential complications including cosmetic defects, additional wounds created by flap harvest, prolonged immobilization, need for hospitalization, and flap failure. NPWT is associated with complications including pain, bleeding, and decreased quality of life. In this case study, we describe a novel technique utilizing a hydrogel bubble dressing to achieve full tendon coverage in a traumatic foot wound.

Methods: A 29-year-old male presented with multiple traumatic wounds after a rollover motorcycle crash. The patient was initially evaluated at the local trauma center; the emergency department performed a bedside washout and consulted orthopedic surgery, who recommended referral to our wound center. The most severe wound was located on his left lateral dorsal foot with 3.5 cm^2 of viable exposed extensor tendon. The patient presented ≤36 hours of injury with xeroform and gauze in place over the foot wound. Initial wound measurements were 17 x 7 x 0.5 cm including the entire region of the dorsal foot with devitalized tissue. NPWT was initially considered, however, due to a combination of insurance barriers and severity of surrounding tissue injury, we opted to proceed with the hydrogel bubble method. The hydrogel bubble method consists of the following: 1) sodium hypochlorous acid gel* applied to the wound bed, 2) knitted cellulose acrylate mesh with petroleum emulsion covering gel area, 3) two layers of transparent adhesive film cut within 1 cm of wound margins, 4) nonadherent pad, and 5) adhesive strips applied to the film margins.

Results: The patient was evaluated twice weekly and treated with the hydrogel bubble method. Approximately 30% tendon coverage was present at day 4; full granular tendon coverage was achieved ≤10 days, at which point we transitioned to weekly visits with usage of a charged fiber, silver-impregnated lipocolloid dressing in combination with a superabsorber to expedite wound closure. Complete wound closure was achieved at 9 weeks.

Discussion: This case demonstrates an alternative cost-effective strategy utilizing the hydrogel bubble method to achieve expeditious tendon coverage. Rapid granulation development resulted in complete tendon coverage within 10 days and wound closure within 9 weeks without NPWT or surgical intervention, resulting in minimal negative impact on the patient's quality of life. This method has been successfully replicated at our center with similar results, though further large-scale studies are needed.

CS-031

Novel, Replicable Approach to Closure of Complex Scalp Defects With Exposed Bone Post-Mohs Surgery: A Case-Series

Sarah Coon, BS; Amy Pate, MD, MPH, CWSP

Introduction: Mohs surgery on the scalp may result in exposed bone. Skull coverage generally involves flap reconstruction; literature review suggests >30% of these procedures result in wound complications. Skin substitutes are occasionally applied during initial surgery, though these often fail due to poor moisture management. In this case series, we describe a novel, replicable approach to complete closure of scalp defects with exposed bone after Mohs surgery in patients who are not flap candidates.

Methods: Our protocol consists of: the hydrogel bubble method; non-contact, non-thermal, low-frequency ultrasound; placental allograft placement; and needle stimulation. The hydrogel bubble method, the most important intervention, consists of the following: 1) hydrogel gel applied to the wound bed, 2) knitted cellulose acrylate mesh with petroleum emulsion covering gel area, 3) two layers of transparent adhesive film cut within 1 cm of wound margins, 4) nonadherent pad, and 5) adhesive strips applied to the film margins. The hydrogel bubble is applied after every ultrasound treatment, which is performed three times per week. The placental allograft is applied at a fourth visit and secured with the hydrogel bubble method, then left intact for 72 hours between visits. Granulation buds are gently stimulated with a 25-gauge needle to obtain bleeding and kickstart the wound healing cascade. The entire process is repeated until full bone coverage is obtained, then we transition to allograft placement with silicone dressings.

Results: Each patient described in this series was not a candidate for surgical intervention due to comorbidities, lack of tissue mobility, or both. 70F with 52 cm2 parietal scalp wound. History significant for diabetes mellitus(DM), stroke with hemiplegia, hydrocephalus, venous thromboembolism on anticoagulation. Time to closure=32 weeks. 69M with 21 cm2 occipital scalp wound. Time to closure=9 weeks. 86F with 42 cm2 frontal scalp wound. History significant for DM. Time to closure=15 weeks. 77M with 10.5 cm2 occipital scalp wound. Time to closure=22 weeks. 74M with 3.1 cm2 occipital scalp wound. History significant for DM, chronic kidney disease, hypothyroidism. Time to closure=6 weeks. 88M with 9 cm2 parietal scalp wound. Time to closure=22 weeks. 78F with 36 cm2 parietal scalp wound. History significant for active lung cancer, Crohn's disease, ankylosing spondylitis. Time to closure=22 weeks.

Discussion: We developed an entirely new, consistently replicable approach to closure of scalp defects with exposed bone. The hydrogel bubble method should be utilized when possible to prevent skull desiccation. Additional large-scale, multicenter data is needed to confirm reproducibility across populations.

CS-032

Autologous Platelet-Rich Plasma Gel Demonstrates Improved Tissue Oxygenation and Accelerated Healing in Chronic Wounds: A Case Series

Amy Couch, MD; Dawn Shepherd, BSN, RN, CWCN, CFCN

Introduction: Chronic wounds affect around 10.5 million people in the United States and cost the healthcare system over $25 billion in direct and indirect costs annually, including hospitalizations for complications.[1] Autologous platelet-rich plasma (PRP) gel combines a small sample of the patient's blood with reagents to activate platelets, cross-link fibrin strands, and prepare the wound bed for healing. Clinical research demonstrates the safety and efficacy of this treatment in chronic wounds across severities.[2-4]

Methods: This case series includes three patients who received PRP hematogel* therapy for chronic wound treatment after failed standard-of-care treatment. Wound etiologies include a chronic chest wall ulcer (patient 1), a chronic non-pressure ulcer on the right lower extremity (patient 2), and a chronic diabetic foot ulcer (patient 3). Patient 2 underwent a left lower extremity amputation shortly before receiving PRP hematogel, which further increased the urgency of closing the wound in their right leg. For each patient, the wounds had developed over a year before the PRP application and persisted despite various types of treatments. Wound complications included infections (patients 1 and 3) and sepsis (patient 2).

Results: Patient 1 experienced near-closure 6 days after the initial PRP hematogel application, with preliminary imaging data indicating enhanced oxygenation in the wound bed (see images). Patient 2 also showed positive results after the initial application, with recommendations to continue PRP treatment. Patient 3 experienced a 50% reduction after the initial application and near-complete closure after the second application, with improved tissue oxygenation (see application progression images).

Discussion: All three patients saw significant progression toward closure, including near-closure, within a week of application after dealing with chronic wounds for over a year. Results also demonstrate that PRP hematogel can improve oxygenation in wound tissue. Improved tissue oxygenation may represent one mechanism by which PRP supports

wound healing, although direct measures of angiogenesis were not evaluated. Large-scale clinical research is needed to further investigate this hypothesis. PRP hematogel offers another option to enhance healing in persistent wounds—allowing patients to progress and lessening the systemic burden of chronic wound care.

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CS-033

Experience With Synthetic Electrospun Fiber Matrix and Negative Pressure Wound Therapy With All-in-One Dressings in Managing Soft Tissue Defects

Michael N. Desvigne, MD, FACS, CWS, FACCWS; Krista Bauer, FNP, WCC, OMS; Jody Wolfe, BSN, MBA, RN, CWOCN

Introduction: Use of an integrated all-in-one dressing with negative pressure wound therapy (NPWT) has expanded recently due to its potential for extended wear time, simplified application and reduced tissue ingrowth. The dressing is comprised of encapsulated reticulated open-cell foam (ROCF), a perforated nonadherent layer, and hybrid acrylic-silicone drape. While skin substitutes are commonly used with NPWT and traditional polyurethane ROCF dressings to expedite wound bed preparation, results of combined use of skin substitutes with the integrated all-in-one dressing have not yet been reported. We report our experience with use of a synthetic, resorbable electrospun fiber matrix (SEFM) that exhibits structural similarities to the native extracellular matrix in tandem with NPWT and all-in-one dressing.

Methods: Antibiotics were administered if appropriate. Following adequate debridement and thorough cleansing, SEFM* was applied in the wound, positioned to completely contact the entire surface of the wound bed and extend slightly beyond the wound margins or exposed critical structure. SEFM was anchored using sutures as clinically necessary. If needed, the synthetic matrix was rehydrated at dressing changes with an ointment containing petrolatum. A non-adherent dressing† was applied over SEFM, and the all-in-one dressing‡ was applied over SEFM with foam and drape portion extending at least 5 cm beyond the wound edge. Negative pressure was applied at -125 mmHg. All-in-one dressings were changed at least once per 7 days.

Results: Three male patients (age range: 59-79) with 3 wounds (gangrenous foot wound, complex lower extremity surgical wound with exposed tendon, and scalp wound with exposed bone following excision of squamous cell carcinoma and radiation therapy) were treated. One application of SEFM was used for each of the lower extremity wounds, and 4 applications were used for the scalp wound. Duration of NPWT with all-in-one dressings ranged from 1 to 16 weeks. There were no cases of dislodgement of SEFM underneath the all-in-one dressing during therapy or at dressing changes. Use of the combined modalities allowed for optimized surgical reconstruction outcomes in all cases.

Discussion: Combined use of the modalities avoided more complex procedures along the reconstructive ladder, preserving the patients' functional status and reducing morbidity. The two modalities appeared to work synergistically to help facilitate the reconstruction of soft tissue defects. Further research is needed to explore the cumulative effects and the relationship between SEFM and NPWT with all-in-one dressings on wound healing.

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CS-034

Management of Lower Extremity Chronic Ulcers in Diabetic Patients Using an All-in-One Negative Pressure Wound Therapy Dressing

Cyaandi Dove

Introduction: An all-in-one, multilayer negative pressure wound therapy (NPWT) dressing* incorporates a perforated non-adherent layer, reticulated open cell foam dressing, and a hybrid acrylic and silicone drape, which enables it to be placed over the wound and surrounding intact skin. In this case series, we report the use of this multilayer NPWT dressing in the management of 3 chronic lower extremity ulcers in diabetic patients.

Methods: Deidentified data were collected after obtaining informed patient consent. Patients had heavily exudating foot or lower leg ulcers aged 3 months or older that showed worsening condition after alternative wound care. Wounds underwent sharp debridement before placement of the all-in-one NPWT dressing. Negative pressure was applied at -125 mmHg, with dressing changes performed every 7 days. Decellularized intact fish skin and compression were used as needed. The goals of therapy were improved granulation tissue coverage, edema reduction, and preparation for graft closure.

Results: The patients included 2 males and 1 female, aged 58-82 years old, diagnosed with diabetes mellitus and peripheral arterial disease. All patients were prescribed aspirin, statins, and medications to control diabetes. The wounds included two diabetic foot ulcers (Wagner 3) and one venous leg ulcer (Wagner 2), which were non-healing for 3 to 18 months. NPWT with the all-in-one dressings was applied for 5-10 weeks. After NPWT, one wound had healed, and two were sufficiently prepared for closure with grafts. Patient-reported feedback indicated that all appreciated the speed and ease of application.

Discussion: Use of NPWT with the all-in-one dressing supported healing in 3 chronic lower extremity ulcers in diabetic patients. The dressing was easy to apply and facilitated transition to closure. Prior to NPWT, below-knee amputation had been offered to two patients. Due to the improved wound status, amputation was avoided, leading to improved mobility and patient satisfaction.

CS-035

Clinical Outcomes Following Initiation of a Novel Hypochlorous Acid-Free Wound Cleanser* in Chronic and Complex Wounds: A Single-Center Case Series.

Marcus Duda; Autumn Forrest, RMA, CWCA

Introduction: Management of chronic wounds remains challenging due to prolonged inflammation, biofilm, wound debris, and impaired angiogenesis. This case series evaluates clinical outcomes following initiation of Hypochlorous Acid-Free Wound Cleanser* for chronic lower extremity wounds to address these issues and promote wound healing.

Methods: A retrospective review was conducted of 13 consecutive patients with chronic lower extremity wounds treated with daily wound

application of Hypochlorous Acid-Free Wound Cleanser* between April and June 2026. Wound etiologies included venous leg ulcers, lymphedema ulcers, diabetic ulcers, post-surgical wounds, and wounds following necrotizing fasciitis. Wound measurements and fluorescence images were recorded before and after initiation of Hypochlorous Acid-Free Wound Cleanser* therapy.

Results: Among 12 patients with measurable wounds, all demonstrated reduction in wound burden during a 4-week observation period. Cumulative wound burden decreased from 307.4 cm^2 at baseline to 209.9 cm^2 at follow-up, representing a total reduction of 97.5 cm^2 and an overall wound burden reduction of 31.7%. In addition to dimensional improvement, several patients demonstrated improvements including resolution of dermatitis, decreased drainage, resolution of epiboly, and improved granulation tissue. Fluorescence imaging indicated a decrease in the wound bio burden. A notable case involved a 79-year-old male with a greater than two-year history of venous leg ulcers that had failed multiple advanced wound therapies, including biologic skin, negative pressure dressing, hypochlorous wound wash and graduation compression therapies. Following Hypochlorous Acid-Free Wound Cleanser*, total wound burden decreased by 80.4% within five weeks.

Discussion: In this single-center case series, initiation of the novel Hypochlorous Acid-Free Wound Cleanser* was associated with reductions in wound burden a reduction in biofilm and improvement in granulation tissue across a diverse population of chronic wounds. While limited by its retrospective and uncontrolled design, these findings support further prospective evaluation of Hypochlorous Acid-Free Wound Cleanser* as an adjunctive therapy for wound care.

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CS-036

Treatment of Suspected Pyoderma Gangrenosum Cases With Vaporous Hyperoxia Therapy (VHT): A Retrospective Analysis

Michael Duehrrsen; Dustin Kruse, DPM; Anna Sanchez, DPM; Allison Ramey-Ward, PhD; Donna Sage, MSSA; Chase Huskey, BS

Introduction: Pyoderma gangrenosum (PG) lesions are challenging to address with traditional wound care due to profound pain and pathergy, where small perturbations can cause the wound to grow rapidly. As a non-contact treatment, vaporous hyperoxia therapy (VHT) may benefit the treatment of PG wounds by supporting wound hygiene without mechanical irritation. This retrospective study investigated the efficacy of VHT in treating PG wounds in the outpatient office setting.

Methods: Wounds were evaluated by a podiatrist in a private office setting in San Antonio, TX, and patients with suspected PG were treated with VHT. Five patients (2 male, 3 female) ages 43-87 with a total of 8 suspected PG wounds on the lower extremity were identified. All wounds were present >30 days prior to treatment. VHT was administered at least 30 minutes twice per week. Other wound care included an enzymatic wound gel and ultrasonic saline mist. Wound area and healing rates were measured, and infrared/near-infrared imaging was used for tissue oximetry.

Results: The average initial wound size (SD) was 51.2 (41.7) cm2, and average wound age at treatment start was 44.7 (9.6) days. Four of the 8 wounds (50%) closed completely with VHT, in an average (SD) of 32.6 (30.6) VHT treatments over 134 (97.7) days. Imaging showed consistent or improved tissue oximetry after starting VHT compared to initial data. However, two patients did experience pathergy during their wound care (>100% increase in wound size).

Discussion: PG wounds are characteristically slow to close even after six months to a year. Here, 50% of VHT-treated wounds closed in an average of 20 weeks. Tissue oxygenation was also improved, demonstrating a potential mechanism of the VHT hydration and oxygen to support closure. These results suggest VHT may be a beneficial method of non-contact treatment for wounds with suspected PG by improving likelihood of healing. However, this analysis was limited by the lack of histological confirmation of diagnosis, and additional studies are underway.

CS-037

Wound Bed Preparation for Improved Graft Take Using Vaporous Hyperoxia Therapy (VHT) in a Hidradenitis Suppurativa Patient

Michael Duehrrsen; Dustin Kruse, DPM; Neha Amin, DO; Kimberly Smith, NP; Allison Ramey-Ward, PhD; Donna Sage, MSSA; Chase Huskey, BS

Introduction: Surgical intervention may be used in cases of severe chronic hidradenitis suppurativa (HS) lesions to reduce recurrence in specific areas, but the resulting wounds are subject to similar healing challenges as other wound types. Vaporous hyperoxia therapy (VHT) has been used effectively on a variety of wound etiologies to support wound bed hygiene and, ultimately, closure. Here, we present a case of a post-surgical HS patient effectively managed with VHT as an adjunct therapy.

Methods: A 38-year-old female with a >20 year history of HS underwent surgical excision of axillary glandular tissue to treat a chronic recurrent lesion. The resulting surgical wound was grafted with a split-thickness skin graft (STSG), which failed twice. VHT was then administered for a total of six 55-minute treatments to improve the wound bed, and the wound was subsequently autografted.

Results: VHT treatment increased granulation tissue and red-pink coloration in the wound bed, with epithelialization and contraction observed at the wound edges. The patient reported an analgesic effect in the treated area during VHT. Following six treatments, an STSG of tissue from the right thigh was applied to the wound with good graft take and subsequent healing of the surgical site.

Discussion: These results demonstrate the efficacy of VHT to prepare a wound bed for tissue graft placement, such as an STSG autograft or tissue-based product, by supporting wound bed hygiene and granulation. The vapor-based VHT is well-suited to treat complex anatomical geometries, including the axillae and other areas where HS lesions are common. A surgical case is presented here, yet the non-contact vapor treatment may also position VHT as a possible treatment for the painful, deep, or tunneling wounds characteristic of HS.

CS-038

Treatment With Vaporous Hyperoxia Therapy (VHT) Supports Closure of Heel Wounds of Varying Etiologies

Michael Duehrrsen; Dustin Kruse, DPM; Allison Ramey-Ward, PhD; Donna Sage, MSSA; Chase Huskey, BS

Introduction: Chronic heel wounds, including diabetic foot ulcers (DFUs) and pressure injuries (PIs), commonly arise in the setting of prolonged pressure and impaired circulation. Vaporous hyperoxia therapy (VHT)*, a novel, non-contact treatment combining ultrasonic mist and concentrated oxygen, has demonstrated effectiveness in supporting DFU closure[1]. Given its potential to improve tissue oxygenation, VHT may also benefit other heel wounds with similar pathophysiologic features. This retrospective analysis evaluated outcomes among skilled nursing facility (SNF) patients with heel wounds treated with VHT.

Methods: Five patients (2 male, 3 female) with 6 heel wounds were treated with VHT between July 1, 2024 and November 5, 2025 in a Florida SNF. The wounds included 2 DFUs (33%) and 4 PIs (67%)(1 unstageable, 2 stage 3, 1 stage 4). Patients received at least two 30 minute VHT treatments per week in addition to standard wound care, and treated wounds were not actively infected. Percent area reduction (PAR) and time to closure were analyzed.

Results: All 6 wounds treated with VHT (100%) closed completely. The median time to closure in this study was 42 days (95% CI: 2, 84), with half of the wounds (3) closure within 6 weeks and all (6) within 12 weeks. The median number of VHT treatments to closure was 18 (95% CI: 1, 47). Initial wound sizes ranged from 0.04 cm2 to 4.5 cm^2, and 4 wounds (67%) were recorded as older than 30 days. However, it is likely these wounds

are older as this only describes the time since receiving wound care at the facility.

Discussion: This case series demonstrates the closure of 6 heel wounds of varying etiologies with VHT treatment in the SNF setting. These patients were medically complex, with factors contributing to nonhealing such as steroid medications, chronic kidney disease, and nutritional deficiencies. VHT is thought to address known factors in lower extremity wound chronicity, including tissue hygiene and oxygenation, which may have contributed to the positive outcomes here. These results also support VHT use in the SNF, where DFUs and heel PIs are often treated.

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CS-039

Closure in Chronic Wounds ≥1 Year Old Treated With Vaporous Hyperoxia Therapy (VHT)

Michael Duehrrsen, MD; Dustin Kruse, DPM; Allison N. Ramey-Ward, PhD; Anna Sanchez, DPM; Donna Sage, MSSA; Chase Huskey, BS

Introduction: Chronic wounds that fail to demonstrate meaningful healing after 4 weeks are less likely to achieve timely closure[1]. These wounds often remain refractory despite standard and advanced therapies, highlighting the need for novel treatment approaches. Vaporous hyperoxia therapy (VHT)* is an FDA cleared treatment for chronic wounds that provides oxygen and moisture to the wound bed. This retrospective analysis reviews three patients with ≥1 year-old diabetic wounds treated with VHT in the outpatient office setting.

Methods: Patient 1: 43-year-old male with a wound on the dorsal 2nd digit present for 34 months. Pyoderma gangrenosum was suspected, but no biopsy was performed. Patient 2: 89-year-old male with a foot wound present 52 months at a 2/3 digital amputation site. Patient 3: 71-year-old male with a wound on the left first submetatarsal head present for approximately 1 year. All patients received VHT for 30 minutes per treatment, along with standard wound care as indicated. Tissue oximetry was also measured before and after VHT treatment for Patients 1 and 2.

Results: Patient 1 received 10 VHT treatments, with their 0.4 cm2 wound closing in 139 days. Tissue oximetry imaging showed increased oxygenation in the wound area up to 2 days after the first VHT treatment. Patient 2 closed their 0.16 cm2 wound in 182 days after 26 VHT. Infrared/near-infrared imaging also showed improved tissue oxygenation after VHT compared to initial levels. Patient 3 received 5 VHT treatments over 14 days, completely closing the 1.84 cm2 wound.

Discussion: This series of three patients with 1 year or older chronic wounds demonstrates wound closure and improved tissue oxygenation following VHT treatment. Improvements were observed even among patients not adhering to the recommended treatment frequency of 2-3 per week. VHT may be a valuable adjunctive therapy by promoting wound hygiene and local oxygenation in chronic wounds that have not responded to previous care.

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CS-040

A Retrospective Case Series of Wound Care Patients Treated With Vaporous Hyperoxia Therapy in a Skilled Nursing Facility

Michael Duehrrsen; Dustin Kruse, DPM; Allison N Ramey-Ward, PhD; Donna Sage, MSSA; Chase Huskey, BS

Introduction: Chronic wounds affected over 16% of Medicare recipients in 2021, a number greater than the population of New York City and growing each year[1]. The Medicare costs are staggering at $22.5 billion annually, including significant spend in skilled nursing facilities (SNFs). Stakeholders seek effective therapies for all wound types. A 2018 analysis of 23,453 SNF wounds found pressure injuries (PIs) (17.43%), surgical wounds (13.2%), and others such as diabetic foot ulcers (DFUs) (8.1%) were prevalent[2]. A novel therapy alternating ultrasonic mist and concentrated oxygen (VHT)* was developed to address this gap in care. We examine how VHT promotes wound closure in the SNF population.

Methods: A retrospective review of patient records for wounds treated with VHT at a Florida SNF from July 2024 to November 2025, was conducted. Patients received at least two VHT treatments weekly for 30 minutes, had no active sepsis treatment, and included DFUs that were Wagner grades I-III. The study involved 26 patients (9 males, 17 females) with 42 wounds. Analyses focused on time to closure and wound closure rates.

Results: Overall, 88.1% (n= 37) of wounds treated with VHT closed, with a median of 9.5 VHT treatments. Kaplan-Meier analysis indicates an 87% chance of closing within 12 weeks and 90% overall. Wound age, size, and cause did not impact closure rates in this limited population. No adverse events or complications were linked to VHT.

Discussion: This evaluation of SNF treatment data demonstrated a high rate of wound closure with VHT use. Notably, factors traditionally associated with wound nonhealing, including wound age, wound size, and certain wound types, did not appear to affect outcomes in this cohort. These results represent foundational evidence, which supports the research underway to validate these outcomes in a larger, multicenter cohort.

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CS-041

Closure of an 8-Year-Old Chronic Post-Surgical Lower Extremity Wound With Vaporous Hyperoxia Therapy (VHT)

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Introduction: Therapies that effectively treat chronic wounds are of great clinical importance: the probability of wound closure decreases precipitously over time, while the likelihood of poor outcomes increases. Some wounds persist despite multiple treatments, demonstrating a need for novel wound therapies. One unique modality, vaporous hyperoxia therapy (VHT)*, combines topical concentrated oxygen with ultrasonic mist to address chronic wounds. Here, we present a case of an 8-year chronic wound effectively treated with VHT.

Methods: A 71-year-old female presented with a painful, full thickness post-surgical wound on the left leg which had been present for over 8 years and failed multiple previous treatments. The patient received a total of 15 VHT treatments (55 minutes each) in a skilled nursing facility setting. Standard wound care included methylene blue foam and ABD pad dressings as needed, with sharp debridement at the clinicians' discretion.

Results: The patient's >8-year-old wound, with an initial size of 57.51 cm2, closed completely in 19 days with 15 VHT treatments. Per facility personnel, the patient also noted a reduction in wound pain while receiving VHT. Wound closure has remained durable beyond patient discharge from the skilled nursing facility.

Discussion: VHT is FDA indicated to treat wounds, as an adjunct to standard wound care, by providing alternating hydrating water mist and concentrated oxygen. This non-contact method may be particularly beneficial for patients with painful wounds, such as the 8-year-old wound presented here. Among currently available technologies, these results also demonstrate VHT is a viable option for treating chronic wounds that have failed multiple prior treatment types.

CS-042

Rapid Size Reduction and Closure of an Undermining Venous Leg Ulcer With Vaporous Hyperoxia Therapy (VHT)

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Introduction: Venous leg ulcers (VLUs) result from impaired venous circulation, leading to tissue breakdown, chronicity, pain, and inflammation. Vaporous hyperoxia therapy (VHT)*, a non-contact adjunctive therapy combining hydrating mist and concentrated oxygen, has demonstrated efficacy in diabetic foot ulcers[1]. Its potential to improve tissue oxygenation suggests utility in other chronic lower extremity wounds, although evidence remains limited. Here, we present a case of a chronic, undermined VLU successfully treated with VHT.

Methods: A 76-year-old female was treated at a skilled nursing facility for two VLUs, including one with significant undermining. At presentation, the undermined wound was 5.13 cm2. The other VLU was 0.2 cm2. The patient had multiple conditions affecting closure, including diabetes with neuropathy, obesity, and impaired ambulation. The patient received a total of 12 55-minute VHT treatments, as well as compression wrapping, cadexomer iodine gel, and methylene blue foam.

Results: Surgical debridement of the undermined area was performed after 1 week of VHT treatment, increasing wound size to 13.76 cm2. The 0.2 cm2 wound closed in 3 weeks with VHT treatment, and the larger wound closed after just 4 weeks of VHT. Though the clinician noted the patient was not compliant with standard of care measures, the patient still achieved wound closure.

Discussion: Undermined wounds and multiple concurrent ulcers present significant challenges to healing. In this case, the addition of VHT to standard wound care, including compression therapy, debridement, and appropriate dressings, was associated with rapid closure of both an undermined VLU and a second concurrent ulcer. These results support further evaluation of VHT as an adjunctive therapy for complex chronic wounds.

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CS-043

Treatment With Vaporous Hyperoxia Therapy (VHT) to Rapidly Resolve a Chronic Abdominal Wound

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Introduction: Chronic wounds in skilled nursing facilities (SNFs) arise from diverse etiologies, creating a need for therapies that can be applied across wound types. Vaporous hyperoxia therapy (VHT)*, a non-contact adjunctive therapy combining concentrated oxygen and hydrating mist, is designed for use in a broad range of wounds. Here, we present the successful closure of an abscessed surgical wound treated with VHT.

Methods: A 56-year-old female presented to a SNF in Florida, USA, with an abdominal wound from surgical resolution of an abscess 17 days prior. Wound healing was complicated by infection, diabetes, obesity, impaired ambulation, and multiple sclerosis. The initial wound area was 13.05 cm2 with a depth of 1 cm. The infection was resolved with ciprofloxacin over 72 days prior to VHT. The patient then received five 55-minute VHT treatments, as well as standard wound care with methylene blue foam dressings changed as needed.

Results: The chronic infection was resolved with antibiotics, with a 61% reduction in wound area over 72 days. With subsequent VHT treatment, the wound rapidly closed in 14 days with 5 treatments, a greatly increased closure rate compared to the prior wound management. Wound closure was then confirmed two weeks later by the provider.

Discussion: This case highlights the real-world management of a complex abscessed surgical wound. In accordance with device indications and standard wound care principles, the active infection was treated and resolved before VHT was initiated. After more than two months of limited healing under conservative management, the addition of VHT was associated with rapid wound closure. These findings support further evaluation of VHT as an adjunctive therapy for chronic wounds that continue to progress slowly despite appropriate care.

CS-044

External Fixation Combined With Human Umbilical Cord Tissue, Split-Thickness Skin Grafting, and Negative Pressure Wound Therapy for Salvage of a Complex Periarticular Diabetic Foot Infection: A Case Report

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Introduction: Diabetic foot infections remain a leading cause of limb loss and healthcare utilization worldwide. Wound healing is particularly challenging when defects cross the ankle joint due to continuous motion, which disrupts granulation tissue formation, impairs graft stability, and delays closure. Successful limb salvage requires a multimodal approach including infection control, serial debridement, biomechanical stabilization, negative pressure wound therapy, and advanced biologic reconstruction. External fixation may provide critical immobilization in periarticular wounds, while human umbilical cord tissue and split-thickness skin grafting support soft tissue regeneration and definitive coverage.

Methods: A 52-year-old male with diabetes mellitus presented with severe sepsis secondary to a right foot infection with extensive soft tissue necrosis involving the dorsal foot and anterior ankle. The patient underwent emergent incision and drainage followed by multiple serial debridements and application of negative pressure wound therapy (wound VAC). Due to a large periarticular defect with exposed tendons spanning the ankle joint, a multiplanar external fixator was applied to achieve rigid immobilization and eliminate motion across the wound bed. Reconstruction was performed using human umbilical cord tissue graft over exposed tendons, followed by split-thickness skin grafting for definitive coverage, with continued wound VAC therapy utilized to optimize graft adherence and granulation.

Results: External fixation provided effective ankle stabilization, reducing shear forces across the wound and supporting biologic reconstruction. Wound VAC therapy enhanced granulation tissue formation and graft integration. Human umbilical cord tissue facilitated tendon coverage and vascularized tissue development, while split-thickness skin grafting achieved durable epidermal closure. Despite a complication of premature weightbearing leading to hardware failure and revision surgery, continued limb salvage efforts with repeat debridement and biologic reapplication resulted in progressive healing. The wound ultimately achieved approximately 99% closure at five months.

Discussion: External fixation is a critical adjunct in managing complex diabetic foot wounds crossing the ankle joint by providing essential immobilization and protecting biologic reconstruction. Human umbilical cord tissue, split-thickness skin grafting, and wound VAC therapy work synergistically to enhance granulation, graft survival, and definitive closure. This case highlights the importance of combining biomechanical stabilization with advanced biologic and negative pressure modalities in successful limb salvage.

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CS-045

Biologic Dead-Space Obliteration in Extensive Morel-Lavallée Lesions Using Acellular Fish Skin Matrix: A Staged Reconstructive Strategy

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Introduction: Morel-Lavallée lesions are closed degloving injuries that generate extensive soft-tissue dead space prone to infection, persistent drainage, recurrent fluid collections, and delayed healing. Effective treatment requires evacuation, debridement of devitalized tissue, and durable obliteration of dead space. Large or infected lesions prove difficult to manage as the residual cavities may persist despite conventional management and reconstruction. We describe a staged reconstructive strategy designed to achieve biologic dead-space obliteration in extensive infected Morel-Lavallée lesions using acellular fish skin matrix.

Methods: Two patients with extensive traumatic Morel-Lavallée lesions underwent staged management. The first stage focused on infection control with serial excisional debridement, culture-directed antibiotics, cavity mapping to define tissue-plane separation, and careful dressing selection. The second stage involved acellular fish skin matrix placed within cavities, tunnels, and undermined tissue planes. Negative-pressure therapy promoted scaffold integration, granulation, and cavity contraction. Patients were followed through definitive wound closure.

Results: Both patients had infected lesions requiring serial operative debridement. One patient had a 40 × 30 cm lower-extremity lesion with an underlying total knee arthroplasty. Matrix placement promoted rapid granulation, allowing split-thickness skin graft reconstruction and complete healing. The second patient had a massive 100 × 100 cm lesion extending from the thigh and hip across the flank into the retroperitoneal space. After evacuation of approximately 4 liters of infected hematoma, serial debridement, matrix placement, and negative-pressure therapy, progressive cavity collapse and wound contraction resulted in complete epithelialization without flap reconstruction or skin grafting. Both patients achieved durable closure without recurrent seroma, persistent infection, or wound breakdown.

Discussion: Extensive infected Morel-Lavallée lesions remain a formidable reconstructive problem because persistent dead space can perpetuate infection, drainage, seroma formation, and delayed closure. In these cases, staged debridement, negative-pressure wound therapy, and biologic scaffold placement promoted granulation, cavity contraction, and durable dead-space obliteration, thereby enabling definitive closure without flap reconstruction. These findings suggest that biologic dead-space management may expand reconstructive options for selected extensive Morel-Lavallée lesions in which persistent dead space remains the principal barrier to durable healing.

CS-046

Impact of Intermittent Topical Oxygen Therapy on Chronic Wound Tissue Oxygenation and Wound Area Reduction as Measured by Near-Infrared Imaging and Mobile Wound Imaging Application: A Pilot Evaluation

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Introduction: Chronic wounds remain a significant clinical challenge, particularly in patients with vascular compromise, diabetes, and other comorbidities. Adequate tissue oxygenation is a critical determinant of wound healing, yet objective non-invasive measurement at the wound bed is not routinely integrated into clinical practice. Intermittent topical oxygen therapy (iTOT) has been proposed to improve local tissue oxygen delivery and promote healing; however, objective evidence quantifying its effect on wound outcomes remains limited. This pilot evaluation examined whether iTOT produces measurable changes in wound bed tissue oxygenation assessed by near-infrared (NIR) spectroscopy imaging and correlation of this with wound area reduction over time.

Methods: Five patients with chronic wounds of varying etiologies were enrolled, including venous ulcers, a diabetic ulcer, and hidradenitis suppurativa. The cohort ranged in age from 19 to 82 years with wound durations of 10 to 56 weeks at enrollment. Wound surface area was measured and photographed at pre-treatment baseline, one-week post-initiation of iTOT, and at subsequent intervals up to 11 weeks using a mobile wound imaging application. Tissue oxygenation was concurrently assessed at each visit using NIR imaging and data were reviewed longitudinally to identify trends in both outcomes.

Results: Four of five patients demonstrated improvement in NIR-measured tissue oxygenation and wound area reduction following iTOT initiation. Oximetry gains were rapid, with three patients showing improvement within one week of treatment. Wound area reductions ranged from 40% to 100% (closure). One patient (venous ulcer, 56 weeks) experienced a precipitous oximetry drop from 100% to 33% at eight weeks; further evaluation revealed bypass graft occlusion - demonstrating NIR imaging's capacity to detect subclinical vascular

events. Patient 3 (diabetic ulcer) improved from 0% oximetry at baseline to 80% at nine weeks despite variable wound area. One patient was lost to follow-up after one week.

Discussion: This pilot suggests iTOT is associated with rapid and sustained improvements in both NIR-measured tissue oxygenation and wound area reduction. The parallel trajectory of rising oxygenation and decreasing wound area in the majority of patients supports the plausibility of iTOT as an effective healing adjunct. These findings are consistent with Lohr et al. (2026), who reported a 64.8% complete healing rate with iTOT across 3,126 patients, including a 72.1% healing rate in venous leg ulcers — the predominant wound type in this pilot. While sample size and variable follow-up limit generalizability, these results support integrating NIR oximetry into iTOT protocols and provide rationale for a larger controlled study.

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CS-047

Evaluation of an Advanced Hydrofiber Dressing With Integrated Strengthening Fibers in the Management of Complex Wounds: A 5-Week Pilot Study

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Introduction: Complex, chronic wounds with high exudate, slough, and biofilm burden present an ongoing challenge in wound care due to delayed healing and frequent dressing changes that can be painful and disruptive to the wound bed. An advanced hydrofiber dressing with integrated strengthening fibers, utilizing carboxymethylcellulose (CMC) technology, was selected for evaluation because it conforms closely to irregular wound surfaces while absorbing and retaining exudate, debris, and bacteria, and is designed to allow for more comfortable, less traumatic removal.

Methods: A 5-week pilot was conducted on a series of complex wounds across five patients, totaling eight wound sites, including venous leg ulcers and other chronic full-thickness wounds. The advanced hydrofiber dressing with strengthening fibers was applied as the primary dressing at each visit, with weekly reassessment. Wound dimensions (length x width x depth, in cm) were measured at each visit, and photographs were taken to document progression, including pre- and post-debridement images where applicable.

Results: Six of eight wounds demonstrated measurable improvement over the study period. Two wounds achieved complete closure, with surface areas decreasing from 7.4 cm^2 and 24.7 cm^2 to essentially 0.1 x 0.1 cm within 4 weeks. A large venous leg ulcer decreased from 54.1 cm^2 to 9.0 cm^2 (an 83% reduction) over four weeks, and a companion wound on the same limb decreased from 11.1 cm^2 to 2.2 cm^2 (80% reduction). A separate ulcer improved from 8.5 x 6 cm to 5.5 x 5 cm (46% reduction) and was noted as having met its treatment goal. A larger leg wound on one patient reduced from 56.5 cm^2 to 27.5 cm^2 (51% reduction). Two small wounds showed minimal change or slight fluctuation in dimensions, likely reflecting measurement variability at very small sizes.

Discussion: This pilot suggests the advanced hydrofiber dressing with integrated strengthening fibers supports meaningful progress toward closure across a range of complex wound types and sizes within a 5-week window, including two wounds reaching full closure. The dressing's conformability and exudate management appeared to support a favorable wound bed environment, and clinicians noted tolerable removal. Larger wounds showed substantial percentage reductions, while very small wounds were harder to track with measurement tools alone. Larger, controlled studies are warranted to confirm these findings and better characterize outcomes for minimal-sized wounds.

CS-048

Pure Hypochlorous Acid Gel as a Salvage Therapy for Challenging Wounds: A Multi-Case Series

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Introduction: Chronic and complex wounds often fail to progress despite standard-of-care interventions, leaving clinicians and patients in need of effective alternative strategies. Wound bioburden, comorbid conditions such as uncontrolled diabetes, vascular insufficiency, and prior failed antimicrobial therapy represent significant barriers to healing. Pure hypochlorous acid (HOCl) gel is a novel topical agent with broad-spectrum antimicrobial properties and emerging evidence continues to grow in use of in skin and wound care. This case series examines the effectiveness of pHOCl gel in patients for whom prior therapies had failed.

Methods: Five patients with varied wound etiologies were treated with pHOCl gel at an private wound care practice. Cases included: a 61-year-old female with uncontrolled diabetes (HbA1c 11%), hypertension, CAD, and active smoking presenting with burn wounds that had failed oral and topical antibiotics; a 33-year-old female with recurrent granulomatous mastitis with an infected wound persisting over two years; a 60-year-old female with an ischemic DIEP flap wound following ten hyperbaric oxygen treatments; an 85-year-old male with a traumatic wound of seven months' duration treated with pHOCl gel in combination with silver-containing dressings; and an 84-year-old female with post-phlebitic syndrome, thrombophilia, and valvular disease whose traumatic wound had failed outpatient therapy. Treatment protocols incorporated pHOCl gel with adjunctive dressings tailored to each wound type, including oil emulsion and silicone-bordered gauze.

Results: Across all cases, wounds demonstrated measurable progression toward healing following initiation of pHOCl gel therapy. The burn patient achieved significant closure by day 21. The granulomatous mastitis case resolved at week 5 without recurrence at 13 weeks. The ischemic flap wound demonstrated excellent autolytic debridement results and granulation tissue development by week 5. The chronic traumatic wound showed improvement within three weeks. The CVI-related traumatic wound progressed through sequential healing stages over 28 days

Discussion: This case series suggests that pHOCl gel may serve as an effective salvage therapy for patients with complex wounds across a spectrum of etiologies, including burns, infected wounds, ischemic complications, trauma, and venous insufficiency. pHOCl gel's antimicrobial and subsequent anti-inflammatory properties may address wound stagnation even in the setting of significant comorbidities and prior treatment failure. These findings support broader clinical investigation into pHOCl gel as a viable option when conventional therapies are insufficient or consideration at early intervention to avoid delays in healing.

CS-049

Impact of Wound Depth on Clinical Outcomes Following Placental Allograft Use in Diabetic Foot Ulcers

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Introduction: Diabetic foot ulcers (DFUs) with exposed deep structures are associated with greater morbidity, delayed healing, and higher amputation risk. This analysis evaluated differences in demographics, treatment utilization, healing trajectories, and outcomes between superficial and deep DFUs treated with cellular tissue products (CTPs).

Methods: on 400 wounds (329 patients) treated with placental allografts (EPICORD, EPIEFFECT, or EPIFIX) across 39 clinics (2015–2026). Wounds were categorized as superficial (n=347, subcutaneous or less) or deep (n=53, exposure of muscle, tendon, or bone). Outcomes assessed included wound closure rates, time to closure, number of PA applications, percent area reduction (PAR), and provider-documented clinical outcomes.

Results: Deep wounds represented 16.2% of patients and 14.4% of wounds, while superficial wounds accounted for 83.8% and 85.6%,

respectively. Patients with deep wounds (Wagner grade 3) demonstrated greater clinical complexity, including higher rates of osteomyelitis (53.9% vs 35.5%), peripheral artery disease (48.3% vs 35.7%), edema/lymphedema (47.2% vs 37.3%), and tobacco use (32.6% vs 19.8%). Deep wounds also had larger mean wound surface area at first application compared with superficial wounds (7.1 cm^2 vs 3.2 cm^2) (Table 1).

Deep wounds required more intensive therapy, with a higher mean number of CTP applications per wound (4.6 vs 3.8) and longer duration between first and last applications (12.3 vs 8.1 weeks). Median weeks to outcome from first CTP application were also longer for deep wounds (17.6 vs 13.0 weeks). Despite increased severity, provider-documented healing outcomes were comparable between groups. Healed rates were 61.4% in deep wounds and 65.6% in superficial wounds. Twenty-eight-week PAR ≥95% was achieved in 73.2% of deep wounds and 80.7% of superficial wounds. Major amputation rates remained low overall but were higher in deep wounds (3.6% vs 1.7%, as expected).

Discussion: Patients with deep DFUs presented with substantially higher comorbidity burden, larger wounds, and longer treatment courses compared with superficial DFUs. However, closure and PAR outcomes remained favorable despite increased wound complexity. These findings support the clinical utility of CTP therapy in advanced DFUs involving deeper tissue structures.

CS-051

A Novel Reconstruction Strategy for Recurrent Achilles Tendon Rupture: A Case Study

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Introduction: Despite being the largest and strongest tendon in the human body, the Achilles tendon is commonly ruptured, occurring in up to 37 per 100,000 individuals.[1,2] Achilles tendon rupture (ATR) is debilitating and often complicated by poor wound healing due to recurrent injury, fibrosis, limited soft tissue coverage, and poor vascularity. This case report describes reconstruction of a complex, non-healing wound following multiple recurrent ATRs using a bipedicled fasciocutaneous advancement flap based on lateral calcaneal artery perforators.[3]We present a 72-year-old male with a chronic non-healing posterior left ankle wound and a history of multiple Achilles tendon ruptures, failed repairs, skin substitute grafting, and unsuccessful skin grafts.

Methods: Following excisional debridement, a bipedicled fasciocutaneous advancement flap and split-thickness skin graft were used for wound closure while preserving lateral calcaneal artery perforators to optimize flap viability. Medial wound undermining was performed to reduce closure tension. The wound was dressed with multilayer compression, and a CAM walker boot was prescribed for immobilization. Postoperative care included a three-day inpatient stay followed by coordinated outpatient wound management.[4] After the development of venous congestion and partial flap necrosis, a secondary procedure was performed. Necrotic tissue was debrided, the flap was successfully re-advanced, and additional skin grafting was applied. Compression therapy and immobilization were resumed.

Results: Successful wound coverage was achieved through preservation of vascular perforators, flap advancement, and timely management of postoperative complications. The wound healed completely without recurrent infection, necrosis, or venous congestion. Follow-up demonstrated durable soft tissue coverage and no recurrence of ATR.

Discussion: This case highlights the utility of a bipedicled fasciocutaneous advancement flap for reconstruction of complex posterior ankle wounds when primary closure is not feasible. Vigilant postoperative surveillance and multidisciplinary wound care were critical to achieving a successful outcome.

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CS-052

Borate-Based Bioactive Glass Fiber Matrix (BBGFM) for Granulation Tissue Formation in a Complex Diabetic Heel Ulcer With Osteomyelitis: A Case Report

Claudy Gay, DPM

Introduction: Diabetic foot ulcers with underlying osteomyelitis pose significant challenges due to high infection risk and impaired healing. Collagen-based wound products carry an inherent risk of bacterial colonization in infection-prone wound beds. A borate-based bioatctive glass fiber matrix (BBGFM) offers an alternative whose dissolution byproducts facilitating angiogenesis and cellular migration while creating an environment inhospitable to bacterial growth, supporting granulation tissue formation without the infection risk of collagen scaffolds in an easy-to-use form factor. This case describes BBGFM use in a complex diabetic plantar heel ulcer with osteomyelitis following failed conventional therapy.

Methods: A 76-year-old male with type 2 diabetes presented with a plantar heel ulcer and MRI findings suspicious for focal osteomyelitis. Over an initial 8-week course (13 visits), conventional therapies were employed including serial sharp debridement, hypochlorous acid irrigation, silver-containing dressings, a hydrophilic polyurethane matrix and superabsorbent starch copolymer, negative pressure wound therapy (NPWT), and compression wrapping. Despite these interventions, the wound fluctuated between 0.15 and 1.95 cm2 and progressed from Stage 3 to Stage 4 with tunneling. BBGFM was first placed at visit 14 (week 8), and packed into the wound bed with NPWT overlay. Approximateyl four total BBGFM applications were performed over the subsequent weeks alongside NPWT and IV antibiotics for osteomyelitis.

Results: Following initial BBGFM placement, wound surface area decreased from 1.50 cm2 to 0.30 cm2 within one week. Progressive closure continued with subsequent applications. By week 17, the wound measured 0.15 cm2; by week 20, dimensions reached 0 cm2. Epithelialization was confirmed at week 24, and complete closure was achieved at week 29, 21 weeks after BBGFM initiation. No wound infection was observed throughout the BBGFM treatment course despite underlying osteomyelitis.

Discussion: This case demonstrates that BBGFM provides an enviornment conducive to quality granulation tissue formation and facilitates complete closure in a complex diabetic heel ulcer with osteomyelitis. Where 8 weeks of conventional therapy failed to achieve meaningful wound reduction, BBGFM introduction catalyzed a sustained healing trajectory to full closure within 21 weeks, without the infection risk inherent to collagen-based products and in an easy-to-use form factor suitable for irregular wound geometries.

CS-053

Accelerated Wound Closure With Bioengineered Collagen-Mānuka Honey-Hydroxyapatite Dressing in Chronic Lower Extremity Wounds: A Retrospective Urban Hospital Clinic Evaluation

Jackie Glenn; Donna Sage, MSSA

Introduction: Chronic wounds remain a significant healthcare challenge, with real-world healing rates of 55-70% considerably lower than published benchmarks of 92%. Complex wounds require multifaceted treatment approaches that address matrix metalloproteinase activity and tissue regeneration simultaneously, yet current standard-of-care (SOC)

products often lack these comprehensive mechanisms. Collagen, Mānuka honey, and hydroxyapatite each contribute distinct and complementary roles in the wound healing cascade. This retrospective evaluation compared closure rates between SOC dressing protocols and a novel collagen-Mānuka honey-hydroxyapatite dressing (CHD)* in an urban hospital wound care setting, with particular attention to patient adherence as a determinant of success.

Methods: In a case-series study involving four patients with chronic lower extremity wounds, VHT was integrated into a multimodal treatment protocol that included standard wound care. Patients received 2-3 VHT sessions weekly, and their progress was monitored using advanced imaging techniques such as Near-Infrared Spectroscopy (NIRS) and thermography imaging. Clinical outcomes, such as wound size reduction and pain alleviation, were tracked, with follow-up durations extending up to 9 weeks.

Results: The results demonstrated significant clinical improvements, with all patients showing increased tissue oxygenation after each VHT session and a clear longitudinal trend, suggesting enhanced blood flow and angiogenesis. No signs of infection were detected via thermography. In one case, a patient with wounds on both the medial and lateral posterior legs was showing early signs of healing. Although new wounds developed, the initial site demonstrated notable healing progress.

Discussion: The findings from this case-series study underscore the potential of VHT as an adjunctive therapy in chronic wound management. The therapy not only addresses immediate concerns such as wound size reduction and pain alleviation but also facilitates long-term wound management by promoting a favorable healing environment. The use of NIRS and thermography for monitoring therapeutic effects allows for personalized care adjustments, enhancing the overall effectiveness of the treatment protocol. These results advocate for the broader integration of VHT into clinical practices, particularly for complex wounds that are resistant to conventional therapies.

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CS-054

The Use of Intact Fish Skin on Neonate Abdominal Wound

Daisy Gonzalez, MSN, APRN, FNP-BC; Janet Skarda, MD, CWP

Introduction: Gastroschisis is a birth defect characterized by and opening in the abdominal wall with herniated contents, potentially resulting in intestinal atresia requiring extensive neonatal surgical interventions and nutritional deficits. Postoperative wound complications, including dehiscence, present significant clinical challenges in this population. This study explores the application if acellular fish skin graft, in promoting healing of a complicated abdominal surgical wound in a newborn following multiple corrective procedures for gastroschisis with adjacent stoma.

Methods: A single case-based observational approach was utilized, documenting wound progression, graft integration, and healing outcomes after intact fish skin application in a neonatal patient who experience abdominal wound dehiscence following corrective surgery. Wound was complicated due to the leaking of the adjacent stoma and fistula as these were challenging to isolate due to proximity.

Results: At the time of initial fish skin graft application, the wound measured 2 cm x 2.5 cm x0.2 cm. Patient underwent 2 consecutive applications of the fish skin graft with noted improvement after each. Stoma and fistula drainage was controlled as much as possible. Patient ultimately underwent reversal of stoma and closure of the wound.

Discussion: There are many limitations to wound care in neonates, including how wounds are assessed, cleansed and treated. The use of intact fish skin in this wound demonstrated enhanced granulation tissue formation, reduced wound healing time, and was without evidence of adverse immunological response. Observed regenerative properties, minimized scarring and contractures, allowing for ease of wound closure at the time of the definitive closure. Intact fish skin may serve as a viable adjunct to neonatal wound care, particularly in the complex wounds as we are limited on the approved or safe wound care products that can be used on this population. Further clinical research is warranted to validate its safety, efficacy, and establishing standardized protocols for neonatal and pediatric applications.

CS-055

The Only Way: Multidisciplinary Approach to Limb Salvage

Lynellen Gregory; Grey Capozzoli, pa-C; Danny B Ghannoum, DPM; Andrew Hodge, MD; Cheyenne Manafi, DPM

Introduction: Advanced peripheral arterial disease can manifest into critical limb-threatening ischemia, which carries a remarkably high morbidity and mortality. There are often limited options for patients with severe disease, thus resulting in high rates of major limb loss.

Methods: A 74-year-old male with a history of diabetes, coronary artery disease, severe peripheral arterial disease, along with a history of previous toe amputations presented with sepsis in the setting of wet gangrene of the left great toe, and an ischemic pressure wound to the dorsal foot. Systemic antibiotics were initiated, and he was subsequently taken to the operating room by the podiatry team for an open hallux amputation and successfully achieved infection source control. He then underwent an arteriogram by vascular surgery which revealed chronic limb-threatening ischemia with patent inflow through the knee and multilevel tibial and pedal disease with no distal reconstructable target. The patient underwent an advanced minimally invasive revascularization by deep vein arterialization of the posterior tibial artery to create a retrograde deep venous outflow with successful perfusion to the foot. After restoration of blood flow the patient underwent multiple surgical debridements and ultimately a trans-metatarsal amputation. A portion of the medial amputation incision was unable to close primarily and was managed with local wound care until closure by secondary intention. The dorsal foot wound was initially managed with negative pressure vacuum therapy which failed and salvaged by full-thickness skin graft coverage.

Results: Over six months, the patient has required seven podiatric surgical interventions, five revascularization procedures, and consistent specialized wound care. His wounds are 90% healed at this time and the goal of limb salvage is nearly fulfilled.

Discussion: While the time and resources required have been immense for the patient, family, practitioners, and healthcare system, the long-term benefits of the patient leading a life without limb amputation is worth the investment by all parties. The success of this highly complex limb salvage case was only achieved through an integrated multidisciplinary care approach.

CS-056

Restoring the Healing Trajectory in a Refractory Traumatic Leg Ulcer Using a Borate-Based Bioactive Glass Fiber Matrix

Rupal Gupta, DPM

Introduction: Chronic traumatic lower-extremity wounds that fail to progress despite standard wound care remain a significant clinical

challenge. In non-diabetic patients, these wounds may persist due to impaired perfusion, repeated mechanical stress, bioburden, or inadequate host response.1 Traditional therapies including collagen dressings, silver alginates, antimicrobial foams, medical-grade honey, enzymatic debridement, and topical antibiotics often provide limited benefit once a wound becomes refractory. Borate-based bioactive glass fiber matrix (BBGFM) dressings have emerged as a novel therapeutic modality providing an environment conducive to appropriate inflammation, granulation, and re-epithelialization. This case report described the healing trajectory of a chronic traumatic wound treated with a BBGFM following multiple unsuccessful interventions.

Methods: A non-diabetic adult patient presented with a chronic traumatic wound on the right lateral extremity (RLE) that had failed to improve after months of comprehensive treatment, including advanced dressings and four-layer compression therapy. After reassessment and confirmation of non-response to previous modalities, BBGFM was selected as the next intervention. The first application occurred on March 25, 2025. Standard wound care practices including wound cleansing, moisture balance, and ongoing compression were continued in conjunction with the BBGFM. The wound was assessed at routine follow-up visits for changes in size, tissue quality, granulation, and epithelial advancement.

Results: Following the application of BBGFM, the wound demonstrated progressive improvement in granulation and epithelialization after previously showing minimal change. Over the subsequent weeks, the wound area steadily decreased, with visible quality tissue and reduction in slough. Complete wound closure was achieved on August 5, 2025, approximately 19 weeks after initial BBGFM placement.

Discussion: This case illustrates that BBGFM facilitated closure of a chronic traumatic non-diabetic leg wound that had been refractory to multiple advanced therapies. The observed healing trajectory suggests that the matrix may have contributed to a favorable wound environment. While single-patient outcomes cannot be generalized, this case adds to the growing evidence that BBGFM may represent a valuable option for treatment-resistant wounds.

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CS-057

Making the Case for Single Use Negative Pressure Wound Therapy (sNPWT): A Series of Chronic Surgical Wound Closures Without Reoperation

Matthew Hardy

Introduction: With our aging patient population and ever-increasing complexity of surgical procedures, it is inevitable that there will continue to be many complex, post-operative complications that undoubtedly benefit from advanced wound care modalities. In fact, wound dehiscence is estimated to occur in 0.5-3.4% of abdominopelvic cases.1 Furthermore, seroma and lymphocele remain the most common complication after mastectomy and lymphadenectomy for breast cancer with an incidence of 24.2%.2 Implementing the correct treatment plan leads to faster healing, decreased infections and, potentially, fewer instances of reoperation.

Methods: Three patients with common post-operative surgical complications had Single Use Negative Pressure Wound Therapy (sNPWT)* devices applied using standard settings and changing intervals along with other advanced wound care modalities. Complications included multiple seromas following mastectomy, dehiscence following recurrent ventral hernia repairs, and infection and dehiscence following reduction mammoplasty.

Results: All three of the complex, chronic post-operative wounds went on to complete closure following the implementation of sNPWT without reoperation. In addition to avoiding further wound-related procedures, sNPWT enabled earlier mobilization - facilitated by the portability of the device – supporting resumption of physical activity for weight loss in the ventral hernia case, and expediting readiness for definitive reconstruction planning in the mastectomy case.

Discussion: This case series demonstrates that sNPWT can be the cornerstone of an advanced wound treatment plan resulting in complete wound closure without reoperation. Wider adoption and earlier implementation of sNPWT will likely prove equally beneficial to additional wound etiologies and varying degrees of chronicity.

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CS-059

A Journey From Pain to Diagnosis: The Enigma of Livedoid Vasculopathy

Sarwat Jabeen; Delma Jara, MD; Ana C. Macias, MD

Introduction: Livedoid Vasculopathy is a non-inflammatory occlusion of small vessels of the skin due to thrombosis and deposition of fibrin in the vessel walls. Clinical presentation is a triad: livedo racemosa of the skin, painful ulcerations of legs, and atrophie blanche skin biopsy demonstrates characteristic vascular abnormalities, including intraluminal thrombosis, endothelial proliferation, and subintimal hyaline degradation.

Methods: A 53 years old female with history of psoriasis and diabetes mellitus presented with an ulcer on her left leg. In June 2020, she developed ulcers on the anterior and posterior aspect of her left leg. Due to severe pain, bedside surgical debridement was no possible. Different wound dressings wee applied without success. Ankle-brachial Index (ABI) without significant peripheral artery disease (PAD), a venous Duplex revealed reflux in the left greater saphenous vein. she underwent a glue procedure without improvement. Physical examination showed near circumferential wound about 24 x 10 x 0.4 cm, displaying atypical violaceous colors at the perimeter with punched- out appearance . Punch biopsy confirmed LV. She underwent surgical debridement with the application of an autologous skin graft, negative pressure wound therapy(NPWT), and initiation of e-stimulation therapy. NPWT was discontinued after one week, and xeroform started. she was discharged to a skilled nursing facility for ongoing wound care. compression garment was added later with improvement of her wounds.

Results: Biopsy revealed thick layer of fibrinous exudate, inflamed fibrosing granulation tissue containing extensive fibrinoid necrosis of the capillary walls, hyalinization, and evidence of intraluminal fibrin. Direct immunofluorescence (DIF) analysis showed 3+ deposition of fibrinogen on the capillary walls, with negative or nonspecific findings for IgG, IgA, IgM, and C.

Discussion: LV is a rare condition affecting mostly women. Atypical presentation and lack of response to standard treatment should lead to suspect vasculitic ulcer. Punch bipsy helps to exclude other pathologies and confirms diagnosis.. Optimal site is the edge of a new ulcer. Pro-coagulant conditions must be ruled out. Differential diagnosis includes pyoderma gangrenosum, peripheral vascular disease, chronic venous insufficiency, and other vasculitis. Treatment includes antiplatelet therapy and if condition is unresponsive then dipyridamole and pentoxifylline. Second line therapy is anabolic steroids.

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CS-060

Chronic Nonhealing Abscess Wounds Revealing Underlying Sebaceous Cysts: A Case Series and Surgical Insight

Ross Jacobson; Abigail Chaffin, MD, FACS, CWSP, MAPWCA; James Pai, BS, MS; Jessica Reid, BS, MS; Adam Shalek, DO

Introduction: Chronic abscess wounds that fail to heal despite prolonged conservative management may harbor underlying sebaceous cysts, retained cyst lining, or fibrotic sinus tracts that perpetuate inflammation and drainage. While incision and drainage (I&D), serial debridement, and local wound care are commonly employed as initial treatment strategies, these approaches may be insufficient when residual cystic structures remain. This case series highlights the importance of surgical evaluation in patients with persistent nonhealing wounds.

Methods: Two patients with chronic nonhealing back wounds following prior I&D procedures were retrospectively reviewed. Patient 1 was a 59-year-old male with a significant smoking history who underwent approximately four months of conservative wound management consisting of serial debridement's and dressing changes without meaningful improvement. Patient 2 was a 41-year-old male with uncontrolled diabetes mellitus and a significant smoking history who similarly underwent three to four months of wound care with persistent fibrosis and delayed healing. Both patients ultimately underwent surgical excision of the underlying pathology with reconstructive closure techniques.

Results: In Patient 1, surgical exploration revealed an underlying sebaceous cyst and associated chronic fibrotic wound bed. Excision followed by layered complex closure resulted in uncomplicated healing and complete resolution of symptoms without recurrence. In Patient 2, excision of a chronic draining wound and adjacent tissue transfer reconstruction were performed, supplemented with negative pressure wound therapy. Although mild epidermolysis developed during the early postoperative period, it resolved with conservative management. At follow-up, the patient demonstrated complete wound healing without infection, dehiscence, or recurrent drainage.

Discussion: Persistent abscess wounds that fail to respond to several months of conservative therapy should prompt consideration of retained sebaceous cyst lining or fibrotic tracts as an underlying etiology. Surgical excision of these structures, combined with appropriate reconstructive techniques, can facilitate durable wound healing, improve patient symptoms, and reduce the risk of recurrence. Early recognition and timely referral for surgical management may decrease morbidity and optimize patient outcomes.

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CS-062

Use of a Borate-Based Bioactive Glass Fiber Matrix in the Management of a Complex Stage 4 Pressure Injury in a Patient With Paraplegia: A Case Report

Carolyn Jeffries, RN, BSN, CWOCN

Introduction: Stage 4 pressure injuries (PIs) in individuals with spinal cord injury remain among the most challenging chronic wounds to manage. These wounds often demonstrate prolonged healing trajectories due to underlying immobility, recurrent mechanical stress, and the presence of deep tissue destruction. Patients with paraplegia are particularly susceptible to recurrent and complex ulcerations, frequently requiring multimodal interventions and prolonged inpatient care.1 Advanced wound matrices, including a Borate-Based Bioactive Glass Fiber Matrix (BBGFM), have emerged as adjunctive options when standard wound care alone results in delayed progression. This case report describes the clinical course of a large stage 4 PI that demonstrated substantial improvement following the introduction of BBGFM in conjunction with negative-pressure wound therapy (NPWT).

Methods: A 53-year-old male with a history of complete T6 paraplegia secondary to a T9–T10 epidural abscess (2008) was admitted on April 17, 2025, with multiple stage 4 PIs. The most clinically significant wound involved the left trochanter and left ischial region. The wound initially presented with extensive necrosis and required operative debridement. Standard guideline-based management including moisture balance, pressure redistribution, infection control, and nutritional optimization was continued throughout treatment. Due to slow wound progression following debridement, BBGFM was introduced in August 2025 as an adjunctive biologically active matrix applied beneath ongoing negative-pressure wound therapy.

Results: Prior to the use of BBGFM, the wound demonstrated minimal granulation and persistent depth despite adequate standard care. Following the introduction of BBGFM, wound assessments showed progressive reduction in undermining, improved tissue quality, and steady advancement toward closure. Over subsequent weeks, the wound transitioned from a deep cavity with exposed structures to a fully epithelialized surface. By the end of the observation period, the PI wound was considered healed and maintained with protective dressing only. No treatment related complications were reported.

Discussion: This case highlights the potential utility of BBGFM as an adjunctive therapeutic option for complex stage 4 PIs that are slow to progress despite comprehensive standard care. When combined with negative-pressure wound therapy and guideline-based management, BBGFM may support favorable wound progression and contribute to timely closure in patients with spinal cord injury.

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CS-063

Closure of a Chronic Post-Autoamputation Forefoot Wound Following Vasopressor-Induced Ischemia Using Native Collagen Powder: A Case Report

Alton Johnson, DPM, FASPS, FFPM, RCPS, CWSP

Introduction: Vasopressor-induced ischemia is a rare but devastating complication of critical illness that can result in tissue necrosis, gangrene, and limb loss. Patients with significant comorbidities may be poor surgical candidates, necessitating prolonged conservative management. Residual wounds following autoamputation can present substantial healing challenges due to impaired perfusion, tissue loss, and chronic inflammation.

Methods: A 28-year-old female with systemic lupus erythematosus, lupus nephritis, antiphospholipid syndrome, Sjögren's syndrome, and a history of severe critical illness requiring vasopressor support developed bilateral forefoot gangrene secondary to ischemia. Her hospitalization was further complicated by stroke, respiratory failure, renal failure, disseminated intravascular coagulation, and multiple infections. Due to significant operative risk and the inability to discontinue anticoagulation therapy, a limb-preservation approach consisting of conservative wound management and close surveillance was pursued. The left forefoot subsequently underwent spontaneous autoamputation.

Following autoamputation, a residual wound of the left forefoot remained under active wound care management beginning in January 2026. Despite ongoing treatment, progress toward closure was limited. On April 29, 2026, treatment was initiated with a native type I bovine collagen powder wound filler. At initiation, the wound measured approximately 1.0 × 1.0 × 0.1 cm.

Results: Following initiation of collagen powder therapy, progressive granulation and wound contraction were observed. Complete wound closure was documented on June 4, 2026, approximately 36 days after treatment initiation. The accelerated healing trajectory prompted use of the same treatment approach for similar residual wounds on the opposite foot.

Discussion: This case demonstrates successful closure of a chronic post-autoamputation wound in a medically complex patient following initiation of native collagen powder therapy. The observed improvement after several months of limited healing suggests collagen wound fillers may serve as a valuable adjunct in the management of chronic residual wounds in high-risk limb-preservation patients. Further study is warranted.

CS-064

Beyond Wound Closure: A Wound Balance Approach to Chronic Bilateral Venous Leg Ulcers

Alton Johnson, DPM, FASPS, FFPM, RCPS, CWSP

Introduction: Patients with longstanding venous leg ulcers (VLUs) often experience substantial symptom burden, impaired quality of life, and increasing caregiver demands. In older adults with multiple comorbidities and chronic wounds of many years' duration, complete wound closure may not be a realistic goal. The Wound Balance framework emphasizes individualized care that aligns treatment decisions with patient priorities, symptom management, and quality-of-life outcomes.

Methods: A 71-year-old African American female with chronic venous insufficiency, bilateral VLUs, and lower extremity edema presented with wounds of approximately five years' duration. Prior treatment included compression therapy, frequent dressing changes, specialist wound care, and skin substitute applications with limited improvement. Initial wound measurements were 6.0 × 9.0 × 0.1 cm on the right lower extremity and 13.0 × 13.0 × 0.1 cm on the left lower extremity. The treatment plan was revised from prior dressings to a non-adherent superabsorbent dressing, used with compression therapy, weekly physical therapy-directed wound care, lymphedema therapy, and every-other-week skin substitute applications. Goals focused on wound stability, exudate management, periwound protection, symptom reduction, and preservation of quality of life.

Results: The patient demonstrated improvement in wound bed quality, healthier viable tissue, improved periwound skin condition, and significant pain reduction associated with decreased maceration. Dressing frequency decreased from three times weekly to approximately two times weekly while maintaining wound stability. The left lower extremity wound decreased from 13 × 13 cm to 11 × 11 cm, while the right lower extremity wound remained stable. Improved exudate control reduced strike-through drainage and caregiver burden. The patient and caregiver reported greater freedom to travel and participate in social activities with less concern about wound management. The patient remained active, continued exercising, and experienced no wound-related emergency department visits or hospitalizations during the treatment period.

Discussion: This case demonstrates that meaningful outcomes in chronic VLUs may extend beyond complete wound closure. A Wound Balance approach incorporating a non-adherent superabsorbent dressing was associated with improved symptom control, reduced dressing frequency, decreased caregiver burden, preserved function, and improved quality of life despite limited dimensional change. For patients with longstanding, complex wounds, success may be measured not only by healing, but also by maintaining independence, participation in valued activities, and overall well-being.

CS-065

Borate-Based Bioactive Glass Fiber Matrix as a Surgical Adjunct in Staged Paramedian Forehead Flap Nasal Reconstruction in a Complex Elderly Patient

Martin Johnson

Introduction: Staged paramedian forehead flap reconstruction of full-thickness nasal defects is a multi-procedure surgical undertaking, with prolonged intervals of healing tissue between operative stages. Optimizing the wound bed and achieving robust soft tissue fill across these stages can be challenging, particularly in elderly patients with limited care support. Borate-based bioactive glass fiber matrices (BBGFM) are designed to facilitate a wound environment conducive to angiogenesis and granulation. This case describes use of a BBGFM as a surgical adjunct throughout a staged forehead flap nasal reconstruction, including intraoperative application.

Methods: An elderly male underwent a staged interpolated paramedian forehead flap reconstruction of an extensive full-thickness nasal defect involving the tip and ala. Care planning was complicated by the patient being under a state-appointed caregiver. The BBGFM was incorporated into the surgical course, applied during wound bed preparation and at the reconstructive stages, including intraoperatively at flap transfer and at flap division and insetting, to support granulation and soft tissue fill. Anchored to the index flap (Week 0), the course proceeded as: wound bed preparation with the first two applications (second documented 10/25, ~3 weeks pre-flap); Week 0 (11/15) - Stage 1 forehead flap, third application; Week 1 (11/21) - postoperative follow-up, fourth application; Week 3 (12/5) - Stage 2 flap division and insetting, fifth application; Week 5 (12/19) - postsurgical assessment. The documented course spanned approximately 8 weeks.

Results: Five total matrix applications were performed throughout the reconstruction. The forehead donor site was closed primarily, without a skin graft. The depth of soft tissue fill achieved between flap transfer and division/insetting was significant, supporting durable contour restoration. The wound progressed to healing across the documented course, and no systemic antibiotics were required. The patient was subsequently cleared to proceed with an alar support reconstruction.

Discussion: In a complex, care-limited elderly patient undergoing staged paramedian forehead flap nasal reconstruction, a BBGFM was used as a surgical adjunct, with primary donor-site closure without grafting and substantial soft-tissue fill across stages. This case highlights the outcomes associated with implementing BBGFM into the operative workflow of multi-stage flap reconstruction.

CS-066

Management of Complex Wounds in Difficult to Dress Locations With a Next Generation Negative Pressure Wound Therapy Device: A Case Study

Merianne Jordan, PT, DPT, OCS; Carissa Paige Green, PT, DPT

Introduction: Negative pressure wound therapy (NPWT) has transformed management of complex wounds, particularly those in anatomically difficult locations. NPWT performance depends on dynamic wound and dressing environment conditions, including air leaks, exudate volume, viscosity, and wound size. These challenges are amplified in areas such as the groin or around a stoma or by certain wound types, where maintaining a seal is difficult. This case study describes two complex wounds in hard-to-dress locations that progressed after switching from a legacy NPWT device to a next-generation system.

Methods: Our facility evaluated a new next generation NPWT system in December 2025 through April 2026. Among the trial cohort, two patients had complex wounds in locations where obtaining and maintaining a seal was difficult. Both patients were initially treated with a legacy NPWT device before being transitioned to the advanced device.

Results: Case 1 involved a 64-year-old man with a groin wound from necrotizing soft-tissue infection measuring 19 × 22 × 4 cm. With the legacy device, dressing leaks prevented reliable 48- hour wear. After switching to the advanced device, seal integrity improved, dressing changes extended to 72 hours, and the wound developed healthy granulation tissue before final closure. Case 2 involved a complex abdominal incision and stoma dehiscence in the setting of vascular complications following a diverticular resection and colovesical fistula takedown. The resulting wound measured 19 × 19.2 × 7.4 cm and contained a centrally located stoma. Management with the legacy device was limited by recurrent leaks and minimal progress. After conversion to the advanced device, exudate management improved, granulation tissue increased rapidly, and the wound decreased by 87.5% in surface area and 98% in volume before transition to standard wound care.

Discussion: In both cases, switching from a legacy device to the advanced NPWT system was associated with immediate clinical improvement, better seal maintenance, and enhanced wound progression. These findings support continued innovation in NPWT technology for complex wounds in difficult-to-dress locations.

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CS-067

Reduction in Skin Breakdown and Re-Ulceration Following Post-Closure Maintenance Therapy With a Silica-Based Topical Cream in Neuropathic Patients

Adam Jorgensen; William L Hickerson, MD, FACS, FABA; Timothy Vogler, DPM

Introduction: Neuropathic patients remain at elevated risk for recurrent ulceration following wound closure due to persistent xerosis, hyperkeratosis, fissuring, and impaired skin barrier function. While wound closure can be achieved, strategies to maintain epidermal integrity and reduce recurrent tissue breakdown remain limited. This retrospective analysis evaluated the clinical utility of a silica-based topical cream as post-closure maintenance therapy in a neuropathic patient population.

Methods: A retrospective chart review was conducted in sixty-eight neuropathic patients managed following wound closure at a specialized wound care clinic. Patients were instructed to apply a silica-based topical cream (SiOxC Cream) twice daily as part of routine maintenance care. Outcomes evaluated during follow-up included patient-reported adherence, changes in xerosis and dermatitis, qualitative assessments of skin integrity, occurrence of fissuring or cracking, clinician-reported usability, and incidence of re-ulceration. Descriptive analyses were performed, and outcomes were compared with recurrence rates reported in the published literature for similar neuropathic populations.

Results: Sixty-eight patients were included, with a mean follow-up duration of six months. Adherence to the prescribed regiment was reported throughout the observation, with improvements in xerosis, dry skin, and dermatitis were documented in all patients. Clinicians also noted qualitative improvements in skin integrity, including reductions in inflammation, fissuring, cracking, and hyperkeratotic changes. No cases of re-ulceration were observed during the follow-up period. The cream was reported to be easy to incorporate into routine care, and patient interest in continued use was high.

Discussion: Use of a silica-based topical cream as post-closure maintenance therapy was associated with improved skin condition and an absence of observed re-ulceration during six months of follow-up in this cohort of neuropathic patients. These findings suggest that targeted maintenance therapy may help improve epidermal integrity and support long-term skin preservation following wound closure. Given the retrospective design and lack of a control group, prospective controlled studies are warranted to further evaluate effects on recurrence prevention and long-term outcomes in high-risk neuropathic populations.

CS-068

Use of a Silica-Based Synthetic Skin Substitute for Treatment of Diabetic Foot Ulcers: A Retrospective Analysis

Adam Jorgensen; William L Hickerson, MD, FACS, FABA; Timothy Vogler, DPM

Introduction: Diabetic foot ulcers (DFUs) remain a significant clinical challenge due to impaired healing, persistent inflammation, and elevated risk of infection and recurrence. Advanced wound therapies that support wound closure while remaining practical for routine clinical use may improve outcomes in this high-risk population. This retrospective analysis evaluated clinical outcomes, treatment compliance, and provider experience associated with a silica-based synthetic skin substitute in patients with Wagner grade II and III DFUs.

Methods: A retrospective chart review was conducted in patients treated with a silica-based synthetic skin substitute (SiOxD Wound Matrix) at a specialized outpatient wound care clinic. Patients received weekly in-office applications as part of standard wound management. Outcomes evaluated included wound closure, progression of healing, peri-wound inflammatory response, occurrence of wound infection, patient adherence to treatment, and provider-reported ease of use. Descriptive analyses were performed, and outcomes were compared with expected healing trends reported in comparable chronic wound populations.

Results: Twenty-three patients with Wagner grade II or III DFUs were included with a mean follow-up duration of three months. Complete wound closure was achieved in 14 of 23 patients (60.9%) during the observation period. Clinicians reported reductions in peri-wound inflammation, erythema, drainage, irritation, and tissue breakdown throughout the treatment. No treatment-related wound infections were observed during the follow-up. The skin substitute was successfully incorporated into routine clinical workflows and was utilized in patients both with and without home health support. Providers reported favorable handling characteristics, ease of application, and minimal disruption to standard of care practices.

Discussion: The use of a silica-based synthetic skin substitute was associated with favorable healing outcomes and improvements in wound bed and peri-wound tissue quality in patients with Wagner grade II and III DFUs. The product was readily incorporated into outpatient treatment protocols and supported care across a range of patient management settings. These findings suggest that silica-based synthetic skin substitutes may represent a practical adjunctive therapy for chronic DFUs. Prospective controlled studies are warranted to further evaluate healing outcomes, infection prevention, and comparative effectiveness in diabetic wound populations.

CS-069

Gentle, but Effective: Combined Use of Hypochlorous Acid Wound Wash Solution and Antimicrobial, Soft Silicone Foam Dressings in Partial-Thickness Burns

Matilda Karlsson, PhD, RN; Jana Meisler, MBA, BSN, RN, CWS, CWOCN, CFCN

Introduction: Burn injuries require careful management to promote healing, prevent infection, minimize scarring, and reduce patient discomfort. Achieving these outcomes can be particularly challenging in partial-thickness burns (PTB) that vary in cause, depth, and patient characteristics.1 Traditional burn management often involves choosing appropriate cleansing agents and dressing types that address infection control, exudate management, wound healing, and patient comfort.1 The diverse presentation of PTBs increases the complexity of clinical decision-making, with numerous treatment pathways contributing to confusion and variability in practice.1 Therefore, there remains a clinical need for streamlined, evidence-based treatment protocols that reduce decision-making uncertainty and enhance both clinical outcomes and patient satisfaction.

Methods: A case series evaluated a regimen using a hypochlorous acid (HOCl) wound wash solution with antimicrobial, soft silicone foam dressings for partial-thickness burns. Three patients were treated: A

17-month-old male with a scald injury; A 71-year-old male with a scald injury; A 35-year-old male with a chemical burn. Each wound was cleansed with HOCl solution, mechanically debrided as needed, and dressed with either antimicrobial soft silicone foam or exudate transfer foam dressings. Dressing changes were guided by wound progression and clinical assessment.

Results: All wounds achieved full epithelial closure within 6–15 days with no persistent signs of infection. Exudate was effectively managed reducing risk of maceration, with reduction as healing progressed. The periwound skin remained intact, and wound edges supported progressive epithelialization. All patients tolerated the regimen well, including during dressing application and removal.

Discussion: The combination of HOCl wound wash solution and antimicrobial, soft silicone foam dressings supported uncomplicated healing of partial-thickness burns in pediatric and adult patients. This regimen provided antimicrobial protection, effective exudate management, and patient comfort, offering a practical, efficient, and well-tolerated approach for modern burn care practice.

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CS-070

Clinical Application of a Self-Assembling Peptide Biomimetic Matrix for Rapid Volume Restoration in Deep, Complex Foot Defects

Richard Kaufman; Melina Butuci, PhD; Jonash Loh, MD; Dennis McMahon, MD

Introduction: Managing deep anatomical defects complicated by severe comorbidities requires advanced biomaterials to fill structural gaps and protect exposed deep tissues. Refractory diabetic lower extremity wounds often stall due to microvascular dysfunction and mechanical instability. This case report evaluates BMM* (a flowable biomimetic matrix made of synthetic self-assembling peptides [SAPs] that form a 3D hydrogel scaffold mimicking the native extracellular matrix) in preparing compromised lower extremity wound beds for successful secondary closure.

Methods: A patient with a complex, non-healing foot defect was treated using surgical debridement, transverse tibial transport, and intraoperative BMM* application to eliminate dead space, cover deep structures, and build granulation tissue. Patient Background: A 66-year-old female with Charcot arthropathy, Type 2 Diabetes, and a history of hindfoot arthrodesis presented with a recurrent plantar wound that had failed standard conservative care and 13 prior amniotic graft applications.

Results: The baseline defect measured 4.0×4.0×2.4 cm (38.4 cm^3). Following a single 2-cc application, progressive granulation led to a 62.2% Percent Volume Reduction (PVR) within 10 days (with wound depth decreasing from 2.4 cm to 0.8 cm). This rapid baseline restoration allowed for a successful transition back to advanced amniotic and split-thickness skin grafts at week 4.

Discussion: BMM is an effective adjunct for filling deep biological gaps and driving rapid granulation over exposed bone, tendon, and fascia. The flowable SAP matrix yielded a PVR of 62.2% within 10 days, providing rapid volumetric clearance comparable to negative pressure wound therapy to bridge complex wounds toward definitive grafting. Further clinical evaluations are warranted to optimize protocols for complex limb salvage scenarios.

CS-071

Efficacy of Broad-Focused Extracorporeal Shockwave Therapy in Preventing Venous Congestion Following Lower Extremity Flap Reconstruction: A Case Series

Richard Kaufman

Introduction: Venous congestion remains a leading cause of partial or complete flap failure in lower extremity reconstruction, particularly in high-risk patients with diabetes mellitus and compromised microcirculation. Broad-focused extracorporeal shockwave therapy (ESWT) has demonstrated angiogenic, anti-inflammatory, and tissue perfusion-enhancing effects in wound healing. This study evaluates the efficacy of adjunctive broad-focused ESWT in preventing venous congestion and promoting uneventful healing in lower extremity flaps.

Methods: We retrospectively reviewed consecutive patients undergoing lower extremity soft tissue reconstruction with local or regional flaps between 2024 and 2026. Broad-focused ESWT was applied on postoperative days 6, 12, and 18 using standardized parameters. Flap types included four peroneus brevis flaps, three reverse sural artery flaps, and one soleus flap. Primary outcomes were incidence of venous congestion, flap survival, and wound healing complications. Secondary considerations included patient comorbidities, notably diabetes mellitus.

Results: Eight flaps were treated in patients with multiple comorbidities. All flaps (100%) achieved complete survival with primary healing and minimal complications. No episodes of venous congestion requiring intervention were observed. Of the patients, five had diabetes mellitus (2/4 peroneus brevis, 2/3 reverse sural artery, and 1/1 soleus flap patients). Despite the high prevalence of diabetes and the inherent vascular challenges of these flap designs, all reconstructions healed without necrosis, dehiscence, or need for reoperation.

Discussion: Adjunctive broad-focused ESWT applied on postoperative days 6, 12, and 18 appears highly effective at preventing venous congestion and supporting reliable healing in lower extremity flaps, even in diabetic patients. This small case series supports further prospective investigation of ESWT as a noninvasive modality to improve outcomes in complex lower extremity reconstruction.

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CS-072

Successful Limb Salvage in High-Risk Patients With Diabetic Foot Ulcers and Peripheral Artery Disease Using Orthofix TrueLok Elevate Transverse Bone Transport System: A Case Series

Richard Kaufman, DPM, FACFAS, CWSP

Introduction: Patients with type 2 diabetes mellitus (T2DM) and peripheral artery disease (PAD) frequently develop chronic, non-healing foot ulcers that carry a high risk of major amputation. Transverse tibial bone transport (TTT), also known as tibial cortex transverse transport, is an emerging technique based on Ilizarov tension-stress principles that promotes angiogenesis and improves microcirculation to facilitate wound healing. This case series evaluates the use of the Orthofix TrueLok Elevate TTT system, combined with standard-of-care wound management, in achieving limb salvage and complete wound healing in complex, high-risk cases.

Methods: We retrospectively reviewed seven consecutive patients (all with T2DM and PAD) treated between Jan 2025 and June 2026 at Piedmont Atlanta Hospital in Atlanta, GA. All patients presented with challenging, non-healing wounds and were deemed at high risk for below-knee amputation by a multidisciplinary team. Two patients had comorbid end-stage renal disease (ESRD). The Orthofix TrueLok Elevate

system was applied for transverse bone transport in addition to standard wound care protocols, including debridement, offloading, infection management, and advanced wound therapies. Key outcomes included limb salvage rate, time to complete wound healing, and complications.

Results: All seven patients (100%) achieved successful limb salvage with full wound healing. Average time to healing was 10 weeks. No major amputations occurred. The technique was well-tolerated, with manageable pin-site issues as the primary minor complication. In the two patients with ESRD, healing was achieved despite significant comorbidities. Improvements in perfusion and tissue regeneration were observed clinically and supported by the known angiogenic effects of TTT.

Discussion: The Orthofix TrueLok Elevate TTT system, when used adjunctively with standard wound care, appears highly effective for limb salvage in high-risk T2DM patients with PAD and complex foot ulcers, including those with ESRD. This approach offers a valuable option for cases refractory to conventional therapies. Larger prospective studies are warranted to further validate these findings and optimize protocols.

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CS-074

Validation of a Subepidermal Moisture Scanner in Two Patients With Visible Pressure Injury Presentation After Admission Day Three

Mary Kinsey, BSN, RN, CWON; Lacee Dilliard, BSN, RN, CWON

Introduction: Hospital-acquired pressure injuries (HAPIs) remain a significant clinical and financial burden in intensive care unit (ICU) settings, despite widespread use of pressure injury prevention (PIP) strategies. Individual HAPIs are estimated to cost hospitals $20,900-$151,700. The sub-epidermal moisture (SEM) scanner identifies an objective, validated biomarker of localized tissue edema associated with early pressure injury development up to 10 days before visible skin damage occurs. Elevated SEM delta values can help identify pressure injuries present on admission, guide timely and targeted PIP interventions, reduce misclassification, signal potential deep tissue pressure injury (DTPI) development before clinical deterioration, and reduce associated costs.

Methods: During a 45-day ICU SEM scanner pilot, all patients received sacral SEM scans on admission and daily thereafter. Elevated SEM deltas for all patients prompted interventions including lateral-only repositioning, avoidance of supine positioning, placement of a prophylactic foam dressing, and placement on a specialty support surface with microclimate and immersion features. Two patients presented with notable SEM trends, highlighting the potential value of SEM-guided PIP in ICU care. Patient A was a 75-year-old male admitted for evaluation of left foot pain and discoloration following Achilles tendon repair and negative pressure wound therapy. Patient B was an 84-year-old male admitted with altered mental status and seizure-like activity.

Results: Both patients developed visible sacral pressure injuries after admission day three. Patient A presented with an elevated admission delta of 0.9 which remained high until a DTPI became visible on day four. Patient B had a normal admission delta of 0.4 but developed a visible DTPI on day eight, classifying it as a HAPI. Four days prior to visibility, SEM deltas rose progressively at 0.7, 0.8, and 1.0, consistent with the "acceleration effect" described in the literature to indicate development of a DTPI.

Discussion: These cases give insight to SEM scanning as an objective tool for early tissue damage detection and DTPI identification. Patient A's elevated admission and subsequent consistently high delta values indicate the injury was present on admission, preventing misclassification as HAPI. Patient B's case demonstrates the scanner's early objective signaling of tissue injury, enabling earlier PIP interventions to mitigate patient harm.

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CS-075

Preparing Complex Diabetic and Ischemic Wounds for Grafting Using Continuous Topical Oxygen Therapy

Edward Kormylo

Introduction: Chronic lower-extremity wounds complicated by diabetes, neuropathy, peripheral arterial disease, Charcot neuroarthropathy, and post-operative dehiscence often stall due to tissue hypoxia and impaired angiogenesis. Continuous topical oxygen therapy (cTOT) has been used to enhance granulation and prepare complex wounds for advanced closure. This ongoing case series evaluates cTOT for wound-bed optimization prior to grafting. Near-infrared (NIR) hemoglobin-oxygenation imaging was incorporated to objectively assess perfusion and confirm tissue viability. All wounds in this series have progressed to graft-ready status.

Methods: Five adults (ages 53–66; four males, one female) with complex diabetic, ischemic, or post-operative foot and ankle wounds were enrolled. All underwent sharp excisional debridement to healthy bleeding tissue ("The ulcer was debrided to red healthy bleeding tissue… all necrotic, devitalized and nonviable tissue was removed"). Wounds included exposed muscle, exposed bone, positive probe-to-bone, and fibrogranular stalled bases, with sizes ranging from 2.2 × 1.6 × 0.2 cm to 7 × 4 × 0.2 cm. Continuous topical oxygen therapy* (cTOT) was applied continuously alongside standard care (offloading, edema control, antimicrobial dressings). NIR imaging was used to evaluate hemoglobin oxygenation and microvascular perfusion to determine readiness for graft placement.

Results: All five patients demonstrated accelerated granulation, reduction of devitalized tissue, and stabilization of wound edges. A 59-year-old female with post-operative dehiscence and contralateral ulceration achieved full granulation coverage. A 54-year-old male with a Grade 2 diabetic foot ulcer and venous stasis ulcer reached graft-ready depth and stability. A 58-year-old male with Charcot deformity and chronic osteomyelitis developed sufficient granulation despite severe comorbidities. A 53-year-old male with a full-thickness ulcer post-bone excision demonstrated rapid granulation and wound contraction. A 66-year-old male with exposed muscle and bone achieved stable granulation in bilateral wounds. NIR imaging confirmed adequate hemoglobin oxygenation in all cases prior to graft planning.

Discussion: Early findings indicate that Continuous topical oxygen therapy* (cTOT), supported by NIR perfusion imaging, is an effective adjunct for wound-bed optimization prior to grafting in complex diabetic and ischemic wounds. All wounds in this ongoing series have reached graft-ready status. Final graft outcomes and time-to-closure will be reported in the completed poster presentation.

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CS-076

Real-World Analysis of the Effect of Adjunctive Vaporous Hyperoxia Therapy on the Healing of Chronic Wounds

David G. Armstrong, DPM, MD, PhD; Dustin Kruse, DPM; Marissa J. Carter, PhD, MA; Charles M. Zelen, DPM; Adam L. Isaac, DPM

Introduction: Vaporous hyperoxia therapy (VHT) is a FDA-510(k) cleared technology used adjunctively with standard wound care. VHT administers a low-frequency, noncontact, nonthermal ultrasonic mist with topical oxygen therapy. A retrospective analysis of patients with chronic wounds evaluated the healing effect of VHT.

Methods: We reviewed data of patients with chronic wounds (≥4 weeks) treated with VHT at 10 clinics from February 6, 2020, through August 30, 2022. After debridement (as appropriate), the affected limb was placed in the treatment basin, and a 56-minute treatment of alternating cycles of ultrasonic mist and TOT was administered. Wounds were offloaded and dressed appropriately. Twice-weekly treatments occurred until the wound healed (complete epithelialization and granulation). The number of wounds healed at 16 weeks and the percentage area and volume reduction were analyzed. A Kaplan-Meier healing analysis determined time to heal.

Results: Data from 249 patients were reviewed; 40 (17%) patients with 53 wounds were eligible and included. Most patients were male (n = 26, 65%) and aged 65-74 years (n = 21, 53%). The mean [standard deviation (SD)] comorbidity count per patient was 4.6 (2.5). The wounds were predominantly DFUs (n = 47; 88%); 72% (n = 38) of these were Wagner 2 ulcers. Five patients were treated with VHT in combination with ≤5 cellular and/or tissue-based products (CTPs). The median (interquartile range) wound duration was 2.0 months (3.0). The median baseline wound area was 1.5 cm2 (3.9). The median number of treatments was 18 (21); the median treatment length was 60 days (76.5). At 16 weeks, 41 (76%) wounds healed, including all 5 wounds treated with VHT and CTPs. The mean healing time was 14.5 weeks (95% Confidence Interval: 9.9-18.1). The respective mean percentage area and volume reduction over 16 weeks were 69% (156.7) and 82% (70.3).

Discussion: This real-world analysis of patients with multimorbidities demonstrates that VHT healed most chronic wounds within 14 weeks. The hypersaturation and oxygenation of the wound tissue stimulate angiogenesis, reduce bioburden, and accelerate granulation tissue formation. VHT also appears to accelerate healing in wounds that are also treated with CTPs, but this finding warrants further investigation.

CS-077

Transforming Chronic Wound Healing Outcomes With Vaporous Hyperoxia Therapy (VHT): A Two-Wound Case Series

Dustin Kruse, DPM, MA, FACFAS; Donna Sage, MSSA

Introduction: Chronic wounds in diabetic patients present significant challenges, often leading to complications such as amputations. Vaporous Hyperoxia Therapy (VHT)*, an FDA-cleared, low-frequency ultrasonic mist therapy, combines hydration with concentrated oxygen to enhance wound healing. These cases evaluate VHT's efficacy in resolving chronic wounds in a high-risk diabetic patient through two distinct wound cases treated in 2019 and 2024.

Methods: A 51-year-old Caucasian female with type 1 diabetes (HbA1c 7.8, historically well-controlled) and a history of anemia presented with chronic wounds resistant to standard treatments. In 2019, she had a Wagner Grade 2 diabetic foot ulcer (DFU) on a forefoot stump following a trans metatarsal amputation (TMA). Standard care, including negative pressure wound therapy, skin grafts, and other advanced therapies, failed to achieve closure. In 2024, the same patient developed a new DFU on the right foot, which worsened under initial treatment with collagen, Medi honey, and topical antibiotics. Healing progress was monitored using advanced imaging techniques such as Near-Infrared Spectroscopy (NIRS) and thermography imaging.

Results: Wound #1 (2019): At VHT initiation, the wound measured 1.4 x 1.6 x 0.3 cm with an area of 2.24 cm^2 and volume of 0.672 cm^3. After 4 weeks, the wound achieved a 45.98% reduction in area and a 64.88% reduction in volume. By 8 weeks, the wound showed a 64.29% reduction in area and a 76.19% reduction in volume, ultimately achieving 100% resolution after 46 treatments over 28 weeks. Wound #2 (2024): Initially measured 1.2 x 1.9 x 0.5 cm with bioburden and pale granulation tissue. After 4 weeks of VHT, the wound achieved a 56.6% reduction in area and a 74.0% reduction in volume. At 7 weeks, the wound showed an 89.5% reduction in volume, measuring 0.6 x 1.0 x 0.2 cm, and is on track to fully resolve with continued treatment. At baseline, a temperature gradient was observed between the wound and periwound areas. By six weeks, both the temperature gradient and hypoxic area had resolved, indicating positive healing trajectory.

Discussion: These cases highlight VHT's transformative potential in reversing chronic wound deterioration in complex diabetic cases. For this patient, who previously experienced treatment failures, VHT facilitated remarkable healing outcomes. Its ability to enhance granulation, reduce bioburden, and significantly reduce wound size supports its use as a vital adjunct to standard wound care.

CS-078 (RPT-001)

Close Your Eyes: Durable Management of Upper Eyelid Contracture in an Undomiciled Patient Following Severe Burn.

Ryan Kwon; Chun Yun Hsu, BS; Phillip Chang, MD; Robert Winchell, MD; Daud Lodin, MD MPH

Introduction: Facial burns account for approximately 20% of flame injuries and eyelid involvement is one of the common associated complications. Despite the frequency, severe eyelid contracture requiring surgical reconstruction remains relatively uncommon (1.6%). This case discusses a 49-year-old undomiciled male with schizophrenia, bipolar disorder, and COPD who developed a contracture of the right upper eyelid following a third degree facial burn, resulting in persistent lagophthalmos.

Methods: This is a case presentation of an undomiciled 49-year-old male with a history of schizophrenia, bipolar disorder, and COPD. The patient sustained a third-degree facial burn, resulting in a contracture of the right eye lid causing his right eyelid to stay constantly open.

Results: The patient was initially admitted for full-thickness flame burns to the scalp, face, and hand. He was intubated for respiratory distress and taken to the operating room for dermal template placement and allograft application to the head and face. The patient was subsequently lost to follow-up. He was readmitted 41 days after discharge due to inability to close his right eye secondary to contracture of the right upper eyelid from burn scarring. He was taken to the operating room for contracture release. Upon incision of the scar tissue, the eyelid was released, and a full-thickness skin graft harvested from the neck was applied to the right upper eyelid. A tarsorrhaphy was performed to promote corneal healing and prevent further surface damage. By postoperative day 12, the patient demonstrated compliant eye closure and the graft harvest site had healed.

Discussion: This case demonstrates a successful combined plastics and burn surgery approach to restore eyelid function in a patient with lagophthalmos following a third-degree facial burn. The patient's loss to follow up highlights the importance of close outpatient surveillance in high-risk burn populations. Early recognition and timely surgical intervention can effectively restore eyelid function and prevent vision-threatening complications.

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CS-079

Ascites, Obesity, Critical Illness, and an Open Abdomen - A Case to Be Made for the Use of Synthetic Dermal Matrix to Further Advance Abdominal Closure in the Critically Ill

Ryan Kwon; Chun Yun Hsu, BS; Phillip Chang, MD; Robert Winchell, MD; Daud Lodin, MD MPH

Introduction: Management of the open abdomens remains a significant surgical challenge with reported 6-month mortality rates as high as 36% and limited reconstructive options for critically ill patients. Patients with loss of domain and inability to close the overlying skin present a more complex problem. In patients where the bowel does not granulate at the edges and with persistent ascites, typical closure with skin grafting is not possible. This case discusses the use of synthetic dermal matrix (SDM)* without silastic cover to fill the space and promote quicker granulation as a bridge towards split thickness skin grafting.

Methods: This is a case presentation of a severely obese 58-year-old with multiple comorbidities, who initially presented with free air and concerns for bowel perforation. He was noted to have had multiple abdominal hernias, including a large left lateral and supraumbilical abdominal wall hernias, who underwent damage control surgery and was left with an open abdomen.

Results: The patient was admitted to the ICU postoperatively for sepsis management and acute respiratory distress syndrome. He underwent multiple abdominal take backs for washouts and bowel anastomosis without abdominal closure. The open abdomen was managed for several weeks with negative pressure wound therapy dressings until a wound bed with robust granulation tissue was achieved. However, the vac device was collecting several milliliters of ascites from a circumferential area of interface between the skin and the bowel, including over the liver. Initial abdominal coverage was then performed using a two-stage approach. First, a cadaveric allograft was applied over the granulating bowel while SDM* was grafted directly into these undermined pockets. On take down five days later, the circumferential interface was obliterated and the ascites output significantly decreased. He then underwent split thickness skin autografting with superfluous take and no fluid leak or fistula. He continued his ICU admission and had no complications or issues with his abdominal closure.

Discussion: This technique offers a viable method for abdominal closure in critically ill patients who are poor candidates for complex reconstructive procedures. This case emphasizes the importance of SDM* in helping move complex wounds forward towards definitive closure.

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CS-080

Topical Oxygen Therapy as an Adjunct for Open Amputation and Post Amputation Wounds: Early Clinical Outcomes From a Multi Patient Case Series

Joseph Larsen

Introduction: Open amputation sites and post amputation dehiscence present significant healing challenges, especially in patients with Diabetes, PVD and other co-morbidities. Hypoxia, bioburden, and delayed granulation tissue contribute to stalled wound progression. Continuous topical oxygen therapy(TOT) has emerged as a potential adjunct to improve oxygenation and support granulation tissue. However, real world evidence in complex amputation wounds remains limited. This interim analysis presents early clinical outcomes from an ongoing case series evaluating TOT in open amputations and post amputation wounds managed in an outpatient setting.

Methods: Four patients with complex amputation related wounds were included in the preliminary review. All patients had multiple co-morbidities, including Diabetes, PVD, prior infection. Standard wound care including sharp debridement, infection control, off-weighting and moisture balance was provided to all patients. TOT (NATROX*) was initiated either at the start of treatment or at follow up when wounds demonstrated stalled healing. Cases included 1. post open hallux amputation with dehiscence, stalled healing with ABI of .39. 2. Open TMA with bone exposure and MSSA/Candida infection. 3.Open revisional TMA with graft failure. 4. A partial open 1st ray amputation with stalled healing.

Results: Across all four cases, early improvements were observed following initiation of TOT. Findings included increased granulation tissue formation, decreased necrotic tissue burden, improved wound bed quality and decreased slough when combined with serial debridement, off loading and infection control. No adverse events to TOT were reported. Final outcomes-including time to closure, need for additional grafting, and limb-salvage endpoints are pending completion of follow ups.

Discussion: Preliminary observations suggest that continuous TOT enhances granulation tissue formation and optimizes the wound bed in complex open amputations and post-amputation wounds ,even in patients with severe PVD and multiple co-morbidities. These early results support the role of TOT as an adjunctive therapy in managing hypoxic and hard to heal amputation sites while improving closure rates, infection recurrence, granulation tissue formation, and limb preservation.

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CS-081

Limb Salvage of a Severe Diabetic Foot Infection Utilizing Ultrasonic Debridement With an Ultrasonic Wound Debridement System, Hyperbaric Oxygen Therapy, and Advanced Wound

Lonnie Lassiter, MD

Introduction: Diabetic foot infections complicated by gangrene and extensive soft tissue loss frequently result in major amputation. We present the case of a 62-year-old male with poorly controlled diabetes mellitus who presented with extensive plantar forefoot gangrene and deep tissue destruction. Major amputation was recommended because of the severity of infection and tissue loss; however, the patient elected limb salvage.

Methods: Treatment consisted of aggressive sharp debridement, serial ultrasonic debridement utilizing an ultrasonic wound debridement system,* systemic antibiotic therapy, hyperbaric oxygen therapy (HBOT),

advanced wound care, and strict offloading. The patient underwent aggressive excisional sharp debridement to remove extensive gangrenous and nonviable tissue. Following initial surgical debridement, serial ultrasonic debridement procedures were performed utilizing the ultrasonic wound debridement system.

Results: While sharp debridement removed grossly necrotic tissue, ultrasonic debridement provided enhanced wound bed cleansing, facilitated removal of residual devitalized tissue, and contributed to reduction of bacterial burden throughout the wound. Serial photographs demonstrated conversion of a heavily contaminated gangrenous wound into a uniformly clean, viable wound bed capable of supporting granulation tissue formation and epithelialization (see images). The patient ultimately achieved limb salvage and avoided major amputation.

Discussion: This case demonstrates successful limb salvage in a patient with extensive diabetic foot gangrene who initially appeared destined for major amputation. While hyperbaric oxygen therapy, antibiotics, offloading, and advanced wound care all contributed to the final outcome, the wound's transformation strongly suggests that ultrasonic debridement was instrumental in establishing the conditions necessary for successful healing. The ability of the ultrasonic wound debridement system to simultaneously deliver ultrasonic energy, irrigation, and aspiration likely contributed to more thorough removal of residual necrotic material, enhanced cleansing of irregular wound surfaces, reduction in bacterial burden, disruption of biofilm, improved wound bed preparation, and preservation of viable tissue structures. This case highlights the value of ultrasonic debridement as a powerful adjunct in managing complex diabetic foot wounds and supports its use in comprehensive limb preservation programs.

CS-082
Treatment of a Neonatal Invasive Fungal Infection

Megan Leach

Introduction: Neonates, particularly extremely low birth weight (ELBW) infants, are at high risk for invasive fungal infections. These fungal infections are rapidly progressing and pose a significant clinical threat that is associated with high morbidity and mortality.

Methods: We present the case of a 2-week-old infant male born at 24.3 weeks gestational age (WGA) with a birth weight of 565 grams. Baby was born via c-section secondary to fetal malpresentation and preterm premature rupture of membranes (PPROM) at 6 days prior to delivery. Chorioamnionitis was reported per the maternal delivery note. Baby was placed in a humidified isolette after delivery. At 11 days of life, a large (~3.5x2.8 cm) irregular black eschar with surrounding erythema on the baby's upper back and neck was noted. A sepsis work-up was initiated – to include blood culture, fungal blood culture, cerebrospinal fluid (CSF) culture, CSF PCR, CSF fungal culture, skin culture, and skin biopsy. Infectious Disease (ID) and Dermatology were consulted. ID recommended the above cultures and initiated Vancomycin, Cefepime, and liposomal Amphotericin B after all blood and CSF cultures obtained – Voriconazole was later added after speciation/susceptibilities. Dermatology performed a biopsy, which ultimately resulted with Aspergillus Fumigatus. Wound, Ostomy, and Continence Team (WOCT) was consulted to assist with topical dressing recommendations.

Results: Baby was treated with Amphotericin since presentation (completed 58 days) and Voriconazole (completed 3 months total therapy for cutaneous invasive fungal infection). Wound was managed topically with pure hypochlorous acid (pHA) wet to moist dressings and changed every 6 hours with touch times. After 16 days, the eschar had softened and loosened to the point that it could be debrided using conservative sharp wound debridement (CSWD). Following systemic therapy, advanced topical dressings, and CSWD, the wound healed without recurrence with a healing time of 7 weeks.

Discussion: This case emphasizes the importance of maintaining a high clinical suspicion for invasive fungal infection in preterm infants. Early identification of atypical lesions – coupled with prompt workup, targeted systemic treatment, topical therapy, and debridement is key to preventing disseminated disease and improving survival rates.

CS-083
Effectiveness of Maltodextrin-Based Dressing for Treating Difficult-to-Heal Wounds

Hsin-Ju Lee; Pamelia Barclay, MSN, FNP-C, CWOCN

Introduction: Our practice evaluated a maltodextrin-based dressing containing 1% ascorbic acid in powder and gel formulations for three difficult-to-heal wounds. The dressing has an acidic pH, which has been associated with wound healing, bioburden reduction, and odor control.[1] The dressing also creates a hyperosmotic gradient that helps establish a moist wound environment, facilitates autolytic debridement, and supports granulation and epithelialization. Published literature suggests that this dressing may promote healing in chronic and acute wounds by upregulating TGF-β1 and gelatinase and downregulating MMP-1 and TIMP-1, biomarker trends associated with wound repair.[2,3] This abstract describes outcomes from three complex wound cases.

Methods: Case 1 involved an occipital unstageable pressure injury that developed from a deep tissue injury. Case 2 involved a chronic venous leg ulcer present for 4 years with failed surgical intervention; previously attempted topical products included manuka honey, collagenase, and silver dressings. Case 3 involved a chronic ulcer associated with squamous cell carcinoma and venous insufficiency. Cases 1 and 2 received dressing changes every 2 to 3 days using the gel formulation, and Case 3 received daily dressing changes using the powder formulation. The maltodextrin dressings were covered with non-adherent absorbent dressings. Mechanical debridement was performed as needed to remove loose slough.

Results: Case 1 decreased in area by 65% after 13 treatment days and achieved 100% granulation after 10 treatment days. Case 2 decreased in area by 63% after 17 treatment days and achieved 100% granulation by day 4. Case 3 demonstrated decreased hypergranulation, wound odor, and pain after 10 treatment days.

Discussion: This case series demonstrates the versatility of a maltodextrin-based dressing for managing wounds of diverse etiologies. All three cases achieved treatment goals before discharge from our facility. Use of the dressing helped simplify case management and may support more efficient use of resources while maximizing patient comfort and satisfaction.

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CS-084
Dual Exudate and Odor Management With a Superabsorbent Polymer Dressing Combined With a Cinnamon Odor-Control Dressing in Chronic Malodorous Wounds: A Prospective Pilot Evaluation

Kristy Leininger; Theresa Avsec, MSN; Stacie Lind, Bachelor of Science in Nursing; Jenny Rönningen, MS; Clémence Desjardin, PhD MBA; Victoria Michaels, PhD

Introduction: Chronic wounds are frequently associated with high amounts of exudate, malodor and pain. These symptoms present significant challenges for health care professionals and patients, with odor having the greatest impact on patients' quality of life.

Methods: This prospective, descriptive pilot study assessed the dual effect of a superabsorbent polymer dressing* used in association with a cinnamon odor-control dressing† on exudate and odor management in patients with chronic malodorous wounds under routine practice conditions. Healthcare providers evaluated exudate and odor at baseline (D0) and after 7 days (D7) using the validated TELER scales: a 5-point exudate leakage scale (Dry to Leaking) and a 6-point odor scale (None to Very strong). Odor was rated with and without dressings in place. Paired D0 versus D7 scores were compared using the Wilcoxon signed-rank test, with effect size evaluated. Ease of use, integration into routine care, and

clinician and patient satisfaction were recorded at D7.

Results: Twenty-seven patients were enrolled and 26 were evaluable on day 7. All three primary indicators improved significantly from day 0 to day 7 ($p < 0.001$), with large and consistent effects across measures. Exudate leakage fell by a mean of 0.92 points, with the median dropping from Saturated to Moist (19/26 improved). Odor with the dressing in place decreased by 2.58 points, from a median of Strong to None (22/26 improved), and odor without dressings by 2.19 points, characterized from Strong to Mild (23/26 improved). No patient worsened on any measure. Application, conformability, exudate management, odor control, and comfort were all rated Very good and every clinician would recommend the combination and adopt it in routine practice.

Discussion: Used together, the two dressings delivered rapid, clinically meaningful control of both exudate and odor within seven days, with high clinician and patient satisfaction. As a small pilot that did not capture healing outcomes, these findings are encouraging, and a larger controlled study would help confirm the dual benefit of this approach.

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CS-085

Comparative Evaluation of Two Anti-Odor Dressings Using Clinical Odor Scales and an Electronic Nose in Patients With Chronic Wounds

Kristy Leininger; Clémence Desjardin, PhD MBA; Romain Dubreuil, MS in BioMedical Engineering; Victoria Michaels, PhD

Introduction: Wound malodor is a distressing symptom of chronic wounds, driving social isolation and reduced quality of life. Effective odor control is increasingly important as care shifts to community and home settings. This study compared the odor-reducing performance of a cinnamon-based dressing* and a charcoal-based dressing† using clinician and patient assessments, complemented by an electronic nose° for objective odor detection.

Methods: This interim analysis reports data from an ongoing prospective, randomized, parallel-group study designed to enroll 44 adults with malodorous chronic wounds (22 per dressing tested). Following wound cleansing at baseline (Day 0), participants received their allocated dressing and were reassessed at Day 7. Odor severity was rated by healthcare practitioners (HCPs) and patients using a validated TELER scale (None to Very Strong). Two analyses were performed: (1) immediate odor reduction after dressing application at Day 0, and (2) long-term stability at D7 of odor control with the dressing in place.

Results: At the time of analysis, 24 patients had been enrolled (15 cinnamon, 9 charcoal) and 22 completed the 7-day follow-up (14 cinnamon, 8 charcoal). Both dressings produced clinically relevant immediate odor reduction. At Day 0, immediate reductions favored the cinnamon-based dressing for both HCP (-3.07 ± 0.83, n=14 vs -2.13 ± 0.35, n=8) and patient (-2.47 ± 1.13, n=15 vs -2.00 ± 1.12, n=9). Between evaluation days, dressing was changed in 20% of cinnamon group (3/15) and 33% of charcoal group (3/9), most on day 4 or 5. Odor with the dressing in place remained essentially unchanged from Day 0 to Day 7 in both arms (cinnamon: HCP $+0.09 \pm 1.04$, n=11; patient 0.00 ± 0.00, n=12; charcoal: HCP -0.29 ± 0.49, n=7; patient -0.13 ± 0.35, n=8). Electronic nose measurements did not correlate directly with subjective odor scores but consistently distinguished odor-free wounds from those with moderate-to-severe malodor, demonstrating potential as an objective adjunct for odor monitoring.

Discussion: Overall, both dressings reduced wound malodor and maintained odor control over time, with the cinnamon-based dressing showing greater immediate odor reduction. Data interpretation is limited due to sample size, unequal arm sizes, and the impact of interim dressing changes on the long-term comparison. Recruitment will continue to the planned 44 patients. These findings support further evaluation of sensor-based technologies to standardize odor assessment in clinical and mobile wound care.

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CS-086 (RPT-002)

A Comparative Study of Borate Glass Synthetic Graft With Autologous Platelet-Rich Fibrin as a Wound Healing Model

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Introduction: Chronic lower extremity wounds represent a significant clinical challenge, with healing often impaired by dysfunctional extracellular matrix formation, inadequate angiogenesis, and prolonged inflammation. Borate-based bioactive glass fiber matrices (BBGFM) have demonstrated superior healing rates in diabetic foot ulcers through controlled release of therapeutic ions and three-dimensional scaffolding that mimics native fibrin architecture, while autologous platelet-rich fibrin delivers concentrated growth factors that enhance endothelial proliferation, angiogenesis, and tissue remodeling. This study evaluates a novel therapy utilizing borate based synthetic tissue allograft with autologous platelet-rich fibrin for complex lower extremity wounds.

Methods: Ten patients with chronic lower extremity wounds of diverse etiologies, including venous, diabetic, post-surgical, traumatic, and atypical wound types—were compared with combined BBGFM and autologous platelet-rich fibrin weekly for 4 weeks as a trial pilot study of a new wound healing model. Venous blood was harvested via standard phlebotomy technique and processed using the PurePRP GS-30 Pure II system to obtain platelet-rich plasma through controlled centrifugation, which concentrates platelets and growth factors while maintaining platelet viability and function. The standardized preparation protocol ensures reproducible platelet concentration and growth factor content, addressing the critical need for consistency in autologous biologic therapies. The borate-based scaffold provides biocompatible, biodegradable three-dimensional architecture with controlled release of calcium and borate ions to stimulate healing cascades, while platelet-rich fibrin functions as an autologous delivery system for vascular endothelial growth factor, platelet-derived growth factor, and other bioactive molecules that promote angiogenesis and cellular proliferation. Dressings included non-adherent primary dressing and polyurethane foam and secured with roll gauze.

Results: Prototype-treated wounds showed significant closure rates of greater than 55% after 4 weeks of trial therapy. There were no adverse reactions or adverse side effects from the therapy provided. These results show a reasonable expectation based on PRP literature showing progressive healing over 8-12 week periods. The median time to complete closure in PRP-treated chronic ulcers ranges from 6-8 weeks, suggesting that 4-week outcomes represent mid-treatment progress appropriate to the literature

Discussion: This study establishes preliminary safety and feasibility data for a novel regenerative medicine approach that combines synthetic bioactive materials with autologous biologics, potentially offering an advanced treatment option for challenging lower extremity wounds across multiple etiologies. The synergistic application of structural scaffolding with autologous growth factor delivery represents a rational approach to complex wound management, particularly for wounds refractory to standard therapies

CS-087

Defying Amputation: Complete Hand Salvage and Functional Recovery Following Severe Vasopressor Extravasation With Digital Gangrene.

Lourdes Marrero Diaz; Any E. Quezada Domazet, MD; Francisco E. Ramirez, MD

Introduction: Extravasation injuries are uncommon complications of intravenous therapy, occurring in approximately 0.01%-6% of infusions.

Severe vasopressor associated extravasation injuries may progress to tissue necrosis, digital gangrene, permanent disability, and amputation. We report a case of severe hand ischemia complicated by extensive tissue necrosis and digital gangrene following myocardial infarction and cardiac arrest that was successfully managed with limb-salvage wound care and hyperbaric oxygen therapy (HBOT).

Methods: A 54-year-old right-hand-dominant female with familial hypercholesterolemia was hospitalized following an acute inferolateral ST-elevation myocardial infarction complicated by ventricular fibrillation cardiac arrest requiring prolonged intensive care and vasopressor support with dopamine and norepinephrine. She subsequently developed a severe ischemic extravasation injury involving the left hand and distal forearm while receiving the peripheral vasopressor infusion through the left wrist. Angiography demonstrated patent major arterial inflow with slow flow, a distal filling defect involving the lateral proper palmar digital artery of the third finger, and absence of distal capillary filling. After hospital discharge and referral to the wound care center, clinical assessment revealed a dorsal hand wound measuring 11.4 × 3.5 cm with approximately 70% necrotic tissue, a satellite wound measuring 1.2 × 1.8 × 0.1 cm, and circumferential third-digit gangrene measuring 3.1 × 3.1 cm with 100% necrotic tissue involvement. Limb-salvage management included advanced wound care, serial debridement, and HBOT (49 treatments at 2.4 ATA for 90 minutes each).

Results: Progressive wound improvement was observed throughout treatment, with resolution of necrotic tissue, development of healthy granulation tissue, and complete epithelialization of all wounds after approximately 22 weeks of treatment. No amputation or digit loss was required. Complete hand salvage and full functional recovery were achieved, allowing independent performance of activities of daily living. Functional outcomes remained preserved at long-term follow-up (June 2026), with a QuickDASH score of 0.

Discussion: Severe vasopressor-associated extravasation injuries are often associated with tissue loss, digital gangrene, permanent functional impairment, and amputation. Despite extensive tissue necrosis, angiographically documented digital ischemia, third-digit gangrene and concern for potential digit loss, this patient achieved complete hand salvage, preservation of all digits, and full functional recovery without amputation. This case demonstrates that complete hand salvage may be achievable despite the severity of the initial injury.

CS-088

A Novel Wound Bed Optimizer in Treatment of Complex Diabetic Foot Ulcers: A Real-World Case Series

Elizabeth Zambrano Loaiza, BSc; Guillermo Guerrero Torres, MD; Rafael Cendejas Alatorre, MD; Fermín Martínez De Jesús, MD; Marco Landa Sanchez, MD

Introduction: Complex diabetic foot ulcers (DFUs) are more difficult to manage in routine practice when infection, tissue destruction, and delayed wound bed progression coexist. This real-world case series describes wound bed preparation using a novel wound bed optimizer, ON101, integrated into a structured care pathway for high-complexity DFUs, with emphasis on wound area response and wound bed stabilization.

Methods: Six patients with complex DFUs remained clinically challenging after prior wound care, including medicated or nonadherent dressings, hydrocolloid patches, alginate dressings, oxygen-based topical therapy or cleansing, and other advanced adjunctive modalities, received ON101 as part of routine management. Comprehensive care during ON101 application included infection control with systemic antibiotics when clinically required, debridement or unroofing of fistulous/infectious tracts when indicated, offloading, and secondary dressings. Wound severity and clinical evolution were characterized using the Saint Elian Wound Score System, which evaluates anatomic location, aggravating factors, and tissue destruction domains. Outcomes included percentage wound area reduction, treatment duration, and Saint Elian grade and score where available.

Results: All six cases demonstrated substantial wound area reduction after ON101 was incorporated into the wound management. The cases represented clinically complex DFUs, including acute diabetic foot attack, osteomyelitis, necrotizing fasciitis, infectious or fistulous tracts, HbA1c up to 12.4%, and Saint Elian Grade II–III severity, with baseline scores up to 24 out of a maximum score of 30. All the severe acute attacks were under control, and the patients were in granulating phase. Wound area reduction ranged from 74% to 100% over 41 to 140 days of ON101 use. Two cases achieved more than 90% wound area reduction, and two additional cases reached complete closure by the documented endpoint. The largest wound, measuring 168 cm^2 at ON101 initiation, decreased to 15 cm^2 within 68 days, corresponding to a 91% wound area reduction.

Discussion: In this real-world case series, adding ON101 to comprehensive wound care was associated with consistent wound area reduction across high-complexity DFUs. These observations suggest that wound microenvironment support within a structured pathway may be a feasible adjunctive approach for complex DFUs. Further prospective evaluation is warranted to better define patient selection, timing of initiation, and outcome measures.

CS-089

A Novel Wound Bed Optimizer in Treatment of Post-Electrofulguration Extensive HPV-Related Inguinal Lesion: A Complex Case Report

Elizabeth Zambrano Loaiza, BSc; Guillermo Guerrero Torres, MD; Rafael Cendejas Alatorre, MD; Fermín Martínez De Jesús, MD; Marco Landa Sanchez, MD

Introduction: Genital warts are a recognized symptom of genital human papillomavirus (HPV) infection. About 90% of individuals exposed to HPV who contract the virus will not develop genital warts, and only about 10% of infected individuals transmit the virus. HPV types 6 and 11 cause approximately 90% of genital warts. Management is directed toward removal of visible lesions and symptom improvement rather than eradication of HPV infection. Standard approaches include patient-applied topical therapies, cryotherapy, surgical removal, and electrosurgery; however, recurrence is common, particularly within the first 3 months after treatment. Extensive HPV-related inguinal/scrotal lesions may result in large, difficult-to-heal post-procedural wounds because of moisture- and friction-prone anatomy, contamination risk, bleeding potential, and host factors such as diabetes.

Methods: A 64-year-old man with a 25-year history of type 2 diabetes and HbA1c of 6.6% presented with a large cauliflower-shaped HPV-related condylomatous lesion in the left inguinal/scrotal region. The lesion was treated with electrofulguration. The post-procedural wound was clinically complex, with large surface area, non-viable tissue, delayed wound-bed progression, and daily prior wound care using oxygen-based topical therapy, cleansing solution, and other topical agents without satisfactory advancement. ON101, a novel wound bed optimizer was then incorporated into general wound care, including wound-bed cleansing, systemic antibiotic therapy, and serial wound area monitoring.

Results: At ON101 initiation, the wound measured 6.6 × 6.7 cm, corresponding to 44.22 cm^2. During the clinical course, the wound was described as stagnant with non-viable tissue, and an episode of bleeding from exposed arterioles required ligation and electrofulguration for hemostasis. After ON101 incorporation, serial measurements showed progressive reduction to 6 cm^2, then 0.9 cm^2, and finally 0.1 cm^2 by the documented endpoint, representing approximately 99.7% wound area reduction over 78 days. Clinical documentation also described wound-bed stabilization, improved edge activity, reduced exudate and patient-reported pain, decreasing wound depth, and near-complete epithelial coverage.

Discussion: This case highlights the complexity of wound care after removal of an extensive HPV-related inguinal/scrotal lesion in a patient with long-standing diabetes. In this anatomically challenging, difficult-to-heal wound, ON101 incorporated into wound management was associated with progressive wound area reduction and wound-bed stabilization.

CS-090

Use of Hydrophilic Paste to Support Autolytic Debridement in a Stalled, Fibrotic Wound Bed

Amy Marvin; Chelsie Parks, BSN RN WCC OMS; Ateusa Salemi, MSN RN CWS

Introduction: Chronic, non-healing wounds may stall in the inflammatory or proliferative phases due to the accumulation of non-viable, fibrotic tissue in the wound bed2. While sharp debridement is a quick method to remove non-viable fibrous tissue, autolytic debridement may also be used3. This case study evaluates the clinical efficacy of utilizing a zinc oxide hydrophilic paste to promote autolytic debridement in conjunction with weekly debridement to heal a long-standing, stalled fibrotic wound. The patient is a 51 year old, diabetic, male who presented with a non-healing wound after colostomy surgery complicated by enterocutaneous fistula and infection. Patient was treated with standard therapies with minimal success for more than one year.

Methods: Patient presented to outpatient clinic with a wound of the midline abdomen that measured 43 cm2. Standard wound care therapies included negative pressure wound therapy, weekly sharp or ultrasonic debridement, anti-inflammatory dressings, anti-microbial dressings, and extra-cellular products. After a year, the wound measured 106 cm2 and was covered in fibrotic slough that was resistant to sharp debridement. Treatment was initiated using a zinc oxide-based hydrophilic paste applied directly to the wound bed at a thickness of 2-3 mm, covered with a foam dressing, then an occlusive dressing. The hydrophilic paste was selected to promote a continuous moist healing environment conducive to autolysis and to protect the peri-wound from maceration. The dressing was changed every 3-4 days depending on the amount of exudate. Clinical outcomes, including changes in wound dimensions, and tissue composition were documented weekly.

Results: Within 2 weeks of starting zinc oxide hydrophilic paste therapy, a reduction in fibrotic tissue and wound size was observed. By week three, the wound bed transitioned completely to pink, granulated tissue. The paste also prevented maceration of the peri-wound. Following concurrent autolytic and sharp debridement, re-epithelialization occurred, resulting in a total wound size reduction of 97.2 cm2 within 3 months of treatment. This is in contrast with no size reduction of the wound in 11 months previously. No adverse events or hypersensitivity reactions were reported.

Discussion: The improvement of this stalled fibrotic wound demonstrates the usefulness of topical zinc oxide hydrophilic paste. The hydrophilic aspect of the paste also balances moisture levels by trapping excess exudate without drying out the wound bed1. This case demonstrates that a zinc oxide-based hydrophilic paste is an effective, non-invasive, and well-tolerated clinical option for the autolytic debridement of fibrotic tissue, successfully promoting the healing cascade in stagnant chronic wounds.

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CS-091

Successful Healing of Rare Calciphylaxis of the Glans Penis With Pure Hypochlorous Acid Gel: A Unique Case Report

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Introduction: Calciphylaxis, or calcific uremic arteriolopathy, is a rare and life-threatening condition characterized by progressive small-vessel calcification leading to ischemic necrosis of the skin and subcutaneous tissue. It occurs most commonly in patients with end-stage renal disease (ESRD) on dialysis and carries a one-year mortality exceeding 45%. Due to its rich vascular network, penile calciphylaxis is exceedingly rare with published experience limited to less than 60 case reports. It has an overall mortality rate of 64% with a mean time to death of 2.5 months. Management of genital calciphylaxis presents unique anatomic challenges, particularly when operative debridement and urinary catheterization carry prohibitive risk. Systemic sodium thiosulfate is a recognized treatment, but evidence guiding local wound management in this anatomic location is absent. We report a case of glans penis calciphylaxis managed with pure hypochlorous acid wound gel, with complete resolution of local cutaneous changes.

Methods: A 57-year-old male with longstanding type 2 diabetes mellitus, ESRD secondary to intrinsic renal parenchymal disease on hemodialysis via arteriovenous fistula, and anemia of chronic kidney disease presented with progressive necrotic changes to the glans penis. Calciphylaxis was diagnosed clinically in the appropriate metabolic context. Urology consultation confirmed lesion sparing of the urethral meatus, permitting topical wound therapy without Foley catheterization. Due to insurance constraints, systemic treatment with sodium thiosulfate was not available. The patient was solely treated with topical application of pure hypochlorous acid gel to the affected penile tissue at daily dressing changes.

Results: The patient achieved complete resolution of necrotic and ischemic cutaneous changes to the glans penis without operative intervention, urinary catheterization, or wound-related adverse events. Serial wound assessment demonstrated progressive improvement following initiation of topical therapy, with full healing confirmed at follow-up.

Discussion: This case demonstrates that calciphylaxis involving the glans penis can be successfully managed non-operatively when the urethral meatus is spared. Topical pure hypochlorous acid gel provides a safe, effective local wound environment conducive to healing in this anatomically sensitive region. The broad-spectrum antimicrobial and anti-biofilm properties of pure hypochlorous acid gel, combined with its established mucosal safety profile, make it a compelling topical option in patients for whom conventional wound care approaches carry unacceptable risk. To our knowledge, this represents the first reported use of this agent in the management of calciphylaxis, and may inform wound care strategies for future patients with atypical genital presentations.

CS-092

Navigating the Wound Healing Gaps: Moving the Mission Towards Wound Healing Through Nutritional Supplement

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Introduction: Transitions of care can impede wound healing for patients with diabetes-related ulcers and chronic wounds, particularly in rural and underserved communities. Delayed access, limited resources, and fragmented follow-up care increase risk for poor recovery and increased risk factors. Healing is further complicated by infection, history of chronic osteomyelitis, vascular compromise, acute or chronic malnutrition, and obesity-related nutritional deficiency, including patients who appear well nourished but have inadequate protein or micronutrient intake.

Methods: A case series was reviewed to describe how targeted nutritional supplementation, integrated with standard wound management, supported wound healing and safer care transitions. Patients included individuals with diabetes-related ulcers and chronic wounds; the diabetes-related ulcer cases also had a history of alcoholism and chronic osteomyelitis. Standard care included wound assessment, offloading when indicated, discharge planning, supply coordination, and follow-up. Each patient was recommended a therapeutic nutrition supplement containing arginine, glutamine, HMB, collagen peptides, and micronutrients twice daily under medical supervision. Care planning also addressed affordability, adherence, and patient understanding of basic nutrition importance to wound healing.

Results: Across these cases, nutritional supplementation was associated with improved granulation tissue development, progressive wound area reduction, and improved continuity during care transitions when combined with evidence-based wound management. Patients with nutritional deficits, impaired perfusion, chronic infection risk, obesity with inadequate nutrient intake, or acute/chronic malnutrition appeared most likely to benefit. These observations align with published evidence supporting nutrition assessment and targeted supplementation in selected patients with diabetes-related ulcers and chronic wounds. Given the high lifetime risk of diabetes-related ulceration and the significant amputation burden associated with these wounds, early identification of nutritional barriers remains a patient safety and quality priority.

Discussion: This case series highlights nutrition as a key component to achieving full wound healing, yet it remains underutilized across the continuum of care. Targeted supplementation may serve as an adjunct when gaps are driven by malnutrition, obesity-related nutritional deficiency, chronic osteomyelitis history, limited resources, and transition-related barriers. A multidisciplinary strategy that combines standard wound care, nutrition support, patient education, clear accountability for follow-up, and affordability-focused access planning may improve healing outcomes and support safer transitions of care.

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CS-093

Use of a Borate-Based Bioactive Glass Fiber Matrix to Support Wound Closure Following Surgical Excision of Melanoma: A Two-Case Series

Michael Mcphee; Daniel Krazeise, BS; Moriah Freitas, BS

Introduction: Surgical excision of cutaneous melanoma often produces significant soft tissue defects requiring advanced wound management. Borate-based bioactive glass fiber matrix (BBGFM) is a synthetic, bioabsorbable material that facilitates wound healing through angiogenesis, granulation tissue formation, and re-epithelialization. Unlike tissue-based products, BBGFM carries no risk of disease transmission or any cultural or religious concerns associated with animal or human tissue. This case series describes the use of BBGFM in two patients with surgical wounds following melanoma excision.

Methods: Case 1 involved a 67-year-old male with a history of malignant melanoma of the left forearm who presented with a new melanoma of the right antecubital fossa. Punch biopsy confirmed malignant melanoma with a Breslow thickness of 2.6 mm, Clark's level IV, staged pT3a without ulceration. Wide local excision was performed with 2 cm circumferential margins per NCCN guidelines, resulting in a 5.7 cm x 6.5 cm full-thickness skin defect dissected to muscular fascia. A 10 cm x 10 cm BBGFM was placed directly into the wound bed with a bolster dressing applied. Case 2 involved an 8-year-old male with a residual pigmented lesion on the right lateral shoulder, first noted in October 2025. A prior incomplete excision in January 2026 left residual disease. Excision was performed with 3 mm circumferential margins, producing a 1.7 cm x 2.1 cm defect taken down to fascia. Given the minimal subcutaneous fat present, BBGFM was placed directly into the wound bed.

Results: In both cases, BBGFM was applied at the time of excision without complication. No adverse events, infection, or excessive inflammation were observed in the immediate postoperative period. Both wounds demonstrated progression toward closure with healthy granulation tissue formation at follow-up.

Discussion: These cases suggest that BBGFM may serve as a safe and effective adjunct for managing surgical defects following melanoma excision across diverse patient populations, including pediatric patients. Its synthetic composition, ease of application, and bioabsorbable nature make it a practical option for wound closure in the surgical setting.

CS-094

Current Approach to Soft Tissue Reconstruction Using Biodegradable Synthetic Matrices Post Deep Vein Arterialization

Paul Kim, DPM; Marvin Mendez, RN; Anna Warner, RN

Introduction: Deep vein arterialization (DVA) has been successful as an option to prevent major amputation in patients with no option chronic limb threatening ischemia.1 Early experience in soft tissue (ST) management post DVA suggest viable tissue may necrose within four to six weeks due to DVA maturation. Primary closure is avoided, and amputations remain open until the DVA site has matured.2 This case series describes a current approach to ST reconstruction post DVA using biodegradable synthetic matrices (BSM) to temporize the open wound and provide scaffolding for wound healing until ready for definitive closure.

Methods: A retrospective analysis examined post DVA patients with BSM placement for an open amputation approach from 2025 to April 2026. Data collection included comorbidities, time from BSM application to complete wound closure, level of amputation, methods of closure, number of surgeries and post-operative vascular interventions.

Results: Four patients met inclusion criteria; all had diabetes mellitus and peripheral vascular disease. The average time from BSM application to complete wound healing was 22 weeks. Three patients healed after open trans-metatarsal amputation (TMA), and one healed after open pan-digital amputation. Three patients healed by secondary intention, while one healed with a split-thickness skin graft. One patient required a second surgery for debridement, vascular intervention, and BSM reapplication; another required a postoperative vascular intervention.

Discussion: This current approach used BSM to provide temporary coverage of an open amputation and support formation of a vascular wound bed through DVA maturation. All patients healed within 26 weeks after one to two BSM applications, mostly after an open TMA. While perfusion is everything, ST reconstruction is as important post DVA. This case series demonstrates functional salvage is possible in the "unsalvageable foot" with a multidisciplinary approach between vascular and podiatry.

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CS-096

Strategic and Progressive Utilization of Non-Adherent Silver and Non-Silver Atraumatic Contact Layers in Complex Wounds: Early Clinical Outcomes in Burn and Venous Ulcer Management

Zachary Naeger; Sarah Hull, FNP-C, WCC, DWC

Introduction: Complex wounds often require dressing strategies that balance bioburden management, moisture control, and atraumatic tissue protection. Silver-containing contact layers may provide antibacterial

support during inflammatory or higher-risk phases of healing, while transitioning to non-silver contact layers may help support ongoing wound improvement. This case series describes clinical outcomes using an adaptive contact layer strategy in two complex wounds.

Methods: Two outpatient wound patients were managed using an adaptive contact layer strategy. A non-adherent silver containing contact layer was utilized during periods requiring antibacterial coverage and atraumatic tissue protection, followed by transition to a non-silver contact layer as wound conditions improved. Outcomes evaluated included wound progression, and tissue quality. Case 1: An 86-year-old male with chronic venous insufficiency, lymphedema, and a lower extremity ulcer was managed using a non-adherent silver-containing contact layer in with a non-adhesive superabsorbent polymer (SAP) dressing and two-layer compression therapy. Over four weeks, the wound demonstrated progressive granulation tissue formation and reduction in surface area. Improvements in wound appearance and tissue quality supported continued wound management. Case 2: A 72-year-old male with a full-thickness thermal burn and multiple comorbidities, including coronary artery disease, and peripheral arterial disease, was treated with a non-adherent silver containing contact layer and silicone-bordered SAP dressing. Within one-week, wound dimensions decreased by approximately 33%, with improved tissue quality and progression toward epithelialization, allowing transition to a non-silver containing contact layer.

Results: Both patients demonstrated clinical progression following implementation of an adaptive contact layer strategy. The burn patient demonstrated a 33% reduction in wound dimensions within one-week, improved tissue quality, and progression toward epithelialization, allowing transition from a silver to a non-silver containing contact layer. The venous ulcer patient demonstrated continued improvement in wound appearance and tissue condition during ongoing outpatient and home health management.

Discussion: These cases suggest that adaptive selection of silver and non-silver containing contact layers may support management of complex acute and chronic wounds. Early antibacterial coverage followed by transition to a non-silver containing contact layer as wound conditions improve may facilitate healing progression while supporting antimicrobial stewardship.

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CS-097

Borate Bioactive Glass Fiber Matrix for Limb Salvage of Bilateral Foot Crush-Injury Wounds: Rapid Defect Closure With Two Applications

Ralph Napolitano, DPM, CWSP, FACFAS

Introduction: Severe foot crush injuries can produce large full-thickness soft-tissue defects requiring staged surgical debridement, bony and ray resection, and limb salvage, leaving substantial dermal wounds that are slow to close. Synthetic skin substitutes provide an environment that is conducive to angiogenesis and the formation of quality granulation tissue for wound closure during this reconstructive phase. This case describes the use of a borate-based bioactive glass fiber matrix (BBGFM) following surgical debridement and negative pressure wound therapy (NPWT) in bilateral foot crush-injury wounds.

Methods: A 38-year-old male ironworker presented with severe bilateral foot crush injuries sustained in an occupational accident when the chains supporting an approximately 2-ton I-beam failed, resulting in direct impact to both feet. The injury was managed with complex surgical debridement, ray resection, and digital amputations, followed by NPWT. After NPWT produced a fully granular wound base, substantial dermal defects remained measuring 9x6x1.5 cm on the left foot and 4x7x0.1 cm on the right foot. This prompted the introduction of BBGFM. The first application following debridement occurred at week 0. At Day 10 (~ Week 1.5) the wounds reduced 30–40% with negligible pain, and a second BBGFM application was performed in a procedural setting, divided and placed into both wound beds with a nonadherent cover dressing, Steri-Strips, and protective splinting. Subsequent follow-up showed near-complete closure, with the right foot functionally closed and the left foot showing only a small area of hypergranulation change. Care was de-escalated to self-applied Xeroform dressings, with definitive soft tissue balancing/osseous remodeling and orthotic management planned

Results: With only two BBGFM applications, the wounds reduced 30–40% within 10 days of the first application and progressed to near-complete closure. The right foot wound was essentially closed, and the left foot showed a small area of granulation change. The periwound skin remained healthy, allowing transition to a simple, patient-managed dressing regimen.

Discussion: In bilateral foot crush-injury wounds managed with surgical debridement and NPWT, a BBGFM supported rapid dermal defect reduction and near-complete closure with only two applications, enabling de-escalation to self-care and planning for definitive reconstruction. BBGFM may be a useful adjunct in limb-salvage wound management.

CS-098

Use of an All-in-One Negative Pressure Wound Therapy Dressing to Support Secondary Closure of Lower Extremity Surgical Wounds

Ralph Napolitano, DPM, CWSP, FACFAS

Introduction: Closure by secondary intention is sometimes necessary when wounds have significant tissue loss or contamination that precludes safe primary closure. This approach can heighten the risk of delayed healing, increased infection, or higher care burden due to the presence of an open wound. In this case series, we report on the use of a multilayer, all-in-one negative pressure wound therapy (NPWT) dressing* to support secondary healing in 4 lower extremity wounds.

Methods: A retrospective review of patients with lower extremity wounds was conducted at a single orthopedic center. Study participants underwent surgical interventions resulting in wounds left open to heal by secondary intention. Initial wound preparation included debridement, NPWT with instillation and dwell$, NPWT with conventional dressings, and antibiotic therapy, as needed. All wounds were managed using NPWT with the all-in-one dressings at -125 mmHg, and dressing changes occurred every 5–7 days. Wounds were reassessed at each visit, and NPWT continued until therapeutic goals were met.

Results: The patients included 3 males and one female, aged 28-65 years, with no history of tobacco use. The reasons for surgery included amputation (n=2), hardware removal (n=1), and removal of a retained foreign body (n=1). Median duration of NPWT with the all-in-one dressing was 15.5 days (range: 10–21 days). All wounds exhibited progression toward healing, with granulation tissue formation, reduced surface area, and decreased periwound edema. Patients expressed minimal discomfort at dressing changes. No instances of hematoma, wound infection, device malfunction, or other adverse reactions were recorded. All wounds demonstrated continuing advancement toward closure, and no patients required surgical re-intervention.

Discussion: For wounds to heal by secondary intention, it is critical to protect against contamination, maintain a moist wound environment, and support conditions for re-epithelialization. The all-in-one NPWT dressing integrates a non-adherent interface, open-cell foam, and an acrylic-silicone drape into a single simplified application that covers the

wound bed and overlaps the intact edges. In our experience, the dressing allowed for quick placement with minimal need for adjustment and provided effective wound care.

CS-099

Calciphylaxis-Associated Pannicular Wounds in End-Stage Renal Disease: Recurrent Disease, Massive Adipose Necrosis, and Eventual Resolution Through Multidisciplinary Management

Kevin Nolan; William H Tettelbach, MD, FACP, FIDSA, FUHM, MAPWCA, CWSP

Introduction: Calciphylaxis is a rare, life-threatening microvascular disorder characterized by arteriolar calcification, thrombosis, and progressive ischemic necrosis, with mortality rates 45-80%. Adipose-rich regions like the abdominal pannus are vulnerable in obese patients with end-stage renal disease (ESRD). Healing requires multispecialty management of both systemic and local drivers of tissue injury. We describe recurrent pannicular calciphylaxis managed using a structured 7-Step wound care framework.

Methods: A retrospective review of multidisciplinary wound center and hospital documentation was conducted for a 56-year-old hemodialysis dependent woman who developed recurrent pannicular calciphylaxis. Management was organized according to the 7-Step Framework: (1) confirmation of etiology and perfusion status; (2) infection identification and control; (3) serial and operative debridement; (4) metabolic and nutritional optimization with nephrology-guided dialysis and sodium thiosulfate therapy; (5) pressure redistribution/pannicular off-loading; (6) host factor optimization and dressing selection; and (7) use of advanced modalities including negative pressure wound therapy (NPWT).

Results: Initial evaluation demonstrated painful full thickness pannicular ulcers following biopsies (Figure 1). Etiology was established clinically as calciphylaxis despite nondiagnostic biopsies, with examination findings supporting microvascular ischemic disease (Step 1). Empiric sodium thiosulfate was initiated (Step 4) and systemic risk factors were co-managed with nephrology. Targeted antibiotics addressed prior septicemia (Step 2). Serial debridement and wound care resulted in near-complete closure by April 2025 (Figure 2). Wounds subsequently closed completely. Two months after therapy cessation, recurrence occurred (Figure 3), progressing to extensive bilateral pannicular and right breast necrosis with liquefactive adipose degeneration (Figure 4A–C). Operative debridement achieved source control (Figure 5A–C) (Step 3). Postoperatively, NPWT promoted granulation and wound contraction (Step 7), followed by advanced antimicrobial dressings during epithelialization (Step 6). Mechanical protection/pannicular support reduced shear stress (Step 5). By January 2026, wound closure was achieved (Figure 6A–C).

Discussion: This case demonstrates recurrent, adipose-predominant calciphylaxis achieved durable healing when all seven domains of wound management were addressed. Obesity likely amplified microvascular compromise. Biopsy sites precipitated further breakdown. Aggressive surgical source control, metabolic optimization and advanced wound modalities enabled complete epithelialization despite severe recurrence. Multidisciplinary coordination across nephrology, surgery, infectious disease, and specialized wound care; essential to achieving resolution.

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CS-100 (RPT-003)

Postoperative Hypochlorous Acid Gel and Skin Graft Ghosting: A Retrospective Case Series

James Pai; Ireland Coates, MS; Jessica Reid, MS; Abigail E Chaffin, MD, FACS, CWSP, MAPWCA

Introduction: Skin graft "ghosting" refers to graft failure in which the graft retains its gross architecture as pale, avascular tissue without durable adherence or progression to revascularization. Successful graft take depends on plasmatic imbibition followed by inosculation and neovascularization, and disruption of this sequence can result in graft failure. Wound bioburden is an important modifiable factor because bacterial activity can impair the fibrin scaffold required for graft adherence and vascular ingrowth. Stabilized hypochlorous acid (HOCl) has demonstrated antimicrobial activity and has been associated with reduced bacterial bioburden and improved re-epithelialization in acute wounds. This retrospective case series evaluated postoperative HOCl gel use in graft and graft-based reconstruction cases and described observed ghosting and healing outcomes.

Methods: A retrospective case series was conducted within a tertiary academic surgical and wound care practice. Patients who underwent split-thickness skin grafting or graft-based reconstruction and received postoperative HOCl gel were included. The cohort included acute surgical wounds, chronic nonhealing wounds, wounds with prior graft failure, and wounds considered at increased risk for bioburden-related compromise. HOCl gel was applied to graft and/or donor sites within a standardized postoperative dressing protocol incorporating negative pressure wound therapy and nonadherent dressings. The primary outcome was clinically significant ghosting, defined as persistent graft pallor with nonadherence and subsequent partial or complete graft loss. Secondary outcomes included graft take, postoperative infection, time to epithelialization, and need for reoperation.

Results: Nineteen cases were included, including 8 chronic, colonized, nonhealing wounds. Complete or near-complete graft take was observed across all cases. No clinically significant ghosting events were identified. Treated wounds demonstrated stable graft adherence and progressive re-epithelialization, and the gel was readily incorporated into the postoperative dressing workflow.

Discussion: In this series, postoperative HOCl gel use was associated with favorable graft incorporation and no observed clinically significant ghosting events in complex wounds at risk for infection-related graft compromise. The gel formulation appeared well suited for wounds prolonged local antimicrobial coverage. These observations are biologically plausible given that graft incorporation depends on preservation of the fibrin scaffold, adequate wound-bed perfusion, and control of wound bioburden. Interpretation is limited by the retrospective design, small sample size, heterogeneous wound types, and absence of comparator group. Larger, prospective studies are needed to evaluate HOCl gel formulation efficacy relative to standard care, define optimal indications, and elucidate its role in postoperative graft management.

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CS-102

Culture-Guided Topical Antimicrobial Therapy in the Management of a Polymicrobial Second-Degree Chemical Burn: A Case Report

Lisa Piercey; Jeffery M King, PharmD; Caroline Rakonick, PharmD MPH

Introduction: Second-degree chemical burns present distinct wound healing challenges, particularly when caused by chemical agents that continue penetrating the dermis after initial exposure. This ongoing tissue damage disrupts vascular integrity, promotes polymicrobial colonization and biofilm formation, impairs immune response, and limits antimicrobial delivery to the wound bed, rendering both standard wound care and systemic antibiotic therapy less effective. This case report examines culture-guided topical antimicrobial therapy as part of an integrated wound care approach for a complex polymicrobial second-degree chemical burn.

Methods: A 63-year-old female with a history of smoking and hypertension presented with a non-healing left lower extremity second-degree chemical burn sustained after topical application of an herbal oil to a minor abrasion. Despite standard wound care including medicated petrolatum gauze, debridement, hydrofiber dressings, and clinic dressing changes three times weekly, the wound showed minimal improvement. PCR wound culture identified significant levels of multiple gram-positive and gram-negative bacterial pathogens. Based on culture results, pharmacists recommended a compounded topical antimicrobial gel containing gentamicin, vancomycin, and ciprofloxacin, applied three times weekly alongside the ongoing standard wound care regimen.

Results: At initiation of targeted topical antimicrobial therapy, the wound measured 13.5 cm x 34 cm with a surface area of 360.5 cm^2. Clinically significant improvement was observed within ten days of treatment initiation. After 35 days of therapy, wound dimensions had decreased to 1.9 cm x 1.8 cm (area 2.69 cm^2). The topical antimicrobial agent was discontinued, and the patient transitioned to collagen, silver-based products, and compression wraps. Full wound closure was confirmed two weeks later with no reported adverse reactions.

Discussion: This case demonstrates that culture-guided, pharmacist-directed topical antimicrobial therapy can achieve near-complete wound closure in a complex polymicrobial second-degree chemical burn when conventional treatment has failed. Early wound culture and pharmacist consultation were critical in guiding therapeutic selection. Pharmacists in interdisciplinary wound care teams can meaningfully improve outcomes by identifying appropriate compounded specialty products and individualized treatment strategies.

CS-103 (RPT-004)

A Case Study: Non-Surgical Treatment of Xylazine Wounds to Enhance Patients' Quality of Life

Jessie Powell, MSN, APRN, FNP-C, AGACNP-BC, CEN, CBRN; Thalia Cardenas

Introduction: As the opioid crisis continues in the United States, Xylazine wounds have become a chronic issue for many intravenous drug users (IVDU). For many, the pain of these wounds is so intense, that the localized anesthetic effect of the drug continues to be provided as a reason for repeated injection. Initially, many emergency departments and wound care clinics were recommending surgical treatment, however through ongoing observation, a non-surgical approach utilizing enzymatic debridement has shown promising preliminary results.

Methods: A 47 year old male (Patient A) presented to the ED complaining of bilateral upper extremity (BUE) wounds that were worsening. Patient reported going to numerous clinics and seen multiple providers and felt that his wounds continued to get worse, despite varying treatments. A plan of care was devised utilizing pure hypochlorous acid-based wound cleanser* (pHA) and topical enzymatic debridement ointment#. 7 days after therapy initiation, wounds had significantly improved. Minimal pain reported with dressing changes, and because pain had improved, he had quit injecting. 1 month after initiation, 28.3% reduction in size noted on left arm and 98% granulation tissue seen. Patient's girlfriend (Patient B) had also been struggling with BUE wounds caused by Xylazine, prompting her to make an appointment as well. After inspection of wounds, she was placed on a similar treatment plan consisting of pHA and enzymatic debridement. Patient B reports she had also not injected since her and Patient A had initially been admitted. On Patient B's 1 month follow-up, a 17.4% reduction in size on left arm, and a 61.9% reduction in size on right arm were noted and both were ~90% covered with granulation tissue.

Results: Both patients have continued to follow this wound care plan, and Patient A has successfully healed BUE wounds, while Patient B is nearing completion as of her last visit.

Discussion: While previously surgical debridement was used as a primary treatment modality, this can overlook the complexity of these patients' needs. A conservative approach using pHA and enzymatic debridement has been seen to make an impact in patient's overall satisfaction, follow-up rates, and wound healing success.

CS-104

Limb Preservation Following Devastating Lower Extremity Trauma Using Split-Thickness Skin Grafting and Skin Cell Suspension Autograft

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Introduction: Level 1 trauma center that frequently sees severe lower-extremity trauma with vascular injury and extensive soft tissue loss placing patients at significant risk for loss of limb. Limb salvage becomes increasingly challenging when tissue viability continues to deteriorate despite successful revascularization. This case describes successful limb preservation in a young patient with devastating lower-extremity trauma who was initially considered at risk for above-knee amputation.

Methods: A 22-year-old female with no significant past medical history sustained multiple traumatic injuries following a motorcycle collision, including extensive right lower-extremity avulsion injuries, a Morel-Lavallée lesion, and vascular compromise. On presentation, no Doppler signals were detected distal to the injury, and imaging demonstrated suspected popliteal artery injury or occlusion. Emergent vascular intervention restored perfusion through angiography, popliteal artery stenting, and angioplasty of distal vessels. Initial wound management included operative washout, partial closure, and negative pressure wound therapy (NPWT). Despite restored perfusion, progressive tissue necrosis and eschar formation developed due to Morel-Lavellée injury, requiring serial debridements in conjunction with NPWT. After approximately 2.5 weeks, a healthy wound bed was established, and definitive reconstruction was performed using split-thickness skin grafting (STSG) and skin cell suspension autograft* (SCSA). The addition of SCSA enabled the use of a wider meshing ratio, achieving approximately 90% wound coverage. This also allowed for a thinner donor site to be harvested facilitating expedited healing.

Results: Patient was able to be discharged to an acute rehab facility for aggressive physical therapy to continue healing. By postoperative day 14, the patient demonstrated nearly 100% graft take. Limb perfusion remained intact with palpable distal signals. At follow-up, the patient maintained full sensation in the affected extremity and was ambulatory with assistive devices.

Discussion: This case highlights the potential for successful limb salvage despite severe soft tissue loss, vascular injury, and progressive post-traumatic necrosis. A multidisciplinary approach involving trauma, vascular surgery, and wound care enabled preservation of limb viability and function. STSG combined with SCSA provided durable and effective wound coverage within a comprehensive limb-salvage strategy, allowing avoidance of above-knee amputation and preservation of a functional extremity.

CS-105

Enhancing Healing Trajectories in Pressure Injuries Through Targeted Desloughing and Antimicrobial Control

Jessica Reid; Abigail Chaffin, MD, FACS, CWSP, MAPWCA; James Pai, MS

Introduction: Pressure injuries remain a significant challenge in the wound care setting, particularly in patients with reduced mobility or chronic illness. Suboptimal management, including inadequate dressing selection, can lead to delayed healing, increased infection risk, and progression to higher-stage wounds. Highly charged fiber dressing impregnated with silver combine continuous desloughing action with antimicrobial ionic silver, offering a promising approach for chronic wounds at risk of or presenting signs of infection. Recent evidence suggest that these dressings can reduce exudate and slough burden while promoting granulation tissue formation in chronic wounds and pressure ulcers[1–3]. This case series emphasizes the importance of proper dressing utilization in pressure injury management and highlights the specific qualities of highly charged fiber dressings in nonoperative settings.

Methods: We present nonoperative patients with advanced pressure injuries that were treated using highly charged fiber dressings as the primary dressing. Our cases include a 73-year-old female with a stage IV buttock pressure injury and a 64-year-old male with a postoperative pressure wound near the ischium following prolonged immobilization. Dressings were applied per manufacturer guidelines and changed 2–3 times weekly. Wound progression was monitored with serial photographic documentation, evaluation of slough burden, wound measurements, surveillance for infection, and assessment of periwound skin. A multidisciplinary approach of comprehensive offloading, nutritional support, integrated wound care, and comorbidity management.

Results: All wounds demonstrated notable improvements in wound bed quality following treatment with highly charged fiber dressings. In each case, a visible reduction in slough, improved granulation tissue formation, and decreased odor and drainage were observed within the early weeks of therapy. The dressing was well tolerated, with no increased pain or wound bed maceration. Both patients experienced favorable healing trajectories without the need for operative debridement.

Discussion: The dual mechanism of these dressings including gentle autolytic desloughing through poly-absorbent fibers and antimicrobial control from ionic silver, promotes an optimal wound bed for tissue repair even in contaminated pressure injuries. Evidence supports the integration of silver-based dressings into pressure injury care to reduce infection risk and enhance wound progression. Appropriate dressing selection is essential, particularly when surgical intervention is not feasible. Findings from this case series reinforce the utility of highly charged fiber dressings as a key component of multidisciplinary nonoperative pressure injury management.

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CS-106

Speed Up Healing of Venous Leg Ulcers and Minimize Scarring: A Novel Plant Based Therapy

Michael S. Romberg, MD, FACS

Introduction: Venous leg ulcers (VLU) are slow healing sores that form when faulty vein valves cause blood to pool in lower legs. This condition, called chronic venous insufficiency, increases vein pressure and damages skin tissue. Venous leg ulcers are notably difficult to heal. Unlike acute cuts, they are the result of poor circulation and high pressure in leg veins. Healing typically takes 3 to 12 months, and without directly treating the underlying vein issues, they frequently fail to heal or easily recur. Plant based gel (PBG) is a novel proprietary botanical extract derived from Inula Viscosa AGS-RIED, cultivated for unique skin-supporting properties. This bio-botanical blend is natural, clinically tested, formulated to support the skin's natural recovery process and helps improve appearance of skin over time. PBG utilizes a multimodal approach combining hydrogel polymer science with proprietary botanical extracts to accelerate tissue regeneration, reduce pain, and prevent infection. This approach targets multiple phases of wound repair simultaneously, managing inflammation, fighting germs and mimicking the skin's structure to encourage faster regeneration. Hypothesize PBG, be used as an adjunct for healing of venous leg ulcers and minimizing scarring treatment aiding in tissue formation, vascularization and cellular ingrowth.

Methods: Six patients with VLU treated. Wash affected area and ensure skin is dry before application. Apply a 5mm even layer of PBG to the wound bed then collagen and gauze. Repeat the treatment every other day. Compression therapy utilized as part of treatment plan.

Results: PBG typically starts showing visible improvements within a few days of application, with significant wound closure and scar reduction occurring in about one to two weeks. The PBG is clinically proven to accelerate the body's natural healing process up to three times faster. Five out of six patients healed primarily with PBG and Collagen dressing. One patient healed with only PBG therapy.

Discussion: PBG stands out as a natural wound gel due to its patented botanical formulation. Clinically proven hypoallergenic, free from steroids, parabens, and fragrances. Uniquely treats minor cuts, scrapes, burns, and complex diabetic ulcers. PBG forms a breathable, protective layer over the skin and demonstrated non-inferiority and even outpaced standard-of-care treatments by providing statistically significant results in pain & discomfort reduction and surface area reduction. Previous treatments of wound cleansers and alginate dressings demonstrated delay in the healing process. Compression therapy was vital in treatment plan.

CS-107

Fish Skin Is a Superior Adjunct for Minimally Invasive Repair of an Enterocutaneous Fistula

Michael S. Romberg, MD, FACS

Introduction: An Enterocutaneous Fistula (ECF) is an abnormal connection or tract developing between stomach or intestines and skin, causing gastrointestinal contents to leak through the skin. ECF occurs from complication of abdominal surgery, infection, or Crohn's disease. ECFs cause dehydration, malnutrition, and sepsis; requiring management of nutritional status and specialized wound care to heal. Surgical treatment is best achieved by resecting diseased bowel segment containing the fistula, followed by restoring gastrointestinal continuity with an anastomosis. Fish skin graft (FSG) a unique biologic scaffold rich in Omega3 fatty acids that regulate inflammatory cytokines curbing excessive inflammation promoting cellular ingrowth and neovascularization which aids faster tissue infill and remodel. Hypothesize that FSG, can be used as an adjunct for minimally invasive surgical intervention for ECF treatment aiding in tissue formation, vascularization and cellular ingrowth.

Methods: Two patients with ECF treated. Small bowel fistula identified in the middle of abdomen and cleaned off around the edges to isolate the small bowel loop. Sutured close the mouth of the fistula with a baseball stitch forward and then backward for 2-layer repair. Taking some surrounding tissue, sutured close the defect. Then, debrided abdominal wall to fascial layer to allow edges of small bowel to be brought together without undue tension. Sutured FSG on abdomen over center of defect to help granulate wound. Adaptic over graft, Surgicel to interior portion of wound and pressure dressing to area.

Results: One patient healed after one application of FSG. Intestinal failure is one most feared complications of ECF management resulting in

significant patient morbidity and mortality. But this was averted. No complications of sepsis & malnutrition, fluid & electrolyte abnormalities. Patient tolerating soft diet. Complete wound closure obtained. Scarring contracted down. Second patient lost follow-up after improvement while in hospital.

Discussion: Managing ECFs involves challenges including nutritional depletion, sepsis, and hostile abdominal walls. Standard therapies focus on draining the effluent and allowing tract to heal, but wounds require robust biologic matrices for definitive closure. FSG is an effective adjunct to surgical intervention of ECF as it provides an ideal biological scaffold promoting rapid granulation tissue formation, reducing inflammation in hostile wound beds, and lowering the risk of surgical site infections. Fish skin is highly porous, allowing fibroblasts and keratinocytes to migrate and populate the graft at higher rates than conventional human allografts. Rapid ingrowth is crucial for building healthy tissue over deep complex abdominal defects.

CS-108

Progressive Wound Contraction in a Radiation-Associated Lower Extremity Ulcer Persisting for 21 Years: A Longitudinal Case Report

Iliana Rosas; Cristian Laguillo, MD; Carlos Peña, PA

Introduction: Chronic wound patients often have comorbidities that contribute to wound formation, or predispose them to poor wound healing (1,5). In radiation-associated cancer treatments, wounds experience reduced blood supply, fibrosis, impaired cellular repair and vascular endothelial damage, which often leads to skin lesions in the decade following treatment (3). A 69-year-old male non-smoker with atrial fibrillation, hypertension, arterial insufficiency, and prostate cancer had an excision of a sarcoma of the right lower extremity in 1992. In 2005, the radiation-exposed lower extremity began to ulcerate. An autograft was attempted which failed. In September 2023, he arrived at advanced wound care for assessment, where the wound was estimated at 203 cm2. A point-of-care ultrasound showed diminished dorsalis pedis and posterior tibial pulses.

Methods: Various treatments were implemented from 2023 to 2026. Ultimately, a lyophilized and fenestrated human chorion, intermediate layer, and amnion membrane product° was selected due to higher levels of exudate. The patient was evaluated weekly. Wound cleansing, dressing changes, sharp debridement, and application of membrane product° were performed during clinic visits.

Results: A laser calibrated wound care camera was used to estimate the dimensions of the ulcer. The initial area was 203 cm2 reduced to 55 cm2 in June 2026. The initial mean depth was 6mm reduced to 2mm. Images show granulation tissue and epithelialization.

Discussion: The use of lyophilized and fenestrated tri-layer membrane° for a patient with a 21-year radiation-induced chronic wound demonstrated wound contraction, and the development of granulation tissue with epithelialization in a 69 year old male. The membrane° has previously shown success with vascular complications of diabetic ulcers (6). Oxidative stress and senescent fibroblasts have strong correlations with chronic wounds (2, 4). Factors that reduce systemic and local inflammation are beneficial to patients with chronic wounds, limiting the senescent fibroblast phenotype (7). Because the tri-layer membrane° contains components such as growth factors, cytokines, and matrix proteins, it modulates the wound's oxidative stress load, enabling neovascularization and wound contraction (6). The wound area reduced by 73% from 2023 to 2026, with a 66% reduction in mean depth.

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CS-109

Amputation and Reconstruction in Vasopressor-Induced Digital Ischemia: A Case Series Highlighting Wound Management and Functional Recovery

Nicole Rossi, MD; Sanjeev Puri, MD

Introduction: Vasopressor-induced digital ischemia (VDI) is an uncommon but devastating complication of shock, frequently resulting in tissue necrosis, complex wounds, and amputation. Affected patients often require coordinated wound care and reconstruction.

Methods: This retrospective observational quality improvement study included adult patients with shock requiring vasopressors who developed VDI at a 625-bed community hospital from November 2022 to August 2025. Patients undergoing amputation were analyzed in detail. We evaluated the extent and distribution of necrosis, level of amputation, wound management, reconstructive approach, and functional outcomes.

Results: Among 1689 patients treated with vasopressors, 8 (0.47%) developed VDI. Overall mortality was 62.5%, frequently preceding operative intervention. Of the 3 surviving patients, 2 (66.7%) required amputation for non-salvageable ischemia. Wound management followed a staged approach with serial debridement(s) and demarcation prior to definitive coverage. One patient had combined upper and lower extremity ischemia, including digital necrosis of the hands and forefoot. They required bilateral below-knee amputations, right transradial amputation, and left transmetacarpal amputation involving all digits. There was a specific focus on preservation of proximal length and reconstruction included local tissue rearrangement. The second patient developed bilateral hand gangrene involving multiple distal phalanges, requiring staged finger amputations. Reconstruction focused on preservation of pinch and grasp using split-thickness skin grafting and local tissue rearrangement; adjunctive therapies including negative pressure wound therapy and dermal matrices were used to optimize the wound bed. Both patients achieved stable soft tissue coverage and were eventually able to return home.

Discussion: VDI-associated amputations are often bilateral and occur in multiples, creating complex wounds that challenge traditional management paradigms. This series demonstrates that preservation of functional length combined with staged wound care and reconstruction can result in durable coverage and meaningful recovery. Early recognition, structured wound assessment, and timely multidisciplinary involvement are critical to optimizing outcomes. These findings support the need for an institutional limb preservation protocol that prioritizes both wound healing and post-amputation function.

CS-110

Case-Based Outcomes Using Borate-Based Bioactive Glass Fiber Matrix Skin Substitutes for Complex Wounds Following Surgical Repair

Ram Sakkab, DPM, AACFAS

Introduction: Diabetic foot ulcers (DFUs) are an orthopedic challenge and are frequently complicated by bone and joint pathology, including osteomyelitis and Charcot neuroarthropathy. These complications in-

crease amputation risk and often require coordinated surgical, infectious disease, and wound care management. Borate-Based Bioactive Glass Fiber Matrix (BBGFM) may serve as an adjunct to standard orthopedic wound care by supporting a wound environment favorable to granulation and re-epithelialization. This case series evaluates outcomes following BBGFM application in 16 chronic DFUs of varying complexity, including osteomyelitis, Charcot arthropathy, and post-amputation wounds.

Methods: Sixteen patients with chronic DFUs of at least 6 weeks' duration were treated with BBGFM in addition to standard evidence-based orthopedic wound care. Data collected included age, wound location, chronicity, HbA1c, presence of osteomyelitis or Charcot arthropathy, timing of first BBGFM application, and time to complete epithelialization. Most patients (12/16) underwent adjunctive surgical offloading with first BBGFM application. All wounds were initially managed with appropriate standard of care. Bone infection, when present, was treated according to institutional protocols, including surgical debridement as needed. Patients were followed until full closure, defined as 100% epithelialization without drainage.

Results: Mean patient age was 68.5 years, mean wound chronicity before BBGFM application was 7.47 months, and mean HbA1c was 7.9. Ten of 16 patients presented with infection or osteomyelitis, requiring coordinated orthopedic and infectious disease management. BBGFM was initiated between 0 and 12 weeks into care, with an average initiation time of 3.8 weeks. Following first application, mean time to complete wound healing was 10.25 weeks, with closure ranging from 4 to 26 weeks. Earlier BBGFM initiation appeared qualitatively associated with shorter healing durations in several cases. Charcot-related ulcers and amputation-site wounds also demonstrated favorable trajectories, including wounds with documented bone involvement requiring surgical intervention. No patient required secondary amputation or revisional surgery during treatment.

Discussion: In this 16-patient case series of chronic, complex DFUs with substantial orthopedic pathology, adjunctive BBGFM use was associated with consistent wound closure, averaging 10.25 weeks after first application. These outcomes are notable given the high prevalence of osteomyelitis and bone involvement, which are associated with delayed healing and increased amputation risk. Combining surgical offloading procedures with BBGFM may have contributed to favorable outcomes by reducing plantar pressure and supporting wound healing.

CS-111

Multiple Cutaneous Malignancies in an Older Adult With Prolonged Healthcare Disengagement

S. Emily Samuels, MD, CWSP

Introduction: Malignancy is an underrecognized complication of chronic lower extremity wounds. Chronic venous insufficiency (CVI) is an independent predisposing factor for basal cell carcinoma (BCC) as the chronic inflammatory microenvironment of venous stasis may promote carcinogenesis. Despite guideline recommendations to biopsy venous leg ulcers (VLUs) that fail to respond to standard therapy within 4-6 weeks, wound biopsy remains underutilized, and malignant wounds are frequently misdiagnosed as benign chronic ulcers. Patients who are disengaged from medical care are at particular risk, as chronic wounds in older adults represent a geriatric syndrome associated with substantial morbidity and mortality.

Methods: 85-year-old man with COPD and no medical contact for 5 years presented to clinic with weight loss. Examination revealed signs of CVI. On the right shin, a well-circumscribed exophytic growth was identified, present for 2 years. Biopsy revealed infiltrative BCC. A large VLU was present on the left leg. Labs were notable for markedly elevated inflammatory markers (ESR >120 mm/hr, CRP 104 mg/L).

Three months prior, he had undergone biopsy of a nasal lesion which revealed melanoma in the dermis, raising concern for a metastatic lesion. No staging workup had been performed in the interval. During the days following his appointment, he expressed that participating in medical care felt overwhelming and exhausting. He did not want to die within the next 6 months, but felt that his death was inevitable. He accepted a visiting nurse for wound care, but did not want further work-up or surgery. He was admitted to the hospital 5 weeks later with septic shock secondary to multifocal pneumonia and passed away.

Results: This case highlights the cumulative burden of untreated cutaneous disease in medically disengaged older adults. In the context of CVI, wound care providers may encounter similar lesions and potentially misidentify them as hypertrophic granulation tissue. The histologic subtype — infiltrative BCC — is classified as high-risk due to its propensity for subclinical extension beyond clinically apparent margins, making delayed diagnosis particularly consequential.

Discussion: For wound care practitioners, the case reinforces two principles: first, that exophytic or atypical lesions on the lower extremities in the setting of CVI must be biopsied, not because biopsy will save the patient's life, but because it allows for prognostication and enables appropriate wound management — even when that management may be palliative; and second, that comprehensive wound assessment in medically disengaged older adults should be treated as urgent and delivered through minimally burdensome care models.

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CS-112

Transforming Chronic Wound Healing: Efficacy of Vaporous Hyperoxia Therapy in Complex Cases

Anna Sanchez; Donna Sage, MSSA

Introduction: A novel single use negative pressure wound therapy (sNPWT) device with a peel and place absorbent dressing system* has been designed for management of low to moderate exudating wounds.

Methods: This case series assessed the outcomes of four patients with chronic lower extremity wounds treated using a multimodal protocol that incorporated VHT. Patients received 2–3 VHT sessions per week. Near-Infrared Spectroscopy (NIRS) and thermography imaging were utilized pre- and post-VHT and debridement sessions to monitor changes in tissue oxygenation and temperature. Clinical outcomes, including wound size reduction, granulation tissue formation, and improvements in tissue oxygenation, were tracked over a follow-up period of up to 12 weeks.

Results: The integration of VHT into the treatment protocol resulted in significant clinical improvements. All four patients experienced pain reduction within 12 weeks. Wound surface areas decreased over the 12-week period too. Peri-wound tissue oxygenation showed marked improvement after each VHT session, with an increase of over 10% after four sessions. Oxygenation

within the wound bed improved more gradually but also exhibited positive healing trends, supporting favorable wound healing trajectories.

Discussion: This study demonstrates the transformative potential of VHT as an adjunctive treatment for complex wounds. The combination of VHT with advanced imaging technologies enables precise, data-driven therapeutic adjustments, facilitating personalized care. These findings provide compelling evidence for the broader clinical adoption of VHT and its integration into advanced wound care protocols.

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CS-113

Adjunctive Borate-Based Bioactive Glass Fiber Matrix (BBGFM) Therapy Enhances Granulation and Closure in Chronic Diabetic Foot Ulcers

Richard Schilling; Scott Littrell, DPM

Introduction: Diabetic foot ulcers (DFUs) remain a major clinical challenge due to impaired perfusion, chronic inflammation, and high susceptibility to infection.1,2 Advanced biologically active matrices have emerged as adjunctive therapies to support wound bed preparation and progression toward closure. Randomized controlled trials have reported improved wound healing trajectories and high rates of wound closure when BBGFM is integrated into standard diabetic foot care protocols, highlighting its potential to accelerate wound resolution and reduce downstream complications.1,2 Building on this emerging evidence, we conducted a clinical case series evaluating BBGFM in real-world patients with complex DFUs receiving guideline-based care.

Methods: Seven patients with DFUs of varying size, duration, and complexity were followed. All participants continued standard wound management including moisture balance, offloading or compression, debridement as indicated, and scheduled follow-up. BBGFM was applied and wound area was measured at baseline and weekly thereafter until closure or substantial improvement. Clinical observations, infection control, suitability for surgical intervention, and progression to advanced therapies (e.g., wound vacuum assisted closure (VAC)) were documented.

Results: Across the seven cases, baseline wound areas ranged from 1.0–14 cm^2. All wounds demonstrated reduction in size, improved granulation tissue, or complete closure. • Case-1: Reduced from 1.2 cm^2 to 0.64 cm^2 over 16 visits despite poor offloading adherence and suboptimal glucose control; wound remained clean with granulation. • Case-2: Two DFUs (1.69 cm2 and 2.1 cm^2) progressed to 0.0 cm2 and 0.16 cm^2 after 9 visits. • Case-3: Reduced from 3.0 cm2 to 2.25 cm^2 in 3 visits, enabling surgical planning. • Case-4: Reduced from 3.64 cm2 to 0.91 cm^2 over 11 visits and transitioned successfully to VAC utilization. • Case-5: Large DFU (14 cm^2) reduced to 6.25 cm^2 in 6 visits, generating granulation prior to limb surgery. • Case-6: From 8.75 cm^2 to full closure in 8 visits when used with wound VAC. • Case-7: From 1.0 cm^2 to closure in 4 visits with controlled infection.

Discussion: Across diverse DFU presentations, BBGFM supported rapid granulation and wound size reduction, often enabling timely surgical intervention, adjunct therapy use, or complete closure. These findings align with prior published results and support the adjunctive use of BBGFM within standard DFU care pathways.

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CS-114

Outcomes of Porcine Urinary Bladder Matrix in High-Risk Ostomy Reversal Wounds: A Case Series

William Sellers; Ekaterina Berulava, DO; Rashad Abdallah, DO; Claire E Witherel, PhD

Introduction: Ostomy reversal procedures create high-risk surgical wounds due to bacterial contamination, tissue undermining, and challenges in postoperative management. Standard purse-string closure often relies on open wound packing and prolonged healing by secondary intention, frequently requiring home health support. Biologic extracellular matrix scaffolds, such as porcine urinary bladder matrix (UBM), have demonstrated utility in complex wound healing across multiple clinical settings (Valerio et al. 2015 Regen Med; Cotler & Baker 2023 Wounds).

Methods: This retrospective case series evaluates five patients undergoing ostomy reversal in whom UBM was used as an adjunct to purse-string closure. Following stoma takedown, flowable micronized UBM and/or layered UBM sheets were applied to fill wound cavities and support tissue integration, replacing traditional gauze packing. Postoperative management followed a standardized dressing protocol. Patient demographics, comorbidities, type of ostomy reversal, UBM application type and volume, time to wound closure, complications, and need for home health services were assessed.

Results: The cohort included patients with significant comorbidities (e.g., obesity, malignancy, anemia, diabetes risk factors). Both ileostomy (n=4) and colostomy (n=1) reversals were represented. UBM application varied from 5–10 cc flowable formulations with adjunctive 2- or 3-layer sheets or micronized matrix. All patients achieved complete wound closure within 2–5 weeks, demonstrating faster healing than expected for secondary intention closure. No wound infections, complications, or adverse events were observed. Importantly, patients required minimal to no postoperative home health nursing support.

Discussion: Adjunctive use of porcine UBM during ostomy reversal was associated with accelerated wound healing (2–5 weeks) and reduced reliance on postoperative wound care resources, despite high-risk patient profiles. These findings suggest that UBM may enhance healing in contaminated or undermined surgical wounds and represent a practical alternative to traditional packing techniques. Further prospective, controlled studies are warranted to compare outcomes with standard of care.

CS-115

Initial Experience With Copper-Iodide Complex Solution in the Treatment of Highly Contaminated Wounds

Tyler Sexton

Introduction: The Copper-Iodide Complex Solution (CICS) is an FDA 510(k)-cleared wound irrigation system with demonstrated broad-spectrum antimicrobial activity against bacteria, fungi, yeast, and viruses without promoting microbial resistance. Its mechanism of action combines the rapid oxidative effects of free iodine (I_2) with the antimicrobial and tissue-supportive properties of copper ions. In addition to disrupting microbial cell membranes, copper has been shown to support angiogenesis and collagen synthesis, both critical components of wound healing. Preclinical testing has demonstrated that CICS is non-cytotoxic, non-pyrogenic, non-irritating, and non-sensitizing to dermal tissues. This preliminary clinical evaluation examined the impact of CICS on wound bioburden in patients with chronic, highly contaminated wounds of varying etiologies.

Methods: Eight patients with chronic open wounds were treated with biweekly CICS wound-care sessions. Wound etiologies included 3 venous leg ulcers, 2 DFU and 3 soft-tissue radiation necrosis. A standardized treatment protocol was utilized for all patients. Biofluorescent imaging (Snap Mini Glo) was performed immediately before and after treatment to assess bacterial burden. Wounds were soaked with CICS for three minutes, followed by gentle mechanical debridement using sterile gauze. No sharp debridement was performed during these sessions. Post-treat-

ment biofluorescent imaging was obtained to evaluate the effectiveness of microbial reduction. Copper-infused moisture-retentive dressings were subsequently applied as part of ongoing wound management.

Results: All treated wounds demonstrated visible reductions in fluorescence-associated microbial burden following treatment. Weekly CICS applications, combined with gentle mechanical debridement and copper-infused dressings, were associated with progressive improvements in wound bed quality and cleanliness. Patients reported excellent tolerance of the treatment protocol, with no significant discomfort, adverse reactions, or complications observed during the evaluation period.

Discussion: The combination of copper and iodine appears to provide a synergistic effect that facilitates both biofilm disruption and sustained antimicrobial control. Reduction of wound bioburden may create a more favorable environment for granulation tissue formation and epithelialization, supporting progression toward healing. In this initial clinical experience, CICS proved to be a safe, effective, and well-tolerated adjunctive therapy for the management of chronic contaminated wounds. These encouraging findings warrant further investigation through larger prospective and comparative studies to better define its role in advanced wound care.

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CS-116

Utilization Patterns of Dehydrated Human Amnion/Chorion Membrane During Secondary-Intention Healing of Lower-Leg Mohs Defects: A Four-Case Series

Umayr Shaikh; Sakshi Chopra, BS; Jessica Gai, BS; Chloe Bush, BS; Leela K Raj, BA; Christopher G Richter, BS; H. William Higgins II, MD, MBE

Introduction: Secondary-intention healing is frequently used for reconstruction of distal lower-extremity defects following Mohs micrographic surgery; however, delayed epithelialization, wound-care burden, and hypergranulation can complicate recovery. Dehydrated human amnion/chorion membrane (dHACM) provides an extracellular matrix scaffold and may support wound healing, yet practical guidance regarding graft deployment across varying wound geometries remains limited. This series describes application strategies and early outcomes associated with dHACM-assisted secondary-intention healing in lower-leg Mohs defects.

Methods: A retrospective review was performed of four consecutive lower-leg Mohs defects managed by secondary intention with adjunct dHACM at a dermatologic surgery practice. Variables collected included histologic diagnosis, anatomic location, graft dimensions, total membrane area utilized, dressing protocols, adjunctive therapies, and postoperative wound assessments. Cases were categorized according to membrane deployment strategy, including single-piece coverage, multi-piece augmentation, and multi-site tiling.

Results: Three distinct utilization patterns were identified. Single-piece coverage was employed for a compact 2 cm^2 defect. Multi-piece augmentation was utilized in two wounds with irregular wound beds requiring additional coverage, involving approximately 7.6 cm^2 and 28 cm^2 of membrane. Multi-site tiling was used for extensive bilateral shin defects requiring approximately 50 cm^2 of total membrane area. All wounds demonstrated favorable early healing without documented infection. Hypergranulation occurred in one extensive multi-site case and responded to silver nitrate and short-course topical corticosteroid therapy. Several treatment plans incorporated reassessment at 7–14 days with consideration of repeat application based on clinical progress.

Discussion: These cases demonstrate practical approaches to dHACM deployment during secondary-intention healing of lower-leg Mohs defects. Distinct strategies—including single-piece placement, augmentation of irregular wound beds, and tiling for extensive defects—were successfully incorporated into routine postoperative management. The utilization framework described here may aid procedural standardization and inform prospective studies evaluating healing time, complication rates, patient-reported outcomes, resource utilization, and cost-effectiveness in lower-extremity wound reconstruction.

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CS-117

Successful Management of a Traumatic Lower Extremity Wound in an Elderly Patient Utilizing Acellular Cod Fish Skin Matrix and Multilayer Compression Therapy: A Case Report

Greg S. Sheremeta, DPM, MPH, FACFAS

Introduction: Traumatic lower extremity wounds in elderly patients can present significant challenges due to impaired healing, tissue fragility, edema, and multiple comorbidities. Advanced cellular and tissue-based products have emerged as valuable adjuncts in promoting wound healing. Acellular fish skin matrices rich in omega-3 fatty acids provide a biologically active scaffold that may facilitate tissue regeneration while maintaining a favorable wound environment. An 89-year-old male presented with a traumatic wound involving the lower leg following a mechanical injury. Initial evaluation demonstrated a full-thickness soft tissue defect with exposed anterior muscle belly. The patient underwent serial wound assessments and standard wound bed preparation. Treatment consisted of application of an acellular fish skin matrix rich in omega-3 fatty acids in conjunction with multilayer compression therapy to address concomitant edema and optimize the wound healing environment.

Methods: Following sharp excisional debridement and wound bed preparation, an acellular fish skin matrix was applied according to manufacturer guidelines. A multilayer compression bandage system was subsequently applied to manage lower extremity edema. Dressings were changed at regular intervals with serial clinical assessments and photographic documentation performed throughout treatment. Wound

dimensions, tissue characteristics, and progression toward complete epithelialization were monitored over the treatment course.

Results: Progressive reduction in wound size and improvement in granulation tissue formation were observed throughout treatment. The wound demonstrated steady advancement toward complete epithelialization without evidence of infection or other significant complications. The combined use of acellular fish skin matrix and multilayer compression therapy resulted in successful wound closure and limb preservation.

Discussion: This case highlights the potential utility of an acellular fish skin matrix used in conjunction with multilayer compression therapy for management of traumatic lower extremity wounds in elderly patients. The combination of advanced biologic wound therapy and edema control may provide an effective treatment strategy for complex traumatic wounds in this patient population. Further investigation is warranted to better define outcomes and establish optimal treatment protocols.

CS-118

Advancing Secondary Intention Healing in Complex Post-Mohs Defects With a Bioactive Glass Fiber Matrix

Richard Simman, MD, FACS, dABWMS

Introduction: Non-healing post-Mohs surgical wounds present a substantial clinical management challenge, particularly when complicated by exposed bone, delayed granulation, or patient-specific factors that limit reconstructive options. Although many postoperative defects heal reliably by secondary intention, a subset, especially those involving deeper structures or prolonged tissue desiccation, fail to progress using standard wound care alone.1,2 Advanced adjunctive therapies may be required to optimize the wound environment and support re-epithelialization. A Borate-Based Bioactive Glass Fiber Matrix (BBGFM), a fully resorbable, degradable scaffold designed to maintain physiologic moisture balance, has emerged as a potential option for complex surgical wound beds. This case series describes two non-healing Mohs defects treated with BBGFM.

Methods: Two patients with recalcitrant post-Mohs wounds were managed in an outpatient wound center. • Case 1: A forehead defect that remained non-healing one month after Mohs excision of a basal cell carcinoma. The wound exhibited minimal granulation and early contraction failure. BBGFM was applied weekly with moisture-balancing secondary dressings. • Case 2: A chronic scalp wound three months post-Mohs surgery for a basal cell carcinoma, presenting with exposed, desiccated calvarial bone and lack of granulation following prior treatment with a dehydrated amniotic membrane graft. The patient declined rotational flap closure. Over ten weeks, the wound received five applications of BBGFM alongside local wound care focused on hydration, protection, and gentle mechanical debridement when appropriate.

Results: Both Mohs cases demonstrated favorable healing trajectories following BBGFM application. • The forehead defect developed a robust, well-vascularized granulation base and achieved substantial epithelial advancement within five weeks, requiring three total applications. • The chronic scalp defect, initially characterized by exposed bone and stalled healing, progressed to approximately 95% closure over ten weeks, with soft tissue coverage forming reliably over areas of previously desiccated calvarium. No adverse events or treatment-related complications were observed.

Discussion: In this small series, BBGFM functioned as a useful adjunctive therapy for complex post-Mohs wounds that had failed to progress with standard care. Improvements were seen in granulation quality, epithelial migration, and overall wound trajectory, suggesting potential value for patients who are poor surgical candidates or present with challenging anatomic or tissue-healing constraints.

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CS-119

Secondary-Intention Healing of a Complex Facial Mohs Defect Using a Borate-Based Bioactive Glass Fiber Matrix in an Elderly Patient Declining Flap Reconstruction

Richard Simman, MD, FACS, dABWMS

Introduction: Mohs micrographic surgery for facial skin cancer can produce deep, anatomically complex defects. Multistage flap reconstruction, such as the paramedian forehead flap, is effective but may be declined by elderly patients because of its surgical burden. Skin substitutes offer a non-surgical alternative that circumvents the risks of operative repair. A borate-based bioactive glass fiber matrix (BBGFM) is a fully synthetic skin substitute that provides a fibrous network that aids in establishing a microenvironment for cellular migration and angiogenesis while supporting quality tissue formation through the successive stages of wound healing.

Methods: An 80-year-old woman was referred with a large left nasal sidewall and midface defect following Mohs excision of a basal cell carcinoma. She was offered a two-stage forehead flap but declined because of her age. The defect was managed and allowed to heal by secondary intention in the outpatient wound clinic. The conformable BBGFM, which adapts to the contour and depth of the wound, was applied three times over six weeks.

Results: The defect demonstrated progressive development of healthy granulation tissue, wound contraction, and re-epithelialization. Wound site healing was achieved by six weeks with three in-office applications, yielding a favorable cosmetic outcome in an anatomically demanding facial location, without the need for surgical reconstruction or operating-room resources.

Discussion: In this case, BBGFM supported quality tissue regeneration, facilitating a microenvironment conducive to angiogeniss and robust granulation formation within a deep facial defect. As a fully synthetic material, it avoids the disease-transmission risk and cultural or religious concerns associated with human- or animal-derived tissue products. Its conformable fiber form factor and straightforward in-clinic application made it well suited to an elderly patient who declined flap reconstruction. BBGFM may represent a practical option for managing complex facial Mohs defects and promoting their healing by secondary intention, particularly when patient factors preclude staged surgical reconstructive repair.

CS-120

Treatment of Post-Surgical Diabetic Foot Ulcer With Toe-Ward Tunneling Using a Cryopreserved Viable Split-Thickness Allograft and an Advanced Human Acellular Dermal Matrix: A Case Study

Vincent Simone, DPM; Bradley Wetzell, PhD

Introduction: Post-surgical diabetic foot ulcers (DFUs) can be difficult to manage, particularly when presenting as deep, narrow, or tunneling defects in the region of the toe.1 Given that application of negative-pressure wound therapy (NPWT) can be problematic in these regions, allografts derived from authorized deceased donors are often utilized due to their ability to provide a temporary biologic barrier, support the unique morphology of tunneling wounds, and potentially restore the microenvironment of the wound to promote healing.2 Here, we present a case of a complex post-surgical DFU with toe-ward tunneling treated successfully with a cryopreserved viable split-thickness allograft (T-CSA) and an advanced human acellular dermal matrix (D-ADM).

Methods: A 39-year-old male patient with Type II diabetes presented to the emergency department with right-foot infection, and subsequent magnetic resonance imaging (MRI) indicated osteomyelitis with septic arthritis and gas gangrene. Following incision and drainage with partial second- and third-ray amputation, the patient was placed on antibiotics and T-CSA was applied after debridement. At 5 weeks postoperative, a toe-ward tunneling wound associated with the underlying osteomyelitis appeared along the distal margin. D-ADM was applied to the tunneling

wound and a second application of T-CSA was applied to the remainder of the wound.

Results: As demonstrated with case photographs, complete closure of the right foot was achieved at 12 weeks following 2 applications of T-CSA to the larger wound and 1 application of D-ADM to the toe-ward tunneling wound.

Discussion: The use of T-CSA and D-ADM demonstrated efficacy in the treatment of this complex post-surgical DFU with toe-ward tunneling, suggesting that advanced allografts may be a viable option for the treatment of such challenging wounds where NPWT cannot be utilized.

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CS-121

Acceleration of Difficult Abdominal Wall Closure With Bovine Derived Collagen Matrix

Margaret Siu; Eftikhar Akam, MD; Nicole Diette, PhD; Lindsay O'Meara, CRNP; Christian Cain, MD; Sharon Henry, MD

Introduction: Management of the complex open abdomen remains one of the most challenging and costly surgical dilemmas, with high patient morbidity and mortality. These wounds require tremendous resources: multiple operations, subsequent prolong wound care, and multidisciplinary consultations. Typical time to abdominal closure ranges from weeks to months. We asked whether a novel application of bovine derived collagen matrix* (BDCM) as a scaffold for tissue granulation would facilitate abdominal wall skin-only closure.

Methods: We identified a patient presenting with a complex open abdomen with no immediate options for abdominal wall reconstruction, and reviewed the patient's clinical course and eligibility for collagen dermal matrix application to facilitate skin-only closure.

Results: Our case presentation involves a 60-year-old female who underwent an elective laparoscopic right salpingo-oophorectomy converted to open procedure due to difficult lysis of adhesions. On post-operative 6 she was noted to have feculent abdominal drain output, and subsequent imaging demonstrated enteral contrast leak into the abdomen. Operative findings included multiple enterotomies requiring extensive enterectomy and primary anastomosis. The patient underwent seven subsequent abdominal surgeries including additional small bowel resections, debridement of necrotizing soft tissue infection of the abdominal wall, and placement of negative pressure wound therapy (NPWT). The final wound measured 625 cm2. Due to extensive abdominal wall debridement and loss of domain, neither primary fascial closure nor absorbable mesh application were possible. She subsequently developed a "frozen" abdomen and had poor granulation tissue overlying her viscera to facilitate application of a split-thickness skin graft. On her 10th trip to the operating room, a BDCM was placed over abdominal viscera as a scaffold for tissue granulation, followed by NPWT. Seven days following application of BDCM, there was a layer of granulation tissue completely over the exposed bowel. Abdomen was closed using subcutaneous skin advancement flaps.

Discussion: Application of BDCM to small bowel and abdominal visceral is novel and shown to promote tissue granulation within seven days of application. Closure of skin over the matrix is feasible. Moving forward, we plan to assess BDCM and its ability to prevent enterocutaneous fistulae.

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CS-122

Evolution of Our Surgical Technique for Hidradenitis Suppurativa: A Case Series of 39 Patients by a Single Physician at an Academic Institution

Grace Smithwick; Neil Reddy, BS; Nihal Sriramaneni, BS; JacqueLyn Kinney, MD; Mark Granick, MD

Introduction: Surgical management of severe hidradenitis suppurativa (HS) historically relied on wide local excision followed by prolonged secondary intention healing or tension-prone primary closure, which frequently caused severe scar contractures, contour deformities, and high complication rates. Over the past decade, our surgical strategy underwent an iterative technical evolution to transition from traditional intent-to-heal practices toward an optimized, staged regenerative protocol. This evolution aimed to accelerate wound closure, improve structural tissue outcomes, minimize donor-site burdens, and mitigate severe postoperative pain and its associated opioid reliance.

Methods: A retrospective case series evaluated 70 surgical procedures performed on 39 patients between 2017 and 2026. Management strategies were analyzed across three progressive chronological phases: an early phase testing various sheet-form biologic or synthetic skin substitutes, primary closure, or standard split thickness skin grafting; a transition phase utilizing a micronized synthetic matrix*; and a late phase staged excision and reconstruction utilizing a synthetic micronized matrix and autologous skin cell suspension†. Recent technical refinements prioritized excising single anatomic sites sequentially to preserve activities of daily living and trialed a novel synthetic matrix incorporating sustained-release lidocaine to optimize non-opioid pain control.

Results: Early techniques were limited by poor sheet-form matrix conformity in highly contoured regions, yielding prolonged closure times (median 114 to 147.5 days), while primary closure resulted in superficial dehiscence in 75% of cases. Transitioning to a micronized synthetic matrix* successfully generated robust granulation tissue over irregular surfaces and poorly vascularized adipose wound beds. In the late phase, combining this matrix with targeted hydro surgery debridement‡ and an autologous skin cell suspension† significantly accelerated healing, reducing the median time to complete wound closure to 57 days from index excision. While patient-reported pain was common across all phases, early data from patients receiving the specialized lidocaine-releasing matrix demonstrated substantially reduced early postoperative opioid requirements.

Discussion: Over ten years, integrating advanced wound care technologies drastically optimized reconstructive outcomes for complex HS wounds. Staging reconstructions with a micronized synthetic matrix prepares highly contoured wound beds for accelerated definitive closure using autologous cell suspensions, while localized, sustained-release analgesic matrices effectively target the critical, unmet need of postoperative surgical pain.

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CS-123

Rapid Chronic and Traumatic Wound Size Reduction Using Amniotic Membrane Allografts

Rory Snepar, DO, MSc

Introduction: Chronic wounds cost U.S. taxpayers tens of billions annually and negatively impact patients' quality of life through pain, decreased mobility, impaired physical function, and increased social isolation.1,2 Amniotic-derived allografts, rich in extracellular matrix proteins, growth factors, and cytokines, have demonstrated accelerated tissue regeneration and closure compared with the standard of care for wound treatment.3,4,5

Methods: In this retrospective case series, we review the effectiveness of amniotic-derived allografts in reducing wound size across applications. Two patients with stage three pressure ulcers, including a sacral pressure ulcer (patient one) and a right ischial pressure ulcer (patient two), and one patient with a full-thickness trauma wound (patient three), received weekly applications of a lyophilized amniotic membrane allograft.

Results: Patient one experienced a 75% reduction in wound size over 7 applications; patient two, an 85% reduction over 6 applications; and patient three, a 79% reduction over 9 applications. Patients saw a rapid increase in granulation in the first 3 applications ≥ 50%, with a continued decrease in size. These retrospective cases affirm clinical study findings that amniotic-based skin substitutes encourage rapid granulation tissue formation in chronic and traumatic wounds. Clinical implications for rapid closure include meeting LCD criteria and improving clinic healing rates.

Discussion: These retrospective cases affirm clinical study findings that amniotic-based skin substitutes encourage rapid granulation tissue formation in chronic and traumatic wounds. Clinical implications for rapid closure include meeting LCD criteria and improving clinic healing rates.

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CS-124

Safety of Pure Hypochlorous Acid Gel Use in Pediatric Patients

Kimberly K. Somers, PAC, MPAS, BS, BA, CWS

Introduction: Pure Hypochlorous acid gel* is a new hydrogel product that is intended to moisten, provide cleansing, and protect the wound bed. The gel is effective against killing bacteria, viruses, and fungi while supporting gentle autolytic debridement. The gel has a slightly acidic pH, is non-cytotoxic, and helps control biofilm that develops within wound beds. Pure hypochlorous acid gel* is an ideal adjunct to wound care in pediatric patients because the hypochlorous acid is most like the hypochlorous acid generated by neutrophils during the oxidative burst cycle. A retrospective case series was completed to assess the safety of pure hypochlorous acid gel* in pediatric patients ranging from neonates to young adults.

Methods: Retrospective review of the new pure hypochlorous acid gel* was used on various pediatric wounds from August of 2025 to May 2025. 21 pediatric wounds were treated with the product. A retrospective review of patient charts was completed. Demographic and clinic data was extracted from the electronic medical record including sex, date of birth, date pure hypochlorous acid gel* was initiated, date when pure hypochlorous acid gel* was discontinued, secondary dressings used, concurrent use of hypochlorous acid wound cleanser, clinical indication, location of wound, gestational age and birth weight if applicable, and adverse outcomes.

Results: No adverse outcomes were noted. Ages ranged from 11 days of life to 19.9 years (mean 10.39 years). The wounds all demonstrated healing at the time the gel was discontinued. 17 of 21 patients had concurrent use of pure hypochlorous acid wound cleanser. 3 patients were treated in the neonatal care setting. Most treated wounds were pilonidal cyst disease and surgical wounds. Silicone foam with an adhesive edge was used most often as a secondary dressing.

Discussion: The use of pure hypochlorous acid gel* in the pediatric population was effective in advancing wound healing and was well tolerated.

CS-125

Managing Chronic Wound Bioburden Through Sequential Use of Pure Hypochlorous Acid and a Multilayer Leukocyte Platelet-Rich Fibrin Patch

Ashley Sonney, MSN, APRN, FNP-BC, ACHRN, WCC

Introduction: Chronic wounds often remain stalled due to persistent inflammation, elevated bioburden, and impaired healing mechanisms. They are at increased risk for infection due to prolonged exposure, persistent microbial contamination, and biofilm development. [1] Effective wound bed preparation is critical for progression toward healing. Pure hypochlorous acid (pHA) aids in wound cleansing and reducing microbial burden, [2] while the autologous multilayer leukocyte-platelet-rich fibrin patch (MLPF Patch) provides a fibrin scaffold containing platelets, leukocytes, and growth factors. Leukocytes within the patch may contribute to microbial defense while supporting tissue repair. [3] This poster evaluates preliminary outcomes using a pHA and MLPF Patch protocol in chronic wounds to reduce the risk of infection and optimize outcomes.

Methods: Five patients with chronic wounds present for more than four weeks were evaluated using a protocol combining pHA and MLPF Patch therapy. All patients received standard of care, including offloading, sharp debridement, and vascular intervention when indicated. At each weekly treatment, wounds and periwound tissue were soaked with pHA for five minutes, followed by sharp debridement and application of the MLPF Patch.

Results: Five chronic wounds were treated using the pHA and MLPF Patch protocol. Wound etiologies included diabetic foot ulcers, pyoderma gangrenosum-associated ulceration, and a heel ulcer with prior vascular intervention. Patients presented with multiple comorbidities, including diabetes, peripheral arterial disease, venous disease, neuropathy, and prior amputation. Throughout treatment, no wound required discontinuation due to local infection, and no wound-related hospitalizations were observed. Outcomes showed increased granulation tissue formation across cases. Complete wound closure was achieved in 3 to 17 weeks, with prolonged healing observed in one patient with documented offloading fidelity challenges.

Discussion: In this case series, pHA wound cleansing and MLPF Patch therapy were associated with wound progression in a complex patient population with high-risk wounds. Wounds demonstrated robust granulation tissue formation and no treatment discontinuations due to infection. Positive outcomes may be attributable to the combined effects of pHA wound cleansing, sharp debridement, and MLPF Patch therapy, which together address microbial burden, nonviable tissue, and regenerative support. Larger controlled studies are warranted to further evaluate this treatment approach. More patients may be added upon acceptance.

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CS-126

From Fulminant to Healed: A Borate-Based Bioactive Glass Fiber Matrix as a Limb Salvage Therapy in a Critically Ill Postpartum Patient With Purpura Fulminans

Rachna Soriano, DO

Introduction: Purpura fulminans is a rare, life-threatening disorder marked by rapidly evolving cutaneous necrosis, microvascular thrombosis, and disseminated intravascular coagulation (DIC), often triggered by severe sepsis.1 Our case involves a 37-year-old woman with a complex medical and obstetric history, who developed purpura fulminans in the setting of E. coli bacteremia and multiorgan failure. Her prior surgical history (Whipple procedure) and obstetric complications (focal placenta accreta, manual placental extraction after normal spontaneous vaginal delivery at 36 weeks) further complicated her presentation. Following onset of lower-extremity swelling, sepsis, altered mental status, dialysis-dependent renal failure, and ventilatory support, she was transferred to a medical intensive care unit. Once necrotic skin lesions consistent with purpura fulminans appeared, advanced wound-care management was initiated.

Methods: Initially, the wounds had been treated with a silver-impregnated hydro-desloughing fiber dressing, a lipido-colloid contact layer, foam dressings, and a hypochlorous acid wound cleanser with irrigations every 2–3 days, but supply shortages developed. On 04/01/2025, a borate-based bioactive glass fiber matrix (BBGFM) was applied to her wounds, with secondary dressings changed to a polyvinyl alcohol foam dressing impregnated with methylene blue and gentian violet. Dressings were systematically monitored, changed regularly, and wound progress documented.

Results: Following three applications of the BBGFM, quality tissue formation and subsequent wound healing was observed throughout the 14 weeks of treatment. By 07/08/2025, complete epithelialization and resolution of necrotic tissue were achieved. Her dressing regimen proved sustainable, and the BBGFM remained adherent even in complex wounds, supporting granulation and re-epithelialization.

Discussion: This case demonstrates that BBGFM can be effective even in critically ill, complex patients with purpura fulminans and multiorgan failure. The BBGFM scaffold closely resembles the architecture of an extracellular matrix in terms of microstructure and porosity. This scaffold allows for infiltration and proliferation of native cells and maintains sufficient space for native collagen deposition and blood vessel formation.3 The favorable outcome in this patient suggests that BBGFM is a promising adjunct in managing challenging wounds associated with coagulopathic sepsis and severe systemic illness. More broadly, our experience supports incorporation of bioactive glass technology into protocols for high-risk wounds in critical care settings.

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CS-127

Fish Beats Feline: Successful Management With Fish Skin Substitute of a Complicated Wound After an Infected Cat Bite.

Rimi (Rimvydas) Statkus; Paul Kolyesnykov, DPM, AACFAS; Patrick McEneaney, DPM, FACFAS; Peter Lovato, DPM, FACFAS

Introduction: Cat bites are a relatively common cause of emergency room visits. Although they often cause minor lesions, not requiring medical intervention, cat bites may lead to severe wound infection with systemic complications and long-term disability if not treated properly. Cat bites cause deep-seated infections due to direct bacterial inoculation into joints and bones. Infection involving internal abscesses can jeopardize soft tissue healing and result in chronic issues with challenging wound management and even bone infection. This unique case aims to highlight successful multimodal staged approaches utilizing antibiotic beads and fish skin substitute in successful resolution of a complex wound due to infected cat bite.

Methods: A 69-year-old female with history of kidney disease and type 2 diabetes presented with a longstanding, non-healing wound to the left posterior calf secondary to a cat bite sustained 4 months prior. She reports the wound has previously been managed with multiple courses of antibiotics and has previously undergone incision and drainage with general surgery. She continued to experience persistent posterior calf swelling and mild serous drainage. Upon referral to the wound clinic she underwent extensive surgical incision and drainage and implantation of antibiotic beads.

Results: Four months after cat bite and multiple rounds of antibiotics and previous surgical interventions, she continued to have abscess collection and symptoms of infection. She was taken for repeat incision and drainage, IV antibiotics. After referral to wound specialist and final I&D and insertion of antibiotic beads, the swelling and infection subsided. Two weeks later she underwent antibiotic bead removal and application of fish skin graft (FSG) and NPWT. She was then followed weekly with in-office application of FSG. In 6 weeks after final intervention and application of fish skin substitute, there was complete resolution of the wound and no residual infection.

Discussion: Cat bites often do not require advanced medical intervention, but in rare cases they can lead to serious complications such as complex challenging wounds, osteomyelitis and even sepsis. This report presents a case of a successful treatment of the challenging wound after a cat bite caused a long-standing abscess infection and complex wound. Staged incision and drainage approach as well as application of the fish skin substitute facilitated the resolution of the cat bite wound in a prompt fashion.

CS-128

Successful Wound Healing With Application of Fish Skin Skin Graft and Autologous Platelet Rich Fibrin Grafts: Case Series

Rimi (Rimvydas) Statkus; Patrick McEneaney, DPM, FACFAS; Peter Lovato, DPM, FACFAS

Introduction: A collection of multiple case reports was compiled on select patients with significant co-morbidities and complex lower extremity wounds who were at high risk for proximal amputation of the affected limbs. Patients are often faced with complications including long hospital stays, wound infection, osteomyelitis and limb loss due to challenges associated with healing full- thickness wounds. In this multiple case report, fish skin graft (FSG) and autologous platelet rich fibrin (PRF) was used in multiple cases and various anatomical areas are assessed and utilized for limb salvage.

Methods: 5 cases with complex wounds at challenging anatomical sites in the lower extremity (including fasciotomies, previous abscess sites, amputations, structural deformities with significant bone or soft tissue loss) were included and surgically treated. FSG was used to assist with healing deep wounds down to tendon or bone. PRF processing was done on the day of wound treatment with a blood draw, spinning in a centrifuge and creation of an autologous PRF graft.

Results: All wounds were successfully healed within several weeks. Limb salvage has evolved significantly in recent years due to the progress and innovation of advanced modalities. Unique anatomical challenges of wounds coupled with the need to optimize patient co-morbidities make it challenging for the surgeon to develop a clear consensus when determining the most appropriate treatment modalities to utilize.

Discussion: In this multiple case report, a combination of aggressive surgical debridement; application of FSG; use of autologous platelet rich fibrin (PRF); and offloading were utilized to assist with rapid wound closure.

In patients with PAD and extensive bone and soft tissue loss, successful outcomes were observed in preventing additional proximal amputation, resulting in a functional limb that the patient could ambulate on after wound closure. cases with complex wounds at challenging anatomical sites in the lower extremity were included and surgically treated.

CS-129

Management of Chronic and Post-Surgical Diabetic Foot Wounds Using Borate-Based Bioactive Glass Fiber Matrix

Gian Steinhauser

Introduction: Chronic diabetic foot ulcers (DFUs) present significant clinical challenges, particularly when refractory to standard care or complicated by surgical interventions. Persistent fibrotic tissue, structural deformities, and prior treatment failures often prolong healing and increase risk for infection and amputation.1 Borate-based bioactive glass fiber matrices (BBGFM) have demonstrated potential in supporting wound healing through modulation of the wound environment and facilitation of tissue regeneration.2 This report describes two complex DFU cases treated with BBGFM after prolonged conventional therapy or surgical complications.

Methods: Two patients with complex DFUs were treated with BBGFM alongside standard wound care protocols. Case 1 involved a 52-year-old female with a chronic right foot ulcer refractory to enzymatic debridement, collagen dressings, and advanced wound care for over six months. The wound measured 5 × 4.5 × 1.5 cm with an additional 1.2 cm plantar probe along the flexor hallucis longus tendon sheath, with 100% fibrotic wound base. Case 2 involved a 68-year-old male with Charcot midfoot deformity on the right side. Following a "Reverse Cole" midfoot osteotomy arthrodesis coupled with a triple arthrodesis with external fixation, the patient developed medial and lateral foot ulcer dehiscence that exposed the bone of the right foot. BBGFM was applied periodically to each wound with wound V.A.C., with frequency guided by clinical assessment of wound bed status.

Results: In Case 1, progressive wound healing was observed after approximately 21 BBGFM applications, with complete wound base area closure. In Case 2, significant closure of the dehisced DFU sites was achieved after 11 applications of BBGFM, with evidence of healthy tissue regeneration and resolution of exposed structures. Both patients tolerated treatment without adverse events, and clinical assessment indicated readiness for eventual device removal of the external fixator in case 2 to full healing. BBGFM substitution also resolved wound V.A.C. clogging issues previously experienced by using collagen dressing in wound V.A.C. applications for patient in Case 2

Discussion: BBGFM facilitated meaningful wound closure in two patients with complex DFUs unresponsive to prior therapies or complicated by dehiscence. These cases highlight the potential role of BBGFM as an adjunctive therapy in promoting healing in chronic, fibrotic, or surgical wounds where standard care alone may be insufficient. These cases underscore BBGFM's potential as a powerful adjunctive therapy capable of transforming chronic and post-surgical wound care by promoting tissue regeneration and facilitating closure in challenging scenarios. BBGFM's permeability also makes it an attractive option to use with wound V.A.C. application.

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CS-130

Hypochlorous Acid Antimicrobial Wound Gel in the Treatment of Acute Radiation Injury

Stacy Street

Introduction: Radiation therapy is an accepted, effective treatment for cutaneous SCC, especially at anatomic sites where surgical excision is not recommended. Acute adverse cutaneous reactions to radiation therapy can last from weeks to months. [1] Acute radiation dermatitis (ARD) is a common problem associated with XRT, and the low quality of evidence and lack of consensus limit clinical practice recommendations for treatment. [2] The American Association of Dermatology's basic recommendations for caring for skin during and after radiation therapy includes cleaning with a low pH cleanser. [3] Hypochlorous acid antimicrobial wound gel is antibacterial, fungicidal, sporicidal, and viricidal, promoting healing through autolytic debridement and creating a moist, slightly acidic wound environment.

Methods: This patient is an 85 year-old male who was diagnosed with moderately differentiated SCC of the anterior right neck (Stage I) and left preauricular (Stage II) skin. He was treated with definitive radiation therapy to a dose of 5500 cGy in 20 daily fractions. One week after completion of radiation therapy, the patient was noted to have radiation dermatitis at both sites of XRT. Treatment was initiated with daily cleansing using pure hypochlorous acid wound solution followed by application of hypochlorous acid antimicrobial wound gel without cover dressings.

Results: The patient followed up at two week intervals. After two weeks, the patient had persistent itching at the sites, but no pain. Central ulcerations related to the original tumor sites were noted. After four weeks of therapy, the wounds from the original tumors and the radiation dermatitis had completely resolved. The patient had no itching or discomfort at either site.

Discussion: Hypochlorous acid gel provided enhanced healing in this case of radiation dermatitis with associated central wounds at the sites of each squamous cell carcinoma. Given limited recommendations and no consensus for treatment of radiation dermatitis and an expected healing time ranging from weeks to months, hypochlorous acid antimicrobial wound gel shows promise for this indication. Further observational studies and subsequent randomized controlled studies are necessary.

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CS-131

Postoperative Pain Control With Synthetic Wound Matrix* in Complex Reconstruction and Skin Graft Procedures: A Case Series

Jake Sun; Neil Reddy, BS; Jacquelyn Kinney, MD; Mark Granick, MD, FACS

Introduction: Postoperative pain management is a significant challenge in reconstructive surgery, where reliance upon opioid analgesics can increase the risk of adverse opioid events and impede the recovery process. Synthetic wound matrix* incorporates a sustained-release local analgesic component and antimicrobial silver to mitigate systemic opioid use and

decrease infection risk. This series describes the first reported use of synthetic wound matrix* in complex reconstruction and skin graft procedures.

Methods: A retrospective review of 13 procedures across 10 patients involving synthetic wound matrix* application at a tertiary academic center in Newark, New Jersey, between October 2025 and May 2026 was conducted. Included cases involved application of synthetic wound matrix* to an excisional site or to skin graft donor and recipient sites with at least one postoperative follow-up visit to assess pain, wound healing, and analgesic needs. Patient-reported pain scores (0-10) were collected through a daily postoperative survey spanning seven days for four procedures.

Results: 9 of 13 procedures were performed for advanced HS across 6 patients (3 male, 3 female, ages 17-63), including 3 patients that underwent staged reconstruction involving both wide local excision and split-thickness skin grafting at sites including the buttocks, perianal region, axilla, groin, perineum, and thigh. Among the four patients reporting complete pain data, three described a consistent pain-free or low-pain postoperative period of three to four days, while the fourth required only two tablets of acetaminophen over seven days despite consistently elevated pain scores. The remaining four procedures addressed a stage IV sacral ulcer, lower-extremity squamous cell carcinoma, burn scar reconstruction, and forearm fasciotomy following compartment syndrome. In total, 11 of 13 procedures resulted in reports of no pain in the first three to four postoperative days, all 13 avoided surgical site infection, and 6 of 7 non-skin-grafting procedures demonstrated healthy granulation tissue formation and wound healing at postoperative clinic visits.

Discussion: Synthetic wound matrix* is a promising new product for surgical treatment for HS and other complex reconstructive procedures to manage pain and reduce infection risk. The product was also well tolerated despite substantial patient comorbidities. Prospective studies with comparative controls that measure standardized patient-reported outcomes, analgesic consumption, and postoperative recovery for a longer time are needed to definitively establish the clinical role of synthetic wound matrix*.

CS-132

Fish Skin-Derived Acellular Dermal Matrix for Complex Scalp Defects With Exposed Calvarium: A Case Series

Avigdor Nosrati, MD; Maggie Chow, MD; Mark Suski, MD, FACS, CWSP

Introduction: Large scalp defects with exposed calvarium pose a reconstructive challenge, particularly in previously irradiated fields or in medically complex patients for whom flap reconstruction may be undesirable or contraindicated. Exposed cortical bone is relatively avascular and prone to desiccation, limiting granulation tissue formation and delaying epithelialization. Therefore, establishing a vascularized wound bed over exposed bone is often required to achieve durable closure. Prior radiation further complicates closure through fibrosis, impaired angiogenesis, and diminished tissue response. Fish skin-derived acellular dermal matrices, a class of biologic xenografts, have been used as wound scaffolds in complex acute and chronic wounds. However, published experience in exposed-cranium scalp defects, particularly in irradiated fields and time-sensitive oncologic settings, remains limited.

Methods: We describe a case series of four patients with large complex post-resection scalp defects with exposed calvarium (range 7- 13 cm) of varied etiology to include recurrent malignancy, prior radiation therapy, Gorlin Syndrome on immunosuppression, and urothelial carcinoma with rare cutaneous metastasis. All were managed with operative debridement and bone preparation (burring/decortication to punctate bleeding diploë as needed), followed by application of a fish skin–derived acellular dermal matrix. The matrix was secured with a nonadherent compressive dressing and serially reapplied at weekly or biweekly intervals until complete epithelialization or development of a robust granulation bed suitable for staged split-thickness skin graft (STSG).

Results: Fish skin xenografts are harvested from Icelandic cod with a porous microstructure similar to the human dermis. Beneficial characteristics in wound healing include bacterial resistance, promotion of angiogenesis, and modulation of inflammatory cytokine activity. In this series of four exposed-calvarium scalp defects, fish skin-derived acellular dermal matrix applied after appropriate bone preparation consistently supported rapid development of a graftable granulation bed and enabled durable closure by secondary intention or staged STSG.

Discussion: This use of biologic xenografts may offer a practical and flexible reconstructive option, potentially adaptable to outpatient use by Mohs surgeons, for patients in whom flap surgery is not feasible, perioperative risk is high, or timely closure is required to proceed with oncologic therapy. Larger comparative studies are warranted to better define patient selection, optimal application intervals, time to closure, complication rates, and resource utilization compared with alternative reconstructive strategies.

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CS-133

Use of a Borate-Based Bioactive Glass Fiber Matrix (BBGFM) in the Management of a Chronic Non-Healing Above-Knee Amputation Wound: A Case Report

Sheri Tack, NP

Introduction: Chronic non-healing wounds at above-knee amputation (AKA) sites represent a significant clinical challenge due to compromised vascularity, mechanical stress, and impaired tissue regeneration. These wounds are often refractory to conventional therapies and contribute to prolonged morbidity and delayed rehabilitation. Borate-based Bioactive Glass Fiber Matrix (BBGFM) have emerged as a promising advanced wound care modality, providing a scaffold that facilitates cellular migration, angiogenesis, and extracellular matrix deposition. This case report describes the successful application of BBGFM in a chronic non-healing wound over the right AKA site.

Methods: A 52-year-old patient presented with a chronic non-healing wound over the right AKA site that had been present since 11/29/2025. The wound had been previously treated with conventional non-healing protocols without resolution. Upon initial evaluation on 1/22/2026, the wound measured 2.0×14.0×0.2 cm with a calculated surface area of 31.99 cm^2. BBGFM was applied directly to the wound bed at weekly to biweekly intervals over an 11-week treatment course. A total of 7 applications were administered. Serial wound measurements were obtained at each visit to track the healing trajectory. The wound was assessed for tunneling, undermining, depth reduction, wound bed improvement, and overall area reduction.

Results: Over the 11-week treatment period, wound surface area decreased from 31.99 cm^2 to 0.87 cm^2, representing a 97.3% reduction. The most pronounced reduction occurred within the first four weeks, with surface area decreasing to 6.79 cm^2 (78.8% reduction) by the fourth application. A second accelerated phase of contraction was observed between weeks 9 and 11, with the wound narrowing from 10.0 cm to 2.5

cm in width. By the final assessment on 4/9/2026, the wound measured 0.5×2.5×0.1 cm. Clinical outcomes exceeded expectations across all evaluated domains, including tunneling and undermining, wound area and depth reduction, and wound bed improvement.

Discussion: This case demonstrates that BBGFM is an effective and well-tolerated advanced therapy for chronic non-healing AKA wounds. A 97.3% reduction in wound surface area was achieved over 11-weeks with 7 applications, with no adverse events or infection. The rapid early response and sustained trajectory toward closure suggest that BBGFM may facilitate healing in complex post-surgical wounds that are refractory to standard care.

CS-134

Treatment of Complex Lower Extremity Wounds With a Single Application of an Advanced Human Acellular Dermal Matrix: A Case Study

Guillermo Valenzuela, MD; Bradley Wetzell, PhD; Julie B. McLean, PhD

Introduction: Complex, multi-factorial lower-extremity wounds can be difficult to treat and often impose substantial treatment, cost, and quality-of-life burdens.1,2 Effective skin grafts capable of supporting timely regeneration of healthy tissue in such wounds are imperative for addressing these risks. Human acellular dermal matrices (ADMs) derived from authorized deceased donors have been widely utilized in the treatment of these wounds, including over deep exposed structures.3,4 One advanced ADM in particular (D-ADM) has been reported to successfully treat multi-factorial complex lower-extremity wounds with an average of 1.2 applications.4 Here, we present a case in which two multi-factorial complex lower-extremity wounds were successfully treated with a single application of D-ADM in a patient with multiple comorbidities.

Methods: A 63-year-old male patient with severe alcohol use disorder and a chronic tobacco user presented with two left lower-extremity wounds with cellulitis and subsequent abscess, treated with previous intravenous and concomitant oral antibiotics. Following initial incision and drainage of the abscesses, the patient developed severe myositis, confirmed with biopsy, which was treated with long-course oral prednisone. Finally, D-ADM was applied to both wounds along with negative pressure wound therapy (NPWT).

Results: As demonstrated with case photographs, complete closure of both wounds was achieved without complications at 11 weeks following a single application of D-ADM.

Discussion: The use of D-ADM demonstrated efficacy in a single application for the treatment of two multi-factorial complex lower-extremity wounds in this patient with multiple comorbidities, suggesting that D-ADM may be a viable option for the treatment of challenging and chronic wounds in high-risk patients.

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CS-135

Treating Chronic Pyoderma Gangrenosum With Vaporous Hyperoxia Therapy: A Case Report

Lince Varughese; Donna Sage, MSSA

Introduction: Pyoderma gangrenosum (PG) is a rare, chronic inflammatory skin condition characterized by painful, non-healing ulcers. Standard management often includes systemic immunosuppressants and topical therapies; however, many cases remain refractory to treatment. This study highlights the successful resolution of chronic PG in a 62-year-old female using Vaporous Hyperoxia Therapy (VHT) as an adjunct to standard care.

Methods: The patient presented with a five-year history of intermittent, non-healing ulcers on the ankle, initially diagnosed as PG. Despite long-term management with systemic immunosuppressants and daily topical tacrolimus, the ulcer persisted. Exacerbation was noted following sharp debridement early in treatment, though the wound later tolerated very light debridement. Management also included topical antibiotics, a variety of dressings, and skin substitutes at various points, with limited success. A biopsy on May 19, 2023, ruled out malignancy. VHT, a novel treatment combining ultrasonic vapor and oxygen, was introduced alongside existing therapies. The patient underwent six VHT sessions over four weeks.

Results: At the start of VHT (Day 0), the wound measured 0.2x0.2x0.1 cm. The wound dressing remained intact at Day 3, with measurements unchanged. By Day 5, the wound had decreased in size to 0.1x0.1x0.1 cm, reflecting significant progress over just five days. Following six VHT sessions, full epithelialization and complete wound closure were achieved, with significant analgesic effects. As the wound healed, the patient reported decreased pain and soreness, as well as the development of higher-quality epithelial tissue likely to withstand future breakdown. The wound has remained resolved for three months. No adverse events were reported during the treatment period.

Discussion: This case illustrates the potential of VHT to resolve chronic wounds refractory to standard care. By enhancing cellular repair and tissue regeneration, VHT effectively complemented the immunomodulatory effects of existing therapies, leading to complete healing in this patient. Its analgesic effects and ability to facilitate the development of durable epithelial tissue further highlights its utility in managing chronic wounds.

CS-138

Clinical Experience With Hypothermically Stored Amniotic Membrane for the Management of Mohs Defects: A Case Series

Andrew Weinstein; James J. Devoursney, MD

Introduction: Mohs Micrographic surgery is widely used to treat basal and squamous cell carcinomas, but many defects heal by secondary intention or require local flaps or skin grafts. Autologous skin grafts are the preferred repair method, but can be limited by tissue availability and donor site morbidity. The purpose of this case series is to report on outcomes of post-Mohs patients with deep defects healing through secondary intention, managed with hypothermically stored amniotic membrane (HSAM)* as a protective barrier.

Methods: Deidentified data of patients from a single center who received HSAM for a Mohs defect were retrospectively reviewed. All Mohs defects underwent weekly assessment, debridement (if necessary), and application of HSAM (at the discretion of the surgeon), for 12 weeks (unless healed earlier), and a long-term Vancouver Scarring Scale assessment (VSS).

Results: The case series included 6 males and 4 females with a mean age of 83.8±5.4 years. Ten Mohs defects were included, with a mean wound size of 3.89±2.83cm2. Every defect was closed by week 9, averaging 5.7±1.9 weeks to complete closure and 3.2±1.0 HSAM applications. The cohort's mean VSS score was 1.8±1.9.

Discussion: The results of this case series suggest that HSAM may provide an alternative approach to managing post-Mohs wounds as a protective barrier left to heal by secondary intent. Mean VSS scores were indicative of minimal scarring and high patient satisfaction with cosmetic outcomes.

CS-139

Use of Fluorescence Imaging to Identify Bacterial Burden During TherapeuticWound Cleansing: A Case Series

Dot Weir, RN, CWON, CWS; Terry Swanson, RN, NP, MHSc, FAWMA, FMACNP

Introduction: Therapeutic wound cleansing is a cornerstone of wound hygiene and infection prevention. The 2025 International Wound Infec-

tion Institute (IWII) Consensus recommends cleansing the wound bed, wound edge, periwound, and surrounding skin to reduce microbial burden and promote healing.1 However, clinicians rely on visual assessment alone that can often miss the presence and location of these elevated bacterial loads, leaving behind bacteria and biofilm that can further delay wound healing.2 Point-of-care fluorescence (FL) imaging* enables real-time visualization of bacterial burden ($>10^4$ CFU/g) and supports more extensive wound cleansing.3 This case series describes the use of FL imaging to support therapeutic wound cleansing and debridement in routine clinical practice.

Methods: A prospective case series of 20 patients was conducted in an outpatient wound care clinic. Patients with chronic wounds were assessed using FL-imaging pre and post cleansing procedures. Areas of bacterial FL within the wound bed, wound edge, and periwound skin were documented. FL imaging was used to target wound cleansing and debridement to areas with elevated bacterial burden, using appropriate cleansing and debridement devices. Post-cleansing FL imaging was used to assess residual bacterial burden and guide additional interventions.

Results: FL imaging identified elevated bacterial burden extending beyond the visible wound bed into the wound edge and periwound skin, guiding targeted cleansing and debridement of areas that would not have otherwise been treated based on visual assessment alone. Residual FL observed after the initial intervention prompted additional cleansing and/or debridement, with repeat FL imaging used to confirm maximal reduction of bacterial FL. The cleansing solution / product used will be identified with each case presented.

Discussion: These findings suggest that FL imaging enables detection of bacterial burden beyond visible wound boundaries, supporting targeted cleansing and debridement across IWII-defined zones. This approach may reduce reliance on empiric antibiotic use, minimize complications from residual infection, and promote improved wound progression, positioning FL imaging as a valuable decision-support tool in routine wound care.4,5

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CS-140

Integrating Limb Hygiene Into Chronic Lower-Extremity Wound Management: A Fluorescence Imaging Case Series

Dot Weir, RN, CWON, CWS; Terry Swanson, NP, MHSc, FAWMA, FMACNP

Introduction: Chronic lower-extremity wounds are commonly associated with diabetes mellitus, chronic venous insufficiency, and edema, which impair skin barrier function and predispose patients to bacterial colonization and infection.[1,2] The 2025 International Wound Infection Institute (IWII) Consensus on Therapeutic Wound and Skin Cleansing recommends a whole-limb approach to wound management, including cleansing of the wound bed, periwound skin, surrounding limb skin, and interdigital spaces.1 Elevated bacterial burden may extend beyond the wound bed serving as a reservoir for ongoing wound contamination. This case series uses fluorescence imaging (FL)* to identify bacterial burden on clinically healthy-appearing skin not routinely targeted during standard wound care.

Methods: Ten patients with chronic lower-extremity wounds were evaluated in an outpatient wound clinic. FL imaging was used to guide targeted cleansing of the wound on the affected limb, including the full limb, periwound skin, and interdigital spaces (toe flossing). FL imaging was performed pre and post hygiene interventions to identify FL+ areas. In some cases, serial imaging was performed over time to evaluate changes in FL signal and corresponding wound healing progression.

Results: FL imaging identified FL+ areas within wound beds, surrounding skin, and interdigital regions. FL+ findings were detected on clinically intact skin, revealing areas not typically assessed during standard wound evaluation. Following limb hygiene interventions, repeat imaging demonstrated reduced FL+ findings on surrounding skin. FL signal was additionally observed on removed gauze during dressing changes, with occasional recurrent detection on subsequent dressings.

Discussion: Chronic lower-extremity wounds are associated with edema and skin barrier dysfunction affecting both the wound and surrounding tissues. Bacterial colonization of clinically normal-appearing skin that may not be assessed during routine clinical evaluation may contribute to recurrent wound contamination. FL imaging provides a point-of-care method to visualize bacterial presence across the limb, identifying areas not detected during standard visual assessment. These findings support assessment beyond the wound margin, incorporating limb hygiene strategies across the wound and surrounding skin reducing potential recontamination between dressing changes and clinic visits, leading to improved healing outcomes.

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CS-141

Limb Salvage Following Necrotizing Diabetic Foot Infection With Gas Gangrene and Pathologic Fifth Metatarsal Fracture: A Staged Surgical Approach With a Borate-Based Bioactive Glass Fiber Matrix (BBGFM) Augmentation

Nathan Wilson; Height W Kaplan DPM, DPM

Introduction: Necrotizing diabetic foot infections (DFIs) involving deep space abscess formation, gas gangrene accompanied by necrotizing fasciitis, and osteomyelitis represent limb- and life-threatening pathology requiring urgent multidisciplinary management. The presence of gas formation extending across multiple compartments of the midfoot, particularly in the setting of uncontrolled type 1 diabetes and sepsis, significantly worsens limb prognosis. We present a complex case of limb salvage in a 47-year-old female with uncontrolled type 1 diabetes who presented in sepsis and diabetic ketoacidosis (DKA) secondary to a Wagner grade 3 lateral foot ulcer complicated by gas gangrene, osteomyelitis, and pathologic fracture of the fifth metatarsal.

Methods: A 47-year-old female with poorly controlled type 1 diabetes presented with hyperglycemia (BG 568 mg/dL), tachycardia (HR 124 bpm), leukocytosis (WBC 26.49 K/mcL), and a malodorous, deep ulcer over the lateral left foot. CT imaging demonstrated an air-containing sinus tract extending to a pathologic fracture of the fifth metatarsal with gas involving the third, fourth, and fifth metatarsal bases and cuboid, consistent with necrotizing infection and osteomyelitis The patient underwent emergent incision and drainage (I&D) with bone biopsy. Blood cultures were positive for Streptococcus species. Following serial debridements and infection control, a final washout with delayed primary closure and application of an extracellular matrix bioscaffold derived from sheep intestine was applied. To heal the DFU, BBGFM was applied over the ulcerated area until complete closure was evident.

Results: Initial operative findings included purulence, gas bubbles, and tracking across dorsal, plantar, and medial compartments of the foot. Repeat exploration revealed deep abscesses extending toward the first metatarsal and interspace with continued gas formation. Following staged decompression, broad-spectrum IV antibiotics, and metabolic stabilization, infection parameters improved, and viable bleeding tissue was present at final washout. Limb salvage was achieved without proximal amputation during the inpatient course. The DFU had completely healed.

Discussion: This case demonstrates successful limb salvage in a patient with necrotizing diabetic foot infection, gas gangrene, osteomyelitis, and pathologic fracture using an aggressive staged surgical strategy. Early recognition, urgent operative decompression, repeat interval debridement guided by imaging and clinical progression, culture-directed antibiotics, strict nonweightbearing, and DFU closure with BBGFM augmentation were critical components of management. In appropriately selected

patients, even extensive gas-forming infections involving multiple midfoot compartments can be managed with limb preservation through coordinated multidisciplinary care. This case highlights the importance of serial operative assessment and biologic scaffold utilization in complex foot salvage scenarios.

CS-142

Does Upregulation of Limb Perfusion and Effective Tissue Micro Deformation Increase Wound Healing During Textile Compression Therapy?

Martin Winkler; Linda T. Miller, PT, DPT, CLT, CWT

Introduction: Textile compression has been used to treat wounds over 4 millennia, with Asklepion priests swaddling leg ulcers 350 BCE. Mechanisms underlying compression's efficacy remain poorly understood. We present 3 cases of refractory non-healing wound outliers treated with a novel knitted compression stockinet. Textile fuzzy wales create parallel, longitudinal furrows in skin and subcutaneous fat. Potential mechanisms by which this stockinet may increase perfusion and speed healing are presented.

Methods: Three leg wounds that had previously failed >3 years' wound center treatment (pain preventing prior compression in 2 patients) were treated with Fuzzy Wale elastic Compression stockinet* (FWC), novel in that vertical fuzzy wales compress just 25% of the limb surface, delivering mild 8-12 mmHg compression when measured via standard human compression manikin. [1, 2]

Photographs document clinical progress, including decrease of peri-wound epiboly and painful nodular dermatitis, with robust wound bed progress and rapid neo epithelization. [3, 4]

Results: Case 1: 54 y/o female with vasculopathy, aortic occlusion below renal arteries, s/p left BKA, right pedal doppler signals were absent, with 4 ulcers and exposed lateral mallear bone. FWC rapidly decreased ischemic pain and wound maceration. Photos document scarless regenerative healing at day 198.

Case 2: 61 y/o male with painful mixed bilateral leg ulcers refractory to standard compression, responded dramatically to FWC.

Case 3: 67 y/o male with macerated painful mixed ulcer on right ankle could not tolerate compression over 4 years attending wound clinic. Dramatic wound bed progress documented at day 9 of FWC treatment; discharged Day 106.

Discussion: We propose two potential mechanisms of action for FWC-driven healing. When pedal doppler signals are absent, wound healing is essentially impossible. Textile compression, particularly FWC, may increase perfusion to the compressed area. This may involve stimulating more turbulent flow in small-diameter vessels which increases nitric oxide, a vasodilator, in cutaneous arterioles. [2, 5]

FWC may contribute to wound healing via tissue micro deformation, tissue experiences simultaneous compression and tension beneath vertical wales. Cell membrane enzymes respond to mechanical forces by signaling their nucleus [6] to increase protein synthesis. [1, 5,7] Further research and textile design is needed.

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CS-143

Observational Study to Assess Bacterial Load in Used Wound Dressings Following Use of Highly Charged Fiber Dressings-Silver (Ag)* to Remove Slough

Rose Yaghi; Debashish Chakravarthy Dr, PhD

Introduction: Chronic wounds are commonly colonized by diverse bacterial populations that complicate healing and increase the risk of infection [1]. Real-world data on Highly Charged Fiber (HCF) dressings-Ag*, microbial-capture, and antimicrobial-barrier properties remain limited. The high-density negative charges in these dressings at wound pH are well known, and some germs are also negatively charged under those conditions [2,3,4,5]. This exploratory study aimed to demonstrate that the dressings would not "pull out" germs from the wound but instead repel them, tending to leave them behind. We explored, through a clinical study coupled with germ-detection technologies, whether the dressing removes germs when applied to a wound, or whether the opposite is true.

Methods: HCF-Ag dressing was consistently applied to patients for two weeks per the instructions for use, with periodic changes as required. At week 2, dressings were collected and submitted to two independent laboratories for complementary analyses. One laboratory performed culture-based testing to identify viable bacteria, while another conducted PCR-based testing to detect both viable and non-viable bacteria. This dual approach allowed differentiation between organisms that persisted (as recoverable microbes in cultures) and those that were effectively reduced or eradicated following real-life contact with the silver-based dressing (PCR can detect both live and dead germs).

Results: This study demonstrated that HCF-Ag dressings collected during slough removal contained a wide spectrum of clinically relevant organisms, as detected by both culture and PCR. Among the most frequently detected species (and their levels) seen post culture/PCR were Enterococcus faecalis (High), Proteus mirabilis (High), Staphylococcus aureus (High), Finegoldia magna (Peptostreptococcus magnus) (High), Prevotella species (High), Corynebacterium species (High), Peptostreptococcus anaerobius (High), Peptostreptococcus prevotii (Detected/Low), and Streptococcus agalactiae (Group B) (Low). The detection of both facultative anaerobes and resistant organisms, including Staphylococcus aureus, highlights the dressing's germ-capturing impact across a diverse microbial community.

Discussion: By capturing both viable and non-viable bacteria, the HCF-Ag dressing provides not only desloughing and cleansing benefits but also demonstrates potential utility as a non-invasive medium for microbial removal and surveillance in chronic wounds.

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CS-144

Proteomic Characterization of Wound Slough Captured in Used Highly Negatively Charged Fiber Dressings- Silver (Ag)* With Standardized Photographic Documentation (Pre/Post Over 2 Weeks)

Rose Yaghi; Debashish Chakravarthy Dr, PhD

Introduction: Chronic wounds exhibit persistent inflammation and biochemical dysregulation, often reflected in wound slough enriched with proteases, inflammatory mediators, extracellular matrix proteins, and microbial proteins (Tottoli et al., 2020). The chronic wound microenvironment is characterized by high levels of inflammatory mediators (e.g., TNF-α and Il-1β), pro-inflammatory macrophages, elevated levels of reactive oxygen species, and matrix metalloproteinases (Rodrigues et al., 2019). Highly negatively charged fiber dressings (HNCFD) are designed to sequester and attract wound exudate, slough, and biomolecules over time, providing a valuable matrix for molecular characterization (Meaume et al., 2014; Dalac et al., 2016; Dissemond et al., 2020). This study aimed to perform a proteomic analysis of slough captured by the used HNCFD.

Methods: This prospective, single-site, observational feasibility and molecular characterization study was designed to characterize the proteomic profile of wound slough captured from 10 chronic wound patients with HNCFD-Ag, collected after 2 weeks of standard clinical treatment, using LC–MS/MS. Standardized wound and dressing images were collected throughout the study to document visual changes in slough over the 2 weeks.

Results: Proteomic analysis of the HNCFD-Ag used in n=10 patients with chronic wounds revealed diverse host and microbial proteins captured within the wound slough and sequestered by the dressings. The profile of the proteins captured within the HNCFD-Ag included extracellular matrix proteins, host inflammatory proteins, microbial proteins, immune activity proteins, and skin and tissue remodeling proteins. Distinct protein patterns were observed among n=10 HNCFDs analyzed. The chronic wounds that were clinically assessed for healing showed more homogeneous protein profiles, consisting of proteins associated with tissue remodeling and the control of excessive inflammation. Conversely, clinically assessed deteriorating wounds were characterized by a complex protein profile with varying levels of bacterial and host proteins associated with inflammation and the immune response.

Discussion: Proteomic analysis of used HNCFD-Ag throughout this study was feasible, enabling characterization of host and bacterial protein presence in the microenvironment of n=10 patients with chronic wounds. Distinct protein patterns were observed between chronic wounds progressing toward healing, as assessed clinically and visually, and those deteriorating. These preliminary findings suggest the potential of using the non-invasive HNCFD to heal chronic wounds, characterized by its capacity to sequester a broad profile of proteins related to the inflammatory immune response and to bacteria.

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CS-145

Limb Salvage Approaches Using Micronized Urinary Bladder Matrix and Fetal Bovine Dermal Scaffold in Podiatric Wounds Complicated by Necrotizing Soft Tissue Infections.

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Introduction: Deep podiatric wounds associated with necrotizing soft tissue infections (NSTIs) present significant challenges to limb salvage, particularly when wound geometry, exposed structures, or anatomical location limit use of negative pressure wound therapy (NPWT). Extracellular matrix (ECM) products, including porcine urinary bladder matrix (UBM) and fetal bovine dermal scaffolds (FBDS), independently and together offer versatile options for managing complex wounds. This case series highlights a combination-based reconstructive approach utilizing ECM technologies tailored to wound characteristics.

Methods: A retrospective chart review was conducted of five patients with NSTIs of the foot managed by a single center within a limb preservation program. Following aggressive debridement and infection control, ECM products were selected based on wound depth, configuration, and reconstructive goals. Micronized UBM paste was used to fill deep, irregular defects where NPWT was not feasible, whereas FBDS meshed dermal scaffold was applied for larger surface defects, including transmetatarsal amputation (TMA) stumps, often in preparation for split-thickness skin grafting (STSG). Primary endpoints included time to epithelialization, graft incorporation, and limb preservation.

Results: Two patients with deep dorsal foot NSTIs and exposed tendon/fascia achieved complete epithelialization within 6 weeks using UBM alone, without NPWT, flap coverage, or additional reconstruction. Two patients with severe NSTIs requiring guillotine amputation and staged TMA underwent revascularization, debridement, and FBDS application followed by STSG, achieving >90% graft take and successful limb preservation. A fifth patient with a previously dehisced TMA stump and tunneling defect was managed using a combined approach with UBM to address depth and tunneling, followed by FBDS for surface coverage, progressing to successful wound closure. Across cases, product selection was guided by wound characteristics and reconstructive phase.

Discussion: A tailored ECM-based reconstructive algorithm may

expand limb salvage options in complex podiatric wounds. UBM is effective for managing deep, irregular defects and exposed structures when NPWT is not feasible, while FBDS provides durable dermal coverage for larger defects and serves as a scaffold for STSG. Combined use in select cases can address both depth and surface requirements. This portfolio approach supports timely healing, high graft incorporation, and limb preservation in patients with NSTIs.

CS-146

CREST-Syndrome Scleroderma - Eight Years of Wound Management and Pain Control With Polymeric Membrane Dressings

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Introduction: A 65-yr-old woman ("AM") with CREST-syndrome scleroderma had routine surgical debridement of calcifications from calcinosis in the soft tissues of her left thumb and index finger. Post-operative healing had always been slow, but this time her comorbidities and chronic prednisone use led to two years of progressive wound enlargement. OnabotulinumtoxinA to increase circulation was unsuccessful. Amputation of AM's left index finger seemed inevitable. Meanwhile, AM's multiple non-healing foot fractures were becoming so painful and inflamed that she could rarely bear weight on them. Next, she suffered from two traumatic lower leg wounds; one enlarged to expose tendon despite 10 months of local wound clinic treatment, including CAMPS. AM's comorbidities ruled out grafting and HBO.

Methods: A mutual friend connected AM to the author for guidance in using polymeric membrane dressings (PMDs) to rescue her finger from amputation. PMDs alter the nociceptor response, even when used over intact skin.1–3 The resultant inflammation control makes the wound milieu more favorable to healing, relieves pain, and decreases inflammation-related edema, increasing circulation.4–6 Synergism between PMDs and the body leads to balanced wound moisture and powerful continuous atraumatic wound debriding, as well.3,7–10 All of these functions improve wound healing.4,10

After an initial rinse, AM applied PMD cavity filler and a finger-cot shaped PMD to prevent finger amputation beginning on 2016.08.16. AM began wrapping her feet with PMDs to control pain and inflammation on 2017.06.07. Management of the two leg wounds began on 2022.07.26. PMDs eliminated the need for rinsing; excessive dryness from scleroderma was addressed with drips of water at dressing changes. Prayer, nutrition, lymphedema control, and exercise were integral in AM's treatment.

Results: PMDs led to steady closure of all of four wounds, despite the CREST-syndrome scleroderma and prednisone. AM credited PMDs with controlling her foot pain and inflammation enough to allow her to walk short distances until shortly before her death at age 74.

Discussion: PMDs solved a wide variety of wound problems in a patient who had exhausted all other options. They also provided moderate pain and inflammation relief for AM's extremely damaged feet, significantly improving her quality of life.

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CS-147

Optimizing Surgical Wound Healing Through a Structured Protocol Utilizing Acellular Dermal Matrices, Placental Membranes, and Allograft Application

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Introduction: Chronic and complex lower-extremity wounds present ongoing challenges related to bioburden, tissue instability, and compromised vascularity. Surgical debridement followed by biologic modulation can significantly influence the trajectory of healing. This study describes a standardized operative and postoperative protocol through advanced surgical debridement techniques and biologic tissue application to optimize granulation, angiogenesis, and epithelialization in high-risk wound populations.

Methods: Patients presenting with nonhealing or recalcitrant lower-extremity wounds underwent operative excisional debridement to remove devitalized tissue and reestablish a viable wound base. Immediately post debridement, acellular dermal matrices (ADMs) and/ or full-thickness placental membranes were applied to supply structural scaffold and modulate inflammation respectively, while supporting angiogenic activity. Wound beds were reassessed at regular postoperative intervals. Once robust granulation tissue and evidence of improved vascularity were observed, serial applications of human split-thickness skin allograft were initiated. Allografts were utilized to promote epithelial migration and accelerate wound closure. Standardized dressing protocols and offloading strategies were maintained throughout care.

Results: Across treated cases, the protocol consistently resulted in rapid granulation tissue formation following application of ADM and/ or placental membrane. Progressive vascular improvement allowed One-week post-application: Posterior left leg ulcer measuring 103 cm^2. 12/18/2025 Six weeks post-application: Posterior left leg wound reduced to 18 cm^2. One-week post-application: TheraGenesis applied with negative pressure wound therapy in a patient recovering from necrotizing fasciitis. Wound measuring 72 cm^2 with tendon exposure. Four weeks post-TheraGenesis and one-week post-TheraSkin: Two weeks post-application: Full integration of Dermacell AWM with reduction in wound size to 61 cm^2. 12/23/2025 Eight weeks post-treatment: Wound reduced to 4 cm^2 with one application of Dermacell AWM and a 6 cm^2 TheraSkin graft. Patient achieved complete closure. TheraGenesis removed and wound irrigated in clinic. One application of TheraSkin and wound vac. Wound size reduced to 4 cm^2. One-week post-Matrion application: 12 cm^2 Matrion graft applied to the right foot with compression therapy. Patient achieved complete wound closure. Total healing time: six weeks predictable transition into the epithelialization phase. Serial human split-thickness allografts demonstrated strong adherence, supported sustained epithelial migration, and contributed to timely wound closure. Patients tolerated all procedures well, with no graft related adverse events observed

Discussion: A structured protocol combining operative debridement, biologic scaffold placement, and staged allograft therapy appears to

enhance wound bed optimization and support efficient epithelialization in complex lower-extremity wounds. This approach may provide a reproducible pathway for improving healing outcomes in surgically managed chronic wounds

CS-148

The Application of Fish Skin Substitutes on Traumatic Wounds, in Patient Population Over 65 Years of Age: A Case Study

Lori Honeyman, NP

Introduction: Traumatic wounds in the elderly are very common due to falls, balance issues and other age related comorbidities. These wounds are further compounded by physiological changes such as thinning skin and reduced healing capacity. Proper wound care for these individuals is often challenging due to mobility and transportation issues, as well as financial burden. The purpose of this case series is to highlight expedited healing rates post use of fish skin substitutes, on patients with traumatic wounds and other comorbidities.

Methods: 1). 77 yo female patient, presented with large necrotic hematoma, to posterior (L) upper arm post falling at home, 2 months prior. Post evacuation of hematoma, patient was placed on NPWT. When discontinued, the 1st fish skin substitute was applied. Two applications total were applied.2). 73 yo female, presented with a large, necrotic wound to LLE, after having been bitten by her friends Doberman, 3 weeks prior. Post surgical debridement, a wound culture was obtained. Patient was placed on a topical, compounded antibiotic solution per culture results. The first application of fish skin substitute was applied 4 weeks later. Ten days later, the second graft was applied.3). 76 yo female patient, presented with traumatic wound to occipital scalp, sustained from a fall, 2 months prior. Weekly debridement, and silver foam were used until patient was approved for fish skin substitutes (one month). Two applications total were applied, one week apart.

Results: None of the patients experienced any complications with fish skin substitutes. All reported decreased pain with application. Two total applications were used on each patient, and resulted in healing time of 7-8 weeks. These cases highlight how use of fish skin substitutes post employment of standard of care, expedited wound healing. While the initial therapies were necessary to ready the wound beds for application, prior to that point, wound dimensions were not significantly changed.

Discussion: These cases suggest that use of fish skin substitutes may accelerate healing in traumatic wounds in the elderly population, and should be considered as an adjunct to standard of care treatment to minimize complications such as infection, in this fragile population.

CS-149

Use of a Borate-Borate Based Bioactive Glass Matrix as an Adjunct for Adequate Limb Salvage

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Introduction: Diabetic Foot Ulcers (DFUs) continue to burden the healthcare system with high amputation and mortality rates.1 The purpose of this case was to highlight adequate limb salvage in a medically complex patient with a large DFU that tracked from the dorsal to plantar surface of the lateral right foot.

Methods: A 61-year-old male presented to the emergency department for complaints of cellulites with multiple DFUs, one on the lateral aspect of the dorsal mid foot and the second on the plantar surface below the second digit. The patient underwent right foot incision and drainage (I&D) of the deep space abscesses and debridement of nonviable tissue with washout. The likelihood of limb salvage was uncertain as the patient remained at high risk for a below-the-knee amputation (BKA) due to the severity of infection. A borate-based bioactive glass fiber matrix (BBGFM) was applied as an adjunctive treatment to achieve adequate limb salvage.

Results: After undergoing an initial I&D, cortical erosive changes were evident suggestive of osteomyelitis. Consent was obtained for a second I&D procedure with wide debridement and partial 2nd ray amputation of the right foot. On post operative day (POD)-three the BBGFM was applied along with vacuum assisted closure (VAC). The open surgical sites of the right midfoot and right lateral malleolus remained stable with discontinuation of the wound VAC on POD-five. With the surrounding erythema and edema resolved, as well as the wound base largely appearing fibrogranular, the patient was discharged on POD-6.

Discussion: This complex case highlights the use of a BBGFM alongside various treatment modalities in a large Wagner Grade III DFU, leading to adequate limb salvage and timely hospital discharge. These findings support the use of the BBGFM as part of a multimodal wound care strategy in challenging wounds.

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CS-150

Restoring Momentum in Stalled Wounds: A Three-Case Evaluation of Borate-Based Bioactive Glass Fiber Matrix Therapy

Martin Johnson

Introduction: Chronic lower-extremity wounds including diabetic foot ulcers (DFUs) and venous leg ulcers (VLUs) pose significant clinical and economic burdens due to their prolonged healing trajectories and high recurrence rates.1 Impaired perfusion, bacterial burden, and chronic inflammation often inhibit progression through normal healing phases.2 Bioactive glass technologies have emerged as promising adjuncts because they provide a scaffold which allows for infiltration and proliferation of native cells while maintaining sufficient space for native collagen deposition and the formation of new blood vessels.3 This case series describes the clinical response of three lower-extremity wounds treated with standard wound care supplemented with a borate-based bioactive glass fiber matrix (BBGFM).

Methods: Three adult patients with chronic wounds refractory to standard therapy were treated with BBGFM applied directly to the wound bed. Case 1 involved a right plantar DFU, Case 2 a left lower-extremity VLU, and Case 3 a nonspecific chronic lower extremity wound. All patients continued to receive guideline-based care including proper moisture balance, offloading or compression as indicated, and routine wound care follow-up. Wound area was assessed at baseline and weekly until closure or substantial improvement.

Results: Across all three cases, wounds demonstrated visible improvement following the introduction of BBGFM. The appearance of healthier granulation tissue, reductions in slough and exudate, and improved wound-bed quality conducive to epithelialization was evident. Each wound transitioned toward progressive healing after having previously shown a limited or stalled response under standard care alone. No treatment-related adverse events or local reactions were reported, and BBGFM was well tolerated in all patients.

Discussion: Across diverse wound types, the addition of BBGFM to standard care was associated with quality granulation, reduced wound size, and eventual closure. These findings align with prior evidence demonstrating that borate-based bioactive glass facilitates a scaffold conducive to tissue regeneration.3 Although limited by sample size, this case series highlights the potential clinical utility of BBGFM in managing refractory lower-extremity wounds.

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CS-151

Platelet-Rich Plasma in the Management of Chronic Lower Extremity Wounds: A Case Series

Peter M. Moyer, DPM

Introduction: Chronic diabetic foot and lower extremity ulcerations in medically complex patients often demonstrate delayed healing due to a combination of factors including diabetes, infection, structural deformity, impaired tissue perfusion, and systemic comorbidities. When wound progression plateaus under standard treatment protocols, biologic adjunctive therapies may help support the wound healing process and facilitate wound closure. Platelet-rich plasma (PRP) is an autologous biologic product containing concentrated platelets and associated bioactive factors and has been used it the treatment of chronic wounds. This case series evaluates the effectiveness of PRP as an adjunctive treatment for chronic lower extremity ulcerations in high-risk diabetic patients

Methods: A retrospective review was conducted on two diabetic male patients with chronic lower extremity wounds and significant medical comorbidities. Standard wound care included serial sharp debridement, moisture-balanced dressings, infection management, and strict off-loading utilizing a Controlled Ankle Motion (CAM) Walker Boot. One patient additionally underwent operative debridement for treatment of soft tissue and osseous infection. PRP was introduced when wound closure progression slowed under conventional therapy. Serial wound measurements were obtained throughout treatment assessing wound reduction and time to complete epithelialization

Results: Case 1 involved a 79-year-old male with type 2 diabetes mellitus and hypertension who presented with a chronic plantar hallux ulcer measuring 1.0 × 1.0 × 0.2 cm and present for four months. Following the first PRP application, wound dimensions decreased to 0.5 × 0.3 × 0.1 cm by Day 7. Complete epithelialization was achieved following three PRP applications by Day 28 and remained closed at seven-week follow-up. Case 2 involved a 67-year-old male with type 2 diabetes mellitus, gout, and rheumatoid arthritis, not on any immunosupressive drug therapy,presented with a chronic dorsal and plantar wound of the left fifth metatarsophalangeal joint following treatment of a soft tissue and bone infection which communicated dorsally and plantarly . Initial wound measurements were 4.2 × 0.5 × 1.0 cm dorsally and 1.0 × 1.0 × 0.5 cm plantarly. Progressive wound reduction was observed following initiation of PRP therapy, with approximately 50% reduction achieved within two weeks. Complete epithelialization of both wounds was achieved by Day 57 following nine PRP applications. Wound closure remained durable at nine-week follow-up without recurrence, drainage, or evidence of infection

Discussion: PRP was associated with successful closure of chronic wounds that had demonstrated limited progression under standard care. These findings support PRP as a safe, minimally invasive adjunctive therapy for complex diavetic lower extremity wounds and limb preservation efforts.

CS-152

Limb Salvage With Extensive Necrotizing Fasciitis of the Lower Extremity

Beth Myers; Shawn M Terry Dr, MD

Introduction: 56-year-old Caucasian female admitted with a two-week history of worsening pain and malodor from a wound on her right thigh. Her past medical history included remote hysterectomy and malignant hyperthermia. On admission, she was found to have a blood glucose level of 585 mg/dL and was newly diagnosed with type 2 diabetes mellitus. Imaging revealed extensive subcutaneous and intramuscular gas extending from the mid-thigh to the right gluteal region, knee and down to the medial ankle, consistent with necrotizing fasciitis. Emergent extensive operative debridement confirmed widespread muscle and fascial necrosis and was utilized to manage her septic shock.

Methods: The Soft Tissue Service provided wound management and performed serial debridements. The infection involved nearly the entire lower right extremity -- from the hip to the medial ankle -- requiring five operative debridements to achieve infection control. Subsequent wound management included the use of extracellular matrix (ECM) skin substitutes and negative pressure wound therapy (NPWT) throughout the treatment course. Due to the patient's history of malignant hyperthermia, appropriate perioperative precautions were implemented for every procedure.

Results: The right lower extremity wound demonstrated consistent improvement with each bi-weekly operative dressing change. After one month of inpatient care, adequate infection control and granulation tissue development allowed transfer to a rehabilitation hospital for continued wound management and physical therapy. The patient subsequently underwent staged split-thickness skin grafting at two separate settings, ultimately achieving complete wound healing within six months of her initial presentation.

Discussion: This case highlights successful limb salvage in the setting of extensive necrotizing fasciitis through a combination of aggressive surgical debridement and advanced wound care modalities. The use of ECM in conjunction with NPWT supported granulation tissue formation and prepared the wound bed for eventual grafting despite the extensive tissue loss. Despite the added perioperative challenges posed by malignant hyperthermia, the patient achieved full wound closure within six months. This case underscores the value of innovative wound management strategies in treating large soft tissue defects caused by severe infections.

CS-153

A Case Study on the Evidence of a Hypoperfusion-Related Skin Failure Phenomenon in Critical Care Settings at a Level II Trauma Center

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Introduction: A wound, ostomy, continence (WOC) nursing team at a multi-hospital system in Upstate New York suggest the hypothesis that there is a correlation that exists between hypoperfusion-related skin injury in critical care patient conditions and the use of perfusion medications. Skin death, skin failure at end-of-life, tissue death, or skin injury have been described in literature (Cox & Roche, 2015; Ramalho et al., 2021; Levine et al., 2022), however, few have studied this condition in critical care settings and relate specific diseases and medications that could be possible contributing factors.

Methods: The design for this study was a retrospective chart review. During a three-month time-period in 2024, wounds that developed with defined criteria were reported and trended. The inclusion criteria of patients 18 years of age and over and wounds that developed in critical care settings were evaluated.

Results: Twelve (12) patients met inclusion criteria for this study. From these 12, common diagnoses were identified and scored. Diagnoses that affected the skin were: Multi-organ failure that included respiratory failure, N&#3f11, and patients who were ventilator dependent greater than 72 hours, N&#3f10. Other conditions such as shock/severe sepsis from various sources scored high, N&#3f9. Renal and liver failure, acute and chronic renal failure, generalized altered perfusion and hypovolemia, and COVID-19, were also contributing medical diagnoses.

Specific medications that relate to vital organ perfusion were evaluated as well. Two medications that were used often were fentanyl and norepinephrine, N&#3f10. Other medications that played a role in possible perfusion conditions were precedex, N&#3f7, propofol, N&#3f6, and vasopressin, N&#3f5. Other medications that were evaluated included: epinephrine, dobutamine, lorazepam, and morphine, N&#3f2.

Discussion: These findings indicate that patients in critical care settings can develop hypoperfusion-related skin injuries from their systemic conditions and multi-organ involvement despite best practice nursing interventions for pressure injury prevention. Certain perfusion medications to support the vascular status of critical care patients may hinder skin perfusion leading to hypoperfusion wounds. Further and larger studies are recommended to correlate conditions and medications, develop programs in acute care to differentiate hypoperfusion-related skin injuries.

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CS-154

Treatment of a Rare Retroperitoneal Lipoma Conjointly With a Femoral Hernia: A Case Report on Accelerated Recovery Using Fish Skin Biologic

Michael S. Romberg, MD, FACS

Introduction: Retroperitoneal lipomas are relatively rare and have nonspecific clinical manifestations. Only few cases presenting as femoral hernias have been reported. We report an extremely rare case of retroperitoneal lipoma presented as femoral hernia. Exact surgical approach varies by defect's location and underlying cause. Fish skin graft (FSG) a unique biologic scaffold rich in Omega3 fatty acids that regulate inflammatory cytokines curbing excessive inflammation promoting cellular ingrowth and neovascularization which aids faster tissue formation, vascularization. Hypothesize that FSG can be used as part of surgical intervention for hernia repairs as this decreases incidence of seroma formation and risk of potential infection.

Methods: 56-year-old female presents left sided sharp pain over past few months. CT shows retroperitoneal lipoma through lateral femoral hernia. Dissected laterally underneath inguinal ligament and identified large femoral hernia lateral to vessels. Large piece of fat coming out of hernia bluntly dissected and removed. 10 cm specimen removed. Femoral defect plugged with mesh and placed over floor of the inguinal canal. Tacked medially to pubic tubercle and then inferiorly to shelving edge of Poupart's ligament. Tacked superiorly to conjoined tendon and covered entire floor as round ligament was previously removed. External oblique was closed. Attempted to cover over the plug but a soft tissue defect was concerning for seroma formation so 7 x 3 cm. FSG sutured over external oblique and femoral hernia repair. Sutured closure, steri strips and pressure dressing in place.

Results: Retroperitoneal lipomas sometimes grow to the groin area. Complete resection and repair of the defect are important in surgery. Although tumor was separated from surrounding structures, defect of inguinal tissue was extensive because of tumor's size, so mesh & FSG were used to repair the defect. Wound closure in one month. Scarring was minimal. No complaints of infection or seroma formation.

Discussion: Retroperitoneal lipomas are rare and have different clinical manifestations. Surgery is the only treatment for large lipomas. For extensive tissue defects, mesh should be selected to prevent postoperative herniation. FSG are highly effective for hernia repairs and complex abdominal wall reconstruction because they act as a natural, regenerating scaffold. FSG retains natural omega-3 fatty acids, suppressing inflammation, promote cellular growth, and fights off bacterial infections. Retained omega-3 in grafts provide anti-inflammatory effects and aid in healing allowing surrounding tissue to naturally reabsorb excess exudate before a seroma forms. FSG fills voids where fluid would otherwise collect and pool; preventing seroma formation

CS-155

Multimodal Limb Salvage in a Complex Postoperative Ankle Wound With Chronic Osteomyelitis: Use of Adjunctive Human Umbilical Cord Allograft

Richard Sevilla; Allyn Forsyth, PhD

Introduction: To describe the management of a chronic postoperative anterior ankle wound complicated by refractory osteomyelitis using a multidisciplinary limb-salvage approach that incorporated serial debridement, hyperbaric oxygen therapy (HBOT), compression, offloading, and human umbilical cord allograft application.

Methods: A 64-year-old male with multiple comorbidities, including morbid obesity, coronary artery disease, hypertension, obstructive sleep apnea, chronic pain, hyperlipidemia, and active tobacco use, developed a chronic nonhealing surgical wound following multiple left foot and ankle reconstructive procedures, including total ankle arthroplasty complicated by chronic osteomyelitis. The ulcer presented with exposed tendon, bone, and hardware. Initial evaluation demonstrated a full-thickness anterior ankle wound measuring 5.4 × 2.4 × 0.5 cm with necrotic tissue, moderate drainage, edema, slough, and mixed granulation tissue. The wound had failed to achieve greater than 50% reduction after four weeks of standard care, including serial debridement, infection surveillance, edema control, compression therapy, nutritional support, vascular assessment, and negative pressure wound therapy. Following sharp excisional debridement and wound bed preparation, dehydrated human umbilical cord allograft (EPICORD) was applied. Adjunctive therapies included HBOT for chronic osteomyelitis, compression therapy, advanced dressings, limb elevation, and structured offloading with a walker and knee scooter.

Results: Progressive wound healing was observed during treatment, characterized by reductions in wound dimensions, depth, and overall volume. Granulation tissue increased while devitalized tissue burden decreased following serial debridement and allograft application. No tunneling, undermining, malodor, or signs of worsening infection were noted. The patient tolerated treatment well, with documented improvements in tissue viability, exudate control, and wound appearance. Negative pressure wound therapy was subsequently discontinued because of favorable healing progress. Ongoing goals included prevention of infection, optimization of tissue oxygenation, preservation of limb function, and achievement of complete wound closure.

Discussion: This case highlights the potential benefit of incorporating human umbilical cord allografts into a comprehensive limb-salvage strategy for complex postoperative ankle wounds complicated by chronic osteomyelitis. In a medically complex patient who failed standard therapy, the addition of human umbilical cord was associated with meaningful healing progression and continued limb preservation. These findings support the role of multimodal advanced wound care in managing high-risk lower-extremity surgical wounds with exposed deep structures and chronic infection

CS-156

Successful Salvage of a Free Floating Tibialis Anterior Tendon With Bilayer Wound Matrix Using a "Mesentery" Technique: A Case Report

Jeremy Silk; Leta Messenger, RN

Introduction: Highly complex patient with severe chronic venous stasis presented with severe combination pressure ulcer with exposed, free floating tibialis anterior tendon

Methods: The patient was successfully treated with Integra Bilayer wound matrix using a "mesentery" technique to allow the tendon to generate circumferentially and adhere to the tibia. The technique involved wrapping the tendon circumferentially with dermal matrix and then securing it to the tibial periosteum

Results: Successful functional salvage of the tibilalis anterior tendon

Discussion: Free floating tendons which are not in contact posteriorly with the surrounding tissues are associated with very high loss rates and

pose a difficult clinical challenge, this method provided successful salvage in a highly complicated scenario

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CS-157

Advanced Management of Chronic and Post-Surgical Diabetic Foot Wounds Using a Borate-Based Bioactive Glass Fiber Matrix

Gian Steinhauser, DPM

Introduction: Chronic diabetic foot ulcers (DFUs) present significant clinical challenges, particularly when refractory to standard care or complicated by surgical interventions. Persistent fibrotic tissue, structural deformities, and prior treatment failures often prolong healing and increase risk for infection and amputation.1 Borate-based bioactive glass fiber matrices (BBGFM) have demonstrated potential in supporting wound healing through modulation of the wound environment and facilitation of tissue regeneration.2 This report describes two complex DFU cases treated with BBGFM after prolonged conventional therapy or surgical complications.

Methods: Two patients with complex DFUs were treated with BBGFM alongside standard wound care protocols. Case 1 involved a 52-year-old female with a chronic right foot ulcer refractory to enzymatic debridement, collagen dressings, and advanced wound care for over six months. The wound measured 5 × 4.5 × 1.5 cm with an additional 1.2 cm plantar probe along the flexor hallucis longus tendon sheath, with 100% fibrotic wound base. Case 2 involved a 68-year-old male with Charcot midfoot deformity on the right side. Following a triple arthrodesis with external fixation, the patient developed medial and lateral foot ulcer dehiscence of the right foot. BBGFM was applied periodically to each wound, with frequency guided by clinical assessment of wound bed status.

Results: In Case 1, progressive wound healing was observed after approximately 21 BBGFM applications, with complete wound base area closure. In Case 2, significant closure of the dehisced DFU sites was achieved after 11 applications of BBGFM, with evidence of healthy tissue regeneration and resolution of exposed structures. Both patients tolerated treatment without adverse events, and clinical assessment indicated readiness for eventual device removal of the external fixator in case 2.

CS-158

Progressive Skin Necrosis Following Circumferential Traumatic Degloving Injury of the Proximal Thigh: A Staged Approach to Limb Salvage and Wound Closure

Hadiza Suleiman; Oikeh Ojeamen DR, MBBS,FWACS,FMCP

Introduction: Traumatic degloving injuries are uncommon high-energy soft tissue injuries associated with significant morbidity and complex wound management challenges. Assessment of tissue viability in the acute phase may be difficult, and delayed skin necrosis can occur despite early intervention. This report describes the evolution and management of an extensive circumferential proximal thigh degloving injury following a road traffic crash.

Methods: A 30-year-old man sustained a circumferential open degloving injury involving the proximal right thigh and groin following ejection from a vehicle during a high-energy road traffic collision. Initial examination revealed a 50-cm circumferential wound with exposure of fascia and anterior thigh musculature. Following trauma resuscitation, the wound was irrigated, loosely approximated with interrupted sutures, and managed with a closed-suction drain. Prophylactic antibiotics, tetanus prophylaxis, venous thromboembolism prophylaxis, analgesia, and blood transfusion for acute blood loss anemia were administered. Serial clinical assessments were performed throughout admission.

Results: Initial wound appearance suggested preservation of soft tissue viability. Drain output progressively decreased to less than 10 mL of serosanguinous fluid by postoperative day 3, permitting drain removal. However, over subsequent days, progressive skin discoloration, edema, blister formation, and development of necrotic skin islands occurred across both the anterior and posterior thigh, indicating evolving full-thickness skin necrosis. Serial sharp debridement of nonviable tissue was performed, followed by daily honey-based wound dressings. Progressive granulation tissue formation resulted in a clean, well-vascularized wound bed measuring 40 × 30 cm. Definitive reconstruction was achieved with meshed split-thickness skin grafting and limb immobilization. Graft assessment on postoperative day 7 demonstrated approximately 97% graft take without evidence of infection or graft loss.

Discussion: Traumatic degloving injuries may undergo progressive ischemic demarcation despite apparently satisfactory initial management. This case illustrates the limitations of early visual assessment of skin viability and emphasizes the importance of vigilant serial reassessment in acute wound care. Timely recognition of evolving necrosis, aggressive debridement, and optimization of the wound bed facilitated successful delayed reconstruction. Honey-based wound management supported granulation tissue development and preparation for grafting. A staged treatment strategy incorporating repeated viability assessment, debridement, wound bed optimization, and delayed skin grafting can achieve excellent outcomes in extensive circumferential degloving injuries of the lower extremity.

CS-160

A Borate-Based Bioactive Glass Fiber Matrix for Accelerated Closure of a Dehisced Left Below-Knee Amputation Stump: A Case Report

Linsday Wolf, APRN, ACNP-BC, WCC, WCS-C, EDS-C

Introduction: Surgical wound dehiscence following lower-extremity amputation represents a significant clinical challenge, particularly in patients with type 2 diabetes mellitus and compromised wound healing. Borate-based bioactive glass fiber matrix (BBGFM) use has emerged as a promising wound care modality due to its ability to facilitate angiogenesis, leading to well vascularized granulation tissue. This case report describes the application of BBGFM to a dehisced left below-knee amputation stump with concomitant pressure ulcers in a 62-year-old female with diabetes.

Methods: The patient presented with three active wounds on the left lower extremity: a surgical dehiscence of the distal dorsum (onset 01/06/2026, 1.7x3.1x1.5cm, SA 5.27 cm^2), a Stage II pressure injury on the proximal dorsum (onset 12/29/2025, 4.2x3.2x0.1cm, SA 13.44 cm^2), and an unstageable pressure injury with slough/eschar on the left heel (onset 12/29/2025, 1.6x2.3x0.1cm, SA 3.68 cm^2). BBGFM was applied as an adjunct to standard wound care, which included cleansing with antibacterial soap and water, packing with Vancomycin/Gentamicin solution-moistened gauze, and cast padding with rolled gauze secured with tape and bandages. Wounds were assessed at each skilled nursing visit (3x weekly) over a 10-day period

Results: Wound #1 demonstrated a 47% reduction in depth (1.5cm to 0.8cm) and granulation tissue increased from < 25% to 75–100% within 10 days. Notably, the patient reported that tunneling of 1.6 cm at the 3–6 o'clock position closed rapidly after a single application of BBGFM, with slight undermining resolving concurrently. Wound #2 showed a dramatic 74% reduction in surface area (13.44cm^2 to 3.5cm^2) with epithelialization reaching 100% by day 4. Wound #3 maintained stable dimensions with suspected deep tissue injury (DTI) confirmed on subsequent visits. No signs or symptoms of infection were observed across any wound site throughout the treatment period, and the patient denied pain or discomfort at all visits.

Discussion: BBGFM demonstrated remarkable efficacy in accelerating wound closure of a dehisced amputation stump, with particularly rapid resolution of tunneling after a single application. The combination of robust granulation tissue formation, significant depth reduction, and

dramatic surface area decrease supports the use of BBGFM as a valuable adjunct in complex wound management for diabetic patients with compromised healing capacity.

CLINICAL RESEARCH

CR-001

Improvement in Postoperative Skin Quality and Scar Appearance Using a Barrier-Enhancing Topical Cream: A Prospective Pilot Study

Stephanie Amaya; Mohanad Eltahir, DPM, DABPM, AACFAS; Michelle L Pham, DPM

Introduction: Skin barrier dysfunction following surgical procedures is characterized by xerosis, inflammation, impaired hydration, and compromised epidermal integrity. This study evaluated a multi-ingredient topical formulation containing 25% urea, lactic acid, omega-3 and omega-6 fatty acids, shea butter, hyaluronic acid, ceramide NP, vitamins C and E, and essential mineralsfor the management of post-surgical dry and damaged skin. These components have been shown to support barrier repair, hydration, and anti-inflammatory activity, and may reduce pruritus, scaling, and hypertrophic scar risk during later-stage wound healing.

Methods: Seven postoperative patients undergoing forefoot, hindfoot, or lower leg procedures were enrolled following screening and informed consent. Barrier repair cream was initiated after suture removal and applied for 21 days. Clinical assessments were performed at baseline (Day 1) and Day 21 using a standardized 0–3 scale (0 = none, 3 = obvious) evaluating redness, flaking, scarelevation, dryness/tightness, itching, and stinging/burning. Patient-reported outcomes and photographic documentations were also obtained. Mean scores, standard deviations, and mean change (Δ) were calculated.

Results: All parameters improved over the 21-day period. Flaking demonstrated the greatest reduction from 1.86 ± 0.90 to 0.29 ± 0.49 (Δ = -1.57), followed by scar elevation (1.86 ± 1.07 to 0.43 ± 0.53; Δ = -1.43). Redness and dryness/tightness each improved by 1.0 point, while itching and stinging/burning decreased by 0.57 points each. Overall symptom severity decreased from 1.36to 0.34, representing a 75.2% reduction. A reduction in standard deviation across multiple parameters suggested more consistent healing outcomes post-treatment.

Discussion: In this pilot study, the barrier repair cream demonstrated substantial improvements in postoperative skin quality and symptom burden following suture removal. The greatest effects were observed in flaking, scar elevation, and barrier-related symptoms. These findings suggest that the barrier repair cream may serve as a beneficial adjunct in postoperative incision care and scar management. Larger controlled studies are warranted to validate efficacy and define optimal clinical application timing and patient selection.

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CR-005

Wound Exudate Severity and Time to Complete Healing in Diabetic Foot Ulcers: A Real-World Retrospective Cohort Study

David Armstrong; Grace Gahlon, PhD; Vladica Velickovic, MD, PhD; Yun Han, PhD; Niuosha Sanaeifar, PhD; Shelby Corman, PhD; Peter Gloviczki, PhD; Jan Kottner, PhD; Kenneth Rothman, PhD

Introduction: Diabetic foot ulcers (DFUs) often remain chronic despite guideline-based care. Excess exudate may reflect protease-rich inflammatory wound fluid and impaired moisture balance, but the magnitude of its association with time to healing in routine DFU care is poorly quantified. This study estimated the association between exudate amount and complete DFU healing.

Methods: Adults treated for DFUs in United States outpatient wound-care centers during 2002-2020 were identified from a large longitudinal electronic health record database. Eligible wounds had baseline area 2.0-100.0 cm^2 and at least one follow-up visit. Exudate amount was categorized at each visit as none, mild, moderate, or heavy and modeled as a time-varying exposure. The outcome was complete healing, defined by documented wound closure, resolution, or treatment completion. To address time-varying confounding and informative censoring, marginal structural models were fit using stabilized inverse probability treatment and censoring weights. Weighted Royston-Parmar flexible parametric survival models estimated hazard ratios (HRs) for healing, counterfactual healing probabilities, and restricted mean survival time (RMST).

Results: The cohort included 8,176 patients contributing 14,743 DFUs (mean age, 62.4 years; 66.5% male). Compared with no exudate, increasing exudate severity was associated with progressively lower healing hazards: HR for mild 0.11 (95% CI, 0.09-0.12), moderate 0.06 (0.05-0.07), and heavy exudate 0.012 (0.006-0.019). Estimated 52-week healing probabilities were 99.1%, 39.6%, 25.4%, and 5.3% for no exudate, mild, moderate, and heavy exudate, respectively. At 52 weeks, RMST was 66.6 days unhealed for no exudate versus 276.9, 309.8, and 353.0 days for mild, moderate, and heavy exudate, corresponding to 210.3, 243.2, and 286.4 additional unhealed days, respectively. Sensitivity analyses were consistent with primary results. Late-horizon estimates were model-based, given median observed follow-up of 55 days.

Discussion: In routine outpatient care, exudate severity showed a strong, graded association with healing. These findings should be interpreted as prognostic associations across the exudate gradient, rather than a causal treatment effect. However, persistent exudate may reflect and contribute to a biologically active wound environment that promotes chronicity, supporting the importance of exudate management. Systematic exudate assessment may help identify high-risk DFUs earlier, and effective exudate management should be prioritized within comprehensive wound-care pathways. Prospective studies using standardized and quantitative exudate measures are warranted.

CR-006

Patient-Reported Outcomes and Wound-Related Quality of Life in Adults With Diabetic Foot Ulcers Treated With Silicone Superabsorbent Polymer Dressings: A Prospective Multicenter Cohort Study

David Armstrong; Jacek Bil, PhD; Patrycja Buczak, PhD; Alexandra Lipinski, MD, PhD; P Lipinski, MD, PhD; Jacek Mikosinski, PhD; Konrad Panczak, PhD; Dorota Piechota, PhD; Anitha Pitchika, PhD; Teresa Szenk, PhD; Vladica Velickovic, MD, PhD; Adam Wegrzynowski, PhD; Sebastian Probst, PhD

Introduction: Diabetic foot ulcers (DFUs) are associated with impaired health-related quality of life (HRQoL), mobility limitations, dressing burden, and delayed healing. Although wound closure remains a key endpoint, patient-reported outcomes (PROs) are increasingly recognized as essential for evaluating the overall effectiveness and acceptability of DFU

management strategies.. We described wound healing, wound-related quality of life, perceived treatment benefit, function, and safety in adults with superficial, noninfected DFUs treated with silicone superabsorbent polymer dressings*.

Methods: This exploratory prospective multicenter nonrandomized cohort study evaluated the DFU subgroup of a broader single-arm investigation at eight specialist wound-care centers. Adults with one chronic exuding superficial full-thickness DFU received silicone superabsorbent polymer dressings* for up to 6 weeks with standard offloading. PROs included Patient Benefit Index for wounds (PBI-W) and Wound Quality of Life questionnaire (Wound-QoL-17), collected at baseline and final visit. Wound area was assessed by centralized digital planimetry before and after cleansing/debridement. Secondary endpoints included at least 20% wound area reduction, complete epithelialization, accelerometry-based activity, offloading adherence, and safety.

Results: Twenty-eight participants were included (75.0% male; mean age, 63.4 years); median wound duration was 166 days. By final visit, at least 20% wound area reduction was achieved by 21/27 evaluable participants (77.8%) before cleansing/debridement and 24/28 (85.7%) after cleansing/debridement. Complete epithelialization occurred in 6/28 participants (22.2%). Mean global Wound-QoL improved from 2.4 ± 0.6 to 1.5 ± 1.0 (mean change, -1.0 ± 0.8; P< 0.001), with greatest improvements in psyche and everyday-life domains. Mean PBI-W increased from 2.44 ± 0.94 to 2.94 ± 0.87 (mean change, 0.45 ± 1.10; P=0.043). Activity intensity remained stable, offloading adherence exceeded 95%, and no potentially device-related adverse events or device deficiencies were reported in the DFU subgroup.

Discussion: In this exploratory cohort of adults with DFUs, treatment within a structured specialist-care pathway that included silicone superabsorbent polymer dressings was associated with clinically meaningful wound improvement and improved patient-reported outcomes over six weeks. Because of the small sample size and absence of a comparator group, improvements cannot be attributed solely to the dressing intervention. Future comparative studies should determine whether observed improvements exceed established thresholds for clinical importance and should incorporate health-economic and resource-use outcomes.

CR-007

A Clinical Evaluation of a New Negative Pressure Wound Therapy Dressing Incorporating a Negative Pressure Distribution Layer

Thomas Baboolal; Jonathan Minton, PhD; Anne Swearingen, MSN, DBA

Introduction: Negative Pressure Wound Therapy (NPWT) is an effective, widely used intervention (1). Single use NPWT (sNPWT††) has been shown to have superior outcomes to traditional NPWT (tNPWT) in the reduction of wound area, depth and volume (2). These proven benefits are attributed to proprietary technology delivering a unique mode of action, distributing negative pressure across the wound and peri-wound area (3). A new, innovative dressing option, tNPWT+DL†, combines the technology of tNPWT and sNPWT designed to provide improved fluid handling and promote a more optimal healing environment.

Methods: A pilot observational study was conducted to evaluate the performance and usability of a new tNPWT+DL† dressing in the management of chronic and acute wounds. The primary objective evaluated the percentage of wounds progressing to healing at 3-weeks. Secondary objectives included changes from baseline in wound area and volume, granulation tissue, and patient reported pain on dressing removal. Patient and clinician satisfaction was also measured.

Results: Seven subjects (eight wounds) were enrolled, five wounds completed the study. All wounds were reported as progressing towards healing, and demonstrated a reduction in volume [median 60.0%, range (35.0 – 100%)] and area [median 39.1%, range (17.4 – 93.3%)]. Granulation increased over time, with five wounds demonstrating high levels or near complete epithelialization at final assessment. Subject reported pain on dressing removal was low for all subjects [median VAS score of 1.00 (range 0.00 – 10.0, 36 observations]. Patient satisfaction was high, 100% of FU assessments (13 observations, 5 subjects) reporting satisfaction or high satisfaction with comfort, conformability, and overall experience. Clinician-rated ease of use was favorable, all dressings achieved a seal on first application and 86.7% (n=15) of applications rated as easy or very easy. The dressing met or exceeded clinician expectations in all five subjects completing the study.

Discussion: The findings suggest that the treatment was associated with progression toward healing, reduction in wound size, area and volume; and increase in granulation tissue. High levels of clinician satisfaction; including ease of use and overall performance compared to their existing system, supports the tNPWT+DL† dressing acceptability in clinical practice. Patient responses were highly favourable.

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CR-008

Comprehensive Management Strategies for Lower Extremity Degloving Injuries: A Systematic Review

Leah Barnhardt; Amanda Abdelsamad, MS; Faith Conover, B.S.; Taylor Kreul, BS; Roy Levy, BS; Heidi Pina, MS; Michael Ruta, BS; Robert Unger, M.S.; Jimmy Chim, MD

Introduction: Lower extremity degloving injuries are catastrophic, high-energy trauma events involving extensive soft tissue avulsion, often complicated by neurovascular compromise, large wound beds, and infection risk. Optimal management requires multidisciplinary expertise to balance functional, aesthetic, and long-term outcomes. This systematic review synthesizes current evidence on management strategies to provide a practical framework for clinical decision-making.

Methods: A systematic review of 100 studies, conducted in accordance with PRISMA guidelines, evaluated surgical and non-surgical techniques for lower extremity degloving injuries. Articles were categorized into key management strategies, including flap techniques, skin grafting, matrix-based reconstruction, revascularization, and minimally invasive approaches. Outcomes assessed included wound healing, functional recovery, and complications.

Results: Multi-pedicle, perforator, and free flaps emerged as the gold standard for extensive injuries requiring robust coverage, with free anterolateral thigh flaps demonstrating superior durability in weight-bearing regions. Split- and full-thickness skin grafts remained effective for less complex, non-weight-bearing wounds. Biologic grafts and acellular dermal matrices facilitated coverage of exposed tendon and bone when flap surgery was contraindicated. Revascularization techniques, including arterialized venous flaps, reduced necrosis rates and improved tissue viability. Minimally invasive adjuncts such as negative pressure wound therapy and liposuction were particularly useful in managing Morel-Lavallée lesions, while indocyanine green angiography improved perfusion assessment intraoperatively and reduced flap loss. Combining negative pressure wound therapy with staged grafting or dermal matrices enhanced granulation and supported closure in more severe, multi-stage cases. Emerging techniques, including biodegradable temporizing matrices and synthetic electrospun fiber matrices, showed promise in reducing infection and expediting recovery.

Discussion: This review suggests a practical decision framework: flap-based reconstruction, particularly free anterolateral thigh flaps, should

remain first-line for extensive, weight-bearing defects, while skin grafts and biologic matrices offer effective alternatives for less complex or non-weight-bearing wounds, especially when flap surgery is contraindicated. Incorporating indocyanine green angiography into intraoperative workflow allows real-time perfusion assessment that can reduce flap loss and should be considered standard practice where available. Substantial heterogeneity across study methodologies limits direct comparison between techniques and underscores the need for standardized reporting and prospective comparative trials. Until then, individualized, multidisciplinary decision-making remains essential to optimizing outcomes in this complex injury population.

CR-009

YouTube and TikTok as Information Sources for Pressure Injury Care at Home: A Cross-Sectional Analysis of Content Quality Using Validated Tools

Barbara M. Bates-Jensen, PhD, RN, WOCNF, FAAN; Aquill H. Francisco

Introduction: Pressure injuries are skin and tissue damage caused by pressure and shear, most often on sacrum and heels. Many are community-acquired, with family caregivers providing care. Consumers frequently seek health information online, with YouTube and TikTok the two largest platforms. Research shows the quality of health information on these platforms is often poor. Purpose: To evaluate the content and quality of YouTube and TikTok videos on pressure injury care at home.

Methods: YouTube and TikTok were searched using the following date filter (1/1/2023 – 11/17/2025) and key terms: pressure injury care at home step-by-step (n=164; YouTube) and pressure injury care at home tutorial (n=260; TikTok). Videos over 4 minutes, non-English, aimed at professionals, and product promotions were excluded, 12 YouTube and 67 TikTok videos remained for analysis. Each video was then evaluated independently by two reviewers using the Global Quality Scale (GQS), DISCERN criteria, and Patient Education Materials Assessment Tool for Audio/Visual Materials (PEMAT-A/V).

Results: A total of 10 YouTube and 63 TikTok videos were included in the final analysis. The overall content of videos from both platforms was poor with only 5 videos rated high quality by GQS. When stratified using GQS criteria, a greater proportion of TikTok videos fell in low-quality compared to YouTube. YouTube videos demonstrated a higher PEMAT actionability score compared to TikTok. Although 82% of all videos met the PEMAT threshold for understandability, DISCERN and GQS scores remained similarly poor, indicating that videos across platform are unreliable and of low-quality content. DISCERN scores significantly correlated with GQS, PEMAT-understandability and PEMAT-actionability, suggesting alignment across scoring tools.

Discussion: Because consumers use YouTube and TikTok for health information, the accuracy of pressure injury care content is critical. Health professionals should recognize variable quality and contribute accurate, current information to these platforms to increase information quality for consumers. Implications: Variable video quality highlights the need for stronger content oversight and promotion of evidence-based resources. Collaboration among academics, clinicians, and content creators may improve instructional value. Family caregivers should be cautioned about relying on these platforms.

CR-010

Characterizing Dataset Bias and Contextual Confounding in Medetec, a Public Wound Image Database: Implications for Safe and Reliable Medical AI Training

Christie Bergerson; Scott Lucas, Ph.D.; Jim Martucci, NA; Sandra Myint, RN

Introduction: Public clinical image datasets are widely used to develop artificial intelligence (AI) systems intended for clinical decision support. However, limited characterization of these datasets may allow biases and confounding to propagate into deployed systems, potentially undermining safety, equity, and clinical trust.The objective of this study was to characterize the Medetec wound image database and identify possible sources of bias, contextual confounding, and structural risk that may affect the development and evaluation of wound-related AI systems. This work will enable informed image selection for specific AI applications and guide when and how targeted dataset supplementation may be needed to strengthen model training.

Methods: All 609 images in the Medetec database were manually reviewed and annotated across clinical, demographic, anatomical, and image-context variables, including wound characteristics, body part, inferred skin color and age group, and the presence of dressings, measurement tools, devices, or other non-clinical visual elements. Analyses were descriptive and conducted at the image level.

Results: The dataset exhibited substantial imbalance across multiple dimensions. Images predominantly depicted light skin tones (92.1%, 561/609 images), adult patients (92.6%, 564/609 images), and lower-extremity wounds (78.0%, 475/609 images). Demographic characteristics were unevenly distributed across wound categories, creating potential confounding between patient attributes and clinical labels. Non-clinical contextual elements were common, including dressings (51.1%, 311/609 images), fabric/drapes (49.8%, 303/609 images), measurement tools (19.5%, 119/609 images), hands (17.6%, 107/609 images) or devices (23.3%, 142/609 images). Case-level clustering was observed, with some patients contributing up to 16 images, creating a risk of data leakage if not controlled.

Discussion: Contextual signals and demographic bias within the Medetec dataset may influence model behavior, so targeted supplementation may be needed to match intended use and support more robust, transparent, clinically meaningful models.

CR-011

Multicomponent Reduced Compressiontherapy and TLC-NOSF Dressings in Leg Ulcers With or Without Arterial Component

Serge bohbot; Debashish Chakravarthy, PhD; Rodrigo Rial, Doctor

Introduction: This study was performed to assess the clinical performance of a multicomponent reduced compression system(applying ~20mmHg) and dressings based on lipido-colloid technology with nano-oligosaccharide factor (TLC-NOSF) in the management of patients with venous leg ulcers (VLUs) and mixed leg ulcers (MLUs with arterial component).

Methods: A prospective, multicentre, non-comparative clinical trial was conducted in the Angiology and Vascular Surgery Units in three hospitals in Madrid, Spain. Adults with VLUs or MLUs, confirmed by an ankle–brachial pressure index >0.6, were treated with UrgoK2 LiteLatex Free and UrgoStart dressings (both Laboratoires Urgo, France)for 12 weeks. The primary endpoint was complete ulcer closure by week 12. Secondary endpoints included time-to-heal, change in wound area, leg oedema resolution, change in ankle circumference, ease of application and adherence to compression therapy, adverse events (AEs), and acceptability of the treatment strategy.

Results: A total of 45 patients with LUs (mean age 70.0 years; 64%male; 44% obese) were included. Based on vascular assessment,24 patients had VLUs and 21 had MLUs, associated with leg oedema in 89% of cases. The LUs were recurrent in 60% of cases, and lasted≥6 months in 58% of cases. The wound areas were relatively large(median value: 9.4cm², interquartile range (IQR): 5.9–11.8cm2), and mostly covered by sloughy tissue. Impaired perilesional skin was reported in 93% of patients. By the final visit, 71% of VLUs had healed,25% had improved and 4% remained unchanged. Despite an initial poorer healing prognosis than for VLUs, 43% of MLUs healed and 43%improved. The median time-to-heal was nine weeks (IQR: 6–11 weeks),with no relevant difference between the two types of leg ulcer (LU).

Discussion: These good healing progressions were also supported by consistent and steady reductions in wound surface area throughout the 12 weeks of treatment, regardless of LU aetiology, resulting in a relative wound area reduction of 100% (median value; IQR: 93.8–100.0%) in VLUs and98.6% (median value; IQR: 55.6–100.0%) in MLUs. Leg oedema

resolved in all patients by week 8 (except two missing data), while mean ankle circumference reduced from 24.5±2.7cm at baseline to21.4±2.4cm at final measurement. The application of the compression system was judged 'very easy' in 85% of cases and 'easy' in 15%. Full adherence to compression therapy was reported in 80% of patients during the first weeks of treatment and increased to 97% by week 8.

CR-012

Evaluation of the Efficacy and Tolerance of the Multi-Component Reduced-Compression System for Venous Leg Ulcers

Serge Bohbot; Joy Tickle, Dr

Introduction: This study assessed the benefits of the multi-component reduced-compression system (20 mmHg) in patients presenting with venous leg ulcers (VLU). The primary focus is on wound healing rates over 4-12 weeks of treatment, while secondary outcomes assess local tolerance, specifically the occurrence of adverse events.

Methods: This retrospective, non-comparative, multi-center study collected data on patients treated with the multi-component reduced-compression system across three NHS sites in the United Kingdom. Medical records of 100 patients with VLU, treated as part of standard care from January to June 2024, were reviewed. Inclusion criteria include patients aged 18 or older, treated in an outpatient setting, with an ankle-brachial pressure index (ABPI) between 0.8 and 1.3. Baseline data captured demographics, comorbidities, venous disease history, and ulcer characteristics.

Results: Primary outcomes focus on wound healing (defined as 100% epithelialization) within 4-12 weeks were a high percentage of VLUs were healed. Secondary outcomes involve clinicians' and patients' acceptability of the reduced-compression system that was very positive due to due to the benefits of early intervention of care in accordance with the National Wounds Care Strategy recommendations.

Discussion: This study provide insights into the potential benefits of the multi-component reduced-compression system in managing VLUs in diverse patient populations such as low compliance patients or patients whereby ABPI is yet to be performed, is difficult, or delayed due to local service demands. This evaluation may enhance patient outcomes through optimized wound care strategies adapted for all patients.

CR-016 (RPT-005)

Multimodal Near-Infrared Spectroscopy and Infrared Thermography in Malignancy-Associated Wounds: A Nine-Case Exploratory Series

Hailey Caprara, BSN, RN, CWS, DAPWCA; Nirman Tulsyan, MD, FACS, RPVI

Introduction: Malignancy-associated wounds present a pathophysiologic profile distinct from typical chronic wounds.[1] Tumor growth is associated with pathological angiogenesis, producing simultaneous hyperperfused and hypoperfused, hypoxic-necrotic regions.[2,3] Objective, non-invasive point-of-care characterization remains limited. Near-infrared spectroscopy (NIRS) non-invasively quantifies tissue oxygen saturation (StO_2) and microvascular hemoglobin, and has shown value in mapping perfusion at the wound bed and edge.[4,5] Infrared (IR) thermography maps skin surface temperature as a surrogate for the angiogenesis, hyperemia, and inflammation that characterize malignant tissue.[6,7] We explored whether combined NIRS and thermographic imaging captures reproducible signal patterns in suspected or confirmed malignancy-associated wounds.

Methods: Eight adults (two male and six female) representing nine cases of suspected or known malignancy-associated wounds underwent serial multimodal imaging using a point-of-care device combining NIRS and IR thermography. Tissue oxygen saturation and skin surface temperature were recorded at each visit, with follow-up periods ranging from one week to twelve months. Cases were stratified into two cohorts: confirmed malignancy (n=4) and suspected malignancy (n=5), the latter classified by clinical judgment, followed by comparative feature analysis with the confirmed malignancy cohort.

Results: Across the four confirmed malignancy cases, NIRS imaging consistently revealed marked spatial heterogeneity in StO_2, characterized by co-localized areas of pathologically elevated (>95%) and severely depressed (< 10%) StO_2 within or adjacent to the wound bed. An edge-localized rim of elevated perfusion was also observed, distinct from the wound bed itself. Thermography consistently demonstrated focal hyperthermia over wound tissue (e.g., 90–91°F vs. ~87°F in surrounding skin) and asymmetric periwound heat distributions (e.g., up to 94°F unilaterally). These multimodal patterns were also identified in four of the five cases within the suspected malignancy cohort.

Discussion: This exploratory series demonstrates that malignancy-associated wounds exhibit a distinct multimodal signature—characterized by marked spatial StO_2 heterogeneity, focal thermographic hyperthermia, and an edge-localized hyper-perfused rim—that qualitatively contrasts with typical chronic wound profiles. While these findings suggest that combined NIRS and IR thermography may serve as a valuable, non-invasive adjunct for point-of-care malignancy monitoring, the modest sample size limits generalizability. Prospective studies with larger, heterogeneous cohorts are warranted to validate these diagnostic signatures.

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CR-017

A Bio-Botanical Wound Bed Optimizer vs Biodegradable Temporizing Matrix in Traumatic Full-Thickness Wounds: An Efficacy and Resource-Utilization Study

Dun-Hao Chang, MD

Introduction: A topical wound bed optimizer (ON101) has demonstrated efficacy in diabetic foot ulcers, yet its role in traumatic wounds remains unclear. This study compares ON101 with a dermal substitute, Biodegradable Temporizing Matrix (BTM), in treating small to moderate traumatic full-thickness skin defects.

Methods: Between January 2024 and August 2025, patients with traumatic full-thickness wounds were prospectively enrolled. Exclusion criteria were wound size >40 cm^2 or the need for autologous skin grafting. Patients were assigned to ON101 or BTM treatment based on clinical decision-making. The ON101 group applied the topical agent twice daily, whereas the BTM group underwent matrix implantation with silicone removal at 3–4 weeks followed by standard wound care. Demographics, wound characteristics, healing time, hospital stay, medical expenditure and complications were documented and analyzed.

Results: Thirty-four patients were included: 11 treated with ON101 and 23 with BTM. Baseline characteristics, including age, sex, and wound size, were comparable across groups. The ON101 group demonstrated significantly faster wound healing compared with BTM (37.5 ± 20.0 vs. 65.2 ± 24.0 days, p = 0.002). Infection incedence was ON101 65% lower in ON101 group than in the BTM group, although this trend did not reach statistical significance (p = 0.38). ON101 was also associated with markedly shorter hospital stay and lower medical cost by approximately

95% shorter hospitalization and 80% lower cost. The observed difference suggests a potential therapeutic advantage associated with wound bed optimization in traumatic wounds.

Discussion: ON101 provided significantly shorter healing times and a trend toward lower infection rates compared with BTM in small to moderate traumatic wounds. From a resource-utilization perspective, the ON101 group demonstrated shorter hospitalization and lower medical expenditure, suggesting a potential cost-saving advantage in traumatic wound management. These findings indicate that ON101 may serve as an effective, minimally invasive alternative to dermal substitutes for selected cases. Further studies with larger cohorts are needed to confirm these outcomes and guide treatment selection.

CR-018

Rethinking Perfusion Targets in Limb Salvage: A Systematic Review of the Angiosome and Woundosome Paradigms

Windy Cole

Introduction: Angiosome-guided revascularization targeting the source artery supplying the wound territory has been the dominant framework for infrapopliteal intervention planning in chronic limb-threatening ischemia (CLTI). The woundosome concept has recently emerged as a complementary paradigm, shifting the unit of analysis from fixed arterial territories to the wound's actual microcirculatory perfusion environment, including collateral reserve, wound blush, and local wound biology. Whether these frameworks are competing or synergistic remains unclear. The objective was to systematically review the evidence comparing angiosome-directed revascularization with wound-centered approaches, including the woundosome concept, and determine whether current data support one framework over the other or favor their integration.

Methods: A structured lit search of PubMed, Scopus, and Cochrane Library followed by a qualitative synthesis of society guidelines, systematic reviews, meta-analyses, and comparative cohort studies addressing angiosome-directed revascularization, wound blush, collateral perfusion, WIfI classification, and multidisciplinary wound care in CLTI and diabetic foot ulceration was performed.

Results: Direct angiosome revascularization was associated with improved wound healing (RR 0.60; 95% CI 0.51–0.71), reduced major amputation (RR 0.56; 95% CI 0.47–0.67), and better amputation-free survival compared with indirect revascularization, predominantly in endovascular cohorts. However, indirect revascularization with robust collateral supply achieved outcomes comparable to direct revascularization, and significance was lost in bypass-only analyses. Wound blush independently predicted wound healing and limb salvage (96.4% vs. 56.8% at 3 years; $p < 0.001$) regardless of angiosome alignment. WIfI stage was the strongest independent predictor of wound healing after multivariable adjustment, outperforming perfusion territory and wound area. Guidelines consistently emphasize that healing requires concurrent multidisciplinary wound care including debridement, infection control, offloading, and metabolic optimization.

Discussion: The angiosome and woundosome paradigms are complementary rather than competing. Angiosome anatomy remains valuable for revascularization planning, but wound-level perfusion assessment, particularly wound blush, and wound severity staging may more directly predict healing. An integrated framework combining angiosome-aware revascularization with woundosome-informed perfusion assessment and structured multidisciplinary wound care represents the most evidence-based approach to limb salvage.

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CR-019

Targeting Shared Biology in Hard-to-Heal Wounds: A Master Protocol Basket Trial Design

Windy Cole; Marissa Docter, MD; Zweli Tunyiswa, BA

Introduction: Hard-to-heal wounds such as diabetic foot ulcers (DFUs) and venous leg ulcers (VLUs) remain associated with poor healing outcomes despite optimized standard care. Although traditionally classified by etiology, these wounds share common pathophysiologic features, including impaired angiogenesis, persistent inflammation, and microbial biofilm burden. Therapies targeting these shared mechanisms may be effective across wound types, yet conventional etiology-specific trials limit efficiency and generalizability.

Methods: This multicenter, randomized, sham-controlled trial uses a master protocol with parallel, etiology-specific baskets for DFUs and VLUs. After a run-in period confirming inadequate healing under optimized standard care, participants are randomized 1:1 within each basket to standard care plus active therapy or sham. Harmonized standards of care, subject and assessor blinding, and centralized endpoint adjudication are employed. The primary endpoint is complete wound closure by 12 weeks, confirmed at two consecutive visits. Each basket is analyzed independently using Bayesian methods incorporating conservatively discounted historical control data via power priors.

Results: Simulation studies assuming sham-arm closure rates of 25% (DFU) and 30% (VLU) and a 20-percentage-point treatment effect demonstrate ≥85% power with sample sizes approximately 20–30% smaller than a conventional frequentist design, while maintaining type I error ≤5% across a range of discounting parameters. The shared infrastructure enhances operational efficiency, and the modular design permits future addition of baskets for other wound etiologies without modification of the master protocol. Prespecified exploratory cross-basket analyses will evaluate pooled treatment effects and biomarker-defined subgroups to generate hypotheses regarding mechanism-based predictors of response.

Discussion: This master-protocol basket trial adapts principles established in oncology to wound care, offering a scalable framework for evaluating mechanism-targeted therapies. The design aligns with evolving regulatory guidance, maintains methodological rigor, and may accelerate evidence generation for therapies targeting shared biological barriers to healing.

CR-020

Microvascular Perfusion and Oxygenation Changes Following Topical Nitric Oxide-Delivering Foam Application: A Near-Infrared Spectroscopy Case Series in Chronic Wounds

Windy Cole; Jeremy Alacre, DNP

Introduction: Assessing compromised tissue perfusion remains a critical challenge across chronic wound etiologies in skilled nursing facilities. This study evaluated acute (5-minute) and sustained (up to 4-hours) microvascular changes in tissue oxygenation and hemoglobin metrics following topical application of a nitric oxide-delivering foam* (NODF) using non-invasive near-infrared spectroscopy† (NIRS).

Methods: This retrospective observational case series evaluated adult subjects (N&#3f8) with various chronic wounds. Routine care consisted of applying topical NODF over the wound bed for 5 minutes, followed by product removal. NIRS perfusion metrics; tissue oxygen saturation (StO_2), total hemoglobin (THb), oxyhemoglobin (oxyHb), and deoxyhemoglobin (deoxyHb) were captured using the NIRS imaging system†

immediately before application (baseline) and 5 minutes post-removal. Extended measurements (75 minutes to 4 hours) were analyzed descriptively for a longitudinal subset (n=4).

Results: At 5 minutes post-application, significant increases occurred in microvascular blood volume and oxygen delivery across all wound etiologies. Mean THb increased from 1.42 ± 0.36 to 1.63 ± 0.38 (paired t-test p=0.0005; Wilcoxon p=0.0078). Mean oxyHb rose from 1.05 ± 0.38 to 1.20 ± 0.37 (p=0.0013), and mean deoxyHb increased from 0.37 ± 0.08 to 0.42 ± 0.05 (p=0.0234). Relative StO_2 remained unchanged at 0.73 (p=1.00). In the extended-tracking subset (n=4 evaluated between 75 minutes and 4 hours), the hyperemic effect was significantly sustained; mean THb (1.39) and oxyHb (0.96) remained elevated 19.9% and 17.4% above their respective baselines (1.16 and 0.82).

Discussion: Rapid, concurrent increases in THb, oxyHb, and deoxyHb support the local vasodilatory mechanism of topical nitric oxide across multiple wound etiologies. Because both hemoglobin fractions expanded proportionally, relative StO_2 remained mathematically constant despite increased absolute blood volume and oxygen delivery to the wound bed. Longitudinal subset analysis demonstrates this microvascular response is sustained for up to 4 hours rather than presenting as a transient spike. These perfusion changes are clinically meaningful, as adequate microvascular oxygen delivery is essential for wound healing. The capacity of the NIRS imaging system† to capture these physiological changes warrants further studies utilizing real-time systems to follow dynamic microvascular responses to topical NODF.

CR-021

Real-World Outcomes of Fetal Bovine Dermis in Acute Wounds: A Retrospective Clinical Analysis

Yifei Dai; Malachy Asuku, MD, MBA; Maria Leonard, BSN, RN; Angela Siebeneck, BSN, MHA, MBA; Yi Arnold, PhD, MBA; Paula Searcy, MBA

Introduction: Complex acute wounds, traumatic or surgical with tissue loss, exposed structures, or poor vascularity, are challenging and often require staged reconstruction using cellular and acellular matrix-based products. Fetal bovine dermis (FBD) offers structural support and promotes tissue regeneration. Its effectiveness in chronic wounds is documented,1-5 and promising outcomes have been reported in acute wounds.4-7 This study evaluated the safety and performance of FBD in acute wounds using retrospective cases from US and EU Clinicians.

Methods: Clinicians submitted de-identified cases between June 2022 and June 2025 involving patients who received a marketed FBD device via a HIPAA-compliant digital platform (up to 20 cases per contributor). Data were abstracted from medical records into structured forms. The study was exempt from IRB and consent requirements due to its retrospective, anonymized design. Endpoints included complete wound closure at 12 weeks and adverse events (AEs).

Descriptive analysis was performed on acute wounds, including surgical wounds (donor sites, post-Mohs, post-laser, podiatric surgical wounds, wound dehiscence) and traumatic wounds (avulsions, lacerations, skin tears, second-degree burns).

Results: Of the 117 participating surgeons, 110 contributed 123 surgical wound cases and 104 contributed 124 traumatic wound cases, totaling 247 patients. High wound closure rates were observed at week 12: 91.1% in surgical wounds and 88.7% in traumatic wounds. No AEs with a causal relationship to the device were observed in traumatic wounds. In surgical wounds, inflammation with casual relationship to the device was reported in 0.8% of cases. Infection-related complications were low (1.6% surgical, 4.0% traumatic), and wound recurrence was infrequent (3.3% surgical, 0.8% traumatic).

Discussion: Findings support the safety and effectiveness of the FBD device in acute wound management. The observed low complication and recurrence rates suggest that this approach is a reliable option for managing surgical and traumatic wounds. These real-world insights are clinically relevant and may inform treatment decisions in complex wound care, though the retrospective design limits causal inference. Future prospective studies may be warranted to validate these results.

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CR-022

Clinical Performance of an Acellular Fetal Bovine Dermal Matrix in Wound Management: Assessment of a Real-World Cohort

Yifei Dai; Yi Arnold, PhD, MBA; Malachy Asuku, MD, MBA; Maria Leonard, BSN, MHA, MBA; Paula Searcy, MBA; Angela Siebeneck, MSN, RN

Introduction: Acellular dermal matrices derived from fetal bovine dermis (FBD) are widely used for the management of complex wounds, providing structural support and facilitating tissue regeneration. While prior studies have reported outcomes by indication1-7, fewer analyses have evaluated aggregate real-world performance across diverse wound types. This study evaluated pooled retrospective clinical data on safety and effectiveness of FBD.

Methods: This post-market retrospective chart review collected de-identified patient data via a structured, HIPAA-compliant digital platform of clinicians in the US and EU. Participating clinicians abstracted data from medical records of patients treated with a marketed FBD device within the 24 months prior to data collection (January to March 2024). Study measures included complete wound closure at 12 weeks, time to closure, and adverse events (AEs). Descriptive analyses were performed.

Results: A total of 15 surgeons contributed 133 patient cases reflecting real-world use across diverse wound types. Clinicians represented multiple specialties, most commonly orthopedic, vascular, general, and plastic surgery. The majority of wound types included venous leg ulcers, diabetic foot ulcers, ischemic ulcers, and surgical wounds, representing a heterogeneous patient population.

At 12 weeks, complete wound closure was achieved in 74% of cases, with cumulative closure reaching 91% by 16 weeks, indicating sustained wound resolution beyond the primary endpoint. No intraoperative AEs were reported. Post-operative AEs were largely consistent with expected wound-related complications and were predominantly assessed as non-device-related. Only one event (< 1% of all AEs observed) was determined to have a causal relationship to the device.

Discussion: This analysis demonstrates real-world effectiveness and a favorable safety profile of FBD across diverse wound etiologies. High rates of wound closure underscore sustained clinical benefit across patient population. The low incidence of device-related AEs supports the safety of this approach in routine practice. Findings are consistent with expected FBD performance, though interpretation is limited by the retrospective design.

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CR-024

Comparison of Postoperative Blistering Rates Between Two Closed Incision Negative Pressure Therapy Systems Following Total Knee Arthroplasty

Christopher Edelman

Introduction: Closed incision negative pressure therapy (ciNPT) is increasingly used to reduce wound complications following total knee arthroplasty (TKA). However, concerns remain regarding common skin complications associated with ciNPT such as blistering, which can cause significant patient discomfort during healing.

Methods: A retrospective cohort study was conducted evaluating 35 patients who underwent TKA between 2022-2023 who received ciNPT; 20 patients received a ciNPT system with a silicon-based dressing and 15 received a system that uses acrylic-based dressing adhesives. The primary outcome was the incidence of postoperative blistering.

Results: Both cohorts had a mean age of >70 years, a mean BMI of >30, and a high burden of comorbidities (hypertension, atrial fibrillation, diabetes, and prior thromboembolic disease). No formal matching was performed between cohorts, but despite slight variations in patient demographics, both cohorts were medically complex with similar prevalence of vascular and thromboembolic risk factors. Anticoagulation regimens were heterogeneous but comparable between groups. The incidence of blistering was lower in the cohort who received silicon-based dressings compared to the receiving acrylic-based dressings (5% [1/20] vs 53.3% [8/15]). These results represent a greater than ten-fold difference in blistering rates depending on ciNPT dressing.

Discussion: In this cohort of TKA patients, ciNPT systems differed markedly with regard to the incidence of postoperative blistering. The ciNPT system that includes a silicon-based dressing was associated with a ten-fold lower rate of postoperative blistering compared to the acrylic adhesive dressing-based system. Differences in dressing adhesion, pressure distribution, or application technique may account for these findings. Surgeons should consider the risk of skin complications when selecting ciNPT systems to optimize patient comfort post-surgically. Further prospective studies are needed to confirm these findings and elucidate underlying mechanisms.

CR-027

Real-World Matched Analysis (N&#3f40 per Group) Shows Improved Healing Outcomes With Intact Fish Skin Graft vs Standard of Care in Stage 3-4 Pressure Ulcers

Caroline Fife; Hongyu Miao, PhD; Ben LeBoutillier, BS; John C Lantis, MD

Introduction: Pressure ulcers are a common and costly chronic wound, affecting millions of U.S. patients annually. Healing rates for severe Stage 3 and 4 pressure ulcers remain low in real-world clinical practice, highlighting the need for more effective treatment approaches. Intact fish skin graft (IFSG) is a minimally processed North Atlantic cod skin graft that has demonstrated benefits in the management of difficult-to-heal wounds. This study assessed the effectiveness of IFSG for the treatment of Stage 3 and 4 pressure ulcers using real-world data. Healing-related were compared between IFSG-treated patients and a matched cohort that received standard of care (SOC).

Methods: A retrospective matched cohort study was conducted using deidentified electronic health record data from the U.S. Wound Registry. Patients with Stage 3-4 pressure ulcers treated with IFSG (n=40) were compared to a matched SOC control group (n=40). Covariates were matched 1:1 between the IFSG and SOC groups to reduce confounding across key patient and wound characteristics, including age, mobility status, comorbidities (e.g., diabetes, peripheral artery disease), and wound features (age, size, location, and depth). Outcomes included healing rate, proportion of wounds either healed or improved, and wound percent area reduction.

Results: The study population was high risk (n=40 per group), with low ambulatory status (37.5%) and a high burden of comorbidities. A greater proportion of wounds healed or improved with IFSG than SOC (67.5% vs 55.0%; p=0.0379). Complete healing was also more frequent with IFSG (52.5% vs 30.0%), though the difference was not statistically significant (p=0.0809). IFSG-treated wounds achieved significantly greater percent area reduction than SOC-treated wounds (49% vs 34%; p=0.0028). Notably, in 15 matched patient pairs, wounds healed with IFSG but did not heal with SOC, while in 6 matched patient pairs, wounds healed with SOC but not with IFSG.

Discussion: In this real-world matched cohort analysis, intact fish skin graft demonstrated superior effectiveness compared to standard of care in the management of Stage 3–4 pressure ulcers, with improvements in healing-related outcomes, including percent area reduction. These results support the use of IFSG as an effective advanced therapy for hard-to-heal pressure ulcers.

References:

Note that the paper associated with this abstract is currently on medRxiv, the preprint journal, and has been submitted to the journal *Wounds* where it is currently in review.

CR-028

Wound Exudate Severity and Time to Complete Healing in Venous Leg Ulcers: A Real-World Retrospective Cohort Study

Peter Gloviczki; Yun Han, PhD; Vladica Velickovic, MD, PhD; Grace Gahlon, PhD; Cornelia Santoso, PhD; Shelby Corman, PhD; David G Armstrong, MD, PhD; Jan Kottner, PhD; Kenneth Rothman, PhD

Introduction: Venous leg ulcers (VLUs) are often exudative chronic wounds with heterogeneous healing. Although exudate amount may reflect venous hypertension, edema, inflammation, and protease activity, its longitudinal association with healing in routine care is not well quantified. We estimated the association between clinician-assessed exudate severity and time to complete VLU healing.

Methods: This retrospective cohort study used de-identified electronic health record data from US outpatient wound-care centers during 2002-2020. Eligible VLUs had baseline area 2.0-100.0 cm^2 and follow-up after the index visit. Exudate severity was categorized at visits as none, mild, moderate, or heavy and modeled as a time-varying exposure. Complete healing was defined by documentation of wound closure, healing, resolution, or treatment completion. Marginal structural models with stabilized inverse probability treatment and censoring weights addressed time-varying confounding and informative censoring. Weighted Royston-Parmar flexible parametric survival models estimated hazard ratios (HRs), counterfactual healing probabilities, and restricted mean survival time (RMST).

Results: The cohort included 8,184 patients contributing 18,435 VLUs (mean age, 67.8 years; 48.1% male). Compared with no exudate, healing hazards were progressively lower with mild (HR, 0.11; 95% CI, 0.09-0.15), moderate (HR, 0.08; 95% CI, 0.06-0.10), and heavy exudate (HR, 0.02; 95% CI, 0.01-0.04). Estimated 52-week healing probabilities were approximately 100.0% for no exudate, 58.4% for mild, 31.2% for moderate, and

8.7% for heavy exudate. At 52 weeks, RMST was 26.1 days unhealed for no exudate versus 217.8, 286.6, and 343.0 days for mild, moderate, and heavy exudate, corresponding to 191.7, 260.5, and 316.9 additional unhealed days, respectively. Late-horizon estimates were model-based, given median observed follow-up of 45 days.

Discussion: Higher exudate levels are associated with slower VLU healing in routine outpatient care. Because no exudate is atypical for active VLUs, estimates are best interpreted as prognostic contrasts across the exudate gradient.. Routine exudate assessment may support earlier identification of wounds at risk for delayed healing and guide moisture-focused management.

CR-029

Evaluating the Use of a Prophylactic Transparent Gel Dressing in the Operating Room

Gregory Gomez, MPH, BSN, RN; Brittny Sutton, MS; Anitta Thomas, MS

Introduction: Supine surgical positioning is a prevalent risk factor for pressure injury (PI) development, and peri-operative PIs have been reported to account for over 40% of inpatient PIs.[1,2] The use of prophylactic dressings, particularly at the sacral region, may assist in reducing PI risk.[3] One such prophylactic dressing is a transparent gel dressing (TGD) that features a gel island designed to redistribute pressure against bony prominences, such as the sacrum.

Methods: A prospective, observational study evaluated (1) the performance of the TGD in preventing PIs during operation and through post-operative inpatient stay, and (2) the safety of TGD use with respect to potential electrical arc formation or burns from interaction with common operating room (OR) equipment, including electrocautery devices. Adults (≥ 18 years) undergoing supine surgery requiring inpatient stay were eligible for participation. Following informed consent, a preliminary skin assessment was conducted, and either a 7" × 7" or 9" × 9" TGD was applied to the sacrum. Adverse Events (AEs) and serious adverse events (SAEs) related to OR equipment, including electrocautery devices, were assessed intraoperatively. Dressing site condition and PI formation were assessed by study personnel during two post-operative assessments. A final assessment was conducted at patient discharge, followed by TGD removal.

Results: A total of 100 participants (mean age 62.6 years) undergoing orthopedic surgery completed the study. The mean length of stay was 20 hours and 24 minutes, and the mean TGD wear time was 19 hours and 47 minutes. Ninety-five percent (95/100) of participants retained the original TGD through the second post-operative assessment. No AEs or SAEs related to OR equipment, including electrocautery devices, were observed. Further, no PIs were identified by study personnel during post-operative assessments.

Discussion: The study findings support the use of the TGD as an effective prophylactic intervention to prevent sacral PIs during surgery and in post-operative inpatients. Exploratory analyses showed that post-operative dressing outcomes (securement, dressing replacement, and assessment of skin blanching through the TGD) were favorable and independent of participant demographics and comorbidities. Further, sacral TGD use was demonstrated to be safe in OR settings involving OR equipment, including electrocautery devices.

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CR-030

Machine Learning - Based Classification of Pressure Injury Severity Using Electronic Health Record Data

Anirudh Gundapantula; Wenhui Zhang, PhD, MS, BSN

Introduction: Among hospitalized patients, pressure injuries are a preventable complication and are strongly associated with pain, infection risk, and increased strain on healthcare systems. Clinical assessments of these injuries, while subjective, can be supplemented with automated approaches to improve consistency in records. In addition to consistency, automated approaches can leverage clinical documentation to improve precision in stage classification.

Methods: This study used the MIMIC-IV dataset to develop a multi-class staging machine learning algorithm in Python for stage classification (stages I-IV). Features included Braden Scale subcomponents (sensory perception, moisture, activity, mobility, nutrition, and friction/shear) as well as demographic variables and comorbid conditions. A Random Forest classifier was used to train the model, and performance was assessed using accuracy, macro-averaged precision, F1 scores, and confusion matrix analysis to evaluate class-wise misclassifications and imbalances.

Results: The final cohort included 89,152 observations with documented Stage I - IV pressure injuries, with Stage II being the most frequently recorded classification. The dataset was split into 71,321 observations for training and 17,831 for testing. The Random Forest Classifier achieved an accuracy of 92.7%, with a macro-averaged F1 score of 0.91, demonstrating strong and consistent classification performance across pressure injury stages. The highest performance was observed for Stage IV injuries (F_1 = 0.96). Confusion matrix analysis showed misclassifications typically occurred between adjacent stages, suggesting the benefit of ordinal modeling approaches. Severe misclassification between non-adjacent stages was rare. Feature importance analysis identified Braden Scale components and comorbid conditions as the strongest predictors of pressure injury severity.

Discussion: These findings demonstrate that automated techniques can support pressure injury classification by improving staging consistency. Braden Scale components were among the strongest contributors to model classification, highlighting their continued clinical relevance for wound severity assessments. Misclassification patterns between adjacent stages suggest future use of ordinal modeling methods consistent with the ordinal nature of pressure injury staging. Future work will also incorporate additional wound-specific measurements to improve model performance and reduce misclassification between adjacent classes.

CR-031

Dehydrated Human Amnion – Intermediate Layer – Chorion Membrane Allograft Treated Lower Extremity Ulcers: A Generalized Linear Mixed Model Analysis of Diabetic Foot Ulcers, Venous Leg Ulcers, and Pressure Ulcers

Hunter Hall; Rashad Sayeed, DPM

Introduction: Chronic wounds, including diabetic foot ulcers (DFUs), venous leg ulcers (VLUs), and pressure ulcers, cause substantial morbidity and mortality. Amniotic membrane allografts, which includes dehydrated human amnion - intermediate layer - chorion membrane allograft (dHAICM) have demonstrated efficacy in clinical trials, yet there is limited real-world evidence on the efficacy of these products (Huang et al.).

Methods: A retrospective cohort study analyzed longitudinal wound area data from 151 patient-wounds (2,239 treatment visits) treated at outpatient wound care clinics with dHAICM, as identified by Q-code. Patients received dHAICM as a part of their regular care as determined by clinician. A generalized linear mixed model with gamma distribution and log link was fitted, incorporating fixed effects of wound type, time, graft count, age, gender, wound age at baseline, and natural log-transformed baseline area, and tested the interactions of graft-by-wound type, time-by-wound type, time-by-graft count, and standard-of-care (SOC) encounters-by-wound type. A random intercept was specified at the patient-wound level.

Results: The model demonstrated strong fit determined by a conditional pseudo-R-squared value of 0.880 (out of 1). In the model, each additional cumulative graft application was associated with an accompanying reduction in wound area upon subsequent follow-up, where n is the number of patient ulcers of each etiology: DFU 16.5% (n=56, 95% CI:14.4%,18.5%, p< .001); VLU 10.5% (n=49 95% CI: 8.9%, 12.1%, p< .001); Pressure Ulcer 13.6% (n=49 95% CI: 11.8%, 15.5%, p< .001). Each SOC encounter was associated with a 10.0% decrease in wound area for pressure ulcers (95% CI: 7.7%, 12.2%, p< .001). However, SOC did not reach statistical significance for DFU (p=.070) or VLU (0.1% reduction; 95% CI: −1.4%, 1.7%, p=.856). Pressure ulcers showed a significant increase over time (coefficient=0.005, p< .001), DFU (p=.078) and VLU (p=.285) did not reach significance for time.

Discussion: These data represent the efficacy of dHAICM applications as an advanced wound therapy in this population of patients with complex wounds. All wound etiologies were responsive to graft applications, with between 10.5% and 16.5% reduction in wound area per dHAICM graft application, despite a lack of statistically significant effect of SOC treatments in DFUs and VLUs. illustrating the real-world efficacy of this treatment modality in management of chronic ulcers.

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CR-032

Comparative Effectiveness of Topical Agents Versus Silver Sulfadiazine for Burn Wound Management: A Bayesian Network Meta-Analysis

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Introduction: Silver sulfadiazine (SSD) remains the predominant topical agent for partial-thickness burn wounds despite well-documented limitations, including delayed wound healing, leukopenia, renal toxicity, and emerging resistance. No prior synthesis has connected all clinically used agents in one network. This study aimed to rank honey, aloe vera, collagenase, and mafenide acetate against SSD for healing time and infection incidence using a Bayesian network meta-analysis (NMA).

Methods: A systematic review identified randomized controlled trials of these agents. A Bayesian random-effects NMA was conducted via Markov chain Monte Carlo simulations. Outcomes were mean difference (MD) in healing time and log odds ratio (log OR) for infection incidence. Rankings were derived using the Surface Under the Cumulative Ranking Curve (SUCRA), with model fit assessed via deviance information criterion (DIC). Sensitivity analyses assessed robustness, including exclusion of studies using microbiological rather than clinical infection endpoints.

Results: Eleven studies contributed to the healing analysis and seven to the infection analysis. For healing, aloe vera (MD = -7.5 days, 95% credible interval [CrI] = -16.9 to +1.5; SUCRA = 0.88) and honey (MD = -4.7 days, 95% CrI = -9.9 to +0.5; SUCRA = 0.75) ranked highest, though both intervals crossed zero. Collagenase (MD = -0.4 days) and mafenide acetate (MD = +5.6 days, indirect estimate) showed no advantage over SSD. For infection, only honey's credible interval excluded zero among all agents (log OR = -3.61, 95% CrI = -6.83 to -1.10; SUCRA = 0.99; posterior probability = 99.4%), and was robust across all sensitivity analyses (SUCRA range 0.988–0.996). Network consistency was confirmed for both outcomes (ΔDIC < 0.2).

Discussion: This NMA is the first to include collagenase and mafenide acetate as nodes, ranking all five agents together. Honey showed the strongest and most credible benefit, specifically for infection reduction, and was consistent across sensitivity analyses. Healing directionally favored honey and aloe vera, but the high variability and uncertainty prevented clear conclusions. Collagenase and mafenide showed no meaningful benefit over SSD for either outcome. These findings support honey as a reasonable SSD substitute when infection control is the priority; head-to-head trials are needed to confirm any healing advantage.

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CR-034

Prospective Randomized Evaluation of a Three-Dimensional Porcine Liver–Derived Acellular Scaffold in Complex Multidimensional Wounds

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Introduction: Complex multidimensional pressure ulcers, post-infection debridement defects, fasciotomy wounds, and diabetic foot ulcers have depth, irregular geometry, undermining, or dead space poorly treated by standard of care. These features, and often the patients' underlying pathophysiology, prolonged nonhealing complicate evaluation of CAMP's by making wound treatment responses difficult to standardize, measure, and compare. This IRB-approved prospective randomized controlled trial tests whether adding a conformable three-dimensional porcine liver-derived acellular scaffold* to enhanced standard of care improves early healing trajectories compared with standard of care alone.

Methods: Adults were criteria screened to exclude confounders for healing. Clinical courses were reviewed across IRB-approved observational studies and formalized PRCT's to capture tissue scaffold's* effects. The PRCT study randomizes participants to receive weekly scaffold* plus standard of care or standard of care alone visits. The scaffold* was applied weekly x 4 applications, while controls received weekly standard of care visits. Control participants with inadequate progress at 4–6 weeks were permitted to cross over to the scaffold* arm for the same four weekly applications. Both groups could then get tissue scaffolds* every other week through the study follow up period. Standardized digital photography, serial wound measurements, tissue-quality assessment, tolerability, and adverse events were collected at each encounter.

Results: Enrollment & follow-up continue. Interim observations demonstrate risks with comorbidities, complications, and mortality risks among nonhealing wound patients. Compared with standard of care alone, scaffold*-treated wounds have signals of accelerated wound-area and/or volume reduction, improved granulation/tissue quality, and very favorable patient tolerability. No device-related serious adverse events have been observed to date.

Discussion: This trial tests the hypothesis that this conformable three-dimensional porcine liver–derived acellular scaffold* improves early healing trajectories in varieties of multidimensional wounds when enhancing standard of care. As enrollment expands across inpatient, outpatient, and home-based care settings, this academic–industry collaboration illustrates how to refine patient-selection criteria, optimize treatment cadence, and clarify the clinical, operational, and economic value of this scaffold.* This framework for needed translation of real-world experience for complex wounds has yielded higher quality data that informs CAMP's

use, future protocols, and payer coverage for more successful, modern management of hard-to-heal wounds.

CR-035

Autologous Cutaneous Multicellular Units in Non-Healing Wagner 1 Diabetic Foot Ulcers: Results of the Phase 3 COVER DFUS II Trial

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Introduction: Diabetic foot ulcers (DFUs) are a leading cause of non-traumatic lower extremity amputation, serious infection, and significant healthcare utilization in patients with diabetes. This study evaluated whether an investigational biologic product derived from the patient's skin (autologous cutaneous multicellular units (ACMU)), which is applied topically, improves wound closure at 12 weeks vs. SOC in adults with non-healing Wagner 1 DFUs.

Methods: In a Phase 3 randomized, multicenter, controlled trial (COVER DFUS II, NCT06140303) adults with non-healing, full-thickness, non-ischemic, non-infected DFUs were randomized 1:1 to application of ACMU+SOC (offloading, sharp debridement, and moist wound therapy) or SOC alone. Closure was determined by the treating investigator and confirmed by a panel of adjudicators blinded to treatment. The primary endpoint was proportion of ulcer closure within 12 weeks in the intent-to-treat population.

Results: 120 adults were randomized at 17 sites. Baseline characteristics were balanced between arms including mean age (58.4 years (ACMU) vs. 58.8 years (SOC)); sex (78% vs. 82% men); mean HbA1c (8.0% vs. 8.3%); and mean wound area (3.4 cm^2 vs. 3.3 cm^2). Patients had long-standing wounds with a mean wound age of 310 vs. 266 days; history of prior amputation (63% vs. 57%); other ulcers at baseline (22% vs. 10%); and prior ulcer infection (27% vs. 28%). Twice as many patients healed at 12 weeks with ACMU (53.3% vs. 26.7%, p=0.0014). Percent area reduction of the index ulcer was also significantly greater with ACMU treatment (p=0.0028). Median time to closure was 85 days for ACMU; SOC median was not estimable. No adverse event or serious adverse event was directly attributed to ACMU. ACMU-treated patients experienced fewer treatment-emergent adverse events (TEAEs) related to the index ulcer resulting in discontinuation (2% vs. 10%), fewer index ulcer infections (8% vs. 25%, p=0.01), less index ulcer osteomyelitis (2% vs. 15%, p=0.008), and fewer index ulcer related amputations (0% vs. 5%) compared with SOC.

Discussion: ACMU plus SOC significantly improved wound closure and reduced complications compared with SOC alone, supporting ACMU as a potential first-in-class biologic for DFUs with a BLA currently under FDA review.

CR-036

Wound Exudate Severity and Time to Complete Healing in Pressure Injuries: A Real-World Retrospective Cohort Study

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Introduction: Pressure injuries (PIs) often follow heterogeneous healing trajectories despite comprehensive wound care. The amount of exudate guides moisture management including dressing selection, but the magnitude of its longitudinal association with time to PI healing in routine care is not well quantified. We estimated the association between clinician-assessed exudate severity and complete PI healing.

Methods: This retrospective cohort study used de-identified US outpatient wound-care electronic health record data (2002-2020). Eligible PIs were non-device-related stage 2-4 injurieswith baseline area 2.0-100.0 cm^2 and follow-up after the index visit. Exudate severity was categorized at visits (none, mild, moderate, heavy) and modeled as a time-varying exposure. Complete healing was defined by documentation of wound closure, healing, resolution, or treatment completion. Marginal structural models with stabilized inverse probability treatment and censoring weights addressed time-varying confounding and informative censoring. Weighted Royston-Parmar flexible parametric survival models estimated hazard ratios (HRs), counterfactual healing probabilities, and restricted mean survival time (RMST).

Results: The cohort included 6,965 patients contributing 11,737 PIs (mean age, 67.0 years; 50.8% male). Compared with no exudate, healing hazards were progressively lower with mild (HR, 0.12; 95% CI, 0.08-0.17), moderate (HR, 0.07; 95% CI, 0.04-0.11), and heavy exudate (HR, 0.002; 95% CI, 0.001-0.005). Estimated 52-week healing probabilities were 99.9% for no exudate, 41.1% for mild, 25.6% for moderate, and 4.5% for heavy exudate. At 52 weeks, RMST was 42.5 days unhealed for no exudate versus 268.6, 306.0, and 355.5 days for mild, moderate, and heavy exudate, corresponding to 226.1, 263.5, and 313.0 additional unhealed days, respectively. Late-horizon estimates were model-based, given median observed follow-up of 56 days.

Discussion: Higher exudate levels showed a strong, graded association with slower PI healing in routine outpatient care. These results point to prognostic associations across the range of exudate levels but do not establish cause and effect. Still, ongoing exudate may indicate, and help create, conditions that drive wound chronicity, which is why managing it is so important. Estimating exudate amounts may help identify PIs at risk for delayed healing and inform moisture-focused management within local PI treatment. Prospective studies using standardized and quantitative exudate measures are warranted.

CR-037

Real-World Outcomes of Intact Fish Skin Graft for Arthroplasty Incisional Wounds: Registry Analysis

John Lantis, MD

Introduction: Surgical wound complications following arthroplasty can delay recovery and increase the risk of adverse outcomes. Intact fish skin grafts (IFSGs) have been utilized to support wound healing across a variety of clinical settings. This study evaluated real-world outcomes of arthroplasty-related incisional wounds treated with IFSG using data from a multicenter wound registry.

Methods: A retrospective analysis was conducted of arthroplasty wound cases identified from a registry of patients with diverse wound types treated with IFSG. Included surgical wounds followed total hip arthroplasty, total knee arthroplasty, or reverse total shoulder arthroplasty procedures; four cases were revision arthroplasties. All incisions were closed with sutures after IFSG implantation.

Results: Thirty-three arthroplasty wound cases were included for analysis. The maximum follow-up time for any patient was 20.3 weeks. There were no instances of device failure or allergic reactions, infection and dehiscence were rare, and only one patient (1/33, 3.0%) required a major surgical intervention. The IFSG was well-tolerated and worked well in the arthroplasty procedure.

Discussion: In this real-world registry analysis, treatment of arthroplasty incisional wounds with IFSG was associated with a low complication rate. These findings support the potential utility of IFSG as an adjunctive strategy for managing arthroplasty surgical wounds and warrant further investigation in larger comparative studies.

CR-038

Exploratory Analysis of MEDX-DT-01, a Multicenter Randomized Controlled Trial of Precision Hydrodynamic Therapy for Diabetic Foot Ulcers

Vincent W. Li, MD, MBA; Lillian V. Caplan; Isaac Rooney, MPH; William W. Li, MD

Introduction: HydroPrep Therapy (Medaxis, LLC) is a precision wound-bed preparation hydrodynamic technology that can be used outside the operating room to selectively remove devitalized tissue, disrupt biofilm, reduce microbial burden, and induce controlled microbleeding to

stimulate angiogenesis and prepare the wound bed.

Methods: MEDX-DT-01 is a prospective multicenter randomized controlled trial (RCT) conducted at 18 U.S. wound centers between August 2020 and December 2025. A total of 215 adults with Wagner grade 1–2 chronic diabetic foot ulcers (DFUs) were randomized 1:1 to HydroPrep Therapy plus standard of care (SOC) or to conventional sharp debridement plus SOC. Both groups received offloading, standardized dressings, and infection management as appropriate. Weekly treatment visits were performed for up to 16 weeks with digital wound photography and planimetric assessment using eKare. An exploratory per-protocol analysis of MEDX-DT-01 is presented here.ry per-protocol analysis of MEDX-DT-01 is presented here.

Results: Among 146 per-protocol subjects, 67 subjects were in the HydroPrep Therapy arm and 79 in the SOC arm. Mean age was 59 years (70% male, 30% female). In a multivariable logistic regression model adjusted for age and sex, HydroPrep Therapy was associated with higher odds of complete wound healing compared with SOC (OR = 2.15, 95%, p = 0.027). Kaplan-Meier analysis demonstrated early and sustained separation of cumulative healing trajectories favoring HydroPrep Therapy.

Discussion: I In this exploratory analysis of a multicenter RCT for diabetic foot ulcers, HydroPrep Therapy demonstrated favorable healing dynamics compared with conventional sharp debridement. Comprehensive efficacy analysis of MEDX-DT-01 will be reported separately.

CR-039

A 4-Week Wound-Area Response Signal in High-Risk DFUs: Improved Healing and Limb-Salvage Outcomes With ON101in a Pooled Real-World Analysis

Brock Liden, DPM

Introduction: Diabetic foot ulcers (DFUs) complicated by infection, dialysis dependence, ischemia, peripheral arterial disease (PAD), and other adverse prognostic factors are associated with delayed healing, increased amputation risk, and substantial healthcare utilization. Early percentage area reduction (PAR) has been established as a prognostic marker of wound-healing trajectory and subsequent clinical outcomes. This pooled real-world analysis evaluated the association between 4-week PAR and downstream healing and limb-salvage outcomes in high-risk DFUs managed with ON101, a topical wound-bed optimization therapy.

Methods: Patient-level data from four real-world ON101 studies conducted in Taiwan and the United States were pooled. Among 215 enrolled patients, 156 evaluable patients (80 in ON101 vs 76 in controls) with baseline and week-4 wound measurements were included and analyzed. Baseline risk characteristics, 4-week PAR, week-16 wound closure, 1-year amputation, and the predictive performance of a prespecified 4-week PAR threshold (≥50%) were evaluated descriptively and comparatively.

Results: High-Risk Population: The cohort represented clinically challenging DFUs, among whom 90.4% with infection , 52.6% with PAD, 34.7% with ischemia, and 19.2% with dialysis.

Accelerated Early Wound Response: At week 4, ON101-treated patients achieved significantly greater wound-area reduction than controls (mean PAR 58.8% vs. 31.6%, p=0.00001).

Improved Healing Outcomes: By week 16, wound closure was achieved in 80.0% of ON101-treated patients versus 53.9% of controls (p=0.0005), representing a 48% relative improvement in closure rate.

Improved Limb Salvage: At 1 year, amputation occurred in 6.3% of ON101-treated patients versus 20.0% of controls (p=0.0231), demonstrating a 68% relative reduction in amputation risk.

Predictive Value of Early Response: Achievement of ≥50% PAR at week 4 demonstrated an 87% positive predictive value for subsequent favorable clinical outcomes, supporting Week-4 PAR as a clinically actionable early response marker in high-risk DFUs.

Discussion: In this pooled real-world analysis of intensive high-risk DFUs, ON101 performed consistently and significantly greater in early wound-area reduction, higher wound-closure rates, and lower 1-year amputation rates versus controls. These findings suggest that early wound-bed optimization with ON101 may alter healing trajectory in clinically complex DFUs and may contribute to improved limb-preservation outcomes.

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CR-040

Silicone Superabsorbent Polymer Dressings for Exuding Chronic Lower-Extremity Ulcers: A Prospective Multicenter Study

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Introduction: Chronic venous leg ulcers (VLUs) and diabetic foot ulcers (DFUs) are frequently exuding and hard to heal. Excess exudate can impair repair and damage periwound skin, but prospective real-world evidence for exudate-managing dressings remains limited. This study evaluated the clinical effectiveness and safety of silicone superabsorbent polymer dressings* in exuding VLUs and DFUs.

Methods: Adults with a single chronic, non-infected, full-thickness VLU or DFU were enrolled at eight wound-care centers in Poland and followed weekly for up to six weeks or until healing. VLUs received compression and DFUs received offloading as standard care. Dressing choice was based on investigator judgment. The primary endpoint was relative wound area reduction (WAR) from baseline to final visit, measured before and after cleansing/debridement using blinded centralized digital planimetry; at least 20% WAR was prespecified as clinically meaningful. Secondary endpoints included complete re-epithelialization, tissue composition, exudate volume, periwound skin condition, dressing wear time, and safety. A threshold of ≥20% wound area reduction was prespecified based on its clinical relevance as an indicator of early healing response in chronic wounds.

Results: The intention-to-treat cohort included 80 patients (mean age, 67.1 years; 62.5% male); 52 (65.0%) had VLUs and 28 (35.0%) had DFUs. At final visit, at least 20% WAR was achieved in 59/79 patients (74.7%) before cleansing/debridement and 66/79 (83.5%) after cleansing/debridement (both p< 0.001 for superiority). Median relative WAR after cleansing/debridement was 69.6% (IQR, 28.9%-100.0%). Complete re-epithelialization occurred in 21/80 patients. Median granulation tissue and slough coverage decreased by 75.2% and 98.6%, respectively, after cleansing/debridement. Median exudate volume decreased by 0.38 mL, and 22.5% of wounds had no exudate at final visit. Median dressing wear time was four days. Ten potentially device-related adverse events occurred in seven patients (8.2%); none were serious and no device deficiencies were reported. Exploratory analyses by ulcer type demonstrated generally consistent trends across both VLU and DFU populations.

Discussion: Silicone superabsorbent polymer dressings were associated with clinically meaningful wound area reduction, wound bed improvement, exudate reduction, stable wear time, and favorable safety over six weeks. Given the single-arm study design, these findings should be interpreted as associations observed within a comprehensive wound-care program that included compression therapy for VLUs and offloading for DFUs. The observed improvements support the role of exudate-focused dressing selection as part of multidisciplinary wound management.

CR-041

DermLatBench: Repurposing Wound and Dermatology Image Databases for AI Laterality Benchmarking

Avery Liu, Student; Hana Suzuki, Student; Sakura Suzuki, Student; Mitchell H Liu, Student

Introduction: Medical artificial intelligence benchmarks predominantly evaluate a model's ability to identify pathology, rarely assessing spatial grounding—whether the model comprehends where the finding is located on the patient. In wound care and dermatology, anatomical laterality errors directly compromise documentation, longitudinal tracking, and clinical decision support. Recent pilot data indicate that vision-language models (VLMs) recognize surface anatomy but frequently assign the incorrect patient side. Furthermore, existing datasets lack structured labels for laterality, landmark visibility, and contextual sufficiency. We developed DermLatBench to systematically evaluate patient-centered spatial grounding, laterality assignment, and appropriate model abstention.

Methods: We aggregated 12,541 clinical dermatology and wound images from open-licensed repositories, processing them via a custom offline annotation tool. The structured taxonomy captured body region, visible landmarks, patient-centered laterality, and diagnostic confidence. Classification categories included left, right, bilateral/midline, unable to determine, and not applicable. Four trained annotators independently labeled the corpus, with disagreements adjudicated by two wound care professionals to establish a gold-standard benchmarking subset. To rigorously test spatial grounding, the framework natively incorporates adversarial image perturbations, including horizontal mirroring, rotation, and cropping.

Results: Of the 12,541 annotated images, 9,770 (77.9%) possessed sufficient visible anatomy to classify body regions or landmarks. Analysis revealed a significant portion of close-cropped dermatology images lacked the necessary surrounding context to reliably determine laterality, highlighting a critical structural flaw in existing datasets. Conversely, wider-field wound photographs reliably provided usable anatomical cues. The multi-annotator workflow achieved an inter-rater agreement of >95% and effectively isolated images requiring expert adjudication. Baseline testing of a 4B-parameter medical VLM and a 9B-parameter general-purpose VLM yielded laterality assignment accuracies of only 28% and 46%, respectively.

Discussion: DermLatBench addresses a critical void in medical artificial intelligence evaluation by systematically testing patient-centered spatial grounding. By labeling visibility, laterality, and contextual ambiguity across >12,000 images, researchers can determine whether multimodal systems accurately ground clinical findings, appropriately abstain when uncertain, and maintain robustness against image transformations. Ultimately, DermLatBench provides a validated tool to differentiate genuine spatial understanding from artifact-driven guessing, establishing a vital safety standard prior to clinical deployment.

CR-042

The Effectiveness of Minimally Invasive Therapy for Hidradenitis Suppurative (MITHS) as a Maintenance Therapy in Hidradenitis Suppurativa: A Novel Treatment Approach

Dhruva Kumar Lokesh; Andrea Muniz, MD; Thea Price Dr, MD, FACS

Introduction: Hidradenitis Suppurativa (HS) is a chronic, inflammatory skin condition affecting nearly 81 million people that is notorious for significant pain, tunneling, scarring, malodorous discharge adversely affecting the patients' work, social and sexual life. Due to its recurrence and refractory nature to medical management, radical excisions that leave large skin defects are the final resort. We present our experience with using a hydro-surgical minimally invasive treatment as a maintenance therapy in this condition.

Methods: MITHS involves debridement of the tunnels with Versajet TM hydro-surgical tool supplemented with laser ablation, botox and steroid injections as needed. We retrospectively analyzed the effectiveness of this therapy in all patients that received it in a time frame ranging from 18 months ago to 1 month ago. The subjective effectiveness was recorded via a verbal questionnaire answered by the patients on a phone call.

Results: A total of 51 patients received the minimally invasive therapy of which 33 (4 with Hurley's Stage II and 29 with Hurley's Stage III) patients answered the questionnaire. The average age of the cohort was 37.96 years with majority having symptoms starting in the first two decades of life, the average number of years between symptom onset and diagnosis was 6.12 years. The average pain score before the procedure was 6.21 which reduced to 3.13 after the procedure, with patients reporting an average of 73% resolution of symptoms and average remission period of 74 days.

Discussion: Surgical excision which is the definitive management of HS often results in massive open wounds requiring weeks of extensive wound care, necessitating admission to wound care facilities or deployment of home health services and could still recur. This treatment protocol supplemented with medical management will help downstage HS, resulting in longer remission periods, reduced frequency and severity of symptoms, improved quality of life, preventing radical excision and need for reconstructive surgeries. We believe this technique is non-inferior to deroofing as it excises the tunnels, followed by scarring leading to decrease in overlying sebaceous gland and hair follicle growth.

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CR-043

Safety and Risk Management in Clinical Trials for Chronic Wounds With Tissue Regenerative Products

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Introduction: Investigators conducting tissue regenerative clinical trials frequently operate at the intersection of research and routine clinical care, particularly in safety-net hospitals where clinical trials may represent the only opportunity for underserved populations to access innovative therapies. Patients with chronic wounds often have substantial medical and social complexities that can influence treatment adherence and increase the risk of adverse events. Understanding factors associated with adverse events is essential for optimizing patient safety and trial conduct.

Methods: A single-center retrospective study evaluated patients enrolled in tissue regenerative clinical trials for chronic wounds. Data from 186 participants with diabetic foot ulcers or venous leg ulcers were analyzed to assess associations between patient characteristics and adverse events. Spearman correlation and Kruskal-Wallis tests were used to examine relationships among social determinants of health, comorbidities, polypharmacy, and adverse event occurrence.

Results: Overall, wound healing was achieved in 41.9% of participants who received investigational tissue regenerative products. Patients with diabetic foot ulcers experienced a higher burden of safety events than those with venous leg ulcers, with serious adverse events occurring in 22.8% and adverse events in 78.3% of enrolled subjects, compared with 12.4% and 71.0%, respectively, among participants with venous leg ulcers. Polypharmacy, defined as the use of five or more medications, was significantly associated with a greater number of adverse events ($p=0.0016$). Additionally, a higher number of comorbidities was positively correlated with an increased number of adverse events ($p=0.0007$).

Discussion: Patients with chronic wounds and high disease burden are at increased risk for adverse events during tissue regenerative clinical trials. Polypharmacy and multiple comorbidities may serve as practical markers for identifying high-risk participants who require enhanced monitoring and proactive risk mitigation strategies. Incorporating comprehensive assessment of medical and social determinants into trial operations may improve patient safety, facilitate appropriate clinical management, and support more efficient conduct of tissue regenerative

studies in underserved populations.

CR-044

Procedural Pain and Treatment Time in Cyanoacrylate Closure Versus Radiofrequency Ablation for Great Saphenous Vein Ablation in Patients With Active Venous Leg Ulcers

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Introduction: Venous leg ulcers (VLUs) represent the most advanced clinical manifestation of chronic venous insufficiency (CEAP class C6) and are associated with impaired quality of life. Ablation of the incompetent great saphenous vein (GSV) is recommended to promote ulcer healing. Radiofrequency ablation (RFA), a thermal technique, requires tumescent anesthesia, which may increase procedural discomfort, prolong treatment time, and disrupt wound dressings. Cyanoacrylate closure (CAC) is a non-thermal alternative requiring only local anesthesia. This study compares procedural pain scores and treatment times between CAC and RFA in patients with CEAP C6 disease undergoing GSV ablation.

Methods: This is a single-center retrospective cohort study of patients with active VLUs and superficial venous reflux who underwent great saphenous vein (GSV) ablation with either CAC or RFA. Patient demographics, characteristics, venous disease severity, procedural details, and outcomes were reviewed. Baseline disease severity was assessed using the revised Venous Clinical Severity Score (rVCSS). Procedural pain scores and treatment times were collected and compared between treatment groups.

Results: Twenty patients met inclusion criteria, including 10 treated with CAC and 10 treated with RFA. Patients classified as CEAP C6 (active venous ulceration). Characteristics were similar between groups, age (60.4 ± 10.0 vs 57.9 ± 15.5 years, p=0.67), sex (50% female in each group, p=1.00), BMI (31.1 ± 6.1 vs 30.3 ± 5.0 kg/m², p=0.74), revised VCSS (13.7 ± 6.0 vs 15.1 ± 5.7, p=0.60), GSV treatment length (26.2 ± 12.2 vs 26.6 ± 10.3 cm, p=0.94), and treatment laterality (right GSV treated in 90% vs 60%, p=0.30). Patients CAC reported significantly lower pain than RFA (2.8 ± 1.1 vs 5.9 ± 2.2, p< 0.001). CAC was associated with shorter procedure times (15.3 ± 2.5 vs 18.0 ± 11.2 minutes), not statistically significant (p=0.46).

Discussion: CAC was associated with significantly lower procedural pain compared with RFA in patients with VLUs (2.8 ± 1.1 vs 5.9 ± 2.2; p< 0.001). CAC also showed a nonsignificant trend toward shorter procedure times. The non-thermal, non-tumescent nature of CAC may offer advantages in patients with active wounds, reducing disruption of wound dressings. Further prospective studies are needed to assess effects on ulcer healing and long-term outcomes.

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CR-045

A Pilot Investigation: The Role of Cognitive Impairment in Wound Care and Healing

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Introduction: Health care providers often overlook cognitive health when developing home wound care protocols. Nonadherence can lead to inadequate debridement, chronic inflammation, and delayed healing. Assessing cognitive health helps ensure patients receive appropriate resources and comprehensive care. Few studies have evaluated the role of cognitive health in wound care adherence. This analysis serves as a pilot for development of an IRB-approved study.

Methods: IRB approval will be sought for a single-arm, pre-post mixed-methods study evaluating a tailored cognitive screening and intervention program for wound care patients. The four-visit program includes baseline assessment and MoCA screening, telehealth-delivered interventions, and follow-up evaluations of wound healing, adherence, and clinical outcomes. This preliminary analysis characterizes the target population and assesses the feasibility and findings of cognitive screening using the MoCA.

Results: A pilot of ten participants (80% male; ages 51–79) was conducted to identify initial cognitive screening with the MoCA identified unrecognized cognitive deficits in 50% of the sample: 10% (n=1) had moderate impairment (MoCA ≤17) and 40% (n=4) had mild impairment (MoCA ≤24). Participants had diverse wound etiologies, including diabetic foot ulcers, venous ulcers, and traumatic wounds.

The cohort was medically complex, with 100% diagnosed with hypertension and 90% with Type 2 diabetes. Other comorbidities included peripheral artery disease (70%), heart disease (60%), and chronic kidney disease (40%). BMI reached 40.0, and HbA1c ranged from 4.8 to 10.0 mg/dL, highlighting barriers to wound healing.

Discussion: This pilot investigation found that approximately half of wound care patients demonstrated cognitive deficits. Participants were predominantly male, middle-aged to older adults with complex medical comorbidities, including cardiovascular disease, renal disease, and diabetes. These findings support the need for further study of cognitive health in this population. Results also suggest that the Montreal Cognitive Assessment (MoCA) is a feasible screening tool for identifying cognitive needs among wound care patients. The findings support continued development of the IRB-approved study to evaluate the feasibility, acceptability, and impact of a personalized cognitive screening and intervention program aimed at improving treatment adherence, facilitating access to supportive resources, and optimizing wound healing outcomes.

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CR-046

The Lived Experiences of Registered Nurses in the ICU in Utilizing a Novel Prophylactic Clear Sacral Gel Dressing

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Introduction: Intensive care unit (ICU) patients remain at high risk for pressure injuries (PIs) despite standard prevention bundles. An ICU in a

community hospital has opted to add a novel prophylactic, transparent, gel-based sacral dressing to its advanced wound-care dressing formulary for use in its unit. The investigators found no literature on nurses' experiences and attitudes regarding the use of gel-based transparent dressings for pressure injury prevention. There is a need for qualitative research to provide insight into ICU nurses' perceptions, attitudes, and experiences with this novel transparent gel-based sacral dressing. The objective for this phenomenological research is to understand the perceptions, attitudes, and lived experiences of Registered Nurses (RNs) in the ICU who have utilized a novel prophylactic clear sacral gel dressing, focusing on how this experience impacts their caregiving practices, workflow, and identify perceived benefits and challenges of this practice change.

Methods: Using an exploratory phenomenological design, qualitative data were obtained through semi-structured interviews with a guided questionnaire from 9 full-time ICU nurses in a small community hospital and analyzed using an inductive–deductive thematic analysis.

Results: Qualitative analysis identified key themes: enhanced visualization of skin integrity without dressing removal, longer wear-time, improved workflow efficiency during repositioning and hygiene care, and increased nurse confidence in early detection. Reported limitations included reduced adhesion in high-moisture environments and contraindications over existing skin breakdown.

Discussion: Transparent sacral gel dressings are perceived as a beneficial tool by ICU nurses in pressure injury prevention. Their ability to support continuous skin assessment and streamline nursing care enhances caregiver satisfaction, patient comfort, and workflow efficiency.

CR-047 (RPT-006)

Updating Skin Pigmentation Scales: Comparison of Fitzpatrick Classification and Objective Colorimetry in a Diverse Urban Wound Care Population

Dhivya Murugan; Windy Cole, DPM; Nina Kovolyan, CRC

Introduction: Accurate skin pigmentation assessment is foundational to wound care, directly influencing detection of erythema, early-stage pressure injuries, and tissue perfusion changes. The Fitzpatrick Skin Type (FST) scale, developed in 1975, relies on subjective assessment and compresses darker skin tones into only two categories (types V-VI), contributing to missed early wound detection and documented disparities in wound outcomes among patients with darker skin. Objective colorimetric technologies offer a standardized alternative. This study evaluated agreement between FST classification and objective spectrophotometric measurements using the Cortex Colori Probe in a diverse urban population presenting to a lower extremity wound care clinic.

Methods: This single-center, prospective study enrolled consecutive patients at the Cleveland Foot and Ankle Clinic. Skin pigmentation was assessed via: (1) investigator-assessed FST, (2) participant self-reported FST, and (3) the Cortex Colori Probe, a handheld device quantifying melanin content via spectrophotometry. Measurements were obtained from four anatomical sites: inner forearm, outer forearm, anterior shin, and dorsum of the foot. Probe-derived melanin values were mapped to FST-equivalent categories for direct comparison.

Results: Forty-one diverse participants were enrolled. Investigator-assessed FST agreed with Colori Probe classification in only 46.3% of participants. Self-reported FST agreed with the Probe in only 7.3%. In 34.1% of cases, the Colori Probe assigned a darker pigmentation category than the investigator, suggesting systematic underestimation of skin pigmentation by subjective methods.

Discussion: Subjective Fitzpatrick classification frequently mischaracterizes skin pigmentation compared with objective spectrophotometry. That over one-third of participants were classified lighter by investigators than by objective measurement is clinically significant: underestimation of pigmentation impairs detection of erythema and early tissue damage in wound assessment. These findings align with growing evidence that FST is an unreliable proxy for skin tone and that objective colorimetry provides a more accurate, reproducible approach. Integrating objective colorimetric tools into wound care could improve early wound detection, standardize assessment across providers, and reduce disparities for patients with darker skin tones. Continued enrollment is underway to increase statistical power.

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CR-048

Application of Negative Pressure Wound Therapy After Early-Stage Subungual Melanoma Functional Surgery and Delayed Skin Grafting

Kyoungae Nam

Introduction: Early stage subungal melanoma(SUM) can be treated with functional surgery instead of amputation. Conservative treatment using Mohs Micrographic Surgery of the nail unit bed followed by delayed skin grafting. The objective of this study is to evaluate the efficacy of the negative pressure wound therapy (NPWT) after early stage subungual melanoma functional surgery and delayed skin grafting.

Methods: Retrospective review of 92 patients (50 males,42 females) from August 2011 to December 2023 was performed.

Results: Mean age of the patients was 56.7 years (18~90 years) with 50 male patients (54.3%) and 42 female patients (45.7%) and all patients were diagnosed with early stage SUM (Melanoma in situ 80 patients, Stage I 12 patients) The most common anatomical site was thumb in 36 patients(39.1%), followed by great toe 29 patients(31.5%), Index finger in 9 patients(9.8%), 3rd finger in 5 patients(5.4%), 4th finger in 6 patients(6.5%), 5th finger in 3 patients(3.3%), 2th and 4th toe in each 1 patient(1.1%) and third toe 2 patients(2.2%). After confirming the complete removal of the melanoma through histopathological examination of surgical specimens, NPWT was applied for an average of 34ays (range : 21~ 69 days).

These results show that a combination treatment of NPWT and skin grafting is an excellent therapeutic option for early-stage subungual melanoma functional surgery and delayed skin grafting.

Discussion: NPWT can be used effectively for early-stage subungual melanoma functional surgery and delayed skin grafting. Since the nail unit is covered with thick and skin graft, functional and aesthetic outcomes are excellent.

CR-049

Where Ankle Pressures Fail: NIRS-Derived Tissue Oxygen Saturation as a Calcification-Independent Marker of Peripheral Arterial Disease

Alisha Oropallo; Natasjia Pinnock, MD; Amit Rao, MD

Introduction: Tissue perfusion is a primary determinant of chronic wound healing, yet standard vascular assessment often relies on pressure-based tests that can mislead in exactly the patients most at risk.1 The ankle-brachial index (ABI) is the first-line screen for peripheral arterial disease (PAD), but arterial calcification falsely elevates ABI in diabetic and renal patients.2 The toe-brachial index (TBI) is more reliable in these

cases, yet it requires specialized equipment and is not obtained in every patient. Multispectral near-infrared spectroscopy (NIRS) non-invasively quantifies microvascular tissue oxygen saturation (StO_2) independent of macrovascular calcification and without contact. We examined how standard arterial diagnostics relate to PAD status and whether NIRS-derived StO_2 and regional perfusion indexes add diagnostic insight where ABI is limited.

Methods: In this interim analysis of REB-approved, single-center prospective observational study, 30 adults with available vascular records underwent bilateral NIRS imaging* across dorsal, medial, and plantar foot planes, and the palmar forearm. Site means and three regional indexes (plantar/palmar, dorsal/plantar, dorsal/palmar) were derived per limb. Standard assessments comprised ABI (30/30 patients), Doppler waveform (30/30), and TBI (22/30; toe pressures not obtained in all cases). Limbs were classified PAD-positive when a clinical PAD diagnosis (Fontaine) was accompanied by a concordant abnormal side-specific test (ABI-, TBI-, or Doppler-defined); a control group comprised limbs from patients with no PAD, no peripheral vascular disease, and no chronic venous insufficiency (CVI). Mann-Whitney and Spearman tests assessed differences and correlations ($p< 0.05$).

Results: PAD-positive limbs showed lower StO_2 than controls at the forearm reference (72.1 vs 82.9%, p=0.001) and plantar foot (73.4 vs 80.0%, p=0.003), with the medial plane also reduced (68.6 vs 73.5%, p=0.047). Dorsal-referenced indexes were elevated in PAD, capturing a spatial perfusion gradient: dorsal/plantar and dorsal/palmar. ABI did not show statistically significant correlation with StO_2 at any site. ABI was non-interpretable (incompressible) or in the normal range in cases with confirmed PAD and decreased StO_2, indicating perfusion compromise that ABI failed to detect. StO_2 was obtained in all imaged limbs, whereas TBI was available in only 22/30 patients.

Discussion: In calcified limbs, the ABI often fails to reflect true perfusion status, consistent with its known unreliability under arterial calcification. NIRS-derived StO_2 provided contact-free, calcification-independent perfusion data, and derived indexes added a spatial gradient. Where ABI is normal or uninterpretable and TBI is unavailable, StO_2 shows promise as a practical adjunct for detecting microvascular perfusion deficits in PAD. Larger TBI-anchored cohorts are warranted to define diagnostic thresholds.

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CR-050

Real-Time Visualization of Fluorescence Bacterial Burden Improves Treatment Acceptance and Adherence in Chronic Wounds

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Introduction: Chronic wound management is complicated by patient nonadherence, refusal of recommended interventions, and limited understanding of wound severity. Elevated bacterial burden is often not apparent during routine clinical assessments, which may limit patient understanding of wound severity and reduce acceptance of recommended wound management strategies, including serial debridement, antimicrobial therapy, and frequent follow-ups.1 Improved visualization of clinical findings has been associated with enhanced patient understanding and engagement in chronic wound care. Fluorescence (FL) imaging* enables real-time visualization of elevated bacterial burden at the point of care, allowing clinicians to demonstrate otherwise non-visible clinical findings during treatment discussions.[1,2]

Methods: A total of 35 patients undergoing long-term wound care treatment (≥6 months) for various chronic wound etiologies were surveyed at two outpatient wound care centers. A 10-item questionnaire, adapted from validated quality-of-care instruments, assessed patient-reported understanding, uncertainty, treatment acceptance, and adherence behaviors related to repeated FL imaging over ≥10 clinic visits using a 5-point Likert scale.[3]

Results: FL imaging improved alignment between patient perception and clinician assessment of wound severity and bacterial burden. All respondents (100%) reported improved understanding of their wound status following FL imaging. Patients also reported increased adherence, with 86% more likely to follow at-home care plans and 64% more likely to attend follow-up visits. Trust in clinician recommendations increased in 100% of respondents following visualization of bacterial burden. Here, we present a case study demonstrating how FL imaging of bacterial burden improved patient adherence and supported wound healing.

Discussion: During the clinic visit, real-time FL imaging enabled the patient to visualize bacterial burden within the wound with their physician at the clinic. This improved the patient's understanding of the need for clinician-recommended treatment, resulting in better adherence to the treatment plan, which can lead to improved wound healing, and fewer clinic visits. By addressing discordance between patient perception and clinical assessment, FL imaging can function as an effective communication and patient engagement tool in chronic wound management.

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CR-052

Patient-Reported Outcomes in Venous Leg Ulcers: A Prospective Study of Silicone Superabsorbent Polymer Dressings

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Introduction: Venous leg ulcers (VLUs) are chronic wounds associated with substantial symptom burden, impaired health-related quality of life, and high healthcare costs. Current guidance recommends assessing patient-centered outcomes alongside healing. This study reports the VLU subgroup of a prospective multicenter cohort, focusing on wound-related quality of life and patient-perceived treatment benefit. Despite increasing recognition of patient-centered outcomes, prospective data describing the relationship between wound healing and patient-reported benefit in VLU populations remain limited.

Methods: This prospective, single-arm cohort study was conducted in specialist wound centers in Poland. Adults with chronic, noninfected, exuding VLUs received Silicone superabsorbent polymer dressings* together with standardized compression therapy for up to 6 weeks. Patient-reported outcomes (PRO) were the Wound Quality of Life questionnaire (Wound-QoL-17) and the Patient Benefit Index for wounds (PBI-W). Changes in Wound-QoL from baseline to final visit, responder analyses using the published 0.50-point minimal important difference and attained PBI-W scores at follow-up were analyzed. The observed quality-of-life improvements occurred alongside ongoing clinical wound improvement during the six-week follow-up period.

Results: Fifty-two patients with VLU were included (44.2% women; mean age 69.1 years; mean body mass index 30.0 kg/m²). Final/discontinuation patient-reported outcome data were available for 48 patients. Global Wound-QoL improved from 2.03 ± 0.78 at baseline to 1.18 ± 0.80 at final/discontinuation visit, corresponding to a mean improvement of 0.81 points (95% CI 0.49 to 1.12; paired t-test $p< 0.001$; Wilcoxon $p< 0.001$; standardized response mean 0.74). Clinically relevant global improvement of at least 0.50 points occurred in 27/48 patients (56.3%); 16/48 (33.3%) were stable and 5/48 (10.4%) worsened by at least 0.50 points. Final attained PBI-W benefit was high (mean 2.92 ± 0.97; median

3.07, IQR 2.15 to 3.78), with 45/48 patients (93.8%) achieving PBI-W ≥1 and 28/48 (58.3%) achieving PBI-W ≥3. Global Wound-QoL improvement correlated moderately with final attained PBI-W benefit (Spearman rho=0.42; p=0.003). No dressing-related serious adverse events were reported.

Discussion: Silicone superabsorbent polymer dressings* alongside compression therapy were associated with improved quality of life and high patient-perceived benefit compared with baseline. Findings support incorporating validated patient-reported outcomes in VLU research and warrant larger comparative studies.Because this was a single-arm study conducted in specialist wound centers, causality cannot be established and generalizability to broader care settings may be limited. These findings support incorporating validated patient-reported outcomes into VLU research and justify larger controlled comparative studies.

CR-055

A Novel Antimicrobial System for Wound: Triiodide Polymer as a Broad Spectrum Agent for Wound Dressing

Daniel Rego; Lunn Detlor; Kermit Littleton; Albert Rego, PhD

Introduction: Hospital infection in the United States alone can cost up to $15,000/patient, affecting up to 4.3 million patients each year, with up to 100,000 deaths resulting. With more than 70% of the bacteria that cause hospital infections being resistant to at least one of the antibiotics used to treat them, a broad spectrum anti-microbial agent that is effective against viruses, bacterial spores, bacteria, protozoa, and fungi would benefit both patients and health care sites.

Methods: This anti-microbial agent involves a strongly held triiodide that does not chemically compromise the underlying material. Efficacy was tested with various treated test articles including wound dressing, against both bacteria and viruses. An animal study using a mini-pig was undertaken to show effective wound healing. Efficacy was tested against silver containing products for comparison

Results: The anti-microbial agent retains controlled release via contact allowing for long-term anti-microbial efficacy with effective biocidal kill up to 99.9999% in some cases, making it suitable for other applications including catheters, air filtration, non-woven clothing, fluids involving dialysis, in addition to topical wound management. Wound healing was achieved in all test sites within 7 days, compared to only 6 of 9 for the control.

Discussion: This anti-microbial agent is biocidal while also acting rapidly without causing microorganism resistant strains. We demonstrate that it is more effective than silver wound dressings and is suitable for both latex and synthetics.

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CR-056

Peptide Biomimetic Matrix Revitalizes 30 Chronic Wounds via Tissue Regrowth and Revascularization: Monitoring Progress With Multispectral NIRS Imaging

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Introduction: Chronic lower extremity wounds contribute to >$25 billion in annual US healthcare costs while significantly increasing risk of infection, amputation, morbidity and mortality for millions of patients. Such clinical and economic burden underscores the critical need for improved diagnostic and treatment modalities. This study aimed to evaluate the performance of a self-assembling peptide biomimetic matrix (BMM) - designed to support healing via an extracellular matrix-like scaffold for tissue regrowth and antibacterial protection - in chronic lower extremity wounds.

Methods: Patients (N&#3f27) were selected based on severity of comorbidities, wound age, and failure to respond to previous wound management interventions. A total of thirty (30) chronic lower extremity wounds – including diabetic foot ulcers, pressure ulcers, venous leg ulcers, and other non-healing wounds – received the FDA-approved peptide-based BMM* after appropriate wound bed preparation. In a subset of cases (fifteen), multispectral Near-Infrared Spectroscopy (NIRS), infrared (IR) thermal, and digital imaging were captured using a handheld mobile device**. Wound characteristics and tissue oxygen saturation (StO_2) were assessed at baseline and monitored during following visits.

Results: All patients responded positively to BMM treatment, showing rapid wound healing progression. Healthy granulation tissue formation was observed after a single application. Wounds involving exposed tendon / bone or tunnels achieved coverage of the originally exposed structures and tunneling resolution. Complete closure was achieved within the study period in 22 cases (73%), as early as 2 weeks. The median time to complete wound closure was 6 weeks and 5 BMM applications. In most cases monitored by NIRS, a rapid and clinically meaningful increase in tissue oxygenation (ΔStO_2 >11%) was observed after BMM treatment (only one case showed a slight StO_2 reduction). The increase in StO_2 predicted healing, suggesting rapid healthy tissue regrowth and revascularization that resulted in re-epithelialization over time. Other important clinical observations included improvement in drainage and peri-wound skin integrity. No adverse events were observed.

Discussion: This study highlights the safety and efficacy of BMM in treating chronic, refractory lower extremity wounds by fostering an environment that promotes rapid tissue regrowth and revascularization. NIRS imaging provided an objective, non-invasive measure of oxygenation, helpful in predicting ulcer healing trajectory and response to treatment.

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CR-059

Accelerated Wound Closure With Bioengineered Collagen-Mānuka Honey-Hydroxyapatite Dressing in Chronic Lower Extremity Wounds: A Retrospective Urban Hospital Clinic Evaluation

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Introduction: Chronic wounds remain a significant healthcare challenge, with real-world healing rates of 55–70% considerably lower than published benchmarks of 92%. Complex wounds require multifaceted treatment approaches that address matrix metalloproteinase activity and tissue regeneration simultaneously, yet current standard-of-care (SOC)

products often lack these comprehensive mechanisms. Collagen, Mānuka honey, and hydroxyapatite each contribute distinct and complementary roles in the wound healing cascade. This retrospective evaluation compared closure rates between SOC dressing protocols and a novel collagen-Mānuka honey-hydroxyapatite dressing (CHD)* in an urban hospital wound care setting, with particular attention to patient adherence as a determinant of success.

Methods: A retrospective IRB analysis of 47 chronic lower extremity wounds from 43 patients treated at a level I trauma center wound care department was conducted. Twenty wounds received SOC (including silver foams, iodine-based dressings, and collagen sheets), while 27 wounds received CHD with reapplications per protocol. Inclusion criteria included patients ≥18 years, type 1 or 2 diabetes, wound surface area ≤9 cm^2, Wagner grade 1-2 diabetic foot ulcers, and nonhealing wounds without clinical infection. Primary endpoint was time to complete reepithelialization. Patient demographics, wound characteristics, treatment adherence, and closure timelines were documented. Statistical analysis (one-way ANOVA, $P < .05$) compared wound size and time to closure between groups.

Results: Mean initial wound size was comparable between groups (SOC: 2.1 cm^2; CHD: 1.6 cm^2). Overall closure rates were 40% for SOC and 26% for CHD. Among wounds that achieved closure, average time to closure was 2× faster with CHD (7.4 weeks vs. 14.8 weeks; $P < .05$). Non-closure was primarily attributed to patient nonadherence (14 patients), comorbidities (6 patients), wound reclassification (5 patients), and facility changes (3 patients). A notable case involved a patient serving as their own control with bilateral diabetic foot ulcers: the CHD-treated foot closed within 6 weeks while the SOC-treated foot remained open during the same period.

Discussion: These results support CHD as an effective intervention for accelerating wound closure in adherent patients, with a 2-fold reduction in healing time representing a meaningful clinical improvement. Patient adherence emerged as the critical variable affecting outcomes in both groups, underscoring the importance of comprehensive wound care management beyond product selection alone. Randomized controlled trials are warranted to further validate these findings.

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CR-061

Interim Analysis of the STABLECAMP Trial Evaluating Cellular, Acellular, and Matrix-Like Products for Diabetic Foot and Venous Leg Ulcers

Thomas Serena, MD FACS; Brianna Tramelli, BS; Zwelithini Tunyiswa, BA; Dereck Shi, MS; Emily Cook, MS; Henry Ohse, BS

Introduction: Chronic lower extremity ulcers, including diabetic foot ulcers (DFUs) and venous leg ulcers (VLUs), are associated with substantial morbidity, impaired quality of life, and high healthcare costs. Despite standard of care (SOC) best practices, many wounds fail to close completely. Cellular, acellular, and matrix-like products (CAMPs) have been developed as a covering to offer protection from the surrounding environment.

Methods: This interim analysis of the STABLECAMP trial evaluated the effectiveness of CAMPs used with SOC compared with SOC alone. Products evaluated in this analysis are dual layer, amniotic membrane allograft (DLAG) and four layer, amniotic membrane allograft (FLAG). Outcomes included percent area reduction (PAR) and complete wound closure through 12 weeks. Bayesian hierarchical models were used to estimate treatment effects and associated uncertainty during ongoing data collection.

Results: Among 266 patients with DFUs (SOC alone, n=57; DLAG+SOC, n=104; FLAG+SOC, n=105), the estimated probability of complete closure by week 12 was 36.3% with SOC alone (95% CrI: 26.9%-46.1%), compared with 44.7% with DLAG+SOC (95% CrI: 36.0%-53.8%); and 61.1% with FLAG+SOC (95% CrI: 50.3%-71.2%). Mean PAR estimates for DFUs were -72.6% with SOC alone (95% CrI: -89.9% to -46.3%), compared to -71.6% with DLAG+SOC (95% CrI: -88.4% to -43.1%); and -79.1% with FLAG+SOC (95% CrI: -94.1% to -55.2%). Among 177 patients with VLUs (SOC alone, n=59; DLAG+SOC, n=53; FLAG+SOC, n=65), the estimated probability of complete closure by week 12 was 44.2% with SOC alone (95% CrI: 34.1%-54.3%), compared to 58.8% with DLAG+SOC (95% CrI: 47.1%-70.9%); and 65.1% with FLAG+SOC (95% CrI: 54.3%-76.4%). Mean PAR estimates for VLUs were -59.5% with SOC alone (95% CrI: -87.8% to -16.7%), compared to -55.1% with DLAG+SOC (95% CrI: -87.0% to -3.1%); and -61.7% with FLAG+SOC (95% CrI: -89.7% to -18.5%).

Discussion: Interim findings suggest that CAMPs used alongside SOC may improve wound closure outcomes compared with SOC alone. Both CAMPs demonstrated higher estimated closure rates in DFUs and VLUs. These results support continued investigation of CAMPs as adjuncts for chronic wound management.

CR-062

Lyophilized Amnion/Chorion Membrane Significantly Improves Closure Outcomes in Chronic Diabetic Foot Ulcers: Interim Results From a Multicenter Randomized Trial

Thomas E. Serena, MD; Alicia Berardinelli; Brianna Tramelli; Dereck Shi; Zwelithini Tunyiswa

Introduction: Chronic diabetic foot ulcers (DFUs) often fail to close despite optimized standard of care (SOC), contributing to infection, hospitalization, and amputation. Placental-derived allografts such as PURION-processed lyophilized human amnion/chorion membrane (ppLHACM) provide a structurally supportive and protective wound environment that may facilitate wound closure. This study evaluated ppLHACM + SOC versus SOC alone in adults with non-healing DFUs.

Methods: This multicenter, prospective, randomized, controlled, modified platform trial enrolled adults with DFUs persisting ≥4 weeks despite SOC. Participants were randomized 1:2 to SOC alone and SOC + ppLHACM. The primary endpoint was complete wound closure by week 12. Interim success required a posterior probability ≥90% that the treatment effect exceeded zero. Bayesian models generated posterior distributions, 95% highest-density intervals (HDI), and posterior probabilities.

Results: 154 participants were included in the interim analysis (SOC n = 44; ppLHACM n = 110), with 20 patients excluded. Baseline characteristics were comparable between groups. On Frequentist analysis, the modified intent-to-treat (mITT) demonstrated a statistically significant improvement in wound closure: 40.7% (35/86) vs. 21.1% (8/38), p=0.034. Bayesian analysis showed similar **results:** at week 12 probability of complete closure was higher with ppLHACM (38.6%) than with SOC (15.7%), yielding a posterior absolute difference of 22.9% and a posterior risk ratio of 2.54 (95% HDI 1.62–3.52) and 99.7% posterior probability that the treatment is superior. Adverse-event rates were comparable between groups, with no graft-related safety concerns.

Discussion: The posterior probability that ppLHACM improves closure relative to SOC was 99.7%, exceeding the predefined success threshold of 90%. Additionally, a statistically significant improvement in wound closure was demonstrated with ppLHACM over SOC. This interim analysis demonstrates that ppLHACM + SOC increases the likelihood of complete DFU closure by 19.6% (p=0.034) with Frequentist analysis and 22.9% with Bayesian analysis, without added safety risk. These interim data provide strong early evidence of clinical benefit with ppLHACM, subject to confirmation with full trial completion. The adaptive platform design offers an efficient approach for evaluating advanced biologic treatments in chronic

wound care.

CR-063

Single-Layer Amniotic Membrane Plus Standard of Care for Chronic Diabetic Foot Ulcers: An Updated Analysis of the CAMPX Trial

Thomas Serena, MD; Brianna Tramelli, BS; Emily King, MS; Dereck Shi, MS; Ryan Breisinger, BS

Introduction: Diabetic foot ulcers (DFUs) are among the most serious and challenging complications of diabetes, contributing to morbidity, diminished quality of life, and increased healthcare utilization. Despite advances in wound management, a substantial proportion of DFUs fail to heal with standard of care (SOC) alone, underscoring the need for adjuncts that can improve wound closure outcomes while remaining cost-effective.

Methods: This multicenter, randomized controlled trial evaluated the effectiveness of adding single-layer amniotic membrane1 (SLAM) to SOC for the treatment of chronic, nonhealing DFUs. The primary endpoint was complete wound closure within a 12-week treatment period. Closure was defined as full re-epithelialization without drainage confirmed at two consecutive weekly visits and adjudicated by an independent blinded review committee. Secondary assessments included weekly measurements of percent area reduction (PAR) from Treatment Visit 1 (TV-1) through Treatment Visit 13 (TV-13), determined using digital planimetry and clinical evaluation.

Results: A total of 222 subjects with Wagner grade 1 or 2 DFUs were randomized (SLAM plus SOC, n=113; SOC alone, n=109). Within the Intent-to-Treat (ITT) population, complete wound closure occurred in 30.9% of patients treated with SLAM plus SOC compared with 17.5% of those receiving SOC alone (absolute difference 13.4%; 95% CI, 1.9%-24.5%; p=0.023). Analysis of PAR demonstrated greater wound-size reduction in the SLAM plus SOC group throughout the study. Median PAR values were 55.1% versus 36.4% in the ITT cohort for SLAM plus SOC and SOC alone, respectively.

Discussion: Interim results suggest that the application SLAM alongside SOC may enhance wound closure in patients with chronic DFUs. The observed improvements in both complete closure rates and PAR support the potential clinical value of this approach and support the continued evaluation of this approach as a treatment strategy for chronic DFUs.

CR-064

Efficacy of Dual Layer Human Amnion Allograft in Nonhealing Diabetic Foot Ulcers: An Interim Analysis of the CAMPFIRE Clinical Trial

Thomas Serena, MD FACS; Brianna Tramelli, BS; Zwelithini Tunyiswa, BA; Dereck Shi, MS; Emily Cook, MS; Stephanie Wilkins, BSN, RN

Introduction: Diabetic foot ulcers (DFUs) are chronic, hard-to-heal wounds that affect millions of individuals worldwide and are associated with substantial morbidity, mortality, diminished quality of life, and increased healthcare expenditures. Despite advances in wound care, standard of care (SOC) alone often fails to achieve timely healing in hard-to-heal DFUs, highlighting the need for innovative and cost-effective adjuncts that can improve clinical outcomes and reduce the burden of disease.

Methods: This interim analysis evaluated data from a multicenter, prospective, randomized, controlled modified platform trial designed to assess the effectiveness of dual layer human amnion allograft (DLHAA) used in conjunction with SOC compared with SOC alone. The primary endpoint was complete wound closure within 12 weeks among patients with hard-to-heal DFUs. Outcomes were analyzed using a Bayesian statistical framework to estimate treatment effects and probabilities of benefit.

Results: A total of 124 subjects were randomized (DLHAA + SOC, n=66; SOC alone, n=58). The estimated probability of wound closure at week 12 was 27.3% for SOC (95% CrI: 16.9-36.6%), and 38.4% for DLHAA + SOC (95% CrI: 28.5-49.0%). Compared with SOC alone, DLHAA+SOC demonstrated an absolute improvement of 11.1 percentage points (95% CrI: -1.8 to 25.0), a risk ratio of 1.46 (95% CrI: 0.84-2.10), and a 94.5% posterior probability of benefit. Mean percent area reduction (PAR) at week 12 was -58.5% for SOC (95% CrI: -78.6 to -36.1%), and -63.9% for DLHAA+SOC (95% CrI: -81.2 to -44.5%). Compared with SOC, DLHAA+SOC achieved an additional 5.3 percentage-point reduction in PAR (95% CrI: -26.7 to 18.0) with a 68.6% posterior probability of greater reduction. Closure and PAR findings were directionally consistent, indicating improved healing outcomes in the allograft group.

Discussion: Interim findings demonstrate a favorable treatment effect for DLHAA when used in combination with SOC. Improvements in both wound closure and wound area reduction support continued patient enrollment and completion of the CAMPFIRE trial to further characterize treatment efficacy and clinical benefit.

CR-065

Interim Analysis of the RENEW Trial Evaluating Cellular, Acellular, and Matrix-Like Products for Diabetic Foot Ulcers

Thomas Serena, MD FACS; Brianna Tramelli, BS; Zwelithini Tunyiswa, BA; Dereck Shi, MS; Emily Cook, MS; Stephanie Wilkins, BSN, RN

Introduction: Diabetic foot ulcers (DFUs) are a serious complication of diabetes, associated with high morbidity, cost, and reduced quality of life. Although standard of care (SOC) is well established, many chronic wounds fail to close. Cellular, acellular, and matrix-like products (CAMPs) used with SOC may improve healing. The RENEW randomized controlled trial is a prospective, multicenter, modified platform study evaluating multiple CAMPs against matched SOC.

Methods: In this ongoing trial, participants are assigned to the currently active CAMP cohort: amnion, intermediate layer, and chorion (AIC) plus SOC, within a five-arm platform design. The final analysis will include matched SOC controls from the U.S. Wound Registry. This interim analysis evaluates percent area reduction (PAR) and wound closure through 12 weeks as early indicators of wound healing. Bayesian hierarchical models were used to estimate treatment patterns and uncertainty as data collection continues.

Results: Interim Bayesian analysis estimated the posterior probability of wound closure at week 12 for AIC+SOC at 57.9% (95% CrI: 40.7%-74.7%), compared with a synthetic control reference of 23.2% (95% CrI: 11.8%-36.5%). AIC+SOC showed an absolute improvement of +34.7 percentage points in closure probability (95% CrI: +13.9 to +56.3 pp) and a risk ratio of 2.70 (95% CrI: 1.20-4.54). The Bayesian analysis indicates a 99.7% posterior probability that AIC+SOC improves wound closure relative to the synthetic control reference. AIC+SOC showed a mean PAR of -88.4% (95% CrI: −97.8% to −78.3%) at week 12. The posterior is concentrated well below the SOC-equivalent literature value, consistent with the high closure probability observed in the closure analysis above: most AIC+SOC wounds had either fully closed by week 12 (contributing PAR values near −100%) or had shrunk substantially in residual area.

Discussion: Preliminary RENEW findings suggest AIC+SOC may improve DFU healing, with higher estimated week 12 closure probability and substantial wound area reduction versus an synthetic control reference. These results remain interim and require confirmation as additional participants complete follow-up and later study phases are completed.

CR-069

Technology-Enabled Humanization of Pressure Injury Prevention: Sub-Epidermal Moisture Scanning to Advance Equity and Person-Centered Care

Rhonda Sullivan, DNP, PhD, MBA, MSN, CWON, LNCC, NE-BC, CSPHA, CLSSBB

Introduction: Hospital-acquired pressure injuries (HAPIs) remain a significant patient safety and health equity challenge, disproportionately affecting individuals with darker skin tones due to delayed recognition of early tissue damage when erythema is less visible. Persons with dark

skin tones are twice as likely to develop a pressure injury, more likely to develop multiple or more severe injuries, and four times more likely to die from a pressure injury. The Sub-Epidermal Moisture (SEM) Scanner addresses this disparity by detecting localized edema as a skin-tone-independent biomarker of early pressure injury, enabling earlier and more equitable prevention.

Methods: Following PRISMA guidelines, we systematically reviewed and meta-analyzed primary studies (2019–2025) reporting clinical and/or economic outcomes of SEM-guided prevention in adults. Two independent reviewers performed study selection, data extraction, and bias appraisal. A fixed-effects meta-analysis pooled odds of HAPI incidence.

Results: Eight studies (n = 20,000 patients) from acute, intensive care, palliative, and community settings met inclusion. Pooled analysis of seven studies (n = 18,451) showed a 64% reduction in odds of developing HAPIs with SEM-guided care (OR 0.36, 95% CI 0.24–0.53, p < 0.00001). Controlled trials reported 0% HAPIs in SEM groups versus 1–2% in controls. Large pre–post studies demonstrated incidence reductions of up to 80%. Although no study stratified outcomes exclusively by skin tone, SEM readings were unaffected by pigmentation, and several reported earlier detection in dark-skinned patients where visual signs were absent. Economic analyses consistently found SEM to be cost-saving, up to $4,054 saved per U.S. admission and approximately £0.5M annually per mid-size U.K. hospital.

Discussion: SEM-guided prevention substantially reduces HAPI incidence and healthcare costs while advancing equity in early detection for patients with dark skin. By enabling technology-driven, person-centered care, SEM scanning represents a scalable, cost-effective innovation to address disparities in pressure injury prevention.

CR-070

Is Zero Harm Still the Goal? What Real-World Pressure Injury Prevention Outcomes Reveal About the Current Reality of Zero Harm

Rhonda Sullivan

Introduction: Zero harm remains a central healthcare safety goal, yet hospital-acquired pressure injuries (HAPIs) persist despite widespread prevention efforts. While reviewing real-world pressure injury prevention work presented at a 2026 national wound care conference, pre-project HAPI rates were 2-3 times higher than the national published rate and reports of 100% HAPI reduction or sustained zero harm were largely absent.

Methods: A structured review was conducted of 28 conference posters focused on pressure injury prevention projects. Projects were included if they described a prevention implementation project and reported a HAPI reduction outcome. Thirteen projects met criteria for stated or calculable relative HAPI reduction and were analyzed as individual units. Because outcomes were heterogeneous, including rates per 1,000 patient days, prevalence percentages, counts, and PSI-03 events, relative percent reduction from baseline was used for cross-project comparison. Intervention categories were coded descriptively.

Results: All 13 included projects reported HAPI reduction. However, 100% reduction or sustained zero HAPI outcomes were uncommon. Mean relative HAPI reduction was 63.7% (95% CI, 51.7%–75.7%), median reduction was 55.6%, and range was 38.0%–95.6%. In the subset with explicit pre/post values, mean reduction was 66.5% across 11 projects. HAPI reductions were only statistically significant when any HAPI reduction was considered, with 13 of 13 projects showing improvement (one-sided p=0.00012). Contributors most positively associated with reduction included multi-component prevention bundles or protocols, education, skin champions, shared governance, structured rounding, offloading/support-surface strategies, and WOC specialist involvement. The absence of 100% reduction was related to delayed early detection, inconsistent bundle reliability, variable adherence to turning/offloading, device-related injury risk, documentation and classification variability, patient acuity, and difficulty sustaining interdisciplinary accountability.

Discussion: Current HAPI prevention initiatives reduce harm but rarely demonstrate complete elimination. If zero pressure injuries remains the goal, prevention must evolve from episodic improvement projects to high-reliability systems integrating standardized bundles, early detection, real-time surveillance, WOC specialist escalation, and learning from every HAPI event. These findings suggest a need to review, revise, and reset current pressure injury prevention programs by reducing non-value-added processes and concentrating resources on the evidence-informed practices most consistently associated with meaningful and sustained HAPI reduction.

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CR-071

Using Negative Pressure Wound Therapy Following High-Risk Revision Total Knee and Total Hip Arthroplasty: A Focus on the Incision Site and Peri-Wound

John Timmons; Philip Huang, MD

Introduction: Revision total hip and knee arthroplasty procedures (rTHA and rTKA) frequently involve prolonged operative times, larger soft-tissue dissections, compromised tissue envelopes, prior scars, retained dead space, and increased patient comorbidity burden. These factors collectively increase the risk of postoperative complications compared with primary procedures. Closed incision negative pressure therapy (ciNPT) is increasingly used to improve outcomes in revision settings, but can cause significant secondary skin complications like blistering. Peri-wound skin integrity is an important determinant of patient comfort, healing, and overall outcomes. Here we report a clinical investigation undertaken to evaluate the wound and peri-wound region following use of a portable, single-use ciNPT system in rTHA/rTKAs, highlighting a series of ten high-risk cases from the investigational cohort.

Methods: A prospective, multi-center clinical investigation was undertaken at seven high-volume orthopedic centers to evaluate a single-use ciNPT system following rTHA or rTKA. Ten of the highest-risk patients were selected for a case series based on clinical opinion and high comorbidity burden, with outcomes highlighted here.

Results: The single-use ciNPT system contributed to effective management of wound exudate and maintenance of a stable incision environment post-surgically in the 104 patient cohort. Importantly, peri-wound skin was deemed healthy in 99.0% of assessments and low overall rates of blistering were noted. In ten of the highest risk patients (mean age 67.5 years; mean BMI 36.3; multiple comorbidities including diabetes, chronic renal disease and prior joint infection) highly favorable outcomes with regards to wound healing and skin integrity were noted. No safety concerns occurred in the study.

Discussion: Use of the single-use ciNPT system contributed to skin-friendly outcomes in patients undergoing high-risk rTKA and rTHA procedures. ciNPT systems that maintain skin health while supporting wound healing during mobilization may improve patient comfort, reduce dressing-related issues, and enhance overall postoperative recovery in complex revision arthroplasty patients.

CR-072

Characteristic Features of Deep Tissue Injury and Stage 1 Pressure Injury: A Near-Infrared Spectroscopy and Thermographic Imaging Study

Kevin Y. Woo, PhD, RN, NSWOC, WOCC(C), FAPWCA, FNSWOC

Introduction: Early, reliable differentiation between Stage 1 pressure injury (PI) and deep tissue injury (DTI) remains a significant clinical challenge. This purpose of study was to describe the physiological signatures of healthy intact skin, Stage 1 PI, and DTI using multimodal imaging integrating near-infrared spectroscopy (NIRS) and long-wave infrared thermography (LWIR), to evaluate whether objective. A better understanding of physiologically grounded signatures can enhance diagnostic accuracy and support timely clinical intervention.

Methods: This was a prospective, single-center observational study with 80 participants in a community hospital. All patients were at high risk or presented with pressure injuries. Bony prominences were evaluated by visual inspection for signs of skin injuries by a wound specialist. Each area was also assessed by a multispectral imaging device with near-infrared and infrared lights for the calibration of tissue oxygenation and skin temperature.

Results: Distinct physiological signatures were identified. Healthy intact skin demonstrated homogeneous tissue oxygen saturation (StO_2) and thermal profiles. Stage 1 PI was characterized by focal StO_2 elevation and surface warmth (≥2°C above reference), consistent with reactive hyperemia following pressure relief and inflammatory processes. DTI is presented as a focal StO_2 cold spot and surface cooling, reflecting underlying ischemia. These focal ischemic or hyperemic signatures provided objective, actionable markers not discernible by visual assessment alone.

Discussion: Multimodal imaging provides objective, mechanistically grounded physiological signatures that visual assessment alone cannot access. These findings demonstrate that NIRS and LWIR enable earlier, more accurate classification of early-stage tissue injury by revealing the subsurface ischemic and inflammatory processes predicted by the inside-out versus outside-in framework. This opposing thermal and StO_2 directionality represents a clinically actionable signal that could inform bedside escalation versus offloading decisions. By moving wound care from a reactive model to a proactive, physiologically-informed paradigm, this approach supports precise, timely clinical management and enhances institutional quality data integrity.

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CR-073

Phase IV Randomized Controlled Study of an Extended-Wear Transforming Powder Dressing in Partial-Thickness Burns: Interim Results

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Introduction: Burn injuries remain a significant clinical challenge, especially in combat and low-resource settings where timely healing is critical. Standard of care dressings (SOC) often require frequent, painful changes. An up to 30-day extended-wear transforming powder dressing may reduce the need for painful dressing changes that may disrupt the wound bed and impair healing in the treatment of partial-thickness burns (PTB).

Methods: Supported by the Naval Medical Research Command–Naval Advanced Medical Development Program through MTEC OTA Award #W81XWH-15-9-0001, this ongoing Phase IV randomized multicenter trial (n=50) evaluates TPD versus SOC in adults aged 18–65 with acute deep and superficial PTB (< 20% TBSA). Patients receive treatment for up to 28 days or until wound healing. The primary endpoint is treatment-period pain assessed by Visual Analog Scale (VAS). Secondary endpoints include healing trajectories, safety, patient acceptability, and clinical usability.

Results: To date, 27 patients have been enrolled (TPD n=13; SOC n=14). Interim findings indicate significant differences between the two cohorts in both pain and wound-healing outcomes. Pain declined earlier and to a greater extent in the TPD cohort (12.3% vs 2.2% per day, p< 0.001). Pain score relative to baseline was significantly lower for the TPD cohort at Day 3 (p=0.017), Day 7 (p=0.021), Day 10 (p=0.028), and Day 14 (p=0.008). By Day 21, median pain was 0.6 with TPD (14% of baseline) versus 2.25 (42%) with SOC (p=0.191). Median pain over the treatment period was 45% lower in the TPD cohort (3 vs 5.5, p=0.059). The wound area reduction rate (WAR) was faster for the TPD cohort despite a higher baseline median area (194 cm2 vs 95 cm2 for SOC). Daily WAR was more than twofold greater (p=0.019) with TPD (~10.2%) versus SOC (~4.5%). No significant differences were observed in the time to healing and incidence of healing between the two cohorts.

Discussion: Interim results indicate that TPD patients reported lower pain and experienced faster wound area reduction compared with SOC in PTB. These findings are consistent with prior clinical studies in other wound etiologies and support TPD's use as an effective dressing option in PTB.

CR-074 (RPT-007)

The Effects of Nutritional Supplements on the Healing of Chronic Wounds

Kerry Zimmerman, RN; Beth Taylor, DCN, RD, FASPEN, FCCM

Introduction: Chronic wounds often fail to progress from the inflammatory to proliferative phase, delaying recovery. Malnutrition contributes to this delay by prolonging inflammation and causing protein deficits. Chronic wounds also impose psychological burdens that may hinder recovery, highlighting the need for comprehensive, nutrition-focused interventions. This pilot study evaluated whether nutrition education combined with twice-daily oral nutritional supplementation improves wound healing and nutritional status, and whether changes in wound size are associated with quality-of-life improvements.

Methods: A prospective feasibility study was conducted using a convenience sample of 20 patients. Participants received nutrition education and two daily servings of an oral nutritional supplement for six weeks. Nutritional status and quality of life were assessed pre- and post-intervention using validated tools (mPG-SGA and WOUND-Q). Participants completed 2-week dietary logs, reviewed by a dietitian. Wound size was measured using standard care protocols. Changes in wound size were analyzed using the Wilcoxon signed-rank test. A general linear model controlled for bivariate variables (malnutrition: yes/no; supplement compliance: yes/no) when comparing changes in wound size. Fisher's exact test was used to examine associations between wound healing direction (healing vs. not healing) and other bivariate variables.

Results: Participants were predominantly male (65%) with a mean age of 56.2 years; 70% were mildly or moderately malnourished at baseline. Median wound size decreased from 12.5 cm^3 to 7.9 cm^3, with 37% of participants demonstrating non statistically significant improvement (p=0.167). Participants consuming two daily supplements were 1.5 times more likely (p=0.26) to experience wound improvement than those with lower intake. Similarly, patients without malnutrition showed a non-significant trend toward improved healing (RR = 2.00, p = .113). Caloric and protein intake did not differ significantly between groups. Quality-of-life scores improved modestly across all WOUND-Q domains, but were not statistically significant.

Discussion: This pilot study suggests that nutritional supplementation combined with education may contribute to clinically meaningful, though statistically non-significant, improvements in wound healing and quality of life, particularly among participants with higher adherence and better baseline nutritional status. Larger studies are needed to confirm these findings and clarify the role of nutrition-focused interventions in chronic wound care.

CR-076

A Real-World Analysis of Pressure Injury Outcomes in Skilled Nursing Facility Patients Treated With Vaporous Hyperoxia Therapy (VHT) or Standard of Care Only

Allison Ramey-Ward, PhD; Sasha Frade, PhD; Zwelithini Tunyiswa, BA

Introduction: Skilled nursing facilities (SNFs) must report quality outcomes affecting CMS payments, including infection and hospitalization rates. Effective wound management is therefore a priority, as wounds such as pressure injuries (PIs) contribute to both. Recently, vaporous hyperoxia therapy (VHT) has been increasingly adopted for wound care in the SNF setting, supporting wound hygiene and closure. Here, we compare outcomes in SNF patients with PIs treated by VHT compared to those treated with standard of care (SOC) alone.

Methods: De-identified records were reviewed for skilled nursing facility (SNF) patients with PIs treated with vaporous hyperoxia therapy (VHT) plus standard of care (SOC) at a single SNF site. VHT was applied at least twice weekly for at least 30 minutes per session, and SOC included offloading and pressure relief as indicated. Records were excluded for incomplete VHT course or active sepsis at treatment start. A propensity-matched, Bayesian comparison of 12-week wound closure against SNF patients receiving SOC alone is underway.

Results: Analysis of the VHT-treated cohort of 22 patients (7 male, 15 female) with 33 PIs (1 stage 1, 5 stage 2, 20 stage 3, 5 stage 4, and 2 unstageable) demonstrated approximately 91% of wounds (30/33) closed, in an average of 4 weeks with an average of 12.5 VHT treatments. No VHT-attributable infections and no wound-related hospitalizations occurred. A propensity-matched cohort of SNF patients not receiving VHT treatment will be presented.

Discussion: In this interim real-world analysis, PI patients treated with VHT in a SNF achieved high rates of wound closure with few infections or hospitalizations. VHT uses concentrated oxygen and hydrating mist to support wound closure and hygiene, potentially improving patient outcomes and reducing infection. SNFs may consider VHT as an adjunct within their wound care protocols to support positive outcomes. Additional analysis comparing to an SOC-only cohort will further elucidate the potential benefit of VHT in the SNF.

CR-077

Healing Smarter, Not Harder: Integrating Non-Invasive Vascular Studies and Platelet-Rich Plasma Therapy in Mobile Wound Care

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Introduction: Chronic non-healing wounds remain a major source of morbidity, hospitalization, and amputation risk. Peripheral arterial disease is a frequently underdiagnosed contributor to impaired wound healability, while inadequate tissue regeneration further complicates recovery. Bellaire Wound Care proposes that integrating point-of-care non-invasive vascular studies* with adjunctive Platelet-Rich Plasma (PRP) therapy within a mobile wound care model may improve PAD identification and enhance healing outcomes among patients with chronic non-healing wounds.

Methods: This framework proposes routine non-invasive vascular studies* at the point of care to assess lower-extremity perfusion, stratify ischemia risk, determine wound healability, and identify patients requiring vascular referral, consistent with the 2024 ACC/AHA/Multisociety PAD Guideline. For patients with adequate perfusion, adjunctive autologous PRP therapy would deliver concentrated growth factors — including PDGF, VEGF, TGF-β, and EGF — to support angiogenesis, fibroblast proliferation, collagen synthesis, and granulation tissue formation. Both interventions would be embedded within a comprehensive mobile wound care model encompassing debridement, infection control, offloading, compression, and metabolic management.

Results: As a hypothesis-driven framework, prospective outcome data are pending. Current literature supports the premise: PRP therapy has been associated with improved complete healing rates, reduced infection, and shortened healing times in diabetic foot ulcers. Non-invasive vascular studies* have demonstrated value in guiding compression therapy decisions, informing treatment planning, and facilitating timely vascular referral in high-risk populations.

Discussion: Mobile wound care offers a uniquely patient-centered setting for delivering advanced vascular screening and regenerative therapy to medically complex, mobility-limited patients. Combining non-invasive vascular studies* and PRP addresses both the perfusion and biologic barriers to wound healing within a single care delivery framework. Prospective evaluation is warranted to assess feasibility, clinical outcomes, and impact on healing rates and limb preservation. If validated, this integrated model may serve as a replicable framework for mobile wound care programs nationally, advancing the standard of care for underserved and mobility-limited patient populations.

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EVIDENCE-BASED PRACTICE

EBP-002

Wound Photographic Documentation in Randomized Controlled Trials

Ekaterina Chashnikova; Gregory Bohn, MD; Thomas Serena, MD FACS; Brianna Tramelli, BS

Introduction: Wound photography is integral to clinical wound documentation and supports patient eligibility assessment, serial wound evaluation, and endpoint determination in chronic wound randomized controlled trials (RCTs). Despite this role, wound photographs are often treated as simply illustrative, and current RCT publications rarely describe photographic methods in sufficient detail. Variability in camera equipment, lighting, labeling, and operator training introduces risk of measurement bias and non-evaluable images, undermining the validity of trial outcomes.

Methods: This paper defines wound photographic documentation in the context of RCTs as a formal, repeatable process designed to accurate-

ly represent wound size, depth, and tissue characteristics consistently across time points, observers, and sites. Review of published literature supported the selection of practical criteria for acceptable wound photographs, addressing equipment, image labeling, lighting, framing, and acquisition perspective. Anonymized photographs from clinical practice were used to illustrate the proposed standards.

Results: We specified practical criteria for wound photographs and further distinguished minimum standards applicable to routine clinical documentation from the additional requirements necessary for trial-grade photography, including standard operating procedures, site training, competency assessment, and centralized quality control. To support implementation, we proposed a set of practical tools: a point-of-care checklist for clinical staff, a trial planning checklist for sponsors and investigators, and a manuscript reporting checklist for authors.

Discussion: Adoption of the proposed standards is expected to reduce missing and non-evaluable images, support objective and reproducible endpoint assessment, and strengthen confidence among regulators, payers, and clinicians in the integrity of wound trial data. Further studies are needed to verify the significance of wound photography parameters suggested in this article and to assess how implementation of wound photography standards in RCTs translates into more accurate evaluation of the endpoints and treatment outcomes.

EBP-003

The Utility of Micro-Autografting: How Skin Expansion Improves Wound Closure Across Multiple Etiologies in Resource-Limited Settings

Elof Eriksson; Rodney Chan, M.D.; Dawn Shepherd, BSN, RN, CWCN, CFCN; Chris Bauer, MBA

Introduction: Autologous skin grafting, although one of the most effective techniques for acute and chronic wound closure, is limited by insufficient donor tissue availability and the wound care setting.1 Micro-autografting offers two avenues of technical improvements. In small- to medium-sized wounds, it simplifies grafting with limited resources in the wound care clinic, office, or at the bedside. In large burn wounds, donor skin can be expanded 30 times or more.2 As an emerging grafting technique,1 micro-grafting is not yet well known in wound care circles. Here we explain the procedure and present research on its effectiveness.

Methods: Prior to grafting, the wound must be debrided and decontaminated. Under local anesthesia, a split-thickness skin graft (6-12/1000") is harvested, typically from the upper thigh. It is then placed on a cutting board, and the mincer is passed over the graft 2-10 times in perpendicular directions to produce the micro-grafts (see images). The micro-grafts are mixed into a few cubic centimeters of hydrogel. The mixture is then spread evenly over the wound with a spatula. Orientation of the micro-grafts, dermis up or down, is unimportant in a moist environment. A synthetic interface dressing is placed on top of the grafts, then a moist foam dressing and compression, if indicated. The interface dressing is left in place for 2 weeks, but the outer dressing is changed every 3-7 days.

Results: A preclinical porcine burn wound study demonstrated that micro-autografting could expand skin 100 times or more, with re-epithelialization in 14 days.3 In a clinical case series comprised of 21 patients, micro-autografting expanded skin by an average of 9.1 times, with full healing.4 Another study found micro-autografting was significantly less expensive than conventional mesh grafting.5 Clinical cases differing in wound etiology and severity, including a whole-body, full-thickness burn, demonstrate rapid wound closure with micro-autografting (see photos for examples across applications).2

Discussion: Micro-grafting is an important technical innovation, providing simplicity in outpatient autografting of small- and medium-sized wounds and improved expansion ratios in large wounds. Clinical implications of this wound treatment technology include promoting re-epithelialization in resource-limited settings or when donor tissue is insufficient.

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EBP-004

Reducing Measurement and Procedural Variability in Wound Trials: Structured Clinician Training Domains to Strengthen Reproducibility

Sasha Frade, PhD; Thomas Serena, MD; Brianna Tramelli, BS

Introduction: Clinical trials focused on nonhealing wounds are uniquely shaped by clinician-dependent assessment and intervention, creating distinctive methodological vulnerabilities. Despite increasing therapeutic innovation, heterogeneity in healing confirmation, measurement techniques, standard-of-care delivery, and competing event classification continues to limit reproducibility and cross-trial comparability. Unlike many clinical studies that rely on standardized endpoints, wound trials depend heavily on clinician-performed procedures and visually determined healing assessments. Structured guidance tailored specifically to wound trial conduct remains limited.

Methods: This narrative review examines principal sources of measurement and procedural variability in wound trials and evaluates their implications for endpoint integrity, internal validity, and reproducibility. The review explores vulnerabilities associated with healing assessment, wound measurement and imaging, operator-dependent interventions, co-interventions, and competing clinical events. These challenges are synthesized and conceptually aligned with structured clinician training domains relevant to research-active wound centers.

Results: Key sources of variability identified included diagnostic ambiguity in healing assessment, imaging inconsistency, operator-dependent interventions such as debridement, compression, and offloading, variation in co-interventions, and inconsistent classification of competing clinical events. Measurement reliability was influenced by differences in assessment techniques, image acquisition, and adherence to standardized protocols. Procedural heterogeneity and clinical drift were recognized as additional contributors to variability in healing trajectories and treatment effect estimation. These vulnerabilities were aligned with clinician training domains including endpoint and protocol literacy, standardization of operator-dependent procedures, structured outcome assessment and adjudication readiness, documentation integrity and source data quality, and continuous reinforcement and monitoring. Clinician-dependent execution emerged as an important determinant of endpoint integrity, with variability in assessment, procedural delivery, and documentation introducing avoidable methodological heterogeneity.

Discussion: Reproducibility in wound research depends not only on study design and statistical analysis but also on consistent bedside execution. Framing clinician training as a methodological safeguard rather than solely a compliance activity offers a pragmatic pathway toward strengthening endpoint reliability and enhancing interpretability of therapeutic evidence. Embedding structured clinician training within research-active centers may reduce avoidable variability, improve methodological consistency, and strengthen the evidentiary foundation of wound therapeutics.

EBP-005

Standardizing Debridement in Wound Randomized Controlled Trials

Leandro Garcia, MD; Bruna Nakayama, BS; Maria Domingues, MD; Gregory Bohn, MD; Thomas Serena, MD FACS; Brianna Tramelli, BS

Introduction: Debridement is the cornerstone of chronic wound management and a fundamental component of the standard care guidelines for chronic wounds. In chronic wounds such as diabetic foot ulcers and venous leg ulcers, routine debridement is believed to accelerate wound closure and decrease the risk of infection and amputation. Because debridement is a manual, skill-based procedure, variability in how it is defined, performed, and documented has the potential to influence outcomes independent of the investigational product and across different study sites.

Methods: This methodological review evaluated how debridement is defined, implemented, and controlled in contemporary clinical trials of chronic wounds, with emphasis on diabetic foot ulcers and venous leg ulcers. Published studies were assessed for: (1) clarity of debridement definitions and modality specification; (2) frequency and timing requirements; (3) provider qualifications and reporting; and (4) documentation and verification practices. Particular attention was given to whether debridement was protocol-mandated or discretionary, how consistently it was applied across sites, and whether objective measures, such as imaging technologies, were used to verify adequacy.

Results: Debridement was consistently described as standard of care but variably operationalized. Conservative sharp debridement was most commonly referenced, often without detailed specification of depth, extent, or instrumentation. Although more recent trials increasingly mandate weekly or visit-based debridement, earlier studies frequently permitted clinician discretion. Provider type and competency were infrequently reported, despite evidence that procedural aggressiveness may vary across disciplines. Documentation practices were commonly limited to binary confirmation that debridement occurred, with minimal detail regarding tissue characteristics or post-procedural wound bed condition. Objective verification methods, including digital planimetry and fluorescence imaging, were inconsistently incorporated. Substantial heterogeneity in debridement practice and reporting was observed across studies.

Discussion: Debridement functions as a biologically active co-intervention that can meaningfully influence wound healing outcomes, yet it remains insufficiently standardized in clinical trial design. Variability in technique, frequency, provider expertise, and documentation introduces methodological noise and threatens internal validity. Adoption of a minimal, trial-specific standard, including explicit operational definitions, defined frequency expectations, competency requirements, and structured documentation with image-based verification, represents a practical strategy to improve rigor, reproducibility, and interpretability in chronic wound trials.

EBP-006

Granular Insights Into Wound Cleanser Utilization: A Clinicians' Survey

Erika Grandy, BSN, RN, CWON; Amy Armstrong, MSN RN CWOCN CNL

Introduction: Therapeutic cleansing is a critical component of wound bed preparation, targeting the removal of loose debris and non-attached non-viable tissue, and reducing bioburden. Variability in cleanser performance and clinician experience may impact consistency of care and patient outcomes1. This project evaluated clinician-reported usability of a hypochlorous acid (HOCl)-containing wash solution* in routine wound care.

Methods: A 4-week product utilization survey was conducted across acute care hospitals, outpatient wound centers, and other clinical settings. Clinicians utilized and evaluated the solution* for ease of integration into wound care protocols, cleansing performance, wound bed moistening, facilitation of dressing removal, removal of debris or foreign material, and perception of patient experience compared with other wound cleansers previously used. Descriptive statistics (n, %) were used for analysis, excluding non-applicable responses.

Results: Sixty-eight clinicians completed the surveys; most responses originated from acute care hospitals (n=54, 79%), followed by wound care centers (n=13, 19%). Use of the solution* on multiple wound etiologies (including pressure injuries, venous/arterial leg ulcers, diabetes-related foot ulcers, burns, skin tears and other traumatic wounds) was captured. Pressure injuries were the most common wound type (n=18, 26%). The solution* was rated extremely effective for wound cleansing by 98% (n=59/60) of respondents and for wound bed moistening by 91% (n=59/65). Removal of debris or foreign material was rated extremely effective by 70% (n=38/54) and somewhat effective by 17% (n=9/54). Dressing loosening and removal was rated extremely effective by 65% (n=33/51). Ease of integration into clinical protocols was rated extremely easy by 97% (n=66/68). Perception of positive patient experience compared with other wound cleansers was reported in 93% (n=62/67) of responses.

Discussion: Findings suggest that the HOCl-containing solution* may provide a clinically effective and user-friendly option for wound cleansing across diverse wound types and care settings. High clinician-reported performance in cleansing, moisture balance support, and debris removal aligns with evidence-based wound bed preparation principles. Favorable integration into existing protocols and positive patient experience highlight the potential for the HOCl-containing solution* to enhance consistency in care delivery and patient-centered outcomes. Further research is warranted to fully validate its clinical and cost-effectiveness.

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EBP-007

Lite Work of Patient Positioning: Improving Repositioning Efficiency in Clinical Practice

Barbara Samson; Erika Grandy, BSN, RN, CWON; Lisa Kelley, MSN, RN, CWON; Sheila Mackle, MSN, RN, CWOCN

Introduction: Frequent patient repositioning is a cornerstone of pressure injury prevention but can be labor-intensive and contribute to caregiver strain and injury. Patient handling is recognized as a leading cause of work-related musculoskeletal disorders among healthcare workers, accounting for approximately 30% of workers' compensation costs in the healthcare industry, equating to an estimated $1.5-2.0 billion annually.1, 2 Occupational Safety and Health Administration recommends minimizing manual patient handling through the use of assistive technologies and safe patient handling programs.3 This evidence-based practice evaluation assessed clinicians' perceptions of a repositioning system* designed to facilitate patient turning, lateral transfers, boosting, and positioning while supporting safe patient handling practices.

Methods: A product utilization survey was conducted among clinicians following a period of evaluation of a new repositioning system* in acute care settings. Participants evaluated ease of use, body mechanics, physical effort required for patient handling tasks, protocol adherence, and likelihood of future use and recommendation. Descriptive statistics were calculated using survey responses over a six week period.

Results: Eighty-seven clinicians participated in the survey. Most reported that achieving desired patient positioning was easy or very easy (91.0%), and 84.0% indicated maintaining proper body mechanics was easy or very easy. Low or very low effort was reported for patient boosting (77.6%), lateral transfers (80.3%), and turning (82.1%).

Clinicians also reported high improvements in protocol adherence, including turning (98.6%), safe patient handling (95.9%), and early mobility (94.5%). Most indicated that they would continue using the system* (90.4%) and recommend it to colleagues (93.2%).

Discussion: These findings suggest that the repositioning system* meets a clear clinical need by improving efficiency and safety in patient handling while integrating well into routine practice. High satisfaction and strong intent to continue use indicate good acceptability, which is critical for sustained adoption. The perceived benefits for caregiver safety point to a potential reduction in physical strain and injury risk, while alignment with evidence-based practices suggests improved consistency in care delivery. However, further research using objective outcomes is needed to confirm and quantify its overall impact.

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EBP-008

Large-Area Cold Atmospheric Plasma for Multidrug-Resistant Wound Bioburden: Bench-to-Bedside Evidence for Broad-Spectrum, Non-Antibiotic Desinfection

Steven Jeffery; Stephen C. Davis, PhD; Sören Gatermann; Joel Gil, BS; Ivan Jozic, PhD; Carsten C. Mahrenholz, PhD; Lennart Marlinghaus; Thomas Meyer; Ahmad Wakaf

Introduction: Biofilm-associated wound bioburden delays healing and increases infection risk, particularly when multidrug-resistant (MDR) organisms limit systemic antibiotic options. New non-antibiotic, tissue-sparing technologies capable of broad-spectrum surface decontamination are needed as adjuncts to debridement, antisepsis, and antimicrobial stewardship. This translational study evaluated a standardized large-area cold atmospheric plasma system for antimicrobial activity, MRSA biofilm reduction, and clinical bioburden suppression.

Methods: A bench-to-bedside evaluation combined in vitro pathogen testing, porcine MRSA-infected deep dermal wound models, and a clinical service evaluation of chronic lower-limb wounds. In vitro testing included wound-relevant Gram-negative and Gram-positive bacteria carrying resistance determinants, plus Candida albicans. Porcine wounds were inoculated with MRSA and treated with active or sham plasma using standardized exposure schedules. In clinical practice, chronic ulcers received adjunctive cold plasma twice weekly for five weeks with serial point-of-care fluorescence imaging. Outcomes included colony-forming unit reduction, histologic tissue response, fluorescence-grade change, tolerance, and adverse events.

Results: In vitro, CPT cold plasma produced rapid, exposure-dependent CFU reductions across all tested organisms, including MRSA, resistant Gram-negative bacteria, vancomycin-resistant Enterococcus, and Candida. In porcine MRSA biofilm wounds, treated wounds showed 1.65, 1.89, and 2.04 log10 CFU/g reductions versus sham on Days 4, 8, and 11, corresponding to 97.8-99.1% lower bacterial burden. In a 72-hour biofilm model, the strongest 5-times-weekly regimens achieved up to 99.87% reduction versus untreated controls and 99.93% versus baseline. Clinically, 20 chronic ulcers were treated; among 17 wounds with complete fluorescence series, fluorescence-negative wounds increased from 0% to 70.6% over five weeks, and 94.1% were fluorescence grade 0 or 1 at the final assessment. No treatment-related adverse events or tissue damage were observed.

Discussion: Large-area cold atmospheric plasma demonstrated broad-spectrum, resistance-relevant antimicrobial activity from bench to bedside while preserving tissue compatibility. These findings support its use as a non-antibiotic adjunct for biofilm-rich, MDR-colonized, and difficult-to-heal wounds when antibiotic options are limited. Controlled clinical trials should define effects on healing, infection escalation, antibiotic exposure, and cost.

EBP-009

A Venous Leg Ulcer Solution to Drive Improved Clinical Outcomes and Patient Satisfaction: A Utilization Survey

Moira Lawlor

Introduction: Venous leg ulcers (VLUs) affect approximately 1% of the population globally, resulting in significant economic and health burdens. Effective edema reduction and exudate management are critical in VLU care. Patient adherence to therapy is also key to achieving successful outcomes. Ineffective or poorly tolerated compression therapy and dressings that fail to manage exudate effectively may result in delayed healing and increase the risk of wound complications. A product utilization survey considered clinicians' perceptions of a tiered VLU regimen: a non-bordered superabsorbent pad (for extremely high exudation) or a dimpled non-bordered foam (for lower levels of exudation), in combination with a two-layer compression bandage system*.

Methods: Four wound care clinics participated in a 12 week survey. Clinicians rated the regimen in terms of edema and exudate management, ease of application, ability to stay in place, usefulness of the built-in visual pressure guide, wear time, conformability, and patient comfort. Descriptive statistics (n, %) were used for analysis

Results: 81% (n=13/16) of respondents rated the compression bandage system* as very effective for edema management. 69% (11/16) described it as extremely effective compared to previously used compression therapy. 82% (14/17) rated wear time and ability to stay in place as much better than previously used compression therapy. 94% (15/16) of clinicians were extremely likely to recommend the dimpled foam for exudate management and the compression bandaging system* for edema management. 94% (15/16) of clinicians indicated that they would be extremely likely to recommend the regimen as part of their overall VLU solution.

Discussion: High ratings for edema control and exudate management, alongside favourable comparisons with previously used therapies, indicate a clear perceived improvement in clinical performance. Importantly, usability factors—such as superior wear time, ability to remain in place, and enabling most patients to wear their own shoes—highlight meaningful benefits for both clinicians and patients, potentially supporting adherence and quality of life. The very high likelihood of recommendation further reinforces strong clinician confidence in the regimen, suggesting it may represent a valuable advancement over current approaches in the wound care centers. Additional research to consider clinical and economic endpoints is warranted.

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EBP-010

Use of an Active Learning Strategy for Pressure Injury Prevention Education for Critical Care Nurse Residency

Nicole Lexer; Marissa Struckle, BSN, RN, CWON

Introduction: The Wound, Ostomy, Continence (WOC) nurse consultant team provides pressure injury prevention education during the Critical Care Nurse Residency program. Historically, this content has been provided using a lecture/ passive learning format and through demonstration of skills. Passive teaching strategies resulted in learner disengagement and difficulty meeting educational objectives. The purpose of this educational intervention was to improve learner engagement and strengthen their understanding of evidence-based PrI prevention interventions for critically ill patients.

Methods: A new format for providing PrI prevention education to nurse residents was developed using an active learning strategy. The residency class was divided into four groups, with each group assigned to an educational topic. Each group of nurse residents was required to provide a brief, 5-10 minute presentation to their peers on the assigned topic with a list of talking points. Presentation topics included: (1.) prevention of skin damage from incontinence, (2.) skin assessment, (3.) turning, repositioning and support surfaces, and (4.) prevention of pressure injuries related to medical devices. The groups were given

props to use for their presentation, including a manikin, common medical devices, written copies of hospital policies, procedures, guidelines, and evidence-based literature to support the content of their presentation. Following each presentation, WOC nurses reinforced key points utilizing a fill-in-the-blank, key-take-away worksheet completed by each resident.

Results: A cohort of 110 critical care nurse residents completed a post-session evaluation, across 7 individual teaching sessions during a 2-year time period. Responses demonstrated overall positive response to the teaching method. 87% of nurse residents agreed or strongly agreed the teaching method was enjoyable compared to lecture, and 99% agreed or strongly agreed that it met educational objectives.

Discussion: This educational intervention used peer to peer teaching as an active strategy to meet educational objectives related to PrI prevention and to increase engagement with learning. This strategy could be used to teach other nursing topics and may be effective with other learners.

EBP-011

Evolving Placental Wound Covering Utilization: Paradigm Shift Contextualized With Real-World Evidence

Jessica Meadors; Douglas Schmid, PhD

Introduction: Recent changes affecting placental wound covering* utilization raised new challenges for clinicians managing complex wounds. While providers emphasize compliant care, reimbursement shifts and increased oversight have intensified documentation and treatments.

Methods: To understand what influences clinical practice, questionnaires were distributed to wound care specialists. Responses were analyzed qualitatively and quantitatively to identify common themes in treatment decision(s), and perceived barriers to care. Findings were framed by a published case series (Mendivil 2025), including a complex homebound patient case (mobile setting). All cases were chronic non-healing and failed Standard of Care (SOC) while reporting improvements with placental coverings.

Results: Quantitatively, providers reported cessation or decreased utilization of placental wound coverings. Most cautioned that changes may restrict access to needed treatments for complex wounds. Several noted that reduced usage resulted in increased visits, hospital admissions, infections, amputations, and prolonged wound care. Participants emphasized the need for appropriate utilization, clinical oversight, clearer medical necessity, and coverage expectations. A published case series, including a complex individual case, anchored the survey in a real-world setting. In this case, a Stage 4 pressure injury decreased from 35.75 cm^2 to 2 cm^2 with 10 graft applications, pain improved from 8 to 0, and it was later reported, 100% re-epithelialization at the two-week follow-up.

Discussion: Providers reported applying clinical judgment, following guidelines, and meeting documentation requirements, yet facing uncertainty around coverage determinations, clawbacks, and evolving policy interpretations. This uncertainty may contribute to hesitation in treatment decisions and may affect patient access to therapies clinicians believe are appropriate and necessary, including for homebound, vulnerable patients. The observed complete re-epithelized case with no adverse events illustrates one of the patient types that would benefit the most from access to placental wound coverings, when SOC fails.

Respondents emphasized belief in the observed clinical benefits of placental wound coverings, as well as the need for clearer reimbursement guidance, coverage criteria, and compliance support to ensure that patients who need this therapy within a rapidly evolving reimbursement landscape will be able to access it.

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EBP-012

Psychosocial Burden and Quality of Life in Patients With Chronic Wounds

Bruna Nakayama, BS; Leandro Tapia Garcia, MD; Maria Luiza Domingues, MD; Brianna Tramelli, BS; Thomas Serena, MD

Introduction: Chronic wounds are biologically complex conditions. Clinical trials have primarily focused on wound healing endpoints such as complete closure. However, they also impose a substantial psychosocial burden, including depression, anxiety, social isolation, and reduced quality of life (QoL). These factors remain inconsistently assessed and underrepresented in clinical research. This review examines the psychosocial impact of chronic wounds, the role of patient-reported outcomes (PROs), and implications for clinical care and trial design.

Methods: A narrative review of the literature was conducted across major chronic wound types, including diabetic foot ulcers, venous leg ulcers, and pressure ulcers. Evidence was synthesized on psychosocial burden, PRO measurement, and associations between psychosocial factors and clinical outcomes, with attention to methodological limitations in current research.

Results: Chronic wounds are associated with significant multidimensional burden, including emotional distress, social isolation, occupational disruption, and financial strain. Depression and anxiety are common and are linked to reduced treatment adherence, delayed healing, increased complications, and poorer survival outcomes. PRO instruments, both wound-specific and generic, capture important aspects of patient experience but are inconsistently implemented. Caregiver burden is substantial yet rarely measured. Research is further limited by outcome heterogeneity, lack of standardized psychosocial endpoints, and underpowered study designs.

Discussion: Chronic wounds should be conceptualized as biopsychosocial conditions in which psychosocial factors influence clinical outcomes. Integrating standardized psychosocial assessment and validated PRO measures into care and research is essential for improving patient-centered outcomes and study comparability. Future work should prioritize standardized frameworks, longitudinal PRO validation, and inclusion of caregiver and social determinants to better capture the full burden of disease.

EBP-013

Screening Window Design in Chronic Wound Trials: From Convention to Evidence

Deborah Omoyege, MS, MPH; Brianna Tramelli, BS; Thomas Serena, MD

Introduction: Screening window design is one of the most consequential yet least standardized elements of chronic wound clinical trial methodology. The screening window (observational period preceding eligibility confirmation) and the run-in period (active standardization phase occurring before randomization) serve specific functions that are often poorly differentiated in published protocols. Historically, the 30-day standard-of-care (SOC) requirement was derived from Medicare1 coverage policy rather than clinical evidence and subsequently adopted as trial design convention. Despite its widespread use, its scientific basis has never been evaluated.

Methods: A narrative review of chronic wound literature published from 2000-2026 was conducted using a search strategy informed by PRISMA principles. Sources included PubMed, PubMed Central, Google Scholar, journal websites, FDA guidance documents, CMS coverage materials, and reference lists of key publications. The review focused on diabetic foot ulcers (DFUs) and venous leg ulcers (VLUs), with pressure ulcers and burns included selectively as contextual comparators. Trial design and protocol literature, prognostic studies evaluating early healing response and percent area reduction (PAR), biological studies addressing wound-level factors, and regulatory and consensus documents relevant to SOC and endpoint definition were reviewed.

Results: Screening window duration varied substantially, ranging

from 7 days to 4+ weeks, with little reported justification. Dressings used during the screening phase ranged from inert products to active antimicrobial agents capable of producing treatment effects before randomization. Hybrid models combining retrospective wound history with prospective screening were identified across multiple DFU trials, raising unresolved comparability concerns. PAR was inconsistently applied as an eligibility criterion, despite broad adoption of the four-week 50% PAR threshold established by Sheehan et al2. High screen-failure rates were frequently associated with restrictive or poorly aligned eligibility criteria. No consolidated wound-specific guidance for screening window design was identified.

Discussion: Variability in screening window design, run-in procedures, and eligibility criteria represents a significant methodological gap that limits comparability and reproducibility across chronic wound trials. The evidence supports the development of a standardized, wound-type-specific screening framework that specifies window duration, SOC requirements, dressing selection, and eligibility criteria for DFU and VLU trials. Recent coverage and reimbursement trials have standardized these features of clinical trials3.

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EBP-014

The Use of Hypochlorite Free Pure Hypochlorous Acid in the Management of Moisture Associated Skin Damage and Subsequent Hospital Acquired Pressure Injury Reduction, in a Hospital Setting

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Introduction: Texoma Medical center is a 333-bed four-star hospital in North Texas; this includes 90 adult critical care beds and 195 inpatient medical surgical beds. It is a level 3 trauma center with a leapfrog A safety grade. The facility has an ECMO program, a HeartCARE designation, Stroke Gold Plus designation, gluten free safe space designation, and a blue distinction by Blue Cross for spine surgery as well as hip and knee replacement. The hospital was interested in reducing hospital acquired pressure injuries (HAPIs), associated with moisture associated skin damage (MASD).

Methods: In September 2025, a trial was started with pure hypochlorous acid (pHA) cleanser, in the critical care step down unit. This trial included using a pHA soak at bath time on patients that were incontinent and/or had maceration. From the beginning of 2026, we instituted the facility wide a maceration protocol using pHA and prevention rounding on the units to help reduce our hospital acquired pressure injury numbers.

Results: Prior to this trial, the critical care step down unit was averaging 4 to 5 hospital acquired pressure injuries (HAPIs) monthly. After 2 months of data being gathered with pHA use being instituted, this unit had 1 HAPI per month and these were device and not MASD related. In 2025 the facility had a total of 269 HAPIs throughout the hospital, 96 of those were in the first quarter, 28 of the 96 were device related. In the first quarter of 2026 the facility had 66 HAPIs, 20 of which were device related; this is a 31% in HAPI decrease from 2025.

Discussion: The pHA maceration protocol and prevention rounding improved nursing decision-making and staff vigilance; this protocol includes a decision tree to help decide patient eligibility. Implementing pHA cleanser within a MASD management protocol contributes to hospital-wide reduction in HAPIs, particularly those related to moisture damage.

EBP-015

Acceptability and Usability of an Optimized Sodium Hypochlorite (NaOCl) Broad Spectrum Antimicrobial Wound Cleanser Across All Care Settings

Rose Raizman; Vinthiya Sriharan, BSN student

Introduction: Effective biofilm and bioburden management remain significant challenges in wound care across varied clinical settings. This project evaluated the clinical acceptability, usability, safety, and performance of a 0.057% sodium hypochlorite antimicrobial cleanser and gel compared to current standard antimicrobial alternatives. The goal was to determine its utility in managing acute and chronic wounds of diverse etiologies across acute, outpatient, long-term, and home-care environments.

Methods: A prospective observational study was conducted between February and November 2025 involving 50 patients ($N = 50$) with venous leg ulcers, pressure injuries, diabetic foot ulcers, and other wound etiologies. At every dressing change, the wound was irrigated or soaked with the antimicrobial cleanser; three cases also utilized the cleanser for negative pressure wound therapy (NPWT) instillation. The antimicrobial gel was applied as the primary dressing for pressure injuries, venous leg ulcers, and diabetic foot ulcers. Assessment tools included clinical tracking of wound characteristics, bacterial fluorescence imaging, odor and pain scales, debridement progress, and clinician experience captured via 5-point Likert satisfaction surveys.

Results: At baseline, the majority of wounds presented with critical colonization or infection, moderate-to-strong malodor, and significant slough or necrotic tissue. Clinician satisfaction surveys yielded consistently excellent mean scores for ease of use, absence of pain or stinging during application, bioburden reduction, and odor control. Rapid reductions in devitalized tissue and the marked decrease or elimination of malodor were documented within the first week of treatment. In the gel cohort, complete healing was achieved in all treated pressure injuries. Furthermore, cases utilizing NPWT instillation demonstrated a clear reduction in bacterial bioburden, which was objectively confirmed by fluorescence imaging.

Discussion: The 0.057% sodium hypochlorite formulation proved safe, well-tolerated, and highly adaptable across all care settings. It provides valid practice recommendations for rapid bioburden and odor control, pain-free application, effective debridement support, and seamless compatibility with advanced adjunctive modalities like NPWT instillation.

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EBP-016

Tissue Oxygenation Changes During Treatment With a Thermoreversible Wound Gel Support Active Healing Physiology in Chronic Wounds

Miloslav Sailer; Anna Khimchenko, PhD; Iris Noland, MD; Robert B Huizinga, RN PhD

Introduction: Chronic wounds are characterized by impaired tissue viability, persistent inflammation, and reduced oxygen availability, which contribute to stalled healing. Oxygen supports essential healing processes including angiogenesis, collagen synthesis, epithelialization, and cellular metabolism. This analysis evaluated longitudinal tissue oxygenation changes during treatment with a novel Thermoreversible Wound Gel (TRG) to assess physiological changes associated with wound healing progression.

Methods: Data from a prospective case series evaluating TRG in

chronic wounds was analyzed. Tissue oxygenation measurements (TOM) were obtained using Near Infrared (NIR) imaging from pre-debridement wound images. Fifteen patients had evaluable TOM across at least three timepoints. Mean TOM values were calculated from wound regions of interest and aligned to initial, midpoint, and final assessments. Longitudinal changes in tissue oxygenation (ΔspO2) were evaluated alongside percent area reduction (PAR) from the primary case series.

Results: Overall, mean PAR in the case series was 66.5%. Increases in TOM were observed in 12 of 15 patients during treatment, with a mean ΔspO2 of approximately +7.8%. Several patients demonstrated substantial oxygenation increases exceeding 10–30%, frequently accompanied by strong healing trajectories and high PAR responses.

Patients with ΔspO2 increases >5% demonstrated substantially higher mean PAR outcomes (63.0%) compared with patients with minimal oxygenation change (20.9%). A significant association was observed between increasing tissue oxygenation and improved wound healing outcomes (Spearman ρ=0.66, p=0.007).

Discussion: Across the study population, patients experiencing larger increases in TOM generally achieved greater PAR, with correlation analysis demonstrating a moderate positive relationship between ΔspO2 and PAR. These findings provide supportive physiological evidence for the clinical outcomes observed in the Case Series. Importantly, the oxygenation data are consistent with the hypothesis that novel TRG treatment contributes to improvements in the wound microenvironment associated with effective healing progression. The observed increases in TOM during treatment may reflect improved tissue viability and enhanced local healing physiology accompanying the clinical wound closure outcomes observed in the study.

EBP-017

Real-World Compatibility of a Thermoreversible Wound Gel With Hypochlorous Acid Irrigation and Standard Wound Dressing Practices

Miloslav Sailer, PhD; Traci A. Kimball, MD, MBA, CWSP; Robert B. Huizinga, PhD, RN, CNeph(C)

Introduction: Chronic wound care incorporates diverse cleansing, irrigation, debridement, and dressing strategies. Advanced topical therapies must therefore demonstrate compatibility with real-world wound care workflows. Hypochlorous acid (HOCl)-based irrigants are increasingly used in wounds with elevated bioburden; however, limited evidence exists regarding compatibility with advanced topical wound gels.

Methods: A prospective multicenter case series evaluated a Thermoreversible Wound Gel (TRG) used adjunctively with standard wound care in chronic and complex wounds. Concomitant irrigation, debridement, compression, offloading, and secondary dressings were permitted without protocol restrictions. Exploratory analyses summarized irrigation practices, dressing utilization, and healing outcomes, including percent area reduction (PAR), exudate burden, and clinician-reported healing progression over up to 12 weeks.

Results: Twenty-seven chronic wounds across multiple etiologies were evaluated. Diverse secondary dressing strategies were utilized, including gauze-based dressings (48 uses), compression systems (25), Kerlix (14), absorptive dressings (12), and superabsorbent dressings (11).

Across 102 treatment visits, commonly documented irrigants included soap and water (24 visits), saline (22), and HOCl-based solutions including Puracyn and Anasept (14).

Despite heterogeneous wound management practices, favorable healing trajectories were observed across the cohort with the addition of TRG to prior regimens. Median PAR after initiation was approximately 80% at 4 weeks and 90% by final assessment. Exudate burden also improved longitudinally, with moderate/copious exudate decreasing to scant or dry status in approximately two-thirds of affected wounds.

No apparent incompatibility between TRG and commonly used irrigation or dressing strategies was observed, including wounds managed with HOCl-based irrigation.

Discussion: TRG integrated readily into diverse real-world wound care workflows involving varied irrigation practices, dressing strategies, compression approaches, and debridement patterns. Importantly, HOCl-based irrigation did not appear to impair healing progression or product performance in this chronic wound population.

Given the practical demands of outpatient wound management, compatibility with existing cleansing and dressing protocols is important for clinical adoption. These exploratory findings suggest that TRG may be compatible with commonly used antimicrobial irrigation and dressing strategies, including HOCl-based wound cleansing approaches.

EBP-018

Lymphedema Therapy and Wound Healing: A Retrospective Analysis of Pre- and Posttreatment Wound Volume

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Introduction: Venous leg ulcers (VLU) are known for their prolonged healing times, particularly in the presence of lower extremity lymphedema (LEL). One approach to managing VLU is to combine traditional wound care with lymphedema therapy (LT). This study compared the outcomes of lymphedema intervention and explored the benefits of LT for wound closure.In addition to examining the effectiveness of LT for tissue repair, the study investigated the impact of various patient- and treatment-related factors on wound healing.

Methods: Electronic medical records of patients with VLU who completed a full course of LT between 2016 and 2020 were reviewed. Wound volume (length x width x depth) was compared before and after LT. Demographic characteristics and medical history were evaluated to determine their relationship to VLU healing.

Results: A total of 178 wounds in 115 patients were included in the analysis. Of these, 85.9% (n = 153) were classified as full-thickness wounds, 11.2% (n = 20) as partial-thickness wounds, and 2.8% (n = 5) as unclassifiable. The sample consisted of 63 males (54.8%) and 52 females (45.2%), with a mean BMI of 43.1 kg/m². The 60-69 age group was the most prevalent among participants. The average wound volume before LT was 14.4 cm³ (Mdn = 1.64, SD = 42.22). After lymphedema intervention, the mean wound volume decreased to 3.8 cm³ (Mdn = 0.008, SD = 15.07), indicating a significant reduction in wound size ($r = .63$, $p < .001$). A hierarchical regression model revealed no statistically significant relationships between wound closure and age, biological sex, comorbidities, or treatment-related factors. However, BMI emerged as a moderately significant predictor of wound healing ($\beta = .25$, $t = 2.51$, $p = .013$).

Discussion: The findings support the effectiveness of LT for healing chronic VLU in patients with lymphedema treated in an outpatient clinic.

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EBP-020 (RPT-008)

The Skin as an Organ in Crisis: Scoping the Evidence to Guide Bedside Differentiation of Acute Skin Failure From Pressure Injury

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Introduction: Acute skin failure remains difficult to assess, differentiate from pressure injury, and document consistently. The lack of

standardized diagnostic criteria contributes to bedside uncertainty and limits progress toward coding recognition. This scoping review synthesizes current evidence to inform a bedside decision-making tool and support clearer ASF assessment, differentiation, documentation, reporting, and reimbursement discussions. The purpose of this scoping review was to map and synthesize published evidence from the last 10 years to identify distinguishing clinical features, contributing factors, and diagnostic considerations associated with acute skin failure and pressure injuries. Findings from the review were used to develop the Acute Skin Failure vs Pressure Injury Nursing Differentiation Scale (ASF-PI NDS, version 0.1), an initial nursing-focused framework intended to support more consistent assessment, differentiation, documentation, and clinical decision-making.

Methods: A scoping review was conducted using established methodology and PRISMA-ScR guidance to identify 10 years of quantitative evidence relevant to ASF recognition, clinical presentation, associated risk factors, and clinician knowledge. English-language primary quantitative studies published from 2016 through March 11, 2026, were reviewed. Findings were synthesized and translated into an Acute Skin Failure vs Pressure Injury Nursing Differentiation Scale (ASF-PI NDS, version 0.1).

Results: Twelve studies met inclusion criteria, including eight patient-level clinical or tool-development studies and four clinician knowledge or perception studies. Across studies, ASF was consistently associated with sepsis or septic shock, organ dysfunction, impaired perfusion, vasoactive support, mechanical ventilation, and hypoalbuminemia or malnutrition. Clinician surveys demonstrated persistent difficulty distinguishing ASF from pressure injury despite generally positive attitudes toward ASF recognition. These recurring findings informed development of an evidence-based bedside tool designed to support systematic assessment, differential evaluation, and documentation of ASF.

Discussion: Current quantitative evidence supports the development of structured clinical decision-support tool that promote more consistent ASF recognition and communication. The ASF tool presented in this project provides a practical framework for bedside assessment while awaiting further refinement and validation. The Acute Skin Failure vs Pressure Injury Nursing Differentiation Scale offer nurses a structured approach for evaluating skin breakdown within the context of systemic illness, improving communication, documentation quality, and interprofessional decision-making.

EBP-021

The IWII Fourth Edition of Wound Infection in Clinical Practice: Evidence-Informed Recommendations for Global Best Practice

Terry Swanson, NP, MHSc, FAWMA, FMACNP; Dot Weir, RN, CWON, CWS

Introduction: Wound infection continues to be a significant barrier to healing, leading to increased morbidity, healthcare utilization, and associated costs. Since the publication of previous international guidelines, there have been substantial advancements in our understanding of wound infection, including biofilm formation, antimicrobial stewardship, diagnostic technologies, and local wound management. The fourth edition of "Wound Infection in Clinical Practice: Principles of Best Practice" has been developed to provide updated, evidence-based recommendations for clinicians who manage patients with wounds across various healthcare settings.

Methods: An international multidisciplinary panel of wound experts conducted a systematic review of the literature and utilized a modified Delphi consensus process to evaluate emerging evidence and achieve agreement on recommendations. Multiple rounds of review, discussion, and refinement were undertaken to develop consensus statements and practical guidance. Key areas addressed included the wound infection continuum, assessment and identification of infection, biofilm, infectious microenvironment, pH, debridement, topical antimicrobial therapies, antimicrobial resistance and stewardship, aseptic techniques, and future technologies.

Results: The updated recommendations incorporate contemporary evidence regarding the identification and management of wound infection and biofilm, advances in assessment technologies, and evolving understanding of the infectious wound microenvironment. New content addresses non-pharmacological management strategies, low-resource settings, pediatric populations, considerations for assessment across diverse skin tones, and emerging diagnostic and therapeutic technologies. The guidance emphasizes holistic assessment, wound bed preparation, debridement strategies, appropriate use of topical antimicrobial therapies, and antimicrobial stewardship principles.

Discussion: The fourth edition provides clinicians with a comprehensive framework for evidence-informed wound infection management. By integrating current evidence with international expert consensus, the recommendations support earlier recognition of infection, optimization of local wound management strategies, responsible antimicrobial use, and improved clinical decision-making. Adoption of these recommendations has the potential to enhance patient outcomes, support antimicrobial stewardship initiatives, and promote consistency in wound infection management across healthcare settings globally.

EBP-023

The PAR Paradox: Reconsidering Percent Area Reduction as a Comparative Endpoint in Diabetic Foot Ulcer Trials

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Introduction: Percent area reduction (PAR) is widely used in diabetic foot ulcer (DFU) management and research. While the 50% reduction at 4 weeks rule has demonstrated value as a patient-level prognostic tool, PAR is also frequently used as a comparative endpoint in clinical trials. This study evaluated whether arm-level mean PAR comparisons may be influenced by baseline wound size distributions independent of treatment effects.

Methods: A simulated 203-patient DFU trial was developed using parameters calibrated to reproduce key characteristics reported in the landmark Sheehan cohort, including baseline wound size distributions, healing rates, and prognostic performance. Treatment and control arms were generated from the same underlying healing process, with no true treatment effect introduced. Outcomes were analyzed using conventional arm-level mean PAR comparisons and a Bayesian baseline-adjusted hurdle-gamma model incorporating baseline wound area as a covariate.

Results: Despite the absence of a true treatment effect, conventional analysis demonstrated an apparent treatment benefit, with mean week-12 PAR of 82.4% versus 70.3% for control (difference 12.2 percentage points; P=0.020). The observed separation was driven by baseline wound size imbalance, with smaller wounds more frequently achieving complete closure and contributing PAR values at the 100% ceiling. After adjustment for baseline wound area using a hurdle-gamma model, the apparent treatment effect decreased to 0.9 percentage points (95% credible interval −7.6 to 8.7), consistent with no meaningful between-arm difference.

Discussion: Patient-level PAR remains a valuable prognostic tool for clinical decision-making. However, arm-level mean PAR comparisons may conflate treatment response with baseline wound size distributions, potentially producing misleading estimates of comparative effectiveness. Baseline-adjusted modeling approaches may provide more robust estimates of treatment effects when PAR is used as a comparative endpoint in DFU trials. These findings support maintaining PAR as a clinical decision tool while reconsidering its use as an unadjusted comparative endpoint in wound healing trials.

EBP-024

Compression Therapy in Edema-Complicated Lower-Extremity Wounds: Expert Panel Best Practice Considerations for a Two-Layer Compression System

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Introduction: Use of compression therapy is well-established for the

treatment and management of lower-extremity lymphedema and edema associated with venous leg ulcers (VLUs) and other wound types. In non-specialty care settings, it remains underutilized or delayed due to non-standard terminology, inconsistent use of assessment tools, and differences in interpretation and implementation across care settings.

Methods: An expert panel of wound care clinicians convened on April 8, 2026, in Charlotte, North Carolina, to discuss current trends and challenges. Panel members represented vascular surgery, podiatry, and nursing specialties, and were selected based on clinical expertise and involvement in practice improvement. The panel developed best practice considerations with a focus on disposable two-layer compression systems and applicability to non-specialist nursing practice. No formal consensus methodology was used.

Results: Panel discussions included compression therapy across a range of edema-complicated lower-extremity wounds beyond classic VLUs. Key considerations included the importance of standardizing terminology and applying classification systems to guide care. Comprehensive limb and vascular assessments were identified as essential to support safe compression use. Considerations addressed common myths, barriers, and care-transition challenges to support earlier and more consistent compression use across care settings.

Discussion: Compression selection and application should be individualized based on patient presentation, mobility, and tolerance. Adjunctive measures and patient adherence were recognized as major determinants of outcomes that can be supported by anticipating complications, providing guidance and education, and adapting footwear and clothing.

Compression therapy is an important tool in the treatment and management of edema and wound healing but is not consistently implemented across care settings. Practice-focused considerations were derived from an expert panel discussion. Panelists described opportunities to improve consistency in assessment and application, and to encourage adherence. These considerations are intended to support clinicians, particularly non-specialist providers, in delivering effective, patient-centered compression therapy across care settings.

EBP-026

FOOTPATH: Building the Diabetic Foot Ulcer Patient Journey by Linking Wound Registry and Medicare Claims Data for Detailed Longitudinal Real-World Outcomes Research

Caroline E. Fife, MD; Edward W. Swanson, MD; Nikolai A. Sopko, MD, PhD; Sasha Frade, PhD; Zwelithini Tunyiswa, BA

Introduction: Diabetic foot ulcers (DFUs) affect an estimated 2.4 million Medicare beneficiaries and account for more than $20 billion in annual Medicare expenditure. However, claims data alone cannot adequately characterize the DFU patient journey because diagnosis codes do not reliably capture wound location, severity, healing, recurrence, or new ulceration. Linking wound-specific electronic health record (EHR) (Intellicure, LLC, The Woodlands, TX) data with Medicare claims offer a unique opportunity to characterize real-world DFU trajectories across care settings.

Methods: The study is an ongoing retrospective longitudinal analysis linking patient- and wound-level data from the U.S. Wound Registry (USWR), a CMS-approved Qualified Clinical Data Registry derived from a wound-care–specific EHR, to Medicare fee-for-service claims (2014–2022) through Medicare's Research Data Assistance Center. The USWR captures detailed wound characteristics, treatments, and outcomes. Medicare claims capture healthcare utilization, hospitalizations, procedures, mortality, and expenditures. Planned analyses will evaluate healing, recurrence, amputation, mortality, healthcare utilization, and Medicare spending.

Discussion: This linked EHR registry and claims dataset represents a novel resource for studying real-world DFU patient and wound journeys across care settings. By combining wound-level clinical detail with longitudinal Medicare claims, it enables future evaluation of healing, recurrence, amputation, mortality, healthcare utilization, and costs that are not possible using either data course alone. This study may enable prognostic staging and treatment algorithms in the future.

EBP-029

Improved Wound Healing Outcomes Following Implementation of a Standardized 0.057% Sodium Hypochlorite Cleansing and Debridement Protocol

Tina Zettel, RN

Introduction: Managing chronic wounds require more than advanced products. It requires consistent, evidence-based practice. In 2024, Mercy Health Springfield and Urbana Wound Care Centers implemented a standardized wound care protocol using 0.057% sodium hypochlorite as the primary wound cleanser and gel to support debridement across multiple wound types. The quality initiative aimed to standardize wound bed preparation, support management of bioburden and biofilm, and improve healing outcomes while maintaining high compliance with compression and offloading. Evaluation compared healing outcomes with six other wound centers within the same health system using alternate wound cleanser and gel products.

Methods: A two year quality improvement review analyzed wound outcomes retrospectively from 2024-2025, representing approximately 8,500-9,000 patients. Patients at Springfield and Urbana were treated using a standardized protocol incorporating routine use of 0.057% sodium hypochlorite cleanser and gel for diabetic ulcers, venous ulcers, traumatic wounds, pressure injuries, and neuropathic wounds. Outcomes were compared with other Mercy Health wound centers demonstrating similarly high (>90%) compliance with compression and offloading. Primary outcomes include average days to heal wounds present for more than 90 days and adherence to compression and offloading protocols.

Results: All sites maintained >90% compliance with compression and offloading. Springfield and Urbana achieved 100% offloading compliance and 99.88% compression compliance versus 94.4% and 96.1%, retrospectively, at comparison sites. Average healing times for wounds present >90 days was 45.65 days across the 2-year period compared with 73.58 days at comparison sites, representing a 27.93-day reduction (38% faster healing). Improved outcomes were observed across diabetic, venous, traumatic, pressure and neuropathic wound types.

Discussion: Implementation of a standardized wound cleansing and debridement protocol using 0.057% sodium hypochlorite, combined with consistent adherence to evidence-based wound care practices, was associated with substantially faster healing compared with peer facilities within the same health system. Although multiple factors likely contributed, standardized wound bed preparation and management of bioburden and biofilm may have created a more favorable healing environment. These findings support the value of standardized wound care protocols and warrant further prospective evaluation.

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HEALTH ECONOMICS

HE-001

Transforming Wound Care From Cost Center to Strategic Asset: Aligning Resident Outcomes With Facility Financial Performance in Skilled Nursing Facilities

Michael Duehrrsen; Dustin Kruse, DPM; Allison Ramey-Ward, PhD; Donna Sage, MSSA; Chase Huskey, BS

Introduction: Chronic wounds affect more than 10 million Medicare beneficiaries annually and are associated with over $26 billion in healthcare expenditures. For skilled nursing facilities (SNFs), wounds represent not only a treatment expense but also a source of financial risk through hospitalization, quality measure performance, value-based purchasing outcomes, staffing burden, and pressure injury-related litigation. This analysis evaluated whether Vaporous Hyperoxia Therapy (VHT) creates economic capacity to support a facility-wide wound management strategy in a mixed-payer SNF population.

Methods: A retrospective analysis was conducted on 42 wounds treated with VHT in 26 patients at a Florida SNF between July 2024 and November 2025. Pressure injuries represented 78.6% of wounds treated. Clinical outcomes, payer mix, treatment utilization, and economic impact were evaluated. Economic analysis utilized the Medicare allowable value for CPT 97610 ($402.73 per treatment) and a typical direct treatment cost of approximately $160 per treatment. Labor, overhead, administrative expenses, quality incentive payments, and litigation costs were not included in the analysis. No capital equipment investment was required by the facility.

Results: Closure was observed in 37 wounds (88.1%), with an estimated 87.3% probability of closure within 12 weeks (Kaplan-Meier) and a median of 9.5 VHT treatments to closure. The cohort consisted of 81.6% Medicare Part B beneficiaries, and 15.8% Medicare Part A residents, and 2.6% was Hospice. By allowable rates for CPT 97610, a typical Medicare Part B wound was reimbursed $3,826, exceeding the approximately $1,520 in direct treatment costs within this cohort. Wound care furnished during a covered Medicare Part A SNF stay is generally included under consolidated billing and is not separately billable to Medicare Part B.

Discussion: In this mixed-payer SNF cohort, VHT was associated with favorable outcomes, and economic modeling indicated that Medicare Part B reimbursement for medically necessary services exceeded the direct treatment costs. Wound resolution in SNFs may reduce hospitalization and litigation risk, lessen operational burden, strengthen referral relationships, improve readiness for higher-acuity admissions, and positively influence quality metrics, value-based reimbursement programs, and sequestration-related revenue retention. Outpatient services may also contribute to the long-term sustainability of SNF advanced wound care programs. Larger controlled studies are warranted to confirm these observations and further evaluate clinical and economic outcomes in this single-center, uncontrolled retrospective case series.

HE-002

Cellular, Acellular, and Matrix-Like Products in Wound Care: Functional Categorization for Clinical Decision-Making

Natalya Foreman; Jimmy H Chim, MD; Heidi D Piña, BS, MMS

Introduction: The wound care industry is rapidly expanding with innovative technologies in a category called cellular, acellular, and matrix-like products (CAMPs) which has expanded to more than 180 products. Many of these products are reimbursable through the Centers for Medicare & Medicaid Services (CMS) however as product diversity rapidly expands, clinicians face the challenge of selecting among therapies with varying compositions, mechanisms and therapeutic indications. Existing classification systems, such as that asserted by Davidson-Kotler et al. have relied on tissue source and composition but fail to address their functional role in wound healing.1 Here we propose a novel categorization model based on therapeutic objectives to help guide product selection and clinical decision-making.

Methods: Commercially available CAMPs and existing categorization models were evaluated to establish a functional framework emphasizing biologic function and expected treatment outcomes. Products were descriptively recategorized based on their functional mechanism and role in wound healing.

Results: CAMPs fall into two functional categories: temporizing and regenerative products. Wound temporizing products consist of matrices designed to promote angiogenesis, attenuate inflammation and facilitate granulation tissue formation. These products primarily serve a preparatory role in wound bed optimization and may not independently achieve durable wound closure. The second category, regenerative products, are intended to provide structural support, promote neodermis formation, vascular ingrowth, and facilitate re-epithelization. Some products exhibited dual roles in temporizing and re-epithelization and may provide multiple functions depending on varying wound characteristics and therapeutic goals. Compared with previously established classifications, the proposed framework provides clinicians with actionable information for product selection based on intended outcome.

Discussion: Current CAMP classification models focus on product composition with limited insight into intended healing functions. By distinguishing products intended for wound bed optimization and those designed to support definitive tissue regeneration, the proposed framework was established to provide clinicians with a more intuitive algorithm for managing a variety of chronic wounds and soft tissue injuries.

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HE-003

Health Resource Utilization and Cost Analysis of Porcine Placental Extracellular Matrix Compared to Standard of Care and Other Advanced Treatments in the Treatment of Venous Leg Ulcers in the Medicare Fee-for-Service Population

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Introduction: Venous Leg Ulcers (VLU) have significant economic costs and profound negative health outcomes. This study compares health resource use and cost in the Medicare population receiving Porcine Placental Extracellular Matrix (PPECM)* to patients receiving standard of care (SOC)‡ and other advanced treatments (AT)†.

Methods: Medicare Research Identifiable Files, which contain 100% of Medicare Fee-For-Service Parts A and B claims were assessed from 2021 through 2024. Patients with a newly diagnosed VLU were identified. Their treatment episodes were categorized as either: PPECM*, SOC‡, or AT†. Upon treatment conclusion, the patients' utilization and spending were assessed across all Medicare Parts A and B care sites. Pre-index clinical and demographic differences were controlled via inverse probability treatment weighting. Adjusted cohorts were analyzed using weighted regression models to estimate differences in predicted spending and utilization across treatment groups and care settings.

Results: 60 VLU PPECM* treatment episodes were selected to compare to the other groups (SOC‡ = 53,947; AT† = 2,491). Total medical care costs

in the post-treatment window were not significantly different compared to SOC‡ but were significantly lower than AT ($4,690 vs. $7,463, p=0.02). PPECM* was associated with significantly lower utilization rates in outpatient hospitals, intensive care units, and emergency rooms, with no site showing increased utilization. Weighted regression analyses found PPECM* had significantly lower rates of utilization across every site except home health. PPECM* was associated with reduced per beneficiary spending in physician offices, outpatient hospitals, and skilled nursing facilities, with lower total medical spending across all sites. Rates of wound complications showed no significant differences, but amputations were substantially lower in PPECM* than other AT† (2% vs 7%; p=0.08).

Discussion: This real-world analysis reveals PPECM* treatment delivers favorable clinical value for VLU patients, reducing both downstream healthcare utilization and spending compared to SOC‡ and alternative AT†.

HE-004

Transition of Care: Overcoming Resource Barriers in Wound Healing and Limb Preservation

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Introduction: Transitions from hospital to home health, skilled nursing, outpatient, or primary care are high-risk for patients with chronic and complex wounds. Gaps in continuity can delay healing and increase infection, readmission, amputation, falls, and redundant microbiological, vascular, or nutritional assessments. Functional continuity is influenced by communication between care venues, access to advanced therapies, and certified wound care support across transition sites. Chronic wounds affect one in six Medicare beneficiaries, approximately 10.5 million people, and cost Medicare an estimated $22.5 billion annually.[1] Because chronic wounds precede up to 85% of nontraumatic lower-extremity amputations in diabetes, coordinated transition pathways are essential.[2] This project evaluated transition-related resource limitations as modifiable barriers to wound healing and limb preservation.

Methods: This narrative operational analysis synthesized transition-of-care gaps across acute and post-acute settings using deidentified, aggregate observations without direct patient intervention; local review may support institutional review board exempt or waived status. Domains included delayed specialist referral, inconsistent discharge planning, limited clinician and caregiver education, restricted advanced therapies, insufficient nutrition screening, lymphedema management gaps, pressure injury prevention and management gaps, and variable dressing-selection competency. The framework emphasizes standardized discharge pathways, certified wound specialist escalation, interdisciplinary communication, and patient/caregiver-centered education.

Results: Limited specialty wound-care access is associated with delayed healing and higher complication risk. Multidisciplinary diabetic foot ulcer care has been linked to improved event-free survival and fewer major limb-threatening outcomes.[3] Preventable readmissions remain a major burden: nearly one in five Medicare patients is readmitted within 30 days, contributing to approximately $26 billion annually, with $17 billion considered avoidable.[4] Across pressure injuries, chronic traumatic wounds, and other complex wounds affected by comorbidities, deficits in specialist access, evidence-based care, nutrition optimization, offloading, and compression-based edema control may prolong healing, infection, emergency utilization, avoidable amputation, and reduced self-care confidence.

Discussion: Improving wound healing and limb preservation requires transition-of-care design connecting inpatient teams, discharge planners, post-acute clinicians, certified wound specialists, caregivers, and patients. Standardized protocols, education, nutrition support, lymphedema-aware compression strategies, and timely advanced therapies may reduce complications while improving safety, quality, engagement, and empowerment. These findings support quality-improvement initiatives and future dissemination.

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HE-005

Economic Thresholds for Reducing Surgical Site Infection Following Caesarean Section: A Hospital-Based Break-Even Analysis

Derek O'Boyle; Leo Nherera; Rebecca Decker

Introduction: Surgical site infection (SSI) following Caesarean section (C-section) represents a significant clinical and economic burden and is associated with prolonged hospital stay and readmission. Silver-based post-operative dressings have been associated with reduced SSI incidence across surgical settings; however, the magnitude of reduction required to justify implementation in obstetric wound care remains unclear. This study estimated the reduction in SSI required for enhanced post-operative wound management strategies to achieve cost neutrality and explored potential hospital cost savings.

Methods: A hospital-based decision-analytic threshold model was developed to estimate the economic impact of reducing SSI following C-section in the UK. Baseline SSI incidence (7.6%) and attributable hospital cost per SSI (£3,716) were derived from published UK surveillance and patient-level costing data. Threshold analyses estimated the minimum relative reduction in SSI required to offset incremental intervention costs (£10–£30 per patient). Scenario analyses estimated potential hospital cost savings associated with relative reductions in SSI incidence ranging from 5% to 30%.

Results: The expected hospital cost burden attributable to SSI was estimated at £282 per C-section. Assuming an intervention cost of £20 per patient, cost neutrality was achieved with a 7.1% relative reduction in SSI, corresponding to an absolute reduction of 0.54 percentage points (7.6% to 7.1%). Relative reductions of 10%, 20%, and 30% generated estimated net savings of approximately £8, £36, and £65 per patient, respectively. For a hospital performing 5,000 C-sections annually, this translated to annual savings ranging from approximately £41,000 to £324,000.

Discussion: Even modest reductions in SSI following C-section may offset the incremental costs of enhanced post-operative wound management strategies, while larger reductions may generate meaningful hospital cost savings. These findings may support hospital decision-making regarding interventions associated with reduced SSI risk, including advanced silver-based post-operative dressings.

HE-006

Economic and Health Service Impact of Improved Healing in Hard-to-Heal Diabetic Foot Ulcers in the United Kingdom: A Cost-Consequence Analysis

Derek O'Boyle; Leo Nherera; Rebecca Decker

Introduction: Hard-to-heal diabetic foot ulcers (DFUs) are associated with prolonged treatment, high healthcare resource utilisation, hospitalisation, and amputation risk, resulting in substantial economic burden to health services. A nitric oxide-generating medical device (EDX110) has been associated with improved healing outcomes compared with standard care in hard-to-heal DFUs (49% versus 30% healed at 24 weeks). This study estimated the economic consequences of improved healing

outcomes associated with EDX110 in UK health services.

Methods: A deterministic cost-consequence model was developed from a United Kingdom (UK) health services perspective to estimate the consequences of improved healing over 24 weeks in a cohort of 100 hard-to-heal DFUs. Healing probabilities were informed by published evidence evaluating a nitric oxide-generating medical device compared with standard care. Model inputs included healthcare professional visits, dressing-related resource use, hospitalisations, amputations, and associated costs. Outcomes included ulcers healed, healthcare resource utilisation, cost per healed ulcer, and net economic consequences relative to standard care.

Results: In the model, improved healing outcomes were estimated to result in 19 additional ulcers healed per 100 DFUs managed over 24 weeks. Total estimated cost savings were £173,940 per 100 DFUs managed, equivalent to £1,739 per ulcer. Improved healing was associated with an estimated £13,193 reduction in cost per healed ulcer. Compared with standard care, improved healing reduced healthcare utilisation by an estimated 555 healthcare professional visits and reduced staff time requirements by approximately 278 hours.

Discussion: Improved healing in hard-to-heal DFUs may generate meaningful economic and resource-use benefits for UK health services. Cost-consequence analyses informed by published clinical evidence may support implementation decision-making by quantifying the potential impact of advanced wound management interventions on healing outcomes, healthcare utilisation, and costs

HE-007

Converting Chronic Non-Healing Wounds to Healing Trajectories Using a Low-Cost Thermoreversible Wound Gel (TRG): A Health Economic Analysis

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Introduction: Chronic non-healing wounds impose substantial clinical and economic burden due to prolonged treatment duration, repeated procedures, and high resource utilization. Costs accumulate over time, often substantially exceeding those associated with wounds that follow a healing trajectory. There remains a need for cost-effective interventions that can accelerate healing and reduce overall burden.

Methods: A retrospective health economic analysis was conducted on a multi-site case series of chronic wounds. Based on collected patient data historical cost of care was estimated on wound duration, clinic visits (1.5/week), ongoing debridement, and dressing utilization. A Thermoreversible Wound Gel (TRG) was incorporated into the standard of care for up to 12 weeks and gel utilization was derived from documented use where available and supplemented using a mechanistic model incorporating wound surface area, a 2 mm application thickness, and baseline dressing-change frequency. Standardized U.S. outpatient unit costs were applied.

Results: Wounds demonstrated substantial chronicity at baseline, with durations ranging from weeks to multiple years and a median wound age of approximately 17 weeks. Modeled raw costs of continued non-healing patients were high, with a median estimated cost of approximately $18,500 per patient, and several cases exceeding $50,000.

Following treatment initiation, wounds transitioned from non-healing trajectories to active healing. During the treatment period, wounds demonstrated rapid improvement, with a median percent area reduction of 80% at 4 weeks, a median of 90% in the overall study period, and multiple wounds achieving complete closure. Estimated topical gel utilization was low (< 2 tubes per patient), contributing on average an estimated 1.5% of total cost.

Discussion: Based on modeled historical resource utilization, continued non-healing would have been expected to generate approximately $60,000 in additional wound-care expenditures across the matched cohort during the study period. Following TRG initiation, wounds transitioned to healing trajectories, resulting in an estimated mean cost avoidance of approximately $3,000 per patient while TRG contributed only ~1.5% of total treatment costs. These findings suggest that accelerating wound closure may substantially reduce healthcare resource utilization and overall wound-care expenditures.

HE-009

Cost-Effectiveness of Continuous Topical Oxygen Therapy for Unhealed Diabetic Foot Ulcers Within the US Veterans Health Administration

Alexander Skinner; Windy Cole, DPM,CWSP

Introduction: Diabetic foot ulcers (DFUs) affect approximately 5% of US veterans with diabetes annually and carry substantial risk of infection, amputation, and death. Continuous topical oxygen therapy (cTOT)* has demonstrated improved healing rates in randomized controlled trials and meta-analyses. This model-based analysis evaluates the cost-effectiveness and budget impact of adding cTOT to standard of care (SOC) for unhealed DFUs within the Veterans Health Administration (VHA).

Methods: A Markov model was developed by the York Health Economics Consortium (YHEC) to estimate costs, resource utilization, and health outcomes over a lifetime horizon from the VHA payer perspective. Health states included unhealed DFU, healed DFU, infection, minor amputation, major amputation, and death. Clinical inputs for healing rates were derived from published RCTs and meta-analyses of topical oxygen therapy in chronic DFUs (RR for complete healing: 1.53–1.94 vs. SOC). SOC was defined as offloading, debridement, moist wound management, infection control, and vascular assessment per IWGDF guidelines. Costs were sourced from US federal pricing data. Outcomes were expressed as quality-adjusted life years (QALYs) and life years gained, with costs and outcomes discounted at 3% annually. Probabilistic sensitivity analysis (PSA) was performed across all model parameters. A complementary budget impact model assessed projected VHA-wide savings over five years.

Results: Over a lifetime horizon, adding cTOT to SOC saved an estimated $10,902 per patient, with gains of 0.14 life years and 0.12 QALYs per patient, yielding a dominant incremental cost-effectiveness ratio (ICER). Savings were driven primarily by reductions in infection episodes, amputations, and associated treatment costs. Over a five-year horizon, projected VHA-wide savings were estimated to be $1.2 billion. PSA indicated a 94% probability that cTOT is cost-saving compared with SOC alone.

Discussion: This health economic analysis suggests that integrating cTOT into VHA DFU management is cost-effective and potentially cost-saving, with meaningful improvements in patient outcomes. These findings support consideration of cTOT as adjunctive therapy for unhealed DFUs within the VHA system.

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HE-010

From Closure to Cost: Clinical Inputs for a Bayesian Markov Cost-of-Care Model for Autologous Cutaneous Multicellular Units in Diabetic Foot Ulcers

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Introduction: Cellular and tissue-based products for diabetic foot ulcers (DFUs) often require multiple applications, adding to epi-

sode-of-care costs. Single-application autologous cutaneous multicellular units (ACMU) offer a different paradigm, but their impact on total cost of care vs. skin substitutes is unclear. We evaluated clinical outcomes that drive downstream costs and incorporated them into a Bayesian Markov cost-of-care framework.

Methods: Outcomes from a Phase 3 randomized controlled trial (COVER DFUS II/NCT06140303) in Wagner 1 DFUs (60 patients per arm; intention-to-treat) were evaluated. Patients received either ACMU plus standard of care (SOC) or SOC alone. Endpoints included complete wound closure at 12 weeks, adverse events, and treatment utilization; index-ulcer infection was the key adverse event analyzed. Skin-substitute benchmarks were drawn from pivotal randomized trials and a Level-1 meta-analysis of 12-week complete closure; lacking a head-to-head arm, the meta-analytic closure risk ratio was applied to the trial's SOC closure rate to estimate expected skin-substitute closure. These inputs are being incorporated into a Bayesian Markov cohort model from a Medicare fee-for-service perspective to estimate total cost of care.

Results: ACMU resulted in a two-fold improvement in complete wound closure by 12 weeks (53.3% vs 26.7%, p=0.0014). Index-ulcer infection events were markedly fewer with ACMU. Benchmarking without a head-to-head arm, the pooled 12-week closure risk ratio from a meta-analysis of 25 randomized skin-substitute trials (1.67; 95% CI, 1.48–1.90) applied to this trial's SOC below the 53.3% achieved with single-application ACMU. ACMU averaged 1.2 applications, versus the three to six commonly reported for skin substitutes. These findings suggest favorable effects on key drivers of downstream resource use: treatment intensity, infection-related care, and time spent unhealed.

Discussion: Wound closure, infection events, and treatment utilization are major determinants of downstream DFU costs. The combination of higher closure rates, fewer infections, and a predominantly single-application treatment profile suggests the potential for lower total cost of care relative to multi-application skin substitutes. Ongoing Bayesian Markov modeling will quantify the economic implications of these clinical differences from a Medicare fee-for-service perspective.

LABORATORY RESEARCH

LR-002

Proprietary Processing of Placental Tissue Allografts Influences Wound Healing Trajectories in a Rodent Excisional Wound Model

Joydeep Basu, PhD; Taylor Carson; Ashley Robertson

Introduction: Placental tissue allografts are widely utilized in the management of chronic wounds, including diabetic foot ulcers. In addition to serving as wound coverings, these products may influence wound repair through extracellular matrix architecture and biologically active signaling molecules native to human amniotic tissue. Manufacturing and processing methodologies vary considerably across commercially available products and may significantly impact biologic activity, tissue remodeling, and wound-healing trajectories. In this study, a rodent wound-healing model was utilized to compare a proprietary processed placental tissue allograft with a conventionally processed placental tissue comparator.

Methods: A pilot rodent wound-healing study was designed to compare wound-healing trajectories between a proprietary processed placental tissue allograft* and a conventionally processed placental tissue comparator. Two groups of n=10 male rats, matched for weight, age, diet, and wound size, were evaluated. Each rat received two full-thickness excisional wounds on the dorsal surface, approximately 10 mm in diameter and 2 mm deep. Histologic and immunohistochemical analyses were performed following a 14-day study period to evaluate wound-healing trajectories, inflammatory remodeling, cellular proliferation, angiogenesis, and tissue resolution. A combined integrated wound-healing metric incorporating immunohistochemical outcomes and percent wound closure was generated.

Results: Treatment with the proprietary processed placental tissue allograft resulted in a more favorable wound-healing trajectory relative to the conventionally processed comparator. Histologic evaluation demonstrated increased proliferative activity, reduced ulceration severity, reduced giant cell response, and favorable inflammatory remodeling. Specifically, the proprietary processed allograft demonstrated approximately 33% greater proliferative activity, 25% lower ulceration severity, and 30% lower giant cell response relative to the comparator. Integrated analysis of histologic outcomes and wound closure measurements demonstrated more advanced progression toward wound resolution in animals treated with the proprietary processed allograft.

Discussion: These findings suggest that processing methodologies can materially influence the biologic performance of placental tissue allografts. The proprietary processed allograft demonstrated favorable effects on cellular proliferation, tissue remodeling, inflammatory response, and overall wound-healing biology relative to a conventionally processed comparator. These observations support the concept that placental tissue allografts should not necessarily be viewed as biologically equivalent and may have important implications for clinical outcomes and product selection in wound care.

LR-003

Wearable Disposable Electrotherapy Accelerates Wound Healing and Tissue Regeneration in a Preclinical Model

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Introduction: Wound healing involves coordinated inflammatory, angiogenic, and tissue remodeling processes. Endogenous electric fields generated following injury contribute to directing these repair mechanisms. Although electrical stimulation can accelerate healing, adoption remains limited by conventional stimulation systems. To address these limitations, we developed a flexible, self-powered, and disposable electrotherapy platform designed to deliver controlled bioelectric stimulation through a wound dressing format. This study evaluated its efficacy in a preclinical wound model.

Methods: A wearable disposable electrotherapy platform was developed using electrochemical power components, conductive electrodes, hydrogel interfaces, and wound dressing materials integrated into a flexible self-powered dressing. Full-thickness dorsal wounds were created in male Sprague-Dawley rats and assigned to wearable disposable electrotherapy (WDE; n=13), constant-current stimulation (CC; n=12), or sham control (n=13) groups. The WDE platform delivered direct-current stimulation through peri-wound hydrogel electrodes, producing an average current comparable to the conventional stimulation system (~286 µA vs. 300 µA). Stimulation was applied for 120 minutes daily for 13 days. Wound healing was quantified using longitudinal digital imaging. Histological evaluation included hematoxylin-eosin and Masson's Trichrome staining. Immunohistochemistry assessed α-smooth muscle actin (αSMA), CD31, CD206, and inducible nitric oxide synthase (iNOS).

Results: Both electrically stimulated groups demonstrated significantly accelerated wound healing compared with sham controls. Time to 50% wound closure was reduced from 7.10 ± 1.36 days in sham animals to 5.02 ± 1.35 days in the WDE group ($p < 0.001$), representing a 29% reduction in healing time. By day 13, 54.5% of WDE-treated wounds were free of visible exudate compared with 30.8% of sham wounds. Histological analysis demonstrated increased collagen deposition (0.86 ± 0.06 vs. 0.69 ± 0.06; $p = 0.008$) and increased cell density (1.71 ± 0.35 vs. 0.99 ± 0.09; $p = 0.022$). Immunohistochemistry revealed elevated αSMA expression ($p = 0.017$) and CD31 expression ($p = 0.027$), indicating enhanced tissue remodeling and angiogenesis, respectively. Increased CD206 and iNOS expression further suggested modulation of the wound healing response.

Discussion: The self-powered wearable disposable electrotherapy platform significantly accelerated wound healing and enhanced tissue regeneration while achieving outcomes comparable to conventional constant-current stimulation. Improvements in wound closure, collagen

deposition, angiogenesis, and tissue remodeling suggest that reinforcement of endogenous bioelectric signaling promotes coordinated repair processes. The flexible disposable design delivers a controlled therapeutic electrical dose through a self-powered active wound dressing. These findings support wearable electrotherapy as a scalable wound care technology for integrating bioelectric medicine into routine wound management.

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LR-004

Investigation of the Nature of Various Antimicrobial Combinations on Three Commonly Resistant Microorganisms

Charlotte Bradley, BSc Biology/Chemistry; Robert Burrell, PhD; Arushi Tandon, MSc

Introduction: Antibiotics are a vital tool in healthcare; however, misuse of antibiotics is wreaking havoc on the healthcare system and has led to antibiotic resistance. Antibiotics with a single mechanism of action can generate resistance in ~106 replications. In comparison, using multiple antimicrobial agents creates multiple mechanisms of action (3-4), greatly increasing the number of replications required (1018-24) for resistance to occur. This research investigated the nature of interactions between drugs and drug/nanocrystalline-Ag combinations.

Methods: MIC and MBC values were generated for P. aeruginosa, E. coli and S. aureus (MRSA). Values were first obtained between 1000-0.1 ppm in TSB with 50µL of a 16h inoculum/4.95mL and incubated for 18-20h. The MIC/MBCs were narrowed, looking at 10, 30, 50, and 70% of their respective values. Additionally, log reduction experiments were performed on the MBC studies. For nanocrystalline Ag, dissolutions were prepared in a 1:2 ratio of dressing to either dH2O, FBS, or TSB and incubated at 37°C for 18 hours. 1-hour challenges were performed by adding 25 µL inoculum to 2.475 mL solution. Na thioglycolate/NaCl/Tween-20 was used to neutralize the silver, followed by spot plating, incubation for ~24 hours, and CFU counts. Studies examining 1:100, 1:10, 1:1, and 1:0.1 (bacteria: nanocrystalline-Ag solution) were also conducted. Combination systems were performed by holding the concentration of one drug constant at a concentration that produced ≤3 log reduction, and the other drug concentration was varied. The inverse was also performed, and spot plating protocols were performed using 20 µL spots.

Results: Silver dissolution was dependent on the solvent. Additionally, the synergistic effect of piperacillin and tazobactam was replicated at 3ppm tazobactam for all organisms. Synergism was observed in E. coli treated with ciprofloxacin and nanocrystalline-Ag between 0.1-10 ppm. An antagonistic effect was observed for S. aureus treated with this combination at the same concentrations. An additive effect was observed for S. aureus treated with a combination of piperacillin and a nanocrystalline-Ag dissolution between 0.03-3 ppm.

Discussion: The efficacy of drugs and the nature of the interactions vary vastly depending on the mechanisms of action and require further work to elucidate patterns of interactions.

LR-005

Managing Two Wounds With One NPWT Device: How Y-Connectors Impact Pressure Management

Jonathan Cayce; Albert P. Gillespie, BS; Ethan Valentine, BS; Dan W. Marzahl, BS; Timothy Oetter, MS, BS; Casey Y. Carter, MS, BS; Thomas Lawhorn, MS, BS

Introduction: Clinicians may use one negative pressure wound therapy (NPWT) device with a y-connector to manage multiple wounds, but prescribed pressure may not be delivered equally to each wound. This bench study evaluated how three commercially available NPWT system designs managed wound-bed pressure in two y-connected model wounds under changing leak conditions.

Methods: Two multi-lumen systems (ML1, ML2) and one single-lumen system with a controlled air leak (SL) were connected to two dressed model wounds using each device's y-connector. ML1 incorporated a controlled air leak at the dressing interface; ML2 did not. Each wound model had a 125 cm3 volume, was preloaded with 50 cc simulated exudate, and received simulated exudate at 8 cc/hr. Devices were tested at a prescribed therapy setting of 125 mmHg with devices and excess coiled tubing positioned 3 ft above the wound. Conditions included no leak, leak on wound 1, and leak on wound 2; for multi-lumen systems, wound 1 was connected to all lumens via the y-connector. Trials were completed in triplicate, and wound-bed pressure was summarized using descriptive statistics and 99.7% confidence intervals.

Results: ML1 maintained pressure closest to the prescribed 125 mmHg in both wounds across all conditions (125.14±8.5 and 123±8.64; 123.61±7.96 and 120.90±7.68; 121.74±5.4 and 120.90±6.35 mmHg). ML2 maintained pressure near target in the monitored wound but showed reduced pressure in the unmonitored wound when no leak was present on wound 2 (120.07±13.67 and 98.63±53.98; 120.39±10.49 and 88.93±63.07; 121.15±9.70 and 124.13±15.85 mmHg). The SL system did not consistently achieve prescribed pressure in either wound (106±28.52 and 109.95±33.66; 103.22±40.25 and 99.71±16.33; 100.88±19.33 and 90.12±44.61 mmHg).

Discussion: In this two-wound y-connected model, pressure delivery depended on system design and wound conditions. The multi-lumen system with a controlled dressing-dome air leak provided the most consistent pressure control in both wounds. Systems that monitored only one wound or relied on single-lumen pressure regulation may leave one or both wounds below prescribed therapy levels. For wound care clinicians, these findings highlight the importance of confirming that y-connected NPWT setups can maintain prescribed pressure at each wound bed.

LR-006

A Novel Skin Closure System Preserves Flexibility During Simulated Skin Stretching

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Introduction: Tissue adhesive closure systems are increasingly used as alternatives to superficial staples or sutures and may reduce wound complications.1,2 Most systems combine mesh with cyanoacrylate adhesive to distribute closure forces. A novel system pairs methylidene malonate adhesive with a light-switchable film dressing designed for atraumatic removal after near-UV exposure.3By requiring less adhesive coverage than mesh-based systems, this design may better preserve skin flexibility during postoperative mobilization while enabling atraumatic early removal. This study compared the novel system with two cyanoacrylate-based closure systems using a silicone skin surrogate.

Methods: Closure systems were applied in 5-inch sections to silicone skin surrogates with elastic modulus similar to human skin (3 MPa)4 according to manufacturer instructions (n=8/group: CA1, CA2, novel system [NS]); uncoated surrogates served as controls. Samples were stretched to 30% elongation using a universal testing machine to simulate knee skin stretch at 130° flexion. Peak load and secant modulus were analyzed. In separate testing, 90° peel force was measured for 2-inch sections, and peak peel loads were compared.

Results: Control secant modulus was 3.07 MPa, consistent with literature.4 All closure systems increased stiffness; however, NS produced the smallest increase: 13% versus 33% for CA1 ($p=1.28\times10^{-5}$) and 44% for CA2 ($p=1.39\times10^{-5}$). NS also had the lowest peak load (50.6±2.5 N) compared with CA1 (64.6±3.0 N, $p=3.09\times10^{-6}$) and CA2 (65.6±2.6 N, $p=3.09\times10^{-6}$); CA1 did not differ from CA2 ($p=0.56$). Relative to control, peak load increased 14% for NS, 46% for CA1, and 48% for CA2.

NS had the lowest unswitched film peel force (4.47±0.48 N) com-

pared with mesh removal for CA1 and CA2 (15.69±4.51 and 24.65±5.81 N; p< 0.009). CA systems did not differ significantly (p=0.13). After light switching, NS peel force decreased to 1.30±0.27 N (p=3.09×10-6).

Discussion: Compared with cyanoacrylate-mesh closure systems, the novel system better preserved surrogate skin flexibility and required less stretch force during simulated knee motion. These findings suggest reduced mechanical stress during postoperative incision stretching while maintaining closure and dressing integrity. Lower peel force, particularly after light switching, may reduce skin-injury risk during removal and support improved outcomes with adhesive skin closure.

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LR-007

Assessing the Speed of Antimicrobial Activity Within a Nitric Oxide-Generating Dressing Against Antibiotic-Resistant Wound Pathogens

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Introduction: Hard-to-heal wounds, such as diabetic foot ulcers, are at high risk of developing local infection. A multimodal nitric oxide-generating dressing (NOGD) has been designed to generate antimicrobial nitric oxide within the dressing. The aim of this study was to evaluate the speed of antimicrobial activity of NOGD against the common wound pathogens, multidrug-resistant Pseudomonas aeruginosa (RPA) and methicillin-resistant Staphylococcus aureus (MRSA), using an in vitro direct inoculation model.

Methods: An adapted version of the AATCC 100 antimicrobial susceptibility standard test method was used. Test dressings were inoculated with approximately 1×10^6 colony-forming units (CFU) of challenge bacteria and then incubated at 35±3°C for 5, 10, 15 or 30 minutes, or 1, 4, or 24 hours. Viable counts were determined at these timepoints using dressing extracts after neutralization of nitric oxide activity. A non-antimicrobial dressing served as control throughout the test period.

Results: NOGD demonstrated rapid antimicrobial activity, reducing RPA to undetectable levels (< 30 CFU) within 1 hour, and reducing MRSA to undetectable levels within 4 hours. Initial rapid reductions were evident at just 10 minutes for RPA and 15 minutes for MRSA. The non-antimicrobial dressing maintained bacterial viability throughout the test period.

Discussion: NOGD was demonstrated to provide rapid and sustained antimicrobial activity against clinically relevant resistant pathogens, achieving notable reductions of challenging bacteria in minutes, and complete kill within hours. Gaining rapid source control in locally infected wounds is an appealing prospect for clinicians, especially in wounds at high risk of infection complications. The speed of action of NOGD has the potential to support improved infection prevention and resolution in hard-to-heal wounds.

LR-008

Assessing the Sustained Antimicrobial Activity Within a Nitric Oxide-Generating Dressing Using Antibiotic-Resistant Wound Pathogens in a Repeated Inoculation Model

Matilda Coleborn; Kate Meredith, PhD; Emma Griffiths, PhD; Scarlet Milo, PhD; Helen Hahn, Senior Clinical Affairs Strategy Lead; Nicholas Boote, PhD; Daniel G. Metcalf, PhD

Introduction: Hard-to-heal wounds, such as diabetic foot ulcers, are at high risk of local infection. A multimodal nitric oxide-generating dressing (NOGD) has been designed to generate antimicrobial nitric oxide within the dressing. The aim of this study was to evaluate the sustained nature of the antimicrobial activity within NOGD following repeated inoculations of antibiotic-resistant pathogens into the same test dressings over 168 hours.

Methods: An in vitro direct inoculation model adapted from the AATCC 100 antimicrobial susceptibility standard test method was used. The same test dressings were directly inoculated, then re-inoculated, with approximately 1x10^6 colony-forming units (CFU) of either multi-drug-resistant Pseudomonas aeruginosa (RPA) or Methicillin-resistant Staphylococcus aureus (MRSA) at 0, 24, 48, 72 or 144 hours. Viable counts of dressing extracts, after neutralization of nitric oxide activity, were conducted at 1, 4 or 24 hours after each inoculation or re-inoculation. A non-antimicrobial dressing served as control throughout the 35±3°C, 168-hour test period.

Results: NOGD consistently reduced both RPA and MRSA counts to near or below the limit of detection (< 30 CFU/dressing) within 24 hours of each inoculation/re-inoculation, often within 1–4 hours, demonstrating rapid and sustained antimicrobial action within the dressing. After the final re-inoculation at 144 hours, both RPA and MRSA were still reduced by at least 4 $\log_{10}$ within 24 hours. The non-antimicrobial dressing maintained bacterial viability throughout. These results confirm the sustained antimicrobial activity within NOGD under prolonged and repeated bacterial challenge.

Discussion: NOGD demonstrated rapid and sustained antimicrobial protection against antibiotic-resistant pathogens over extended periods, highlighting its potential in managing hard-to-heal wounds with ever-present infection risk.

LR-009

The Activity of a Nitric Oxide-Generating Dressing Against Surface-Associated Bacterial Aggregates Using a Polycarbonate Membrane Colony Model

Matilda Coleborn; Emma Griffiths, PhD; Kate Meredith, PhD; Scarlet Milo, PhD; Helen Hahn, Senior Clinical Affairs Strategy Lead; Nicholas Boote, PhD; Daniel G. Metcalf, PhD

Introduction: Complex wounds are difficult-to-heal and often involve recurrent infection/biofilm. Wounds with exposed structures increase the level of complexity. Highly complex wounds demand surgical management and advanced treatment modalities. The ideal treatment promotes rapid healthy tissue regrowth while preventing (re)infection. This prospective case series evaluates the performance of a novel, self-assembling peptide-based biomimetic matrix (BMM) in complex wounds requiring surgical intervention. BMM is deployed in a prefilled syringe with a flexible applicator tip for access to deep/hard-to-reach areas. The peptide self-assembles into a 3D scaffold that mimics the endogenous extracellular matrix while providing antibacterial protection.

Methods: Surface-associated communities of P. aeruginosa or S. aureus were cultured by inoculating 1x104 colony-forming units (CFU)/mL of bacteria onto the center of 25 mm diameter, 0.2 µm pore diameter, polycarbonate membranes (Cyclopore™). These were then placed onto Tryptone Soy Agar nutrient agar for 24 hours at 35±3°C. The resultant bacterial aggregates were exposed to NOGD for 4, 24, 72 or 168 hours (N&#3f3 for each challenge microorganism and timepoint). Following nitric oxide neutralization and stomaching the membranes, bacterial viability on the membranes was quantified by viable plate counts of the resultant suspension. Untreated controls monitored bacterial viability throughout the tests.

Results: NOGD achieved rapid and sustained activity against surface-associated aggregates of both pathogens. P. aeruginosa surface-associated aggregates were reduced from >4x109 CFU/membrane to undetectable levels (< 20 CFU/membrane) within 24 hours (>8 $\log_{10}$ reduction), which was maintained at 168 hours. S. aureus surface-associated aggregates were reduced from 4x109 CFU/membrane by ~2 $\log_{10}$ reduction at 24 hours and completely eradicated by 72 hours (>8 $\log_{10}$ reduction), which was maintained at 168 hours. Untreated controls con-

firmed bacterial viability throughout the tests.

Discussion: NOGD dressing demonstrated potent activity against surface-associated aggregates of two key wound pathogens in a challenging in vitro model, achieving complete eradication within 24-72 hours. This study highlights the potential of NOGD in disrupting surface-associated microbial aggregates that are known to impede healing of hard-to-heal wounds.

LR-010

Protecting Your Assets- Maintaining Skin Integrity and Enhancing Mobility With Active Seating

Carroll Gillespie; Amanda Roguljic, RN, MS, APN, CWCN; Sara Tackson, PT, MPT; Dave Newton, M.Eng, C.Eng, MIET, MIEEE; Julie Petty, RN

Introduction: Pressure injuries(PIs) pose a significant challenge, affecting approximately 2.5M individuals in US acute care settings and contributing to an estimated $22B in healthcare costs.[1] Early patient mobility can be difficult when dependent on existing bed-focused equipment. Many caregivers face challenges in implementing optimal Pressure Redistribution(PR) solutions for a patient sitting in the bedside chair. Extended periods of sitting can heighten the risk of PIs, particularly over the buttocks, due to sustained compression of soft tissue between the seating surface and the pelvic bones.[2] Solutions combining bed-based and chair-based PI prevention/treatment solutions should be considered.

Methods: Evaluate the PR performance properties of an active seat cushion to help guide clinical practice.

The study also links product measurements with aspects of published scientific research data.[3]

Pressure Relief Index(PRI) values were calculated and documented at clinically relevant thresholds below 30mmHg, 20mmHg and 10mmHg for two loads on an alternating therapy seat cushion.

Results: PRI-measured and calculated % of time interface pressures are below listed thresholds[4]:

40kg load:< 30mmHg=100%,< 20mmHg=76.3%,< 10mmHg=47.1%

75kg load:< 30mmHg=46.7%,< 20mmHg=45.1%,< 10mmHg=43.7%

Discussion: Support surfaces are a clinically proven tool in the prevention and treatment of PIs when the patient is in bed. Since standard early mobility practice involves sitting the patient on a bedside chair, it's important to continue addressing their PR needs.[5] A single system that can operate in-bed and out-of-bed solutions can support proactive care strategies, mitigate risk factors and may improve patient outcomes.

Although there are extensive testing standards for full body support surfaces and wheelchair seating, there are no applicable US consensus standards for bedside seating. The specific operation of an active seat cushion[4] differs from a reactive cushion. Therefore, the above performance testing focuses on PR through offloading as described by PRI measurements rather than traditional immersion and envelopment.

Active seating therapy, with cell inflation and deflation facilitates targeted PR and offloading, significantly reducing the duration and intensity of localized tissue deformation. Alternating pressure therapy can be integral to PI prevention and treatment strategies by aligning with best practice for tissue viability and early mobility.

Active seating can provide another tool to help 'Protect your ASSETS'.

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LR-014

Acoustic Conditioning of Autologous Whole Blood: Evidence for Activation of Mechanotransduction and Tissue Repair Signaling

René Köffel; Timothy Bergmann, PhD; Sutnuka Sen-Shamim

Introduction: Chronic and non-healing wounds remain a major unmet clinical need, characterized by dysregulated inflammation, impaired cellular activation, and insufficient extracellular matrix organization. Current autologous therapies often lack reproducibility and consistent biological potency. Mechanical and biophysical cues are increasingly recognized as regulators of immune activation and tissue repair. We identified that controlled acoustic stimulation (Sound Induced Morphogenesis, SIM) induces a reproducible, pro-regenerative activation state in autologous whole blood, generating a biologically active matrix that supports early wound-healing processes.

Methods: Compatible with clinical workflows, autologous whole blood was exposed ex vivo to short-duration acoustic stimulation, using SIM, while unstimulated samples served as parallel controls. Following stimulation samples were processed for RNA extraction to assess gene expression of wound-healing markers and mechanosensitive genes by RT-qPCR.

Results: SIM induced a reproducible activation of inflammatory and matrix-remodeling pathways. Acoustic stimulation enhanced the expression of early inflammatory cytokines (e.g. IL-6) and matrix-associated markers, resulting in a coordinated activation pattern linked to early wound-healing processes. In parallel, mechanosensitive gene analysis demonstrated engagement of mechanotransduction pathways, including increased expression of matrix-remodeling and signaling-related genes such as PTGS2 and MMP9. This indicates that acoustic stimulation triggers a structured biological response involving both immune signaling and mechanosensing.

Discussion: These findings support the hypothesis that acoustic stimulation induces a biologically active, pro-regenerative state in autologous whole blood. The coordinated modulation of inflammatory cytokines suggests activation of early signaling pathways required for immune recruitment and wound initiation, while changes in matrix-associated and mechanosensitive genes indicate simultaneous engagement of extracellular matrix remodeling and mechanotransduction.

Together, this approach provides a mechanistically grounded, additive-free strategy to generate functional autologous matrices with potential to improve consistency and efficacy in wound healing. Further validation in functional and clinical models are on-going.

LR-015

Laterality Failure in Vision-Language Models on Surface Clinical Photographs: A Pilot Safety Study

Mitchell Liu, Student

Introduction: Anatomical laterality is a foundational concept; getting it wrong carries significant safety implications. In wound care and dermatology, assigning the correct patient side affects documentation, longitudinal tracking, and clinical decision support. While vision-language models (VLMs) are increasingly evaluated for clinical image interpretation, this patient-centered spatial task remains dangerously under-tested. We evaluated whether contemporary VLMs reliably assign anatomical laterality from standard surface clinical photographs.

Methods: We conducted a two-stage evaluation. A 9-model pilot tested laterality assignment on 8 unilateral photographs using reasoning-en-

forced and direct prompts. We then expanded to a 34-model stress test using a 17-image benchmark encompassing 10 unilateral images with known left-right ground truth, 2 non-anatomical controls, and 5 bilateral controls requiring abstention. Images featured clear unilateral landmarks across periocular, forehead, and lower-extremity regions. Models evaluated the photographs exactly as presented, utilizing three prompt variants (landmark-justified, single-word clinician, minimal one-word), all permitting an "unable to determine" response. The primary outcome was exact-match accuracy on unilateral images; secondary outcomes included prediction distribution, control abstention accuracy, and qualitative failure-mode classification.

Results: In the pilot, 9 VLMs averaged 42.6% accuracy; removing explicit reasoning did not resolve errors. In the 34-model evaluation, unilateral accuracy ranged from 0.0% to 56.4%, despite highly visible anatomical landmarks. The top-performing model achieved only 56.4%. Failures were non-random, with models exhibiting distinct patterns: rigid left/right bias (even on bilateral controls), severe instability, empty outputs, and excessive abstention on clear images. Crucially, models correctly recognized the visible anatomy (e.g., identifying a foot) but consistently assigned it to the wrong patient side, demonstrating a profound disconnect between object recognition and spatial grounding.

Discussion: Current VLMs identify surface anatomy but critically fail the fundamental clinical task of assigning the correct patient side. These spatial-grounding errors persist across prompt variants and model architectures. Consequently, laterality is not a minor prompt-engineering hurdle, but a fundamental safety risk for clinical documentation. Before VLMs are integrated into clinical workflows, patient-side output must require structural safeguards rather than unverified model inference.

LR-016

Chemokine Gradients and ECM-Bound Signals Cooperate to Direct Fibroblast Migration to Cryopreserved Birth Tissue

Toni-Ann Martorano; Wendy W Weston, PhD

Introduction: Placental and umbilical cord tissues are known to contain numerous structural proteins, growth factors and cytokines. However, the way these tissues are processed and stored can affect the concentration of these beneficial factors, some of which affect fibroblast migration. The Boyden Chamber assay is used to detect and measure the migration of cells, such as fibroblasts, through a membrane due to a cytokine gradient. Movement along these gradients are mechanisms called chemotaxis and haptotaxis. In this study, we quantified the attraction of fibroblasts toward birth tissue membranes. We hypothesize that cryopreserved amnion and umbilical cord membranes will promote local haptotaxis and chemotaxis of fibroblasts. To further substantiate the results, we quantified chemotactic and haptotactic factors released into the local environment from these tissues.

Methods: The Boyden Chamber assay, or cell migration assay, is conducted using chambers inserted into wells of a cell culture plate. The chamber has a polycarbonate membrane (8um pore size) that is suspended in the media. Amnion or umbilical cord are placed at the bottom of the well and covered with media. The polycarbonate membrane is seeded with fibroblasts and placed into the well. Migration of the fibroblasts through the membrane is measured. Separately, potential growth factors responsible for chemotaxis and haptotaxis are quantified by ELISA using eluate from tissue samples incubated for 72 hours.

Results: There was more migration of fibroblasts in wells containing the cryopreserved membranes, as compared to control wells (no membrane). Additionally, the membranes show high concentrations of chemotactic factors such as HGF and bFGF. Haptotactic factors such as fibronectin and HA were also in high concentration in these products.

Discussion: All membranes used for the migration assay were submerged in DMEM without serum or other additions. This means that the membranes are responsible for any gradients. The local chemotactic and haptotactic properties of each membrane were robustly determined and quantified using both migration assays and growth factor analysis. The concentrations of growth factors within the membranes support the migration data, further fortifying the results. Considered together, the high concentrations of factors and the fibroblast migration towards these membranes, indicates that these cryopreserved tissues are a promising option as a treatment modality for wound covering.

LR-018

The Histological and Proteomic Analysis of the Wound Healing Potential of Collagen Type o Polypeptide in a Living Human Skin Biopsy Ex Vivo Model

Andrew Mearns-Spragg

Introduction: Jellyfish collagen type o (CTo) represents a chemically ancient form of collagen exhibiting high biocompatibility and promising tissue healing properties. We previously reported that compared to a commercial bovine collagen in full-thickness excisional wounds [db/db mouse model (BKS.Cg-m Dock7m +/+ Leprdb /J)], the CTo polymeric peptide technology demonstrated a better quality of outcome, improved immune response, and more uniform and mature granulation tissue. In this study, we have compared CTo polymeric peptide formulations against a commercial bovine collagen to track wound healing and scaffold integration in a living human skin biopsy ex vivo model. The study focuses on protein biomarker analysis of wound healing using bottom-up proteomics via LC-MS/MS.

Methods: Treatment Regimens: Tx Group, Treatment Application, (days) "n":

1) Negative Control), Day o only, 3; 2) Micronized collagen Type o powder group 1, Day o only, 3; 3) Micronized collagen Type o powder group 2, Day o only, 3; 4) Tissue integration Positive Control – Bovine collagen comparator, Day o only, 3; 5) Reepithelialization Positive Control – EGF, Day o only, 3.

Replicates (3): Triplicate tissue samples from a single donor

Time points: Samples analyzed at Day 3 and at Day 7

Results: Results pending.

Endpoint Analysis: This new study will focus on histological and proteomic endpoints demonstrating tissue integration and immune cell infiltration by the test articles (n=2 for replication).

Bottom-up proteomics will be used to compare protein expression across all treatments and baseline controls. Relative abundances will be used, and pathway analysis will be performed and presented graphically. Tissue blocks (histology), tissue (LC-MS/MS and qPCR), and supernatants (cytokines /growth factors – ELISA) will be stored for additional endpoints for future analysis and reporting. Histological evaluation of CTO scaffold performance will assess tissue integration, wound healing, and extracellular matrix organization. This analysis serves as an efficient first step toward understanding advanced molecular analyses, such as the relationship between morphology and gene and protein regulation, and the omics data underpinning downstream mechanisms and outcomes.

Discussion: This study is designed to maximize biological insight by linking tissue-level outcomes to molecular mechanisms in a human skin wound model.

LR-019

Using Advanced Materials Engineering to Regulate the Inflammatory Response in Tissue Repair

Patricia Nadworny, PhD Chemical/ Biomedical Engineering; Robert E Burrell, AOE, PhD, CSM, FCAHS, FNAI

Introduction: Inflammation is a key part of tissue repair, but is a double-edged sword. Too much inflammation destroys host tissue, leading to chronic inflammation and delaying healing, potentially for years. If there is no inflammatory response, there is no cell signaling or tissue repair. If the inflammatory response is robust but not excessive, which is typical in healthy adults, healing occurs with scarring. If the inflammatory response is reduced, as in the case of the fetus, then scarless healing occurs. The latter is an example of tissue regeneration where all functionality is retained in the new tissue. However, the inflammatory response is required

to control microbial contamination and infection, and if it is reduced, a life-threatening situation can arise where microorganisms grow out of control. This research investigated the development of materials that provide broad spectrum antimicrobial activity while reducing the inflammatory response of the host.

Methods: Using a DC magnetron sputtering process, 100% Ag, 65% Au/35% Ag, and 35% Ag/65% Au alloys were deposited on high density polyethylene (HDPE) mesh with working gas compositions containing pure Ar and mixtures of Ar/O2 (99/1, 97.5/2.5 and 95.75/4.25%). Water was added to the Ar at 2, 4, and 8 µL/min. The power was 1.8A and the sputtering distance was 10 cm. Antibacterial activity was determined using a log reduction assay against P. aeruginosa grown in calf serum (3.5x109 CFU). Anti-inflammatory activity was measured in a porcine model with a DNCB-induced inflammatory response. The silver/gold alloys were compared to a commercial nanocrystalline silver dressing* and a saline control on uncoated HDPE. Erythema and edema were graded on a scale from 0-4.

Results: Water alone had no effect on the antimicrobial activity of the Ag/Au alloys. Addition of O2 improved antimicrobial activity synergistically by up to 4 logs. The new materials all lowered erythema and edema scores relative to the nanocrystalline silver dressing* and saline controls.

Discussion: Advanced manufacturing processes can create materials that reduce the inflammatory response in order to support healing and promote tissue regeneration, while providing the necessary antimicrobial activity to prevent susceptibility to infection.

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LR-020

In Vitro Comparison of Inflammatory Reduction and Growth Factor Production Across Three Commercially Available Wound Products: Collagen Sheet, Mānuka Honey Sheet, and a Bioengineered Collagen-Manuka Honey-Hydroxyapatite Sheet

Isaac Rodriguez, PhD; Nina Bionda, PhD; Tricia Conti, MS

Introduction: Chronic wounds affect millions of patients and impose significant burden on the healthcare system. Many available wound products address only a single stage of the healing cascade, limiting their utility in complex wounds stalled in the inflammatory phase. Elevated matrix metalloproteinase (MMP) activity, particularly an increased MMP-9/tissue inhibitor of MMP-1 (TIMP-1) ratio, is a well-established marker of impaired healing. This preliminary in vitro study directly compared the inflammatory reduction and growth factor production capabilities of three commercially available wound products: a collagen sheet (COL), a Mānuka honey calcium alginate sheet (MH), and a novel bioengineered collagen derivative-Mānuka honey-hydroxyapatite sheet* (BCMH).

Methods: Human macrophages (THP-1) and primary human dermal fibroblasts were seeded directly onto each of the three test materials and a tissue culture plate (TCP) control, assessed in triplicate (n = 9 per treatment). Following a 24-hour incubation, macrophage supernatants were analyzed via a quantitative MMP multiplex array measuring MMP-1, MMP-9, TIMP-1, TIMP-2, and additional MMP-related proteins. Fibroblast supernatants were analyzed via a quantitative growth factor array. MMP-9/TIMP-1 ratios were calculated for each treatment condition. Statistical comparisons were performed using ANOVA with Tukey-Kramer post-hoc analysis ($\alpha = 0.05$).

Results: BCMH produced the lowest MMP-9/TIMP-1 ratio of all treatments (0.006), representing an 11-fold reduction compared to COL (0.065) and a 3-fold reduction compared to MH (0.018). MH samples showed low or undetectable levels of all MMP-related proteins, including TIMP-1, suggesting a cytotoxic effect at its high honey concentration. In the growth factor array, BCMH stimulated high levels of TGF-beta 1 (~189 ng) and BMP-5 (~90 ng), as well as elevated amphiregulin, NT-3, TGF-alpha, and GDF-15 relative to other treatments. Both COL and BCMH supported favorable growth factor expression profiles, while MH showed the lowest growth factor production of all three products tested.

Discussion: These findings suggest that the BCMH sheet provides a more comprehensive approach to wound healing than either COL or MH alone by simultaneously reducing inflammatory markers and supporting pro-angiogenic growth factor secretion. The 11-fold lower MMP-9/TIMP-1 ratio compared to a 100% collagen product is notable, given collagen's established role as a sacrificial MMP substrate. The low biomarker activity observed with MH is consistent with the known cytotoxicity of Mānuka honey at high concentrations, underscoring the value of right-sizing honey exposure within a bioengineered matrix. Future studies should evaluate these effects in clinical wound microenvironments and explore additional endpoints including antimicrobial activity, oxidative stress, and cell viability.

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LR-021

An Engineering Approach to Increasing the Production Rate of Nanocrystalline Silver Wound Healing Materials

Arushi Tandon, MSc; Charlotte Bradley, BSc Biology/Chemistry; Patricia Nadworny, PhD Chemical/ Biomedical Engineering; Robert Burrell, Phd Toxicology

Introduction: Chronic wounds are both chronically inflamed and infected/contaminated. Rising antimicrobial resistance is eroding standard prophylactic treatment options. Worldwide, wound care expenditure reached $148.65 billion in 2022.Nanocrystalline silver functions by releasing ionic and atomic-level metallic molecular silver species (IAMMS) from its grain boundary regions. IAMMS demonstrated potent broad-spectrum antimicrobial, anti-inflammatory, and wound-healing properties. Unlike ionic silver, IAMMS are delivered with sustained release, enhancing longevity and potency (US:2026/0157890 A1).A significant problem with nanocrystalline-silver dressings is the cost of manufacture. As a result, these dressings are often reserved for the worst cases when in fact, most wounds would benefit from their use. This project examines new manufacturing processes to reduce the cost and increase the availability of nanocrystalline-silver dressings, while maintaining or improving biological activity.

Methods: Initial work involved the optimization of the physical vapor deposition (PVD) process, with a particular emphasis on controlling energy input to increase throughput by incorporating water into the working gas. Physical (XRD) and chemical (total and active silver) data were collected. Biological testing was used for measuring antimicrobial activity.

Results: By minimizing energy, the size of the crystallites can be reduced, which increases the grain boundary volume (GBV). GBV can reach up to 40% at 5 nm crystallite sizes. This structure releases unique species of silver, including those responsible for anti-inflammatory activity. It was demonstrated that water with flow rates from 2-33 µL/min didn't increase active silver on its own. Active silver concentrations increased dramatically when oxygen was added at various concentrations in combination with the water. Antimicrobial activity of the dressings was proportional to the active silver concentration. Addition of water increased the antimicrobial activity by a factor of 10.

Discussion: The manipulation of energy inputs during the PVD process allows material properties to be tailored. Using water in the process allows the production rate to increase by a factor of ~3. The water itself adds very little to the structure of the thin film from a chemical perspective, but it significantly reduces energy inputs, allowing for the creation of dressings with enhanced biological activity. Anti-inflammatory activity will be confirmed in animal studies.

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LR-022

How Low Can You Go? The Influence of Top Covers and Support Surface Core Materials on Immersion

Kristen Thurman, PT, MPT, CWS, CFPS, CSPHA; Tanner Knutson, BSBME Candidate; Timothy Campbell, BSBME; Veronica Neef-Cook, BSN, RN; Craig Miller

Introduction: Pressure redistribution is a key therapeutic objective when utilizing support surfaces for pressure injury prevention and treatment1, and immersion is one method of reactive pressure redistribution.2 As a patient sinks deeper into a support surface and the materials envelop and conform to the body, more contact area is created, allowing pressure to redistribute over the increased surface area rather than being localized around bony prominences where injury is likely to occur. Support surface construction details play a significant role in how much immersion depth a patient can achieve. In this study, the research team set out to quantify the impact of materials on immersion.

Methods: Five market-common top cover fabrics were applied to both a higher immersive air mattress core and a lower immersive foam core. The same hemispherical indenter3 was applied to each combination of fabric and core material with 450N of force. Immersion depth of the indenter was recorded for three trials on each combination.

Results: Baseline immersion depths of the core mattresses without a cover were 5.30 (higher/air) and 3.95 (lower/foam) inches. When combining the higher immersive air core with the five materials, Material 1 maintained the highest immersion at 4.89 inches. Materials 3 and 5 allowed moderate immersion at 4.66 inches and 4.57 inches, respectively. Materials 2 and 4 demonstrated the lowest immersion at 3.96 inches and 3.84 inches, respectively.

When combining the lower immersive foam core with the five materials, Material 1, again, maintained the highest immersion at 3.85 inches. Materials 3 and 5, again, allowed moderate immersions at 3.67 inches and 3.66 inches, respectively. Materials 2 and 4, again, had the lowest immersions at 3.39 inches and 3.19 inches, respectively.

Discussion: Top cover materials limited baseline immersion on both higher and lower immersive cores, and result trends of the material impact were similar. Full construction of the support surface should be considered, as both core material and top cover material impacted immersion depth. These impacts can influence overall pressure redistribution at the body-surface interface.

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LR-023

Don't Judge a Mattress by Its Cover... Or Should You?

Kristen Thurman, PT, MPT, CWS; Craig Miller, BS; Timothy Campbell, BSBME; Tanner Knutson, BSBME candidate; Veronica Neef-Cook, BSN, RN

Introduction: The TIMERS acronym has been used for years to guide wound assessment and care.1 Our quality improvement project focused on the "E": edges. The periwound skin area must stay healthy for the healing progression to continue.During assessment of wounds, the health of the surrounding tissue is essential. Friable skin needs to be supported so it will not tear. Macerated skin will soften and break down, not allowing the dressing to stay intact as well as increasing the wound size.2Purpose: Keeping dressings intact while protecting the periwound is a key component in providing best practice wound and ostomy care. This will decrease the time to heal which in turn will keep costs of care down but more importantly increase patient satisfaction.

Methods: Five top cover materials utilized on surfaces in the market today were tested. The core of a 6-inch air mattress was utilized to allow for higher levels of immersion. A force of 450N was applied through a 20-inch hemispherical indenter3which represented 88% immersion (5.30 inches) into the air mattress. Then each of the five cover materials was applied to the same air mattress core and tested with the same indenter and force. Three trials were conducted with each cover, and immersion values were recorded.

Results: Without the cover, the air mattress core allowed the indenter to immerse 5.30 inches. Average immersion for Material 1 had the highest immersion at 4.89 inches. Materials 3 and 5 had moderate immersions at 4.66 inches and 4.57 inches, respectively. Materials 2 and 4 had the lowest immersions of 3.96 inches and 3.84 inches, respectively.

Discussion: Immersion and envelopment (conforming to the surface) are key performance characteristics of a support surface that mitigate PI risk. Envelopment cannot occur without immersion, making immersion an important priority when selecting support surfaces.2 Top cover material has demonstrated an impact on the amount of immersion a support surface can provide. The results in this study showed a loss in immersion with the use of all covers, but a wide range from 7.7% to 27.51% loss. Assuming similar material envelopment using this 6-inch surface, for every 1-inch of immersion loss (16.67%) on the indenter 16% of surface area contact is lost. Reducing surface contact area increases peak pressures that could result in PIs. Therefore, top cover material selection plays a significant role in immersion performance of a support surface and should be considered when selecting support surfaces.

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LR-024

An Assessment of Comparative Time Kill Rates Against Problem Microbes by a Hypochlorous Acid-Based Antimicrobial Wound Gel, Versus Manuka Honey.

Rose Yaghi; Debashish Chakravarthßy Dr, PhD

Introduction: The use of wound gels that have antimicrobial preservative properties is well known, and there is a lot of variety available to clinicians. Of note is the recent launch of a high-concentration (500 ppm) pure hypochlorous acid (HOCl) gel * for the management of moderately wet-to-dry, sloughy wounds. Manuka honey is also used for such wounds, and the literature reports that this variety of honey possesses antimicrobial properties due to its specific composition. The efficiency and speed of antimicrobial preservatives can be measured using ASTM-based Timed Kill Assays. Here, we compare the relative time-kill efficacies of the two wound-care approaches.

Methods: We performed ASTM tests on the HOCl gel and examined the published literature on the effects of Manuka honey on bacteria using time-kill assays. Two germs were analyzed in this comparison: Pseudomonas aeruginosa and Streptococcus pyogenes, both of which are common wound pathogens.

Results: We found that in Timed kill assays, at 30 seconds against Pseudomonas aeruginosa, pure HOCl gel induced ≥5 log_{10} reduction (≥99.999% kill). At 30 seconds for Streptococcus pyogenes, pure HOCl gel was able to induce ≥6 log_{10} reduction (≥99.9999% kill). In remarkable contrast, at 6 hours for both Pseudomonas aeruginosa and Streptococcus pyogenes, Manuka honey reduced bacterial counts by about 1.7 log_{10}. At 9 hours of exposure for Pseudomonas aeruginosa, Manuka honey achieved >3 log_{10} reduction (>99.9% kill), and for Streptococcus pyogenes, Manuka honey achieved 2.5 log_{10} reduction (~ 99.7% kill). In addition, the concentrations required for the agents differed greatly to achieve the above kill rates. The pure HOCl gel was tested as a neat formulation, using 1 g from the tube containing 550 ppm (0.055% active HOCl). Manuka honey was tested at 25% (2x MIC). Despite the lower active antimicrobial concentration, the pure HOCl gel formulation achieved a superior germ reduction for both species compared to Manuka honey.

Discussion: The HOCl antimicrobial preservative system is much more effective than the preservative system associated with Manuka honey.

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2. Data on file

LR-025

Spray or Pour? Why Spraying Hypochlorous Acid (HOCl) Cleansers May Degrade the Key Preservative Molecule, HOCl

Rose Yaghi; Debashish Chakravarthy Dr, PhD

Introduction: Wound cleansing is a critical first step in wound bed preparation, and multiple guidelines now recommend using pure hypochlorous acid (HOCl) as a preservative in wound cleansers. Specially formulated shelf-stable solutions are made available by some manufacturers. Yet the product's delivery system during cleansing can have a major impact on its stability within seconds of leaving the container and beginning its journey to the wound surface, potentially even before it reaches the wound. This is because hypochlorous acid is highly volatile, and atomization into a mist may allow HOCl to disperse into the atmosphere before reaching the wound. We investigated whether atomizing the solution into a spray delivery leads to the rapid depletion of the key preservative molecule, hypochlorous acid.

Methods: We tested two products: one available only as a poured product today, and one available as a spray (finger sprayer). We tested the available free chlorine (AFC) in these two products, as commercially available under pouring-and-spraying scenarios. To measure and estimate "post-delivery" concentrations, the hypochlorous acid concentration was measured as the available free chlorine in the fluid reaching the wound. The contents were poured or sprayed onto an inert glass surface, forming a thin, approximately uniform layer to mimic what would occur if the liquids were made available via the two delivery systems to the wound surface.

Results: Product A (Pour bottles only) showed a higher original ppm value than either the pour or the spray bottles of Product B as tested "in the bottles". Post pouring, on an inert glass surface, both product A and B (the pour bottle variant) retained the ppm AFC value within 10% of the value of "in the bottle". Post-spraying, Product B on the sprayed surface surprisingly showed a loss of approximately 90% of its original value as measured "in the bottle"

Discussion: We believe that atomizing the liquid with a spray nozzle will enable rapid evaporation of HOCl from the cleanser as it travels from the spray nozzle tip to the wound. This is not surprising as HOCl is a volatile molecule. On the other hand, pouring a liquid onto gauze for soaking is likely to keep the cleanser as close as possible to its original state. Spraying causes the liquid to "run off" the wound, limiting the contact time, which should ideally be between 2 to 5 minutes.

LR-026

In Vitro Assessment of a Hypochlorite-Free Pure Hypochlorous Acid-Based Wound Solution Compared to Other Types of Cleansers

Rose Yaghi; Debashish Chakravarthy Dr, PhD

Introduction: Wound irrigation is a critical procedure for cleansing, hydrating, and debriding tissue, thereby supporting the healing of both acute and chronic wounds. In clinical settings, wound solutions - particularly topical antimicrobial preserved solutions - can be diluted or rendered less effective by wound exudate. This presents a well-recognized challenge in wound management, with important implications for treatment outcomes. This loss of efficacy is most pronounced in heavily exudative wounds, where germ removal activity may be significantly compromised. This study aims to evaluate the physicochemical properties (pH and ORP), in vitro biocompatibility, and germ elimination efficacy of four commercially available wound solutions at varying dilution levels.

Methods: The wound solutions tested included hypochlorous acid (HOCl) cleanser solution (~0.033%, pH 4.0)*, 0.125% sodium hypochlorite (NaOCl, pH 9.80)*, a combined solution of 0.01% HOCl/NaOCl (pH 7.0)*, and 0.1% polyhexanide (PHMB, pH 6.7)*. Each was assessed at three concentrations—100%, 75%, and 50%—for pH and oxidation-reduction potential (ORP), cytotoxicity against HaCaT keratinocytes, HDFa fibroblasts, and mesenchymal stem cells (MSCs), and antibacterial activity against Pseudomonas aeruginosa.

Results: The HOCl cleanser solution exhibited higher ORP values compared to NaOCl, HOCl/NaOCl, and PHMB, indicating strong oxidative potential and excellent stability even after dilution. Remarkably, the HOCl solution retained strong antimicrobial efficacy even at 50% dilution, as evidenced by the complete elimination of P. aeruginosa (>5.78 Log_{10} reduction). At equivalent dilutions, the HOCl-based wound solution exhibited little to no cytotoxicity toward HaCaT, HDFa, and MSCs over up to 15 minutes of exposure, indicating lower cytotoxicity than NaOCl and PHMB solutions.

Discussion: This study indicated that a hypochlorous acid cleanser solution (~0.033%, pH 4.0) offered the greatest preservative strength, strongest antimicrobial activity, and lowest cytotoxicity among the tested formulations.

LR-027

Influence of Wound Dressing Composition on pH at the Dressing–Wound Bed Interface

Rose Yaghi; Debashish Chakravarthy Dr, PhD

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 proteins' isoelectric points, cationic charges will be more abundant at low pH. However, since the pH of chronic wounds is between 7 and 9, it is beneficial to locally lower the pH of the exudate in contact with the non-woven fabric to ensure that more cationic charges interact with the non-woven fabric's anionic charges.

Methods: Dressings were immersed for 30–60 s in buffer solutions (pH 7 and 9), drained, and the surface pH was 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 decrease in pH at the interface, 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 measured pH values.

Discussion: This reliable and repeatable method enables examination of the relationship between the nature of wound-dressing fibers and the

pH at the dressing-wound bed interface. This improves our understanding of desloughing mechanisms in chronic wound management, ultimately leading to more effective clinical wound care.

LR-028

Effect of Highly Negatively Charged Fiber Dressing on Burn Wound pH in Porcine Model

Rose Yaghi; Debashish Chakravarthy Dr, PhD

Introduction: Many local wound factors and systemic mediators influence the healing process, and the wound pH milieu is an important local factor. Under normal conditions, the skin has an acidic pH, but burn wounds are generally alkaline. It was previously shown that a highly negatively charged fiber dressing (HNCFD) with silver (Ag), which binds to necrotic tissue and supports continuous debridement, can also release protons in vitro, leading to localized microacidification in the wound bed. This study aims to assess the in vivo efficacy of HNCFD-Ag in restoring the pH of burn wounds following a daily treatment regimen.

Methods: A porcine model was chosen due to its similarity to humans in terms of skin and healing properties. On Day 0, 2-cm-diameter circular full-thickness burns were created on the backs of anesthetized pigs. From day 1 post-burn, daily pH readings of the burned surface were taken immediately after dressing removal using a portable pH meter with flat-head electrodes. Wounds were then gently wiped with a gauze soaked with saline, taking care not to debride the necrotic tissue mechanically, and wounds were dressed daily with saline-moistened non-adherent dressing (NAD) applied evenly to the wound surface or HNCFD- Ag (n=5 wounds/treatment) The pH of the burn wounds was measured daily from day 1 post-burn until day 15. The rate of necrotic tissue removal and wound closure was assessed using macroscopic analysis of treated burn wounds.

Results: Following burning, the surface pH rises from 6.8±0.2 (mean±SD) for the unburned skin to 8.7±0.1 on day 1. The pH values of the wounds treated with NAD slowly decreased to less alkaline values (pH 7.7±0.1) on day 15, without returning to the initial acidic values. A marked decrease in pH was observed in wounds treated daily with HNCFD-Ag as early as day 9 (pH 7.7±0.1), followed by a rapid decline toward the pH of unburned skin by day 13.

Daily treatment with HNCFD-Ag improved wound healing as early as day 8 (27.6 ± 4.3% and 29.4 ± 2.0% reductions in wound surface area, respectively) compared with NAD (12.0 ± 3.0%).

Discussion: Treatment of alkaline burn wounds with HNCFD- Ag increases the speed of a fast fall of pH towards that of unburned skin and necrotic tissue removal, creating wound environments that are favorable for healing.

Moreover, wounds treated topically with HNCFD-Ag showed less necrotic tissue and a higher rate of wound closure than NAD-treated wounds.

LR-029

Assessment of Synergistic Treatments Using Wound Solutions and Antimicrobial Gels to Evaluate the Degree of Inactivation of Microbial Colonies.

Rose Yaghi; Debashish Chakravarthy Dr, PhD

Introduction: Microbial colonies in wounds create substantial therapeutic challenges by forming protective extracellular matrices that dramatically reduce antimicrobial efficacy. Wound cleansing solutions can disrupt microbial colonies without requiring prolonged antimicrobial activity, whereas antimicrobial gels often provide prolonged antibacterial effects but have limited penetration into intact microbial colony structures. This study examines how a synergistic combination therapy, with sequential application of wound solutions and antimicrobial gels, can overcome these limitations and enhance clinical outcomes.

Methods: A 48-hour P. aeruginosa AATCC 15442 colony was established on a wounded porcine explant model, then submerged in *Hypochlorous acid solution or Saline for 10 minutes before being placed into a *Poloxamer gel, a *Hypochlorous acid gel or Saline for a further 4 hours. Also, samples were placed in Hypochlorous acid gel for 10 minutes, then in Saline for 4 hours. Samples were then neutralized for 5 minutes, sonicated for 30 minutes, and enumerated to determine CFU/cm2. A log10 reduction value was calculated from an untreated 48-hour control.

Results: Saline/Saline demonstrated marginal antimicrobial activity, achieving < 1 log10 reduction. Improved activity was observed with Hypochlorous acid solution and Saline, resulting in a 3.59 log10 reduction. A combination of Saline followed by Hypochlorous acid gel achieved a >4 log10 reduction. The most successful synergistic treatment was the use of Hypochlorous acid solution followed by Hypochlorous acid gel, which achieved a > 6-log10 reduction. The poloxamer gel demonstrated lower microbial colony inactivation, achieving a reduction of < 2 $\log_{10}$.

Discussion: The results suggest there is a positive combined synergistic effect between the Hypochlorous acid antimicrobial solution and the hypochlorous acid antimicrobial gel in the inactivation of mature microbial colonies within a wounded pig skin model.

LR-030

Tissue pH Does Not Change the pH of Alkaline Cleansers Containing Sodium Hypochlorite When the Cleansers Come Into Contact With Wound Tissue.

Rose Yaghi; Debashish Chakravarthy Dr, PhD

Introduction: Wound cleansers are made of different antimicrobial agents, some of which contain cytotoxic (to human cells) ingredients such as sodium hypochlorite, which is alkaline by nature. On the other hand, acidic ingredients, such as hypochlorous acid, are noncytotoxic. It has been suggested that, because acute or healing wounds are acidic, the wounds may shift the pH of alkaline cleansers into an acidic range, thereby, for example, converting sodium hypochlorite to the more desirable noncytotoxic molecule, hypochlorous acid. We studied this in an ex vivo experiment.

Methods: Pig tissue in the form of pork from a butcher shop was used. Wounds were created in the pork via excision, of 1 inch diameter, and 10 mm depth. Post-defect creation, with the resulting exudate in place, 5 ml of alkaline cleansers* and acidic cleansers** were applied. The pH of the wound fluid was measured using a validated pH meter.

Results: The alkaline cleansers remain alkaline when applied to tissue wounds. The acidic cleansers remained acidic. There was some deviation from the pH of the cleansers as was measured before introduction into the wound, but the fundamental nature of the product in terms of acidity/alkalinity remained the same.

Discussion: : The cleansers we tested, which are used in real life, have fundamental differences in pH. Acidic cleansers likely create an acidic environment during cleansing, and the products' pH remains acidic throughout the process. In contrast, alkaline cleansers do not become acidic when they come into contact with a wound; this is likely due to the highly alkaline nature of sodium hypochlorite-containing cleansers.

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LR-031

WoundCorder: Smartphone-Based LiDAR Wound Volumetry With Local, Offline Vision-Language Model Support for Wound Assessment

Mitchell Liu, Student; Avery H Liu, Student

Introduction: Chronic wounds get measured frequently, but not always well. Clinicians still rely mainly on length-width measurements and subjective descriptions. Wounds, however, change in three dimensions. In home and community settings, the problem is worse: lighting, camera angle, documentation quality, and access to wound specialists all vary widely. WoundCorder pairs iPhone LiDAR scanning with a local, offline vision-language model to produce structured wound documentation.

Methods: WoundCorder is an iOS app that uses consumer-grade iPhone LiDAR and a custom 3D mesh reconstruction pipeline to estimate wound cavity volume from surface geometry. We validated accuracy by repeatedly scanning artificial reference cavities ranging from 10 to 400 mL, for a total of 60 scans, and comparing them against water-displacement ground-truth volumes. The app also integrates a model-agnostic offline AI layer: two optimized open-weight vision-language models, MedGemma 4B and Qwen3 VL 8B, run on-device to draft structured descriptions of visible wound features. Three clinical experts evaluated the outputs with a standardized 100-point rubric made up of 10-point clinical domain subscales, scoring documentation utility rather than diagnostic accuracy.

Results: The LiDAR volumetry agreed closely with reference volumes, with mean absolute percentage error between 3% and 8%. Error was lowest for cavities above 50 mL. Repeated scans reliably preserved depth morphology, which is information that conventional 2D surface measurements miss entirely. Local VLM inference produced clinically organized descriptions without sending data to the cloud. Experts gave high utility scores across domains: 9/10 for exudate description, 9/10 for wound margins, 8/10 for wound-bed characteristics, and 7/10 for wound type classification. Reviewers found the outputs useful for standardizing routine observations, but stressed that model-generated interpretations still need clinician oversight and are not diagnostic conclusions.

Discussion: Consumer-device LiDAR can support accurate volumetric wound measurement, and on-device AI assistance can turn wound images into structured documentation without requiring cloud-based image processing. The real value here is making wound monitoring more consistent across different care settings, not replacing clinicians. Further validation on real wounds, diverse skin tones, and various anatomic sites is needed before broad clinical deployment.

PRACTICE INNOVATIONS

PI-001

Impact of the Registered Dietitian as Part of the Wound Care Interdisciplinary Team

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Introduction: Chronic wounds pose a significant burden on patients and healthcare systems, and malnutrition is a well-established factor that delays wound healing, increases complications, and reduces quality of life. Despite strong evidence connecting nutritional status and healing outcomes, access to dietitian support in outpatient wound care settings remains inconsistent.In response, the Wound Clinic implemented a practice innovation initiative integrating a registered dietitian (RD) as a routine member of the interdisciplinary care team housed within the wound care center. This initiative aimed to proactively identify malnutrition and nutrition-related risk factors, personalize nutritional interventions, and improve overall healing rates while eliminating the barrier of making and attending a separate appointment.

Methods: Starting in October of 2024, all patients underwent a nutritional assessment utilizing patient-reported screening. Patients identified as at-risk were seen regularly by the RD following their medical appointment, receiving an individualized nutrition care plan focused on optimizing protein intake, addressing micronutrient deficiencies, and supporting glycemic control when necessary. The RD participated in interdisciplinary team reviews to adjust plans in real time based on wound progress and patient adherence.

Results: Preliminary outcomes from the first year of this program demonstrate promising improvements. The proportion of patients meeting healing milestones increased, readmissions to the hospital reduced, and patient-reported outcomes reflected enhanced understanding of nutrition's role in healing. Providers also reported improved workflow efficiencies and enhanced clinical decision-making through earlier recognition of nutrition barriers. Challenges included patient hesitation to engage in dietary changes and the need for consistent follow-up.

Discussion: This practice innovation highlights the value of embedding nutrition expertise into standard wound care as a proactive strategy rather than a late referral. Continued data collection and outcome monitoring will strengthen the evidence for scalable integration of RDs in wound clinics to drive better healing results and holistic patient care.

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PI-002

Extreme Limb Salvage Facilitated by Patient Advocacy, Multidisciplinary Care, and a Novel Stabilized Hypochlorous Acid Wound Therapy ; A Case Report

David Allie; Amit Amin, MD Caridology; Kerry Thibodeaux, MD APMC

Introduction: 70 year old patient with severe PAD, multiple prior vascular interventions and 3 large postoperative dehiscence's was transferred to a multidisciplinary limb salvage center after refusing above the knee amputation.

Methods: Diagnostic CTA and staged endovascular revascularization were performed, followed by inpatient advanced wound care including debridement. antibiotics, HBOT, and negative pressure wound therapy with instillation. After discharge, outpatient wound management incorporated Spectricept (TM), a stabilized HOCL formulation with Tri-Ion chemistry, applied daily in conjunction with standard dressings and intermittent HBOT therapy.

Results: CTA revealed 95-100% stenosis of the left EIA,CFA,SFA, and PA with tibial runoff. Staged endovascular intervention restored inflow and established straight-line flow to the proximal anterior tibial artery with collateral perfusion to the foot. During hospitalization wounds im-

proved modestly (-30% reduction). After transmission to outpatient care and initiation of Spectricept (TM), wound healing accelerated markedly. Complete closure occured in the groin wound by 60 days, the below the knee wound by 180 daysand a new great toe wound by 51 days.The large peri-ankle wound achieved 90% closure by 340 days.The patient regained independent ambulation status by 15 months.

Discussion: This case demonstrates that even profoundly complex CLTI presentations can achieve successful limb salvage when patient advocacy, multidisciplinary expertise and advanced wound care technologies converge. Early high-quality imaging and revascularization were essential while the introduction of stabilized HOCL(Spectricept(TM) corresponded with rapid improvement to wound symptoms, biofilm control, and healing trajectory. Stabilized HOCL formulations with Tri-Ion Chemistry may represent a meaningful addition to the contemporary limb salvage toolbox. Further clinical studies are warranted.

PI-003

Transforming Powder Dressing for Incisional Wound Complications After Reduction Mammoplasty: Wound Closure and Scar Outcomes in a Case Series

Angelica Bartler; Tarifa Adam, BA; Brigid Coles, BA; Robert Galiano, MD, FACS

Introduction: Reduction mammoplasty remains one of the most frequently performed procedures in plastic surgery. Though effective at reducing symptoms of macromastia, wound healing complications are relatively common, and are most frequently seen along incision junction sites, areas that experience the greatest tension and ischemia. Transforming powder dressing (TPD) is an advanced wound care product consisting of non-resorbable methacrylate-based granules that transform upon contact with moisture, producing a non-occlusive, flexible film that conforms to complex wound topography. The application of TPD in the setting of postoperative reduction mammoplasty has not been previously described.

Methods: This single-center case series includes seven patients who underwent bilateral reduction mammoplasty and subsequently developed superficial wound dehiscence and delayed healing complications 7-14 days postoperatively. Prior to TPD application, patients were managed with standard local wound care. Once selected for treatment, TPD was applied to cleansed, moistened wound beds. Upon transformation, the resulting flexible matrix conformed to the irregular wound topography characteristic of reduction mammoplasty incisions. Outcomes were assessed clinically and photographically, with scar quality evaluated using the validated Scar Cosmesis Assessment and Rating (SCAR) scale.

Results: Treatment with TPD yielded consistent wound closure and favorable aesthetic outcomes across all patients. Complete wound closure was achieved in all wounds within approximately 4-8 weeks of initiating TPD therapy, without the need for surgical revision or secondary procedures. Aesthetic results were encouraging, with preservation of breast shape and contour. Final scars exhibited favorable pigmentation, vascularization, and suppleness on assessment. The commonly reported sequela of increased scar width was observed, given the pathophysiology of healing by secondary intention, though overall cosmetic outcomes were not compromised. No adverse reactions to TPD were reported.

Discussion: This case series describes the first reported application of TPD in the management of wound healing complications following reduction mammoplasty. It demonstrated reliable wound closure, favorable aesthetic outcomes, and an excellent safety profile across all patients without the need for surgical intervention. The unique ability to conform to complex three-dimensional wound geometry, maintain a moist healing environment, and minimize the burden of frequent dressing changes makes it particularly well-suited for postoperative breast wounds.

PI-004

Implementation of the Novel Coverage and Reimbursement Clinical Trial Model Aligned With ICH E6(R3)

Kristy Breisinger, BS; Laura Serena, LPN, RN, MS; Thomas Serena, MD

Introduction: The landscape of clinical research is shifting from traditional, fragmented workflows to a continuously connected, digitally enabled model of oversight. The need for CRO's to tap into ICHE6(R3) to utilize the flexibility of trial design and technological advances to make trials more adaptable and efficient is evident. Medicare has relied on Coverage with Evidence Development (CED) policies, in which coverage for products and services is granted only when beneficiaries are enrolled in approved clinical studies or registries that prospectively collect outcomes data to inform future coverage and reimbursement decisions [1]. CMS gave manufacturers and investigators about 13.5 months to align their products with the evidentiary standard for covered product list [2].

Methods: A novel Coverage and Reimbursement(CAR) RCT framework was piloted for post-market wound care CAMPs. The model incorporated an innovative protocol design, Direct Data Entry(DDE), electronic-Source Records(eSource), and remote risk-based monitoring aligned with ICHE6(R3). Clinical data obtained directly from the participants were contemporaneously entered into the Electronic Data Capture(EDC) system, making the EDC the primary source record and eliminating paper-based or EMR transcription. When supporting source documentation was required, it was incorporated into the EDC or uploaded into a cloud-based compliant folder. Remote monitoring focused on regular review of critical eSource data rather than periodic travel dependent onsite visits, enabling earlier identification of eligibility issues, protocol deviations, anomalies, and safety concerns. To evaluate implementation, role-specific surveys were developed for: CRCs, Investigators, CRAs, Safety monitors. Surveys used standardized Likert scale and open ended questions to assess usability of the CAR model fit with routine clinical documentation and Medicare billing workflows.

Results: Planned evaluations include feedback on eligibility, enrollment performance, data completeness, accuracy, and query burden, monitoring efficiency and time from last patient visit to analyzable datasets, interim summaries, and manuscript ready outputs. Survey analyses will identify priorities for refinement of the CAR trial model.

Discussion: This pilot illustrates how a digitally enabled CAR trial framework streamlines clinical research from protocol development through publication by integrating DDE, eSource, and remote monitoring. The model aims to enhance data quality, safety and compliance oversight, operational efficiency, and evidence generation while supporting regulatory, clinical, and payer decision making.

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PI-005

Avoidance of Flap Reconstruction in a Large Post-Excisional Squamous Cell Carcinoma Scalp Wound With Exposed Periosteum Using a Transforming Powder Dressing: A Case Report

Diana Burgueno-Vega; Brandy Brown, ARNP

Introduction: Squamous cell carcinoma (SCC) is the second most common type of skin cancer and frequently occurs on sun-exposed areas such as the scalp. Large post-excisional scalp wounds can be particularly challenging to manage due to limited soft tissue coverage, risk of desiccation, infection, exposed bone, and the potential need for flap or graft reconstruction. Management becomes even more complex when periosteal integrity is compromised, as successful granulation and wound closure may be difficult to achieve with frequent and disruptive conventional dressing changes. This case report describes the management of a 75-year-old female who underwent excision of a scalp SCC extending to the calvarium, resulting in a large scalp wound with devitalized perioste-

um and exposed bone following postoperative desiccation.

Methods: Fourteen days following SCC excision, the patient was referred for management of a desiccated scalp wound with exposed calvarial bone and devitalized periosteum. Selective debridement resulted in a 5.3 x 4.5 cm wound. As flap reconstruction and skin grafting were not immediately viable options for this patient, conservative wound management was initiated with transforming powder dressing (TPD), an extended-wear dressing capable of remaining in place for up to 30 days. TPD was applied directly over the exposed bone and hydrated to form a moist wound-conforming matrix that covered and protected the wound. The periwound was protected with a liquid adhesive and moldable ostomy barrier ring. The patient was followed weekly, with debridement performed when clinically necessary and repeat TPD applications for five consecutive weeks, followed by biweekly visits for four additional applications.

Results: Serial examinations demonstrated progressive granulation tissue formation, coverage of the previously exposed bone, reduction in wound dimensions, and continued epithelialization without evidence of infection or other complications. Complete wound closure was achieved in 9 weeks despite advanced age and the presence of exposed calvarial bone and devitalized periosteum. Throughout treatment, TPD was well-tolerated, and no additional surgical intervention, flap reconstruction, or skin grafting was required.

Discussion: Serial debridement and TPD facilitated complete closure of a large post-excisional SCC scalp wound with exposed calvarial bone and devitalized periosteum, avoiding flap reconstruction, skin grafting, infection and other reported complications.

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PI-006

Integrating a Low-Profile, Alternating Pressure Support Surface Into the Operating Room to Prevent Pressure Injuries (PI)

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Introduction: Between 1.3% and 57.4% of hospital-acquired pressure injuries (PI) originate from operating rooms (OR), resulting in increased morbidity, longer hospital stays, and higher healthcare costs.1 Surgical patients are at high risk for developing PI due to their prolonged immobility (more than 2 hours), surgical positioning, use of anesthetic agents, and limited opportunities to reposition during surgery.2 Since patient stability is critical during surgery, most operating room (OR) table pads are thin, firm and provide minimal passive pressure redistribution during prolonged surgeries offering limited protection to prevent peri-operative PIs.

Methods: A low-profile, alternating pressure (LPAP) support surface was evaluated to reduce peri-operative PIs in the surgical population. Over a 2-week period, the LPAP was used for surgeries that were scheduled for 2 hours or longer. Thirty surgeries with an average duration of 3.35 hours were performed with the LPAP placed above a 3" thick foam OR table pad. Surgeries performed on the LPAP varied from general to complex such as robotic-assisted surgeries. Skin assessments were performed at the end of surgery and up to 72 hours post-operatively. Staff were also surveyed to assess overall integration in the OR.

Results: No perioperative PIs or adverse events occurred during the trial. The LPAP was compatible with various patient positioners, warming blankets, supine/Trendelenburg and lateral surgical positions. Feedback from the OR team indicated good acceptance and integration with current workflow.

Discussion: Zero PIs developed from procedures utilizing the LPAP. This study is consistent with current Association of periOperative Registered Nurses (AORN) guidelines suggesting the LPAP can mitigate PI risk for patients.3 While the LPAP does not interfere with surgical workflow, incorporating it into PI prevention protocols has shown successful in eliminating per-operative PIs in long-duration surgical procedures.

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PI-007

Evaluating a -Low-Profile Alternating Pressure Support Surface to Prevent Pressure Injuries in a Pediatric Operating Room

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Introduction: Pediatric patients are vulnerable to pressure injury (PI) formation with reported PI prevalence estimates ranging from 0.47% to 35% and an average cost of $85,853.1 PI prevention practices have typically focused on intensive care unit (ICU) settings with very limited focus on the operating room (OR). Children undergoing long-duration surgeries are prone to high rates of PI due to age-related physiological factors (skin immaturity, minimal adipose tissue, and lower pressure thresholds) and extended immobility on an OR table with limited options for repositioning or skin-checks during surgical procedure.2

Methods: A low-profile alternating pressure (LPAP) support surface, clinically validated in adult surgical populations, was evaluated for its ability to reduce peri-operative PIs in the pediatric population. The LPAP surface was placed above a 3" thick foam OR table pad for surgeries scheduled for 2 hours or longer. Skin assessments were performed at the end of surgery and up to 72 hours post-operatively. Staff were also surveyed to assess overall integration in the OR.

Results: Over a 3-week period, 22 surgeries with an average duration of 3.5 hours were performed with the LPAP surface utilized. Surgeries performed on the LPAP surface varied from general to complex such as reconstruction procedures to stereotactic craniotomy separation of craniopagus twins. Surveys completed by the OR team indicated good acceptance and no interference with current OR workflow.

Discussion: The results of this study are consistent with current Association of periOperative Registered Nurses (AORN) guidelines suggesting the LPAP surface can mitigate PI risk for surgical patients.3 Based on the results of this study, the LPAP surface has shown effectiveness in eliminating peri-operative PIs in pediatric surgical procedures 2 hours or longer.

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PI-008

Seeing Beyond Redness: Advancing Pressure Injury Assessment in Skin of Color

Valerie Crenshaw-Townes

Introduction: Pressure injuries in individuals with darker skin tones are frequently identified at later stages because traditional assessment

practices often rely heavily on visible redness. Early signs may instead appear as subtle discoloration, temperature changes, edema, firmness, or texture differences, contributing to delayed interventions and disparities outcomes.

Methods: A structured assessment framework was developed to improve pressure injury recognition in skin of color. The framework emphasizes observation, tactile assessment, moisture evaluation, comparison to surrounding skin, edema recognition, and identification of subtle skin changes. Education posters, assessment cards, and visual learning tools were created to support clinician education and bedside application.

Results: The framework increased awareness of atypical pressure injury presentation in darker skin tones and reinforced the importance of combining visual and tactile assessment. Educational tools improved recognition of subtle findings including purple, bluish, ashen, or deeper discoloration, localized swelling, firmness, and temperature variations before visible skin breakdown occurred.

Discussion: Pressure injury prevention in skin of color requires assessment strategies beyond erythema alone. This framework promotes earlier recognition, equitable assessment, and timely intervention through observation, touch, comparison techniques, and patient -reported symptoms may improve outcomes and reduce disparities .

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PI-009

A Synthetic Matrix as an Alternative to Biologic Options in Soft Tissue Reconstruction

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Introduction: The synthetic electrospun fiber matrix (SEFM) (Restrata , Acera Surgical, Inc.) is a fully synthetic wound healing and soft-tissue reinforcement device that maintains resistance to enzymatic bacterial degradation. The SEFM has been described in acute trauma, chronic ulcers, and soft tissue reconstruction. This retrospective review evaluates use of SEFM in complex soft-tissue reconstruction across both clinical indications - as a soft-tissue healing matrix for the management of open chronic and surgical wounds, as well as a soft-tissue reinforcement device for areas of weakness [1].

Methods: A retrospective review of patients who underwent soft tissue reconstruction using SEFM as an alternative to biologic matrices in the setting of high bacterial burden and/or concern for active or recurrent malignancy was conducted. The purpose of this review was to evaluate the rate of post-operative wound complications following application of SEFM during soft-tissue reconstruction procedures.

Results: A total of 13 patients were included in this retrospective review. All patients were treated with SEFM intraoperatively. Wound etiologies included non-healing surgical wound on the abdomen (1) and groin (1), pressure ulcers (2), lower extremity fasciotomy wound (1), necrotizing soft-tissue infection of the foot (1), pilonidal disease (2), hidradenitis suppurativa (1), non-healing back wound (1), and scalp wounds with exposed bone (3). Ten patients underwent surgical closure via flap and or split thickness skin graft with use of SEFM underneath for soft-tissue reinforcement. Three patients received SEFM application for soft-tissue healing, also received negative pressure wound therapy (NPWT) in conjunction.

There were no adverse reactions to SEFM, and no postoperative complications or infections.

Discussion: SEFM possesses indications as both a soft-tissue healing device and as a soft-tissue reinforcement device, permitting versatile use in reconstructive procedures. The synthetic nature of the material allows for a high degree of biocompatibility as well as resilience in contaminated or volatile wound environments. Given the cost of biologics and the resistance to healing in the face of high bacterial loads, synthetic materials may be beneficial. Additionally, in the face of uncertainty of residual malignancy, biologics may be contraindicated. As a result, a synthetic material which communicates through topographical cues as opposed to biologic stimulation of growth factors could be considered over biologic matrix options.

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PI-011

Improving Pressure Injury Staging Accuracy Among Bedside Nurses Through a Multimodal Educational Intervention Bundle

Jacqueline Dolatowski

Introduction: Hospital-acquired pressure injuries (HAPIs) remain a significant patient safety and quality concern in acute care settings. Baseline chart audits in an acute care setting revealed substantial opportunities for improvement, with only 16.7% of pressure injuries accurately staged compared with wound care nurse validation. The purpose of this quality improvement project was to evaluate the impact of a multimodal educational intervention on bedside nurse accuracy and confidence in pressure injury staging emphasizing the established Standardized Pressure Injury Prevention Protocol (SPIPP).

Methods: A non-equivalent pre-post quality improvement design was implemented on inpatient medical-surgical units. Baseline staging accuracy was assessed through retrospective chart audits (n=30), and post-intervention audits were conducted using the same methodology (n=33). Staging accuracy was defined as agreement between bedside nurse documentation and wound care nurse validation. The intervention included targeted education on current National Pressure Injury Advisory Panel (NPIAP) pressure injury staging guidelines, visual staging aids, badge reference cards, electronic health record (EHR)-embedded resources, unit-based rounding, and collaboration with wound care specialists to reinforce evidence-based practice, included in the SPIPP and documentation expectations. Nurse confidence was evaluated with a survey measuring confidence in pressure injury staging, identification, EHR documentation, escalation to wound care, and perceived support.

Results: Pressure injury staging accuracy improved significantly after the intervention. Accurate staging rose from 16.7% (5/30) at baseline to 63.6% (21/33) post-intervention. A Mann-Whitney U analysis showed a statistically significant improvement in staging accuracy ($U=262.50$, $Z=-3.20$, $p< .001$) with a moderate effect size ($r=0.40$). Nurse confidence also improved across all measured domains. Significant increases were observed in confidence related to staging according to established guidelines, EHR documentation, and perceived organizational support (all $p< .001$). Confidence in identifying pressure injuries and in escalating concerns to wound care specialists reached maximum survey scores post-intervention.

Discussion: The findings demonstrate that a multimodal intervention integrating education with an emphasis on the SPIPP, workflow-based resources, EHR support, and interdisciplinary collaboration are key components in significantly improving pressure injury staging accuracy and nurses' confidence. Embedding evidence-based resources, such as NPIAP Staging and SPIPP, directly within nursing workflows may promote sustainable practice change and strengthen adherence to pressure injury prevention and management standards.

PI-013

Clearly Different Negative Pressure Wound Care: Novel Transparent Device Improves Visibility for Real-Time Monitoring

Elof Eriksson; Rodney Chan, M.D.; Dawn Shepherd, BSN, RN, CWCN, CFCN; Christine Grogan, DHA, MHA, MS

Introduction: Negative pressure wound therapy (NPWT) has become a very important wound treatment modality over the past 35 years. However, problems related to the commonly used dressings remain.1 Standard

materials, such as foam and gauze, require frequent dressing changes; are opaque, obscuring the wound from clinical staff; and require high negative pressure, which can cause patient discomfort.2 Technical improvements are needed to provide a clear view of the wound between dressing changes, simplify application and removal, eliminate complications from foam and gauze, and enable precise delivery of pharmaceuticals without adding complicating functions to the device.

Methods: We review early research on a new type of wound interface, the negative pressure–platform wound device (NP-PWD), which has the potential to address these technical problems. NP-PWD is transparent; made of a thin, flexible polyurethane membrane; and embossed with tightly packed 2-mm-high pyramids, with tips oriented toward the wound surface. The space between the pyramids creates primary channels for air and fluid movement, and wrinkles in the membrane make secondary channels. Tubing connects the device to a single-use negative pressure pump with a cannister.

Results: In a preclinical porcine study, the NP-PWD was compared to three commonly used dressings, with very similar results.3 In a case series of surgical incisions, patients tolerated the device well, with no inflammation or infection reported.4 A recent prospective, randomized, controlled clinical trial comparing NP-PWD to standard-of-care for skin and soft tissue defects found that the NP-PWD was easy to use, fast, and tolerable by the patients, with no significant differences in effectiveness (see chart).2

Discussion: Although large-scale clinical trials are needed to better understand NP-PWD, preclinical and early-stage clinical research validate the platform's effectiveness in promoting wound healing during NPWT. NP-PWD provides additional clinical utility through ease of application and removal, reduced number of applications, transparency for a clear view of the wound, and the ability to be used at lower pressure for increased patient comfort.5

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PI-014 (RPT-009)

Arrival vs. Reality: Auditing Wound Risk Score Accuracy in a Specialty Wound Care Setting

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Introduction: Chronic and hard-to-heal wounds affect an estimated 16.3% of Medicare beneficiaries, costing the healthcare system more than $22 billion annually (Carter et al., 2023). Initial wound evaluations by community-based providers, who lack structured tools, may have hard time identifying high-risk wounds at first evaluation which can contribute to delayed specialist referral and worsened outcomes (Beeckman et al., 2024). A wound risk audit (WR) tool mnemonic using blood flow, infection/bioburden, offloading/overloading, metabolic/morbidities, exudate/edema, and social/economic barriers was developed to address this gap, classifying wounds as low (0 barriers), moderate (1 barrier), or high risk (≥2 barriers) to guide timely referral (Brookshier et al., 2025). This audit examined whether arrival WR tool scores accurately reflected clinician-assessed actual WR scores and described the demographic and wound profile of patients presenting to a specialty wound care practice.

Methods: A retrospective chart audit was conducted across six wound care certified providers at a multidisciplinary wound care practice. De-identified data were collected for each patient encounter, including age, sex, ethnicity, wound type, wound duration at first visit, number of healing-relevant comorbidities, individual WR tool domain scores, arrival WR score (pre-specialist assessment estimate), actual WR score (clinician-assessed), and referral source.

Results: Ninety-six patients were included (mean age 70.3 years, SD 15.6; range 22–94; 52% male). The most common wound types were venous leg ulcers (35%) and diabetic foot ulcers (18%). Mean arrival WR score was 2.19 (SD 1.25) compared to a mean actual WR score of 3.32 (SD 1.41), representing a mean underestimation of 1.14 points. Sixty-two patients (64.6%) were underscored at arrival, while 34 (35.4%) had concordant scores; no patients were overscored. Upon full clinician assessment, 89.6% of patients qualified as high risk (≥2 barriers), compared to 70.8% at arrival. Metabolic comorbidities were the most frequently identified barrier (n=55), followed by infection/bioburden (n=41) and exudate/edema (n=39). Provider referrals accounted for 57 visits and self-referrals for 39.

Discussion: This audit demonstrates a consistent and clinically meaningful gap between arrival and actual WR tool scores, with patients systematically underestimated at first presentation — and notably, no patient was overscored. The finding that nearly 90% of this specialty wound care population met high-risk criteria underscores the complexity of wounds seen in this setting and the limitations of pre-assessment triage. These findings support implementation of a structured wound risk audit tool in primary care, urgent care, emergency settings, and perhaps even adjunctive specialties, to reduce delayed referrals and improve wound healing trajectories.

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PI-015

Don't Forget the Edges: Silicone-Based Medical Adhesive Spray Helps Improve Healing Times and Patient Satisfaction.

Annette Gwilliam; Rebecca Mackintosh, FNP-C, CWCN

Introduction: The TIMERS acronym has been used for years to guide wound assessment and care.1 Our quality improvement project focused on the "E": edges. The periwound skin area must stay healthy for the healing progression to continue.During assessment of wounds, the health of the surrounding tissue is essential. Friable skin needs to be supported so it will not tear. Macerated skin will soften and break down, not allowing the dressing to stay intact as well as increasing the wound size.2Purpose: Keeping dressings intact while protecting the periwound is a key component in providing best practice wound and ostomy care. This will decrease the time to heal which in turn will keep costs of care down but more importantly increase patient satisfaction.

Methods: Our project focused on keeping dressings intact while not harming the fragile periwound skin. We implemented a new silicone-based medical adhesive spray in our practice.

Results: Three different wound/ostomy cases will be presented showing how the dressings/appliances were kept in place. Our biggest discovery was the significant degree of improved patient satisfaction. The

ostomate in our study had improved quality of life as her wafer stayed in place much longer without leaking. The second case involved a patient whose NPWT drape would come off daily with transfers in and out of his wheelchair until the adhesive was used. This decreased the number of visits needed by his homecare nurse and he was much happier. The third case was a very active 93-year-old who needed offloading to a foot deformity to heal a neuropathic wound. She was able to keep the felt in place thus decreasing healing time.

Discussion: Our goal by using adhesive spray on the periwound/peristomal skin was to keep the dressing intact to aid healing but our bigger take-away was the significant patient satisfaction seen.

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PI-016

Implementing Mechanical Debridement Guided by Wound Imaging Device

Annette Gwilliam; Becky Greenwood, BSN, RN, CWOCN

Introduction: Wound healing has been shown to be impeded by the presence of bacterial biofilms which exist in most chronic wounds. It is not surprising that biofilm disruption is the focus of wound management and essential to healing. "Regular debridement is the cornerstone for maintaining a healthy wound bed in most chronic wounds with a potential to heal." 1Purpose: Within our large homecare agency, we needed ways to improve patient outcomes and shorten wound healing times. Advanced wound care was being used but healing rates were slow, stalling just before closure.

Methods: Our agency uses monofilament debridement pads to mechanically debride wounds between wound clinic visits. We formatted a study using point-of-care fluorescence imaging devices for the detection of the presence and location of elevated bacterial loads and biofilm.

Results: Several patients with chronic wounds were selected for the trial. Fluorescent images were taken prior to cleansing the wound. Surprisingly, the results of the imaging showed that the periwound was more contaminated with bacteria than the wound bed. The wounds and periwound areas were cleansed using the monofilament pads and the same imaging was repeated. The results showed that after cleansing with the monofilament pads, the periwound bacterial load was significantly decreased. With periwound bacteria, there is a risk of wound recontamination and an increase in the size of the wounds.2 Using the fluorescence imaging device we were able to remove the periwound bacterial load.

Discussion: "Optimal wound-bed preparation consists of regular debridement to remove devitalized tissues, reduce bacterial load, and to establish an environment that promotes healing"3. However, if the periwound skin is contaminated this will also slow healing. With these results in hand, our providers order monofilament debridement between visits to keep the wound and periwound skin as free as possible from bacteria to promote improved healing rates.

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PI-017

Zero Harm: A Nurse-Led Brief Removal Initiative to Prevent Hospital-Acquired Pressure Injuries

Tania Jones; Nancy McGough, PhD MSN RN CNS PCCN NPD-BC AGCNS-BC; Trini Sadangsal, BSN RN PCCN

Introduction: Incontinence-associated dermatitis (IAD) is a common complication in hospitalized patients and a known contributor to hospital-acquired pressure injuries (HAPIs). In 2016, a progressive care unit identified rising IAD rates. Root cause analysis linked routine adult brief use and inconsistent moisture management to increased risk. In response, a nurse-led quality improvement initiative focused on brief removal and evidence-based moisture management to reduce IAD and HAPI rates.

Methods: The initiative eliminated routine adult brief use for patients in bed and implemented a skin assessment–based guideline for IAD prevention and management. Briefs were restricted to specific clinical criteria. Staff received education on evidence-based moisture management, including skin assessment, barrier cream use, and minimizing excess linen. Leadership supported structured Registered Nurse (RN)-Nursing Assistant (NA) collaboration, teamwork, and closed loop communication to promote timely repositioning and skin care. The staff were held accountable with regular auditing practices and real-time education.

Results: Following implementation, IAD incidence decreased from five cases per month to zero and was sustained for 10 years. Preventive skin care practices increased, RN–NA collaboration improved, and the initiative yielded an estimated $660,000 in annual cost avoidance. The practice change was adopted across the facility.

Discussion: Eliminating routine adult brief use, combined with standardized IAD prevention and management, reduced pressure injury risk and improved patient outcomes. This nurse-led practice changes also strengthened RN–NA collaboration, reinforced accountability for timely skin care and repositioning, and fostered a culture of shared ownership in pressure injury prevention. Sustained clinical outcomes, improved teamwork, and significant cost avoidance supported the spread of the initiative across the organization.

PI-018

From Device Use to Zero Harm: Eliminating Condom Catheter-Related Pressure Injuries Through Practice Change

Tania Jones; Trini Sadangsal, BSN RN PCCN

Introduction: Medical device-related pressure injuries (MDRPIs) remain a significant and preventable source of harm in acute care, posing challenges for both patient safety and skin integrity. Condom catheters, while commonly used for urinary management, may contribute to pressure injury development when prolonged use, moisture exposure, and inconsistent skin assessment are present. In 2018, a progressive care unit identified ten condom catheter-related hospital-acquired pressure injuries, prompting review of local practice patterns. In response, a nurse-led quality improvement initiative was implemented to eliminate routine condom catheter use and transition to assessment-driven continence management strategies aimed at reducing device-related pressure injury risk.

Methods: A nurse-led quality improvement initiative eliminated routine condom catheter use and replaced it with assessment-driven alternatives for the management of male urinary incontinence. Nursing staff received targeted education on alternative continence products, skin preservation strategies, and evidence-based medical device–related pressure injury prevention. Leadership reinforced compliance with a standardized policy requiring dual registered nurse skin assessment on admission and transfer, including evaluation beneath dressings and medical devices. Outcome measures included annual rates of condom catheter–related hospital-acquired pressure injuries before and after implementation to evaluate the impact of the practice change.

Results: Following implementation, the unit achieved zero condom catheter–related hospital-acquired pressure injuries, with this outcome

sustained for seven consecutive years. The practice change was associated with improved patient safety outcomes and an estimated annual cost avoidance of $110,000. These sustained results supported ongoing adoption of the intervention and informed its spread across the organization.

Discussion: Eliminating routine condom catheter use was associated with sustained reduction in medical device–related hospital-acquired pressure injuries, demonstrating the value of reassessing common continence management practices through a skin safety lens. This nurse-led intervention highlights how assessment-driven care, staff education, and standardized skin surveillance can reduce preventable harm and strengthen pressure injury prevention efforts. The sustained outcomes and organizational spread suggest this approach is both practical and scalable for acute care settings seeking to advance patient safety, skin integrity, and cost-effective care.

PI-019

Development of an Objective Hospital-Acquired Pressure Injury Unit-of-Origin Decision Tree for Unit Leaders

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Introduction: Acute care hospitals are responsible for preventing hospital-acquired conditions to ensure high-reliability care, including hospital-acquired pressure injuries (HAPI). However, no standardized process exists for determining HAPI unit of origin (UOO) after hospital day three. When patients transfer between units, UOO designation is often perceived as subjective and dependent on wound care experts, leaving unit leaders unclear about ownership and limiting their ability to drive prevention efforts. System skin council feedback confirmed this challenge across multiple campuses. While a basic decision tree exists in the literature for determining whether pressure injuries (PI) are community-acquired or hospital-acquired, the decision tree is not satisfactory for many cases to determine the originating location of harm. This is critical for unit-specific process improvements in HAPI prevention.

Methods: A one-year quality improvement project evaluated whether clinical unit leaders could accurately identify HAPI UOO following implementation of an enhanced decision tree built by wound care experts. The tool incorporated present-on-admission regulatory criteria and applied a consistent framework for evaluating HAPIs found after the admission period. The decision tree was distributed with all HAPI notifications to unit leaders for six months. Pre- and post-implementation leader responses were compared, and qualitative feedback was collected.

Results: Within six months, 100% of unit leaders accurately identified HAPI UOO in alignment with the wound care department designation. Over 80% of unit leaders reported increased confidence in ownership, staff education, and perceived objectivity of the tool. More than 60% indicated changes in leadership practices and unit-level prevention processes. The enhanced prevention practices for each unit resulted in a year-over-year decrease in HAPI stage 3 or above. The observed-to-expected ratio moved from 0.33 in the year before the intervention to 0.12 in the current year.

Discussion: Standardizing UOO designation for HAPIs improves transparency, reduces perceived subjectivity, and strengthens unit accountability. By equipping leaders with a clear, objective framework, units are better positioned to identify risk, conduct meaningful root cause analyses, and implement targeted prevention strategies. This approach supports more effective, unit-driven reduction of HAPIs.

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PI-020

Facial Healing Without a Knife - Blunt Excision With a Moist Lap and Autologous Skin Spray to Heal Flame Burns of the Face in a Firefighter

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Introduction: Early excision and split-thickness skin grafting (STSG) remain the traditional standard of care for deep partial-thickness and full-thickness burns. Reconstruction of the face presents challenges due to its profound cosmetic and functional significance. Standard STSGs often yield suboptimal aesthetic outcomes, contractures, and visible scarring. Autologous epidermal skin spray (AESS)*, which has frequently been utilized for more superficial burns, offers a minimally invasive alternative that reduces donor site morbidity while promoting favorable healing. This case discusses the outcomes of a firefighter with inhalation injury and deeper partial thickness burns who was treated with excision on post-burn day 10 and AESS*.

Methods: This is a case presentation of a 41-year-old male with no real past medical history, who experienced deeper partial thickness burns to the lower half of his face while fighting a fire. His burns appeared full thickness on admission.

Results: The patient was admitted with concern for airway edema and inhalation injury concurrent with his facial burns. He was intubated and underwent local skin care with bacitracin twice a day, while he recovered from his airway injury. He also sustained small < 1% bilateral lower extremity full thickness burns. He was extubated on post-burn day (PBD) 5 and taken to the operating room for definitive surgery on PBD 10. Tangential excision was performed bluntly with a moist lap until no eschar remained and a healthy bleeding dermal bed was noted. A single 16cm2 split-thickness skin graft was harvested at a depth of 0.008 inches. This was intraoperatively processed using AESS* to generate four separate treatments. The resulting epidermal cell suspension was sprayed onto the face and dressed with a non-adherent clear dressing. By PBD 20, the patient demonstrated rapid, confluent epithelialization and was safely discharged with no immediate perioperative complications. The results were dramatic enough that the patient noted restoration of his original

appearance before the accident.

Discussion: This case demonstrates that AESS* therapy without sharp excision is a highly effective treatment modality for facial burns that are partial thickness. This method circumvents the typical scarring caused by both sharp excision and skin grafting.

PI-021

Wounds, Ostomies, and Confidence: A Hands-On Approach to New Nurse Readiness

Amy LeCroy; Dylan Carpenter, MSN; Kelly Chapman, BSN; Kristina Collins, BSN; Marietta Burrell, BSN; Marjorie Edwards, BSN

Introduction: New hire nurses often report low confidence in managing wound and ostomy care, which may impact practice readiness and patient outcomes. Previous research suggests that enhanced clinical exposure and targeted education can improve confidence and competence in specialty care areas. This study evaluated the impact of a structured Certified Wound, Ostomy, and Continence Nurse (CWOCN) shadowing experience on new hire nurses' confidence in wound and ostomy care.

Methods: A pre-post study design was used to evaluate a three-hour CWOCN shadowing experience. Participants completed a 12-question survey before and after the intervention, consisting of two demographic questions and ten confidence statements measured on a six-point Likert scale (1 = Strongly Disagree, 6 = Strongly Agree). The educational intervention included one-on-one discussion of wound and ostomy care principles, hands-on exposure to products and supplies, and real-world clinical skills training with CWOCNs.

Results: A total of 64 new hire nurses participated across 11 pilot units between August and October 2025. Analysis of pre- and post-intervention surveys demonstrated statistically significant improvements in confidence across all ten measured domains ($P < 0.001$). Prior to the intervention, 35.31% of participants reported feeling confident or very confident in their wound and ostomy care skills. Following the shadowing experience, this increased to 96.25%. Qualitative feedback revealed high participant satisfaction and appreciation for the hands-on learning experience.

Discussion: New hire nurses demonstrated substantial gains in self-reported confidence following participation in a structured CWOCN shadowing experience. Combining didactic discussion, product education, and hands-on clinical exposure appears to be an effective strategy for improving practice readiness in wound and ostomy care. Incorporating specialty nurse shadowing into orientation programs may enhance new nurse preparedness and support the delivery of evidence-based wound and ostomy care.

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PI-022

PRISM: An Imaging-Guided Limb Preservation Framework for Chronic Wound Management

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Introduction: Chronic wounds, particularly diabetic lower extremity wounds, remain a leading cause of morbidity, healthcare utilization, and limb loss. Failure to heal is frequently driven by three interacting and often underrecognized barriers: inadequate tissue perfusion, chronic inhibitory bacterial load (CIBL), and structural deformity. Although near-infrared spectroscopy (NIRS) and bacterial autofluorescence (BAF) provide objective point-of-care assessment of tissue oxygenation and bacterial burden, respectively, no unified framework exists to integrate these technologies with vascular intervention, surgical reconstruction, and long-term limb preservation strategies. PRISM was developed to address this gap through an imaging-guided approach to wound assessment, intervention, and durable limb salvage.

Methods: PRISM (Perfusion Imaging, Regional Bacterial Status, Infection Staging, Structural Correction, and Maintenance & Monitoring) was developed as a clinical limb preservation framework grounded in the VISTA* principles of vascular optimization, infection control, structural correction, tissue preservation, and longitudinal assessment. The framework integrates NIRS-derived tissue oxygenation mapping, BAF detection of bacterial burden, fluorescence-based infection staging, structural correction pathways, and longitudinal surveillance into a single clinical algorithm. PRISM is performed at the initial encounter and repeated as clinically indicated. NIRS imaging evaluates tissue oxygenation and regional vascular status before wound manipulation, identifying patients who may benefit from vascular consultation or revascularization. BAF imaging identifies and localizes bacterial burden to guide fluorescence-assisted debridement and antimicrobial stewardship. Imaging findings are integrated with assessment of deformity, instability, Charcot , tendon imbalance, equinus, prominent osseous anatomy, and pathologic pressure concentration.

Results: PRISM produced a structured clinical pathway that links objective physiologic imaging findings to targeted interventions. The framework incorporates defined escalation pathways for vascular optimization, infection management, fluorescence-guided debridement, surgical offloading, deformity correction, reconstruction, and maintenance-based surveillance. Structural correction strategies include exostectomy, tendon balancing, corrective osteotomy, arthrodesis, reconstruction, and other limb salvage procedures designed to eliminate the mechanical drivers of ulcer recurrence. Serial NIRS and BAF assessments provide objective monitoring of tissue recovery, infection resolution, and ongoing limb preservation efforts.

Discussion: PRISM represents a novel practice innovation that transforms real-time physiologic imaging into a comprehensive limb preservation pathway for chronic wound management. By integrating objective assessment of perfusion and bacterial burden with staged intervention, vascular optimization, structural correction, and longitudinal monitoring, PRISM provides a reproducible framework to support treatment precision, antimicrobial stewardship, multidisciplinary collaboration, and limb preservation. Future evaluation will assess implementation outcomes and determine whether PRISM-guided care improves healing trajectories, reduces infection-related complications and wound recurrence, and supports durable limb preservation in high-risk patients.

PI-023

Bone-Percutaneous Limb Antibiotic Salvage Treatment (B-PLAST) for Preservation of Structurally Viable Infected Bone in Diabetic Foot Osteomyelitis

Brock Liden, DPM; Amanda M Fuller, RN, WCC

Introduction: Diabetic foot osteomyelitis remains a major cause of lower extremity amputation and recurrent ulceration. Traditional surgical management frequently relies on resection of infected bone, often resulting in loss of structural integrity, altered biomechanics, and increased risk of future tissue breakdown. The VISTA (Vascular Evaluation, Infection Control, Surgical Correction, Technologies & Therapies, and Amputation Prevention) pathway promotes proactive limb preservation through multidisciplinary intervention. Bone-Percutaneous Limb Antibiotic Salvage Treatment (B-PLAST) was developed to preserve structurally viable infected bone while achieving local infection control through targeted antibiotic delivery. This study evaluated limb preservation outcomes following B-PLAST in patients with diabetic foot osteomyelitis managed

within a VISTA-guided limb salvage program.

Methods: A retrospective review was performed of 98 consecutive patients with diabetic foot osteomyelitis treated with B-PLAST between 2021 and 2024. The cohort included forefoot, midfoot, and rearfoot osteomyelitis managed within a multidisciplinary limb-preservation program. B-PLAST consists of fluoroscopically guided percutaneous curettage and dual-port delivery of an antibiotic-eluting calcium sulfate/hydroxyapatite bone void filler into infected but structurally viable bone. All patients underwent VISTA-guided evaluation including vascular assessment, infection management, surgical offloading or deformity correction when indicated, advanced wound therapies, and longitudinal surveillance. Patients lost to follow-up before determination of final outcome were excluded from outcome analysis. Primary outcomes included limb preservation, amputation, reinfection, and ulcer recurrence. Follow-up ranged from 12 months.

Results: Ninety-five patients were available for outcome analysis. B-PLAST facilitated preservation of structurally viable infected bone across a broad spectrum of diabetic foot osteomyelitis presentations. Seven limited amputations involving non-viable digits, rays, or metatarsal segments were performed selectively as part of an overall limb-preservation strategy. Only one patient progressed to major amputation, resulting in a 98.9% major amputation-free survival rate. Patients who remained within the limb-preservation pathway achieved durable healing with preservation of functional anatomy. No recurrent ulceration was observed at the original wound location during the 12-month follow-up period.

Discussion: B-PLAST demonstrated favorable limb-preservation outcomes in patients with diabetic foot osteomyelitis managed within a VISTA-guided pathway. By facilitating local antibiotic delivery into infected but structurally viable bone, the technique challenges the traditional paradigm of routine osseous resection for infection control. Selective resection of non-viable bone remained an important component of treatment when necessary; however, preservation of viable osseous architecture supported functional limb salvage and durable healing. These findings support B-PLAST as a reproducible infection-control strategy within comprehensive limb-preservation programs and suggest a potential role in reducing progression to major amputation while maintaining functional foot architecture.

PI-024

Treat the Cause, Not the Consequence: The "S" in VISTA and the Critical Role of Surgical Correction in Preventing Diabetic Foot Ulcer Recurrence

Brock Liden, DPM; Amanda M Fuller, RN, WCC, DAPWCA

Introduction: Diabetic foot ulcers frequently recur despite successful wound closure, with recurrence rates approaching 40% within one year and 65% within five years. While infection control, advanced wound therapies, and offloading strategies are essential for healing, they often fail to address the structural deformities responsible for abnormal pressure distribution and repetitive tissue breakdown. The Surgical Correction component of the VISTA framework emphasizes correction of the biomechanical cause of ulceration as a necessary step toward durable remission and long-term limb preservation.

Methods: The VISTA* pathway incorporates comprehensive biomechanical assessment to identify deformities contributing to ulcer development and recurrence. Surgical interventions are selected based on individual pathology and may include tendon balancing procedures, digital corrections, osteotomies, exostectomy, arthrodesis, Charcot reconstruction, and external fixation. These procedures are designed to eliminate pathologic pressure points, restore foot stability, and redistribute load away from previously ulcerated regions. Surgical correction is integrated into a multidisciplinary limb-salvage strategy focused on treating both the wound and the underlying cause of tissue breakdown.

Results: Clinical experience demonstrates that correction of the underlying deformity not only facilitates healing of active wounds but substantially improves long-term limb preservation. Within a multidisciplinary limb-salvage pathway incorporating definitive surgical management, treatment completion rates exceeded 93%, while reinfection and amputation rates remained low at 8.1% at one-year follow-up. By addressing the structural pathology responsible for tissue breakdown, surgical intervention transforms treatment from episodic wound management to proactive limb preservation. Patients who undergo deformity correction achieve more durable functional outcomes and reduced risk of recurrent ulceration compared with those treated with wound care and offloading alone.

Discussion: Healing a diabetic foot ulcer is not synonymous with resolving the disease process that created it. Wound closure without correction of the underlying deformity often results in recurrence, repeated interventions, infection, and progression toward limb loss. Surgical correction should be viewed not as a last-resort salvage procedure but as a proactive strategy to achieve durable ulcer remission and preserve function. The favorable limb-salvage outcomes observed within surgically driven treatment pathways support the principle that lasting remission requires elimination of the biomechanical forces responsible for tissue breakdown. The wound is the consequence; the deformity is the cause. Durable limb preservation requires treatment of both.

PI-026 (**RPT-010**)

Prevalence of Micronutrient Deficiencies in Patients With Chronic Wounds: A Descriptive Analysis of 344 Patients

Dhruva Kumar Lokesh; Andrea Muniz, MD; Thea Price, MD, FACS

Introduction: The role of nutrition in wound healing has been the subject of extensive research. Patients with chronic wounds are especially vulnerable to nutrient and micronutrient deficiencies due to the increased nutritional demands of their nonhealing tissues. Despite the increasing literature focusing on specific nutrients and their effects on wound healing, there is a notable lack of large-scale studies that assess the prevalence of micronutrient deficiencies across a wide-ranging chronic wound population.

Methods: We conducted a retrospective review on patients evaluated for chronic wounds with varied etiologies such as diabetic foot ulcers, pressure ulcers, post-operative wounds etc. from August 2024 to May 2026 at Mayo Clinic Florida. Micronutrient panels were obtained for zinc, magnesium, iron, ferritin, copper, folate, ceruloplasmin, ascorbic acid, vitamin D, selenium, vitamin A, vitamin B12, vitamin K, vitamin E, and pyridoxal-5-phosphate (vitamin B6) under the guidance of a physician nutritionist. Mean values and the proportion of patients meeting laboratory criteria for deficiency were calculated.

Results: Our cohorts median age was 64 years old (IQR 56,76), with 53% male (n=181) and 47% female patients (n=162), overall, predominantly Caucasian (89%). Magnesium deficiency was the most prevalent finding, present in 133 of 344 patients (38.7%), followed by iron deficiency in 104 patients (30.2%). Vitamin D deficiency was identified in 49 patients (14.2%) and zinc deficiency in 39 patients (11.3%). Ascorbic acid and selenium deficiencies were each present in approximately 8% of the cohort (27/344, 7.8%, and 26/344, 7.6%, respectively). Vitamin B12 deficiency was identified in 15 patients (4.4%). Deficiencies in ferritin, copper, folate, ceruloplasmin, vitamin A, vitamin K, vitamin E, and vitamin B6 were each identified in 7 or fewer patients (≤2.0%).

Discussion: In our study, magnesium and iron deficiencies were found to be highly prevalent, and a significant number of patients had deficiencies in vitamin D, zinc, vitamin C, and selenium; micronutrients with established roles in wound healing. These findings suggest that micronutrient deficiencies are common in this population and support consideration of routine micronutrient screening as part of chronic wound evaluation with repletion and ongoing surveillance. Further research is needed to determine whether identifying and correcting these deficiencies improves healing outcomes.

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PI-028

Extending Wound Care Clinician-Led Education Through an AI-Enhanced HAPI FAQ Library

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Introduction: Each year, ~2.5 million patients develop pressure ulcers/injuries (PUs/PIs), resulting in ~60,000 deaths and ~$11 billion in treatment costs. The Centers for Medicare & Medicaid Services (CMS) lists PUs/PIs among 14 hospital-acquired conditions. While hospitals already face payment reductions for Stage 3-4 PUs/PIs, CMS recently added Stage 2 PUs/PIs as reportable "harms" with mandatory reporting starting in 2027. Despite established prevention guidelines and bundles, avoidable hospital-acquired pressure injuries (HAPIs) persist. To enhance wound care clinician-led education and ensure continuous evidence-based support for staff nurses, we aimed to develop a HAPI Frequently Asked Questions (HAPI-FAQ) library - a curated, reliable resource integrated within a clinical decision-support platform.

Methods: HAPI-FAQ leverages an AI-powered clinical intelligence system that generates answers exclusively from information within a peer-reviewed knowledge base with linked references and thereby reduces erroneous or inaccurate hallucinatory AI responses.

Twenty FAQ prompts were developed based on the lowest-scoring topics from three years of nurse competency assessments, and focused on staging, prevention methods, wound description, and treatments. Four WOC nurses and one nurse administrator tested the tool and provided feedback, which informed refinements to content/user interface.

Results: Seventy-five percent of evaluators rated usability as 5/5 ("very easy to access/use") and all rated answer accuracy as 5/5 ("highly accurate"). Participants anticipated using the tool 1-3 times/week and estimated staff nurses might use it 4-8 times/week. All respondents rated the likelihood of recommending it to colleagues as 5/5 ("very likely").

Discussion: An AI-enhanced, evidence-based HAPI-FAQ library was successfully developed, offering reliable, referenced guidance to support clinicians in educating staff and improving bedside decision-making. This tool has the potential to strengthen consistency in assessment and documentation of PUs/PIs while helping healthcare facilities align with evolving regulatory and quality-reporting expectations.

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PI-029

Closing the Loop: A Responsible Artificial Intelligence Solution for Evidence-Based Wound Care Decision Support

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Introduction: Clinicians encounter an average of 11 clinical questions daily, most of which remain unanswered1. While artificial intelligence (AI) holds promise2, unconstrained generative AI for diagnoses or treatment plans presents significant risks of patient harm and malpractice liability. In typical clinical decision-making, AI achieves an accuracy of only ~52%, frequently failing to identify life-threatening conditions3. To mitigate these risks and provide reliable, evidence-based answers in wound care, we aimed to develop a responsible, AI-powered, point-of-care clinical intelligence solution leveraging a Portuguese wound care society's digital clinical pathways.

Methods: Using Design Thinking4 , the solution was developed as a module within a decision support platform.

- One year after the wound care society turned their printed pocket guide library into a comprehensive, multi-media digital clinical pathways library, an evaluation revealed that while 86% of members found the pathways helpful, access was cumbersome5.
- To solve these navigation issues, a proprietary closed-loop AI model was utilized to retrieve, aggregate, and generate answers strictly from the Society's interactive digital pathway library.
- User feedback optimized the interface across multiple iterations.

Results: The resulting mobile-responsive module successfully leveraged AI-powered search and generative answers that are vetted, evidence-based, and reliable. Members instantly found trusted answers, linked back to the peer-reviewed pathways. Unlike open-AI models, this closed-loop solution effectively curbed hallucinations, providing only referenced and society-vetted answers. Additionally, the platform can optionally collect de-identified pathway data to generate insights on cost-effective interventions for specific patient population.

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PI-030

Use of Negative Pressure Wound Therapy With an All-in-One Dressing: Insights From an International Consensus Panel

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Introduction: An all-in-one dressing that combines a foam dressing, non-adherent contact layer, and silicone-acrylic adhesive drape is available for use with negative pressure wound therapy (NPWT). However, limited

clinical evidence exists to provide guidance on therapy use. A panel meeting with experts from the United States and Europe was held to develop international consensus statements supporting NPWT with all-in-one dressing use.

Methods: An in-person meeting was held on 27-28 February 2026, in Chicago, IL, USA. Panelists included nurse practitioners (n=3), podiatrists (n=1), wound care physicians (n=2), plastic and reconstructive surgeons (n=4), general surgeons (n=1), vascular surgeons (n=2), and wound care nurses (n=4). Consensus statements for the use of NPWT with all-in-one dressing were generated. Panel members voted anonymously to agree or disagree on the final consensus statements with consensus defined as ≥80% agreement.

Results: Panel members agreed that NPWT with all-in-one dressing can be used in inpatient, outpatient, rehabilitation, long-term acute care, office-based, and community/home care settings. Therapy use in acute, chronic, and surgical wounds was supported along with grafts, flaps, donor sites, and partial-thickness burns. Therapy use should be guided by clinical judgment, especially in patients with cognitive, behavioral, environmental, social, or physical limitations affecting safe use or treatment adherence. A dressing wear time of up to 7 days was supported by panel members, though some patients may need more frequent reassessment and dressing changes.

Discussion: Use of NPWT with all-in-one dressing is one part of the wound management pathway and should be used in combination with standard wound care practices. As limited evidence exists, these consensus statements provide the initial guidance for NPWT with all-in-one dressing use that should be revised as more clinical evidence becomes available.

PI-034

Confident Learning and Physician Review Improves Artificial Intelligence–Based Pressure Injury Staging

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Introduction: Accurate pressure injury (PI) staging is critical for treatment and prognosis, and artificial intelligence (AI) provides a unique opportunity to increase staging accuracy with image data of these lesions. Many AI models for pressure injury staging are trained and benchmarked using publicly available image datasets; however, the accuracy of the underlying stage annotations is rarely systematically evaluated, limiting model performance, reproducibility, and generalizability across institutions. In this study, we combined AI and expert physician input to clean public PI dataset labels before evaluating improvement in stage prediction performance.

Methods: Using two publicly available pressure injury image datasets [1,2], we trained a deep learning (DL) model for wound-stage classification using the original labels for the 3,104 images. Potential label errors were identified using a confident learning framework applied to out-of-fold prediction probabilities from a separate DL classifier. Flagged images were reviewed by an expert wound care physician and either confirmed, relabeled, or removed. The DL model was then retrained on the cleaned datasets, and performance was evaluated on a held-out test set to quantify the impact of dataset curation.

Results: Of 3,104 images, 267 (8.6%) were flagged, with higher error rates in one dataset than the other (13.7% vs. 5.9%). Physician review resulted in 108 relabels, 66 confirmations, and 93 removals. Most corrections shifted images toward higher severity stages, particularly Stage III to Stage IV. Retraining the cleaned dataset improved macro F1 from 0.881 to 0.930, demonstrating that annotation quality substantially influences the performance of AI-based pressure injury staging systems.

Discussion: Public pressure injury image datasets contain a meaningful proportion of staging annotation errors that can adversely affect the development of AI-based wound assessment tools. Combining confident learning with expert clinician review efficiently identified mislabeled cases and improved dataset quality, resulting in substantial gains in classification performance. These findings support the combined AI and human evaluation and refinement of public wound imaging datasets to improve the accuracy, reproducibility, and clinical applicability of AI systems for pressure injury staging.

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PI-035

Addressing Exudate Management Challenges in Difficult Anatomical Locations: A Clinician Evaluation of an Anatomically Shaped Superabsorbent Dressing

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Introduction: Effective wound management requires dressing selection based on a comprehensive wound assessment, including wound location, exudate characteristics, and the condition of the surrounding skin. Anatomically challenging wound locations may complicate dressing securement, conformity, and exudate containment. Excessive exudate can contribute to leakage, strike-through, frequent dressing changes, patient discomfort, and periwound skin complications. Contemporary wound care guidance emphasizes the importance of effective exudate management and protection of the surrounding skin to support optimal wound healing outcomes.To evaluate clinician perceptions of anatomically shaped non-adhesive superabsorbent dressings designed to address exudate management challenges in difficult anatomical locations.

Methods: A voluntary clinician evaluation was conducted following the initial use of anatomically shaped non-adhesive superabsorbent dressings in clinical practice, including heart, oval, and multisite shapes. Participants completed a structured assessment evaluating absorbency, conformity to the wound location, ease of application and removal, likelihood of recommendation, and perceived clinical benefits. Evaluations were collected across a variety of wound types and anatomical locations.

Results: Forty-five clinician evaluations were completed. Most dressings were used on lower extremity wounds (71%), with additional evaluations involving sacral, trunk, and head and neck wounds. Absorbency was rated as excellent by 84% of respondents. Conformity to the wound location was rated as excellent or very good by 96% of clinicians. Ease of application and removal was rated as easy or very easy by 100% of respondents. The most frequently reported benefit was improved anatomical fit and conformity, followed by enhanced patient comfort, reduced leakage or strike-through, easier application, and longer wear time. All respondents indicated they were likely or very likely to recommend the dressing for appropriate wound types.

Discussion: Clinicians reported favorable experiences with anatomically shaped non-adherent superabsorbent dressings across a variety of wound locations. Improved conformity to anatomical contours, absorbency performance, and ease of use were identified as key advantages. Clinicians also reported perceived improvements in leakage control, wear time, and patient comfort. These findings suggest that anatomical dressing design may help address practical challenges associated with exudate containment in difficult wound locations. Further investigation is warranted to evaluate the impact of anatomical dressing design on exudate management, periwound skin protection, and clinical outcomes.

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PI-036

Single-Application Postoperative Incision Management Using an Extended-Wear Transforming Powder Dressing: A Practice Innovation

Jonathan Saxe, MD, FACS, MBA, MAR; Susan St. John, MSN, APRN-NP

Introduction: Postoperative incision management is critical to reducing complications such as surgical site infection, dehiscence, and delayed healing. Common approaches, including conventional dressings, tissue adhesives, and incisional negative pressure wound therapy, aim to protect the incision and manage moisture; however, these approaches may require dressing changes, specialized equipment, or additional postoperative interventions. A transforming powder dressing (TPD) forms a conformable, moisture-balancing matrix upon hydration that dries to a protective covering and may remain in place for extended periods. This report summarizes clinical experience using a single application of TPD for postoperative incision management across diverse surgical procedures.

Methods: Clinical experience with TPD following surgical incision closure was evaluated in three infection prone wounds, including cesarean section in an obese patient, ankle fracture plate osteosynthesis in a patient with diabetes, and abdominoplasty. TPD was applied immediately following incision closure and covered with appropriate secondary dressings. Outcomes assessed included incision integrity, healing progression, and postoperative complications.

Results: Three postoperative surgical incision cases were managed with a single application of TPD following incision closure. The first case involved a cesarean section in an obese patient. TPD remained in place through postoperative day 8, with the incision remaining well approximated and no reported complications. The second case involved ankle fracture plate osteosynthesis in a patient with diabetes. Progressive healing was observed through postoperative day 11, with maintenance of incision integrity and no reported complications. The third case involved postoperative management following abdominoplasty. TPD provided incision coverage throughout the postoperative period, with favorable healing progression and no reported complications. Across all three cases, a single application of TPD was associated with maintenance of incision approximation and uncomplicated postoperative healing. No surgical site infections, incision dehiscence, or dressing-related complications were reported.

Discussion: This clinical experience demonstrates the feasibility of using a single application of an extended-wear transforming powder dressing for postoperative incision management across diverse surgical procedures. In these cases, TPD maintained incision coverage and integrity throughout the observation period and was associated with uncomplicated healing without reported surgical site infections, incision dehiscence, or dressing-related complications.

PI-038

Transforming Powder Dressing for Difficult to Heal Mohs Surgery Wounds: Outcomes Across Scalp, Nasal and Lower Leg Defects

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Introduction: Mohs micrographic surgery often results in wounds in difficult-to-heal areas, including the scalp, nose, and lower leg, where poor vascularity, limited soft tissue coverage, irregular contours, and reduced tissue mobility can complicate closure and healing. Transforming powder dressing (TPD) forms an extended-wear, moisture-retentive matrix that supports granulation and epithelialization. This case series evaluates TPD as a primary wound management modality, including use with partial advancement flap and Burow's graft repair, when closure was not feasible or had failed.

Methods: Three published case reports of Mohs defects of the scalp, nose, and lower leg were reviewed. Scalp and nasal wounds were treated with TPD alone or with partial advancement flap plus Burow's graft repair (one scalp case). Two lower leg cases involved wounds resulting from dehiscence and/or necrosis after surgical closure. TPD was hydrated with saline to form a stable, adherent matrix conforming to irregular surfaces and remaining in place for 7–21 days. Outcomes included adherence, granulation, epithelialization, flap survival, cosmesis, pain, and complications.

Results: Across all anatomic sites, TPD created a resilient, adherent matrix that persisted for up to three weeks, even on challenging surfaces such as the nasal ala groove and mobile scalp, where both defects extended to periosteum. The large scalp wound treated only with TPD showed rapid, near-total granulation by Week 2, progressing to virtually complete epithelialization by Week 6 and closure by Week 8. The scalp wound managed with partial flap and Burow's graft repair plus TPD showed flap and graft survival, excellent granulation of the remaining defect, and excellent cosmesis. The nasal wound decreased by 90% within three weeks after TPD application. The lower leg wounds, despite poor vascularization, healed rapidly, with robust granulation and contraction. No infections or dressing-related adverse events occurred. Patients reported reduced pain and minimal dressing burden.

Discussion: TPD is a versatile, extremely well-tolerated dressing that supports treatment of Mohs surgery defects in difficult healing locations, both as a stand-alone therapy and as an effective adjunct therapy, when complete surgical closure is not feasible.

PI-039

Management of Painful Postoperative Hidradenitis Suppurativa Wounds Using an Extended-Wear Transforming Powder Dressing: A Practice Innovation

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Introduction: Hidradenitis suppurativa (HS), also called acne inversa, is a severe, debilitating chronic inflammatory skin disease characterized by painful nodules, abscesses, draining fistulas, and substantial impairment of quality-of-life1,2. Surgical excision, repair, or deroofing may be required for persistent or fistulizing disease and postoperative wound management3 is challenging due to pain, drainage, and frequent dressing changes. A transforming powder dressing (TPD) with an extended wear dressing of up to 30-days may help address these challenges by facilitating moisture management while reducing pain associated with dressing manipulation.

Methods: Clinical experience with TPD following HS-related surgery was evaluated in three postoperative cases involving deroofing, excision, and reconstructive surgical procedures. Outcomes evaluated included pain, wound healing, analgesic use, dressing frequency and postoperative complications.

Results: Case #1 was a 40- year- old male with bilateral axillary draining fistulas, an International Hidradenitis Suppurativa Severity Score System score of 26, who underwent bilateral staged deroofing after stabilization with antibiotics and adalimumab. TPD was applied immediately after fistula deroofing and covered with secondary dressings. On post-operative day 1, he had no pain. Wounds were 99% healed at 2-week follow-up.

Case #2: AH case 25- year-old-female with right axilla HS underwent wide surgical excision resulting in 12 (L) x 6(W) x 0.5(D) cm wound. Pain was initially 10/10 and decreased to 3/10 after first TPD application. TPD was topped off weekly until healed. No opioids were required. No complications observed.

Case #3: 26-year-old female underwent HS excision in the gluteal cleft resulting in a 3.3 (L) x 1.3 (W) cm wound. Following initial TPD application, TPD was topped off twice weekly for first two weeks, once weekly for 5 weeks until full healing (healed in 7 weeks). No opioids were needed after 2nd TPD application and no complications observed.

Discussion: In all three cases, TPD was well tolerated. Dressing changes were less frequent than with conventional care, and all three patients reported reduced pain associated with dressing changes and analgesic use. All wounds achieved complete or near-complete closure without complications.

PI-040

Achieving Zero Hospital-Acquired Pressure Injuries Across Diverse Care Settings Using a High Reliability SEM-Guided Pressure Injury Prevention Program

Rhonda Sullivan

Introduction: Hospital-acquired pressure injury (HAPI) prevention initiatives often reduce harm but rarely demonstrate complete elimination. Path to Zero™ was designed to operationalize zero harm by combining rapid-cycle quality improvement, workflow redesign, staff education, practice surveillance, and objective sub-epidermal moisture (SEM) assessment to guide earlier, targeted pressure injury prevention. The purpose of this project was explore real-world outcomes associated with a high reliability SEM-guided pressure injury prevention program across diverse healthcare organizations, care settings, unit types, organizational cultures, and baseline pressure injury prevention practices.

Methods: Path to Zero uses structured rapid tests of change to assess current HAPI burden, identify workflow gaps, design focused interventions, educate staff, implement SEM-guided prevention, measure outcomes, and scale successful practices. The intervention consisted of sacral and heel SEM scanning in eligible adult patients with intact skin, with elevated SEM deltas used to trigger targeted, anatomically specific prevention interventions and support present-on-admission differentiation.

Results: Across varied care environments and baseline prevention maturity, SEM-guided Path to Zero implementation was associated with substantial HAPI reduction and repeated achievement of zero harm. Seven case examples across 7 facilities and 31 units were evaluated, including 16 ICUs, 7 stepdown units, and 8 medical-surgical, oncology, or other units. Overall, 28 of 31 units, or 90.3%, achieved 100% HAPI reduction. The 3 units that did not achieve zero harm included 2 of 4 units in a Magnet-designated academic medical center that nevertheless achieved a 67% overall reduction, and 1 of 5 ICUs in a high-fidelity Magnet-designated academic medical center that achieved an 87.5% overall reduction. SEM also improved diagnostic clarity by identifying elevated tissue risk on admission, supporting present-on-admission differentiation and reclassification of injuries as community-acquired pressure injuries when appropriate. In case 6, 3 apparent HAPIs were adjudicated as community-acquired or present on admission based on SEM findings, and 1 occurred in an unscanned patient, resulting in 100% HAPI reduction after review.

Discussion: SEM-guided Path to Zero implementation produced substantial, repeatable HAPI reduction across diverse settings. These findings suggest zero HAPIs can be achieved when prevention evolves from episodic improvement projects to high-reliability systems using objective early detection, standardized workflows, real-time surveillance, targeted escalation, and learning from every event.

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PI-041

Environmental Determinants of Wound Infection: Evaluating the Equity Impacts of Climate Change on Resistance and Resilience

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Introduction: Climate change is a profound threat to public health, actively altering environmental microbiota and increasing the frequency of extreme weather events. These shifts directly impact wound care by escalating exposure to atypical, aggressive pathogens and increasing traumatic wound risks. For individuals with chronic or acute wounds, climate change acts as a risk multiplier whereby environmental shifts present heightened risks for complex infections. This intersection has exacerbated antimicrobial resistance (AMR) through increased empirical prescribing. Crucially, these climate-driven disruptions disproportionately burden historically marginalized populations while threatening global antimicrobial stewardship (AMS) goals. The Association for the Advancement of Wound Care's Health Equity Task Force conducted an evidence synthesis to evaluate how climate-induced environmental stressors impact wound care, emphasizing the intersection of health equity and responsible AMS.

Methods: A systematic scoping review of literature and evidence synthesis was conducted across major biomedical databases integrating terms related to climate change, infectious disease, wound infection, AMR, and social determinants of health (SDOH). Peer-reviewed studies evaluating environmental pathogen shifts, post-disaster wound outcomes, and demographic vulnerabilities were screened and qualitatively synthesized to map the pathways connecting climate events to inequitable wound outcomes.

Results: The synthesis revealed a distinct correlation between extreme weather events and an increased incidence of wounds and wound infection. Climate related shifts in humidity also were found to play a significant role in antimicrobial resistance. Both drought and flood are associated with microbial virulence and AMR fomentation. Rising temperatures and increased humidity expand the geographic range and proliferation of atypical, aggressive, or water-borne pathogens. Expanding fungal, vector-borne and tropical disease patterns were also noted. Extreme weather events also cause a surge in acute traumatic wounds. Vulnerable populations demonstrated significantly higher rates of exposure to contaminated elements and delayed definitive care.

Vulnerable populations face significantly higher exposure to climate-related wound hazards and protracted recovery. Furthermore, systemic barriers to early, preventative wound care in these groups lead to delayed presentation, severe infections, driving a reliance on broad-spectrum empiric antimicrobials that accelerates localized resistance.

Discussion: Climate change is reshaping wound care, transforming environmental exposures into complex clinical and equity challenges. Domains of action for impact identified include improving antimicrobial wound hygiene practices for prophylaxis of infection, improving anti-biotic/fungal prescribing patterns, and patient plans of care that have emergency preparedness built in for supply-chain and care access disruptions.

Developing climate-resilient, equity-centered stewardship frameworks into wound practice is an urgent clinical and ethical imperative to safeguard vulnerable populations against compounding environmental threats.

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PI-042

Establishing Baseline Nursing Time for Adult Acute Care Dressing Changes: Expert Consensus on a Standardized Workflow Model

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Introduction: Accurate estimates of nursing time associated with wound dressing changes are essential for workforce planning, resource allocation, cost analyses, and evaluation of wound care interventions. Existing assumptions regarding dressing change duration are often anecdotal and may not account for the complete workflow required to deliver appropriate care. The purpose of this project was to establish a consensus-based estimate of baseline nursing time required to perform a routine dressing change in the acute care setting while identifying modifiers for patient,

wound, and operational barriers that may increase procedure duration.

Methods: A structured focus group was conducted at WOCNext 2026 with wound care clinicians experienced in acute care practice. Participants evaluated a proposed workflow for a routine dressing change in an uncomplicated adult patient under predefined baseline conditions, including controlled pain, no isolation precautions, no advanced therapies, readily available supplies, adequate staffing, and routine workflow conditions. Consensus regarding workflow steps and estimated time requirements was collected using real-time electronic polling.

Results: Fifteen wound care clinicians participated. All participants were registered nurses or advanced practice nurses, with a mean of 11.6 years of wound care experience. Agreement with the proposed workflow exceeded 93% for all workflow phases, with 100% agreement achieved for patient preparation, dressing removal and wound assessment, wound treatment and dressing application, completion activities, and documentation. Estimated baseline nursing time for the complete dressing change workflow was approximately 27 minutes (median estimate). The greatest proportion of time was attributed to clinical preparation, dressing removal and wound assessment, patient preparation, and documentation. Participants consistently identified workflow activities occurring before and after direct wound treatment as substantial contributors to total nursing time.

Discussion: Expert clinicians reached strong consensus regarding a standardized dressing change workflow and estimated that a routine acute care dressing change requires substantially more time than is often assumed. Findings suggest that nursing time associated with wound care extends beyond direct dressing application and includes important assessment, preparation, and documentation activities. This consensus-derived baseline workflow provides a foundation for future research evaluating the impact of patient-, wound-, and system-level modifiers on dressing change duration and overall wound care resource utilization.

PI-045

A Proactive 72-Hour Intervention Pause: An Interdisciplinary Strategy for Early Skin Injury Reversal and Pressure Injury Prevention

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Introduction: Early recognition and intervention are critical in preventing progression of skin abnormalities into hospital-acquired pressure injuries (HAPIs). Despite established prevention practices, opportunities to reverse early skin changes before progression are frequently missed. To address this gap, our organization implemented a structured 72-hour intervention pause designed to support rapid escalation, intensified intervention, and interdisciplinary collaboration following identification of a skin abnormality or disruption.

Methods: When a bedside nurse identifies an area of skin concern, a wound care consultation is initiated. The wound care team evaluates the abnormality to determine whether the condition presents an opportunity for reversal through aggressive early intervention. If appropriate, a structured 72-hour pause is implemented. During this intervention period, the wound care team collaborates closely with bedside nursing staff to initiate intensified evidence-based prevention and treatment strategies. Interventions may include pressure redistribution and offloading, specialty support surfaces, moisture management, enhanced repositioning protocols, nutritional optimization, and protective skin interventions. The affected area undergoes ongoing reassessment throughout the 72-hour period to evaluate for stabilization, resolution, or progression.

Results: Implementation of the 72-hour intervention pause strengthened interdisciplinary collaboration between wound care specialists and bedside nursing teams while promoting earlier escalation of preventative interventions. The structured reassessment period improved clinical communication, increased focus on proactive skin preservation strategies, and supported timely implementation of targeted interventions for patients at risk of pressure injury progression. We have found during the implementation of the pause and high-level interventions, the organization had a reduction in the number of reportable injuries PSI 03, from 3.08 to 1.71, in September 2025 through January 2026.

Discussion: The 72-hour intervention pause introduces a proactive, time-defined approach to early skin injury management that shifts care from reactive treatment to prevention-focused intervention. This model creates a structured clinical decision window that supports rapid interdisciplinary response, reinforces bedside nursing engagement, and prioritizes early intervention before progression into reportable pressure injury occurs. The initiative represents a scalable and replicable strategy for organizations seeking to strengthen pressure injury prevention practices and improve skin preservation outcomes.

PI-046

Artificial Intelligence Models for Pressure Injury Staging Fail to Generalize From Public Datasets to Real-World Clinical Imaging

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Introduction: Accurate pressure injury (PI) staging is critical for treatment planning, prognosis, and quality reporting. Deep learning models have demonstrated high performance for automated PI staging with lesion images, largely using curated public datasets that contain standardized images, ideal for deep learning training pipelines. However, true inpatient wound observation is substantially more heterogeneous, with variations in lighting and wound presentation. Images of these lesions also vary in image quality and framing. The ability of PI staging models trained on public datasets to generalize to routine clinical imaging remains unclear. We evaluate the performance of models trained with common public PI datasets on real-world inpatient PI images.

Methods: A deep learning classifier was trained on 2,600 public pressure injury images from two publicly available datasets. Cross-domain performance was assessed using independent held-out public (n=411) and Mount Sinai (n=80) test sets. The public data came from the widely used Pressure Injury Image Dataset (PIID) and from an online public data repository. The Mount Sinai data consisted of routine inpatient wound photographs acquired during clinical care and labeled using a clinician-validated large language model pipeline.

Results: The model trained achieved strong performance on the public test set, achieving a macro F1-score of 0.886, but this model only achieved an F1-score of 0.478 on the Mount Sinai dataset, representing a 46% relative reduction in performance. The largest errors occurred in Stage II and Stage III wounds, where F1-scores fell to 0.258 and 0.240, respectively.

Discussion: Deep learning models trained on publicly available PI datasets may substantially overestimate real-world performance. Unlike real clinical scenarios, public images are tightly cropped to the wound lesion, standardized in size and resolution, and largely cleaned of artifact like wound dressings. Validation using routine clinical wound photography is essential before deployment of AI-based pressure injury staging systems.

PI-047

Evaluation of an Innovative Transparent Gel Dressing for Early Detection and Prevention of Sacral and Buttocks Pressure Injuries

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Introduction: Patients are at risk of developing pressure injuries (PIs), particularly those with limited mobility or prolonged hospital stay.1 The reported incidence of PIs among hospitalized patients ranges from 4 to 38% with the sacral area being the most common area of the body.1,2 The repetitive removal of adhesive dressings can increase the risk of medical adhesive related skin injury (MARSI).3 To assess the effectiveness of an innovative Transparent Gel Dressing (TGD) at evaluating PIs in the sacral and buttock regions during a four-week study. The primary focus was on early PI detection, PI prevention, dressing wear time, nursing staff

satisfaction, and ability to monitor diverse skin tones.

Methods: A four-week study of an innovative TGD was conducted in a Surgical ICU (SICU) and Step-Down Unit (SSDU) for early prevention of PIs. Clinical data was collected on 27 patients with an average age of 70.8 years and diverse skin tones. Eligible patients had intact skin, Stage 1 PIs, or blanchable redness on the sacral or the buttocks. TGD wear time was tracked daily up to a maximum of seven days. Pre- and post-application photos, dressing changes, PI occurrence, and patient/staff feedback were recorded. The dressing would be removed and wound care consulted if a PI or wound was identified.

Results: After four weeks, 42 total TGD were used in 27 patients. Eighteen patients underwent a single dressing placement, whereas nine patients required multiple dressing replacements. The average wear time was 3.26–4.62 days and up to 7 days in seven patients. There were no reported cases of PIs. The transparency of the TGD allowed early PI detection without removal of the dressing. The main reasons for TGD changes, included soiling (21.4%), routine change (11.9%), and non-adhering (7.1%).

Discussion: Implementation of a TGD proved successful at reducing the number of dressing changes and increasing the average wear time to 3.26–4.62 days in a SICU and SSDU. There were no reported cases of PIs during the four week observation period. The transparent design supported on-going visual skin assessment for early PI detection, reduced nursing time and workload.

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