Current of Care:

Navigating Patient Access and Documentation Demands for Success with Fish Skin

Supported by an educational grant from Kerecis

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Faculty Disclosures

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  Co-Director LBRC Inc. (medical and museum education corporation)
  Grant/Research Support: Biotissue; MediWound Ltd.; Organogenesis Inc.; Polarity TE
- **Kathleen Schaum, MS** has nothing to disclose in relation to this activity
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Disclosures

- The faculty have been informed of their responsibility to disclose to the audience if they will be discussing off-label or investigational use(s) of drugs, products, and/or devices (any use not approved by the US Food and Drug Administration)
  - Applicable CME staff have no relationships to disclose relating to the subject matter of this activity
  - This activity has been independently reviewed for balance

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Learning Objectives

- Outline the biological properties and mechanisms of action of fish skin grafts (FSGs), detailing their role in supporting wound healing across diverse clinical scenarios
- Review the clinical evidence validating the use of FSGs, highlighting successful outcomes via case studies
- Explore the challenges associated with navigating patient access to advanced modalities, particularly within the evolving Medicare landscape
- Explain the documentation requirements essential for securing coverage of advanced modalities and ensuring compliance

FSG = fish skin graft.

Fish Skin Grafts:

Biological Properties, Mechanisms of Action, and Successful Outcomes

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Intact FSG is a medical device approved by regulatory authorities globally and cleared by the FDA

Indications for Use

Private Office and HOPD

- Partial-thickness wounds (extending through the epidermis or into dermis)
- Full-thickness wounds (extending through the dermis to deeper tissues such as subcutaneous fat, muscle, tendon, or bone)
- Pressure ulcers
- Venous ulcers
- Chronic vascular ulcers
- Diabetic ulcers
- Trauma wounds, including abrasions, lacerations, skin tears
- Surgical wounds, including donor site/grafts, post-Mohs surgery, post laser surgery, podiatric, wound dehiscence
- Draining wounds

Burn

- Partial-thickness wounds
- Full-thickness wounds
- Trauma wounds
- Surgical wounds (donor sites/grafts, post-Mohs surgery, post-laser surgery, podiatric, wound dehiscence)

Contraindications

- FSGs should not be used in patients with known fish allergies

Soft Tissue Reinforcement

- For implantation to reinforce soft tissue where weakness exists, in patients requiring soft tissue repair, or reinforcement in plastic or reconstructive surgery

Contraindications

- Where load-bearing support from the mesh is required, such as the repair of any hernia
- Intraperitoneal organ contact
- Bridging defects

Surgical

- Partial-thickness wounds
- Full-thickness wounds
- Pressure ulcers
- Chronic vascular ulcers
- Diabetic ulcers
- Trauma wounds
- Surgical wounds
- Draining wounds

HOPD = hospital outpatient department.

Patented Processing

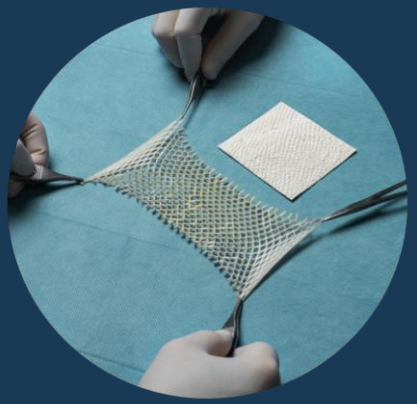
Preserving the capability of nature

Fish Skin

- Homologous to human skin
- NO known risk of viral disease transmission

Patented Process

- Gentle processing
  - No strong alcohols or detergents
  - No mechanical pressing or tampering
  - No chemical cross-linking
- Made from byproduct of Icelandic fisheries
- Cost effective



Intact Fish Skin Products

- Preserves structure and elements
- Recruits host cells
- Supports regeneration of human tissue

Supporting Evidence

Four Hallmarks of Tissue Engineering

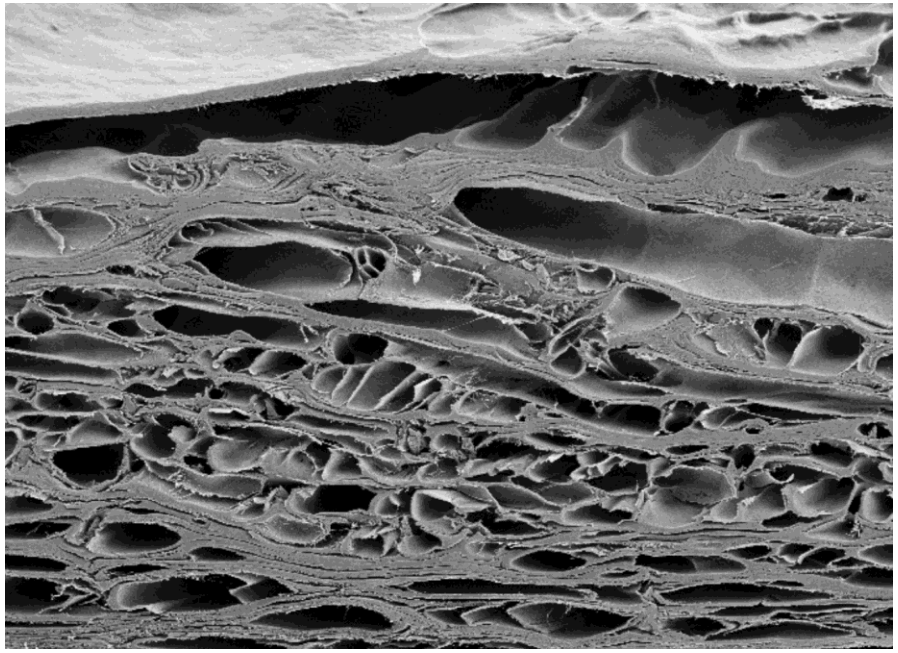
What does the body need to regenerate tissue—not just repair it?

- Three-dimensional structure
  - Intact structure provides framework to promote tissue regeneration with limited scarring
- Intact molecular organization
  - Fish skin is homologous to human skin
- Natural mechanical properties
  - Naturally strong, handles like skin, easy to suture or staple
- Preserved molecular content
  - Chemical complexity of fish skin promotes rapid cell ingrowth and neovascularization

Intact FSGs fulfill all hallmarks

Natural Molecular Organization

Intact Atlantic Cod Skin

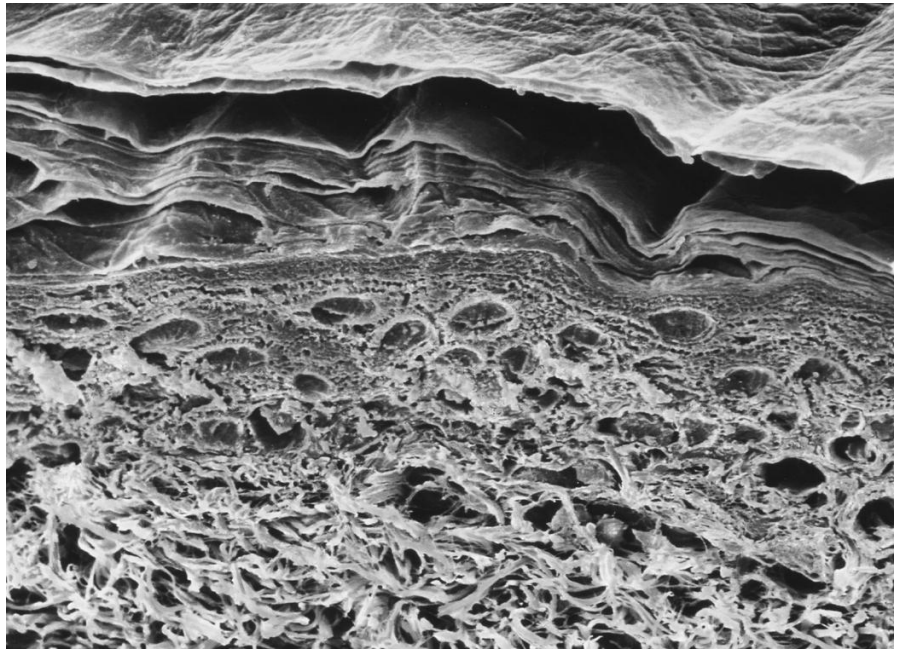


for

Epidermis

Dermis

Human Skin*



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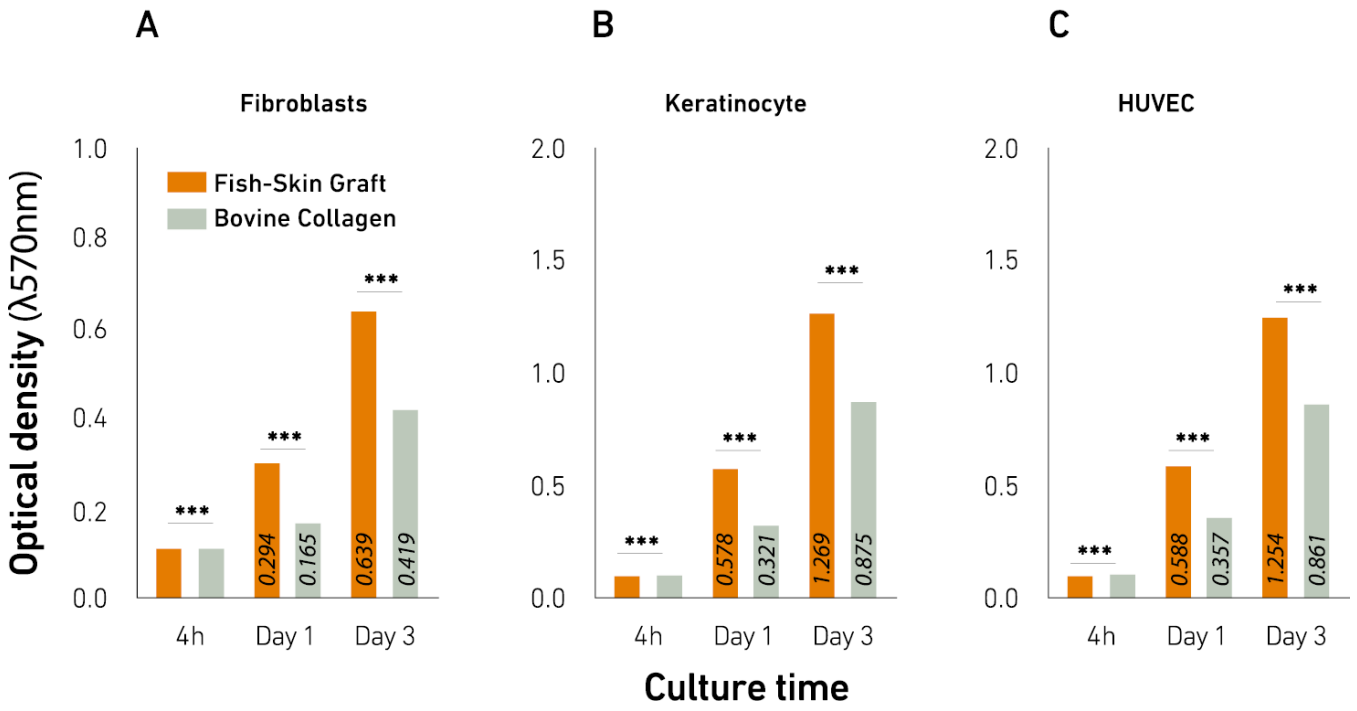
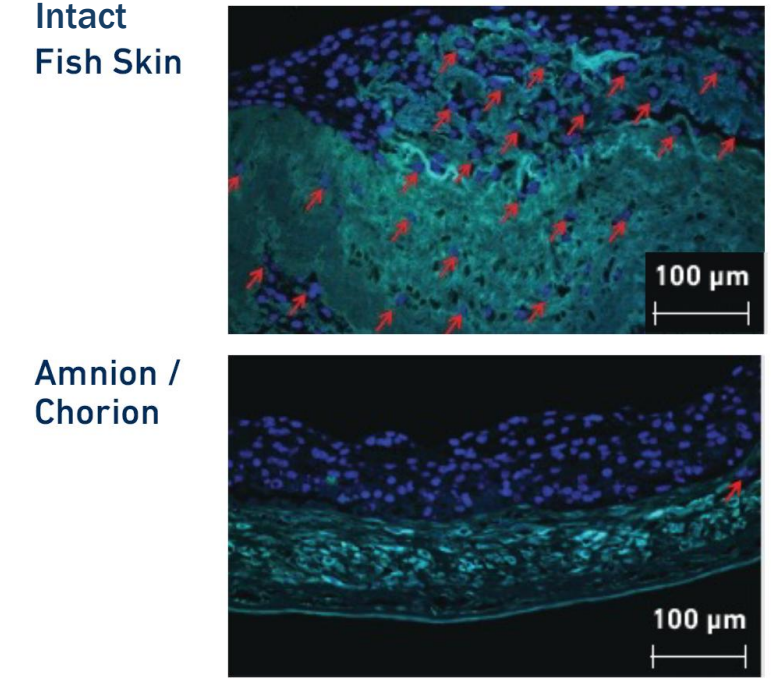
Three-Dimensional Structure

- 10x greater porosity – significantly more cell ingrowth

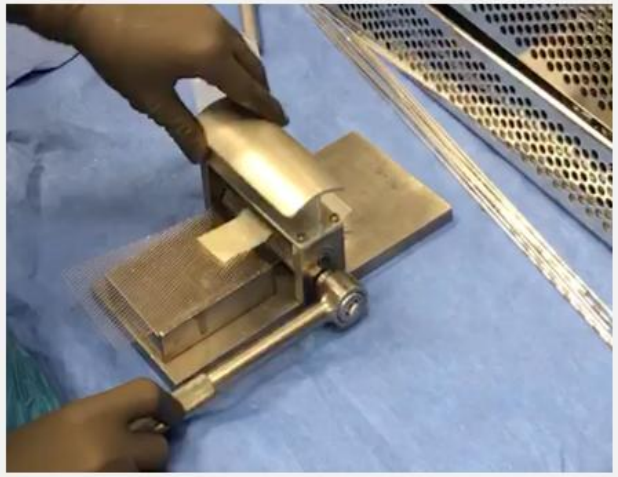


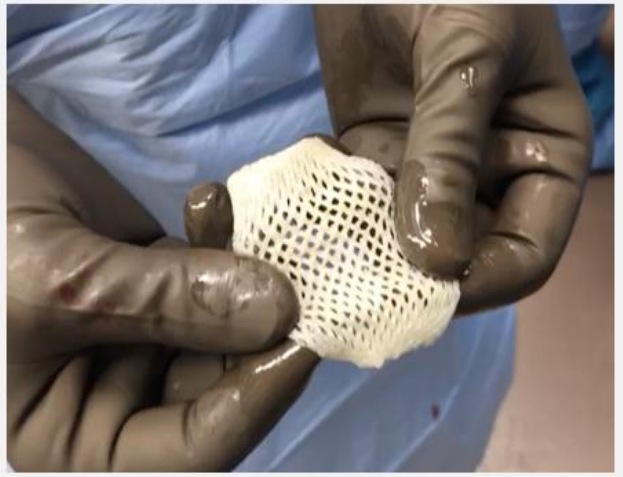


Yoon J, et al. *Int J Biol Macromol*. 2022;205:452-461. Magnusson S, et al. *Mil Med*. 2017;182(S1):383-388.

Strong Mechanical Properties

- Cells can feel and respond to the environment and signal mechanical changes based on their environment
- Signaling leads to growth and differentiation, survival, migration, and reorganization of the resident tissue
- Extracellular matrix (ECM) stiffness is recognized as a mechanotransduction stimuli in humans





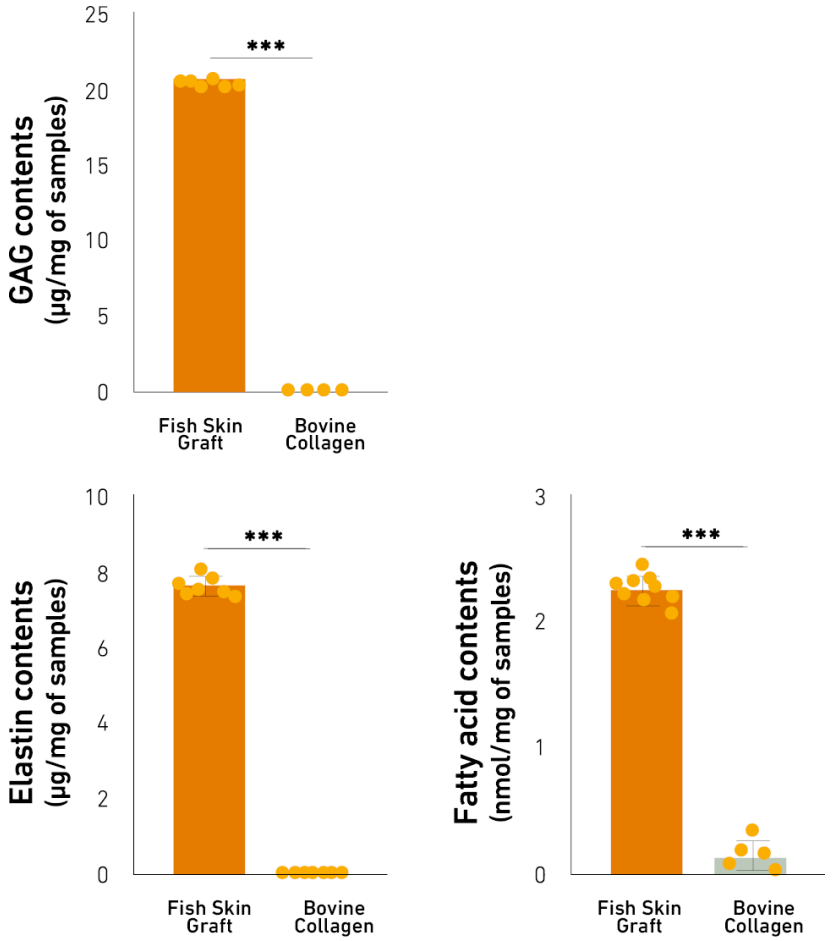
ECM = extracellular matrix.

Evangelatov A, Pankov R. *IntechOpen*; 2013. Tsata V, Beis D. *J Cardiovasc Dev Dis*. 2020;7(4):40.

Preserved Molecular Content

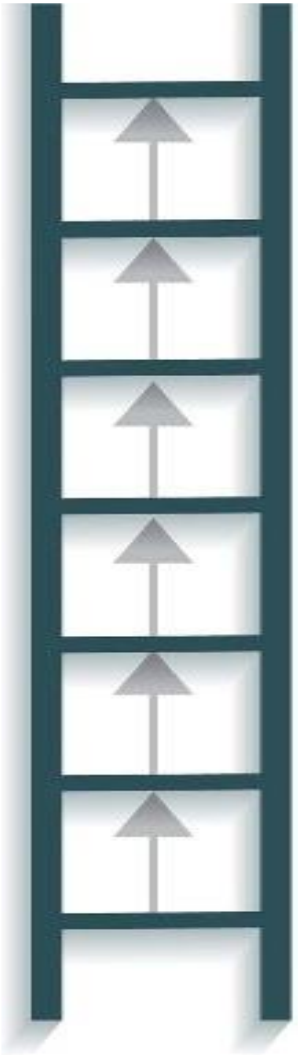
- Comparison of human skin to fish skin

	Human Skin	Fish Skin*	Mammalian Tissue
Collagen	✓	✓	✓
Elastin	✓	✓	✗
Fibronectin	✓	✓	✗
Proteogly-cans	✓	✓	✗
Glycans	✓	✓	✗
Lipid	✓	✓	✗



Yoon J, et al. *Int J Biol Macromol.* 2022;205:452-461.

Fish Skin and the Reconstructive Ladder



- Free tissue transfer/Flaps
- Local tissue transfer/Flaps
- Tissue expansion
- Skin grafts
- Delayed primary closure
- Primary intention
- Secondary intention

Fish Skin and the Reconstructive Ladder

- Secondary intention
  - Heals wounds quickly with better cosmetic and functional outcomes than standard of care and may act as an analgesic
- Primary intention
  - Reinforces suture line and may aid in reduced scar formation
- Delayed closure
  - Provides bacterial barrier and tissue regeneration during delayed closure
- Skin grafts
  - Augments time to graft and improves granulation tissue; can be used to reduce pain and infection and improve donor site time to heal
- Flaps
  - Wound bed preparation and donor site and at the distal third or over deep exposed structure

Case Studies

Successful Wound Closure in a Rare Manifestation of Radiation Recall Dermatitis Following Intralesional Chemotherapy Utilizing Intact FSG

67y Female

Past Medical History

- Multiple squamous cell carcinomas (SCC), Hashimoto's thyroiditis.

Wound History

- **March 2022:** Initially diagnosed with SCC on her left leg, she underwent radiation therapy after declining surgery.
- **August 2023:** She received a 5-FU injection for a new SCC on her left upper extremity, subsequently developing a large ulcer and erythema at the previously irradiated site within 72 hrs. This was consistent with radiation recall dermatitis.
- **September 2023:** Arrived at the Los Robles Wound Care Center (LRWCC) with a large ulcer with surrounding erythema and induration on her left distal pretibial leg at the site of previous radiation therapy.

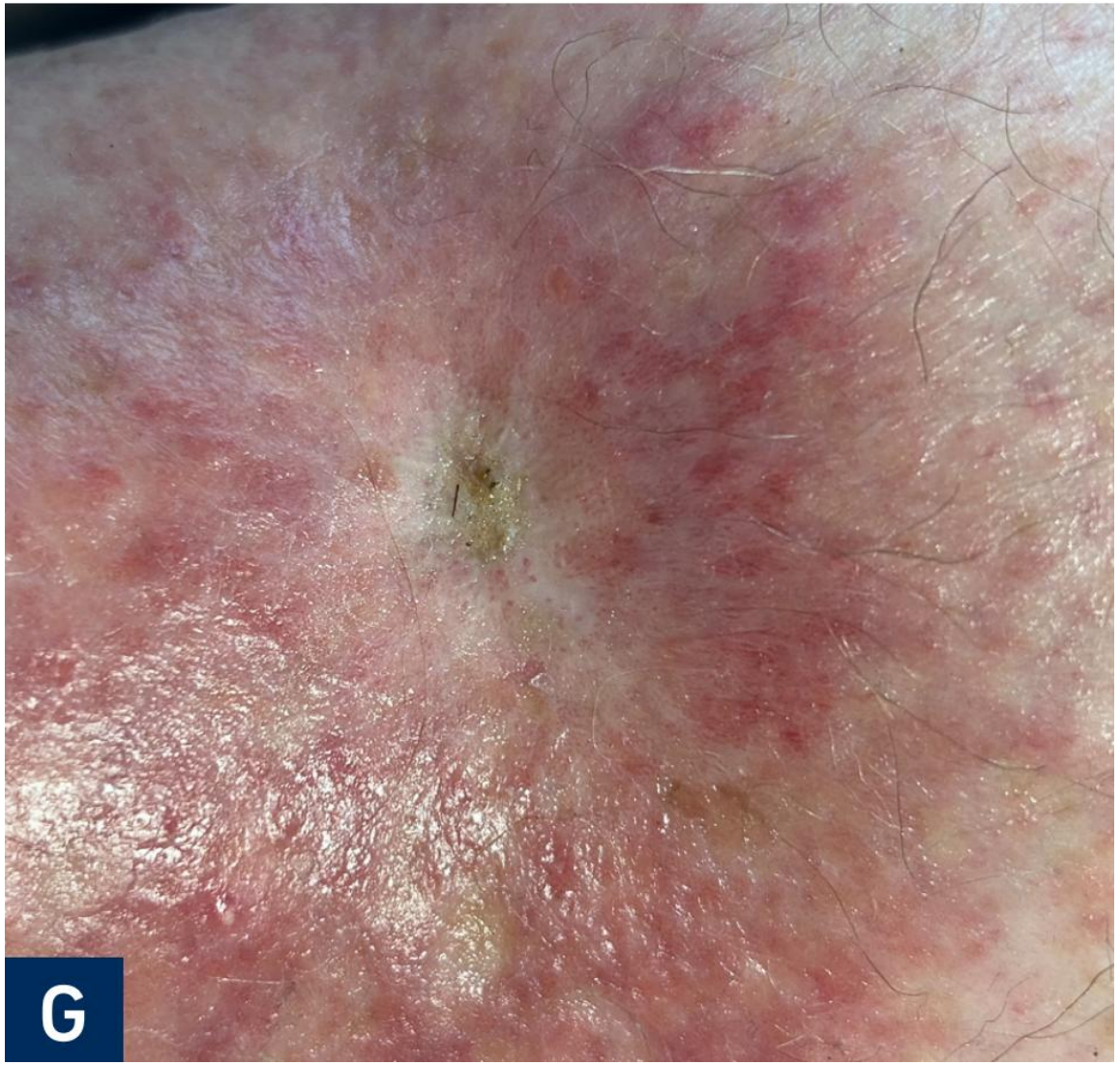
SCC = squamous cell carcinoma.

Wound Closure

- Ulcer was recalcitrant to initial treatment by radiation oncologist with topical and systemic antimicrobials
- Ulcer biopsy indicated acute inflammation with tissue damage, but no malignancy
- Oct. 2023: Patient underwent excisional debridement with placement of FSG followed by negative pressure wound therapy (NPWT) in Oct. 2023

NPWT = negative pressure wound therapy.

Wound Closure



Apr. 2024: After multiple applications of FSG at biweekly intervals, the wound robustly granulated and healed via secondary intention

DISCUSSION

- This case illustrates the challenges of managing wounds with previous radiation exposure complicated by inflammatory radiation recall dermatitis reaction
- Effective management requires a dynamic, multidisciplinary approach to address both immediate symptoms and long-term wound care needs

Definitive Wound Closure of Large Scalp Mohs Defect with Exposed Cranium in an Irradiated Field Utilizing Intact FSG

78y Female

Past Medical History

- Pertinent for noninsulin-dependent diabetes mellitus and venous thromboembolism

Wound History

- Patient was status post resection of a right parietal scalp sarcoma with a titanium plate cranioplasty and rotation flap reconstruction 10 yrs prior
- Patient presented with surgical wound following Mohs excision of SCC resulting in a 7.0 x 5.0cm defect with exposed cranium

Wound Closure

7cm x 5cm wound to the level of bone (calvarium) following Mohs surgical excision of SCC

Post-debridement prior to initial application of FSG

Application of FSG to cover exposed bone

Wk 2 postop

Wound Closure

Wk 3 postop

Wk 4 postop

Wk 6 postop

Wk 12 postop

Wound Closure

RESULTS: After 8 applications of intact FSG at wkly or biweekly intervals, the wound completely healed without needing a staged surgical reconstruction

DISCUSSION

- This case report shows that intact FSG is suitable for complex wound closure, including difficult Mohs reconstruction; there is evidence that intact FSG may attenuate contraction and scarring
- Interestingly, 2 mos following the successful result with intact fish skin graft, the patient underwent a secondary Mohs excision on the anterior aspect of the previous defect; during the tissue resection, it was noted that the tissue was not fibrotic, suggesting added benefit from the intact FSG

Stone R II, et al. *Int J Mol Sci*. 2021;22(4):1590. Wallner C, et al. *Eur Burn J*. 2022; 3(1):43-55.

Successful Staged Limb Salvage Utilizing Intact FSG in Non-Adherent Patient with Uncontrolled Diabetes and End-Stage Renal Disease

31y Female

Past Medical History

- End-stage renal disease (ESRD) on dialysis, peripheral neuropathy, retinopathy, hypertension (HTN), and history of cerebral vascular accident (CVA)

Wound History

- Patient presented with 8cm x 6cm necrotic eschar with cellulitis; wound was secondary to an unrecognized extravasation from intravenous catheter placed during a surgical procedure

ESRD = end-stage renal disease; HTN = hypertension; CVA = cerebral vascular accident.

Staged Limb Salvage

Initial presentation: 8cm x 6cm necrotic eschar

Wound post-debridement

Application of micronized FSG

Application of meshed FSG

Staged Limb Salvage

Integration of FSG

Wound progression following FSG application

6 wks post op: Wound prepared for split-thickness skin graft (STSG)

STSG = split-thickness skin graft.

Staged Limb Salvage

STSG successfully incorporated

Final presentation of wound healing

RESULTS

- Patient remained non-adherent with glucose management in the postop period
- She ultimately required admission for hyperglycemia in the 400s
- Despite this, the wound fully granulated after only one FSG application, and she underwent a successful staged STSG 6 wks later
- The graft has remained stable and pliable with full range of motion

You Are in the Wound/Ulcer Management Business – Not the CTP Business!

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Trademark

CPT®= Current Procedural Terminology.

Disclaimer

Information on coding, Medicare payment, and coverage is provided as a courtesy, but does not constitute a guarantee or warranty that payment will be received.

The coding and Medicare payment information was current as of August 18, 2025, but is subject to change.

Wound/ulcer management professionals should obtain (from the correct payer) current coding, payment system, coverage policies, and regulations.

Explore the Challenges Associated with Navigating Patient Access to Advanced Modalities, Particularly within the Evolving Medicare Landscape

Patient Access Is in YOUR CONTROL

- ✓Follow wound/ulcer management **clinical practice guidelines**; most wounds/ulcers will heal when standard care is provided
- ✓Identify the **services, procedures, and products** that you intend to provide
- ✓Identify the **CPT and HCPCS** (Healthcare Common Procedure Coding System) **codes** that represent that work; learn the coding descriptions and coding rules
- ✓Research the **coverage policies** that pertain to standard wound/ulcer management; implement the coverage criteria into your medical decision-making and into your documentation

HCPCS = Healthcare Common Procedure Coding System.

Patient Access Is in YOUR CONTROL

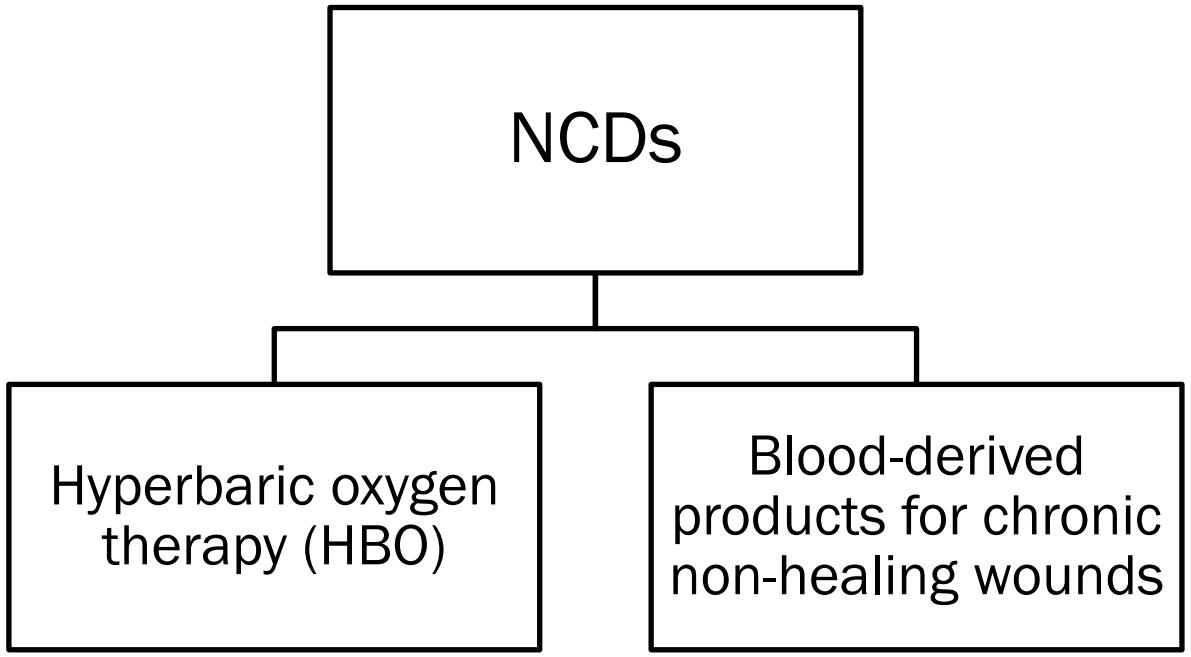
- ✓Set up your **electronic health record**, your **charging software**, and your **claims processing software**
- ✓**Educate all professionals and revenue cycle team**
- ✓Conduct **internal audits** and **refine processes immediately**
- ✓Participate in **external audits from beginning to end**

Medicare Coverage Policies Should Be Your "PLAYBOOK"

- Centers for Medicare & Medicaid Services (CMS)
  - National Coverage Determinations (NCDs)
- Medicare Administrative Contractors (MACs)
  - Local Coverage Determinations (LCDs)
  - Local Coding and Billing Articles (LCAs)
- Pay attention to
  - Your MAC's documentation checklists
  - Auditors' Reports
    - Targeted Probe and Educate (TPE)
    - Comprehensive Error Rate Testing (CERT)
    - Supplemental Medical Review Contractor (SMRC)
    - Unified Program Integrity Contractors (UPICs)
    - Recovery Audit Contractors (RACs)
    - Office of Inspector General (OIG)

CMS = Centers for Medicare and Medicaid Services; NCDs = National Coverage Determinations; MACs = Medicare Administrative Contractors; LCDs = Local Coverage Determinations; LCAs = Local Coding and Billing Articles; TPE = Targeted Probe and Educate; CERT = Comprehensive Error Rate Testing; SMRC = Supplemental Medical Review Contractor; UPICs = Unified Program Integrity Contractors; RACs = Recovery Audit Contractors; OIG = Office of Inspector General.

Research/Follow All Wound/Ulcer Management NCDs, LCDs, and LCAs



LCDs and LCAs

- Wound care
- Debridement
- Surgical dressings
- Negative pressure wound therapy (NPWT)
- Cellular and/or tissue-based products for skin care (CTPs)

HBO = hyperbaric oxygen therapy; NPWT = negative pressure wound therapy; CTP = cellular and/or tissue-based products.

Centers for Medicare & Medicaid Services. CMS. Updated continuously. Accessed August 19, 2025. www.cms.gov/medicare-coverage-database/search.aspx.

Vital Information in Coverage Policies

- **Medical necessity** and **utilization guidelines**
- Covered **diagnosis codes**
- Covered **procedures and products**
- **Frequency of use** and **quantity limitations**
- **Documentation guidelines**
- **Coding guidelines**
- **Used as checklists by auditors;** if all guidelines are not followed and completely documented, you may incur claim denials or repayments

CAUTION: When a Medicare LCD Does Not Exist

The documentation hurdle is high: it must prove, to your MAC, that the service, procedure, and/or product is “reasonable and necessary”

- Safe and effective
- Not experimental
- Furnished by a QHP (qualified healthcare professional)
- Meets, but does not exceed, wound/ulcer’s need
- Appropriate duration and frequency
- Occurs in accepted standard medical practice
- Provided in an appropriate setting

QHP = qualified healthcare professional.

Explain the Documentation Requirements Essential for Securing Coverage of Advanced Modalities and Ensuring Compliance

Document Completely, but Not Unnecessarily

- In 2021, the AMA replaced the 1995 and 1997 Evaluation and Management Guidelines for office and outpatient services
- In 2023, the AMA replaced the 1995 and 1997 Evaluation and Management Guidelines for the remaining places of service

- New Evaluation and Management Guidelines are based on
  - Medical decision-making **or**
  - Time

GOAL: Help relieve physicians' administrative burdens and produce more clinically meaningful documentation

Only perform and document medically appropriate history and/or physical examination

Document at Every Encounter: DO NOT CLONE

- ✓**Patient's condition**
- ✓**Plan of care** (eg, detailed description of wound/ulcer, goals-what wound/ulcer should look like when goals are achieved, frequency or duration, potential to heal, evidence of improvement, modifications when plan is not working)
- ✓**Physician orders**
- ✓**Physician progress notes**
- ✓**Photographic documentation of wounds**
- ✓Document **standard of care** (eg, wound/ulcer assessment, debridement, complicating factors of healing and how to control them, nutritional status)
- ✓**Wound/ulcer improvement** (eg, size, drainage, inflammation, swelling, pain, necrotic tissue or slough)

Document Surgical Procedures Like Operative Notes

- ✓Date, time, and place of service
- ✓Physician or QHP (who is appropriately trained and operating within her/his scope of practice)
- ✓Preop and postop diagnosis(es)
- ✓Wound/ulcer assessment (including measurement, presence of exudate or necrotic devitalized fibrotic tissue, and photos preop and postop)
- ✓Vascular status, infection, or evidence of reduced circulation
- ✓Reason for the procedure, and product (if used)
- ✓Other information required by payer
- ✓Timeout
- ✓Wound bed preparation (estimated blood loss, hemostasis, complications)
- ✓Product preparation and application (For CTPs: amount applied and discarded and reason for wastage, method of fixation, serial/lot/batch number, primary and secondary dressings)
- ✓Patient tolerance
- ✓Offloading or compression
- ✓Patient/caregiver instructions
- ✓Follow-up orders

If a Coverage Policy Does Not Exist, Documentation of "Medical Necessity" and "Reasonable and Necessary" Is Vital

Physicians and other QHP must document

- Medical necessity
- Clinical evidence
- Patient outcome

Once a claim is submitted, your MAC can

- Pay the claim
- Request documentation to determine if they should cover the item
- Pay the claim and conduct a TPE audit

Heads-Up: Errors Consistently Cited During CTP Audits

Standard of care was not provided and not documented
Failure of at least 4 wks of standard of care was not documented, with dates
Exceeded number of applications allowed per the LCD
Continued CTP application when improvement was not documented

Heads-Up: Errors Consistently Cited During CTP Audits

Medical necessity for the application of a CTP, and a particular CTP was not documented – no justification for an expensive CTP

Use of CTP deemed investigational, off-label, or used in a non-homologous way

Financial arrangements that influenced CTP choice such as rebates, kickbacks

You Cannot Prevent CTP Audits; You Can Ensure That You Pass Audits by Documenting the Patient's Clinical Story

Provide and document excellent standard wound/ulcer management

Document the small percentage of cases where standard care fails

Select CTPs based on clinical evidence and the clinical needs of the patient

Select a CTP that is covered by each patient's payer

You Cannot Prevent CTP Audits; You Can Ensure That You Pass Audits by Telling the Patient's Clinical Story

Document the surgical application procedure

Print and compare your documentation to clinical practice guidelines, NCDs, LCDs, LCAs, and your MAC's documentation checklists

Conduct internal audits of each physician's and each QHP's documentation

Immediately make refinements to documentation, electronic health records, product selection practices, etc

Thank you for allowing me to share wound/ulcer management documentation tips with you!

Kathleen Schaum

Intact Fish Skin:
The Diabetic Foot and Beyond

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Real Diabetic Foot Ulcer (DFU) Patients Are Sicker, and DFUs Are Worse than Subjects in Most RCTs

- Consortium of 6 wound clinics performing clinical research
  - Compared actual patients seen to patients enrolled in CTP trials
  - 244 DFU subjects enrolled in 4 RCTs vs 2,634 DFUs seen in same clinics
- Real patients differed from RCT subjects
  - **12.2% had renal failure** (excluded from all RCTs)
  - **4.3 DFUs per patient** (not 1 DFU per patient as in typical trial)
  - **43.6% had Wagner 3 or worse ulcers** (RCTs enrolled Wagner 1, 2)
  - **Initial DFU surface area was 3x larger than ulcers in the RCTs**
- Estimated mean Wagner Healing Index (WHI) of real DFUs is much worse, meaning they are less likely to heal than an RCT ulcer (68.6 vs 88.1)

Wound Repair and Regeneration

PERSPECTIVE ARTICLE

A new approach to clinical research: Integrating clinical care, quality reporting, and research using a wound care network-based learning healthcare system

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ABSTRACT

The disparity between ideal evidence from randomized controlled trials and real-world evidence in medical research has prompted the United States Food and Drug Administration to consider the use of real-world data to better understand safety and effectiveness of new devices for a broader patient population and to prioritize real-world data in regulatory decision making. As the healthcare system transitions from volume- to value-based care, there is a growing need to harness the power of real-world data to change the paradigm for wound care clinical research and enable more generalizable clinical trials. This paper describes the implementation of a network-based learning healthcare system by a for-profit consortium of wound care clinics that integrates wound care management, quality improvement, and comparative effectiveness research, by harnessing structured real-world data within a purpose-built electronic health record at the point of care. Centers participating in the consortium submit their clinical data and quality measures to a qualified clinical data registry for wound care, enabling benchmarking of their data across this national network. The common definitional framework of the purpose-built electronic health record and the 21 wound-specific quality measures help to standardize the potential sources of bias in real-world data, making the consortium data useful for comparative effectiveness research. This consortium can transform wound care clinical research and raise the standards of care, while helping physicians achieve success with the Merit-Based Incentive Payment System.

DFU = diabetic foot ulcer; WHI = Wagner Healing Index
Serena TE, et al. *Wound Repair Regen*. 2017;25(3):354-365.

Depth of Tissue Exposed in DFUs Treated with Intact Fish Skin (n=104)

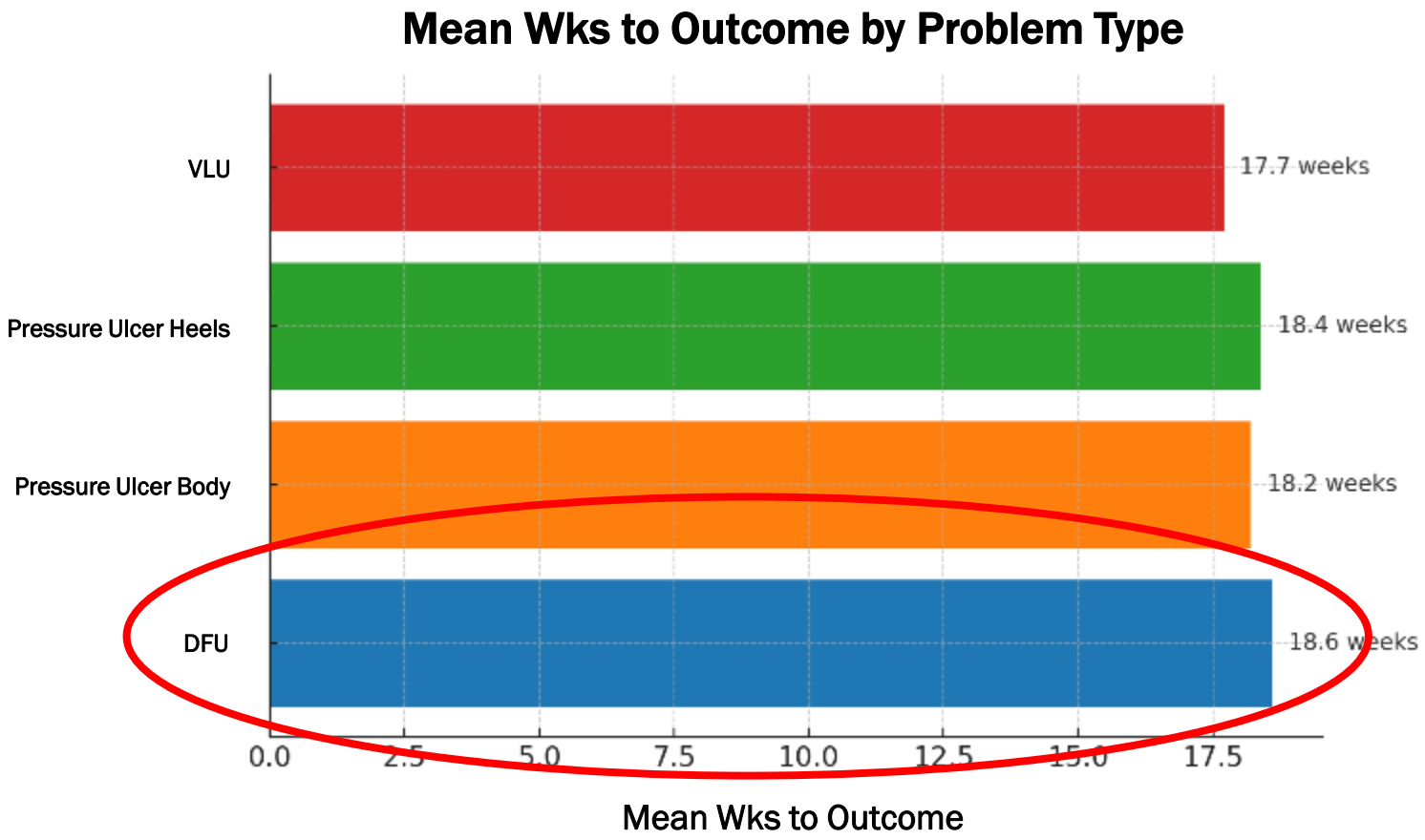
Tissue Exposed	Problems	Percentage
Partial-thickness	18	17.3%
Subcutaneous	44	42.3%
Adipose	1	0.9%
Muscle	11	10.5%
Tendon	2	1.9%
Bone	15	14.4%
Unknown	52	0.5%
TOTAL	104	100%

26.8%

In the real world, more severe ulcers are treated than in a clinical trial.

USWR Data from 2023 (unpublished).

Mean Weeks to Outcome by Ulcer Type (After Initial CTP/CAMP Application)



The mean is not far from the "episode of care," but some ulcers will remain unhealed for mos after the final application.

Problem Type	Min	Max	Mean
DFU	0.9	185.0	18.6
Pressure Ulcer Body	0.1	158.9	18.2
Pressure Ulcer Heels	1.0	126.0	18.4
VLU	1.0	205.0	17.7
Total	0.1	205.0	18.1

Data from Jan. 1, 2020 – Dec. 31, 2024

CTP = cellular and/or tissue-based product; CAMP = cellular, acellular, and matrix-like product; VLU = venous leg ulcer.
USWR Data from 2025 (unpublished).

NEJM Evidence

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ORIGINAL ARTICLE | SYMPOSIUM ON ADVANCED WOUND CARE

Intact Fish Skin Graft to Treat Deep Diabetic Foot Ulcers

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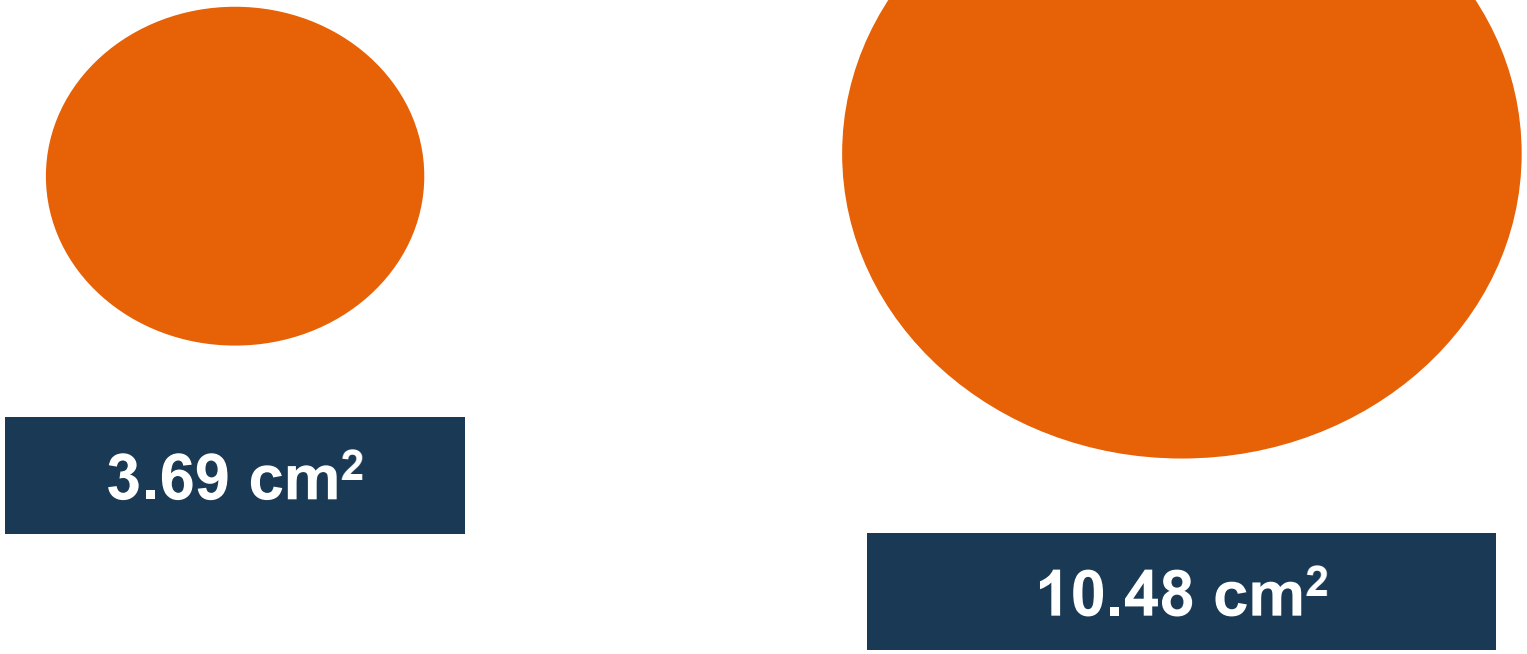
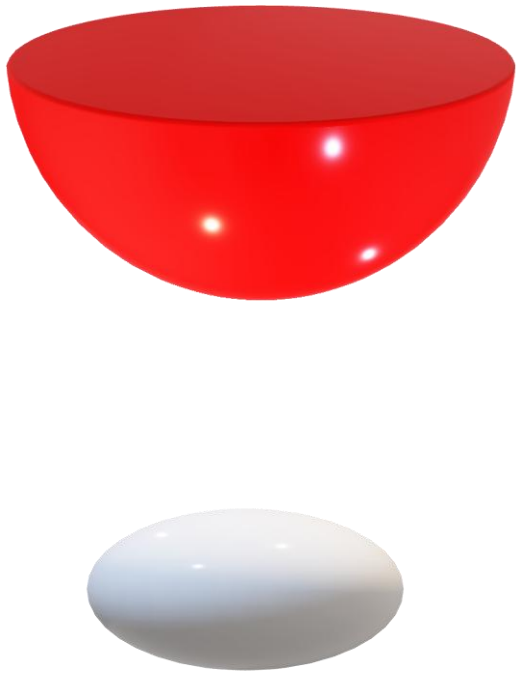
The Wounds Are Bigger! (2.5x)



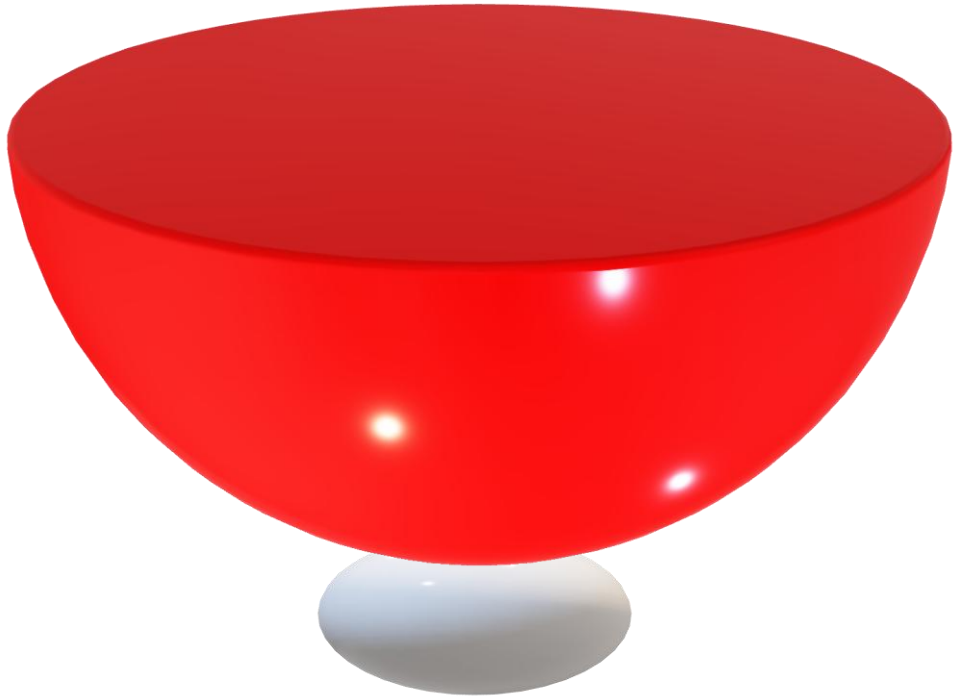
Driver VR, et al. *Wound Repair Regen*. 2015;23(6):891-900. Lantis JC, et al. *J Wound Care*. 2021;30(Suppl 7):S18-S27.

The Wounds Were Deeper!

- UT 1

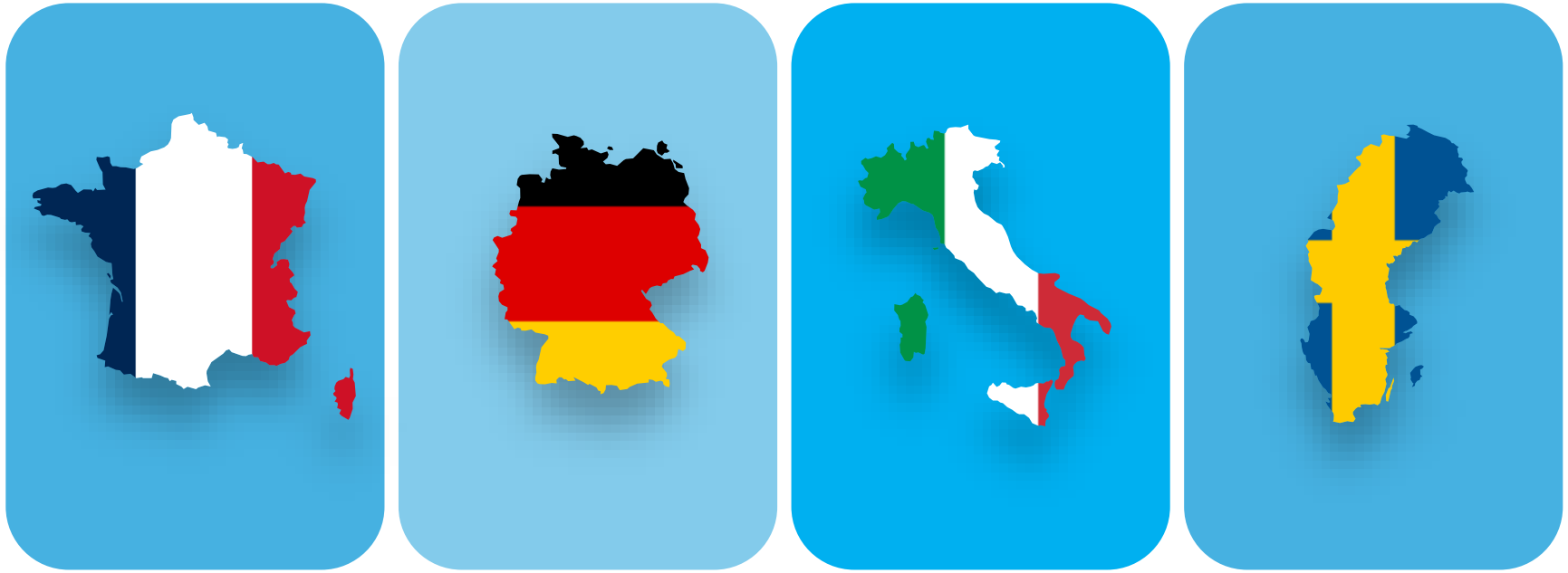


- UT 2 and 3



UT = University of Texas wound grading scale.

Enrollment: A Multinational, Multicentric RCT

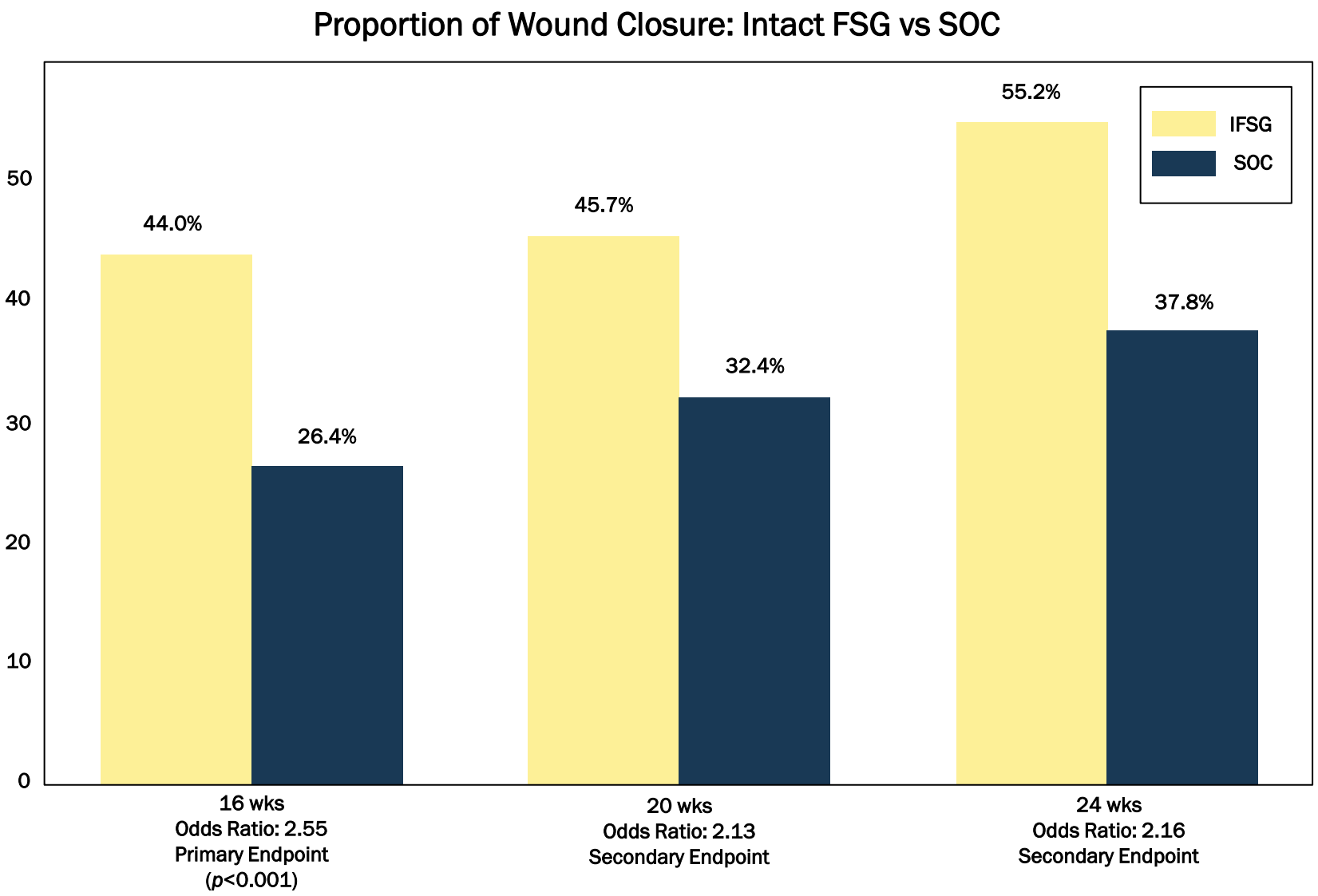


Absolute Closure Rate:
44% in Intact FSG Group vs 26.4% in SOC Group

Baseline (Grade 3): Post-surgical debridement	10 Wks	23 Wks (healed)
		

Baseline (Grade 3)	4 Wks	8 Wks (healed)
		

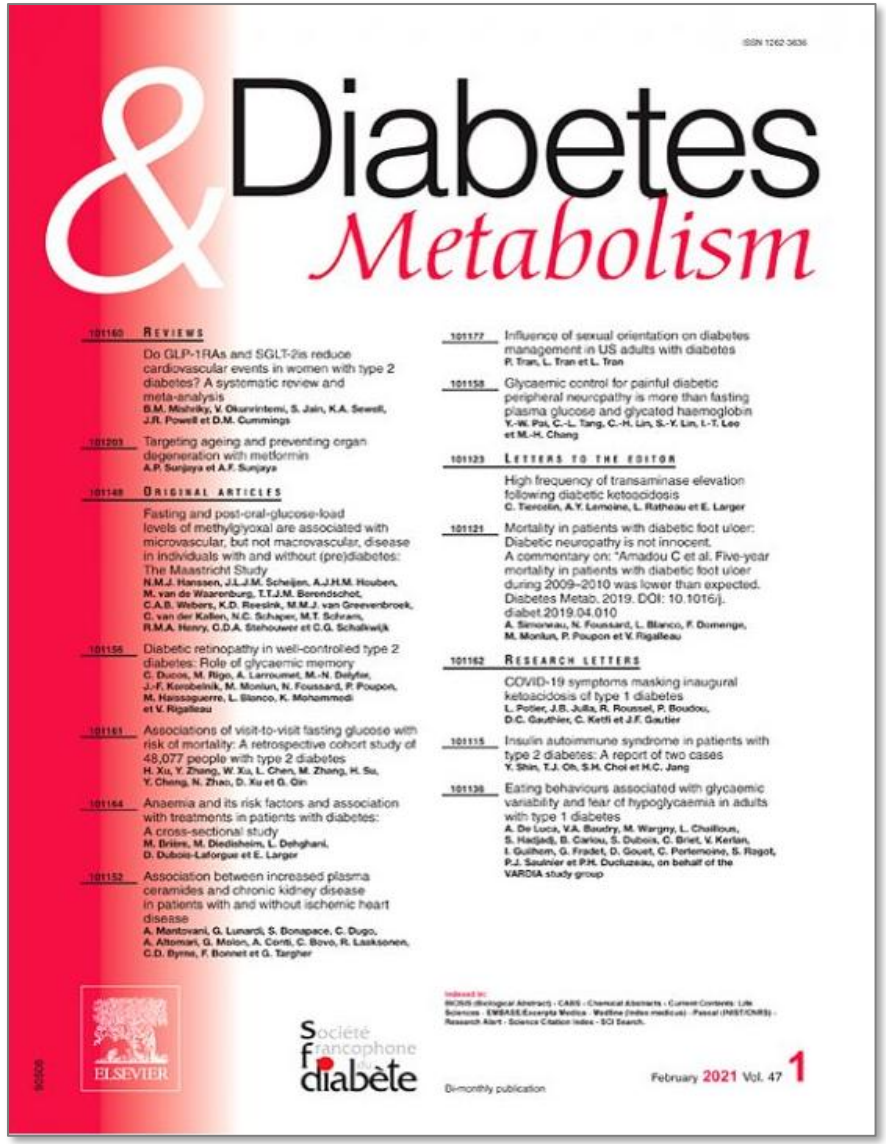
Absolute Closure Rate: 44% in Intact FSG Group vs 26.4% in SOC Group



Secondary Endpoints

Intact Fish Skin Graft for Deep DFUs

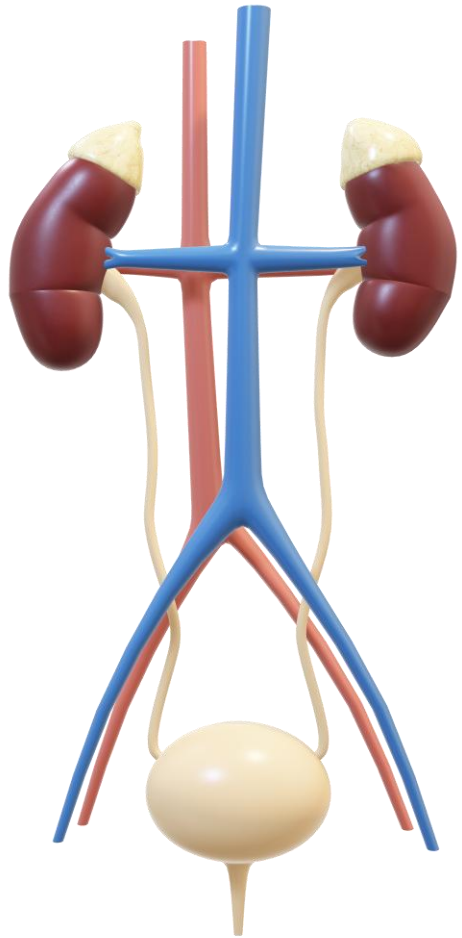
- Results from a KereFish (French) RCT
- Nov. 2025
- 179 patients (of 252 total)
- Almost all patients (97.2%; n=175) had at least 1 diabetic complication or comorbidity



Dardari D, et al. *Diabetes Metab*. 2025(51)6.

Renal Failure (The Patients Are Sicker!)

- 53.3% of French cohort (179 patients) had renal dysfunction
- 39% of the entire cohort (98 patients)
- 24% had an MI within 6 mos
- HbA1c was 8.2%- 8.5%
- 51.1% n=92 had a wound UT score of 2 (“wound is penetrating to tendon or capsule”)
- 48.3% had a score of 3 (“wound is penetrating bone or joint” n=87)



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Not Easy Ulcers (KereFish)

- Most patients (n=108; 60.7%) were included in the study for the treatment of a chronic diabetic foot wound
- 58 patients (32.6%) were included for a recent bone resection/amputation
- 12 patients (6.7%) were included for an old bone resection/amputation ankle amputation wound

Dardari D, et al. *Diabetes Metab*. 2025(51)6.

Title —

Wound Closure, Wound Area Reduction, Pain, and Quality of Life:

Secondary Outcomes for the Odinn Intact Fish Skin Graft for Deep Diabetic Foot Wounds Trial

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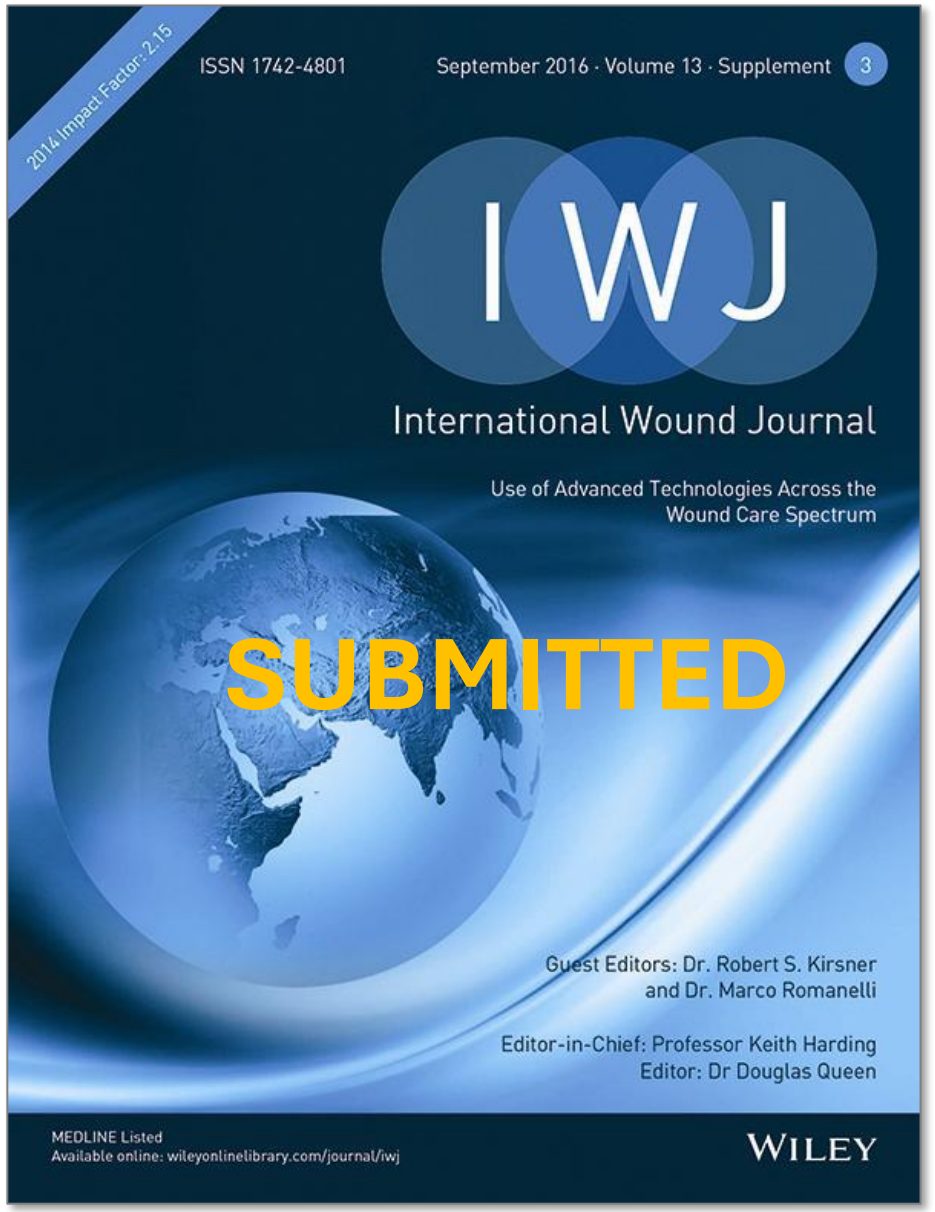
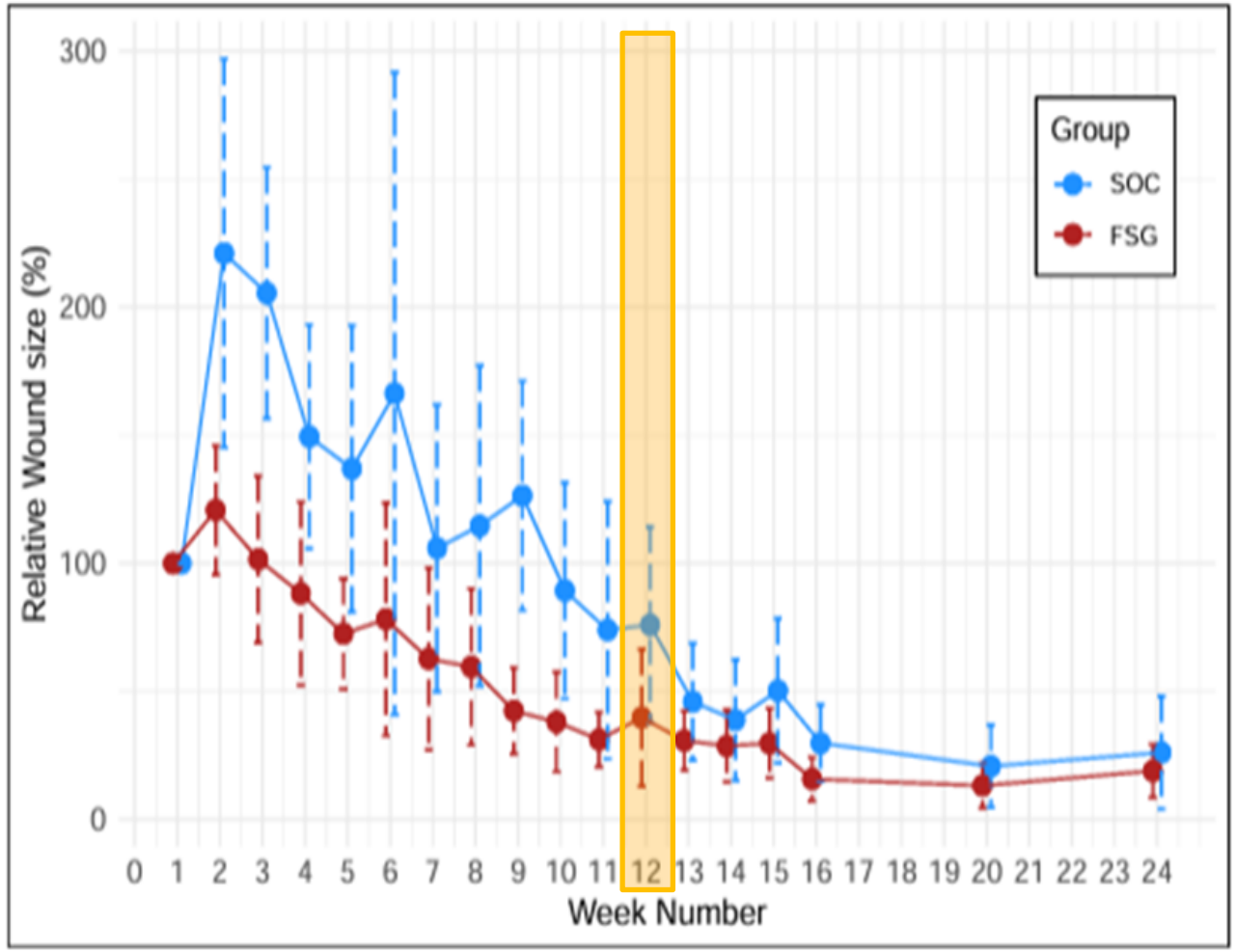


Percentage of Ulcers Healed 50% or More at 12 Wks

50% wound area reduction (PAR) at 12 wks (65.53%) was statistically significant (*P*=0.007) between intact FSG and SOC (30.82%)



Effect of UT Grade on Healing

- There were 75 UT grade 2 DFUs in each group, with a closure rate of 47% vs 23% at 16 wks for intact FSG vs SOC (*P*=0.0033)
- There were 54 UT grade 3 ulcers in the intact FSG group with a closure rate of 33.3% at 16 wks vs 19.6% in the SOC arm
- **This represented a relative improvement in healing in the UT 2 group of 104% and, in the UT 3 group, a 70% improvement in healing**

Time to Healing

- The time to healing for the intact FSG in restricted mean survival time (wks) was 17.31 (95% CI, 15.5, 18.67) compared to SOC, which was 19.37 wks (95% CI, 18.09, 20.66)
- Overall, healed patients treated with **intact FSG healed 2 wks faste**r than those treated with SOC
- The patients who closed did so with a median of 7 applications of intact FSG

Perfusion Status

ABPI		
Normal	54 (42%)	60 (48%)
0.91 to 0.99	25 (20%)	21 (17%)
0.60 to 0.90	50 (39%)	45 (36%)

ABPI = ankle brachial pressure index.

Effect of Limited Perfusion

- ABPI was stratified as >0.6, <0.9, and >0.9 among the various treatment groups (intact FSG vs SOC) (Although this study was not powered for this level of stratification, we presented descriptive statistics)

- At 16 wks, the overall closure rate in those with an ABPI of >0.9 was 39% vs 0.6 to 0.9, which was 19%
  - **When stratified by ABPI and both treatment groups, the intact FSG group demonstrated a higher proportion of wound closure than the SOC group**

- ABPI >0.9 intact FSG treatment was associated with >100% improvement in wound closure at 16 wks
  - In those treated with intact FSG with an ABPI 0.6 to 0.9, there was a relative improvement of 50% in the number of wounds closed at 16 wks

*As the study was not originally designed or powered for this level of stratification, *p*-values derived may not necessarily reflect an

Safety

- The study took place during the COVID-19 pandemic, which increased the number of infections in both groups
- If one only looks at infections related to the index wound, there were 30 patients in each cohort
- Intact FSG group and the SOC arm: There were 20 serious adverse events in the intact FSG and 23 in the SOC arm (*P*=0.617)
- There were a total of 7 deaths in the study: 5 in the SOC cohort and 2 in intact FSG; 1 was related directly to the foot wound, secondary to worsening ischemia

In Closing

First DFU with Exposed Structure Prospective Randomized Trial Done

- **Relative closure improvement of 66% at 4 mos**
- At 3 mos, 2/3 of intact FSG-treated patients were >50% closed
- Differences in closure were greater in UT 2 than in UT 3
- In those that closed, they closed 2 wks sooner
- Intact FSG worked very well after amputation and showed a strong clinical effect in those with limited ABPI
- Those that closed required a median of 7 applications

Questions?

Thank You!