SEPTEMBER 24 – 26, 2025

2025 Midwest Burn Conference

Madison Concourse Hotel & Governor's Club | Madison, WI

Provided by:

Provided by the University of Wisconsin–Madison School of Medicine and Public Health, Department of Surgery and Interprofessional Continuing Education Partnership (ICEP)

American Burn Association

Department of Surgery
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

Wednesday, Sept 24 – Friday, Sept 26

Burn Rehab Program

Wednesday

AM

7:00 **Registration, Breakfast and Exhibits**

8:00 **Welcome, Agenda and Itinerary, Introductions**
Ellen Goldsher, PT, DPT, Debbie Shields, OTR/L

8:30 **Comprehensive Evaluation of a Patient with Burns**
Mandy Yelvington, PhD, OTR/L, BCPR, BT-C
Objective: Provide a framework for evaluating burn patients to guide clinical management

10:00 **Break and Exhibits**

Morning Breakout Session: Activity Analysis

10:30 **Breakout #1: Large TBSA, Activity Analysis**
Breakout #2: LE Activity Analysis
Breakout #3: UE Activity Analysis
Stephanie Devitt, DPT, Casey Liveris, OTR/L, Liesl Patton, OTR/L

PM

12:00 **Lunch and Exhibits**

1:00 **Integrating Research and Clinical Expertise in the Use of Orthoses for Burn Survivors**
Stephanie Devitt, DPT, Krista Kienitz, OTR/L, Liesl Patton, OTR/L, Mandy Yelvington, PhD, OTR/L, BCPR, BT-C
Objective: Highlight strategies for integrating research evidence and clinical expertise in the effective use of orthoses for burn survivors

2:00 **Break and Exhibits**

Afternoon Breakout Sessions: Orthosis Assessment and Fabrication

2:15 **Breakout #1: Axillary**
Breakout #2: Knee
Breakout #3: Wrist/Hand/Finger
Stephanie Devitt, DPT, Krista Kienitz, OTR/L, Liesl Patton, OTR/L, Mandy Yelvington, PhD, OTR/L, BCPR, BT-C

4:00 **Adjourn**

Thursday

AM

7:00 **Registration, Breakfast and Exhibits**

7:50 **Presentation of Colors**
Professional Firefighters of Wisconsin Honor Guard

Welcome and Announcements
Lee Faucher, MD Midwest Regions Burn Program Chair

SESSION 1: KEYNOTE

8:00 **New and Upcoming in the ABA and the Finance Summary**
Jeffrey E. Carter, MD, FAB, Ed Dellert, RN, MBA, CAE, FACEHP

SESSION 2 : REHAB TRACK BREAKOUT

9:00 **Interdisciplinary Approaches Using AT & AAC in the Burn ICU**
Katie Blue, MS, CCC-SLP, Theresa Cassel, MOTR/L, ATP
Objective: Identify burn patients who may benefit from AT/AAC supports, select appropriate tools, understand their benefits in the Burn ICU, and explore funding and engagement options including gaming

10:10 **Break and Exhibits**

SESSION 3 : PANEL

10:30 **Care of a Patient from the Plain Community**
Lee Faucher, MD, Norman Fost, MD, MOH, Paul Graber, Amos Herschberger, Tricia Kvitrud, JD, Mark Louden, PhD, Luke Markus, BSN, RN
Objective: Deliver culturally sensitive, patient- and family-centered burn care to members of the Plain Community by applying community-specific guidelines and integrating these practices into broader culturally competent care approaches

12:00 **Lunch/Poster Session/Exhibits**

SESSION 4 : PANEL

1:00 **Burn Survivor Panel: What it's like from our side**
Amy Acton, RN BSN, Brittany Hanko, MSN, RN, FNP, Nikki Towell, MSN, RN, ACCN-AG, Jacquelyn Westrick, BSN, RN
Objective: Identify gaps in burn care, enhance staff development strategies, and strengthen empathy and communication skills to support program growth

SESSION 5 : ABSTRACTS

2:00 **National Exploratory Study of Patient's Psychological Needs**
Elaina Meier, PhD, MS, MA, LP, LPC, NCC
Objective: Analyze post-discharge psychological outcomes of adult burn survivors, identifying indicators of depression, trauma, and anxiety in relation to patient characteristics, injury details, and treatment experiences

Evaluation of Perioperative Fluorescence Imaging for Burns in a Swine Model
Mary Junak, MD
Objective: Evaluation of Perioperative Fluorescence Imaging for Burns in a Swine Model

Burnout to Breakthrough: Rethinking Nurse Orientation in the Burn ICU
Bianca Dean, MSN, RN, CCRN, Alazda Kaun, MSN, RN, CNRN
Objective: Improve successful completion of nursing orientation in the Burn ICU

2:30 **Break and Exhibits**

SESSION 6 : PEDIATRICS

3:00 **Incorporating Child Life into Pediatric Procedures**
Janice Ferguson, CCLS, Katie Glass, CCLS
Objective: Describe psychosocial assessment, and demonstrate use of play and evidence-based practices to support treatment goals

4:00 **Adjourn**

5:00 **Burn Center Tour**
Pre-registered participants only

Friday

AM

7:00 **Breakfast and Exhibits**

SESSION 7 : PANEL

8:00 **From Chaos to Coordination: Patient Movement Considerations During a Burn MCI**
Mark Johnston, RN, BSN, Michael Lohmeier, MD, Ryan Newberry, DO, MPH, EMT-P, Judy Placek, MSN,FNP-BC, CBRN APRN
Objective: Evaluate strategies and tools for managing patient movement, communication, and triage during a regional burn mass casualty incident, including use of the EMS Burn Module and DASH Tool

SESSION 8 : REHAB TRACK BREAKOUT

9:00 **Trauma Informed Care: Considerations for Pediatric and Adult Patients with Burns**
Katie Betry, OTR/L, Devin Nessen, COTA
Objective: Develop a foundational understanding of trauma-informed care and apply this approach to the treatment of pediatric and adult burn survivors, incorporating evidence-based strategies, reducing trauma-related stigma, and promoting provider well-being by mini

10:10 **Break and Exhibits**

SESSION 9 : PANEL

10:30 **Collaborating ECMO for Patients with Severe Burns**
Donovan Boetcher, RRT, Tonya Passer, RRT, Brittani Butler, RRT, Liz Tewes, PT, Cassie Zahn, PT, Lia Kaluna, RN, John Dollerschell, MD
Objective: Identify how interdisciplinary teams coordinate ECMO and burn care to optimize outcomes for burn patients

PM

12:00 **Lunch and Exhibits**

Midwest Region Business Meeting
Assembly Room

SESSION 10 : REHAB TRACK BREAKOUT

1:00 **Early Mobilization in the ICU and ECMO Considerations for Burn Therapists**
Sara Harwood, PT, BT-C, Xia Olig, RN, BSN, Liz Tewes, DPT, Cassie Zahn, DPT
Objective: Explore the principles and benefits of early mobilization in the ICU for burn patients

SESSION 11 : REHAB TRACK BREAKOUT

2:00 **Bridging the Burn Care Continuum: Enhancing Communication Across Facilities**
Jennifer Arndt, OTR/L, Katie Blue, MS, CCC-SLP, Xia Olig, RN, BSN

SESSION 12 : REHAB TRACK BREAKOUT

3:00 **Rehabilitation Track Re-Cap, Questions and Feedback Survey and Networking Opportunities**
Ellen Goldsher, PT, DPT, Debbie Shields, OTR/L

4:00 **Adjourn**

Thursday, Sept 25 – Friday, Sept 26

Main Program

Thursday

AM

7:00 **Registration, Breakfast and Exhibits**

7:50 **Presentation of Colors**
Professional Firefighters of Wisconsin Honor Guard

Welcome and Announcements
Lee Faucher, MD Midwest Regions Burn Program Chair

SESSION 1 : KEYNOTE

8:00 **New and Upcoming in the American Burn Association and the Finance Summary**
Jeffrey E. Carter, MD, FAB, Ed Dellert, RN, MBA, CAE, FACEHP
Objective: Provide attendees with an overview of recent developments and upcoming initiatives within the American Burn Association

SESSION 2 : ABSTRACTS

9:00 **A Multi-Center Trial Exploring Frailty as a Predictor of In-Hospital and Long-Term Mortality Among Older Adult Burn Survivors**
Deepak Ozhathil, MD FACS
Objective: Evaluate the impact of frailty on long-term survival in burn patients and to examine how frailty interacts with established mortality risk factors

Caregivers and Clinic Providers View Soft Casts for Pediatric Hand Burns as Acceptable and Feasible
Leanna Shaman, OTR/L, CHT
Objective: Share our experience with using soft casting for managing pediatric hand burns

Experience using the Next-Generation Autologous Cell Harvesting Device to Treat Large Burns in Pediatric Patients: A Family Case Series
Jon Gayken, MD
Objective: Explore the clinical course and outcomes associated with SCSA use in conjunction with split-thickness skin grafting (STSG) in the context of large total body surface area (TBSA) burns

Nutrition Interventions and Outcomes in Older Adult Burn Patients
Marah Kays, MD
Objective: Evaluate nutrition interventions and outcomes in older adult burn patients

Evaluation of Alternative Predictors of Mortality in Burn Patients Controlled for Age and TBSA
Tiffany Shi, PhD
Objective: Explore hematologic and clinical parameters as predictors of mortality, focusing on patients controlled for age, TBSA, and Baux scores to limit influence of these factors

Patterns of Injury for Burn Patients Involved in Civilian Explosion or Combustion Mechanisms
Ashleigh Bull, MD
Objective: Characterize the pattern of non-burn traumatic injuries (NBTI) sustained by patients injured by such mechanisms in the civilian setting

Improving Access to Care for Burn Injury Patients
Britney Hanko, APNP, Brittany Johnson, PA-C
Objective: Examine quality improvement strategies aimed at increasing patient access to specialty burn care follow-up and reducing communication errors to improve continuity of care

10:10 **Break and Exhibits**

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POSTER SESSION

Lunch, Noon - 1:00 PM

Please accompany your poster at this time

Post-Transplant Outcomes
Hunter Tessman, BA
University of Kansas School of Medicine

Design of a Prospective Multicenter Study of a Novel Dermal Collagen Matrix: Time to Wound Closure and Cost Outcomes in Full-Thickness Wounds
Alan Pang, MD
Texas Tech University Health Sciences Center

Multicenter Randomized Controlled Trial Comparing a Next Generation Temporary Biosynthetic Wound Matrix to Human Allograft for Temporary Coverage of Surgical Wounds
Julia Slater, MD, FACS, FABA
The University of Kansas Medical Center

One-Third Shorter Hospital Length of Stay: Registry Analysis Validates Real-World Impact of Skin Cell Suspension for Burn Patients with Deep Partial-thickness Burn Injuries
Jeffrey E. Carter, MD, FACS, FABA
LCMC Health New Orleans

Reconstruction of Deep Partial Thickness Burns with Ovine Forestomach Matrix: Interim Results from a Prospective Observational Study
Chinaemelum C. Akpunonu, MD, MA
The Ohio State University Wexner Medical Center

The Treatment of Circumferential Digital Burns from an Electrothermal Source
Jane Boyle, Medical Student (Presenting for Cameron Geoffrey Almeida)
Akron Children's Hospital

A Novel Wound Matrix Containing Antimicrobial Silver and Local Anesthetic Lidocaine for Managing Infections and Pain in Burns
Michael Schurr, MD
Missions Hospital Asheville

Friday

AM

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Objective: Evaluate strategies and tools for managing patient movement, communication, and triage during a regional burn mass casualty incident, including use of the EMS Burn Module and DASH Tool

SESSION 8 : ABSTRACTS

9:00 **Integration of a Temporary Biosynthetic Wound Matrix (BWM) in Pediatric Burn Care: Early Experiences in a Regional Center**
Kathleen Wilson-Kocovsky, BSN, RN
Objective: Report initial outcomes and learnings following integration of BWM into our facility's pediatric burn treatment algorithm

Methods to Increase Usability of Revised Scar Goniometry
Lisa Kittleson, MS, OTR/L
Objective: Implement strategies to improve the accuracy, efficiency, and communication of revised burn scar goniometry in burn rehabilitation practice

Ten Year Review of Wound Culture Results and Antimicrobial Resistance Patterns in an ABA Verified Burn Center
Gabrielle Bierlein-De La Rosa, BA
Objective: Identify trends in "inpatient" burn wound cultures and antimicrobial resistance data over a ten-year period at a major academic burn center in positive cultures acquired in hospital

Protoporphyrin IX Based- Photodynamic Therapy Enhances Burn Wound Healing in Ex Vivo Human Skin
Aiping Liu, PhD
Objective: Develop an objective and reliable method for burn depth diagnosis

Reevaluating Resuscitation Thresholds in Elderly Burn Patients
Hannah Lider Olson, BS
Objective: Evaluate whether decreasing the TBSA threshold for nurse-driven resuscitation protocols (NDRP) activation is associated with improved outcomes such as mortality and acute kidney injury

Understanding Burns and Diabetes: A 12-Year analysis into Outcomes and Challenges in Lower Extremity Reconstruction
Jose Antonio Arellano, MD
Objective: Provide a comprehensive 12-year analysis of outcomes andcomplications in diabetic patientsundergoing lower extremity burnreconstruction, addressing thesecomplex interactions between diabetes and burn recovery

10:10 Break and Exhibits

SESSION 9 : PANEL

10:30 **Collaborating ECMO for Patients with Severe Burns**
Donovan Boetcher, RRT, Tonya Passer, RRT, Brittani Butler, RRT, Liz Tewes, PT, Cassie Zahn, PT, Lia Kaluna, RN, John Dollerschell, MD
Objective: Identify how interdisciplinary teams coordinate ECMO and burn care to optimize outcomes for burn patients

PM

12:00 **Lunch and Exhibits**

Midwest Region Business Meeting
Assembly Room

SESSION 10 : PANEL

1:00 **Adult and Pediatric Procedural Sedations**
Angela Gibson, MD, Amanda Meyer, PA-C, Kristin Friedl, DNP, Ben Walker, MD
Objective: Provide an overview of safe and effective procedural sedation practices in adult and pediatric burn patients

SESSION 11 : ABSTRACTS

2:00 **Evaluation of Protoporphyrin IX Fluorescence Imaging for Burn Depth Diagnosis in Porcine Models**
Bailey Donahue, BS
Objective: Describe the use of PpIX fluorescence imaging for burn depth differentiation in a swine model and evaluate its potential to improve burn assessment in settings lacking specialized care

Embedding Palliative Care Triggers in Burn ICU Practice: A Quality Improvement Initiative to Promote Earlier Consults and Improve Team Perceptions
Kristin Friedl, DNP, AGACNP-BC
Objective: Improve the timely initiation of palliative care consults in a regional burn center by implementing a structured, trigger-based approach using rBaux scores and patient comorbidities as part of a multidisciplinary quality improvement initiative

Break and Exhibits

SESSION 12 : ABSTRACTS

3:00 **A Bovine Dermal Collagen Matrix for Deep Partial-Thickness Burns: A Case Series**
Chinaemelum Akpunonu, MD, MA
Objective: Evaluate the clinical efficacy of BDCM as an alternative to autografting in partial- and deep partial-thickness burns

College-aged Burn Survivors
Katrina Welborn, MS
Objective: Assess depression, anxiety, trauma, and functioning as well as explored descriptive narratives regarding support and barriers of college-aged burn survivors who were enrolled and not enrolled in postsecondary education

Evaluating First Positive Cultures in Burns: Rethinking Broad-Spectrum Antibiotic Choices
Pouriya Sadeghighazichaki, BSc, Mmgt
Objective: Determine antibiotic use patterns and assess the need for and appropriate use of broad-spectrum antibiotics in major burn patients on first positive culture (FPC) results at the largest ABA certified burn center in Canada

Improving the Success of Cultured Epidermal Autograft (CEA) for Posterior Lower Leg Application
Sofie Hass, BS, MD 2027
Objective: Assess whether the use of external fixators improves the success and durability of cultured epithelial autograft (CEA) application on lower extremity burn wounds by reducing shear forces and enhancing wound care

Innovative Management of Pediatric Burns: Combining Enzymatic Debridement and Autologous Skin Cell Suspension
Sofie Hass, BS, MD 2027
Objective: Evaluate the effectiveness of combining enzymatic debridement (EDA) and autologous skin cell suspension (ASCS) in promoting wound healing in a pediatric patient with large surface area deep partial thickness burns

Omega-3 Rich Fish Skin Grafts in Wound Healing: A Systematic Review and Meta-Analysis

Emanuella Brito, BS

Objective: Evaluate the effectiveness of Kerecis Omega-3 fish-skin grafts compared to the current standard of care (allografts, autografts, xenografts, and synthetic dressings) in promoting wound healing in partial- and deep-thickness acute and chronic wounds, focus

Oxygen Reduction by Facultative Anaerobes Drives Anaerobic Survival in Wound Environments

Jillian Wilkerson, Medical Student

Objective: Characterize the ability of diverse wound-associated bacteria to manipulate oxygen levels, enabling anaerobic survival

Reconstructing "Ungraftable" Necrotizing Soft Tissue Infection Wounds with Biodegradable, Open-Cell Foam Matrices: A Case Series

Matt Morris, MD

Objective: Demonstrate the use of biodegradable foam matrices for staged reconstruction of wounds related to necrotizing soft-tissue infections

Specialized Programming For Volunteers on a Burn and Wound ICU

Sara de Felice, LPN, CAN

Objective: Examine the effects of specialized programming for Volunteers on UW-Health's Burn and Wound ICU

Utility of Hair Toxicology in Detecting Child Abuse or Neglect in The Burn Unit: A Quality Improvement Project

Jack Bullis, MD

Objective: Evaluate the value of hair toxicology testing to identify child abuse or neglect and whether this practice is worth continuing

4:00 **Adjourn**

Wednesday, Sept 24

Burn Certification Exam Review Course

Faculty – Cari Zelmann, BSN, RN, CBRN

Wednesday

AM

7:00 **Registration, Breakfast and Exhibits**

8:00 **Welcome, Agenda and Itinerary, Introductions**

SESSION 1

8:15 Pathophysiology
Initial Management
Acute Care
Pain, Agitation, and Delirium

10:00 **Break and Exhibits**

SESSION 2

10:15 Wound Management
Physical Support and Patient Advocacy
Ambulatory and Reconstruction
Special Populations
Activity Analysis

PM

12:00 **Lunch and Exhibits**

SESSION 3

12:30 Assessment Based Questions
Intervention Based Questions
Evaluation Based Questions
Recall Based Questions
Analysis Based Questions

2:30 Break and Exhibits

SESSION 4

2:45 Highest Priority Questions
Questions with Graphics
Questions with Scores
Reading Questions without reading into questions

5:00 **Adjourn**

Wednesday, Sept 24

Advanced Burn Life Support® (ABLS)

Faculty – Mark Johnston, RN, BSN

Wednesday

AM

7:00	**Registration, Breakfast and Exhibits**
8:00	**Introductions & Overview of the ABLS Instructor Course**
	SESSION 1
8:20	The Adult Learner & Teaching Strategies
8:50	**Break and Exhibits**
	SESSION 2
9:00	Didactic Demonstration
	SESSION 3
10:30	Case Studies
	SESSION 4
11:15	Patient Simulations
	SESSION 5
11:45	Debrief / Instructor Candidate Review

PM

12:00	**Lunch and Exhibits**
1:00	**Adjourn**

Thursday, September 25- Friday, September 26, 2025
Main Conference

At this conference you'll learn about cutting-edge treatments for burns and wounds, including advanced dressings and biologic therapies. The latest approaches to burn resuscitation, fluid management, and wound care will be discussed, alongside innovations in surgical techniques and infection control. Pain management strategies and comprehensive rehabilitation methods will be highlighted. The conference will also cover updates from clinical trials and research, as well as ethical and psychological considerations in burn care. Networking and interdisciplinary collaboration will be emphasized to improve patient outcomes and streamline care.

Target Audience

This activity is intended for Physicians, Nurses, Physician Assistants, and Physical Therapists who specialize or treat adults and children who have experienced chemical, electrical and thermal burns.

Learning Objectives

Upon completion of this activity, participants will be able to:

1. Utilize successful burn prevention education strategies.
2. Apply burn wound care techniques that have proven successful at other burn centers.
3. Implement new critical care techniques performed successfully at other burn centers.
4. Apply successful nursing practices from other burn centers.
5. Discuss successful research in pain and psychosocial treatments in patients with burn injuries.
6. Discuss successful quality improvement projects in care of the burn injury patient to develop and improve their own practice

Accreditation Statements

In support of improving patient care, the University of Wisconsin–Madison ICEP is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.

Credit Designation Statements

American Medical Association (AMA)
The University of Wisconsin–Madison ICEP designates this live activity for a maximum of 12.0 *AMA PRA* Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

American Nurses Credentialing Center (ANCC)
The University of Wisconsin–Madison ICEP designates this live activity for a maximum of 12.0 ANCC contact hours.

American Academy of Physician Assistants (AAPA)
The University of Wisconsin–Madison ICEP has been authorized by the American Academy of PAs (AAPA) to award AAPA Category 1 CME credit for activities planned in accordance with AAPA CME Criteria. This activity is designated for 12.0 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.

American Board of Surgery (ABS) Maintenance of Certification (MOC) CME Only
Successful completion of this CME activity enables the learner to earn credit toward the CME requirement(s) of the American Board of Surgery's Continuous Certification program. It is the CME activity provider's responsibility to submit learner completion information to ACCME for the purpose of granting ABS credit.

Wisconsin Physical Therapy Association (APTA)
This activity has been approved by APTA for 12.0 credits. Approval Number: 20219

Wisconsin Occupational Therapy Association (WOTA)
This activity has been approved by WOTA for 12.0 credits.

Continuing Education Units (CEUs)
The University of Wisconsin–Madison ICEP, as a member of the University Professional & Continuing Education Association (UPCEA), authorizes this program for 0.12 CEUs or 12.0 hours.

Available Credit

12.00 University of Wisconsin–Madison Continuing Education Hours
12.00 Approved for AMA PRA Category 1 Credit™

Policy on Disclosure

It is the policy of the University of Wisconsin–Madison Interprofessional Continuing Education Partnership (ICEP) to identify, mitigate and disclose all relevant financial relationships with ineligible companies* held by the speakers/presenters, authors, planners, and other persons who may influence content of this accredited continuing education (CE). In addition, speakers, presenters, and authors must disclose any planned discussion of unlabeled/unapproved uses of drugs or devices during their presentation.

Wednesday, September 24th – Friday, September 26, 2025
Rehabilitation Track

The Rehabilitation Track of the 2025 Midwest Regional Burn Conference will offer attendees invaluable insights into the latest advancements and best practices in burn rehabilitation. They will learn about innovative therapeutic techniques, comprehensive care strategies, and multidisciplinary approaches to enhance patient recovery and quality of life.

Additionally, participants will have the opportunity to engage with leading experts in the field, share experiences, and collaborate on solutions to common challenges faced in burn rehabilitation. This track promises to equip healthcare professionals with the knowledge and skills necessary to improve outcomes for burn survivors and advance the field of burn care.

Target Audience

This activity is intended for Physical Therapist, Occupational therapists, and Students, who specialize or treat adults and children who have experienced chemical, electrical and thermal burns.

Learning Objectives

Upon completion of this activity, participants will be able to:

1. Discuss successful research in pain and psychosocial treatments in patients with burn injuries.
2. Discuss successful quality improvement projects in care of the burn injury patient to develop and improve their own practice.
3. Develop collaboration with other healthcare professionals to create comprehensive, patient-centered rehabilitation plans that address both physical and psychological needs.
4. Apply trauma-informed care and psychological support into rehabilitation to address the emotional and mental health needs of burn patients.

Accreditation Statements

In support of improving patient care, the University of Wisconsin–Madison ICEP is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.

Credit Designation Statements

Wisconsin Physical Therapy Association (APTA)
This activity has been approved by APTA for 18.0 credits. Approval Number: 20219. In order to claim credit, you have to attend at least 80% of the conference.

Wisconsin Occupational Therapy Association (WOTA)
This activity has been approved by WOTA for 18.0 credits.

Continuing Education Units (CEUs)
The University of Wisconsin–Madison ICEP, as a member of the University Professional & Continuing Education Association (UPCEA), authorizes this program for 0.1800 CEUs or 18.00 hours.

Available Credit

18.00 University of Wisconsin–Madison Continuing Education Hours

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ABLS Course Information
Faculty - Mark Johnston, RN, BSN

The ABLS Instructor course provides participants successfully completed the with the knowledge to deliver ABLS Provider content and education through mini simulations, case studies, and micro-teaching sessions.

A Course Coordinator and a Course Medical Director work with the American Burn Association in organization of the course. Instructor Courses include participation by National Faculty and an ABLS Educator. Instructors must be observed by National Faculty in the first two ABLS Provider Courses they teach and be approved by a fully-certified ABLS Instructor.

Target Audience

This course designed for those physicians, nurses, nurse practitioners, and physician assistants who have experience in daily patient management of burn injuries. The American Burn Association maintains the records of all persons who take the ABLS Instructor Course and provides a certificate of completion as an ABLS Certified Instructor.

Objectives

Upon completion of this activity, participants will be able to:

- Define teaching and learning.
- Explain the relationship of the definitions of teaching and learning to a philosophy of teaching.
- Describe four teaching strategies and their application to the instructional sessions included in the ABLS Course.
- Describe three components of the lecture.
- Identify three levels of cognitive questions and give two examples of each.

- Describe the relationship of the group discussion and the medical problem-solving process teaching strategies to the case study and case simulation sessions in the ABLS Course.
- Review four concepts concerning the adult learner.
- Demonstrate teaching skills: microteaching, case study and case simulation sessions.

Accreditation
The ABA designates this continuing medical education activity for up to 4.5 credit hours in Category 1 of the Physician's Recognition Award of the American Medical Association. This program also has been approved by AACN Certification Corporation guidelines for 4.5 contact hours, CERP Category B, File number 00019936.
The ABLS Instructor course provides participants successfully completed the with the knowledge to deliver ABLS Provider content and education through mini simulations, case studies, and micro-teaching sessions. This session is offered both in the morning and afternoon.

Prerequisites
1. Must have an active ABA membership
2. ABLS Certified for a minimum of one (1) year. (Must have completed the ABLS Live course no less than 12 months prior to the Instructor Course). ABLS NOW© Certification is not sufficient to become an instructor.
3. Hold a clinical degree (physician, nurse, advanced practice professional [PA, NP], OT, PT) with a minimum of 3 years of experience working at a burn center OR be a paramedic affiliated with an ABA Burn Center through regular participation in the burn center's programs. An exception to being affiliated with a Burn Center may be granted to military personnel.
    a. If you hold a clinical degree not listed here, a letter of intent to the ABLS committee and a letter of support from your Burn Medical Director are required for consideration of your candidacy by the committee.

CBRN Course Information
Faculty- Cari Zelmann, BSN RN CBRN

Cari Zellmann began her nursing career in Dallas, Texas, with a Critical Care and Trauma Nurse Internship. During her internship she received intensive training and exposure to multiple ICU and ED specialties. There Cari developed a deep interest in burn care, leading her to accept a position in the Burn ICU at Parkland Hospital. At Parkland she was trained and raised as a true burn nurse, managing critically ill patients with complex burn injuries in both the pediatric and adult populations.

Over the years, Cari has expanded her experience as a travel nurse, working in various burn units across the country. These experiences have deepened her knowledge of the burn population, expanded her clinical skills, and provided her with a broader perspective on best practices in burn care.
A passionate advocate for nursing education, Cari has actively contributed to the profession through precepting and leading unit-based education committees. In 2022, she began working with Solheim Enterprises and the American Burn Association as a Burn Content Expert to author the first-ever CBRN review course. The course was published in 2023, prior to the release of the beta CBRN exam, and was revised in 2024. This comprehensive course, which resulted from years of practical experience and research, has become a valuable resource for nurses pursuing their Certified Burn Registered Nurse (CBRN) certification.

About the course
Join Solheim Enterprises for an expertly designed review course that will give you the tools and knowledge you need for success! Our comprehensive program covers key topics including Pathophysiology, Acute Care, Wound Management, Pain and Agitation Treatment, Psychosocial Support, and more. With insights from top burn-care nurses and a strategic

partnership with The American Burn Association, you'll get in-depth preparation for the CBRN Exam, enhanced by lectures, multimedia, personal stories, and challenge questions.

Accreditation

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Guest Speaker

ABA PRESIDENT'S ADDRESS

Jeffrey E. Carter, MD, FACS
LCMC Health New Orleans
Burn Center Director
University Medical Center
New Orleans, LA

Dr. Carter is the current President of the American Burn Association (ABA) and serves as the founder and medical director of the University Medical Center Burn Center in New Orleans. He is also an associate professor of surgery at LSU School of Medicine. Previously, he held several academic and leadership roles at Wake Forest University, including assistant professor of surgery, associate director of the Burn Center, and director of surgical education.

He graduated first in his class from East Tennessee State University Quillen College of Medicine and completed a general surgery residency and surgical education fellowship at Wake Forest, where he co-founded the Center for Applied Learning. He later completed fellowships in Trauma/Surgical Critical Care and Burn Surgery at the University of North Carolina, earning the Womack Scholar Award.

Dr. Carter's clinical and research interests include burn care innovations, medical workforce economics, and team-based training using biomimetic simulators. He is an active member of multiple ABA committees and a Fellow of the ABA (FABA). Outside of work, he enjoys time with his family and the outdoors.

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2025 Midwest Burn Exhibitors

We are pleased to welcome the following exhibitors to our conference and extend our sincere thanks for their valued participation!

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Humeca, Inc.

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Polynovo North America

Professional Fire Fighters of Wisconsin Charitable Foundation

Puracyn Plus by Innovacyn

Smith + Nephew

Solventum

Urgo Medical North America

Vericel Corporation

Abstracts

Thursday, September 25, 2025

Thursday
Session 2: Abstracts 9:00am

A Multi-Center Trial Exploring Frailty as a Predictor of In-Hospital and Long-Term Mortality Among Older Adult Burn Survivors

Deepak K. Ozhathil, MD FACS, Nao Mimoto, PhD; Lauren B. Nosanov, MD; Jane Boyle; Rachel Schneider, MD MPH; Alisa Savetamal, MD; Dhaval Bhavsar, MBBS; Sam Miotke, MD, MS; Lucy Wibbenmeyer, MD; Colette Galet, PhD; David M. Hill, BCCCP, BCPS, MS, PharmD; Sara Higginson, MD; Theresa Chin, MD; Andrea Long, MD; Alexandra Lacey, MD, RDN; Rosemary Paine, NP; Shawn Tejiram, MD; Jessica Reynolds, BSNm CCRP, RN; Mark Johnston, BSN, RN, TCRN; Emily D. Baker, MSc; Hannah M. Hamm, BSc(Hons); Diana Tedesco, BSc(Hons); Kim Priban, DNP, RN, MBA; Marc G. Jeschke, MD, PhD; Kathleen Romanowski, MD, MAS

Introduction

Older adults are at increased risk of morbidity and mortality following burn injuries due to factors such as altered tissue composition, reduced mobility, cognitive decline, and sensory impairment. Frailty has emerged as an independent predictor of adverse outcomes, including prolonged ICU stays, mechanical ventilation, non-home discharge, and mortality. However, data remain limited on how frailty interacts with other mortality risk factors and its impact on long-term survival.

Methods

A multicenter consortium of established burn centers compiled a retrospective dataset of patients aged over sixty years who sustained burn injuries requiring inpatient admission. The dataset included 156 variables, from 1,632 records across 12 institutions, capturing demographic data, clinical outcomes, and Canadian Study of Health and Aging - Clinical Frailty Scale (CFS) scores. Records missing frailty or mortality data were excluded from our analysis. Predictive performance for in-hospital mortality (IHM) and long-term mortality (LTM)—defined as all-cause death occurring within three years post-injury—was assessed using a percent area under the curve (AUC) model. The model was trained on 80% of the dataset and validated on the remaining 20%.

Results

1209 records were included for IHM models and 915 for LTM models. CFS was found to be a statistically significant independent predictor of IHM (62.6%) compared to Baux score (90.2%). When frailty was combined with the Baux score, the model predicted an AUC increased to 91.8% for IHM. Analysis of CFS as a categorical variable, found the most significant change in mortality risk was associated with a CFS ≥4 (AUC of 60.3% IHM; 69.7% LTM). CFS was also significant for LTM (76.2%) compared to Baux (51.8%).

Conclusions
Frailty, specifically a Clinical Frailty Scale of ≥4, is strongly associated with increased in-hospital and long-term mortality in older adult burn patients. While the modified Baux score remains a reliable predictor of in-hospital mortality, the findings of this trial support incorporating CFS to augment the accuracy of mortality prediction models. Furthermore, frailty uniquely outperformed traditional burn risk factors in predicting longer-term mortality outcomes.

Applicability of Research to Practice
These results support integrating frailty assessments into standard burn care mortality models. They also underscore the need for prospective studies to explore frailty-targeted interventions in both the acute and outpatient settings.

External Funding
No external funding to disclose.

Thursday
Session 2: Abstracts 9:10am

Caregivers and Clinic Providers View Soft Casts for Pediatric Hand Burns as Acceptable and Feasible

Leanna L Shaman, OTR/L, CHT, Jennifer M Schuh, Emmanuel L Abebrese, Katherine T Flynn-O'Brien

Introduction

Soft casts have been introduced as an efficacious strategy to manage pediatric hand burns that simplifies wound care for families and optimizes healing. We hypothesized that the use of soft casts in outpatient pediatric hand burns would be viewed as acceptable by patient caregivers and providers, logistically feasible, and result in satisfactory clinical outcomes.

Methods

A review was performed of pediatric clinic patients managed with soft casts since implementation (9/2022 – 9/2023). Patient caregivers and providers were surveyed. The primary outcome was acceptability of soft casts as a management strategy (questions targeted care burden, overall satisfaction, comfort, pragmatism, and healing concerns). Secondary outcome was feasibility (effect on clinic workflow, efficiency).

Results

Survey responses were collected from 70% of caregivers and 95% of providers. Responses overwhelmingly favored soft cast acceptability. Among providers, 84% agreed that “the soft cast method simplified the hand burn care experience in our clinic” and 100% indicated “the soft cast was easy for parents to manage at home” (Likert range 7-10, mode 10). Thirty- three English-speaking patients with partial and full thickness hand burns were managed with soft casts. A mean of 1.8 reapplications (mode 1, range 1-5) were required with median healing time of 13 days. No infections were attributed to the use of soft casting, and only one patient ultimately required grafting.

Conclusion

Overall, the introduction of soft casts as a management strategy for pediatric hand burns was acceptable and feasible. The clinical outcomes assessed suggest soft casts are associated with good wound healing with minimal wound care responsibilities for patient and family.

Applicability of Research to Practice

The perceived acceptability of soft casts for pediatric hand burn treatment and feasibility of integrating this as a new management strategy into a busy clinic speak to the pragmatism of

logistically integrating soft casts into practice and support the strategy as satisfactory to parents and providers.

External Funding
None

Thursday
Session 2: Abstracts 9:20am

Experience using the Next-Generation Autologous Cell Harvesting Device to Treat Large Burns in Pediatric Patients: A Family Case Series

Jon R. Gayken, MD, Beth Aller, MA, BSN, Rn, PHN; Kyle R Schmitz, MD; Ryan M. Fey, MD

Introduction

Skin cell suspension autograft (SCSA), prepared at point-of-care from a small sample of the patient's own skin, has been shown to reduce donor site morbidity and hospitalization duration in acute burns. The Next-Generation Autologous Cell Harvesting Device (NG-ACHD) was recently introduced to standardize SCSA preparation. This abstract presents a case series involving four pediatric siblings treated with NG-ACHD-prepared SCSA at a regional burn center following a single high-energy propane explosion. It explores the clinical course and outcomes associated with SCSA use in conjunction with split-thickness skin grafting (STSG) in the context of large total body surface area (TBSA) burns.

Methods

Patients, ages 8 to 14, sustained primarily deep partial and full-thickness burns, (TBSA 34–46.5%) and were transferred to a tertiary burn center for definitive care. Burn excision and wound management included staged STSG procedures. SCSA was applied over 3:1 meshed STSG in four patients at multiple anatomic sites. Surgical planning considered infection status, donor site availability, and patient age. Dressing were changed on post-operative day (POD) 3, then daily thereafter. Outcomes assessed included hospital length of stay, rate of wound healing, complications, and caregiver readiness for discharge.

Results

Wounds treated with SCSA demonstrated strong graft take, even in contaminated fields. Clinical documentation confirmed graft viability by POD 3 or 4. Patients treated with SCSA had fewer donor site requirements compared to standard 2:1 or 1:1 meshed STSG grafting, aligning with donor-sparing benefits of SCSA. Use of NG-ACHD prepared SCSA improved visual consistency in suspension turbidity enhanced cell delivery to the wound bed, while increased surgical efficiency supported normothermia—an ongoing challenge in pediatric burn care. The clinical team observed that the use of SCSA contributed to optimal skin cell coverage, minimizing the duration that wounds remained open, thereby preserving range of motion.

Conclusions

NG-ACHD-prepared SCSA, used with meshed STSG, enabled effective wound closure in pediatric patients with large TBSA burns. In medically complex patients with limited donor sites, SCSA demonstrated reliable graft take with reduced donor site burden.

Applicability of Research to Practice

This case series highlights the value of SCSA in pediatric burn management, particularly in high-acuity, multi-patient scenarios. Benefits included optimal healing, reduced donor site morbidity, and improved readiness for rehabilitation and discharge compared to standard of care.

External Funding

None

Thursday
Session 2: Abstracts 9:30am

Nutrition Interventions and Outcomes in Older Adult Burn Patients

Marah Kays MD, Alexandra Lacey, MD RD FABA, Ashlynn Elftmann MD, and Nicholas Larson BS

Introduction

The hypermetabolic response associated with burn injuries is more pronounced in elderly burn patients (1). Older adults are also known to have a high risk of malnutrition at presentation which is associated with increased morbidity and mortality. The purpose of this study was to study nutritional interventions and outcomes in older adult burn patients.

Methods

We performed a retrospective analysis of a multi center data set which includes older adults (60 years old and above) from an ABA-verified burn centers. Patient demographics, hospitalization data, and clinical course were analyzed using a logistic regression analysis specific to survival as outcome measure. Patients that elected to go comfort care were excluded from this study.

Results

The study group consisted of 712 patients, nourished (n=442) and malnourished (n=270) with the mean ages being 69.6 years old and 70.4 years old respectively. The malnourished group was found to present with increased total body surface area burns, higher modified Baux scores, increased average time from injury to admission, and high frailty score. 57.9% of the nourished patients were provided with supplemental nutrition, with 73.7% of the malnourished group. Malnourished patients had increased rates of complications including ARDS (4%), acute stress disorder (11%), cardiac arrest (3%), catheter-related bloodstream infections (2%), and abdominal compartment syndrome (1%). Those patients who survived had higher rates of nutritional support than non-survivors, 53% and 9% respectively. It was found that between survivors and non-survivors there were similar rates of TPN usage (2% and 4%), while survivors had higher rates of supplements (53% and 27%) vs non survivors with higher rates of tube feed use (37% and 75%).

Conclusions

This retrospective study demonstrates that those older adult patients admitted with malnutrition had higher TBSA burns and increased rates of complications when compared with nourished patients. Those burn patients who survived had higher rates of nutritional support than non-survivors with non-survivors requiring high rates of tube feeds while ultimately non-surviving from their injury.

Applicability of Research to Practice

Our findings suggest that nutritional status prior to burn injury and in the post burn resuscitation is vital to improving survival in older adult patients.

External Funding

No external funding was used for this project.

Thursday
Session 2: Abstracts 9:40am

Evaluation of Alternative Predictors of Mortality in Burn Patients Controlled for Age and TBSA

Tiffany Shi, PhD, Trent James, BA; Julia C. Slater, MD

Introduction

Predictors of mortality in burn patients, including age, total body surface area (TBSA) of burn, and inhalation injury, are well-established components of scoring systems like the Baux score. However, outcomes still vary despite similar Baux scores. This study explores hematologic and clinical parameters as predictors of mortality, focusing on patients controlled for age, TBSA, and Baux scores to limit influence of these factors.

Methods

Retrospective analysis included 35 patients ages 40-70 years with TBSA 30-70% surviving >4 days post-burn injury with ≥4 days in the intensive care unit. Associations between mortality and coagulation markers (PT, INR), hematologic parameters (white blood cell, platelets, and absolute neutrophils, lymphocytes, and monocytes), and differential blood count ratios (NLR, NMR, LMR) were assessed using labs nearest to time of admission. R software (v.4.2.0) was used for statistical analyses.

Results

Of the included 35 patients, 24 (68.6%) survived and 11 (31.4%) died. Age, TBSA, and Baux scores were appropriately controlled with no significant differences between groups. Logistic regression identified NMR as significantly associated with mortality ($p=0.03$) in univariate analyses but not in a multivariable model ($p=0.80$). Correlation analyses revealed positive association between mortality and absolute monocyte counts ($r = 0.409$, $p = 0.04$). No variables were significantly associated with length of hospital stay.

Conclusions

When age and TBSA were controlled, differential blood count data, including NMR and absolute monocyte counts, emerged as potential predictors of mortality in burn patients. These findings suggest non-traditional parameters could complement established predictors to differentiate burn outcomes.

Thursday
Session 2: Abstracts 9:50am

Patterns of Injury for Burn Patients Involved in Civilian Explosion or Combustion Mechanisms

Ashleigh Bull, MD, Natalie Nguyen, MD; Colette Galet, PhD, Alexander Kurjatko MD MPH

Introduction

Burn injuries can occur from the combustion or explosion of volatile materials. Explosions in the military setting are known to often be complicated by the presence of polytrauma, but may not be as prevalent in the civilian setting. We aimed to characterize the pattern of non-burn traumatic injuries (NBTI) sustained by patients injured by such mechanisms in the civilian setting.

Methods

This is a single-center retrospective cohort study of adult patients with explosion and combustion-related burn injuries admitted between July 2015 and March 2024. Medical record review identified seven categories of explosive or combustive injury mechanisms. Data collected included demographics, comorbidities, burn injury information, Injury Severity Score (ISS), clinical factors, and outcomes. Categorical variables were compared using Chi-square or Fisher exact tests, and continuous variables using Mann-Whitney U tests. P value <0.05 was considered statistically significant.

Results

The cohort included 493 patients. Patients were predominantly male (80.3%) and Caucasian (92.9%). The mean total body surface area burned was 7%. Inhalation injury was present in 8.9% of patients. NBTI were identified in 63 patients (12.8%). The most common NBTI consisted of superficial ocular injuries (58.7%), followed by lacerations/abrasions (34.9%), and orthopedic injuries (20.6%). About 32% of NBTI required a procedure, with most such incidences stemming from firework blasts. NBTI had higher ISS (5 [2-14.5] vs. 1 [1-4], $p < 0.001$), were more likely to be on a ventilator (38.1% vs. 23.8%, $p = 0.02$), hypothermic (36.6 [36-37.1] vs. 36.8 [36.4-37.1], $p = 0.034$), and had lower Glasgow Coma Scale (GCS) Scores (15 [7-15] vs. 15 [15-15], $p = 0.002$) on arrival. Mechanisms that fell under the category of “explosion of flammable liquids” were less likely to result in NBTI (47.2% vs. 20.6%), while mechanisms that fell under the category of “explosion with chemical combustion” (4.4% vs. 28.6%) and “indoor mechanical explosions” (5.3% vs 22.2%) were more likely to result in NBTI ($p < 0.001$). In our setting, burn patients may bypass the emergency department (ER) to the burn unit at the burn physician’s discretion. Patients who had NBTI were evaluated in the ER prior to arrival to the burn unit (39.7% vs. 5.1%, $p < 0.001$), and had trauma evaluation (34.9% vs. 2.8%, $p < 0.001$) more often than their counterparts.

Conclusions

Burn mechanisms involving explosion or combustion may result in NBTI. However, injuries that require intervention are relatively uncommon. Patients with NBTI were more likely to have higher ISS, require ventilation, be more hypothermic, have lower GCS scores, and fall under specific mechanism categories.
Applicability to Practice. ER and trauma triage rates may be improved by utilizing risk factors to predict the presence of NBTI.

Funding
None

Thursday
Session 2: Abstracts 10:00am

Improving Access to Care for Burn Injury Patients

Britney Hanko, APNP, Brittany Johnson, PA, Nichole Towell, MSN, RN, ACCN-AG

Introduction

Individuals who suffer a burn injury require specialty care follow-up in a nationally accredited burn clinic, whether post-hospitalization, through an outside facility, or self-referral. Specialty care follow-ups in an accredited burn facility aim to aid in appropriate healing and reduce the risk of functional deficits. We anticipated that a change in policy was necessary to provide appropriate access to accredited burn facility clinics through access center consultations received from referring facilities that do not specialize in burns. We speculated that after implementing quality improvement strategies there would be an increase in the patient's opportunity for specialty care follow-up with an accredited burn facility and decrease communication errors, which would improve access to care for patients.

Methods

Retrospective chart review was completed of patients with burn injuries who were identified via access center consultation calls from referring facilities from February 1st, 2025, to May 31st, 2025.

Results

During the chart review, 54 patients were identified as needing follow-up in an accredited burn clinic through access center consultation calls. Of this population, 26 individuals chose to pursue specialty follow-up. Successful contact was made with 15 of the remaining 28 patients, 7 of which chose to follow-up with their primary care provider, and 8 chose to forego a follow-up. Of the remaining 13 patients, contact with 8 of the patients was unsuccessful, while 5 patients were unable to be contacted due to incorrect documentation in the access center consultation. Of the 54 patients identified, 90% (49 patients) were either successfully contacted or contact was attempted, which showed improved access to care.

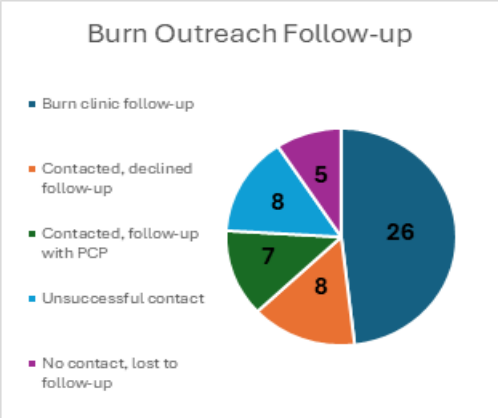


Fig. 1. Burn specialty outreach follow-up.

Conclusion

Due to the nature of burn injuries requiring specialty care to improve healing time and reduce functional deficits, appropriate and timely follow-ups in a nationally accredited burn facility are necessary. Due to a notable number of patients missing specialty care appointments, a quality improvement process occurred to improve outreach to the burn population and improve access to specialty care. The quality improvement process resulted in a successful outreach for follow-up visits to 90% of the patients identified through access center consultations.

Applicability to practice

As the findings support, there was an improvement in specialty care follow-ups for patients with burn injuries due to the change in outreach process. Improving access to specialty care can help ensure proper healing, reduction in functional deficit, and the ability to provide burn-specific knowledge regarding healing and long-term care. Burn centers across the country can review their outreach process to identify if monitoring and creating a consistent outreach protocol would improve patient access to specialized care and outcomes across their region.

External Funding

There was no external funding that was used in the collection, evaluation, or presentation of this abstract.

Thursday
Poster Session: Abstracts Noon

Deceased Burn Patients as Organ Donors: Post-Transplant Outcomes

Hunter Tessman, BA, Lisa Heidman, LMSW; Scott Sander, RRT, MM; Duncan Nickerson, MD, FACS

Introduction

Currently, there are 105,459 patients on the transplant waiting list in the United States. By contrast, only 48,149 (~46%) patients received a transplant during 2024. Currently, there is high demand and low supply of organs, leaving many transplant recipients perpetually on the waiting list never able to receive an organ donation. Previous studies have been done on organ donation by deceased burn patients, but there are still a small number of studies on the topic. Burn patients with unsurvivable injuries are often overlooked as potential organ donors due to the multi-system organ failure and sepsis that results from many burn injuries, preventing their organs from being transplantable. We reviewed our center's experience with referral of burn patients experiencing brain death or cardiac death for potential organ donation over a one-year period.

Methods

A review of available records between 2023 and 2024 yielded 3 deceased burn patients who were evaluated for potential organ donation. There were no exclusion criteria. A descriptive review of the characteristics of these cases was undertaken.

Results

Of the 3 burn patients declared brain dead or switched to Comfort Measure Only (CMO) care and referred for potential organ donation, 3 underwent organ retrieval with 2 having organs subsequently transplanted to recipients. The one patient who did not undergo donation was excluded due to dark purple kidneys observed upon removal. Our study population included a mean age 28.3 years old, mean Total Burn Surface Area (TBSA) of 55%, mean time to decision to withdraw care of 79.95 hours, 2 males, and 1 female patient. Two burn injuries were by a thermal mechanism, while 1 was electrical. Two patients were eligible donors after cardiac death (DCD), while 1 patient was an eligible donor after brain death (DBD). Two patients had at least 1 burn surgery, while 1 patient did not.

Conclusion

DBD burn patient donors usually have better outcomes than DCD burn patient donors, as they can avoid the sepsis and multi-system organ dysfunction that typically accompanies DCD donors. The patient that was unable to undergo transplant was a DCD donor suffering metabolic acidosis, lactic acidosis, and acute hypoxic respiratory failure. Broadly, there remains a significant un-met donor organ need. When death is the expected outcome for a burn-injured

patient, it is not always top-of-mind for caregivers or family members to consider potential organ donation. Nonetheless, all members of the burn care team should be reminded to consider the possibility of organ donation. Provision of training workshops regarding strategies for the tactful introduction of the topic could prove useful.

Design of a Prospective Multicenter Study of a Novel Dermal Collagen Matrix: Time to Wound Closure and Cost Outcomes in Full-Thickness Wounds

Alan Pang, MD, Mack Drake, DO, John Loftus, MD, Kevin Foster, MD, Jonathan E . Schoen, MD, MPH, FACS, FABA, Derek Bell, MD, Anjay Khandelwal, MD, Lourdes Castanon, MD, C. Caleb Butts, MD, and Jeffrey Shupp, MD

Introduction

Dermal matrices are commonly used in managing excised full-thickness wounds. Differences in matrix composition influence time to cell ingrowth and vascularization. A new FDA-cleared, single-layer dermal bovine collagen matrix (BDCM) composed of young bovine collagen (types I and III) was developed to support fast integration and decrease time to autografting. This work describes the protocol of an ongoing prospective, multicenter, single-arm study evaluating the clinical and health economic impact of BDCM in managing full-thickness wounds post-surgical excision.

Methods

Patients ≥15yo with a full-thickness wound ≤30% total body surface area, and for whom autografting is clinically indicated, are eligible for participation. Patients will undergo a two-stage surgical procedure for wound closure. In the first surgery, BDCM will be applied to the surgically excised wound bed. Once BDCM is integrated (hypothesized timeline 7 days), the wound bed will be treated with an autologous, meshed split-thickness skin graft (mSTSG) followed by application of a device-prepared skin cell suspension autograft. Based on a rigorous meta-analysis, a literature-derived performance goal of 27.2 days was established for the primary endpoint: time to generation of tissue suitable for definitive closure. A sample size of 40 subjects will provide 80% power to assess whether BDCM meets or exceeds this benchmark (literature mean: 31.78 days; 95% CI: 27.2–36.4 days). To demonstrate superiority, the study will compare BDCM results against the lower bound of the 95% CI.

Both the number of days from BDCM placement to provider-determined readiness for mSTSG and the actual days from BDCM placement to mSTSG placement will be recorded. At the time of skin grafting, newly generated tissue will be biopsied to evaluate BDCM persistence and cellular profiles. Skin graft take, wound closure, safety-related adverse events, operative times and treatment cost will also be collected. Follow-up visits will occur following both surgical procedures, and the length of hospital stay will be reported. BDCM treatment area aesthetics and subject/investigator treatment satisfaction scores will be collected.

Results

Results will be presented at study completion.

Conclusions

Study data will provide a comparison of clinical and health economic outcomes, including time to readiness for autograft, between this new BDCM and established objective performance goals, obtained following a meta-analysis of other dermal matrices.

Applicability of Research to Practice

Findings may support reduced time to grafting and improved cost effectiveness with BDCM when compared to other dermal matrices.

External Funding

This study is funded by the manufacturer.

Multicenter Randomized Controlled Trial Comparing a Next Generation Temporary Biosynthetic Wound Matrix to Human Allograft for Temporary Coverage of Surgical Wounds

Julia Slater, MD, FACS, FABA, Anju Bakhshi Saraswat, MD, Anjay Khandelwal, MD, FACS, FICS, FABA, M. Victoria P. Miles, EMTP, MD, Ryan Shapiro, MD, Mahmoud Hassouba, MD, PhD, Derek E. Bell, MD, Lauren B. Nosanov, MD, FACS, and Lyndsay Deeter, MD, MS, FACS

Introduction

Allografts are commonly used to temporarily cover excised wounds, especially when donor skin is limited or to evaluate wound bed readiness for autografting.1 However, allografts present limitations, including availability, high cost, disease transmission risk, and ultra-low temperature storage requirements.2 A next-generation temporary biosynthetic wound matrix (BWM) has been developed as a transparent, epidermal analogue designed to rapidly adhere and protect the wound bed.3 Unlike allograft, BWM is shelf-stable and readily available at the point of care. This abstract outlines the differences between the two strategies, and the protocol for an ongoing prospective, randomized, multicenter, controlled trial evaluating the clinical performance and cost-effectiveness of BWM as a temporary skin substitute compared to allograft.4

Methods

Patients who have been hospitalized within 72 hours of injury with an injury covering ≤30% total body surface area (TBSA), and for whom autografting is clinically indicated, are eligible for enrollment. Patients are required to undergo surgical excision within 8 days of injury and will then be randomized to receive the study treatment (BWM) or control (human allograft).

The two study treatments will be compared with respect to clinical and health economic outcomes. A sample size of 40 subjects randomized 1:1 to BWM vs allograft provides >99% power to demonstrate cost per TBSA of BWM is significantly less than the cost per TBSA of allograft, based on two-sample t-test, one-sided alpha=0.025 and cost assumptions. Other endpoints include adherence, wound bed preparation, complications, time to grafting, and safety-related adverse events. Health economic impact will be evaluated including the cost of products and the time required to obtain and apply the products.

Follow-up visits will occur every 48-72 hours post-treatment. Upon graft readiness, a wound biopsy will be collected to evaluate tissue quality and inflammatory profiles. The study areas will be treated with a meshed autograft in accordance with the institution’s standard of care. Post-autografting evaluations will be conducted on days 7, 14, 28, and 56.

Results

Results will be presented at study completion.

Conclusions

BWM is hypothesized to reduce treatment costs compared to allograft without compromising patient outcomes.

Applicability of Research to Practice

Findings may support the use of BWM as a cost-saving, viable alternative to allograft, thus benefiting both the patient and hospital.

External Funding

This study was funded by the manufacturer.

One-Third Shorter Hospital Length of Stay: Registry Analysis Validates Real-World Impact of Skin Cell Suspension for Burn Patients with Deep Partial-thickness Burn Injuries

Jeffrey E. Carter, MD, FACS, FABA, Victoria Purvis Miles, EMTP, MD and Bart Phillips, MS

Introduction

Skin cell suspension autograft (SCSA) has been shown to significantly reduce donor size, pain, and scarring in second-degree burns. This study leverages real-world evidence from the American Burn Association Burn Care Quality Platform — the largest database of burn cases in the United States—to assess the impact of SCSA on hospital length of stay (LOS). By analyzing outcomes from adult second-degree burn patients treated with either meshed split-thickness skin grafts (STSG) or SCSA, this analysis provides the largest, real-world comparison of the LOS associated with each treatment.

Methods

The American Burn Association Burn Care Quality Platform was queried for adults (≥18 years) with second-degree burns treated with either STSG or SCSA from 2019 to 2024. Patients were excluded for non-burn trauma, death or hospice discharge, or outlier LOS values (above mean + 2 SD). Cases were matched 2:1 (STSG:SCSA) by sex, age, total body surface area (TBSA), and inhalation injury within 10% TBSA bands. Due to sample size limitations, the analysis was restricted to TBSA < 30%. Statistical comparisons of LOS were conducted using Welch's t-test.

Results

A total of 741 matched cases were analyzed, including 494 STSG-treated and 247 SCSA-treated patients. Both groups were predominantly male and white, with a mean age of approximately 45 years and mean TBSA of approximately 10%. Treatment with SCSA resulted in a significantly shorter LOS across all TBSA bands, with an average reduction of 5.61 days or 35.95% compared to STSG. By TBSA group, LOS was reduced by 4.97 days (0–9.9% TBSA; $p < 0.0001$), 6.01 days (10–19.9% TBSA; $p < 0.0001$), and 7.60 days (20–29.9% TBSA; $p = 0.001$).

Conclusions

In this real-world registry analysis, SCSA significantly reduced hospital LOS by approximately one-third compared to STSG in adults with second-degree burns affecting up to 30% TBSA. These findings reinforce the clinical value of SCSA beyond donor site benefits, highlighting the ability of SCSA to improve patient recovery timelines and reduce hospital resource utilization.

SCSA may offer a meaningful advancement in burn care by accelerating healing and enabling more efficient discharge in appropriately selected patients.

Applicability of Research to Practice

SCSA may offer a meaningful advancement in burn care by accelerating healing and enabling more efficient discharge in appropriately selected patients.

External Funding

This study was funded by the manufacturer.

Reconstruction of Deep Partial Thickness Burns with Ovine Forestomach Matrix: Interim Results from a Prospective Observational Study

Chinaemelum C. Akpunonu, MD, MA, Michael Young DNP, Nidhi Aravapalli MS, Laura Pezzopane MSN, Nicole Bernal MD, Ariel Rodgers MD, John H Loftus MD

Introduction

Traumatic burns vary in depth, size, and severity, presenting challenges to effective treatment. Efficient healing, pain control, good cosmesis, and patient satisfaction are critical goals in burn care. This study evaluated the effectiveness of ovine forestomach matrix (OFM) in promoting rapid healing, minimizing pain, and improving cosmesis in deep partial thickness burns.

Methods

Patients were enrolled into an ongoing prospective, single arm observational registry (NCT05243966) at a certified burn center and received OFM for burn treatment between August 2023 and June 2024. The burns were debrided following hospital standard of care and OFM was applied. Outcome measures included post-operative complications, time to healing, pain, and patient and observer scar assessment.

Results

Fifteen burn patients with a total of 32 burns were enrolled in the study. Average participant age was 46 years. All burns included areas of deep partial-thickness burns, with a mean burn size of 158±271 cm2. All patients were treated with a single application of OFM. One patient received a skin graft (STSG) to a portion of the burn, and one patient was lost to follow-up prior to complete healing. The median healing time for the remaining 14 patients was 18 days (IQR: 15, 27). All patients achieved complete healing with a single OFM application. The average follow-up was 140±63 days. There were no wound complications associated with the use of OFM. Pain scores were minimal throughout treatment (median; 0/10), while patient scar satisfaction was 5/5.

Conclusion

This prospective observational study demonstrates that OFM facilitates rapid burn healing with minimal pain, good cosmesis and patient satisfaction, and limited need for additional interventions. OFM offers a cost-effective and patient-friendly approach to managing deep partial thickness burns while ensuring optimal outcomes.

Applicability of Research to Practice

The use of OFM for deep partial thickness burns shows promise in clinical practice by facilitating rapid healing, minimizing pain, and improving cosmesis with minimal complications. This single-application approach could streamline burn management and enhance patient satisfaction, making it a practical, cost-effective solution for burn care.

External Funding

The study was supported by AROA Biosurgery Limited.

The Treatment of Circumferential Digital Burns from an Electrothermal Source

Cameron Geoffrey Almeida, MS, Jenna Kelly DPT, Jessie Lauren Hardesty, OTR/L5, Kim Marie Priban, DNP, RN, Richard Benjamin Lou MD, Deepak Kurian Ozhathil, MD
Presented by Jane Boyle

Introduction

Electrothermal burns from metal rings in contact with car batteries are rare but can cause severe circumferential digital injuries. While case reports exist, detailed descriptions of surgical reconstruction and rehabilitation are limited. This study presents a comprehensive review and a case report to address this gap.

Methods

We conducted a systematic literature review on electrothermal ring burns and present a case of a 54-year-old male who sustained a mixed-depth circumferential burn to the left ring finger. The patient underwent surgical excision, homografting, and full-thickness skin grafting, followed by structured postoperative care and occupational therapy.

Results

Initial debridement revealed full-thickness circumferential burns. A cadaveric homograft was applied for wound demarcation, followed by a full-thickness skin graft from the inguinal region. Postoperative care included dressing changes, pain management, and occupational therapy with splinting and range-of-motion exercises. At four months, the patient achieved full functional recovery with no hypertrophic scarring and minimal dryness.

Conclusions

Full-thickness circumferential digital burns require surgical intervention, with treatment tailored to burn depth and width. This case illustrates successful management using staged grafting and structured rehabilitation, resulting in excellent functional and cosmetic outcomes.

Applicability of Research to Practice

This report provides a practical framework for managing rare electrothermal ring burns, emphasizing early surgical intervention, wound demarcation strategies, and the critical role of occupational therapy in recovery. The included treatment algorithm may guide clinicians in similar cases.

External Funding

None

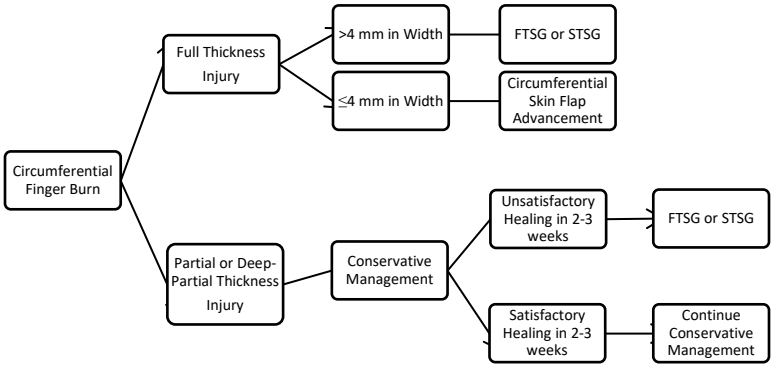


Figure 1: Circumferential digital burn management flow chart (FTSG, Full-thickness Skin Graft; STSG, Split-thickness Skin Graft)

A Novel Wound Matrix Containing Antimicrobial Silver and Local Anesthetic Lidocaine for Managing Infections and Pain in Burns

Michael J. Schurr, MD[2]Gaurav Pranami, PhD[1], Eric C. Crawford[1], Ankit Agarwal, PhD[1]

Introduction

Pain management and infection control are critical challenges in the treatment of partial thickness burn wounds. Wound pain may not only impede healing but also lead patients to resist dressing changes, thus disrupting treatment adherence and prolonging recovery. Topical antimicrobials like silver-based dressings help mitigate infection risks but do not address pain, often necessitating opioids with their associated risks. Local anesthesia, for e.g. from topical lidocaine gels, has potential for improved pain relief, patient satisfaction and opioid reduction, and yet challenges such as non-uniform dosing and potential systemic toxicity in large burns limit their utility. To address these gaps, we developed a novel 510(k)-cleared ultra-thin synthetic matrix incorporating both silver and lidocaine (equivalent to 4% w/w ointment). This dual-action dressing delivers broad-spectrum antimicrobial activity while providing localized analgesia through a unit dose application, thus simplifying care and potentially reducing opioid reliance.

Methods

Antimicrobial efficacy of the matrix was assessed *in vitro* using ISO 22196 against eight clinically relevant bacterial strains, including *S. aureus*, *P. aeruginosa*, and *E. coli*. *In vivo* performance was evaluated in a porcine full-thickness excision burn model following ISO 10993 biocompatibility protocols. Wounds treated with the matrix were compared to Telfa^{TM} pads and were assessed for wound healing progression, re-epithelialization, granulation tissue formation, inflammatory response, and local tissue effects. Initial clinical case observations in partial thickness burn patients were also collected to assess real-world performance.

Results

The matrix demonstrated ≥ 4 $\log_{10}$ reduction in microbial CFUs at both 24 and 72 hours versus control in ISO 22196 testing. *In vivo*, the matrix showed no impairment of wound re-epithelialization, granulation tissue development, or inflammatory response compared to controls. Clinical case observations supported these findings, demonstrating effective wound coverage, pain relief, and absence of infection-related complications.

Conclusions

The novel silver/lidocaine matrix represents a meaningful advance in burn care, integrating antimicrobial protection with localized anesthesia in a single dressing. Its thin film format

ensures unit-dose lidocaine delivery, reducing toxicity risks while streamlining wound care procedures and potentially decreasing opioid reliance.

Applicability of Research to Practice

This innovative matrix dressing simplifies burn wound management by addressing infection control and pain relief simultaneously. Its unit-dose design mitigates lidocaine overdose risks, reduces the need for separate analgesic applications, and enhances workflow efficiency, particularly in the management of large burns.

External Funding

None

Thursday
Session 5: Abstracts 2:00pm

National Exploratory Study of Patient's Psychological Needs

Elaina "Meier" Meier, PhD, MA., MS, LP, LPC, NCC, CPhT

Introduction

According to the American Burn Association, 30,000 burn-injured individuals annually are admitted to burn centers; 96.8% survive. Emotional distress is marked a year out, as 23% show symptoms of depression which doubles by year two (Kildal et al., 2005). Early traumatic stress is reported at a wide range, from 5–57% (Baur et al., 1998). Anxiety, distinct from traumatic stress, has not been widely explored. More quantifiable data is needed about longitudinal emotional response.

Methods

This national catchment study took a multifold approach, with a primary quantitative query and secondary qualitative one using a Qualtrics survey. Three research questions address baseline data; the relationship between traumatic experience and anxiety, depression, and traumatic stress; and the relationship between traumatic stress and burn specifics. Secondary qualitative query gathered patient narratives. Pearson coefficients were used for the quantitative analyses and LeCompte's (2000) five step method for qualitative data.

A minimum of 84 participants were required for this correlational study to have sufficient power (Bujang & Baharam, 2016), with an alpha of .05 (two-tail), a beta of .20, and an expected r of .30. A threshold of 325 responses was set and yield 120 included participants.

Results

Study scales had adequate to strong reliability, ranging from .73 to .95. Each scale met the univariate level of normality of skew and kurtosis (i.e., within + 1).

The PHQ-8 was significantly, positively correlated with BSHB ($r = .41$, $p = .000$). The PCL-5 was significantly, positively correlated with BSHB ($r = .34$, $p = .001$). Both the HADSA and HADSD were significantly, positively correlated with BSHB ($r = .26$, $p < .011$; $r = .39$, $p < .000$, respectively). Of 120 respondents, 98 (81.7%) completed the BSHS-B. All reported day-to-day lives negatively impacted by ongoing burn sequalae.

From the narrative, 3 metathemes, 9 themes, & 22 subthemes emerged. Metathemes were Human Connection v. Isolation, Medical Aftercare, and Transition Services & Resources.

Conclusions

The existing model for care is heavily acutely focused. This study shows suffering continues to progress at levels previously only anecdotally understood requiring ongoing psychological care.

Applicability to Practice

Respondents voiced clear needs to facilitate recovery by combating isolation long after discharge and for more direct longitudinal access to services. Central should be a wraparound model for service delivery, attending to more than job re-entry. Burn centers should add Health Psychology to post-discharge treatment planning and formally integrate peer support into BICU care and post-discharge care via scheduled appointments.

External Funding
The researcher partially self-funded and secured a small grant for compensation for survey completion.

Evaluation of Perioperative Fluorescence Imaging for Burns in a Swine Model

Mary Junak, MD, Hector Garcia, PhD, Aiping Liu, PhD, Bailey Donahue, BS, Adam Uselmann, PhD, Brian Pogue, PhD, Angela Gibson, MD, PhD

Introduction

The primary method to evaluate healing capacity of a burn wound is visual assessment; a subjective interpretation that risks over-excision. The ongoing human subjects study investigates the use of indocyanine green (ICG) fluorescence imaging to evaluate burn depth and healing potential. Early enrollment challenges encountered with the heterogeneity of human burn wounds, difficulty of patient recruitment early after a trauma, and variable timing of assessment post-injury led to the addition of a parallel translational pre-clinical swine model.

Methods

Adult pigs (n = 3) with burns of various depths received a 7 mg injection of ICG for angiography (ICGA) followed by a 5mg/kg intravenous infusion of ICG on post-burn day (PBD) 2 or 3. Second window indocyanine green (SWIG), a novel method of static delayed fluorescence imaging, was performed the day after ICG injection on a region of interest (ROI) during wound care. A full thickness skin biopsy was taken from the center of the ROI and ICG microscopy and histologic staining was performed for tissue architecture and viability. MATLAB R2023b was used for data processing and GraphPad Prism 8.0 was used for statistical analyses. To evaluate the relationship between ICGA, SWIG, and histologic burn depth, the Spearman correlation coefficient (ρ) was used due to the non-normal distribution of the data.

Results

There was a strong inverse correlation between perfusion as measured by ICGA peak fluorescence intensity and histologic burn depth ($\rho = -0.89$). SWIG signal-to-background ratio (SBR) was also inversely correlated to histologic burn depth such that deeper burns exhibited less SWIG fluorescence signal than more superficial burns ($\rho = -0.56$). SWIG SBR was positively correlated with ICGA parameters including ICGA peak fluorescence intensity ($\rho = 0.73$) and ICGA egress slope ($\rho = 0.67$). A majority of burns (24/33) had a SWIG SBR <1 indicating the burn region demonstrated less fluorescence signal than the surrounding non-burned skin and visually appeared to have a thick eschar.

Conclusions

Variability in perfusion and inflammation contributes to heterogeneity in the ICGA and SWIG parameters in patients. The swine model presented here contradicts our initial hypothesis that SWIG SBR would be higher in deeper burns with more necrotic tissue. Instead, permeability and

destruction of the vessels seems to affect ICG delivery to the wound and ultimately, the SWIG signal. Furthermore, the eschar that develops quickly in burned pig skin likely interferes with on-face visualization of the deeper fluorescence signal and contributes to variable results.

Applicability of Research to Practice

Our revised experimental approach has revealed that vascular destruction and eschar formation impair ICG delivery and fluorescence signal detection, highlighting key challenges in translating this technology to clinical use. The variability in imaging results illustrates the need for further research to standardize and interpret fluorescence signals in the context of burn heterogeneity and tissue changes over time.

Thursday
Session 5: Abstracts 2:20pm

From Burnout to Breakthrough: Rethinking Nurse Orientation in the Burn ICU

Bianca Dean, MSN, RN, CCRN, Alazda Kaun, MSN, RN, CNRN; Lori Mickelson, MSN, RN; Kimberly McPhee, MSN, RN, NPD-BC; Preceptor Taskforce

Introduction

- 52.2% of new nurse hires into this burn ICU were struggling during orientation. We define struggling as:
    - Not successfully completing orientation on the burn unit: resigning, being terminated, or transferring to a lower acuity setting.
    - Needing a performance improvement plan or orientation extension to successfully complete orientation.
    - Preceptors were reporting burn out due to the high turnover and orientees not successfully completing orientation

Purpose and Practice Implications

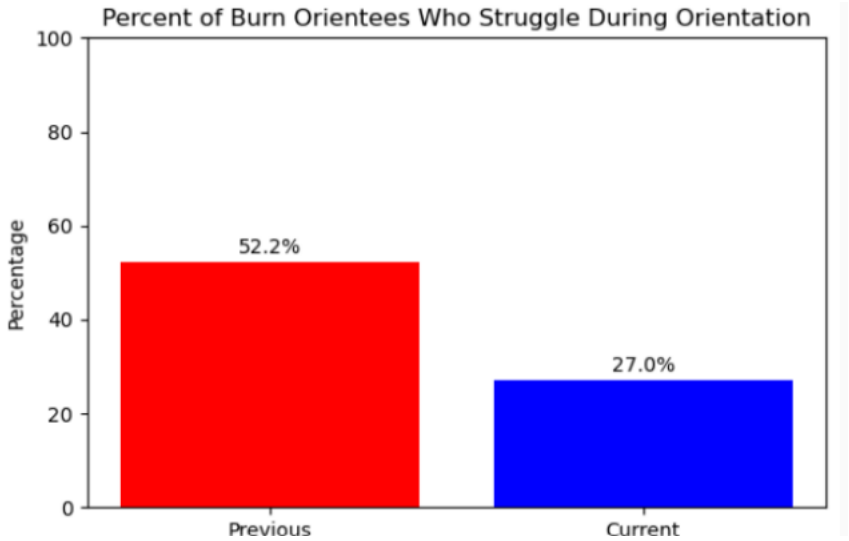
In one academic medical center's Burn ICU, the onboarding process for newly hired nurses was challenging. Nurses must learn a high variety of patient populations/skills and patient assignments were not aligned with an evidence-based, staged orientation model. Additionally, the hiring and interview processes did not involve key stakeholders and failed to provide a comprehensive overview of the unique demands of working in a burn unit.

- A literature search endorsed:
- A tiered/staged orientation model reduces orientation time, while increasing number of patient experiences.
- Appropriate patient assignments lead to more positive working conditions, quality outcomes, and improved nurse retention.
- A bundled strategies support preceptor.

Method

- Step 1:
    - 4 nurse leaders worked with preceptors to define conditions and root causes using the evidence-based A3 method for problem solving.
    - The most significant causes included: gaps identified in the interview/hiring process and barriers to following staged orientation.
- Step 2:

- Developed of an “orientee card” (right) that allows charge nurses to pre-plan assignments, preceptors to handoff on progress, and orientees to list their priority patient population.
- Changed interview structure: including CNS and peers in interview and requiring unit shadow.
- Placed structure around when orientees take off unit/outpatient sedation assignments.

- Step 3:
  - 

Results

- After implementation, only 27% percent of nurses hired into the Burn ICU struggled on orientation – a nearly 50% decrease.

Conclusion

- The initiative resulted in a sustainable enhanced onboarding process.
- Preceptors have also reported a decrease in burnout – preceptor support meetings were also started.
- Identified a need to increase our experienced RN orientation length by 2 weeks.

External Funding

None

Abstracts

Friday, September 26, 2025

Friday
Session 8: Abstracts 9:00am

Integration of a Temporary Biosynthetic Wound Matrix (BWM) in Pediatric Burn Care: Early Experiences in a Regional Center

Kathleen Wilson-Kocovsky, BSN, RN, Katherine Flynn-O'Brien, MD

Introduction

Effective burn care in pediatric patients requires strategies that reduce pain, minimize operative interventions, and facilitate wound healing. A temporary biosynthetic wound matrix (BWM) composed of a bilayer silicone and micro-nylon structure has shown clinical success treating pediatric burns. This study reports initial outcomes and learnings following integration of BWM into our facility's pediatric burn treatment algorithm.

Methods

Five pediatric patients (ages 10 months to 14 years) with partial-thickness, mixed partial-thickness, or indeterminate-depth burns were treated with BWM. TBSA ranged from 6%-34%, with burns located across various anatomical regions. Following wound debridement, BWM was applied in the operating room and managed in either inpatient or outpatient settings. Secondary dressings included gauze wraps secured with netting or compression. Prior to implementation, comprehensive education sessions were conducted for advanced practice providers across surgical, inpatient, and outpatient care. Outcomes assessed are ease of care, the need for any additional procedures, and appearance of healed areas.

Results

BWM provided clear clinical advantages, including reduced patient pain and improved comfort during outer dressing changes. In patients with partial thickness injuries, BWM facilitated ~90% re-epithelialization by post-application days 10-14. Notably, all patients were able to bathe 3-5 days post-application. School-aged children were managed exclusively in the clinic post-application, decreasing the need for repeat operative care and enabling streamlined home dressing routines. Challenges included managing secretions in infants and maintaining dressing integrity in the perianal/genital areas. Some patients developed infections attributed to secretions and inconsistent staff familiarity with BWM. Nevertheless, BWM's porosity and transparency facilitated early infection recognition and allowed ongoing treatment without removing the matrix.

Conclusion

BWM shows promise as an advanced dressing option in pediatric burn management. In addition to facilitating re-epithelialization, BWM offers the advantages of enhanced patient comfort,

decreased operative interventions, and efficient outpatient care. Challenges underscore the necessity of comprehensive, multidisciplinary staff education during product adoption.

Applicability of Research to Practice

These findings support expanded use of BWM in pediatric burn care, especially for outpatient management. Success depends on targeted staff education, with future efforts focused on team training and protocol refinement.

External Funding

None.

Methods to Increase Usability of Revised Scar Goniometry

Lisa R Kittleson, MS, OTR/L, Sydney D Gudvangen OTD, OTR/L

Introduction

Standard goniometry does not consider how range of motion (ROM) in burn survivors is impacted by scar contracture. Previous research highlights the need for revised goniometric methods that consider cutaneous function, but implementation is limited by unfamiliarity with revised positions, lack of validation of specific positions, and inefficiency of Electronic Medical Record (EMR) documentation options.

Methods

To address these limitations, a task force of burn rehab therapists in a verified burn center was established. After movement analysis as it relates to scar contracture and cutaneous functional units (CFUs), the task force created agreed-upon revised positions for ROM measurements at joints not previously validated. Next, photos and descriptions of revised positions were paired with those previously validated to create a comprehensive toolkit covering all measurable joints of the burn survivor. The toolkit was placed alongside goniometers in all patient rooms to increase access and consistency across providers. For updated data collection in the EMR, a ROM flowsheet was created that differentiated between standard and revised goniometric data. The photos for each revised position were uploaded into this flowsheet as a reference tool. The rehab discharge note template was revised to allow flowsheet data to be presented in an easily read chart format. Finally, as a reference tool for therapy providers outside of the burn center, a dot phrase was created to import photos of revised ROM positions into the discharge note along with a link to published research on scar goniometry.

Results

By prioritizing the inclusion of scar goniometry into practice, described changes have promoted increased efficiency and communication for accurate data collection for a complex burn injury. References to scar goniometry are readily available to therapists, documentation has been streamlined, and communication regarding scar goniometry has improved.

Conclusions

Readily available reference tools and customization of the EMR that reflect the rehab complexities of the burn survivor can positively impact the practical application of the principles of scar goniometry.

Applicability of Research to Practice

Beyond recognizing the need for scar goniometry, efforts to increase uptake, promote consistency, incorporate tools, and enhance documentation can bridge the gap between research and everyday practice.

External Funding

None

Ten-Year Review of Wound Culture Results and Antimicrobial Resistance Patterns in an ABA Verified Burn Center

Gabrielle Bierlein-De La Rosa, BA[1]; Patrick Ten Eyck, PhD[2]; Colette Galet, PhD[3]; Shady Al Hayek, MD[3].

Introduction

Infection is estimated to be the cause of up to half of burn patient deaths in the hospital. These infections are often difficult to treat as they are often caused by multidrug-resistant pathogens. The current retrospective study was designed to assess trends in positive wound cultures during hospitalization in our burn unit over the last 10 years.

Methods

This is a retrospective cohort study using our burn registry. All patients admitted from July 2013 to June 2023 were included. All wound cultures after the first positive culture were included to exclude community-acquired infections. Demographics, TBSA, injury and admission information were obtained.

Wound culture information including dates of cultures, identity of growing organisms, and antibiotic resistance were collected from medical records. Patients were stratified based on TBSA as small (<10%TBSA), moderate (10-19.9%TBSA), and severe burns. Descriptive statistics were obtained. Generalized linear models were fit to assess the trends of positive cultures and length of hospitalization over time for the three TBSA strata.

Results

Percentage of Gram+, Gram-, and fungal cultures on our unit remained stable over the 10 years. However, at the species level, patterns emerged in Gram+ cultures from severe burns. Coagulase negative staphylococcus species decreased from 26.1 in 2013 to 9.5% in 2023 while Enterococcus species, including faecalis and faecium, increased from 0 in 2013 to 17.9% and 31.6%, respectively, in 2023. Assessing organism type related to length of hospital stay (LOS), Gram + strains were the most common organism detected in cultures of patients who were hospitalized for less than a week. However, as LOS increased to 1 to 2 weeks, we observed a change in the distribution of organisms where Gram+ organisms began to decrease while the distribution of fungal and Gram- organisms increased. For LOS of 3+ weeks, the distribution of positive cultures stayed relatively stable. Investigating resistance trends, the clearest patterns were for antibiotics used to treat Gram- organisms, with cefepime increasing in resistance from 13% of tested Gram- cultures in 2013 to 40% resistance in 2023. Zosyn had a similar trend, increasing in resistance from 12% in 2013 to 38% in 2023. Additionally, several antibiotics,

including vancomycin, Zosyn, and ceftriaxone, had periods of high resistance during the study that were preceded by periods of high usage on the unit.

Conclusion

The results of wound cultures change with hospital LOS. In this study, we observed increasing resistance patterns to several antimicrobials over the years.

Applicability of Research to Practice

Stricter indications for antimicrobial prescriptions may be called for on our burn ward as overly liberal use of certain antimicrobials may lead to an increase in resistance.

External Funding

None

Protoporphyrin IX Based- Photodynamic Therapy Enhances Burn Wound Healing in Ex Vivo Human Skin

Aiping Liu, PhD, Marien I. Ochoa, PhD, Emily T. Klossowski, MS, Bailey A. Donahue, BS, Joana Pashaj, BS Mary Junak, MD, Brian Pogue, PhD and Angela LF Gibson, MD/PhD

Introduction

Photodynamic therapy (PDT) is widely used to treat skin tumors and infections where protoporphyrin IX (PpIX) is a commonly used as the photosensitizer. PpIX is synthesized through the heme pathway from its precursor 5-aminolevulinic acid (5-ALA). In contrast to traditional PpIX-PDT, low-dose PpIX-PDT utilizes lower concentrations of photosensitizer and/or irradiation doses to generate a lower level of ROS, which has been shown to promote burn wound healing in rodents. However, translation of this therapy in human burns remains unknown. This pilot study aimed to evaluate PpIX-PDT in human burn wound healing *ex vivo*.

Methods

Partial thickness burns were created on *ex vivo* human skin using a customized burn device. Three 5-ALA application groups and three groups without 5-ALA were used to study the temporal production of PpIX. The 5-ALA groups had PpIX imaged at 1, 3 or 6 hours after topical application of 20% 5-ALA solution along with the corresponding groups without 5-ALA application. To study the effect of PpIX-PDT on burn wound healing, PDT with or without application of 5-ALA, and a non-treated group were evaluated. Three hours after 20% ALA application (or no treatment controls), the PDT groups were illuminated by red light (630 nm) using a light-emitting diode lamp on the burn region at an energy density of 20 J/cm^2. Tissue biopsies were then cultured for 14 days, processed for histology and stained for Lactase Dehydrogenase to evaluate cell viability and healing.

Results

PpIX fluorescence was significantly higher after 3 hours of 5-ALA application than that of 1 hours of application (Figure 1A) and then plateaued afterwards. Interestingly, without 5-ALA application, PpIX was produced endogenously in burn wounds and increased with time. 20% 5-ALA application non-significantly enhanced PpIX production in burn wounds. After 14 days, both PDT groups demonstrated enhanced reepithelization in burn wounds without overt cytotoxicity compared to the non-treated control (Figure 1B). Healing after PpIX PDT treatment does not require exogenous 5-ALA application.

Conclusions

This pilot study demonstrated efficacy of PpIX PDT in burn wound healing in human skin. In addition, our data showed that endogenously PpIX PDT has similar effects as 5-ALA enhanced PDT in burn wound healing. We will further optimize PDT parameters such as increasing 5-ALA concentration, light dose and treatment scheme using this *ex vivo* human skin model of burn.

Applicability of Research to Practice

PpIX-PDT is a low-cost medical technology that has the potential to accelerate healing, leading to improved long-term wound outcomes and quality of life.

External Funding

Wisconsin Partnership Program Collaborative Health Science Award

Figure

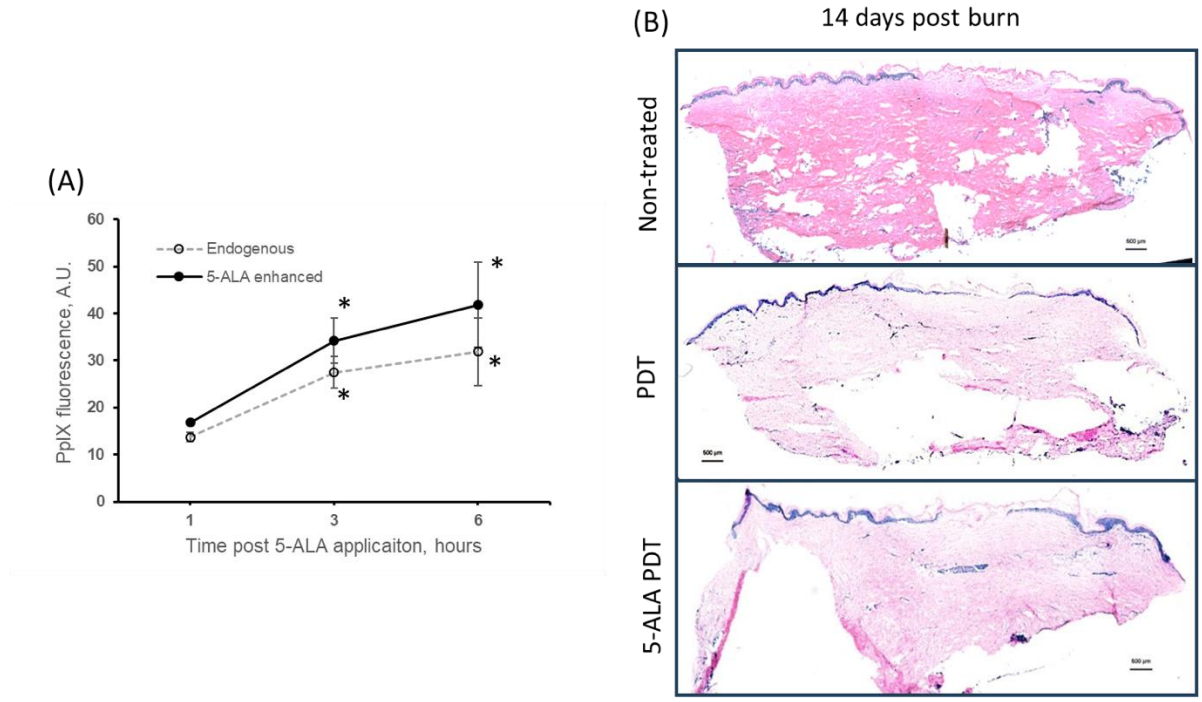


Figure 1. (A) Time course of endogenous and 5-ALA enhanced PpIX fluorescence produced in burn wounds. (B) Lactase Dehydogenase images of burn wounds in non-treated, PDT and 5-ALA enhanced PDT groups after 14 days post burn. Two-way ANOVA analysis was conducted to compared the averaged PpIX fluorescence over time in burns with/without 5-ALA application. *, $P<0.05$ compared to 1 hour post 5-ALA application.

Friday
Session 8: Abstracts 9:46am

Reevaluating Resuscitation Thresholds in Elderly Burn Patients

Hannah Lider Olson, BS, Nicholas Larson, BA, NREMT; Alexandra Lacey, MD

Introduction

Elderly burn patients are at increased risk of adverse outcomes at a lower total body surface area (TBSA) than their younger counterparts due to a higher burden of comorbidities and decreased physiologic reserve. Standard of care is to activate nurse-driven resuscitation protocols (NDRP) for burns involving ≥20% TBSA. After observing a concerning trend of adverse events in patients aged ≥60 with 15-19.9% TBSA burns, our burn center revised its protocol to initiate NDRP in patients with ≥15% TBSA.

Methods

This is a retrospective cohort study of 47 adult burn patients (≥18 years) presenting with 15-19.9% TBSA burns admitted to our burn center between April 2020 and April 2025. Patients were grouped by age ≥60 (n=16) and age <60 (n=31). The primary outcomes were mortality and incidence of acute kidney injury (AKI) in the first 48 hours of admission. A Fisher's exact test was utilized due to the small sample size of this study.

Results

Patients in the age ≥60 group experienced significantly higher mortality compared to the age <60 group (3/16 vs. 0/31 deaths; p=0.033). Although the incidence of AKI within 48 hours of admission was greater in the age ≥60 group (4/16 vs. 1/31), the difference was not statistically significant (p=0.138) likely due to the small sample size. However, the relative risk of AKI in patients age ≥60 was 7.75, indicating a clinically meaningful trend toward increased AKI risk in this population.

Conclusions

Burn patients aged ≥60 years with TBSA 15-19.9% demonstrate higher risk of mortality and a trend towards increased AKI rates compared to their younger counterparts. These results support the adoption of a lower threshold for initiating NDRP to 15% TBSA in patients aged ≥60, extending protocol indications to this vulnerable population.

Applicability of Research into Practice

These results support the adoption of a lower threshold for initiating NDRP to 15% TBSA in patients aged ≥60.

External Funding
None.

Understanding Burns and Diabetes: A 12-Year analysis into Outcomes and Challenges in Lower Extremity Reconstruction

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Introduction

Burn injuries significantly contribute to accidental injuries and fatalities worldwide, affecting an estimated eight million people annually. At the same time, diabetes impacts approximately 422 million people globally, with the majority living in low- and middle-income countries, and is directly responsible for 1.5 million deaths each year. Both the number of cases and the prevalence of diabetes have been steadily increasing over the past few decades. As a chronic metabolic disease, diabetes is characterized by elevated blood glucose levels, which impair small blood vessels and hinder wound healing, posing unique challenges for burn management. Our study, conducted at a single institution, provides a comprehensive 12-year analysis of outcomes and complications in diabetic patients undergoing lower extremity burn reconstruction, addressing these complex interactions between diabetes and burn recovery.

Methods

A retrospective analysis was carried out on diabetic patients with lower extremity burns treated at a single ABA-verified burn center from 2012 to 2023. The data collected included demographics, burn characteristics, treatment methods, and outcomes. Logistic regression was used to examine the associations between burn-related factors and the probability of requiring surgical intervention.

Results

A total of 571 patients were included in the analysis, 65.3% of whom were male. Among them, 100 patients (18.0%) had diabetes, while 454 (82.0%) did not. The overall surgery rate was 52.5%, with no significant difference between diabetic and non-diabetic patients ($p=0.691$). There were no significant differences in the risk of hypertrophic scarring ($p=0.091$), contracture formation ($p=0.326$), or graft loss ($p=0.250$). However, diabetic patients had a higher risk of reoperation (54.0% vs. 38.6%, $p=0.004$), osteomyelitis (5.8% vs. 0.48%, $p<0.001$), and cellulitis (46.2% vs. 27.5%, $p<0.001$). In multivariate analysis, adjusting for age and total body surface area (TBSA), diabetes was associated with twice the odds of re-intervention (OR=2.00, 95% CI [1.25, 3.20], $p=0.004$) and six times the odds of developing osteomyelitis (OR=6.04, 95% CI [1.10, 33.22], $p=0.038$). However, after adjustment, diabetes was no longer a significant predictor of cellulitis (OR=1.55, 95% CI [0.94, 2.55], $p=0.084$).

Conclusion

Diabetic patients undergoing lower extremity burn reconstruction have significantly higher risks of reoperation and osteomyelitis, emphasizing the need for targeted surgical strategies and careful postoperative management. While diabetes does not increase scarring, contracture, or graft loss, its link to serious complications underscores the importance of early intervention.

External Funding

None.

Evaluation of Protoporphyrin IX Fluorescence Imaging for Burn Depth Diagnosis in Porcine Models

Bailey Donahue, BS, Aiping Liu, PhD, Marien Ochoa, Ph., Mary Junak, MD, Brian Pogue, PhD, Angela Gibson, MD, PhD

Introduction

Clinical visual assessment, the current standard for determining burn depth, is prone to errors, with inaccuracies occurring in 25-30% of cases. An objective and reliable method for burn depth diagnosis is needed to address the lack of access to specialized burn care nationwide. Protoporphyrin IX (PpIX) is a common photosensitizer produced in the heme pathway from its precursor 5-aminolevulinic acid (5-ALA). The endogenous molecule can be excited at either 405 nm or 633 nm and collected at 635 nm. We aimed to explore whether a fluorescence imaging technique utilizing PpIX is capable of differentiating burn depths in a swine model of burn.

Methods

Superficial and mid-dermis burns were created on the flanks of two 64-69 kg, 5-month-old female domestic pigs using a custom burn device at varying thermal conditions at 100°C or 150°C for contact times between 5 and 25 seconds. PpIX fluorescence imaging was conducted using a customized PpIX imager (laser diode 405nm or 635nm) on post-burn day (PBD) 0, 2 and 3 to monitor fluorescence signals across burn depths. Full-thickness tissue biopsies were taken from the burn center region on PBD 3 in both studies to compare to histologic burn depth. All tissue biopsies were frozen, cryosectioned, imaged for fluorescence microscopy, and stained for lactate dehydrogenase (LDH) to evaluate burn depth based on cell viability.

Results

We showed that PpIX fluorescence was present in burn tissue immediately after injury and selectively accumulated in burned tissue regions over time. PpIX fluorescence intensity was noticeably lower in deep burns (100ºC, 25s) than in both superficial and mid-dermis burns (100ºC, 5s or 10s, see Figure A). On PBD 3, quantification of mean PpIX fluorescence intensity in burn regions showed that PpIX fluorescence is significantly lower in deep burns ($p < 0.05$) than both superficial and mid-dermis burns (Figure B). Microscopically, PpIX fluorescence intensity and burn depths from LDH-stained tissue confirmed this finding.

Conclusions

This study is the first to demonstrate the use of measured PpIX fluorescence intensity to differentiate between burn depths in a clinically relevant model of burn. We will further optimize this technique by refining imaging protocols and validating this technique in human skin models of burn.

Applicability of Research to Practice
This technique has the potential to address current challenges in burn care by providing a rapid, non-invasive method for burn depth evaluation.

External Funding
Wisconsin Partnership Program Collaborative Health Science Award.

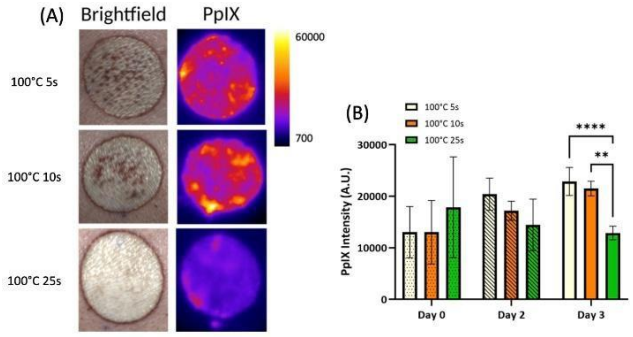

Figure. PpIX production in varying burn depths. Brightfield and PpIX fluorescence images on PBD3 **(A)** and temporal changes in mean PpIX fluorescence **(B)** in burns created at different thermal conditions.

Friday
Session 11: Abstracts 2:15pm

Embedding Palliative Care Triggers in Burn ICU Practice: A Quality Improvement Initiative to Promote Earlier Consults and Improve Team Perceptions

Kristin Friedl, DNP, AGACNP-BC, Meaghan Trainor, MD; Lori Mickelson, RN, MSN; Angela Gibson MD, PhD, FACS, FABA

Introduction

Patients admitted to burn ICUs with severe injuries and high rBaux scores face high mortality and complex decision-making needs. Despite evidence that early subspecialty palliative care (PC) involvement improves outcomes, consults are inconsistently initiated in this setting. A multidisciplinary team at a regional burn center conducted a quality improvement (QI) project to increase timely palliative care consults using a structured trigger based on rBaux score and comorbidities.

Methods

From March to August 2024, the team implemented a PC consult trigger embedded into the burn ICU workflow and history & physical documentation. The trigger targeted patients with high rBaux scores (>80) and significant comorbidities (Charlson Comorbidity Index >5–7). The intervention included staff education, workflow integration, and nursing feedback surveys administered pre- and post-intervention. Data on PC consult frequency, provider behavior, and staff perceptions were tracked.

Results

During the intervention period, 8 patients met large burn criteria; 2 met full trigger criteria. One received a PC consult; the other transitioned to comfort care without consult. While overall consult rates did not increase significantly, provider documentation showed increased consideration of PC, with 6 of 8 patients having PC discussed in their initial evaluations. Nursing perceptions also shifted: pre-intervention, 88% of surveyed nurses felt PC was underutilized; post-intervention, only 44% felt so, and 66% reported satisfaction with the current consult rate. Staff also cited increased clarity and consistency in addressing goals of care.

Conclusions

This initiative demonstrates that embedding structured PC consult triggers in burn ICU documentation can raise provider awareness and improve interdisciplinary alignment, even without a marked rise in consult numbers. Improved team communication and nurse satisfaction suggest value in maintaining the trigger system. Future directions include refining criteria and identifying the domains of primary palliative care provided by surgical teams and secondary palliative care provided by Palliative care consultant teams.

External Funding

None.

A Bovine Dermal Collagen Matrix for Deep Partial-Thickness Burns: A Case Series

Chinaemelum C. Akpunonu, MD, MA, Michael Young DNP, Nidhi Aravapalli MS, Laura Pezzopane MSN, Nicole Bernal MD, Ariel Rodgers MD, John H Loftus MD

Introduction

Dermal matrices have become an integral part of modern burn care due to their ability to reduce pain, enhance cosmesis, and restore function in full-thickness wounds. In the context of deep partial-thickness wounds, dermal matrices can serve as an advanced dressing option to support re-epithelialization, potentially eliminating the need for traditional autografting. A novel bovine dermal collagen matrix (BDCM) comprised of crosslinked, type I and type III collagen has demonstrated effectiveness in supporting rapid cellular infiltration and vascular tissue formation in porcine full-thickness wounds preclinically as well as facilitating early autograft readiness in two recent clinical cases. Building on its utility in full-thickness wounds, our institution was the first to evaluate the clinical efficacy of BDCM as an advanced dressing in deep partial-thickness burns.

Methods

A retrospective chart review was conducted from March to May 2025 to evaluate the safety and effectiveness of BDCM in 3 patients with deep partial-thickness burns. Outcomes assessed included matrix integration, time to re-epithelialization, and extent of repigmentation in treated areas.

Results

In case 1, an 18-year-old male with a 3% total body surface area (TBSA) deep partial-thickness grease burn to the right lower leg, ankle, and foot was treated with BDCM in combination with a skin cell suspension autograft (SCSA). He was discharged on post-operative day (POD) 1 with full ambulation and a night splint. On POD 6, the BDCM had fully integrated, with epidermal budding and minimal open areas; the patient reported no pain. On POD 13, 100% re-epithelialization was noted, and melanin pigment had begun to return.

In case 2, a 51-year-old male had a 0.5% TBSA deep partial-thickness chemical burn to bilateral hands and wrists. On POD 7, the BDCM had fully integrated with one small open area on the fifth digit. Complete (100%) re-epithelialization was achieved by POD 20.

In case 3, a 33-year-old male with an 8% TBSA deep partial-thickness scald burn to bilateral lower extremities was treated with the BDCM and SCSA. On POD 8, the BDCM had mostly incorporated with 95% re-epithelialization. By POD 15, early repigmentation was noted.

Conclusions

These cases demonstrate the safety and efficacy of the BDCM in supporting healing of deep partial-thickness burns. Importantly, the BDCM supported re-epithelialization and repigmentation, thus offering a more diverse treatment option within burn care for deep partial-thickness injuries. Additionally, patients experienced reduced pain post-application and simplified aftercare, further highlighting the clinical utility of the BDCM.

Applicability of Research to Practice

BDCM is a safe and viable advanced dressing option for healing deep partial-thickness burns.

External Funding

None

College-aged Burn Survivors

Katrina G. Welborn, MS., E. G. Meier, PhD, Alberta M. Gloria, PhD.

Introduction

Although there exists a literature base on burns and burn survivors' experiences, there is a paucity of research for young adult burn survivors, and more specifically, those in higher education. Along with increased psychosocial symptoms for college students, burn survivors experience a myriad of mental health challenges related to their burns, with higher rates of depression, anxiety, substance use, and suicide attempts than those who have not experienced a burn. This study assessed depression, anxiety, trauma, and functioning as well as explored descriptive narratives regarding support and barriers of college-aged burn survivors who were enrolled and not enrolled in postsecondary education.

Method

Drawing from a larger national study of burn survivors who were treated at regional burn centers, participants were 13 (8 enrolled, 5 not enrolled) college-aged adults (i.e., 19 to 29 years). They included six self-identified females and seven self-identified males who were primarily White, single, heterosexual, with multiple burn-injured areas of the body from fire/flame and scald burn sources. The majority (76.9%) of the participants were 18 years of age or older at the time they were burned. Participants completed a demographic form followed by four counter-balanced standardized scales addressing depression, trauma, anxiety, and functioning.

Results

Overall, 69.2% reported moderate to severe depression, 57.4% reported clinical symptoms of trauma, and 53.8% indicated moderate to severe anxiety. All participants reported that their burn continued to negatively impact their life. Enrolled participants reported more difficulty with functioning than those not enrolled. Correlations indicated positive relationships between depression and trauma. A positive relationship between trauma and anxiety emerged for those enrolled whereas a negative relationship was yielded for those not enrolled. Those enrolled had a stronger relationship between depression and anxiety, and trauma and anxiety compared to those not enrolled, respectively. Using a multi-step qualitative approach, the analysis addressed themes regarding support and barriers.

Conclusion

Our findings revealed substantive levels of psychosocial concerns with differences by enrollment status. The qualitative findings were aligned and provided nuanced contextualization for our study's sample. There is a need for increased knowledge of working with student burn survivors and providing supports within the campus context and destigmatizing/dismantling current biases or fears that individuals have in interacting with burn survivors. Campus and disability justice

training can center belonging for all student learners with dimensional disabilities. Research involving context-specific experiences of burn survivors in postsecondary settings is needed.

External Funding
None

Friday
Session 12: Abstracts 3:12pm

Evaluating First Positive Cultures in Burns: Rethinking Broad-Spectrum Antibiotic Choices

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Introduction

Nearly all major burn patients experience an infection during their admission. Broad spectrum antibiotics can have negative health effects and encourage multi-drug resistance (MDR). The purpose of this study was to determine antibiotic use patterns and assess the need for and appropriate use of broad-spectrum antibiotics in major burn patients on first positive culture (FPC) results at the largest ABA certified burn center in Canada.

Methods

This single-centre retrospective descriptive study included patients aged >16 years admitted to the Ross Tilley Burn Centre from Jan 1, 2018, to May 1, 2023, with a total body surface area (TBSA) burn >20%. Patients were excluded if they were admitted with non-burn injuries (e.g. exfoliating skin condition, necrotizing soft tissue infection, etc.). Descriptive analysis was completed. The primary outcome was the proportion of different bacterial organisms on FPC. The secondary outcome was assessment of RTBC antibiotic use patterns associated with FPC. The tertiary outcome was assessment of admission MRSA screening practices and utility.

Results

A total of 114/196 patients were included in this study. The median age was 48 (35-59 IQR), 87 male (76%) and 27 female (24%), median %TBSA was 32%, 26 (22%) had inhalation injury and 83 (73%) were mechanically ventilated. There was a total of 145 FPCs with sources for being respiratory (55%), wound (30%), urine (8%), and blood (7%). Of all FPCs, 7% were sterile (blood and operating room specimen) and 73% of patients had a FPC in less than 7 days from admission. The most prevalent organism on FPC included MSSA 27 (19%), Haemophilus influenzae 22 (15%), Enterobacter cloacae complex 12 (8%), Escherichia coli 10 (7%), MRSA 10 (7%), and Pseudomonas 9 (6%). Of 90/114 patients with MRSA negative screens on admission, only 3 (3%) had positive MRSA cultures on FPC, with none having VRE positive cultures. 113/114 (99%) of patients were started on antibiotics including piperacillin/tazobactam (41%), vancomycin (16%), cefazolin (14%), and ceftriaxone (11%), 15/114 (13%) received dual antibiotic therapy 11/15 (73%) of which included piperacillin/tazobactam and vancomycin combination. Sensitivity results indicated meropenem covered 131/145 (90%) and ciprofloxacin/cefazolin combination covered 120/145 (83%) of organisms.

Conclusions

The data from this study suggests that piperacillin/tazobactam is appropriate therapy but may be too broad and alternatives such as meropenem and combination therapy with ciprofloxacin/cefazolin may also be appropriate. Piperacillin/tazobactam and vancomycin dual therapy is rarely indicated based on FPCs. In patients with negative MRSA screening on admission there isn't a strong indication for vancomycin use on FPC.

External funding or conflicts

None

Friday
Session 12: Abstracts 3:18pm

Improving the Success of Cultured Epidermal Autograft (CEA) for Posterior Lower Leg Application

Sofie Hass, BS, MD (2027), Cole Bird, Jessica Reynolds, Dhaval Bhavsar

Introduction

Cultured epithelial autografts (CEA) have played a pivotal role in the field of burn care for an extensive period. Traditionally, anterior grafts have exhibited greater durability compared to their posterior counterparts, primarily due to the heightened shear forces experienced by posterior grafts.

Method

We reviewed charts of two patients who underwent application of CEA for both lower extremities. After IRB approval, a chart review was completed. Relevant case information was obtained and photos were extracted. Burn wounds over both lower extremities were debrided one week before the planned CEA application. Wounds were covered with allograft skin at that time. Lower extremity external fixators were applied a day or two before the planned CEA application. These were planned in a way that the entire lower extremity was lifted off the resting surface and joints were well supported. On the day of CEA surgery, allografts were removed, and wounds were prepared again as needed. We used 6:1 meshed autografts followed by CEA sheets. Legs remained suspended with an external fixator for 2-3 weeks post-surgery.

Results

These two patients had large surface area burn injuries (83 % and 85% TBSA). Both involved full-thickness burns involving both lower extremities completely (one required right lower below knee amputation prior to CEA application). We observed nearly 100% take for CEA for both patients. External fixator use allowed easier wound care and the ability to control excess moisture. Patients were able to receive care without concern for shear or friction. Both lower extremities remained completely healed at 3,6 and 12 months without any additional skin grafting needs. Post external fixator removal, both patients were ambulating as expected.

Conclusion

The near-100% graft acceptance rate observed in our patients is attributable to the supplementary advantages conferred by the external fixators. These benefits encompass streamlined management of CEA sites, better moisture control, and reduction in shear forces. Limited use of an external fixator has allowed us to improve outcomes of CEA application for lower extremities.

External Funding

None

Friday
Session 12: Abstracts 3:24pm

Innovative Management of Pediatric Burns: Combining Enzymatic Debridement and Autologous Skin Cell Suspension

Sofie Hass, BS, MD (2027), Cole Bird, Jessica Reynolds, Dhaval Bhavsar

Introduction

Enzymatic debriding agents (EDA) have demonstrated potential for rapid non-surgical eschar removal. Autologous skin cell suspension (ASCS) has been shown to enhance burn wound healing. Despite their individual benefits, the combined use of EDA and ASCS in burn treatment remains under-explored in the current literature.

Methods

We present a case involving a 17-year-old patient with a 46% total body surface area (TBSA) burn. We treated deep partial thickness burn injury over his entire back (approximately 14%) with EDA. This was performed in the operating room while doing excision and grafting for his upper extremities. Post enzymatic debridement wound was dressed with silver-impregnated foam and observed for signs of re-epithelialization. After one week, there were few areas that showed signs of re-epithelialization, so the patient was treated with ASCS.

Results

The enzymatic debriding agent (EDA) achieved complete debridement. Despite initial treatment, re-epithelialization was not observed after one week, suggesting the wound was at least deep partial thickness. Subsequent administration of autologous skin cell suspension (ASCS) resulted in rapid healing, with full wound closure achieved within 10 days, at 3 weeks after injury.

Conclusion

We present the combination of enzymatic debridement and autologous skin cell suspension for effective treatment of large surface area deep partial burns in a pediatric patient. We were able to achieve wound healing within 3 weeks with minimal surgical intervention and preservation of normal uninjured dermis as a result.

External Funding

None

Omega-3 Rich Fish Skin Grafts in Wound Healing: A Systematic Review and Meta-Analysis

Emanuella M Brito, BS, Soumya Malhotra, Alisa Gia-Lac Nguyen, Charlotte Yeung, Christian Sanchez Corredera, Martin Newman, Radleigh Santos, Robin Jacobs

Introduction

Partial and deep-thickness wounds are challenging to manage due to delayed closure and high complication rates. Standard treatments including allografts, autografts, xenografts, and synthetic dressings, often result in prolonged healing and poor wound outcomes. Pre-clinical studies with Kerecis Omega-3 fish skin grafts, which closely resemble human skin due to their preservation methods, have shown quicker re-epithelization, decreased contractures, and faster wound closure. This systematic review and meta-analysis compares the clinical utility of Kerecis Omega-3 grafts to standard of care (SOC) treatments for acute and chronic wounds including burns, diabetic ulcers, and ischemic wounds.

Methods

EMBASE, Ovid MEDLINE, and Web of Science were searched through October 2024 following PRISMA guidelines. Studies using Kerecis grafts for partial to deep-thickness wound closure were included if they reported on time to healing, wound area reduction, pain scores, or proportion of complete wound healing. Keywords used were “fish skin grafts”, “bioabsorbable mesh”, “acellular dermal matrix”, “acute wounds”, “chronic wounds”, “burns”, “diabetic ulcers”, “ischemic wounds.” Data were analyzed using random-effects meta-analysis, meta-regression, sensitivity analyses.

Results

Nine studies (n=504; Kerecis n=247, SOC n=257) met inclusion criteria. Baseline characteristics were similar between groups. Kerecis Omega-3 grafts were associated with greater wound area reduction, lower reported pain, and a higher proportion of completely healed wounds [0.75; 95% CI (0.53, 1.05)]. Time to healing was significantly shorter in the Kerecis group [-2.5 days; 95% CI (-3.3, -1.7)]. Only one study reported signs of infection which included 60% of SOC patients versus none in the Kerecis group.

Conclusions

Kerecis Omega-3 grafts improve key wound healing outcomes, particularly healing time and wound closure, while maintaining a comparable safety profile to standard treatments.

Applicability of Research to Practice

These findings suggest Kerecis grafts may be an effective alternative for treating complex wounds. Further large-scale, longitudinal studies are needed to confirm their long-term efficacy.

External Funding
None.

Friday
Session 12: Abstracts 3:36pm

Oxygen Reduction by Facultative Anaerobes Drives Anaerobic Survival in Wound Environments

Jillian Wilkerson, Medical Student, Cameron Geoffrey Almeida, Subhromitra Goushil, Erin Chard, Anna Tingler, Selene Shore, Aly Gutierrez, Jessica Hartman, Deepak Kurian Ozhathil, Mindy Engevik

Introduction

Oxygen plays a pivotal role in microbial ecology and burn wound healing. Many wound infections are polymicrobial, where facultative anaerobic bacteria may deplete oxygen from the wound microenvironment, enabling strict anaerobes to survive in otherwise oxygen-rich tissues. Few studies have directly quantified bacterial oxygen depletion capacities in clinically relevant species. Therefore, in this study we characterized the ability of diverse wound-associated bacteria to modulate oxygen levels and facilitate anaerobic survival.

Methods

A polymicrobial community consisting of 58 bacterial species including a number of species commonly found in burn wounds such as *Staphylococcus, Streptococcus*, *Enterococcus, Pseudomonas, Klebsiella*, *Acinetobacter* and *Enterobacter* were cultured overnight in rich media and sub-cultured into chemically defined ZMB1 mediums at OD600nm 0.1, incubated aerobically at 37°C. Growth (OD600nm) and oxygen concentration were monitored using a Synergy H1 plate reader and Resipher oxygen sensor.

Results

While all strains grew under these conditions, oxygen depletion varied by species. *Morganella morganii*, *Salmonella enterica*, *Pseudomonas fluorescens*, *Pseudomonas aeruginosa*, and all *Klebsiella* strains reduced oxygen to <30 µM within 30–40 minutes. *Pseudomonas putida*, *Serratia marcescens*, *Staphylococcus aureus, Citrobacter freundii*, *Enterobacter hormaechei*, *Enterobacter cloacae*, *Escherichia coli*, *Proteus vulgaris*, *Proteus mirabilis*, *Acinetobacter baumannii*, *Acinetobacter calcoaceticus*, and *Enterococcus faecalis* achieved similar depletion within 1–1.5 hours. Other *Enterococcus* species required 2–4 hours, while most *Streptococcus* and *Lactobacillus* strains showed minimal oxygen reduction, except *S. parasanguinis* and *L. sakei*. Genomic analysis identified cytochrome oxidases, nitrate/nitrite reductases, and other oxidases correlating with oxygen depletion capacity.

Conclusions

Facultative anaerobes in wounds can rapidly deplete oxygen, creating microenvironments that support strict anaerobes. These interactions may contribute to wound chronicity, biofilm formation, and treatment resistance.

Applicability to Practice
Understanding bacterial oxygen dynamics may inform strategies to manage complex burn wound infections and guide therapeutic interventions targeting microbial interactions.

External Funding
None

Reconstructing "Ungraftable" Necrotizing Soft Tissue Infection Wounds with Biodegradable, Open-Cell Foam Matrices: A Case Series

Matt Morris, MD, Patricia Pentiak, MD; Tim Burton, MD

Introduction

Necrotizing soft tissue infections are life-threatening conditions characterized by rapid progression of skin and soft tissue necrosis to multi-system organ failure. Mortality and morbidity remain high despite prompt surgical management. As more patients survive, we have begun to employ several synthetic adjuncts for wounds which are thought to be "ungraftable" (e.g., exposed muscle, tendon, or bone, with large tissue defects). These products are made from a biodegradable polyurethane polymer and facilitate rapid native tissue ingrowth for delayed skin grafting.

Methods

This short case series presents several reconstructions after NSTI to illustrate a novel application of a synthetic monolayer and bilayer product already employed in burn care.

Results

Patient 1**:** a 58-year-old male with history of diabetes mellitus type 2, who noticed a bump on his right posterior back which became productive of purulent discharge. Our initial debridement resulted in 2250 cm^2 by 7 cm deep wound over his right flank including skin, subcutaneous tissue, and muscle fascia (Figure 1). The bilayer and the monolayer matrices were applied on POD 7 and demonstrated in-growth by POD 14. He was grafted on POD57 and recovered well (Figure 2).

Patient 2: a 62-year-old male with history of obesity and remote donor nephrectomy who presented with an abdominal wound concerning for enterocutaneous fistula. Debridement revealed necrotic skin, subcutaneous tissue, and abdominal fat leaving a wound measuring 1800 cm^2 by 15 cm deep. On POD3, the wound was partially closed and monolayer foam was applied over a 900 cm^2 defect (Figure 3). He underwent wound closure and split thickness skin grafting on POD51 (Figure 4).

Conclusions

A burn surgeon's experience in major burn reconstruction translates well to complex soft-tissue reconstruction after NSTI. Synthetic products, which are resistant to infection, able to partially excised for hematoma or purulence, and result in rapid infiltration of native tissue, are well-suited to the treatment of these wounds.

Application to Clinical Practice
Given the ease of use of these synthetic agents, the reduced cost (compared to biologics), resistance to infection, and effective wound bed preparation, this method shows potential for future use in NSTI.

External Funding
None

Figures


Figure 1.


Figure 2.


Figure 3.


Figure 4.

Specialized Programming for Volunteers on a Burn and Wound ICU

Sara J. de Felice, LPN, CAN, Julia Modest

Introduction

A Burn and Wound ICU (BWICU) presents unique experiences for volunteers interested in the healthcare setting, made possible by strong collaboration between a hospital's volunteer services department (HVSD) and the leadership and specialized programming of a BWICU. The HVSD is responsible for the recruitment, onboarding and retention of all hospital volunteers. A Volunteer Supervisor (VS) and the Nursing Unit Manager (NUM) on a BWICU are responsible for creating a program that fully utilizes volunteers in specialized skills and tasks, and provides education, mentorship and discourse regarding trauma-informed care.

Method

A BWICU Volunteer Supervisor (VS) was appointed by the Nursing Unit Manager (NUM) to oversee the unit's volunteer program. The VS created volunteer programming and onboarding specific to the BWICU, including specialized duties, discourse on the necessity of trauma-informed care, and facilitated staff mentorship. The VS maintained regular contact with volunteers to assist in the processing of their experiences and self-care. Collaboration with the HVSC allowed for an expansion of volunteer shifts and more frequent scheduling, as well as assisting the HSVC in appropriately matching new volunteers to the specific needs of the BWICU.

Results

The expansion of volunteer duties necessitated an increase in volunteer staffing hours from 12 hours per week to 28-30 hours per week, which contributed to greater cost-savings and allowed staff more opportunity to attend to direct patient care needs. Volunteer retention on the unit increased, resulting in the return of experienced, specialized volunteers who then served as mentors for new volunteers. Volunteers routinely cited the education, discourse regarding trauma-informed care, patient connections, and mentorship opportunities as particularly rewarding aspects of their BWICU experience. Staff reported having more time available to spend with patients when tasks were supplemented by volunteers.

Conclusion

The findings suggest the benefit of specialized volunteer programming unique to a BWICU (or any unit) in creating greater volunteer satisfaction and retention. Further, strong support and collaboration from the HVSD and HVSC is essential to a unit's success in any volunteer endeavor.

Funding
Funding of the HVSD and its employees for the recruitment, retention, onboarding, and general management of the volunteers is provided by UW Health and its affiliates.

Utility of Hair Toxicology in Detecting Child Abuse or Neglect in The Burn Unit: A Quality Improvement Project

Jack Bullis, MD, Tessa A Davis-Walz, MSN; Colette Galet, PhD; Shady Al Hayek, MD

Introduction

Twenty percent of all burn admissions annually are children; 20-30% of these are related to abuse or neglect. Child Protective Services (CPS) at our institution recently decided to stop following and interpreting hair toxicology results for pediatric burn patients. Drug use/exposure is an important risk factor for child abuse/neglect. A previous study showed that hair toxicology testing identified 15% of all child abuse cases. The goal of this study is to evaluate the value of hair toxicology testing to identify child abuse or neglect and whether this practice is worth continuing.

Methods

Medical records of pediatric patients ≤14 years admitted between 1/1/2019 and 2/29/2024 were reviewed. Demographics, burn injury information, suspicion of child abuse/neglect on admission, routine urine drug screening tests, hair toxicology results, and reporting to the State Health and Human Services (HHS) were collected. Descriptive statistics were obtained. Univariate analyses were performed to assess the utility of hair toxicology with $p < 0.05$ considered significant.

Results

Two hundred ninety-eight patients were included. Demographics and burn injury information are presented in **Table 1**. Child abuse was suspected for 94 (31.5%) patients. Hair toxicology was performed for 224 (75.2%) patients and positive for 80 (35.7%). Hair toxicology was more likely to be performed when child abuse was suspected on admission (81.9% vs. 72.1%, $p = 0.044$), and more likely to be positive (40.4% vs. 20.6%, $p < 0.001$). Suspicion on admission was also associated with higher HHS involvement (95.7% vs. 24%, $p < 0.001$). HHS was more likely to be involved when hair toxicology was performed (54% vs. 24.3%, $p < 0.004$) and positive (96.3% vs. 28.4%, $p < 0.001$) regardless of suspicion on admission.

Conclusion

Hair toxicology screening for pediatric burn patients is still a valuable tool to help clinicians report cases for suspected abuse/neglect not otherwise suspected on admission using other tools.

Applicability of Research to Practice

As institutions seek to limit the unnecessary use of resources such as routine screening tests in burn patients, this study shows that there is still significant utility to routine hair toxicology testing in identifying abuse and neglect in the pediatric burn population.

External Funding
None

Table 1. Demographics and burn injury information.

Variables	**Pediatric cases 2019-2024 n = 298**
Male, n (%)	194 (65.1)
Age, mean [SD]	4.1 [4.2]
Transfer, n (%)	252 (84.6)
Mechanism of injury, n (%)	
Thermal burn	272 (91.3)
Chemical Burn	10 (3.4)
Electrical burn	2 (0.7)
Other	14 (4.7)
TBSA, mean [SD]	7.2 [9.3]
Inhalation injury, n (%)	14 (4.7)
Hospital LOS, mean [SD]	7.2 [31.2]

2025 Midwest Regional Burn Conference Faculty List

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