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ABSTRACT BOOK

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ONE CONDITION, MANY PATHWAYS: PRESSURE ULCERS ACROSS LIFE, HEALTH, AND CARE CONTEXTS

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Pressure ulcers (PUs) have long been associated primarily with older adults and individuals with spinal cord injury. However, decades of research have reshaped this understanding, revealing a far more complex and widespread clinical challenge. Contemporary evidence shows that PUs occur across the lifespan, from critically ill neonates to community-dwelling adults, highlighting the need to reframe them as a condition influenced by diverse biological, clinical, and social pathways rather than a single risk profile.

This evolution in knowledge has broadened the lens through which PUs are understood and managed. While early research focused on immobility and tissue ischemia in high-risk populations, more recent work has emphasised the importance of cell deformation and early inflammation, multifactorial risk, device-related injury, and healthcare environments. Importantly, research now recognises that the context of care matters, the goals and approaches to PU prevention and management differ significantly between settings such as acute care, long-term care, and palliative care. In palliative contexts, for example, the emphasis may shift from prevention to comfort and dignity, requiring nuanced clinical decision-making.

Despite these advances, significant challenges remain. Variability in practice, gaps in implementation of evidence-based care, and inequities across care settings continue to affect outcomes. This presentation reflects on where the field has come from, where it stands today, and where it must go next. Future directions include strengthening interdisciplinary approaches, integrating patient-centred outcomes, improving early risk identification using emerging technologies, and addressing system-level barriers to consistent care delivery.

Ultimately, recognising that one condition can arise through many pathways demands a more adaptive, context-sensitive approach. Advancing PU prevention and management will depend on bridging research, clinical practice, and policy, to deliver equitable, high-quality care across all stages of life and health contexts.



TEAMWORK MAKES THE DREAM WORK: EXPLORING TEAM PERFORMANCE IN PRESSURE ULCER CARE

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Professor Tom O'Connor, leading a recent editorial in the Journal of Wound Care on closing the gap between evidence and implementation wrote that "only by translating what we know into what we do, can we truly reduce the burden of pressure ulcers". However, perhaps we need to reflect upon whether closing that gap requires *even more* than that; that we need to extend our consideration beyond what we *know* and what we *do*, to also include *how* we do it. This keynote speech will explore whether the use of multidisciplinary teams provides us with the answer of '*how*' we might close the gap between evidence and clinical implementation.

Having conducted a scoping review of the international databases spanning the past 10 years, the author has found this to be a neglected area of consideration. Retrieving only 8 relevant studies from across the world, the evidence illustrated diversity in the composition of the multidisciplinary teams, variations in the team approaches adopted, and different models of institutional and organisational support. The evidence challenges our understanding of person-centred care as only two studies specifically outlined the inclusion of the person with lived experience of a pressure ulcer within their team approaches.

This presentation will present an overview of the international evidence and pose questions such as: what can a multidisciplinary team in pressure ulceration care look like? What approaches can be adopted by a team to optimise pressure ulceration care? What is the role of the organization in supporting team performance? It is hoped that each attendee will leave with a renewed sense of vision and purpose to close the gap between evidence and implementation by revisiting their practice teams to further consider multidisciplinary approaches and to embrace the opportunities to embed person-centred practices in their provision.



FUNDING PRESSURE ULCER RESEARCH IS ESSENTIAL FOR SUSTAINABILITY

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Pressure ulcers (PU) remain a significant clinical problem across a myriad of healthcare settings. The resultant outcome of PU development can often be devastating for patients with burden also placed on families and services. All of this is preventable as PU are preventable in many cases. Evidence is needed as clinicians, academics and scientists pursue new methods of preventing PU, methods that are easily implemented by clinicians at the bedside, and by patients and families outside of inpatient settings. Evidence generation requires research that is sustained. The focus of this talk will be on how to best attract funds for PU research, both stand alone and longitudinal studies. Case studies will be used to showcase some funded study real world scenarios.



ADVANCED BIOMATERIALS FOR CHRONIC WOUND REPAIR

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Tissue engineering typically uses a combination of biomaterial scaffolds, cells (such as stem cells) and signaling mechanisms (such as growth factors or mechanical stimuli) to restore the function of damaged or degenerated tissues. The research carried out in our laboratory investigates each of these three areas with target applications in tissues including skin, bone, cartilage, cardiovascular, respiratory, and neural tissues. The once-in-a-century COVID-19 pandemic was conquered using revolutionary messenger RNA (mRNA) treatments. This has given new momentum to gene therapy research. While non-viral vectors (NVV) are typically inefficient at transfecting cells, our group have had significant success in this area using a scaffold-mediated NVV gene therapy approach for regenerative applications. Utilising plasmid DNA and mRNA encoding therapeutic proteins, these gene activated scaffold platforms not only act as a template for cell infiltration and tissue formation, but also can be engineered to direct autologous host cells to take up specific genes and then produce therapeutic proteins in a sustained but eventually transient fashion. Similarly, we have demonstrated how scaffold-mediated delivery of siRNA and miRNA can be used to silence specific genes associated with reduced repair or pathological states. This presentation will provide an overview of ongoing research in our lab in this area with a particular focus on gene-activated biomaterials for promoting the repair of chronic wounds and nerve tissue and will discuss the role of Public and Patient Involvement (PPI) in research and the importance of partnering with industry to offer a route to the clinic for next generation technologies.



TISSUE STRAINS COMPUTATION WITH BIOMECHANICAL MODELS TO PREVENT PRESSURE ULCERS

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This invited lecture aims to present our most recent works on the development of subject-specific biomechanical models of human soft tissues to prevent pressure ulcers. Such models represent the geometry of tissues (foot, buttocks, sacrum) discretized into finite elements, whose mechanical properties should, if possible, be subject-specific. Numerical simulation then allows us to estimate tissue deformations when they interact mechanically with a support such as a shoe, a chair, or a bed. Pioneering work by Cees Oomens and collaborators (Eindhoven University of Technology) has shown that internal tissue shear strains are a relevant biomarker for estimating the risk of pressure ulcer development.

Together with several collaborators, our research team has demonstrated the sensitivity of the models to the values of the mechanical parameters defined in each anatomical structure modeled using finite elements, as well as the importance of subject-specific calibration. In particular, using MRI measurements, we have shown that internal strains of the sacrum soft tissues are simulated more accurately when tissue stiffnesses are obtained from in vivo measurements taken directly from the subject.

Even more recently, we have expanded the scope of prevention by focusing on modeling the mechanical interactions between wounds' soft tissues from one side and dressings from the other side, with or without consideration of cavity fillers. Tissue shear strains simulated by the models are here again studied as a biomarker, supplemented by other parameters such as the pressure exerted by the filler onto the wound bed.



PRESSURE ULCERS/INJURIES MANAGEMENT IN EMERGENCY DEPARTMENTS

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Introduction

Pressure ulcer/injury management continues to be a challenge across different healthcare settings [1–4] and is an emerging concern in emergency departments [4,6–9]. The prevalence of pressure ulcers/injuries in emergency departments ranges from 5.2% (at admission) to 12.3% (at discharge), while the reported incidence ranges from 4.5% to 78.4% [5]. This study aimed to analyse pressure ulcer/injury risk assessment, prevalence, and incidence among adult patients admitted to the emergency room of a Portuguese hospital.

Methods

This quantitative, prospective, observational, and cross-sectional study was conducted between November 2024 and February 2025 in the emergency room of a Portuguese hospital. Skin and tissue integrity and pressure ulcer/injury risk assessments were performed at admission to and discharge from the emergency room using the “Skin Assessment Tool” and the “Braden Scale”. Participant recruitment and data collection were carried out by the nurses responsible for the emergency room during each shift, using a form developed specifically for this purpose. The study was approved by the Ethics Committee (Ref. CE-ICVS/CAC-EMHA/27.08.2024). Descriptive statistics were calculated for demographic and clinical variables and for sample characterisation. A paired-samples t-test was used to compare mean total Braden Scale scores between admission and discharge, and Cohen’s d was used to assess the magnitude of the observed effects. Odds ratios (ORs) were calculated using logistic regression analysis.

Results

The sample comprised 156 participants. At admission to the emergency room, 55.8% of participants were classified as being at “high risk” of pressure ulcer/injury development. At discharge, this percentage had increased significantly to 67.3%. The median length of stay in the emergency room was 1 hour and 47 minutes. The prevalence of pressure ulcers/injuries at admission was 2.6%, and the incidence was 0%. Participants with obesity, altered consciousness, and advanced age were more likely to be classified as being at “high risk” of pressure ulcer/injury development. Following the initial assessment and treatment in the emergency room, 65.4% of participants were transferred to other clinical areas within the emergency department.

Conclusions

The risk of developing pressure ulcers/injuries in emergency departments is a significant clinical concern. Certain clinical and demographic variables that are not assessed by the Braden Scale increase the likelihood of being classified as at “high risk” of pressure ulcer/injury development. Preventive measures should be implemented systematically from the time of admission. Most participants admitted to the emergency room remained within the emergency department’s clinical areas following their initial care.

Conflict of Interest

The authors declare no conflict of interest.

The main findings of this study are drawn from Liliana Candeias’s Master’s Thesis presented at University of Aveiro in 2025, available at: <http://hdl.handle.net/10773/45316>

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HARMONISING PRESSURE ULCER OUTCOME MEASUREMENT IN CRITICAL CARE: NEXT STEPS. THE SAFE-ICU EUROPEAN RESEARCH NETWORK (SAFE-ICU COST ACTION CA24107)

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The intensive care unit (ICU) is a complex and rapidly evolving healthcare environment where critically ill patients are exposed to multiple risk factors for preventable harm. Pressure ulcers (PUs), also referred to as pressure injuries, remain a significant patient safety concern in ICUs despite advances in prevention technologies, clinical guidelines, and care practices. Patients admitted to ICUs are particularly vulnerable due to immobility, haemodynamic instability, use of medical devices, and prolonged length of stay. The development of a pressure ulcer can have serious and long lasting consequences for patients, healthcare systems, and society, including increased morbidity, prolonged hospitalisation, and higher healthcare costs.

While considerable effort has been directed towards PU prevention, research and quality improvement initiatives are hindered by substantial variation in how PU related outcomes are defined, measured, and reported internationally. Differences in outcome selection, classification systems, timing of assessment, and reporting practices limit the ability to compare findings across studies and healthcare settings. This lack of standardisation reduces opportunities for evidence synthesis, benchmarking, and the identification of effective prevention strategies at national and international levels.

The SAFE-ICU COST Action funded by the COST Association is a European Union funded research network that seeks to address these challenges by promoting collaboration and consensus in patient safety research across critical care settings. A key focus of the network is the harmonisation of pressure ulcer outcome measurement to support robust, comparable, and clinically meaningful research across Europe.

This presentation will outline current challenges in achieving standardised PU outcome measurement within critical care research and practice. Particular attention will be given to the variability in PU risk assessment tools and the linguistic and cultural barriers associated with their use across different European countries. Ongoing work within the SAFE-ICU network seeks to address these challenges through several collaborative projects, including a European point prevalence study examining the burden of PUs in critical care, the translation and cultural adaptation of PU risk assessment tools into multiple European languages, and research focused on the prevention and management of PUs in haemodynamically unstable and difficult-to-reposition patients. Together, these initiatives aim to generate comparable data, improve the validity of assessment practices across countries, and support the development of standardised approaches to PU outcome measurement and prevention throughout Europe. The presentation will also discuss the importance of developing agreed outcome definitions and measurement approaches that can be applied consistently across healthcare systems. Establishing common standards for PU outcome measurement will facilitate cross-country comparisons, strengthen collaborative research, improve evidence synthesis, and support the development and evaluation of effective prevention interventions.

Ultimately, harmonised outcome measurement represents a critical step towards advancing PU prevention in critical care. By ensuring that researchers and clinicians across Europe measure the same outcomes in the same way, the SAFE-ICU network aims to create a stronger evidence base for prevention strategies and promote equitable improvements in patient safety. Through international collaboration and consensus-building, this work seeks to ensure that all countries, regardless of resources or healthcare context, can contribute to and benefit from advances in PU prevention, ensuring that no healthcare system is left behind.



GLOBAL PREVALENCE OF PRESSURE INJURIES: PAST EVIDENCE AND FUTURE DIRECTIONS (SAFE-ICU COST ACTION CA24107)

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Pressure injuries remain one of the most frequent and burdensome adverse events affecting critically ill patients worldwide. Despite advances in prevention strategies, intensive care unit (ICU) patients continue to experience a disproportionately high risk due to immobility, haemodynamic instability, organ support therapies, and prolonged exposure to medical devices. Understanding the epidemiology of pressure injuries is therefore essential to guide sustainable prevention efforts and improve patient outcomes.

This presentation will review the major evidence generated over the last decade, with a particular focus on the landmark DecubICUs study conducted by Labeau et al. (2021). This international one-day prevalence study provided the most comprehensive global estimate of pressure injury prevalence in adult ICU patients to date and identified several patient-level risk factors associated with their occurrence and outcomes. The findings have significantly contributed to raising awareness of pressure injuries as a global patient safety issue in critical care.

However, important knowledge gaps remain. Existing large-scale epidemiological studies have predominantly focused on patient characteristics, while organisational determinants of care have received limited attention. Emerging evidence suggests that factors such as nurse staffing levels, workload, skill mix, work environment, and organisational culture may substantially influence pressure injury prevention and outcomes.

The SAFE-ICU COST Action (CA24107) aims to foster international collaboration and develop future research addressing these organisational dimensions. As part of Working Group 1 on pressure injury prevention, we propose a new international prevalence study that will not only update global prevalence estimates but also explore the impact of organisational and workforce-related factors on pressure injury occurrence in critically ill patients.

By connecting past evidence with future research priorities, this presentation will discuss how sustainable pressure injury prevention in critical care requires a broader systems perspective integrating both patient-level and organisational determinants.

PREVENT, DETECT, ACT: ADVANCING PRESSURE INJURY PREVENTION AND TREATMENT IN THE SCI COMMUNITY

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People living with spinal cord injury (SCI) face a lifelong risk of pressure injuries (PIs), with recurrence rates remaining unacceptably high despite advances in prevention and treatment. Pressure injuries continue to have a profound impact on health, participation, quality of life, and healthcare utilisation. Sustainable approaches to prevention and management are therefore essential across the continuum of care.

This presentation explores how sustainable PI prevention and treatment strategies can be implemented within the SCI community by integrating evidence-based recommendations into everyday clinical practice. Drawing on the European Pressure Ulcer Advisory Panel (EPUAP) Pressure Ulcer Guide, the EWMA Pressure Injury Recurrence Toolkit, current evidence, and experiences from a specialised wound clinic, this presentation highlights practical approaches that support long-term prevention, early identification of tissue damage, and coordinated management of established pressure injuries.

The presentation is structured around three key actions: **Prevent, Detect, and Act**.

Prevent focuses on building sustainable prevention pathways that extend beyond the hospital setting and support individuals throughout their lives. This includes education, self-management, risk awareness, and continuity of care across healthcare sectors.

Detect emphasises the importance of recognising early signs of tissue damage before skin breakdown occurs. Particular attention is given to patient engagement, routine surveillance, and emerging opportunities for digital monitoring and remote support.

Act addresses the management of established pressure injuries and the prevention of recurrence through multidisciplinary and cross-sector collaboration. Effective treatment requires coordinated care pathways that bring together patients, specialist services, community care, and rehabilitation teams.

Examples from clinical practice demonstrate how evidence-based recommendations can be implemented in ways that support both individuals living with SCI and the healthcare professionals involved in their care.

The session argues that sustainable pressure injury prevention and treatment require more than individual interventions. Long-term success depends on informed and empowered individuals, skilled healthcare professionals, coordinated healthcare systems, and strong partnerships that support prevention and management throughout the lifespan.



STOPPING THE SPIRAL: STRENGTHENING CLINICAL CARE TO PREVENT PRESSURE ULCER COMPLICATIONS

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Pressure ulcers remain a persistent and costly challenge across healthcare settings, often escalating into severe complications that compromise patient safety, prolong hospital stays, and increase morbidity and mortality risk. Delays in identification and early management—frequently driven by limited access to resources—allow tissue damage to progress unchecked, increasing clinical complexity and creating extreme challenges in wound management.

Stopping the Spiral: Strengthening Clinical Care to Prevent Pressure Ulcer Complications examines the critical need for early recognition, evidence based interventions, and coordinated multidisciplinary practice to interrupt the trajectory from initial tissue compromise to advanced ulceration and complications. The presentation illustrates how severe these complications can become, drawing comparisons between current and past practices within a specialist spinal injuries centre to highlight both progress and persistent gaps.

Key gaps in assessment accuracy, risk stratification, and consistency of care are explored, alongside practical strategies that enhance clinical vigilance and support more effective prevention and management. Emphasis is placed on technology supported monitoring, reinforcing staff competency, and cultivating a prevention focused culture across care teams.

By reinforcing pressure ulcer management as a proactive, system wide responsibility, this session explores opportunities for reducing complications, elevating quality of care, and safeguarding patient wellbeing.



EFFECTIVE PARTNERSHIPS IN PRESSURE ULCER CARE: IN CONVERSATION WITH AN EXPERT WITH LIVED EXPERIENCE

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Background

Pressure sores (pressure ulcers) remain a significant and often preventable complication for people living with spinal cord injury, with implications for health, independence, and quality of life^{1,2}. While evidence-based prevention and treatment are essential, they are most effective when delivered through genuine partnership between the person receiving care, their family or carers, and the healthcare professionals supporting them³. This key session explores how the lived experience, clinical expertise, and research evidence can be combined through effective partnership to support practical, person-centred prevention and treatment. The session is co-presented with an expert with lived experience, who also serves as a spinal cord injury peer support officer in the National Rehabilitation Hospital.

Key themes

The session will begin by setting the scene for effective partnership through a values and principles wheel and a supporting theoretical framework. This will show how effective partnerships can positively influence both service delivery and individual health outcomes. The talk will explore key topics in pressure sore prevention and treatment through conversation with an expert with lived experience from the spinal cord injury community. This will ground the discussion in real-world experience and highlight what matters most to people living with this risk. The session will bring together the evidence base and lived experience case examples to demonstrate how co-developed resources can build confidence and strengthen knowledge around pressure sore prevention and treatment. This will show how partnership can move from theory into practical, everyday care.

Practice implications

Participants will be encouraged to reflect on how care is delivered, how expertise is recognised, and how responsibility is shared between the person, family, and healthcare team. The session will reinforce the need for partnership-based care that combines clinical guidance with the person's own knowledge, preferences, and lived reality.

Conclusion

Pressure sore prevention and treatment are most effective when patients, families, and healthcare professionals recognise one another's expertise and work together with shared accountability. Each person brings unique knowledge, and it is through partnership, respect, and shared responsibility that the best outcomes can be achieved.

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IS DRY SKIN A RISK FACTOR FOR PRESSURE ULCERATION?

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Dryness of the skin (xerosis cutis) is caused by a reduced hydration of the stratum corneum. Clinically it is characterized by faint to rough scaling of the skin surface often associated with pruritus. Severe xerosis is characterized by inflammation, eczematous changes and painful cracks (asteatotic eczema). Xerosis cutis leads to skin barrier impairments and also changes the cutaneous biophysical characteristics such as structural stiffness. It can therefore be assumed that xerosis is an indirect risk factor for pressure ulceration. However, empirical evidence regarding the association between stratum corneum hydration, xerosis cutis and pressure ulceration is inconsistent (e.g. Kohara et al. 2021). There also seem to be differences regarding the underlying aetiology and phenotype of dry skin (e.g. Lechner et al. 2019) and the anatomical location (Lechner et al. 2017). There is certainly merit in the targeted use of skin care products to treat dry skin (Kottner 2025). However, the evidence whether skin care products are effective preventive measure against pressure ulcers is also uncertain (Patton et al. 2024).

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ADDRESSING INEQUITIES IN PRESSURE INJURY IDENTIFICATION IN PEOPLE WITH DARK SKIN TONES: COMMUNITY PERSPECTIVES

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BACKGROUND

People with dark skin tones experience disproportionately higher rates of severe pressure injuries, partly due to challenges associated with the early recognition of skin changes (Oozageer Gunowa *et al.*, 2018). Existing assessment approaches and educational resources have largely been developed with lighter skin tones in mind, creating a risk of delayed diagnosis and preventable patient harm (Black *et al.*, 2023; Oozageer Gunowa *et al.*, 2021). This research programme explored perspectives of both community nurses and community-dwelling patients and carers to improve understanding of how early-stage pressure injuries are recognised in people with dark skin tones.

AIM

To synthesise patient, carer, and community nurse perspectives on the early identification of pressure injuries in people with dark skin tones and identify implications for clinical practice, education, and patient safety.

METHODS

Two qualitative descriptive studies were undertaken in the South of England. The first involved semi-structured interviews with 22 people with dark skin tones and/or their carers who had experience of pressure injury or were at high risk of developing one. The second involved focus groups and interviews with 17 community nurses responsible for pressure injury prevention and management. Data were analysed using thematic analysis.

RESULTS

Across both studies, participants highlighted significant challenges in recognising early-stage pressure damage in people with dark skin tones. Patients and carers consistently identified skin discolouration to a darker shade than their usual skin tone as the most common indicator of pressure damage, often accompanied by pain, swelling, warmth, texture changes, or itching. Community nurses similarly reported that pressure damage rarely presented as redness and instead recognised darker, purple, grey, or discoloured skin, alongside pain and altered skin texture, as important indicators.

Nurses described limited education on skin tone diversity during their pre-registration and post-registration training and frequently relied on self-directed learning, clinical experience, or specialist colleagues to develop knowledge. Participants acknowledged that early-stage pressure injuries may be missed, leading to delayed diagnosis and presentation at more advanced stages. Patients and carers generally expressed trust in healthcare professionals but identified a need for greater awareness of skin tone diversity and improved representation within educational materials and clinical resources.

CONCLUSION

Findings from both studies demonstrate substantial agreement between patients, carers, and community nurses regarding the presentation of early pressure damage in people with dark skin tones. Current approaches that emphasise redness as a primary indicator may contribute to delayed recognition and health



inequities. Greater emphasis on skin discolouration, pain, texture changes, and patient-reported symptoms is required when assessing people with dark skin tones.

IMPLICATIONS FOR PRACTICE

Improving pressure injury outcomes for people with dark skin tones requires enhanced education, inclusive clinical resources, and evidence-informed assessment strategies that reflect skin tone diversity. Incorporating patient and carer experiences alongside professional perspectives can support equitable care, improve early recognition of pressure injuries, and reduce avoidable patient harm.

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SOFT-TISSUE DEFORMATION UNDER WEARABLE DEVICES: EFFECTS OF DEVICE GEOMETRY AND PERSON-SPECIFIC TISSUE BIOMECHANICS VARIABILITY

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Introduction

Medical device related pressure injuries are common in the sacral region, where soft tissues vary in thickness and mechanical behavior across individuals. These differences influence how stresses and strains develop beneath wearable devices such as sensors and cables. Device skin-contact geometry may further affect tissue loading, yet the combined effects of device contact shape and tissue mechanical variability are not well defined under varying loads. We used computational modeling to evaluate how device geometry and tissue stiffness influence sacral soft-tissue exposure to loads.

Methods

A multilayer sacral finite element model was developed in Abaqus/CAE 2024 that included epidermis, dermis, adipose tissue, and muscle with literature-based thicknesses and mechanical properties [1,2]. Tissue stiffness was varied between softer tissues, associated with aging or degeneration, and stiffer tissue states [3]. Two device geometries were simulated: a round, flat sensor and a narrow, elongated cable. Uniform pressures of 2-10 kPa were applied beneath each device. Stress and strain distributions were evaluated within a 30-mm region of interest, and the top quartile of strain values was used to compare tissue exposure across device types and tissue conditions.

Results

Effects of differences between individuals indicated that high stress localized in superficial layers, while strain peaked in deeper tissues, especially adipose and muscle. Reduced tissue stiffness, e.g. due to aging or disease, increased internal loading and stress in tissues [3]. The two device geometries produced distinct tissue deformation patterns. Under 10 kPa loading, the flat, round sensor generated relatively uniform strain fields, while the narrow cable created localized regions of concentrated strain. This resulted in 1.25-fold more tissue being in the highest strain quartile for the cable compared with the sensor. Softened tissues increased tissues exposed to high strain 1.4-fold for the sensor and 1.6-fold for the cable. Stiffened tissues decreased the amount of tissue in the highest strain quartile by 1.1-fold for the sensor and 1.3-fold for the cable.

Conclusions

Device geometry and tissue stiffness together influence mechanical loading effects in sacral soft tissues. The cable exposed more tissue to high strains than the flat sensor, and this effect increased with tissue softening. Stiffened tissues reduced tissue exposed to high strain for both device types. This highlights the importance of considering tissue variability and device geometry when assessing medical device related pressure injury risk and in design of wearable technologies.

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A PARTICIPATORY APPROACH TO DEVELOP AND EVALUATE A PRESSURE ULCER PREVENTION RESOURCE FOR PEOPLE WITH LONG-TERM NEUROLOGICAL CONDITIONS

Susanne B Coleman on behalf of the PUP@home research team

Introduction:

People with Long-Term Neurological Conditions (LTNCs) often self-manage their care and may fall between gaps in health and social care services. Despite many living with ongoing risk, there is currently limited support for pressure ulcer (PU) prevention for this group. People with LTNCs, along with their families and Personal Assistants (PAs), are often well placed to identify and respond to early signs of PU risk. Previous research explored their needs and preferences for preventing PUs at home. This study builds on that work by focusing on the development of a web-based intervention to support self-care.

Methods: A participatory approach, with extensive input from those whose lives are the focus of the research, we are developing, pre-testing and field testing the intervention using a mixture of methods including, written feedback, stakeholder workshops, semi structured interviews and think aloud interviews.

Findings: the study is currently ongoing but we hope to present some preliminary findings and share some samples of this web-based intervention and plans for implementation.

Conclusions: Findings from this study will inform the development of interventions to support pressure ulcer prevention at home. In addition, we are generating valuable methodological learning about how to conduct participatory research in the context of pressure ulcer prevention research.

COI: NA

NURSE LED NUTRITIONAL SCREENING AND NUTRITIONAL CARE PATHWAYS FOR HARD TO HEAL WOUNDS

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AIM: Hard to Heal Wounds (HTHWs) have a significant impact on patients and healthcare resources. Estimates put the cost of caring for these wounds at 4% for total healthcare expenditure. With ever competing priorities on health budgets, it is necessary to ensure patients with HTHWs are receiving optimal evidence –based care. One major part of evidence-based care for patients with HTHWs is to ensure that their nutritional needs are met. Aging demographics in Ireland has contributed to malnutrition being a major health concern. Nurses are ideally placed to both screen for patients who may be at risk or suffering from malnutrition and commencing nutritional care processes.

METHOD: This study sought to explore current malnutrition screening practices and nutritional care processes carried out by nurses who care for patients with HTHWs. A qualitative research design was used to interview 10 nurses about their practice in treating patients with HTHWs.

DISCUSSION: Findings suggest that screening practices are inconsistent, and that nutritional care processes once a need was identified, are varied. The resources that nurses utilised to inform their nutritional care decisions are revealed and finally, the study explored nurses' own perceptions on how their practice in relation to nutritional care processes could be improved.

CONCLUSION: The study highlighted several pertinent issues facing nurses who care for patients with HTHWs, among the most notable of these issues were a lack of confidence in the screening tool available to them, the lack of dietetic service for patients, the multifactorial nature of malnutrition and the lack of services for patients presenting to wound care clinics with obesity. Further research is needed to ascertain whether there is an alternative tool available for nurses and standardising care pathways for those with HTHW so that nurses working in the community setting can be confident that the care they provide is standardised and evidence based.



“MULTIDISCIPLINARY CARE AND PATIENT INVOLVEMENT IN PRESSURE INJURY PREVENTION”

Mette Gorell Riis, Wound Care Team, Mette Lange, Seating and positioning Team
Municipality Aarhus City, Denmark, Community Health service

Biography

The Wound Care Team supports complex wound management. The Seating and Positioning Team addresses seating, positioning, and pressure injuries, including 24-hour positioning.

Both teams advise Aarhus Municipality's Community Health Services and act as national specialists.

Pressure injuries affect patients with limited mobility, especially those confined to bed or wheelchairs. They reduce quality of life and create significant healthcare costs.

The Wound Care Team and the Seating positioning Team joined forces in a collaboration: “How can we contribute to improving the conditions for healing of pressure injury and focus on prevention”

Pressure injuries are often treated with wound care and pressure relief, but the underlying cause is rarely investigated and appropriate wound management is not always initiated. Care is described as multidisciplinary, yet we experience communication between healthcare professionals as limited. A key challenge remains motivating patients to take responsibility.

What makes our collaboration unique is that we move beyond traditional multidisciplinary work to true interdisciplinary practice. We jointly investigate the root causes of pressure injuries through a holistic 24-hour perspective, combine our professional perspectives in continuous dialogue, and involve both the patient and frontline staff through shared visits and learning. This creates a common understanding, targeted interventions, stronger ownership across all parties and improves clinical quality.

In order to optimize the multidisciplinary collaboration we needed to implement a new practice:

- We developed a holistic, home-based assessment tool that systematically captures information about the surfaces the wound is in contact with over a 24-hour period, and life-style practices that can influence healing.
- We established weekly meetings between our teams to discuss current patients, enabling us to professionally interpret and translate what nurses and therapists observe in the patient's daily life.
- We coordinated joint home visits with patients, involving both community nurses and therapists. Visiting patients in their own homes has been a valuable investment, as it enables practical, peer-based learning in a real-life setting. With strong managerial support and a high degree of autonomy, we have been able to shape and continuously adjust our collaborative practices.

Results

- Patients experience a centered approach and high-level professional care, which enhances their quality of life during the healing process.
- The origin of the wound is identified, and the patient, family members and the involved professionals around the patients are instructed in the most effective interventions to heal or prevent further deterioration.
- The wounds heal faster and recurrence of pressure injuries is prevented.
- Peer-to-peer training as the Community nurse and therapist are always involved.
- Through multidisciplinary collaboration, we have achieved greater job satisfaction among the professionals who work around the patient.

Abstract Summary

The presentation provides insight into The Wound Care and The Seating and Positioning Team interdisciplinary efforts to prevent, heal, and reduce the incidence of pressure from the seated and lying position.



SHARED MECHANISMS IN VENOUS LEG ULCERS AND DIABETIC FOOT ULCERS: TOWARDS AN INTEGRATED CARE MODEL

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Background and clinical burden

Venous leg ulcers (VLUs) and diabetic foot ulcers (DFUs) represent two of the most prevalent and debilitating chronic wound types, each posing significant clinical and economic burdens. VLUs primarily arise from chronic venous insufficiency (CVI), driven by venous hypertension, valvular reflux, or calf muscle pump failure, while DFUs stem from diabetes-related complications, including peripheral neuropathy, lower extremity arterial disease (LEAD), and metabolic dysfunction.

Shared pathophysiological mechanisms

Despite these distinct etiologies, both conditions share critical pathophysiological mechanisms that perpetuate tissue damage and impair healing. These include microvascular dysfunction, endothelial damage, chronic inflammation, and mechanical stress, which create a vicious cycle of hypoxia, extracellular matrix degradation, and cellular dysfunction.

Microvascular impairment is a hallmark of both VLUs and DFUs. In VLUs, sustained venous hypertension leads to fibrin cuff formation, leukocyte trapping, and iron overload. In DFUs, diabetic neuropathy and LEAD cause capillary basement membrane thickening, arteriovenous shunting, and impaired pressure-induced vasodilation (PIV), reducing tissue perfusion and increasing susceptibility to ischemia.

Mechanical stress further exacerbates these processes: in VLUs, gaiter region pressure and edema dominate, while in DFUs, plantar pressure from neuropathy-induced deformities (e.g., claw toes, metatarsal head protrusion) leads to tissue breakdown.

Clinical implications and integrated management

Clinically, these shared pathways offer opportunities for integrated management strategies. For VLUs, compression therapy, edema control, and calf muscle pump rehabilitation remain cornerstones, while for DFUs, offloading, revascularization, and microvascular interventions are essential. However, targeting common mechanisms, such as nitric oxide (NO) dysfunction or MMP-mediated ECM degradation, could enhance healing across both conditions.

Conclusion

VLUs and DFUs share overlapping pathophysiological mechanisms that can be targeted through an integrated care model. By leveraging common interventions and personalized assessments, clinicians can improve outcomes, prevent recurrence, and optimize resource allocation for patients with chronic ulcers.

This keynote presentation will provide an overview of these shared mechanisms and discuss how a unified framework can transform the management of chronic ulcers, ultimately improving patient care and quality of life.



WHICH CAME FIRST – THE DIABETES OR THE PRESSURE?

Pauline Wilson

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In a rapidly ageing global population, the prevalence of both pressure ulceration (PU) and Diabetes Mellitus is increasing. The prevalence rate of PU across Europe was reported at 10.8% in 2019 (Moore et al 2019). Sun and colleagues estimate that half a billion people globally are currently living with DM representing 10% of the world's population (Sun et al 2022). DM leads to complications which include Diabetic foot ulcers and is the leading cause of non-traumatic lower extremity amputation worldwide (Kyriazis et al 2026). In addition, the increased obesity epidemic has led an exponential rise in the incidence of type 2 diabetes mellitus (T2DM) which in turn is associated with a higher incidence of ulceration and amputation than other forms of DM (Kyriazis et al 2026, Lovic et al 2020). Current guidelines suggest that the preventative measures for both DFU and PU are based on risk assessment tools (van Netten et al 2024, EPUAP 2019), although these tools are not always able to accurately predict those who will develop ulceration (Kaka et al 2023, Moore and Cowman 2014). These tools are different across both DFU and PU prevention pathways and rarely consider co-morbidities (Jaul et al 2018). As a result both patients and health care providers may be confused about the which tool to use for assessment and which care pathway to follow. This session will explore strategies to overcome some of these challenges in clinical practice by identifying similarities and differences in each wound type, assessment and management pathways.

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TAILORED TREATMENT AND PATIENT CHARACTERIZATION: INSIGHTS INTO MANAGING DFU AND VLU

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Introduction

Across both hospital and community settings, many patients live with chronic diseases and multiple comorbidities. A substantial proportion of these individuals are at increased risk of developing different types of ulcers, including diabetic foot ulcers (DFU), venous leg ulcers (VLU) and pressure ulcers (PU). These wounds are frequently persistent, difficult to heal and have a profound impact on patients' quality of life, independence and participation in everyday activities.

Aim of the presentation

This presentation will explore different patient characterizations and tailored treatment to the wound care regarding the different types. Clinical case examples will be used to illustrate how comorbidities, functional status, vascular status, mobility, self-care resources and social context influence both ulcer development and wound healing possibilities.

Tailored treatment and patient characterization

Different patient profiles will be presented to illustrate how we can move from a "one-size-fits-all" approach in wound care to more individualized pathways. The focus will be on recognizing key risk factors, choosing appropriate local wound treatment, and involving patients and carers in the overall treatment and self-management process.

Interdisciplinary collaboration and prevention

The management of DFU, VLU and PU is complex and often requires close interdisciplinary collaboration between nurses, physicians, podiatrists, physiotherapists and other professionals. While we may be relatively good at treating existing ulcers, preventive and prophylactic strategies are still often under-prioritized. The presentation will therefore also discuss opportunities to:

- Implement evidence-based preventative interventions in both hospital and community settings
- Enhance follow-up and continuity of care after discharge
- Support education of patients, relatives and staff to reduce recurrence

Conclusion

By combining nuanced patient characterization with tailored treatment strategies, we can improve outcomes, reduce recurrence and, ultimately, enhance quality of life for patients living with or at risk of chronic ulcers.



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FROM IN VITRO TO IN VIVO MODELS: TRANSLATING RESEARCH INTO CLINICAL PRESSURE INJURY STUDIES

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Pressure injuries (PIs), remain a significant clinical challenge, particularly for immobilized patients, the elderly, and individuals with limited mobility. These injuries result from prolonged pressure on the skin and underlying tissues, leading to ischemia, cell death, and tissue necrosis. While clinical management has improved, the prevention and treatment of PIs still require deeper mechanistic insights and innovative therapeutic strategies. Sustaining pre-clinical research is essential to bridge the gap between laboratory discoveries and clinical applications, ensuring that new interventions are both effective and safe.

The journey from *in-vitro* to *in-vivo* models is a critical pathway in the development of effective strategies for PI prevention and treatment. However, *in-vitro* models lack the complexity of living tissues, including the interactions between different cell types, the extracellular matrix, and the systemic factors present in *in-vivo* environments like the blood flow. *In-vitro* models are evolving with 3D bioprinted skin models and organ-on-a-chip systems, which not only reduce animal use but also improve translational relevance by better mimicking human tissue responses.

Despite their advantages, *in-vivo* models present ethical and logistical challenges, including variability in responses, the need for standardized protocols and the recommendation to reduce, refine, replace. This is where Artificial Intelligence comes into play by analyzing vast datasets from *in-vitro* and *in-vivo* experiments, AI-driven tools can identify patterns, optimize experimental designs, and predict treatment outcomes.

By sustaining pre-clinical research, we can deepen our understanding of the underlying mechanisms, refine our therapeutic approaches, and ultimately translate these findings into clinical practice. The collaboration between scientists, clinicians, and industry partners will be key to advancing this field and improving the quality of life for patients at risk of PIs.



DECODING TISSUE DAMAGE: A MULTISCALE APPROACH TO PRESSURE ULCER PREVENTION

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Introduction/Background

How do we design mechanical interfaces (prostheses, orthoses, exoskeletons, cushions) that maximise biomechanical function while protecting the viability of the soft tissues they bear? Current clinical practice relies on empirical pressure-time thresholds to guide prevention, yet these thresholds continue to fail individual patients. The reason is that soft tissue injury is not a purely mechanical phenomenon. Biological tissues repair, adapt, and undergo inflammation and the cascade leading from mechanical loading to irreversible damage involves coupled interactions across spatial and temporal scales that no single metric can capture.

Objectives

The objective of this presentation is to review experimental and computational evidences to argue that soft tissue injury mechanisms are predictable, and to motivate the development of multiscale, patient-specific models as the next necessary step for pressure ulcer prevention.

Review of State of the Art

Experimental evidence highlights that macroscopic interface pressure is a poor surrogate for tissue-level damage. Biphasic compression experiments on human and animal muscle demonstrate that intramuscular fluid pressurisation (an intrinsic consequence of tissue poroelastic behaviour) is a dominant and systematically underestimated determinant of the mechanical response under sustained loading. This finding challenges the assumption that surface pressure monitoring is sufficient for injury risk assessment. Experimental evidences also show that coupling solid deformation with microcirculatory flow allows to investigate how sustained mechanical loading disrupts local perfusion, reduces oxygen delivery, and triggers inflammatory signalling. And these are highly patient-specific. *In vivo* laser Doppler data under controlled intermittent loading, for example, demonstrated that these microcirculatory responses are highly patient-specific, driven by individual tissue composition and vascular reactivity rather than by applied load alone. These findings motivate a shift in modelling strategy: from phenomenological stress-strain frameworks to multiscale, multiphysics models that explicitly couple tissue deformation, interstitial fluid dynamics, oxygen transport, and biochemical signalling. Recent advances in reduced-order modelling (surrogate models trained on high-fidelity finite element simulations and augmented by machine learning for example) have begun to bridge the gap between mechanistic completeness and clinical usability.

Perspective and Conclusions

The evidence reviewed support the hypothesis that the mechanisms underlying soft tissue injury are predictable, provided they are characterised at the right scale and modelled with appropriate physics. If confirmed, this could potentially enables the field to move from a logic of observation to one of active prevention. Practically, this means deploying sensor-driven, patient-specific computational frameworks capable of estimating in real time the quantities that matter (internal deformation, local hypoxia, inflammatory risk) and acting before injury becomes visible. For the research community, it opens a more durable opportunity: replacing the empirical thresholds on which current prevention guidelines rest with mechanistic, patient-specific criteria grounded in the biology of tissue damage.



LIVING TOGETHER: THE ECOLOGY OF POLYMICROBIAL BIOFILMS IN CHRONIC WOUNDS AND NEW INSIGHTS FROM 3D BIOPRINT MODELS

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Chronic wounds represent a complex ecosystem rather than a single-species infection, where diverse microbial species coexist together within structured biofilms. These polymicrobial communities exhibit both cooperative and competitive interactions that shape virulence, persistence, and treatment outcomes. A critical feature of this environment is biofilm-mediated tolerance, which limits antibiotic penetration, alters local micro-conditions such as pH and oxygen availability, and enables survival of even antibiotic-susceptible strains. As a consequence, conventional susceptibility testing based on planktonic cells often fails to predict therapeutic success in biofilm-associated infections.

Our clinical observations, based on an optimized culture protocol, confirm that chronic wound infections are highly polymicrobial, involving aerobic, facultative anaerobic, and strict anaerobic bacteria organized in spatially structured communities. These communities are dynamic and often dominated by biofilm-producing species, while less abundant organisms can still contribute significantly to the overall pathogenic potential through interspecies interactions. Standard diagnostic approaches such as surface swabs often underestimate this diversity, capturing primarily fast-growing surface colonizers. In contrast, tissue samples obtained during proper **debridement** reveal clinically relevant microorganisms embedded within deeper biofilm layers. Debridement thus represents not only a key therapeutic intervention, essential for disrupting biofilm biomass, but also a crucial diagnostic step providing a more accurate view of the microbial ecosystem.

To better understand the ecological behaviour of wound biofilms, we introduce a novel experimental framework based on **3D bioprinted biofilm models**. We employ spatially structured, hydrogel-based 3D bioprinted systems in which clinically derived bacterial strains are deposited into defined layers, enabling controlled reconstruction of polymicrobial biofilm architecture. This approach allows simulation of spatial organization, nutrient gradients, and interspecies interactions characteristic for chronic wounds, bridging the gap between simplified *in vitro* systems and the *in vivo* environment.

3D bioprinted models thus represent a promising tool for advancing our understanding of polymicrobial biofilm ecology and for supporting the development of more effective, targeted, and potentially patient-specific therapeutic strategies in chronic wound management.

This work was supported by project of the Ministry of Health of the Czech Republic AZV NU22-05-00110: Polymicrobial nature of chronic wound infections and the therapeutic potential of 3D bioprinting-based approaches for their treatment.



INNOVATIONS IN DEVICE MATERIALS TO PROTECT SKIN HEALTH

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Introduction

The materials that interface with the skin play a primary role in protecting the tissue from harmful mechanical, thermal and chemical insults [1]. There is also an important role of sustainability in device materials as care providers attempt to reduce their corresponding carbon footprint. This talk will summarize recent innovations in materials to protect skin health, whilst considering the "3 Rs" of sustainability—Reduce, Reuse, and Recycle. It will also highlight the role of new smart textiles and innovations within materials to proactively monitor and protect skin integrity.

Methods

A combination of bench (in-vitro), computational (in-silico) and clinical (in-vivo) have been used to characterize material properties to absorb mechanical loads, maintain a microclimate (temperature and humidity) and conform (shape and size) to the skin in various body regions [2]. This evidence has been used to drive innovations in material selection (Figure 1), optimizing the safety of medical devices whilst considering important elements of sustainability and cost effectiveness. A combination of ISO standards, modified pre-clinical testing and patient facing studies involving co-design with industry and wider stakeholders provides the template to improve material selection, ensure usability.

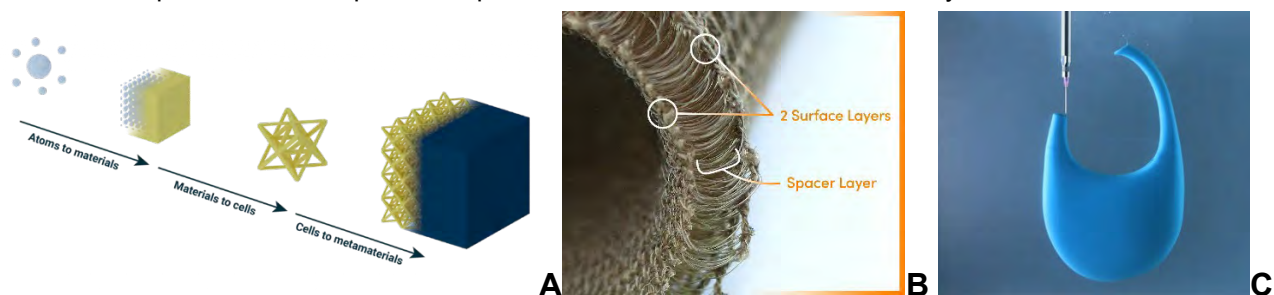


Figure 1. (A) Metamaterial Design, (B) Phase change spacer fabric. (C) 3D printing silicone

Results

Novel materials integrated into devices have been shown to improve pressure distribution, minimize shear and manage microclimate when combined with active air flow [3]. These have been translated in medical devices which are known to cause a high risk of pressure injury. Selection of materials can be refined pre-clinically using bench and computational approaches, prior to evaluation in healthy and clinical cohorts. However, prior to being implemented key considerations around the material efficacy is needed, including durability, cleaning protocols and reusability which are key in clinical settings.

Conclusion

There are many innovations in materials for devices at the skin interface, improving safety of underlying tissue, comfort for the device user and sustainability. There are also opportunities to embed sensing technologies within materials to monitor health status and support self-management of pressure ulcer prevention.

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INNOVATING MEDICAL DEVICE DESIGN AND APPLICATION TO PREVENT PRESSURE ULCERS

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Introduction

Despite advances in prevention strategies, incidence of pressure ulcer (PU) remain high in vulnerable populations such as older adults and individuals with long-term clinical conditions e.g. spinal cord injury. This highlights a critical need for technological integration and innovative design solutions to strengthen prevention strategies and support clinical decision-making. Our work presents a multidisciplinary approach integrating sensing technologies [1], intelligent algorithms [2,3] and human centre design [4] to characterise performance of monitoring technologies e.g., pressure sensing arrays, and support surfaces, to innovate their design and clinical application.

Materials and Methods

In-vivo, experimental (bench), computational and clinical investigation in relevant patient populations have been conducted. In vivo studies used continuous pressure sensing arrays (ForeSite PT, XSensor, Canada) to characterise movement patterns, enabling analysis of posture, movement frequency, and pressure characteristics. Machine learning algorithms were developed to predict posture and mobility events, and quantify exposure to sustained loading. Experimental mechanical tests were designed to evaluate the performance of sensing arrays and support surfaces under controlled loading conditions (Fig.1A). Reduced sensing configurations (Fig.1B) were also explored to evaluate predictive performance, supporting the development of cost-effective and scalable solutions. Clinical evaluations have further validated feasibility, usability, and potential impact in practice within target patient populations.

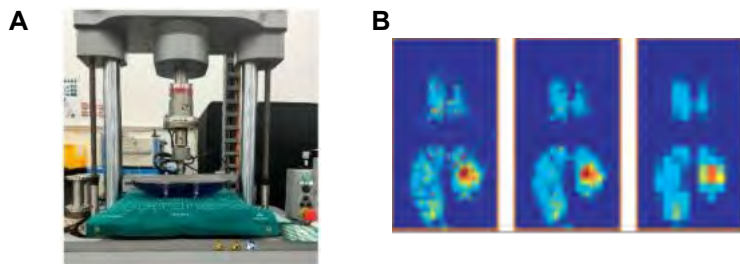


Fig. 1: A) Bench test to evaluate performance of a sensing array; B) Interface pressure distribution with different sensing configuration

Results

Continuous pressure monitoring can effectively inform posture and mobility events, with key pressure parameters e.g. peak pressure gradient and peak pressure index, identified as critical indicators for pressure ulcer risk. Machine learning models achieved classification accuracy >70% of posture and mobility event, with reduced sensing configurations in the spatial and temporal resolution to maintain comparable predictive performance, demonstrating the feasibility of low-cost, scalable sensing solutions. Bench tests showed the need for standardised testing protocols and consideration when using these systems for clinical assessment or device benchmarking. Clinical evaluations confirmed usability of integrating sensing technologies into real-world care settings, indicating potential to support decision-making through continuous objective monitoring of posture, mobility, and pressure exposure.

Conclusion

Innovating technologies, device design and application can advance pressure ulcer prevention by integrating sensing technologies with intelligent, data-driven approaches []. Future work could focus on the development of adaptive support surfaces that monitor posture, mobility, and pressure exposure in real time, enabling dynamic responses, to reduce harmful loading and improve personalised prevention across healthcare settings.

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CHOOSING THE RIGHT SUPPORT SURFACE: WHAT MATTERS MOST

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Selecting the "right surface for the right patient" remains one of the most challenging aspects of pressure injury prevention. Although support surfaces are among the most frequently used medical devices in acute and long-term care, selection is often based on product categories or marketing terminology rather than an understanding of how support surface performance characteristics address specific patient risk factors. At the same time, advances in pressure injury science have shifted our understanding of tissue damage from ischemia alone to the critical roles of tissue deformation, shear, microclimate, and individual tissue tolerance.

This presentation provides clinicians with an evidence-based framework for selecting full-body support surfaces by integrating current knowledge of pressure injury pathophysiology with standardized engineering measures of support surface performance. Participants will review the mechanisms by which reactive and active support surfaces redistribute load through immersion and envelopment or alternating pressure, and how these approaches influence tissue deformation, reperfusion, and pressure redistribution. Emerging evidence comparing these technologies, including studies evaluating skin perfusion and clinical outcomes, will be discussed.

The session will also introduce standardized performance characteristics used to evaluate support surfaces, including immersion and envelopment, horizontal stiffness (shear management), and microclimate management. The clinical relevance, advantages, and limitations of each characteristic will be examined, along with the interactions among support surface design, patient mobility, repositioning practices, linen use, and moisture management. Recent research demonstrating that greater immersion is not universally beneficial—and may increase moisture-associated skin damage in some patient populations—will be presented to illustrate the importance of balancing competing clinical priorities.

Rather than asking which support surface is "best," attendees will learn how to identify the support surface whose performance characteristics best match an individual patient's clinical presentation, risk factors, mobility, and care environment. Practical guidance and decision-making strategies will be provided to assist clinicians in incorporating standardized performance data into support surface selection, and institutional prevention algorithms.

By translating engineering principles into clinically meaningful concepts, this session equips clinicians with a practical, evidence-based approach for optimizing support surface selection as part of a comprehensive pressure injury prevention program.



CO-CREATING THE FUTURE OF SMART WOUND DRESSINGS: MAPPING SENSOR TECHNOLOGIES THROUGH LITERATURE AND STAKEHOLDER INSIGHTS

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Background

Smart wound dressings incorporating biosensors have emerged as a promising innovation for wound monitoring, offering opportunities for continuous assessment, earlier complication detection, and more personalised care. However, achieving successful clinical translation requires more than technological innovation alone. Technologies must align with the needs, priorities, and realities of patients, clinicians, healthcare organisations, and industry partners. This presentation shares key insights from the initial phases of a multidisciplinary research project that combined evidence mapping with stakeholder engagement to explore how smart wound dressings can be developed for meaningful real-world impact.

Methods

A mapping review following PRISMA-ScR guidance synthesised evidence on wound sensor technologies and informed the development of a parameter-driven living database. Nine multidisciplinary databases were searched, yielding 30,369 records, of which 165 studies met the inclusion criteria. In parallel, focus group and individual interviews were conducted with patients, healthcare professionals, and industry representatives to explore perceptions, expectations, and implementation considerations related to smart wound dressings. Data were analysed to identify overarching themes and lessons relevant to future innovation.

Results

The evidence map revealed a rapidly expanding field of sensor-enabled wound technologies. Most studies remained at the preclinical (44.2%) or in vitro (32.1%) stage, with only 6.0% reporting clinical validation. pH was the most frequently monitored parameter (54.5%), followed by temperature (33.3%) and moisture (21.2%). While technological capabilities continue to evolve, the evidence base remains fragmented and characterised by a substantial gap between technological development and clinical implementation.

Stakeholder perspectives provided important context for understanding this gap. Across groups, participants recognised the potential of smart dressings to enhance monitoring and support clinical decision-making. However, they consistently emphasised that technology should support, not replace, clinical expertise. Successful adoption was perceived to depend on seamless integration into existing workflows, alignment with patient needs and lived experiences, and the generation of trustworthy and clinically meaningful data. Participants also highlighted that implementation is shaped by broader considerations, including evidence generation, regulatory pathways, reimbursement, market access, education, and continuity of care.

Taken together, these findings suggest that the principal challenges facing smart wound dressings are no longer solely technological. Rather, they relate to how technologies are designed, evaluated, implemented, and adopted within complex healthcare systems.

Conclusions

The key lesson emerging from this work is that implementation should not be considered the final stage of innovation, but rather a guiding principle from the outset. While advances in sensing technologies are creating new possibilities for wound care, their ultimate value will depend on how well they address stakeholder priorities and integrate into real-world practice. Early and meaningful engagement with patients, clinicians, researchers, and industry partners offers a pathway towards technologies that are not only technically sophisticated, but also trusted, usable, implementable, and capable of delivering meaningful improvements in wound care. This co-creation approach may provide a roadmap for accelerating the translation of smart wound dressings from promising prototypes to sustainable clinical solutions.

Research project: Sensor Fusion for smart wound monitoring (SURMOUNT), funded by VLAIO, Belgium.



HOW DO WE DELIVER EDUCATION IN A SUSTAINABLE WAY IN AN AI DRIVEN WORLD?

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Pressure ulcer prevention and management remain a global patient safety priority, with education consistently identified as a fundamental component of effective care. However, despite widespread agreement among professional regulators, patient groups, national health authorities, and specialist organisations, the sustainability and impact of pressure ulcer education remain uncertain. Traditional approaches, often reliant on episodic training sessions or static e-learning, have not always demonstrated consistent, scalable, and measurable improvements in practice.

At the same time, healthcare systems are undergoing rapid digital transformation, with artificial intelligence (AI) increasingly influencing both clinical practice and education. This emerging context presents a critical opportunity to reconsider how pressure ulcer education is designed and delivered. AI offers the potential to provide scalable, standardised, and continuously accessible learning, supporting a shift from one-off educational interventions towards models that are embedded within everyday clinical workflows. Such approaches may enhance sustainability by enabling ongoing reinforcement of knowledge and integration with real-time clinical decision-making.

However, the adoption of AI in education also introduces important challenges. Concerns remain regarding the potential for depersonalisation, variability in digital literacy across the health workforce, and the risk that increased access to technology does not necessarily translate into meaningful changes in clinical behaviour. Furthermore, while AI may improve the delivery and tracking of education, it does not inherently resolve longstanding difficulties in evaluating its effectiveness.

The existing evidence base for pressure ulcer education reflects these challenges. Most studies conclude that further education is required, yet findings regarding its effectiveness are mixed and characterised by low certainty. Uncertainty persists in relation to both direct outcomes, such as knowledge acquisition, skills development, and practice change, and indirect outcomes, including pressure ulcer incidence and prevalence. This is largely due to the complexity of education as an intervention, the presence of multiple confounding variables, and the difficulty of isolating educational effects, particularly when delivered as part of multicomponent strategies.

Despite these limitations, there is no evidence suggesting that education is harmful; rather, findings are generally positive but inconclusive. This creates a central tension for healthcare systems: how to invest in and sustain educational initiatives without robust evidence of impact.

This presentation argues that achieving sustainable pressure ulcer education requires a shift towards integrated, data-informed approaches in which AI is used as an enabler rather than a standalone solution. By combining AI-driven tools with clinical leadership and multicomponent care strategies, it is possible to move towards educational models that are continuous, scalable, and embedded in practice. Ultimately, sustainability will depend not only on technological innovation but on the ability to meaningfully link education to measurable improvements in patient care.



PRESSURE INJURY – SHOULD EDUCATION BE FOCUSED ON PREVENTION OR TREATMENT?

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Pressure injuries remain one of the most persistent and costly challenges across healthcare systems, demanding a modern, sustainable approach to education that reaches every layer of care. This session explores how pressure injury knowledge must evolve—who needs to be taught, how they should be taught, and why renewed focus is essential for improving outcomes, reducing harm, and protecting organizations from avoidable litigation.

We will look at the history of pressure injuries in recent history including both intrinsic and extrinsic factors that influence the creation, aid healing and prevention of recurrent pressure injuries. Consideration of how to assess and diagnose the factors present in specific patients that cause increased risk of tissue injury a number of which are still not completely understood.

The five I model of innovation will be the basis of how to go forward in education, research and development of teams to develop, provide and evaluate new approaches to pressure injury (impact, invention, innovation, improvement and implementation). All of these issues should be seen as part of a comprehensive programme of education.

The talk will outline the full continuum of prevention and management: **primary prevention**, **secondary prevention**, and **manipulation of scarring**; care delivery across hospitals, long-term care, home settings, and marginalized populations including the homeless; and the role of effective interventions such as **support surfaces**, continence management, nutrition, aging physiology, and neurological disease.

We will also address the **evolution and resolution of pressure injuries**, the complexities of **terminal (Kennedy) ulcers**, and increasingly recognised **gaps in current grading systems** that limit accurate assessment and reimbursement protection.

Finally, the session presents a sustainable, system-wide model for **education of all stakeholders**—physicians, nurses, therapists, support workers, families, and informal carers—ensuring that prevention knowledge is consistent, scalable, and aligned with modern clinical realities as a basic aspect of clinical practice with the roles of different professional clearly defined and the creation of education inter-disciplinary teams recognised and accepted by all involved in this area of work.



THE PRINCIPLES FOR LAY CARERS AND PATIENT EDUCATIONS TO INCREASE THEIR HEALTH LITERACY AND ENGAGEMENT

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Health literacy and patient engagement are increasingly recognised as essential components of effective pressure ulcer prevention and patient safety. As healthcare systems face growing demands associated with ageing populations, chronic conditions and increasing care provision in community and home settings, patients and informal caregivers play an increasingly important role in prevention, early recognition of complications and informed decision-making. However, evidence-based recommendations are frequently communicated through professional clinical guidelines that may be difficult for lay audiences to access, understand and apply in everyday practice.

This keynote presents principles for supporting the education of patients and informal caregivers through approaches that strengthen health literacy, promote meaningful engagement and facilitate the translation of evidence into practice. Particular attention will be given to experiences from ongoing initiatives focused on knowledge translation and patient-centred communication, including the project supported by the Czech Ministry of Health Methodology of *Creating Plain Language Recommendations for Knowledge Translation to Support Evidence-Based Decision-Making in Healthcare in the Czech Republic*. These activities support the development, implementation and evaluation of educational, informational and intervention tools designed to improve understanding and use of evidence-based healthcare information.

A central focus will be the development of patient versions of clinical guidelines and plain language recommendations derived from evidence-based guidance, including the EPUAP Clinical Practice Guideline. The presentation will discuss methodological approaches used to transform complex (standard language versions) recommendations into understandable and actionable information while maintaining scientific accuracy and transparency. Key principles include the application of plain language standards, co-design and co-creation with patients and carers, support for shared decision-making, and communication techniques, such as the teach-back method, that enhance understanding, recall, and application of health information.

The keynote will further explore how educational interventions can strengthen patients' and caregivers' ability to recognise early signs of skin and tissue damage, prevent complications, navigate healthcare services appropriately and participate actively in decisions about their care. Examples from collaborative activities involving healthcare professionals, researchers, patients, patient organisations, health information providers and policy stakeholders will illustrate how health literacy can be integrated into prevention-oriented healthcare strategies and implementation efforts.

Drawing on national and international collaboration, including activities within EPUAP and EWMA networks, the presentation will highlight practical lessons for embedding health literacy principles within guideline implementation and patient education. It will argue that accessible evidence, effective communication and meaningful patient involvement are essential prerequisites for translating recommendations into practice and achieving sustainable improvements in pressure ulcer prevention. The principles discussed may offer a transferable framework for strengthening patient engagement, supporting informed decision-making and improving outcomes across diverse healthcare settings. The presented activities contribute to broader efforts aimed at improving population health literacy, supporting the efficient use of healthcare services, and strengthening patient-centred approaches to prevention in the context of ageing populations and the increasing prevalence of chronic conditions.

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FROM KNOWLEDGE TO COMPETENCE: SIMULATION-BASED EDUCATION AS A SUSTAINABLE STRATEGY IN MODERN PRESSURE ULCER CARE

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Background: Despite the availability of comprehensive international pressure ulcer/injury (PU/I) guidelines, translating evidence into consistent clinical practice remains a persistent challenge. Educational initiatives have traditionally focused on knowledge acquisition; however, knowledge alone rarely translates into clinical competence or sustainable implementation of evidence-based PU/I prevention and management. Contemporary healthcare education increasingly recognises that effective implementation requires integration of knowledge, psychomotor skills, clinical reasoning and evidence-based decision-making within authentic clinical contexts.

Aim: To explore simulation-based education as a sustainable strategy for transforming evidence into clinical competence in modern PU/I prevention and management and to illustrate its educational impact using objective competency assessment.

Methods: Current evidence on competency-based education, simulation science and international educational standards was integrated with findings from a simulation-based educational programme developed according to the *International Clinical Practice Guideline for Prevention and Treatment of Pressure Ulcers/Injuries* and the *Healthcare Simulation Standards of Best Practice™*. Educational outcomes were evaluated using the Simulation Effectiveness Tool–Modified (SET-M), while clinical competence was objectively assessed through an Objective Structured Clinical Examination (OSCE).

Results: The educational programme was associated with high levels of objectively demonstrated psychomotor competence, with more than 90% correct performance across all assessed OSCE competencies, alongside highly positive learner perceptions of the simulation experience. Nevertheless, perceived educational effectiveness was not associated with objectively demonstrated clinical competence, indicating that confidence and satisfaction should not be regarded as surrogate measures of competence. These findings support the value of combining learner-reported outcomes with objective performance-based assessment when evaluating educational interventions.

Discussion: Simulation-based education provides more than a safe environment for skills acquisition. By integrating deliberate practice, structured feedback, reflective debriefing and objective competency assessment, it facilitates the translation of evidence into competent clinical performance. This educational approach aligns with contemporary competency-based education and offers a practical framework for strengthening implementation of international PU/I guidelines across undergraduate education and clinical practice.

Conclusion: Sustainable improvement in PU/I care depends not only on what healthcare professionals know, but on what they are able to do in clinical practice. Simulation-based education represents an evidence-informed implementation strategy that bridges the gap between knowledge and competence, supporting safer, higher-quality and more consistent evidence-based PU/I prevention and management.

Keywords: Pressure ulcer/injury; Simulation-based education; Clinical competence; Evidence-based practice; Nursing education; OSCE; Implementation science. **Literature:** European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel, & Pan Pacific Pressure Injury Alliance. (2025). Prevention and treatment of pressure ulcers/injuries: Clinical practice guideline (4th ed.). European Pressure Ulcer Advisory Panel.

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BEPU: DEVELOPMENT OF A CLINICALLY FEASIBLE PRESSURE ULCER RISK ASSESSMENT TOOL WITH AN ALIGNED PREVENTION PROTOCOL IN BELGIUM

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In 2016, the Belgian Pressure Ulcer Risk Assessment Project (BEPU) was initiated in response to concerns regarding the feasibility and consistent use of existing pressure ulcer risk assessment instruments in routine clinical practice. The project was based on the premise that effective pressure ulcer prevention requires not only accurate risk identification, but also a risk assessment approach that can be performed consistently and translated into timely preventive interventions.

Building on international evidence, local implementation experiences and multidisciplinary expert consensus, BEPU evolved into BEPU©2025: a pressure ulcer risk assessment and prevention approach that links daily risk assessment directly to predefined prevention actions. Rather than relying on complex scoring systems, BEPU©2025 focuses on a limited number of clinically relevant indicators that support rapid daily reassessment and facilitate prevention-oriented clinical decision-making.

Implementation experiences demonstrated that simplifying risk assessment helped increase awareness of pressure ulcer prevention among healthcare professionals and supported more consistent execution of prevention protocols. These experiences highlighted the importance of clinical feasibility as a prerequisite for sustainable prevention practices and reinforced the value of integrating risk assessment and prevention into routine clinical workflows.

Building on these experiences, BEPU©2025 has evolved into a nationally coordinated initiative supported by wound care organisations, professional associations, healthcare institutions and quality improvement bodies across Belgium. Through co-creation with healthcare professionals, integration into electronic patient records, educational initiatives and continuous stakeholder involvement, the project aims to harmonise pressure ulcer prevention practices while maintaining engagement of frontline clinical staff.

This presentation will describe the evolution of BEPU from a local quality improvement initiative to a national prevention programme and discuss how clinical feasibility, multidisciplinary collaboration and stakeholder engagement can contribute to sustaining healthcare professionals' commitment to pressure ulcer prevention and management.



SUSTAINING PRESSURE ULCER PREVENTION THROUGH DATA-DRIVEN PRACTICE

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Background

Pressure ulcers remain a significant patient safety concern across healthcare settings and are associated with avoidable harm, increased treatment burden and unwarranted variation in practice. Reliable pressure ulcer data can provide more than a retrospective count of incidents; when used systematically, it can identify patterns in risk, care delivery, documentation, equipment use and preventability. This abstract describes how pressure ulcer data can be used to inform practice, support clinical governance and focus improvement activity on areas of greatest need.

Aim

The aim was to demonstrate how routinely collected pressure ulcer data can be translated into meaningful intelligence to guide prevention, strengthen assurance, improve outcomes for patients at risk of, or living with, pressure ulcers, and direct research initiatives.

Approach

A structured review of pressure ulcer data was undertaken using themes commonly reported through clinical incident systems, risk assessment documentation, categorisation, location, care setting, device association, recurrence and evidence of prevention interventions. Data were considered alongside local clinical knowledge, multidisciplinary review and recognised best practice expectations for pressure ulcer prevention and management. Particular attention was given to variation between care areas, trends over time, documentation completeness and opportunities to identify learning before harm became severe.

Findings

The use of pressure ulcer data supported a clearer understanding of where harm was occurring, who was most affected and which elements of prevention required targeted improvement. Analysis highlighted the value of triangulating incidence data with risk assessment quality, care planning, repositioning evidence, equipment provision and staff education needs. Presenting data in an accessible format enabled clinical teams to move from broad awareness of pressure ulcer risk to focused action, including targeted teaching, review of prevention bundles, escalation of equipment issues and feedback to areas with recurring themes. Data also strengthened governance discussions by providing evidence of both risk and improvement activity.

Implications for practice

Pressure ulcer data are most effective when they are timely, clinically credible and linked directly to improvement activity. Embedding regular data review within practice supports earlier identification of themes, promotes shared ownership of prevention and enables teams to evaluate whether interventions are producing sustained change. The findings reinforce the importance of accurate categorisation, consistent documentation, meaningful clinical review and feedback loops between specialist services, ward and community teams, governance structures and frontline staff.

Conclusion

Using pressure ulcer data to inform practice can transform reporting into learning. When data are interpreted in context and connected to practical improvement actions, they support safer care, reduce unwarranted variation and provide a stronger foundation for prevention-focused culture change across healthcare settings.



FROM PAPER TO PRACTICE: SUSTAINING INTERNATIONAL PU GUIDELINES THROUGH MEANINGFUL IMPLEMENTATION

Professor Zena Moore

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International pressure ulcer (PU) guidelines have evolved substantially since their inception, progressing from expert consensus documents to rigorously developed, transparent, and methodologically robust recommendations. Advances in evidence appraisal, stakeholder engagement, and consensus processes have strengthened their credibility and global relevance. Today, guideline development reflects a sophisticated synthesis of best available evidence, informed by structured methodologies such as systematic reviews and grading frameworks, ensuring that recommendations are both trustworthy and clinically actionable.

Despite these developments, the central question remains, what difference have these guidelines made in practice? While they have undoubtedly shaped policy, education, and clinical standards worldwide, variability in implementation persists across settings and regions. Evidence of impact is seen in improved awareness, more consistent risk assessment, and the uptake of preventative strategies. However, translating guidance into sustained practice change continues to be challenging, highlighting that high-quality guidelines alone are not sufficient to drive improvement.

Evaluating their value requires moving beyond evidence generation to understanding real-world outcomes. Questions of cost-effectiveness, patient benefit, and system-level impact are increasingly central. Unlike primary research, organisations such as Cochrane do not prescribe actions but synthesise evidence to inform decision-making. Similarly, PU guidelines provide a foundation for informed clinical judgement rather than rigid protocols, supporting context-sensitive care.

Looking ahead, the future of PU guidelines lies in meaningful implementation: embedding recommendations into everyday practice through co-design, education, digital integration, and audit-feedback mechanisms. Sustaining their impact will depend on bridging the gap between paper and practice, ensuring that guidelines remain living resources that adapt to emerging evidence and diverse care contexts.



CHAMPION – SCIENCE AND PRACTICE OF IMPLEMENTING PU POLICY IN HOSPITAL

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Background

Effective prevention of pressure ulcers is often hindered by inconsistent adherence to Clinical Practice Guidelines. Implementation of Clinical Practice Guidelines in routine practice can improve adherence. The theory- and evidence base for implementation is growing. Yet effective implementation strategies are often not used optimally in practice. This presentation will focus on the science behind implementation and how to translate this to practice based on the Champion study.

Champions

One promising implementation strategy to improve adherence and stimulate evidence-based practice is the deployment of nurse champions; informal leaders who advocate for best practices and support their peers in clinical settings. However, despite the described value of nurse champions, literature also consistently reports barriers that challenge the feasibility of the champion role.

The Champion study explored how an individual coaching program supports PU nurse champions in fulfilling their role within general and intensive care wards of two academic hospitals.



WHAT ARE GUIDELINES & HOW ARE THEY DEVELOPED?

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“Clinical Practice Guidelines are statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options.” (Institute of Medicine 2011). Trustworthy guidelines thus support individual clinical decision-making in practice, but cannot replace it. Guideline recommendations do not prescribe whether or how something must be done. In the context of evidence-based practice they may be regarded as “externally constructed heuristics” (Corrao, Argano 2022). Clinical Practice Guideline development is a highly standardized process including clinical question development, prioritization of outcomes, evaluation of the certainty of evidence, development of recommendations, and the assignment of strengths of recommendations. The GRADE (Grading of Recommendations Assessment, Development and Evaluation) approach can be regarded as current state-of-the-art method (Guyatt et al. 2025). Hence, this method was chosen to update the fourth edition of the international Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline (Haesler et al. 2024).

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SUPPORTING ADAPTATION OF THE INTERNATIONAL GUIDELINE TO THE CANADIAN CONTEXT

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Introduction

The Canadian Pressure Injury Advisory Panel (CPIAP) is a pan-Canadian board of interprofessional clinicians, researchers and those with lived experience that advocates and aspires to improve pressure injury (PI) prevention and care among Canadians. As part of its strategic plan, CPIAP has identified the following key priorities and initiatives to improve the quality of life among persons living with PIs: prioritizing PI prevention and care within the Canadian healthcare system; standardizing PI practice; advocating to influence policy change, and supporting knowledge translation. In addition to CPIAP's involvement in the development of the 4th edition of the National Pressure Injury Advisory Panel (NPIAP), European Pressure Injury Advisory Panel (EPUAP), and Pan Pacific Pressure Injury Alliance (PPPIA)'s international guideline,¹ CPIAP is working towards a strategy to support the implementation of the preventive recommendations within the Canadian context.²

Abstract Body

The widespread dissemination of the prior editions of the international guideline suggests increased awareness of their importance but further studies are required to determine their integration into clinical practice.³ CPIAP is currently working on a strategy that will enable clinical teams, health care sectors and those with lived experience towards adapting preventive recommendations within the Canadian landscape while considering patient population, health care infrastructure and legislation. The panel will establish a set of pathways for acute, complex continuing care/rehabilitation, long-term care, community, and remote care settings across provinces and territories.

The four-phased implementation strategy will span three years. Phase 1 (month 0-7) will focus on establishing a steering committee and setting up the foundation for the project. Phase 2 (month 8-17) will engage pan-Canadian stakeholders. Phase 3 (month 18-27) will concentrate on the development of the care-specific adaptation pathways. Phase 4 (month 28-36) will focus on pathway implementation. Each phase of the implementation strategy will include representation and perspectives of Canada's rich and diverse cultural and ethnic populations across the varied health care landscape.

The Implementation of the adaptation strategy is well underway. Phase 1 has begun with the development of a pan-Canadian steering committee who will navigate and lead the panel through the project's objectives.

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KINAESTHETICS TO PROMOTE MOBILITY IN CARE RECIPIENTS: EVALUATION OF THE CLINICAL EFFECTIVENESS

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Introduction

In German-speaking countries, Kinaesthetics is a widely used approach in nursing care to promote movement and physical ability in care recipients, especially as a professional activity to handle and encourage individuals at pressure ulcer risk during repositioning and bed-chair transfers. By holistic integration of physiological and psychological knowledge on perception, moving and behaviour changes, Kinaesthetics is intended to stimulate and strengthen the individuals' physical competence, self-care capabilities and well-being and, as a result, to support prevention of pressure ulcers. However, a systematic synthesis of existing research evidence on potential clinical benefits is lacking. Therefore, as part of a Health Technology Assessment commissioned by the German Institute for Quality and Efficiency in Health Care, we conducted a systematic review to examine the benefits of Kinaesthetics compared to standard physical activity promotion in care recipients [1].

Methods

We conducted systematic literature searches in electronic data bases (MEDLINE, EMBASE, CENTRAL, CINAHL, and CareLit), coupled with manual searches in one German Kinaesthetics-specific journal. Target studies were RCTs, comparative cohort studies, and interrupted time-series studies that examined the benefits of using Kinaesthetics compared to standard care techniques for repositioning and mobilising care recipients, irrespective of the health care setting. The outcomes of interest included physical functioning, mobility, activities of daily living (ADL), pain, quality of life, self-care, and pressure ulcers and other adverse events. The risk of bias was assessed using established criteria [2]. Results on effect estimates were summarised qualitatively, taking into account the certainty of the evidence.

Results

Four RCTs were included: two trials (n=176) evaluating use of Kinaesthetics for postoperative mobilisation, one trial examining preoperative patient training on regaining mobility past surgery (n=30) and one trial on daily nurse-assisted mobilisation in neurorehabilitation (n=140), all conducted in a hospital setting. Following outcomes were assessed: mobility, ADL, pain, fall-related self-efficacy, need for care, length of stay and adverse events. None included trial recorded data on pressure ulcers. Across all outcome measures, all four trials contained high risk of bias. For none of the assessed outcomes, the qualitative data synthesis provided evidence in favour of the intervention or control condition.

Conclusions

The existing body of evidence is sparse and leaves the patient-relevant benefits (and potential harms) of using Kinaesthetics and its potential for pressure ulcer prevention unclear. Further well planned that account for the complexity of this approach and also assesses effects on pressure ulcer occurrence are required.

Conflict of Interest

The Health Technology Assessment report was commissioned by the Institute for Quality and Efficiency in Health Care (IQWiG), Germany (T23-05).

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IMPACT OF AN INPATIENT GERIATRIC CONSULTATION TEAM ON PRESSURE ULCERS IN HOSPITALIZED OLDER ADULTS

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Introduction

Pressure ulcers (PU) are a highly prevalent complication in hospitalized older adults, with a heavy burden for patients, caregivers and a substantial financial cost^{1,2}. Despite national and international prevention guidelines, PU screening and prevention remain insufficient in acute care settings, even though multiple risk factors coexist in these patients such as immobility, malnutrition and incontinence³. Inpatient Geriatric Consultation Teams (IGCT) usually consist of a geriatrician and a specialized nurse, who can evaluate older patients hospitalized in non-geriatric units⁴. They have a role in comprehensive geriatric assessment, management of geriatric syndromes, prevention of hospitalization-related complications and helping in planning hospital discharge. Little has been documented so far about the role that an IGCT could play in improving PU prevention, detection and management in this high-risk population. This study aimed to describe the contribution of an IGCT to PU screening and management in hospitalized older adults

Methods

We conducted a prospective, monocentric cohort study over three months in the Hôpital Édouard Herriot (Lyon, France). All eligible patients aged 75 years and older assessed by IGCT in non-geriatric units were included. Collected data covered sociodemographic, clinical and geriatric characteristics, as well as the PU status. We first described PU prevalence and previously unknown PU lesions, and then examined factors statistically associated with the presence of PU.

Results

A total of 139 patients were included. The prevalence of PU in our population was 23.7%. The IGCT identified 47 skin lesions that the nursing staff in non-geriatric wards were not aware of, including 16 precursor lesions, and 31 stage 1 or 2 PU. More than three-quarters of these lesions were not managed with an appropriate pressure-relieving support. The IGCT issued 61 recommendations regarding preventive and therapeutic measures, and almost 90% of which were implemented by the non-geriatric teams within 72 hours. Intensive care stay, incontinence and prolonged length of stay, were associated with a higher risk of PU.

Conclusions

In this cohort of frail hospitalized older patients, the prevalence of PU remained alarmingly high^{1,3}. The IGCT played an important role in detecting PU and initiating preventive and therapeutic measures. These findings highlight the benefit of IGCT for the management of older patients hospitalized in non-geriatric wards, but also the ongoing need to raise awareness about PU risk among hospital staff and the necessity to strengthen institutional prevention policies.

Conflict of Interest

The authors declare no conflicts of interest and no industry funding for this study.

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COMPARISON OF TWO SKIN PROTECTION REGIMES FOR THE PREVENTION OF INCONTINENCE-ASSOCIATED DERMATITIS

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Introduction

Incontinence in geriatric long-term and acute care settings is associated with an increased risk of developing incontinence-associated dermatitis, an irritant contact dermatitis resulting from prolonged skin exposure to urine and/or faeces. Preventive strategies include skin cleansing and the application of leave-on skin protectants. Despite their widespread use, the condition remains prevalent, and comparative evidence regarding different skin protection strategies is still limited.

The primary objective of this study was to compare the short-term incidence of incontinence-associated dermatitis between two skin protectant regimens and standard incontinence care, as well as to estimate effect sizes to inform a confirmatory randomized controlled trial. Secondary objectives included the assessment of feasibility, particularly the applicability of domains from a core outcome set specific to incontinence-associated dermatitis.

Methods

This exploratory, three-arm, assessor-blinded randomized controlled trial was conducted in two geriatric acute care hospital wards and 18 long-term care facilities in Berlin, Germany. Residents and patients aged ≥ 65 years with urinary and/or fecal incontinence, and presenting with either no signs or only mild forms of incontinence-associated dermatitis at baseline, were randomly allocated (1:1:1) to one of three groups: (1) film-forming skin protectant in addition to standard care, (2) lipophilic skin protectant in addition to standard care, or (3) standard incontinence care alone. Participants were followed up for 14 days. The primary exploratory outcome was the incidence of incontinence-associated dermatitis, defined as GLOBIAD category 2A/B.

Results

In total, 167 participants were randomized (film-forming $n = 57$; lipophilic $n = 57$; control $n = 53$; 72.5% female; mean age 82.4 [SD 8.4] years). Ten participants (6.0%) developed incontinence-associated dermatitis category 2A/B (film-forming 8.8%, lipophilic 5.3%, control 3.8%). Compared with the film-forming product group, hazard ratios were 0.60 (95% CI 0.14–2.51) for the lipophilic product group and 0.41 (95% CI 0.08–2.13) for the control group. Among participants without incontinence-associated dermatitis at baseline ($n = 143$), incontinence-associated dermatitis of any severity developed in 21.7% (film-forming 37.5%, lipophilic 16.3%, control 10.9%). Of 24 participants with mild dermatitis at baseline, 20.8% progressed to category 2A/B and 66.7% improved.

Conclusions

The results indicate that the application of topical skin protectants was not associated with a clear reduction in the short-term incidence of incontinence-associated dermatitis. Observed differences in disease progression and improvement should be interpreted with caution, given the limited number of events. The interventions were feasible to implement under routine care conditions, and outcome assessments based on core domain sets were practicable.

Conflict of Interest

None.

References

N/A



NURSING HOME RESIDENTS' EXPERIENCES OF INCONTINENCE CARE AND INCONTINENCE-ASSOCIATED DERMATITIS PREVENTION

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Introduction

Incontinence care and the prevention of incontinence-associated dermatitis (IAD) are key aspects of nursing care. Exploring nursing home residents' experiences can contribute to a deeper understanding of their situation and support person-centred care. In addition, these insights may help to improve the quality of incontinence management in clinical practice. Therefore, this study aims to explore nursing home residents' experiences of incontinence care and the prevention of incontinence-associated dermatitis.

Methods

This qualitative study is part of a larger trial comparing two skin protection regimes for the prevention of incontinence-associated dermatitis in geriatric care in Berlin, Germany. Nursing home residents (≥ 65 years) with urinary and fecal incontinence were initially approached by the clinical team and invited to participate. Data were collected through semi-structured interviews between June 2023 and February 2025. A thematic analysis following Braun and Clarke was conducted [1].

Results

The study included 15 nursing home residents. The analysis identified three main themes. *Living with incontinence: Between shame, fear and adaptation* (1) described residents' experiences of incontinence as distressing, characterized by feelings of shame and fear, as well as strategies for managing incontinence. *Incontinence care along a continuum of needs and realities* (2) reflected how care was experienced within a tension between individual care needs and everyday care practices. *Experiencing skin damage and its prevention* (3) captured residents' experiences of incontinence-associated dermatitis, the related discomfort, and the nursing interventions undertaken to prevent skin damage.

Conclusions

Incontinence is experienced as a burden by nursing home residents. In addition, incontinence care can become challenging when individual needs are not aligned with everyday care practices. These findings highlight the importance of person-centred approaches and addressing structural and organisational constraints to better align care practices with residents' needs and thereby improve incontinence management in clinical practice and the prevention of incontinence-associated dermatitis.

Conflict of Interest

The authors declare no conflicts of interest. This research received no industry funding.

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BETWEEN RESPONSIBILITY AND DELEGATION: NURSES' EXPERIENCES OF PRESSURE ULCER PREVENTION

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Introduction

Due to resource constraints and recruitment challenges, hospitals have in recent years employed physiotherapists to participate in the daily care of patients in inpatient wards. International guidelines for pressure ulcer prevention [1] recommend an interprofessional approach to assessment and prevention. This raises the question of how such changes influence nurses' understanding and experience of their role and responsibility in relation to pressure ulcer prevention.

Methods

This study was conducted as a qualitative study using semi-structured interviews with six nurses from somatic inpatient wards where physiotherapists are involved in direct patient care. The interviews were analysed using reflexive thematic analysis [2].

Results

Three themes were identified: "Trust as a prerequisite for delegation," "The physiotherapist as a resource in a pressured clinical practice," and "The nurse as coordinator in a delegated and complex practice." The overarching concept of the analysis was "Having the responsibility but not the task."

An additional key finding was that nurses found it difficult to clearly define professional boundaries. Tasks related to pressure ulcer prevention—such as mobilisation, observation, and aspects of personal care—are carried out across the two professions, albeit with different professional perspectives.

Nurses tended to frame pressure ulcer prevention primarily as mobilisation and did not articulate it as a complex issue requiring collaboration across multiple professions. Instead, responsibility for ensuring prevention was often attributed to the physiotherapist.

Several nurses reported that patient mobilisation is deprioritised in the absence of a physiotherapist.

Conclusions As the data analysis is still ongoing, no final conclusions can yet be drawn. However, the findings clearly indicate that the involvement of physiotherapists influences the roles and tasks assumed by nurses. Nurses' focus on pressure ulcer prevention in direct patient care appears to diminish, as they express strong trust in the physiotherapists' expertise, allowing them to "focus on everything else required in nursing practice." Physiotherapists are described as an important resource, contributing to greater capacity for nurses to manage instrumental and administrative tasks. At the same time, nurses report that they place greater emphasis on mobilisation following the integration of physiotherapists into the ward.

Conflict of Interest

The author declares no conflict of interest. *The International Guideline: Fourth Edition. - Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline*, NPIAP/EPUAP/PPPIA, 2025.

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EVALUATION OF A UNIVERSAL SIZED OFFLOADING BOOT FOR FOOT PRESSURE DAMAGE PREVENTION: A 100 PATIENT EVALUATION

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Introduction

Foot protection remains the cornerstone for preventing pressure damage, as emphasized by the National foot protection campaign, *CPR for Feet* (Check, Protect, Refer) (CPR for Feet, 2023). The challenge for clinicians is selecting an appropriate device from numerous options that meet safety, efficacy, comfort, infection control, and cost criteria. The Tissue Viability Nursing Team (TVNs) at NHS Greater Glasgow and Clyde identified ten essential criteria for a foot protection device, including ease of use, low error potential, moisture management, patient comfort, sustainability, and cost-effectiveness. A universal sized offloading boot was selected for evaluation, as it met all ten criteria.

Methods

Over 10 weeks a 100-patient evaluation was conducted at a 92-bedded district general hospital. Patients were selected across four wards to represent the wider at-risk population. Staff received targeted education on fitting and maintaining the device. The study measured: 1) incidence of foot pressure damage, 2) patient tolerance, 3) staff feedback, 4) orthotic referrals, and 5) cost savings.

Results

Prior to the evaluation, up to four pressure ulcers per month were reported at the site. During and after the evaluation, only one patient developed foot pressure damage, attributable to refusal of protection. Patient feedback highlighted comfort and ease of use, with several patients reporting improved sleep and reduced discomfort. Staff reported the device was quick to apply, universally sized, and reduced risk of fitting errors. Concordance improved, with patients largely unaware of the boots, including those with cognitive impairment. The device's moisture vapour transmission rate prevented sweat accumulation and improved patient experience. No referrals to orthotics were required. Financial analysis suggested potential direct savings if a switch were to be made to this boot, with additional indirect savings by reducing human error, patient harm, and staff time.

Conclusion

The boot met all ten TVN-defined criteria for foot protection devices. It was safe, effective, and evidence-based; easy to apply; reduced human error; improved patient comfort and concordance; minimized moisture-related issues; and demonstrated cost-effectiveness. This evaluation supports its use as a reliable solution for preventing foot pressure damage in at-risk hospital populations.

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PRESSURE ULCER PREVALENCE IN GHANA: A CROSS-SECTIONAL SURVEY

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Introduction

Pressure ulcers (PUs) remain a major patient safety concern, affecting approximately 1 in 10 hospitalised patients and increasing morbidity, mortality, and healthcare costs globally (1,2). Although extensive literature exists on risk assessment, prevention and management modalities worldwide, evidence from Ghana and Africa remains very limited (3). This lack of evidence hinders health systems from defining the scale of the problem and implementing strategies to improve clinical outcomes. To address this gap, we undertook the first PU prevalence study to determine the prevalence of PUs and the preventive practices employed in a large teaching hospital in Ghana.

Methods

A cross-sectional observational study was conducted in October 2025, following ethical approval. Consenting adults meeting the inclusion criteria were randomly selected. Two trained nurses assessed 240 inpatients using a modified European Pressure Ulcer Advisory Panel (EPUAP) Minimum Data Set. Skin integrity was evaluated using visual skin assessment and sub-epidermal moisture (SEM) measurements. Additional data included patient demographics, Braden scores, and PU prevention practices.

Results

All participants were Black; most were men (n=152, 63%) and aged 19–59 years (n=166, 69%). Overall PU prevalence was 11.7% (n=28). A total of 47 wounds were recorded, as some participants had more than one. Of these, 36% (n=17) were Stage 2, 21.3% (n=10) Stage 3, 30% (n=14) Stage 4, 8.5% (n=4) Stage 1, and 4.2% (n=2) unstageable. The most common PU sites were the sacrum and buttocks (50%; n=23), and the heel and foot (28%, n=13). The most common site for pain was also the sacrum and buttocks (80%, n=59). PU prevalence was highest in units with reduced mobility: Stroke Unit (100%), High Dependency Unit (44.4%), Intensive Care Unit (42.9%). PU increased markedly among participants with high-risk Braden scores (≤ 12). SEM values aligned with Braden scores; however, several participants with mild-to-moderate Braden scores reported pain and had elevated SEM readings, suggesting early tissue damage despite lower risk categorisation. Among those with PU, 89.2% (n=25) had at least one abnormal SEM value (≥ 0.6), indicating underlying inflammation. Mean SEM delta scores were abnormal for all anatomical sites. Sacrum SEM deltas

were the highest (1.06) and had a greater dispersion than right and left heels (0.74 and 0.77), respectively. In summary, the sacrum remains the primary locus of clinical skin damage and subclinical inflammatory changes. The presence of abnormal SEM deltas across multiple anatomical sites indicates the need to complete SEM assessment to identify early tissue damage and help institute appropriate prevention strategies.

Conclusions

This study provides the first documented PU prevalence data from Ghana and highlights significant patient safety concerns. Findings underline the urgent need to strengthen prevention strategies and institutional support to improve PU outcomes.

Conflict of Interest

The authors declare no conflict of interest.

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INCIDENCE OF PRESSURE ULCERS IN LONG TERM HOSPITALISATION FACILITIES - DEVELOPMENT OF NATIONWIDE QUALITY MESURMENT AND FIRST RESULTS

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Introduction

Pressure ulcers (PU) may impair quality of life by causing pain and limiting the ability to perform activities of daily living, as well as leisure and social activities. They may also adversely affect mood and self-esteem by fostering dependence on others, potentially leading to depression and anxiety, and may even increase mortality rates. In addition, the management of pressure ulcers requires substantial resources. Although important Incidence of Pressure Injuries in long term hospitalisation facilities is under-investigated (1)

Methods

Data were reported to the National Program for Quality Indicators by long-term hospitalisation facilities after the quality measurement development and nationwide implementation. For sake of valid and fare facilities comparison stratification for various departments was adopted – each received separate quality measure: namely complex nursing care wards (CNS) PU development, rehabilitation and sub-acute (RSA) wards PU development, ventilator-dependent (VD) wards PU development. Developed PU was defined as PU (stage 2 or above) that developed during the hospitalization in current ward. To normalize the data the total number of patient hospitalization days served as denominator. The data were validated both logically (by computerized means) and clinically. The data were analysed in terms of compliance with the indicator and additional parameters.

Results

Data were reported by all relevant medical facilities, having the relevant departments. At the national level, the rate of acquired pressure injuries was higher in complex nursing care wards (2.3 per 1,000 patient-days), followed by ventilator-dependent wards (1.9 per 1,000 patient-days), and lower in rehabilitation and subacute wards (1.2 per 1,000 patient-days). The data were published in the open and facility-identified national report both at national and facility-identified levels. Moreover, PU development was age related (older age in higher risk) in CNS&RSA wards, and gender related (male in higher risk) in CNS&VD wards.

Conclusions

Implementation of tailor-made quality measurement on national level provides important data regarding the pressure ulcers development in long-term facilities. Thus, provide public, clinicians and policymakers with important and valid data both on facility and nationwide level. Due to continuous nature of quality measurement processes the measurement is expected to provide long-term follow-up for the issue in the years to come.

Conflict of Interest

none.

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PRESSURE ULCERS IN INCIDENT REPORTS – A MULTICENTER STUDY IN SWEDEN

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Introduction

Pressure ulcers are a patient safety issue associated with pain, reduced quality of life, and substantial healthcare costs [1]. Despite being largely preventable, their prevalence remains high both nationally and internationally, underscoring the need for effective preventive interventions [2].

Incident reporting constitutes a key component in systemic patient safety work regarding pressure ulcers as adverse events [3]. However, limited research has examined how pressure ulcers are actually described and handled within incident reporting systems. There is a need for deeper insight into the content, quality, and patterns of incident reports concerning pressure ulcers, particularly regarding event descriptions, causes, and implemented or planned actions. Therefore, the aim of this study is to address this gap by analysing incident reports related to pressure ulcers to generate new knowledge about reporting practices and areas for improvement.

Methods

An explorative study with a retrospective descriptive design applying both quantitative and qualitative approaches. This multicenter study included de-identified incident reports from three Swedish hospitals. The dataset comprised of existing de-identified incident reports related to pressure ulcers, submitted by the health care staff through a digital incident reporting system. Reports unrelated to pressure ulcers, its causes, or actions influencing its development were excluded. All incident reports closed within a two-year period will be collected, with an estimated total of approximately 300. The quantitative component consists of descriptive analysis of structured variables, while the qualitative component involves inductive content analysis of free-text sections according to Hsieh and Shannon [4]. The analysis focuses on how incidents, contributing factors and documented actions are described in the reports. Findings will be discussed and validated within the research team to strengthen credibility [4].

Results

Preliminary results from the first out of three hospitals indicate that, out of 67 incident reports, the majority were classified as moderate in severity (59.7%). Most incident reports were also determined to be adverse events (64.2%). Regarding pressure ulcer classification, the most frequently reported categories were Category I (26.9%) and Category II (22.4%). Notably, 35.8% of incident reports did not include a pressure ulcer categorization according to the EPUAP/NPIAP classification system.

Conclusions

Preliminary conclusions from all three hospitals will be presented at conference.

Conflict of Interest

No conflict of interest.

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INTER-RATER RELIABILITY BETWEEN REGISTERED NURSES AND ASSISTANT NURSES WHEN USING PURPOSE T

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Introduction

Pressure ulcers remain a major challenge in acute healthcare, affecting patient quality of life and placing a substantial burden on healthcare systems [1]. Because preventive interventions are resource-intensive and may negatively affect patients if applied indiscriminately, accurate risk assessment is essential. The Pressure Ulcer Risk Primary or Secondary Evaluation Tool (PURPOSE T) is a validated instrument that combines an initial screening with a comprehensive assessment while emphasising clinical judgement [2]. Although PURPOSE T has been validated among registered nurses, assistant nurses play a key role in daily patient assessment, highlighting the need to evaluate inter-rater reliability between these professional groups.

Methods

The study was conducted in three acute care hospitals in Sweden between October 2022 and September 2023, involving 117 patients. In pairs, eight registered nurses and eight assistant nurses independently assessed patients using the Swedish version of PURPOSE T [3]. Cross-tabulations and kappa statistics with 95% CI were used to assess the inter-rater reliability of the agreement in the three-way decision pathway: secondary prevention/treatment pathway, primary prevention pathway or not currently at-risk pathway. Participating RNs and ANs were asked to respond to questions through a web-based survey on how they experienced using the PURPOSE T compared to their usual methods of risk assessment.

Results

The 117 patients (48 male, 66 female and 3 missing) recruited were assessed using PURPOSE T, resulting in a total of 117 paired assessments. Mean age of patients was 75.4 (SD 13.4) years. There was agreement in the three-way decision pathway between RNs and ANs for 82.4% ($n = 92/112$) of paired assessments. The corresponding simple kappa statistic was 0.73 (95% CI 0.61–0.83), and the weighted kappa statistic was 0.75 (95% CI 0.65–0.86), indicating good to very good inter-rater reliability. The participating staff stated that PURPOSE-T was generally easy to use although some items were more difficult to complete than others – most highlighted were PU history and perfusion. The way in which RNs and ANs completed the PURPOSE-T varied. For both groups, the construct with the lowest level of completeness was 'current detailed skin assessment'

Conclusions

The findings suggest that the Swedish version of PURPOSE T provides a reliable basis for assessing pressure ulcer risk in clinical practice when applied by both registered nurses and assistant nurses. The instrument was generally perceived as easy to use by both professional groups. Nevertheless, successful implementation in routine care requires a clear focus on education and training to ensure consistent and optimal use of the tool.

Conflict of Interest

No conflict of interest

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BEPU2025: A UNIFORM RISK ASSESSMENT FOR PRESSURE ULCER PREVENTION IN FLANDERS (BELGIUM)

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Introduction

Pressure ulcers (PUs) remain a major patient safety concern, contributing to increased morbidity, prolonged hospitalization, and rising healthcare costs [1]. In Flanders, the Flemish Institute for Quality of Care (VIKZ) mandates biannual medical record audits, including PU risk assessment within 24 hours of admission. However, the current use of heterogeneous risk assessment tools across hospitals leads to variability in risk identification, documentation quality and preventive decision-making. Existing instruments are frequently perceived as time-consuming, inconsistently interpreted, and poorly aligned with routine nursing workflows, limiting their effectiveness in daily practice.

To address these limitations, the Belgian Pressure Ulcer Risk Assessment and Prevention Tool 2025 (BEPU2025) was developed as a standardized and workflow-integrated alternative. The innovation lies in shifting from complex, score-based risk stratification towards a concise, clinically anchored decision-support tool that promotes uniform risk assessment and facilitates consistent preventive care across healthcare settings.

Methods

BEPU2025 was developed through a multicenter collaboration involving wound care nurse specialists from five Flemish university and regional hospitals, in partnership with the Skin Integrity Research Group at Ghent University.

The development is based on existing tools (PURPOSE-T, BEPU2016, and the Leuven risk assessment tool) and prior evidence, identifying immobility and existing pressure ulcers as the strongest predictors of PU development [2].

An iterative, user-centered design process was applied, combining expert consensus and structured peer review rounds among nurses from participating centers. Feedback focused on clarity, feasibility, interpretability and linguistic accessibility, including validation with non-native Dutch speakers. Successive revisions refined wording, definitions and clinical logic to optimize usability and consistency.

Results

The final BEPU2025 tool consists of four structured clinical questions addressing: (1) ability to reposition independently and purposefully, (2) pain at pressure points, (3) presence of a pressure ulcer (including non-blanchable erythema), and (4) history of pressure ulcers.

End-user evaluations indicated that the tool is clear, concise, and feasible for routine use in admission screening. The simplified structure reduced ambiguity, improved consistency in interpretation across different care settings and language backgrounds and facilitates integration into daily workflows which supports consistent documentation and communication of PU risk. Multiple hospitals have already implemented BEPU2025 with institutional support from VIKZ and ICURO (a Belgian-Flemish care network), indicating strong scalability and system-level relevance.

Conclusions

BEPU2025 represents a pragmatic innovation in pressure ulcer prevention by combining standardization, clinical relevance, and workflow integration. By prioritizing simplicity and usability, the tool addresses key barriers associated with traditional risk assessment instruments and supports more consistent, high quality preventive care. BEPU2025 illustrates how targeted simplification of clinical processes can drive meaningful innovation of care at organizational and system level.



Conflict of Interest

The authors have no funding from industry to declare.

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SAME INJURY, DIFFERENT STAGE? PRESSURE INJURY STAGING ACROSS CLINICAL AND REPORTING FRAMEWORKS

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Introduction:

Accurate pressure injury (PI) staging underpins effective clinical management, quality monitoring and health system accountability. In Australia, as can be the case elsewhere, government health departments and national quality programs may apply modified staging rules (known as “clinical staging”, defined as how the injury appears at the time of assessment/auditing) for safety reporting and performance monitoring. This divergence contributes to clinical confusion and challenges the reliability and value of reported PI data.

Methods:

A synthesis of peer-reviewed literature, national and state policy documents, and clinical case examples examined challenges in PI staging and evaluated how misalignment between the international staging system and local reporting requirements affects clinical decision-making, documentation accuracy and quality indicators.

Results:

Discordance between international staging definitions and local monitoring and quality program requirements is evident. Clinicians experience difficulty reconciling international definitions with reporting expectations. Key inconsistencies included exclusion of Stage 1 PIs from mandatory harm reporting despite high prevalence and impact; provisional classification of deep tissue and unstageable PIs pending reclassification; and reverse staging as is often applicable for reporting purposes. These practices create conflicting messages about correct staging approaches and undermine consistent clinical application. Consequences included data distortion, knowledge gaps affecting assessment and care planning, and reduced confidence in prevalence and benchmarking data.

Conclusion:

PI staging is both a complex clinical skill and a regulatory requirement. Ongoing misalignment between international and government frameworks undermines both purposes. While clinical staging supports standardised reporting, it risks obscuring injury history and trajectory. Bridging this gap requires clearer differentiation between clinical and reportable staging, targeted education on system-specific requirements, and documentation systems that preserve clinical nuance while meeting governance needs. Addressing these issues is essential to improving patient safety, data integrity and workforce confidence in PI prevention and management.



IMPROVING COMPLIANCE WITH PRESSURE ULCER PREVENTION BUNDLES USING THE ASSKING FRAMEWORK: A PRE- POST QUALITY IMPROVEMENT STUDY

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Introduction

Pressure ulcers remain a prevalent yet preventable patient safety concern within Irish healthcare settings, contributing to increased morbidity, prolonged hospital stays, and rising healthcare costs (HSE, 2022). Variability in prevention practices continues to affect care quality and safety (Moore et al., 2015). Documentation is a fundamental component of nursing care, with the understanding that care not documented is considered not delivered. The ASSKING bundle provides a structured, proactive framework to standardise prevention practices, improve documentation, and enhance patient outcomes.

Methods

A quality improvement (QI) initiative was introduced initially in an acute medical ward to enhance the identification, prevention, management, documentation, and reporting of pressure ulcers, through improved compliance with risk assessment and SSKIN care bundles. Interventions included a combined Waterlow and SSKIN bundle, visual prompts, daily safety huddles, staff education, and regular audit with feedback. Multidisciplinary collaboration between nurses and healthcare assistants supported shared ownership of care.

Results

Compliance improved significantly, with risk assessment increasing from 67% to 90% and SSKIN bundle completion rising from 0% to 88%. Staff reported increased awareness, confidence, and engagement in pressure ulcer prevention. No hospital-acquired pressure ulcers were reported during the first four months of the project, with a 26% reduction observed overall in 2024. However reported pressure ulcers of grade 1 and 2 increased from 2024 to 2025 with a decrease in grade 3. This likely reflects improved awareness, earlier identification and more accurate reporting following implementation of ASSKING bundles. Increased detection and reporting are considered positive indicators of improved safety culture and surveillance. The findings should also be considered in the context of surge activity with up to 12 additional inpatient beds nightly increasing patient volume and risk exposure.

Conclusions

The ASSKING bundle demonstrates that a structured and standardised approach can significantly improve compliance, documentation, and patient outcomes, even in high-demand healthcare environments. Sustained education, visual supports, and audit feedback were critical to success. Improved reporting and staging accuracy highlight a maturing safety culture and enhanced clinical knowledge. Small, targeted interventions—such as daily huddles, staff engagement, and feedback—were effective in embedding and sustaining practice change. This initiative supports the role of structured prevention strategies in aligning practice with best standards and improving patient safety.

Conflict of Interest

The author declares no conflict of interest

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A MOISTURE-RESPONSIVE FRICTIONAL AND THERMAL ADAPTABLE DRESSING: IMPLICATIONS FOR PRESSURE ULCER PREVENTION

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Introduction

Pressure ulcers (PUs) are caused by sustained mechanical loading, shear and adverse microclimate. Friction at the skin-dressing interface contributes to soft tissue deformations, while elevated temperature and moisture increase metabolic demand and reduce tissue tolerance. Conventional silicone-based dressings prioritise adhesion and transmit considerable shear loads into skin and subdermally, whereas limited thermal conductivity promotes heat accumulation. This study evaluates a moisture-responsive Hydrofiber (HF)-based dressing that adapts both frictional and thermal properties for improved pressure ulcer prevention (PUP).

Methods

Two complementary bioengineering laboratory studies were conducted [1,2]. First, frictional properties were assessed using a tribological sled test (based upon ASTM D1894-14) with a skin simulant under controlled moisture conditions (0-100% saturation). Static and kinetic coefficients of friction (COF) were measured for otherwise identical multilayer dressings differing only in the skin-contact layer, namely, silicone versus HF [1]. Second, in a separate method, thermal conductivity (TC) was quantified using a custom heat-flow meter system simulating the skin-dressing interface at normothermic (32°C) and febrile (40°C) conditions across incremental moisture levels. The HF material was compared with polyurethane (PU) foam [2]. Both studies applied controlled moisture loading to simulate perspiration and used replicated measurements with statistical analysis (analysis of variance with $p < 0.05$ indicating statistically significant differences).

Results

The HF interface demonstrated consistently lower friction compared to silicone under all conditions. In dry states, static COF was approximately 2.8-fold lower, and kinetic COF 1.8-fold lower than silicone. Notably, minimal moisture (5%) triggered a sharp reduction in HF COF to ~0.5, with further reduction to ~0.2 at full saturation, while silicone maintained high COF (>1) regardless of moisture. Thermally, HF exhibited superior and highly moisture-responsive conductivity. In dry conditions, TC was approximately double that of PU foam (0.43 vs 0.20 W/mK at 32°C). With increasing moisture, HF TC increased nonlinearly, reaching ~4.7 W/mK at 15% moisture (~5-fold higher than foam). At 40°C, HF demonstrated a rapid biphasic response, achieving high TC at low moisture levels (~10%), supporting efficient heat dissipation under fever and high metabolic demand.

Conclusions

A HF-based skin interface of a prophylactic dressing demonstrates dual moisture-responsive functionality, combining friction reduction and thermal adaptability at clinically relevant moisture levels. The rapid decrease in COF with minimal perspiration suggests early shear mitigation, while enhanced thermal conductivity supports improved microclimate management and heat dissipation. Together, these synergistic properties may reduce tissue shear exposure, metabolic stress and moisture-related skin damage. These findings highlight the importance of integrating biomechanical and biothermal performance criteria in the design and selection of prophylactic dressings. Moisture-responsive materials such as HF may offer a clinically meaningful advancement in PUP strategies, especially in moisture-prone anatomical regions and high-risk populations.

Conflict of Interest

Authors JF, JB and LEB are employees of Convatec Ltd., and author AG is a paid consultant of Convatec. This work was supported by Convatec Ltd., United Kingdom.

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BIOMECHANICAL MODELING OF SOFT TISSUE-FILLING MATERIAL INTERACTIONS IN SACRAL PRESSURE ULCERS

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Introduction

While filling materials are standard for treating open cavitory wounds, their mechanical interaction with soft tissues is still poorly understood. This remains a critical gap, as evidence suggests that large shear strains significantly compromise tissue viability [1]. Consequently, clinicians often struggle to select the most appropriate filling materials [2], and manufacturers face challenges in developing optimized products.

Methods

This study models the mechanical behaviour of filling material within a stage III sacral pressure ulcer characterized by a deep open cavity. Commercially available materials were subjected to uniaxial tensile and compression tests, and the resulting data fitted with an Ogden hyperelastic constitutive law.

The influences of material stiffness, compressibility, filling ratio, and interfacial friction were investigated on a Finite Element model assuming a patient in the supine position.

Results

Analysis of Green–Lagrange shear strains inside soft tissues highlights that completely filling the wound cavity is essential to prevent tissue injuries. The results indicate that softer, more compressible materials are preferable, as they undergo deformation in place of the surrounding soft tissues. Furthermore, the findings suggest that an optimal balance of frictional properties at the tissue interface is necessary.

Conclusions

Future work will involve implementing a poroelastic model for rope wound dressing to account for wound exudation and its interaction with both the filling material and the secondary dressing.

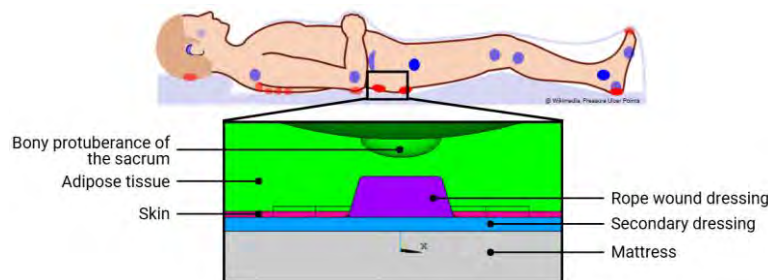


Figure 1: Finite Element Model

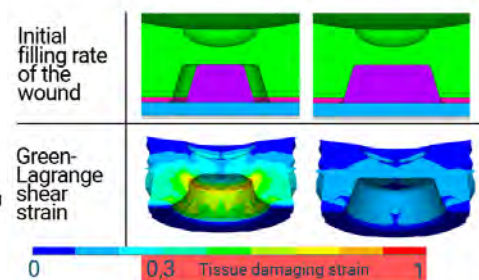


Figure 2: Wound filling rate (left: 60%, right: 100%) influence on tissue viability

Conflict of Interest

This work has been financially supported by Urgo Research Innovation and Development (URID).

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PRESSURE-INDUCED CHANGES IN SOFT TISSUE OXYGENATION AT SOFT AND BONY SITES: TOWARD PERSONALISED PRESSURE ULCER PREVENTION

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Introduction

Pressure ulcers remain a major clinical challenge, particularly in ageing and spinal cord injury populations, where the risk of pressure-related tissue damage is often increased due to altered tissue composition, reduced tissue resilience, sensory impairment, mobility limitations, and other intrinsic risk factors. Prevention strategies remain largely generalised and do not adequately capture subject-specific physiological responses to loading. This study investigates the relationship between externally applied pressure and tissue oxygenation using near-infrared spectroscopy (NIRS), with the aim of informing the development of a personalised pressure ulcer prevention system. This approach may ultimately help establish the physiological foundation for algorithms that integrate soft tissue oxygenation response with continuous pressure and shear monitoring to support more individualised, real-time prevention strategies.

Methods

Healthy, able-bodied adults aged 18–59 years were assessed at two anatomical sites: the rectus femoris muscle of the thigh (soft tissue) and the heel (bony prominence). External loading was applied during defined loading and recovery phases while soft tissue oxygenation was continuously monitored using NIRS. In the soft tissue cohort, pressure was applied using controlled external weights, whereas in the bony prominence cohort, loading was subject-specific and based on leg weight. Ultrasound imaging was used to assess tissue thickness and related structural characteristics. Intrinsic factors, including age, sex, tissue thickness, and tissue composition, were examined to better understand inter-individual differences in the oxygenation response. Ongoing recruitment targets $n = 60$ per site in the healthy cohort, with future work expanding to broader populations, including ageing and spinal cord injury cohorts and individuals with additional risk factors such as diabetes.

Results

Preliminary findings demonstrated a consistent inverse relationship between applied pressure and tissue oxygenation. Preliminary analyses included $n = 38$ at the soft tissue site and $n = 37$ at the bony prominence site. As pressure increased, tissue oxygenation index (TOI) decreased, indicating pressure-induced reductions in tissue oxygenation consistent with localised ischaemic effects, followed by variable recovery after unloading. Figure 1 shows a representative time-series plot illustrating the inverse relationship between loading and tissue oxygenation, with rapid recovery following unloading. Distinct inter-individual differences were observed in both the magnitude of TOI reduction and recovery dynamics. In the soft tissue cohort, males showed significantly faster recovery slopes than females, whereas in the bony prominence cohort, females demonstrated a greater reduction in TOI per unit pressure than males. Exploratory analyses from the soft tissue cohort also suggested that tissue thickness and composition may contribute to these inter-individual differences, although these observations remain preliminary and require further investigation.

Conclusions

These findings suggest that pressure-induced changes in tissue oxygenation are both subject-specific and site-dependent. NIRS provides clinically relevant insight into tissue tolerance and recovery, supporting the development of personalised pressure ulcer prevention strategies. Future work will integrate physiological responses with continuous mechanical monitoring to enable real-time, individualised risk assessment.



Conflict of Interest

The authors declare no industry funding for this study.

Figures

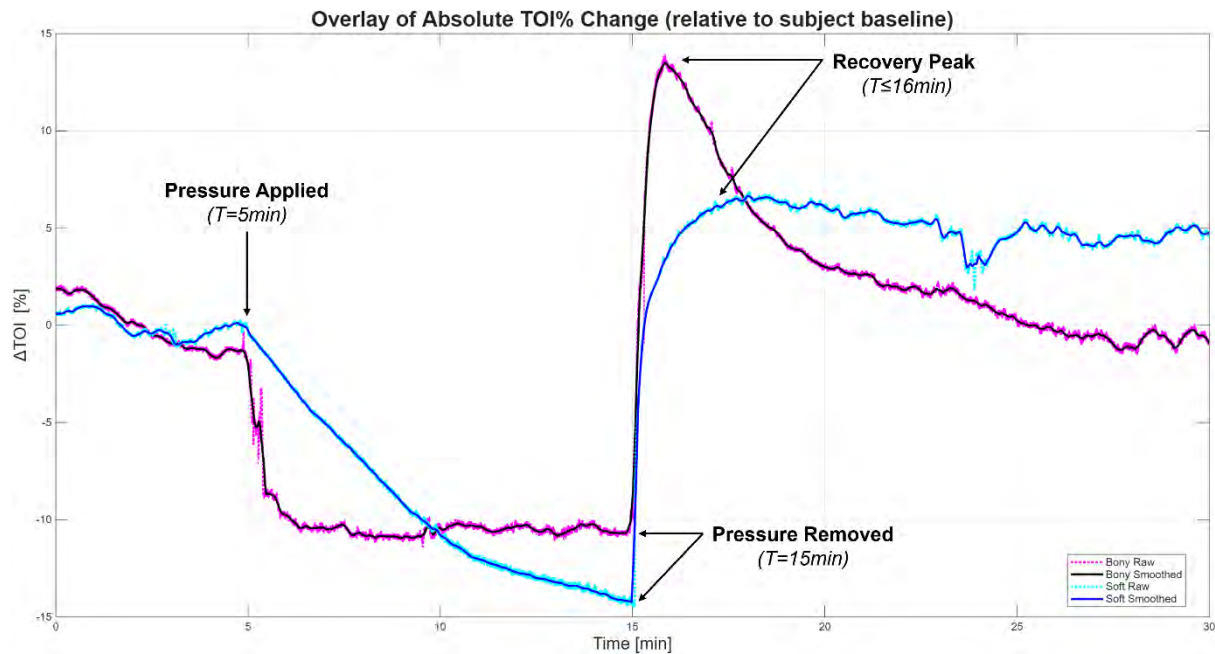


Figure 1: Representative baseline-normalised time-series plots of TOI% response to externally applied loading at the soft tissue (blue–cyan) and bony prominence (black–magenta) sites from the same participant. The traces illustrate the inverse relationship between loading and tissue oxygenation, with recovery following unloading. Direct comparisons between sites should be interpreted cautiously, as loading conditions differed between protocols.

FEASIBILITY OF NEAR-INFRARED SPECTROSCOPY FOR OBJECTIVE CLASSIFICATION OF STAGE 1 PRESSURE ULCERS

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Introduction

Non-blanchable erythema means redness that does not turn white under pressure. This prevailing diagnostic method is incompatible with melanin-rich skin [1], requires pressure on skin affected by pressure, and is as subjective as measuring fever by touch. Devices have been introduced, but these remain at the level of risk scores. In efforts to include the majority of the world's population, updated guidelines have shifted toward changes in skin colour, temperature, and tissue firmness [2]. Yet, tracking changes requires having a known baseline for each individual.

The current study evaluates handheld near-infrared (NIR) spectroscopy as a method to objectively classify Stage 1 pressure ulcers at point-of-care. NIR is widely used to classify materials and organic tissue [3]. Because NIR measures lipids and water and melanin does not show any features in this region [4], NIR is a natural candidate for distinguishing Stage 1 PU from healthy tissue in all skin tones.

Methods

In a multi-center cross-sectional study, two types of diffuse reflectance NIR sensors were used: Texas Instruments' NIRscan Nano EVM and the Mantispectra Nibble. Both sensors measure light absorption in the 900-1700 nm range. We used custom-made protective casings from inert materials and added an LPDE barrier for hygienic purposes. Data were collected by placing the sensor probe against the skin without applying pressure. For each participant with clinically identified Stage 1 PU, or related differential diagnosis such as erythema, measurements were taken at the affected site and, where possible, at a (contralateral) healthy reference site. Spectral data were analysed using multiple machine learning algorithms (e.g., PLS-DA, Random Forest). The study received institutional ethics approval and participants gave informed consent.

Results

Preliminary results showed perfect classification accuracy of healthy tissue and sites with clinically suspected Stage 1 PU or erythema (using a Random Forest Classifier). The complete classification performance data of the full data set, including sensitivity, specificity, and the capacity to differentiate Stage 1 PU from visually similar conditions like IAD are presented at the conference.

Conclusions

The results support NIR spectroscopy as a viable, skin-tone independent diagnostic aid for Stage 1 pressure ulcer classification, providing an objective measurement where none exists to date.

Conflict of Interest

The author developed this work as a researcher at Eindhoven University of Technology and is co-founder and CTO of Precubitus B.V., a TU/e spin-off developing devices for pressure ulcer classification. The work presented was funded through the academic TTT-AI, NWO Take-off Phase 1, and TTT-MedTech programs.

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POSITIONING DEVICES: EVOLUTION OF IMPROVED PRESSURE REDUCING PROPERTIES

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Introduction

It has long been recognized that the pressure distributive properties of support surfaces play a crucial role in the prevention of pressure ulcers, and much work over many decades has gone into their optimization¹. The great majority of this work has been concerned with mattresses and seat cushions, and test methodologies and standards have been established specifically for these devices^{2,3}. Meanwhile, other categories of device at the patient interface have been largely neglected in terms of pressure distribution. These include positioning devices, and pillows. This study concerns the development of appropriate test methods for these devices, enabling the development of devices with improved performance. The new-generation devices are then tested in a clinical setting to investigate the effect on outcomes including pressure ulcer incidence.

Methods

A modified indenter, "Baby Sven", was developed to represent the loading conditions encountered at the patient-positioner interface. This differed from the typical mannequins used for mattress and seat cushion evaluation insofar as the loading conditions were greatly reduced for non-weightbearing interfaces, and the indenter topology radius was greatly reduced to represent bony prominences such as calcanei, malleoli, occipital, or olecranal. A flexible high resolution pressure mapping device was used to evaluate the pressure distributive properties of 20 different constructions of positioning pad, before choosing the 3 best performing. These 3 designs were further extrapolated into 15 further variants, before repeating the evaluations to select the single best performing pad. This variant was then put into service in a clinical setting in the Memorial-Houston Texas Medical Center, and Ohio State University Wexner Centre, in a parallel-phased replacement. Data was collected locally to monitor rate of total off-loading of heels, and incidence of hospital-acquired pressure injuries (HAPI).

Results

The test-evolutionary product development cycle resulted in > 60% reduction in peak interface pressures compared to the pre-development product, and > 75% reduction compared to comparator positioning devices. In the clinical setting, use of the evolved device was accompanied by a 24% increase in observed total off-loading of heels, and an 84% reduction in HAPI.

Conclusions

The use of a standard, replicable protocol for testing pressure distribution on patient positioning devices as part of an evolutionary cycle enables the development of substantially improved product. The next generation of positioning device resulting from this process is associated with greatly improved clinical outcomes.

Conflict of Interest

The product development work was conducted by Gabriel Scientific OU, Estonia. The clinical evaluation was independently conducted.

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THERAPEUTIC WOUND AND SKIN CLEANSING: EVIDENCE-BASED GUIDANCE

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Introduction

Variation in wound cleansing practices persists internationally, driven by inconsistent terminology, differing interpretations of evidence, and lack of clarity regarding the role of cleansing within wound hygiene. The International Wound Infection Institute (IWII) have developed and published consensus guidance to strengthen conceptual foundations and translate current evidence into practical recommendations for therapeutic wound and skin cleansing. The aim of this publication¹ was to: critically evaluate contemporary evidence surrounding therapeutic wound and skin cleansing, standardise key terminology and develop consensus based guidance to support clinicians in optimising wound preparation and promoting infection prevention.

Methods

A structured methodology was used, including a systematic literature review encompassing inert cleansing solutions, surfactant agents, antiseptics, cleansing techniques, aseptic procedures, pain management and antimicrobial stewardship. Evidence was appraised using the Joanna Briggs Institute Levels of Evidence. To address gaps and inconsistencies in terminology, a RAND/UCLA modified Delphi process was conducted with an international multidisciplinary expert panel to achieve consensus on core definitions, including peri-wound, limb hygiene and therapeutic wound cleansing.

Results

Critical appraisal confirmed that therapeutic cleansing represents an essential phase of wound hygiene rather than a ritualised task. Evidence supports cleansing across three anatomical zones: wound bed/edge, peri-wound and surrounding skin is essential. Yet this structured approach is inconsistently applied in practice. The review highlighted differential benefits of cleansing solutions:

- **Surfactants** demonstrated superiority in removing debris and disrupting biofilm burden.
- **Antiseptic solutions** were effective for wounds with elevated infection risk, when integrated responsibly within antimicrobial stewardship frameworks.
- **Inert solutions** were appropriate in low risk, non-complex wounds but offered limited benefit in more challenging presentations.

The consensus identified persistent variability in aseptic technique selection, inconsistent management of wound temperature during cleansing and inadequate strategies for pain minimisation. The consensus document offers clarity and practical advice supported by pathways to support clinicians in daily practice to understand and implement appropriate aseptic and clean techniques, emphasises maintaining wound temperature, highlights pain-minimising strategies and integrates antiseptic use within antimicrobial stewardship principles

Conclusions

Therapeutic wound and skin cleansing is a critical intervention in preparing the wound bed, reducing microbial burden and supporting healing. The updated IWII guidance¹ provides a clarified conceptual framework and evidence based recommendations designed to reduce global practice variation and promote safe, effective and patient centred cleansing strategies. Ongoing implementation research is needed to assess real world adoption, refine solution selection pathways and evaluate patient outcomes across care settings.

Conflict of Interest

The consensus document was supported by B Braun, Convatec, Hartmann, Molnlycke, URGO Medical

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IS TRANSEPIDERMAL WATER LOSS A SUSTAINABLE MARKER FOR PRESSURE INJURY PREVENTION? A SYSTEMATIC REVIEW

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Introduction

Pressure injuries remain a major challenge in healthcare due to their impact on patient outcomes, care workload, and resource use. Sustainable pressure injury prevention requires early, objective, and clinically meaningful markers that can support timely intervention before visible skin damage occurs [1]. Transepidermal water loss (TEWL), a non-invasive indicator of skin barrier function, has been proposed as a potential marker of early tissue compromise. This systematic review aimed to evaluate whether TEWL may represent a sustainable marker for early pressure injury prevention in adult populations [2].

Methods

This systematic review was conducted in accordance with PRISMA guidelines [3]. A comprehensive search identified 216 records. After removal of 133 duplicates, 83 records were screened and 21 studies were included in the review. The included studies comprised 10 clinical studies, 10 experimental studies, and 1 methodological study. Data were extracted on study design, population, TEWL assessment, and pressure injury-related outcomes. Due to heterogeneity in methods and outcomes, findings were synthesised narratively.

Results

Across the included studies, TEWL was consistently sensitive to early changes in skin barrier function under loading, occlusion, moisture, and microclimate-related conditions. Experimental studies showed that sustained mechanical loading, support surface characteristics, humidity, and medical devices could alter TEWL, indicating early barrier disruption before overt skin breakdown.

Clinical findings were more heterogeneous. Several studies suggested that elevated TEWL was associated with pressure injury presence, impaired skin integrity, or wound recurrence, supporting its potential as an early warning parameter. However, other studies found no significant association between TEWL and pressure injury development, and in some cases other markers, such as erythema, skin hydration, or pH, appeared more informative.

Overall, TEWL appears to be a responsive marker of early skin barrier alteration, but its predictive value as a standalone clinical tool remains uncertain.

Conclusions

TEWL shows promise as an objective indicator of early skin barrier dysfunction and may contribute to more sustainable pressure injury prevention by supporting earlier recognition of tissue compromise and more targeted preventive care. However, current evidence is insufficient to support TEWL as a standalone marker for clinical decision-making. Its greatest value may lie in combination with other physiological and clinical indicators within a multimodal prevention approach. Further longitudinal studies are needed to clarify its predictive role and to determine whether TEWL-guided assessment can improve both clinical outcomes and sustainability in pressure injury care.

Conflict of Interest

No conflict of interest.

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FROM RISK TO PREVENTION: A RAPID UMBRELLA REVIEW OF PERIOPERATIVE PRESSURE INJURIES IN THE OPERATING ROOM

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Introduction

Pressure injuries remain a significant patient safety issue and a sensitive indicator of care quality, with important consequences for patients and health services [1,2]. In the perioperative setting, risk is increased by prolonged immobility, loss of protective sensation under anaesthesia, positioning constraints, haemodynamic and thermal changes, and exposure to medical devices [3,4]. Current guidance emphasises that prevention in surgical patients should not be limited to a single intraoperative action, but should be planned across the perioperative pathway through structured risk assessment, appropriate positioning, support surfaces, skin protection, and team-based preventive processes [3,5]. This review was undertaken to synthesise the evidence from secondary studies on the main perioperative risk factors and the preventive strategies most consistently supported in the operating theatre setting.

Methods

A rapid umbrella review was conducted and reported according to PRISMA 2020 [6]. The protocol was registered in PROSPERO (CRD420251152667). The review question was structured using the PICO framework. Only secondary studies were eligible, including systematic, scoping, integrative, and rapid reviews addressing pressure injuries in adult surgical patients in the preoperative, intraoperative, or early postoperative period. Searches were conducted in PubMed and Scopus in August 2025. Study selection was performed independently by two reviewers, with a third reviewer involved when consensus was required. Data were extracted using a standardised grid and synthesised narratively by grouping findings into perioperative risk domains and preventive intervention areas [6,7].

Results

The search identified 113 records. After removal of 27 duplicates, 86 records were screened and 4 reviews met the inclusion criteria [7]. The included reviews consistently described perioperative risk as multifactorial. The most recurrent determinants were duration of surgery and anaesthesia, patient characteristics such as age, comorbidity, nutritional status and BMI, surgical positioning, and the presence and management of medical devices [8-11]. Preventive strategies converged towards a multimodal approach. The most frequently reported measures were appropriate support surfaces, advanced positioning aids, selective use of prophylactic dressings at vulnerable sites, pre- and postoperative skin inspection, structured risk assessment, and greater standardisation of documentation, communication, and interprofessional teamwork [8-11]. Overall, the operating theatre emerged not simply as a location where pressure injuries occur, but as a high-risk system in which prevention depends on the alignment of technical measures and reliable perioperative processes.

Conclusions

This review suggests that perioperative pressure injury prevention should be approached as a coordinated pathway rather than as a single intraoperative action. The available evidence supports a bundle-oriented model in which support surfaces, protective dressings, device management, skin surveillance, and team-based processes are integrated across the perioperative continuum. Clinically, the most relevant implication is that prevention should begin before anaesthesia and be intensified in patients and procedures with cumulative risk, particularly long operations, complex positioning, and high device burden. From an implementation perspective, the greatest opportunity for improvement may lie not only in selecting preventive products, but in embedding them within structured perioperative risk assessment, checklist-based workflows, and consistent



multidisciplinary communication. Future research should prioritise pragmatic studies on perioperative bundles, device-specific prevention, and standardised outcome definitions to strengthen translation into routine surgical care.

Conflict of Interest

The authors declare no conflict of interest. No industry funding was received for this study.

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RISK FACTORS FOR PRESSURE ULCER DEVELOPMENT AMONG ADULTS UNDERGOING SURGERY: A SYSTEMATIC REVIEW

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Introduction

Surgical patients are at risk of developing pressure ulcers (PU) [1]; however, numerous internal and external risk factors are reported in the literature pertaining to the pre-operative, intra-operative and post-operative periods [2][3][4]. This systematic review examines risk factors for PU development among adults undergoing surgery.

Methods

Five electronic databases were searched from inception to March 2024. Two reviewers independently performed study selection, data extraction, and quality appraisal using the Crowe Critical Appraisal Tool (CCAT v1.4), with scores ≥ 30 indicating high methodological quality. Results were categorised and reported as pre-operative, intra-operative and post-operative risk factors, with percentages representing the proportion of studies assessing each risk factor in which it was statistically significant. Due to methodological heterogeneity, findings were synthesised narratively.

Results

Forty-one studies were included, 48.8% (n=20) of which were retrospective study designs. Ninety distinct pre-operative risk factors were reported, with Braden score (69%, n=11), age (61%, n=19), and diabetes mellitus (61%, n=11) frequently reported as statistically significant. Forty-one distinct intra-operative risk factors were assessed across 36 studies, with duration of surgery (68%, n=15), patient positioning (60%, n=9), and type of surgery (60%, n=9) commonly reported as significant predictors. Post-operatively, 23 studies assessed 41 distinct risk factors with the Braden Scale (83.3%, n=5), sepsis (100%, n=3), and pneumonia (100%, n=3) frequently reported as statistically significant. The mean methodological quality score was 82% (SD 9.7%).

Conclusions

This systematic review identified a diverse number and type of risk factors for PU development across the included studies during the pre-operative, intra-operative, and post-operative surgical period. Due to the complex interplay of competing factors that impact PU development during surgery, the development of a core outcome set of risk factor variables for inclusion in future studies may enhance homogeneity and support risk stratification alongside optimisation of modifiable exposure factors.

Conflict of Interest

There are no conflicts of interest.

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PREVENTION OF PRESSURE INJURIES IN PRONE POSITION DURING SURGERY: PRELIMINARY RESULTS OF A RCT (PRONOR)

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Introduction

Intraoperative pressure ulcers (PUs) remain a major patient safety concern and an important indicator of healthcare quality¹. Patients undergoing prolonged surgical procedures in the prone position are at particularly high risk due to sustained pressure, shear forces, immobility, and reduced tissue perfusion¹⁻².

Although multilayer silicone foam dressings have demonstrated effectiveness in preventing pressure ulcers in critical care settings³⁻⁴, and in surgical populations⁵, high-quality evidence supporting their use in the operating room—particularly in prone-positioned patients—remains limited.

This study aims to evaluate the effectiveness of a multilayer silicone foam dressing in preventing pressure ulcers in patients undergoing surgery in the prone position.

Methods

A superiority, parallel-group randomized controlled trial (1:1 allocation) is being conducted in a tertiary hospital in northern Portugal. Adult patients undergoing elective orthopedic or neurosurgical procedures in the prone position, with an expected duration of more than 2 hours, are eligible.

Participants are randomized into two groups: (i) control group (CG), receiving standard preventive care (including appropriate support surfaces), and (ii) intervention group (IG), receiving standard care plus prophylactic application of multilayer silicone foam dressings to high-risk anatomical areas (face, chest, iliac crest, and knees).

The primary outcome is the incidence of pressure ulcers within 72 hours postoperatively. Secondary outcomes include intraoperative skin erythema and the occurrence of pressure ulcers in non-protected anatomical areas. Interim analysis was conducted using descriptive statistics.

Results

To date, 30 participants have been enrolled (CG = 15; IG = 15), with two excluded due to protocol deviations. The mean surgical duration was 4.08 hours.

One pressure ulcer was identified in the control group (6.7%), located in the anterior chest, while no pressure ulcers were observed in protected areas in the intervention group. Skin erythema occurred in 43.3% of participants (n = 13), with a similar distribution between groups (CG = 6; IG = 7), predominantly affecting the chest.

Importantly, in the intervention group, both erythema and pressure ulcers occurred exclusively in anatomical areas not covered by the dressing, suggesting a localized protective effect.

Conclusions

Preliminary findings suggest that multilayer silicone foam dressings may reduce the occurrence of intraoperative pressure ulcers in prone-positioned patients, particularly when applied to high-risk anatomical areas.

The exclusive occurrence of pressure ulcers and skin changes in unprotected regions highlights the importance of adequate anatomical coverage and targeted preventive strategies. Ongoing recruitment and final analysis will further clarify the magnitude of the intervention effect and support evidence-based recommendations.



Conflict of Interest

This study receives material support from the manufacturer of the dressing under investigation. The sponsor has no role in study design, data collection, analysis, or interpretation.

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TENOTOMY, RESULTS OF A BICENTRIC STUDY

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Introduction

Patients with diabetic foot syndrome (DFS) are at higher risk of lower limb amputations (LLA). The vast majority of LLA are preventable and a functional limb can be preserved with a comprehensive treatment. One of the methods serves for the LLA prevention is tenotomy, that can also potentially improve the podiatric prognosis and could be potentially cost saving. The aim of the study was to assess the frequency of tenotomies performed in two podiatric centers and their impact on healing, prognosis of patients with diabetic toe ulcers (DTU) and possible effect on economic demands of such off-loading surgical method.

Methods

A total of 259 patients with DFU were included into our bicentric study from January to December, 2024 (mean age 67 ± 11.2 years, BMI 30.9 ± 11.1 kg.m⁻², diabetes duration 24.7 ± 12.9 years, HbA1c 57.7 ± 17 mmol/mol). After inclusion into the study, patients were followed for 3 months. Their baseline epidemiologic and DTU characteristics together with DTU healing and treatment costs were evaluated during the study period.

Results

Overall, tenotomy was performed in 13.1% of study subjects (34/259). Patients with tenotomies were significantly younger (63.6 ± 9.6 vs. 67.5 ± 11.4 years; $p=0.04$); with shorter duration of diabetes (17.4 ± 9.9 vs. 26 ± 13 years; $p<0.0001$) and DTU (3.5 ± 3.9 vs. 5.1 vs. 8.8 months; $p=0.04$), with better microcirculation status (TcPO₂ 51.4 ± 15.7 vs. 40.8 ± 17.6 mmHg; $p=0.0004$) compared to other patients treated by standard of care (SOC). A trend towards to faster healing (1.7 ± 0.8 vs. 2 ± 1.1 months; $p=0.17$) and shorter ATB therapy (0.9 ± 1.1 vs. 1.2 ± 1.3 months; $p=0.17$) was found in patients after tenotomies compared to other patients with DTU. We proved significantly lower economic demands of DTU treatment dedicating to patients with tenotomies compared to other controls (389 ± 417 with a median of 221 EUR vs. 570 ± 571 with a median of 310 EUR; $p=0.05$). During the follow-up period, no amputation occurred after tenotomies, while in other patients treated by SOC 25.8% of LLA was performed (58/225; $p<0.0001$). Amputees healed significantly longer (2.6 ± 1 month, $p=0.006$), with the longest ATB therapy (2.2 ± 1.1 months, $p<0.0001$) and significantly higher financial costs compared to other patients with DTU (1100 ± 1004 with a median of 837 EUR; $p<0.0001$).

Conclusion

Tenotomy significantly reduces the number of LLA and could contribute to shorten DTU healing time compared to SOC. This method is cost saving for podiatric care in the Czech Republic.

Conflict of Interest

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BEYOND THE INCIDENT FORM: WHEN PATHOPHYSIOLOGY MATTERS IN HAPI ATTRIBUTION IN CRITICAL CARE

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Introduction

Hospital-acquired pressure injury (HAPI) incidence is widely used as a quality indicator in critical care. However, reliance on incident reporting systems and morphology-based classification may not fully account for the complex pathophysiology observed in critically ill patients. Systemic processes such as hypoperfusion, coagulopathy, and vasopressor use may produce skin and tissue changes that mimic pressure-related injury, potentially leading to misclassification and inaccurate attribution.

Methods

A retrospective observational study was conducted in a critical care population. All incidents recorded under pressure injury categories were extracted from the institutional reporting system and reviewed. Cases underwent structured validation using standard classification criteria supported by clinical documentation and contextual clinical assessment. Misclassification was defined as lesions that either did not meet the diagnostic criteria for pressure injuries upon validation or were assigned to an incorrect pressure injury category.

Results

A total of 1,125 patients were included, with 183 reported pressure injury incidents. Following validation, 57 cases (31.1%) were reclassified, indicating substantial misclassification.

Higher misclassification rates were observed in early-stage injuries and suspected deep tissue injury, where differentiation from non-pressure-related skin damage is clinically challenging.

Conclusions

A substantial proportion of reported pressure injuries in critically ill patients were misclassified. These findings highlight the limitations of morphology-based classification when applied in isolation and emphasise the importance of integrating pathophysiological context and mechanism of injury into pressure injury assessment. Without structured validation, reported HAPI incidence may reflect classification and attribution processes as much as true pressure-related harm. Strengthening diagnostic and attribution processes is essential to ensure meaningful interpretation of pressure injury metrics in critical care and beyond.

Conflict of Interest

None declared.

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COST-EFFECTIVENESS OF A PRESSURE INJURY PREVENTION CARE BUNDLE IN CRITICAL CARE: A RANDOMIZED CONTROLLED TRIAL

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Introduction

Pressure injuries (PIs) remain a major and largely preventable patient safety problem in acute care settings, leading to increased morbidity, mortality, and healthcare costs [1]. Despite advances in prevention, hospital-acquired pressure injuries (HAPIs) continue to occur frequently, particularly in intensive care units [2]. While care bundles have been shown to reduce PI incidence, robust evidence on their cost-effectiveness remains limited, especially in middle-income countries [3,4]. This study aimed to evaluate the clinical and economic impact of a Pressure Injury Prevention Care Bundle (PIP-CB) in ICU patients.

Methods

A randomized controlled economic evaluation was conducted in a 16-bed adult ICU of a tertiary hospital between January and May 2025. The trial was prospectively registered at ClinicalTrials.gov (NCT06770686). A total of 90 patients were randomly assigned to either the intervention group (PIP-CB, n=45) or control group (standard care, n=45). The PIP-CB included structured risk assessment, skin inspection, repositioning, microclimate management, and use of barrier products and prophylactic silicone foam dressings. Nurses received standardized training prior to implementation, and high adherence (97.56%) was confirmed during a pilot phase. Cost data were collected prospectively using a patient-level micro-costing approach, including nursing labor, consumables, supportive resources, and hospitalization costs. Cost-effectiveness was assessed from the hospital perspective using the incremental cost-effectiveness ratio (ICER), expressed as cost per HAPI prevented and per HAPI-free day. Statistical analyses included between-group comparisons and non-parametric bootstrapping (1,000 replications) to estimate uncertainty.

Results

The intervention group demonstrated a significant reduction in HAPI incidence compared with the control group. Additionally, time to PI development was prolonged in the intervention group. Although total healthcare costs were significantly higher in the intervention group (₺62,721.22 vs. ₺39,752.24; $p=0.002$), daily hospitalization costs were significantly lower (₺12,376.60 vs. ₺14,233.09; $p<0.001$). The ICER for preventing one additional HAPI was ₺74,467.44 (95% CI: ₺48,754–₺111,000), while the ICER per HAPI-free day was ₺3,074.44 (95% CI: ₺1,835–₺5,304). These values remained well below willingness-to-pay thresholds based on Türkiye's GDP per capita. A strong positive correlation was found between length of stay and total cost ($r=0.674$; $p<0.001$), indicating that prolonged hospitalization was a key driver of increased healthcare expenditures.

Conclusions

The PIP-CB significantly reduced HAPI incidence and delayed PI development among ICU patients. Although associated with higher upfront costs, the intervention was cost-effective, with ICER values remaining below accepted thresholds. These findings suggest that structured, nurse-led care bundles can provide both clinical and economic benefits, supporting their integration into routine ICU practice. Implementing such preventive strategies may improve patient outcomes while promoting more efficient use of healthcare resources.

Conflict of Interest

No funding from industry was received for this research.

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THE PREVALENCE OF PRESSURE ULCERS IN EUROPE: WHAT DO THE EUROPEAN DATA TELL US? AN UPDATED SYSTEMATIC REVIEW

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Introduction

Pressure ulcers (PUs) remain a significant patient safety issue, associated with increased morbidity, reduced quality of life, and substantial healthcare costs [1]. Since the last European synthesis in 2019 [2], new evidence has emerged. This study aimed to update the evidence on PU prevalence across Europe and examine patterns in reporting, classification, and clinical characteristics.

Methods

This systematic review updates previous work by including studies published in 2019. A comprehensive search of Cochrane, Medline, Embase, CINAHL, PubMed, Scopus, and Web of Science was conducted (August 2025). Quantitative studies reporting PU prevalence in European settings were included. Data extraction and critical appraisal were performed using a predefined tool and the Evidence-Based Librarianship checklist. Descriptive statistics and a random-effects meta-analysis were used to synthesise prevalence estimates.

Results

A total of over 100 prevalence studies conducted between 1979 and 2025 across a wide range of care settings were included. The pooled prevalence of pressure ulcers (PUs) was 16.0% (95% CI 15.54%–16.58%), with substantial heterogeneity across studies. Across care environments, prevalence varied by setting, with higher rates generally observed in long-term care and intensive care compared to acute and community settings. Considerable variability in reporting approaches and classification methods was observed across studies.

Conclusions

Pressure ulcer prevalence in Europe remains clinically significant, with wide variation across countries and settings. While pooled estimates suggest lower prevalence, reported rates remain high in many contexts, highlighting ongoing challenges in prevention and surveillance. Methodological inconsistencies, particularly in classification and reporting, limit comparability across studies. Standardisation of data collection and reporting is urgently needed to support benchmarking, improve clinical practice, and inform policy. Continued investment in prevention strategies and monitoring systems remains essential.

Conflict of Interest

None declared.

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HEEL AND FOOT PRESSURE INJURIES IN THE INTENSIVE CARE UNIT (ICU) DURING END-OF-LIFE CARE: A SCOPING REVIEW OF PREVALENCE AND PREVENTION PRACTICES

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Introduction

Pressure injuries to the heel and foot are among the most frequent and clinically significant complications in critically ill patients, particularly in end-of-life care settings. These injuries are associated with increased pain, a reduced quality of life, and a greater healthcare burden [1-3]. Although the prevention of pressure injuries has been widely studied, there is limited and fragmented evidence focusing specifically on the heel and foot regions during end-of-life care in intensive care unit (ICU) patients [2,4,5].

Methods

This scoping review was conducted in accordance with the Joanna Briggs Institute (JBI) methodology and reported in line with the PRISMA-ScR guidelines [6,7]. A systematic search was performed in the PubMed and Web of Science databases. A total of 100 records were identified and, after removing duplicates and screening, 57 studies were assessed for eligibility. Forty of these papers were excluded based on predefined criteria (e.g. incorrect setting, outcomes or population), leaving 17 studies for inclusion in the final review. The eligible studies focused on adult ICU populations, with limited evidence specifically addressing patients at the end of life, and reported outcomes related to heel and/or foot pressure injuries.

Results

The included studies demonstrated considerable variation in the reported prevalence of pressure injuries, with rates differing widely across ICU settings. The heel was consistently identified as one of the most commonly affected anatomical sites, particularly among critically ill patients, including those receiving end-of-life care. Although evidence specific to end-of-life populations was limited, available findings suggest that pressure injury risk remains high in this group.

Incidence data indicated that pressure injuries continued to develop during ICU stay despite the implementation of preventive measures. Common prevention strategies included prophylactic dressings (particularly silicone foam), repositioning, support surfaces, and structured prevention protocols. Several studies highlighted the effectiveness of heel-specific interventions, such as offloading devices and foam dressings, in reducing injury occurrence. However, substantial heterogeneity in study designs and outcome measures limited direct comparisons across studies.

Conclusions

Pressure injuries to the heel and foot remain a significant clinical challenge in intensive care unit (ICU) end-of-life care. Although multiple prevention strategies are employed in practice, evidence relating specifically to the heel and foot regions is still limited. Standardization of outcome measures and further high-quality research focusing on targeted interventions are required to enhance prevention efforts and patient outcomes for this vulnerable group.

Conflict of Interest

The authors declare no conflict of interest. This study was supported by COST Action CA24107 (SAFE ICU).

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TRANSLATION AND CULTURAL ADAPTATION OF AN END-OF-LIFE WOUND ASSESSMENT TOOL: A JOINT INITIATIVE IN ITALY

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Introduction

Differentiating end-of-life (EoL) wounds from pressure injuries remains a major clinical challenge. EoL wounds are often related to systemic decline, hypoperfusion, and the dying process and are not preventable. Misclassification may affect clinical decision-making, quality-of-care indicators, and communication with patients and families, negatively impacting the care pathway of persons at the end of life. Currently, no validated Italian-language assessment tools specifically designed to identify EoL wounds are available. The need for a standardised, culturally adapted instrument emerged directly from clinical practice, where healthcare professionals frequently face uncertainty in distinguishing EoL wounds from pressure injuries, particularly in complex palliative care settings. To address this gap, a collaborative initiative between the Italian Wound Care and Palliative Care scientific associations (respectively, Associazione Italiana per lo Studio delle Lesioni Cutanee – AISLeC, and Società Italiana di Cure Palliative – SICP) was established in late 2025 to translate and validate, for the Italian clinical context, an assessment tool developed explicitly for EoL wounds by a team of Australian professionals. The initiative aims to promote shared clinical terminology, improve diagnostic accuracy, and support appropriate care planning and clinical decision-making in the Italian context.

Methods

A methodological study was designed in accordance with internationally recognised recommendations for the translation and cultural adaptation of clinical assessment tools. The project is conducted by a multidisciplinary working group including wound care specialists, palliative care nurses, clinicians, and methodological experts. The study design was grounded in a strong clinical rationale derived from daily practice and from the recognised need to improve diagnostic clarity and shared decision-making in EoL care. The translation and adaptation process includes forward translation, synthesis, back translation, expert committee review, and pre-testing through cognitive debriefing. Content validity will be evaluated through consensus.

Results

The project is expected to yield a culturally adapted and clinically applicable Italian version of the EoL assessment tool. The collaborative framework between wound care and palliative care Associations is



anticipated to enhance shared understanding of EoL skin changes, promote consistent clinical assessment, and increase awareness of the specific presentation and clinical trajectory of EoL wounds.

Conclusions

The availability of a validated Italian-language EoL wound assessment tool may facilitate more accurate differentiation between EoL wounds and pressure injuries, improving clinical decision-making and documentation practices. Beyond the translation and validation process, this joint initiative establishes the groundwork for future development of consensus-based clinical and care best-practice recommendations for the management of patients at the end of life presenting with wounds. These forthcoming initiatives aim to promote patient comfort, dignity, and person-centred care, with particular attention to caregiver education and support, ensuring a humane, respectful, and clinically appropriate approach to wound management during the EoL phase.

Conflict of Interest

The authors declare no conflict of interest. No industry funding was received for this project.

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ETIOLOGY OF SEPSIS IN HOSPITALIZED PATIENTS WITH STAGE 3 OR 4 PRESSURE ULCERS

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Introduction

Pressure ulcers (PU) are a common complication of decreased mobility and affect more than 2.5 million patients annually in the United States¹. Individuals with limited mobility often have neurologic comorbidities such as spinal cord injury, stroke, dementia, or cerebral palsy, which predispose them to non-cutaneous infections, including urinary tract and respiratory infections. These patients frequently present with systemic signs of infection and are hospitalized for sepsis, prompting initiation of broad-spectrum antibiotics to cover multiple potential sources². While non-cutaneous sources of infection can often be evaluated with cultures, superficial wound cultures are limited by colonization and polymicrobial growth, making it difficult to confirm or exclude PU as the primary source³. Consequently, antimicrobial therapy targeting skin sources may be unnecessarily prolonged. Despite this clinical dilemma, limited data exists regarding the true contribution of stage 3 or 4 PU to sepsis in hospitalized patients. This study aims to determine the prevalence of sepsis attributable to cutaneous versus non-cutaneous sources in patients with stage 3-4 admitted to an academic medical center in Northern California between 2015 and 2019.

Methods

We conducted a retrospective chart review of adult hospital admissions from 2015–2019 with a principal diagnosis of sepsis and an associated stage 3 or 4 PU. Using EMR queries developed with coding analysts, standardized data were collected on demographics, presenting vital signs, MRSA screening, culture results (blood, urine, respiratory), PU location, lines and drains at presentation, and discharge diagnoses. An initial 451 encounters were identified for 263 patients. Exclusions included encounters without confirmed sepsis, non-sacral/coccygeal/buttock pressure ulcers, and duplicate records. Data were subsequently coded for statistical analysis with SPSS.

Results

A total of 263 patients with either stage 3 (n=152, 57.8%) or 4 (n=111, 42.2%) PU were included in this retrospective study. Over the course of the study, 133 patients were deceased (50.6%) compared to the 130 patients who survived (49.4%). The mean age of the sample was 63 years (SD=17.849). Mean length of stay was 15 days (SD=26.357). The mean temperature was 37.111 C (SD=1.8655). Lastly, the mean white blood Cells (WBC) is 15.430 (SD=7.3760).

The most common etiology of sepsis for patients who were hospitalized with PU varying either stage 3 or 4 was Urinary (n=106, 40.3%), followed by Respiratory (n=74, 28%) and skin (n=22, 8.4%). The most common diagnosis among this patient population were Spinal Cord Injury (SCI) (n=64, 24.3%), Stroke (n=31, 11.8%), and Dementia (n=30, 11.2%).

Conclusions

In this retrospective cohort, the majority of sepsis episodes in patients with stage 3–4 PU were attributable to non-cutaneous sources, most commonly urinary and respiratory infections, while skin sources accounted for a relatively small proportion of cases. These findings suggest that advanced pressure ulcers are less frequently the primary etiology of sepsis than often presumed. Improved diagnostic stewardship and careful evaluation for non-cutaneous sources may help reduce unnecessary prolonged antimicrobial therapy



directed at skin infections. Future studies should focus on identifying reliable clinical predictors of cutaneous sepsis and refining diagnostic approaches in this high risk population.

Conflict of Interest

We have no conflict of interest

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A MULTICENTER CROSS-SECTIONAL STUDY OF NERUSES' KNOWLEDGE ON PRESSURE ULCERS IN HOSPITALS IN CROATIA

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Introduction

Nurses are key actors in the prevention, early recognition, and treatment of pressure ulcers, with their knowledge, attitudes, and clinical competencies significantly influencing care outcomes. In modern healthcare settings, decision-making regarding pressure ulcer treatment is a complex process that requires the use of evidence-based practice and the integration of health information technologies into clinical decision-making (1). A lack of coordinated education and limited use of guidelines often lead to inconsistent practice and poorer clinical outcomes (2). Therefore, professional guidelines emphasize the importance of continuous monitoring of healthcare professionals' knowledge and attitudes (3). Pressure ulcers are thus considered a multidimensional phenomenon that extends beyond clinical frameworks and requires a holistic approach integrating scientific research, clinical practice, and medical education. In this context, nurses share a common goal of reducing the incidence of pressure ulcers and improving patients' quality of life (4).

Methods

For the purpose of collecting data on the total population of nurses employed in secondary-level healthcare hospitals in the Republic of Croatia, all relevant institutions were contacted. Data on the number of employed nurses of all education levels were requested from hospital directors and assistant directors for nursing, revealing that a total of 7,778 nurses were employed across 22 institutions. Based on the defined population ($N = 7,778$), a representative sample of 1,139 participants was collected. The sample was stratified by geographical region using a quasi-random approach in accordance with the proportion of nurses employed in each region. Ethical approval was obtained from 20 institutional ethics committees. Data were collected using the Pieper- Zulkowski Pressure Ulcer Knowledge Test (PZ-PUKT), Croatian translated version (5).

Results

The PZ-PUKT test results revealed a clear pattern associated with the level of education, with the highest scores observed among participants with doctoral degrees and the lowest among those with secondary education, alongside moderate variability within groups. Kruskal–Wallis tests confirmed statistically significant differences between educational groups across all test dimensions, while post hoc analyses indicated that differences were least pronounced in the domain of prevention and more evident in knowledge of classification, wound appearance, and overall score. Furthermore, Kruskal–Wallis analysis demonstrated significant differences in knowledge according to work department ($p < 0.001$ for all domains). In contrast, the frequency of working with patients with pressure ulcers was not associated with statistically significant differences in test results. Participants who had recently attended educational sessions achieved the highest scores, with Kruskal–Wallis tests and post hoc analyses confirming that differences were systematically related to the time elapsed since the last training. Similarly, recent engagement with professional literature was significantly associated with better results, and post hoc analyses showed a consistent trend of higher knowledge among those who had read professional sources more recently. Finally, the Mann–Whitney U test indicated that participants who had actively searched for information on pressure ulcers within the past year achieved significantly higher scores across all test dimensions.

Conclusions

The findings highlight the critical importance of knowledge in the prevention and management of pressure ulcers, as higher levels of education and continuous professional development are associated with better test outcomes. The results suggest that up-to-date knowledge, supported by regular training and engagement with professional literature, directly influences the quality and consistency of clinical procedures. Ultimately, strengthening knowledge and adherence to guidelines can contribute to improved clinical decision-making and better patient outcomes.



Conflict of Interest

The authors declare that the research was not funded by any industry sources.

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KNOWLEDGE ON PRESSURE ULCER PREVENTION: PSYCHOMETRIC VALIDATION OF THE PUKAT 2.0 FOR BRAZIL.

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Introduction

Pressure ulcer prevention is a key patient safety priority, and adequate knowledge among healthcare professionals is essential for effective preventive practices. The Pressure Ulcer Knowledge Assessment Tool (PUKAT 2.0) [1] is an internationally validated instrument designed to assess knowledge on pressure ulcer prevention among healthcare professionals and students. However, validated tools for measuring this knowledge remain limited in Brazil, highlighting the need for psychometric validation of a Brazilian Portuguese version.

Methods

A methodological study was conducted with 203 nurses and 130 undergraduate nursing students using an online questionnaire. Psychometric evaluation included reliability (test–retest and internal consistency) and item validity (difficulty, discrimination index, and distractor quality).

Results

The median score was 57% (IQR 48%–65%). Reliability was adequate, with an intraclass correlation coefficient of 0.808 (95% CI 0.616–0.910; $p < 0.001$) and internal consistency of 0.75 (95% CI 0.71–0.79). Item difficulty (P-value) ranged from 0.31 to 0.92, and discrimination indices (rbis) from 0.21 to 0.59. Distractor quality varied between 0.01 and 0.45, indicating adequate performance of response options.

Performance varied across the 23 items, revealing important knowledge gaps in both groups, particularly on etiological concepts and prevention strategies, similar to findings in recent international studies using PUKAT 2.0.

Differences between nurses and students were statistically significant ($p < 0.001$), with higher scores among nurses, aligning with previous studies indicating the influence of clinical experience on knowledge of pressure ulcer prevention [2]. Although knowledge levels were higher among professionals, evidence suggests a weak association between theoretical knowledge and clinical practice [3].

Conclusions

The Brazilian-Portuguese PUKAT 2.0 demonstrated strong psychometric performance, including adequate reliability, construct validity, and consistent dimensionality with theoretical domains of pressure ulcer prevention knowledge. The instrument effectively identifies specific knowledge gaps among nurses and students and may support educational strategies, research applications, and quality improvement initiatives. Its use can guide targeted interventions and continuing education, contributing to enhanced preventive practices in diverse care settings.

Conflict of Interest

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AN EVALUATION OF HEALTHCARE PROFESSIONALS' KNOWLEDGE OF PRESSURE ULCERS AND THE EFFECTIVENESS OF AN EDUCATIONAL INTERVENTION

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Introduction

Although pressure ulcers (PUs) are not as common in midwifery, when they do occur, they have devastating consequences for new mothers. Thus, adequate PU prevention knowledge of health care professionals working in this setting is paramount. The aim was to evaluate the knowledge of PUs among healthcare professionals working within the maternity service, and to determine the effectiveness of a PU prevention educational intervention.

Methods

A pre/post-test study design was used. Following ethical approval, all nurses, midwives, and healthcare assistants working in maternity services were invited to participate. First, knowledge was assessed using a modified version of the Pieper Pressure Ulcer Knowledge Test (PUKT). Then, the same 33 validated questions were repeated following completion of an online education module. The Kirkpatrick framework was used to evaluate participant feedback. McNemar's and Wilcoxon signed-rank tests analysed changes between pre- and post-intervention responses.

Results

A total of 31 participated. Improvements were observed the post-intervention responses (McNemar's test, $p < 0.05$ for most items) and in overall scores (Wilcoxon signed-rank, $z = -4.77$, $p < 0.000$). Sixteen (51%) participants strongly agreed, and 49% ($n=15$) agreed that they gained knowledge from the session. Open-text feedback also indicated positive learning experiences.

Conclusion

The educational intervention significantly improved healthcare professionals' knowledge of PU prevention. Further evaluation is required to determine whether learning gained is reflected into actual patient care delivery.

Conflict of Interest

Grant funded by the RCSI, University of Medicine and Health Sciences Strategic Academic Recruitment (StAR) Programme.



A DELPHI STUDY TO IDENTIFY A CORE OUTCOME SET FOR PRESSURE ULCER EDUCATION RESEARCH FOR HEALTH CARE PROFESSIONALS

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Introduction

There is currently no agreed set of outcomes to evaluate educational interventions for pressure ulcer prevention, resulting in inconsistent reporting and limited comparability between studies. Developing a Core Outcome Set (COS) would promote consistent measurement of relevant outcomes, minimise selective reporting, and enable more accurate evaluation of intervention effectiveness, ultimately informing clinical and educational practice (1,2). With the aim of this study to develop a COS for pressure ulcer education research for healthcare professionals, aiming to improve trial comparability and address outcome heterogeneity. The study followed the COS-STAR reporting standards, and the Principal Investigator plans to register the COS with the COMET Initiative database upon completion of their Professional Doctorate.

Methods

A three-round Delphi consensus design was employed. Delphi is an established method for reaching consensus among experts and practitioners (3). The Delphi consensus method is a structured communication technique used to achieve agreement among a panel of experts through multiple rounds of questionnaires with controlled feedback (4). An international expert panel including researchers, clinicians, educators, and people with lived experience with pressure ulcers, initially rated eight constructs identified from current literature identified in a recent systematic review using a five-point Likert scale. Qualitative feedback from an open-ended question generated five additional outcomes, which were included in Round 2 to reflect professional and personal perspectives. Iterative questionnaires with controlled feedback facilitated consensus through combined qualitative and quantitative methods.

Results

In Round 1, 35/38 participants responded (92%), Knowledge, Skills, and Practice met the $\geq 65\%$ consensus threshold. Attitudes, Behaviour, and Awareness were retained, while Ability and Self-efficacy were excluded. Round 2 (34/35; 97% response) added Attitudes to the provisional COS. Round 3 (33/34; 97% response) confirmed full stakeholder endorsement, with all four outcomes: Knowledge, Skills, Practice, and Attitudes achieving 100% agreement.

Conclusions

The study establishes a validated, stakeholder endorsed COS capturing key cognitive and behavioural domains for evaluating educational interventions in pressure ulcer prevention, providing a standardised framework to support evidence-based practice.

Conflict of Interest

No conflict of interest to declare.

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DEVELOPING A DECISION AID FOR PRESSURE INJURY PREVENTION IN MEDICAL-SURGICAL HOSPITAL SETTINGS

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Introduction

Pressure injury prevention is a key patient safety and quality indicator in hospitals, yet the complexity of acute patient conditions makes decision-making about which prevention strategies to use and for whom challenging. Confusion about different preventive approaches can lead to inconsistent practice, suboptimal patient outcomes and low-value care [1]. Clinician decision aids synthesise evidence and guide intervention selection, but there is limited evidence on decision aids tailored to pressure injury prevention [2]. This study sought to develop a theory- and evidence-informed intervention to support consistent, high-quality pressure injury prevention in medical and surgical hospital settings.

Methods

A multi-method study was conducted across two major teaching hospitals in different Australian states. The intervention was developed using a four-phase evidence-informed, co-designed multi-methods approach including: (1) A systematic review of organisational strategies for pressure injury prevention in acute hospital settings to identify effective implementation components (7 studies included); (2) individual semi-structured interviews with 19 medical and surgical nurses exploring decision-making and variation in pressure injury prevention practices; (3) a multidisciplinary nominal group technique with clinicians (n=9) to achieve consensus on key barriers that could be addressed by the intervention; and (4) multidisciplinary focus groups with clinicians (n=20) to assess acceptability and guide refinement.

Results

The multi-methods process resulted in a nurse-led decision aid to support high-value, evidence-informed pressure injury prevention in acute medical and surgical settings. The systematic review identified that effective programmes were multifaceted, incorporating education, audit and feedback, reminders and communities of practice. These components informed inclusion of prompts for education, structured review, feedback, and local contextual adaptation within the intervention. Interviews highlighted the absence of a structured decision-making framework, inconsistent prevention practices and reliance on prophylactic dressings without appropriate assessment, leading to a focus on comprehensive skin assessment, evidence-based intervention selection and clear guidance on prophylactic dressing use. The nominal group technique emphasised the importance of structured clinical decision support and education to reduce low-value care and improve confidence in initiating interventions. These insights refined the decision logic and supported its development into a practical nurse-led decision aid. Focus group participants perceived the decision aid as acceptable and useful for improving intervention selection. Participants recommended refinements in layout, wording and visual streamlining to support use in time-pressured environments and highlighted the importance of local implementation strategies for integrating the decision aid into existing workflows.

Conclusions

Clinical decision aids can support nurses to provide consistent, evidence-based pressure injury prevention in acute medical and surgical settings. The decision aid developed in this study provides a structured framework to guide assessment, intervention selection and ongoing review of prevention practices.

Conflict of Interest

The authors declare no conflicts of interest in relation to this work.

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ICU PRESSURE ULCER POINT PREVALENCE IN A NORTHERN ITALIAN UNIVERSITY HOSPITAL: A 13-YEAR RETROSPECTIVE ANALYSIS

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Introduction

Pressure ulcers (PU) represent a significant patient safety issue in intensive care units (ICUs) [1]. Recent evidence reports a global prevalence of PU in ICUs of approximately 26.6%, with more than half developing during ICU stay [2], and data on their occurrence at the local level still limited. Therefore, continuous monitoring of PU prevalence is essential to inform targeted preventive interventions and improve patient safety.

Methods

A retrospective analysis of routinely collected monitoring data in four adult ICUs (3 general ICUs and one postoperative cardiac surgical ICU) at a 700-bed tertiary university hospital in Northern Italy was performed. Data were collected by trained ICU Link Nurses (LNs) over a 13-year period (2013-2025) following an established hospital-level protocol. Monthly point prevalence was assessed, recording all PU present at an index day identified by LNs through clinical assessment. Data collected included demographic characteristics (age, sex), ulcer stage classified according to EPUAP/NPIAP/PPPIA guidelines [3], and anatomical location. PU point prevalence was calculated monthly for each ICU as the ratio of PU to the number of admitted patients, and subsequently aggregated by year to obtain annual estimates. Descriptive statistics were used to summarise data using R version 4.3.3 with relevant packages.

Results

Overall, 614 PU were identified, with a mean prevalence of 23.4% (SD 13.5%). Patients with PU were predominantly male (n=413; 67.3%), with a median age of 68 years (IQR 59-75). Most PU were acquired during the ICU stay (n=453; 73.8%). At the annual level, the highest prevalence was recorded in 2013 (33.1%) and reached its lowest point in 2021 (15.7%), with a generally decreasing trend over time (Figure 1). Stage II lesions were the most frequent (n=483; 78.7%). More severe lesions (Stage III and IV combined) represented 10.3% of cases, while unstageable lesions accounted for 11.1%. The anatomical distribution of lesions was highly concentrated, with the two most frequent sites (sacrum, n=188, 30.6%; and shoulder blade [scapula],

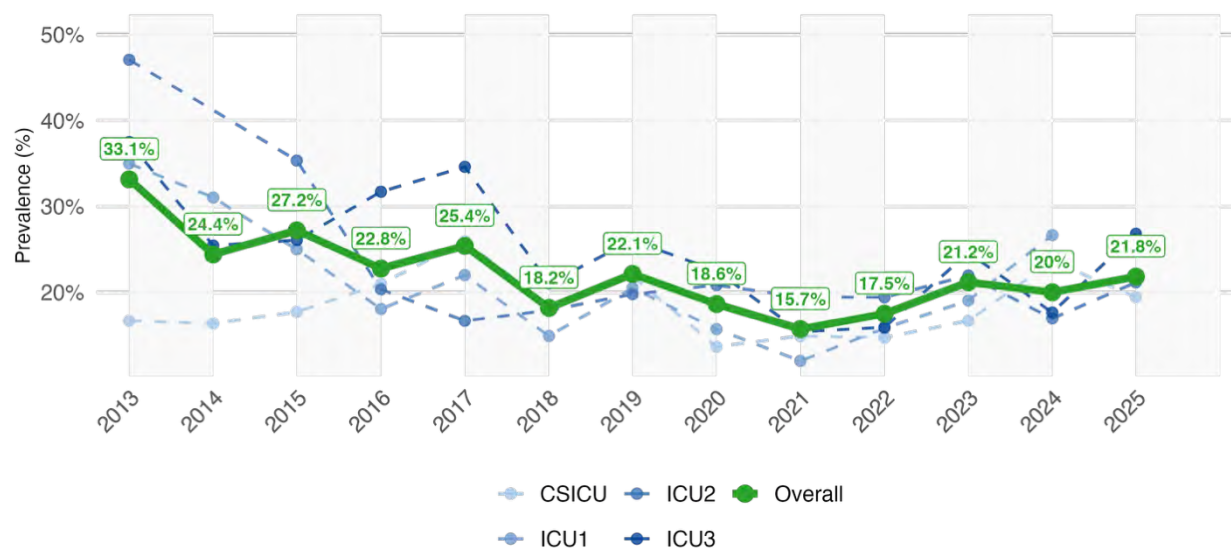


Figure 1. Pressure Ulcers Aggregate Annual Prevalence: Monthly point prevalence surveys aggregated by year
Legend: ICU, Intensive Care Unit; CSICU, postoperative cardiac surgery ICU.



n=105, 17.1%) accounting for nearly half of all recorded cases (47.7%). The remaining PU were distributed across 33 anatomical locations.

Conclusions

This 13-year retrospective analysis shows a generally decreasing trend in PU prevalence across four ICUs, with a mean prevalence consistent with international estimates. The decreasing trend observed in PU prevalence may reflect the cumulative effect of several quality improvement projects implemented at the regional level. The partial rebound observed after 2021 warrants further investigation. Continuous local surveillance remains essential to monitor trends and guide evidence-based preventive strategies.

Conflict of Interest

None

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AN EXPLORATION OF THE KEY DETERMINANTS OF MEDICAL DEVICE-RELATED PRESSURE INJURY AMONG ADULT PATIENTS IN INTENSIVE CARE UNITS IN THE KINGDOM OF SAUDI ARABIA.

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Introduction

Pressure injuries remain a significant complication in intensive care units (ICUs); and when these injuries are caused by medical devices, they are referred to as medical device-related pressure injuries (MDRPIs) [1]. MDRPIs are an increasing concern due to their impact on patient outcomes, family members, and healthcare resources [2]. To date, no study has explored the key determinants influencing the development or prevention of MDRPIs among adult patients in ICUs in the Kingdom of Saudi Arabia (KSA). This study aimed to explore these determinants.

Methods

A qualitative exploratory design was adopted, comprising three sequential and interrelated phases conducted across two tertiary hospitals: King Saud Medical City (KSMC) and King Fahad Medical City (KFMC). Phase 1 involved focus group discussions with frontline ICU healthcare professionals, while Phase 2 comprised one-to-one interviews with ICU clinical leaders responsible for ICU management and oversight. Phase 3 involved the integration of findings across both phases. This abstract presents the findings from the one-to-one interviews (Phase 2).

Results

Ten semi-structured one-to-one interviews were conducted, three participants were ICU Respiratory Therapist Department Heads, and the other participants included one ICU Nursing Manager, one Medical ICU Head Nurse, one Medical ICU Charge Nurse, one senior ICU wound care nurse, one ICU Physiotherapist Department Head, one ICU Consultant, and the Deputy Head of the ICU Department. Thematic analysis identified two overarching themes: Theme 1. ICU clinical leaders' understanding of MDRPIs, including three sub-themes: the role of ICU clinical leaders in preventing MDRPIs, acknowledging the burden of MDRPIs, understanding the complexity of MDRPIs. Theme 2. ICU clinical leaders' recommendations: multidisciplinary team collaboration in the prevention of MDRPIs, including three sub-themes: multidisciplinary team collaboration, education and continuous awareness. Prevention strategies.

Conclusions

MDRPIs remain a significant concern within ICU settings, affecting patients, family members, and healthcare professionals. The findings highlight the multifactorial and complex nature of MDRPIs, while also identifying key opportunities for reduction and prevention. These insights can inform the development of targeted strategies to reduce the incidence and severity of MDRPIs in ICUs, both within KSA and other countries.

Conflict of Interest

N/A

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INCONTINENCE-ASSOCIATED DERMATITIS PREVENTION IN INTENSIVE CARE UNITS: A SCOPING REVIEW

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Introduction

The number of patients requiring admission into intensive care units is increasing worldwide [1] and nurses play an important role in identifying and preventing different risk factors. [2] In fact, the management of incontinence-associated dermatitis is a challenge for health professionals, [3–7] especially in intensive care units. [8,9] Despite the preventive measures implemented in different care settings, the prevalence of incontinence-associated dermatitis remains high. Thus, it is necessary to gather and condense the best available evidence to implement accurate interventions in clinical practice and to (early) identify and to reduce incontinence-associated dermatitis incidence in intensive care units. Therefore, the main objective of this scoping review is to map the available evidence on nursing interventions that prevent the development of incontinence-associated dermatitis in intensive care units' patients.

Methods

Scoping review that follows Joanna Briggs Institute and PRISMA-ScR guidelines. [10,11] The inclusion criteria are based on the PCC mnemonic. The main variables of interest were the nursing care provided to prevent the development of incontinence-associated dermatitis (Condition) reported in studies developed in intensive care units (Context) with adult patients (Population). The global search was carried out in Web of Science, MEDLINE (via PubMed), Scopus and SciELO databases. The search for “grey literature” was carried out in OpenGrey and RCAAP. The scoping review protocol was registered on the Open Science Framework online platform.

Results

During the selection process, 538 articles were identified in the different databases. Applying the inclusion and exclusion criteria, 15 articles were included in this scoping review. Nursing interventions to prevent the development of incontinence-associated dermatitis in intensive care patients were grouped into 4 categories: “Risk Assessment”, “Skin Care”, “Complementary Interventions” and “Education and Training Programs”. Skin Care should include “Skin Cleansing”, “Skin Moisturization” and “Skin Protection”. Complementary Interventions should include “Pressure Ulcers/Injuries Prevention” and “Nutritional Support”.

Conclusions

This scoping review mapped different interventions that could prevent the development of incontinence-associated dermatitis in intensive care patients. Although, the evidence shows that the best care is provided when those interventions were applied together, considering patients' characteristics and institutional reality. Skin care regimen should be supported with complementary interventions. Systematic skin and tissue risk assessment, which allows nursing team to identify the patients at higher risk and their specific risk factors, should be the first step of the nursing care plan. Clinical practice should be supported by structured educational and training programs adapted to each service and/or institution.

Conflict of Interest

The authors declare no conflict of interest.

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ASSESSING KNOWLEDGE GAPS IN PRESSURE INJURY PREVENTION AMONG ICU NURSES: A MULTICENTRE STUDY USING A CONTEXT-SPECIFIC APPROACH

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Introduction

Pressure injuries (PIs) remain a significant concern in Intensive Care Units (ICUs), being associated with increased morbidity, prolonged hospital stay, and higher healthcare costs [1]. Effective prevention largely depends on nurses' clinical competence, with knowledge representing a key determinant for evidence-based practice [2]. Although widely used instruments, such as the PUKAT 2.0, assess general knowledge on PI prevention, tools specifically tailored to the ICU context are scarce [3]. The DecubICUs-test was developed to address this gap, enabling a more context-specific assessment. Despite decades of guideline development, pressure injuries in ICUs remain a largely preventable harm. This study aimed to evaluate Portuguese ICU nurses' knowledge of PI prevention and to analyse associated factors.

Methods

A national, multicentre, quantitative cross-sectional study was conducted with 124 ICU nurses using non-probabilistic convenience and controlled snowball sampling. Data were collected through an online questionnaire including sociodemographic, academic, and professional variables, and the Portuguese versions of the DecubICUs-test and PUKAT 2.0.

Statistical analysis was performed using IBM SPSS ($\alpha = 0.05$). Descriptive statistics were calculated, and assumptions of normality and homogeneity were assessed. Group comparisons were conducted using Student's t-test and one-way ANOVA, with Welch's correction applied when appropriate. Associations between variables were analysed using Spearman's correlation coefficient. Effect sizes were estimated using Cohen's d and eta squared.

Results

The sample was predominantly female (68.5%), with most participants aged between 35 and 46 years and presenting extensive professional experience. The mean total score was 13.1 ± 4.2 for PUKAT 2.0 and 13.3 ± 4.0 for the DecubICUs-test, with observed ranges of 2–25 and 2–24, respectively. Based on the predefined cut-off points used to classify knowledge levels, most participants were categorized as having low knowledge (71.0% for PUKAT and 64.5% for the DecubICUs-test), followed by moderate and high levels.

Higher scores were observed in domains related to aetiology and prevention, whereas lower performance was identified in risk assessment, risk groups, and treatment domains. Statistically significant differences were found across age groups, although with small effect sizes. No significant differences were identified regarding gender, region, professional experience, or workload. Structured training was significantly associated with significantly higher knowledge scores in both instruments ($p < 0.05$; $d \approx 0.4$), indicating a moderate effect size. In contrast, no statistically significant association were observed in relation to self-directed learning.



Conclusions

Although the mean scores indicated an intermediate overall performance, classification according to predefined cut-off points showed that most participants had low knowledge levels. Relevant gaps persisted in key domains of pressure injury prevention in ICU settings. These findings suggest that clinical experience alone may not be sufficient to ensure adequate competence in this area. Structured and targeted educational interventions appear to play a critical role in improving knowledge and should be prioritized in clinical practice. Furthermore, the use of context-specific assessment tools may enhance the identification of educational needs and support the development of more effective prevention strategies in critical care.

Conflict of Interest

The authors declare no conflicts of interest

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Keywords:

intensive care; critically ill patients; pressure injury; pressure ulcer prevention; nursing knowledge; assessment tools; DecubICUs-test; PUKAT 2.0



PRESSURE INJURY PREVENTION AND PRACTICE IMPROVEMENTS IN NURSING (ICU) STUDY: A REALIST EVALUATION

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Introduction

Pressure injuries occur in 26.9% of patients in intensive care settings and have a profound impact on morbidity and mortality [1]. Nurses' play a pivotal role in preventing pressure injuries which are considered preventable in all patients except those at end-of-life. Pressure injury prevention is considered a complex healthcare intervention [2]. Effective implementation of pressure injury prevention interventions in real-world contexts require nurses to make individual decisions about each patient's risk factors and is context dependent. Little is known about what makes a pressure injury prevention program effective. This study, therefore, sought to evaluate the effectiveness of a pressure injury prevention program and explore what worked for whom, and in what circumstances, and how.

Methods

A realist evaluation of a co-designed, evidence-based pressure injury prevention program was conducted in one large Australian ICU from August 2022 to December 2024. The pressure-injury prevention program was co-designed with staff from the ICU using external facilitation and structured Plan-Do-Study-Act cycles to develop, test and implement evidence-based pressure injury prevention practices in the real-world context. Data were collected pre- and post- implementation of the pressure injury prevention program using observational studies of prevalence, administrative data on incidence, and cross-sectional surveys of nurses' knowledge and attitudes towards pressure injury prevention. Qualitative interviews were conducted following implementation to evaluate what had worked, for whom and in what circumstances, and how. Thematic analysis of qualitative data was integrated using a realist evaluation framework. Ethical approval for the study was granted.

Results

Hospital-acquired pressure injury prevalence (16.7% vs 11.1%) and incidence (19.2 per 1,000 bed days vs 11.9 per 1,000 bed days) improved following the pressure injury prevention program. Nurses' knowledge towards pressure injury prevention improved from 54.6% (n=58) to 65.7% (n=72) and nurses' attitudes towards pressure injury prevention also improved. Qualitative interviews with 29 clinical nurses and 7 key stakeholders identified three qualitative themes: 'Finding the why', 'Improving care processes', and 'Facilitating change'. This study demonstrated that pressure injuries can be prevented by improving nurses' knowledge about prevention and supporting nurses to embed evidence-based nursing care processes into routine clinical practice. Facilitation played a key role in implementation of the pressure injury prevention program in this study.

Conclusions

Pressure injuries can be prevented in complex ICU settings. Collaboration between researchers, clinicians and health service leaders was pivotal to achieving these outcomes. Plan-Do-Study-Act cycles provide a structured approach to practice improvement that engages clinicians and leads to sustainable practice change. Facilitation played a key role in implementing evidence-based pressure injury prevention practices. More research is needed to determine the most effective dose and facilitation methods for practice change in clinical research settings.

Conflict of Interest

The authors declare no conflicts of interest in relation to this work.

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IMPLEMENTATION OF THE CARREE FRAMEWORK TO REDUCE MDRPU IN THE ICU

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Introduction

Medical devices are indispensable in critical care. However, they increase susceptibility to medical device-related pressure ulcers (MDRPU) in immobilised, sedated and physiologically unstable intensive care unit (ICU) populations. High-risk interfaces include endotracheal tubes (ETT), nasogastric (NG) and nasojejunal (NJ) tubes, oxygen devices, catheters and non-invasive ventilation (NIV) masks (EPUAP, NPIAP, PPPIA 2019; Gefen et al. 2020). A 2023 ICU audit identifying 11 MDRPUs prompted further investigation into preventive strategies.

Methods

At the beginning of 2024, a nurse-led quality improvement project was undertaken in the ICU to reduce MDRPUs. Drawing inspiration from Baptist Health Lexington's CARE protocol (Lewis et al. 2021), which achieved an 84% reduction in device related injuries over 4 years, the team adapted and implemented the CARREE framework for 8 high-risk devices while incorporating MDRPU prevention strategies.

Strategies included staff education sessions on MDRPU prevention, development of standardized intervention guides, and unit-wide rollout of the framework. Upon admission and throughout the patient's stay, nurses were required to follow the structured CARREE steps: correct sizing, assess the area, reposition the device, re-apply padding, evaluate needs, and endorsement with a 2-nurse review. Compliance with the framework and device-related injury rates were monitored throughout the implementation period.

Results

The implementation of the CARREE framework in ICU shifted MDRPU prevention from passive observation to a structured and regular intervention protocol. Datix data from 2023 to 2025 showed a 50% reduction in total ICU acquired skin injuries, with MDRPUs decreasing from 11 to 6 following the introduction of the CARREE framework (Table 1). Patient acuity had also changed, with all MDRPU cases occurring only in high risk or level 3¹ patients. Most of these patients had multiorgan failure, higher noradrenaline requirements, or were receiving end-of-life care. This represents a significant improvement from 2023 and 2024, when MDRPUs still occurred in no risk and level 1 or 2 patients.

Although the percentage of MDRPUs relative to total injuries rose slightly in 2025 (0.90% from 0.75% in 2024), this was likely driven by an increased number of level 3 admissions and greater use of therapeutic devices such as ETT, NIV masks, NG tubes and Miami collars, which increased MDRPU risk.

Conclusion

The introduction of the CARREE framework was the start of a change in practice to create sustained improvement in MDRPU awareness and prevention. This standardisation encourages early skin changes to be detected consistently, and thus devices can be adjusted or removed before causing tissue damage. By creating consistency and cultural change, it has prompted staff to escalate early and provide individualised care to patients. This resulted in fewer injuries to lower-risk patients, and MDRPUs were confined to those with unavoidable physiological vulnerabilities. However, consistency still requires regular maintenance to provide sustainable change, thus this project will continue to be monitored for effectiveness. Overall, CARREE transformed preventive care into a predictable, team-based process, directly contributing to the reduction in MDRPUs and preventing progression to severe stages even in highly complex patients.

¹ Patients who either require advanced respiratory support alone, or a minimum of 2 organs supported (Intensive Care Society 2009)



Year	Total MDRP U	Total Skin Injuries	Total Admissions	MDRPU/Total Admissions (%)	Pressure Ulcer Category		Patient Acuity Level	
					PU Category	Number	Level	Number
2023	11	64	661	1.66%	1	0	1 or 2	0
					2	10	3	9
					3	0	No risk	1
					4 to unstageable	1	Unknown	1
2024	5	35	666	0.75%	1	2	1 or 2	3
					2	2	3	2
					3	0	No risk	0
					4 to unstageable	1	Unknown	0
2025	6	32	670	0.90%	1	0	1 or 2	0
					2	4	3	6
					3	0	No risk	0
					4 to unstageable	2	Unknown	0

Table 1. Comparison of MDRPU cases from 2023 to 2025 in ICU

Conflict of Interest

There is no conflict of interest to declare.

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SUSTAINING PRESSURE ULCER PREVENTION IN CRITICAL CARE: REAL-WORLD IMPACT OF TURN-ASSIST TECHNOLOGY

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Introduction

Sustaining effective pressure ulcer (PU) prevention in critical care remains challenging due to patient immobility, high illness acuity, and the substantial physical workload associated with manual repositioning. Although regular turning is a cornerstone preventive strategy, its long-term feasibility is often compromised in real-world intensive care units (ICUs). Turn-assist alternating pressure air mattresses have been proposed as a technology-supported solution; however, evidence integrating both clinical outcomes and real-world implementation experience in critical care settings remains limited. This study aimed to evaluate the sustainability, clinical effectiveness, and feasibility of implementing a turn-assist alternating pressure air mattress for pressure ulcer prevention in a real-world ICU environment.

Methods

This study was conducted in adult medical, surgical, and neuro ICUs of a tertiary medical center. A structured implementation strategy was adopted, including mattress design adaptation to existing ICU beds, standardized positioning protocols, interdisciplinary collaboration, and early hands-on nurse training. A parallel-group randomized controlled trial was used to evaluate patient outcomes. Adult ICU patients were allocated to either a turn-assist alternating pressure air mattress (intervention group) or a standard ICU bed with manual repositioning (control group). Baseline characteristics, including age, sex, body mass index, APACHE II score, Glasgow Coma Scale score, comorbidities, and Braden Scale risk profiles, were comparable between groups. Primary outcomes included the incidence of new pressure injuries and pressure injury deterioration. Secondary outcomes included pressure injury events per 1,000 ICU-days, time-to-event analysis, nursing repositioning workload, and nurse and patient perceptions.

Results

A total of 189 patients were included in the patient-level analysis (intervention $n = 97$; control $n = 92$). Baseline clinical characteristics and pressure injury risk profiles did not differ significantly between groups. The incidence of new pressure injuries was lower in the intervention group compared with the control group (2.1% vs. 7.6%), although this difference did not reach statistical significance. Pressure injury deterioration rates were also lower in the intervention group (1.0% vs. 3.3%). When adjusted for ICU exposure time, pressure injury events per 1,000 ICU-days were significantly reduced in the turn-assist mattress group (5.3 vs. 17.9 per 1,000 ICU-days, $p = 0.017$). Time-to-event analysis demonstrated a reduced risk of developing new pressure injuries in the intervention group (HR = 0.58, 95% CI 0.08–1.96). From an implementation perspective, use of the turn-assist mattress significantly reduced nursing repositioning time, personnel requirements, and physical workload. Nurses reported improved workflow efficiency and reduced musculoskeletal strain, while patients reported good comfort and tolerance of automated repositioning.

Conclusions

Integrating a turn-assist alternating pressure air mattress into routine ICU care was associated with reduced pressure injury burden per ICU-day, improved feasibility of repositioning care, and enhanced sustainability of pressure ulcer prevention practices. These findings support technology-assisted repositioning as a viable strategy for sustaining high-quality pressure ulcer prevention in high-acuity critical care environments.

Conflict of Interest

The authors declare no conflicts of interest.

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PARALLEL ITINERARIES: A SITUATION-SPECIFIC THEORY FOR COMMUNITY CARE OF PEOPLE WITH DEPENDENCY-RELATED SKIN INJURIES

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Introduction

Pressure injuries and other dependency-related skin injuries (DRSIs) are highly prevalent in community and homecare settings, where most people living with dependency receive long-term care. Beyond their epidemiological burden, these injuries are associated with increased mortality risk, impaired quality of life, substantial caregiver burden, and significant healthcare costs.¹⁻³ Despite this impact, community wound care remains insufficiently theorised, and existing frameworks often focus on single-etiology wounds or acute care settings, failing to capture the contextual, relational, and longitudinal nature of care delivered at home. In response to this gap, the aim of this study was to develop a situation-specific nursing theory to explain and guide the prevention and management of pressure injuries and other DRSIs in community and homecare settings.

Methods

This study followed Im's integrative method for the development of situation-specific theories. Multiple sources of knowledge were triangulated, including: (1) an exploratory interview, (2) a scoping review on community nursing care for DRSIs, (3) focus groups with experienced primary and community care nurses, and (4) in-depth interviews with people living with DRSIs at home. Through successive cycles of comparison, abstraction, and refinement, empirical findings from the exploratory interview, focus groups, and in-depth interviews were systematically contrasted with the literature and with the authors' clinical expertise in wound care. This iterative and reflexive process was guided by Walker and Avant's techniques for concept synthesis and análisis

Results

The integrative analysis resulted in Parallel Itineraries, a situation-specific nursing theory structured around four interrelated core concepts: community care, healing progression, dependency status, and individual experience. These concepts are conceptualised as itineraries that unfold simultaneously over time and dynamically influence one another. Community care and individual experience accompany the person longitudinally, while dependency status and healing progression may appear, evolve, or resolve at different moments. The theory highlights the central role of community nurses in early prevention at the onset of dependency, etiologic assessment, progressive wound care, symptom control, care coordination across services, and continuity of care. It also makes visible the influence of social determinants, caregiver dynamics, home environments, and health system fragmentation on wound outcomes and prevention opportunities.

Conclusions

Parallel Itineraries provides a practice-grounded theoretical framework that captures the complexity of pressure injuries and DRSIs in community and homecare contexts. By moving beyond a lesion-centred and episodic approach, the theory supports nurses in delivering integrated, preventive, and longitudinal care tailored to people living with dependency. This framework offers a conceptual basis to inform clinical practice, education, service organisation, and future research aimed at improving pressure injury prevention and management in homecare settings.



Conflict of Interest

None

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SHARED DECISION MAKING IN PRESSURE ULCER PREVENTION

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Introduction

Individuals at high risk of pressure ulcer development often face complex, ongoing care decisions that affect not only skin integrity, but also independence, comfort, identity, and daily routines. Although shared decision making (SDM) is promoted as best practice, there is limited understanding of how individuals experience SDM in pressure ulcer prevention, particularly when recommended measures may feel restrictive or intrusive (1). This session explores SDM through two complementary perspectives. First, the lived experience of Margaret, shared via a five-minute video, provides insight into the personal impact of pressure ulcer prevention and the value of collaborative decision making in achieving a balance between quality of life and skin protection. Second, the session presents a Quality Improvement (QI) project collaboration between the Tissue Viability Nurse Team and Community Nursing teams, aimed at supporting patients and staff to navigate and document SDM conversations. The overall aim of the project was to improve the quality and consistency of SDM documentation for patients with capacity who decline elements of pressure ulcer prevention in the community.

Methods

Using the Model for Improvement, baseline audit data were collected from pressure ulcer incident reports and post-incident review meetings to identify learning themes. A multifaceted intervention was implemented using Plan–Do–Study–Act (PDSA) cycles. Key components included targeted education for district nursing teams, with a shift in focus from information-giving to meaningful two-way SDM conversations.

A structured SDM documentation tool was developed to guide and formally record discussions. The Regional Pressure Ulcer Prevention Advice leaflet was also introduced, incorporating QR codes linking to videos and images to support patient understanding and informed decision making. Outcomes were evaluated through SDM completion rates, documentation quality, evidence of patient involvement, and staff and patient feedback.

Results

Baseline data showed that 26% of patients with community-acquired pressure ulcers had declined an aspect of their care. Only 1% had documented evidence of structured SDM, with documentation for the remaining patients reflecting information-sharing only. Key gaps included limited exploration of patient rationale and insufficient discussion of options, risks, benefits, and consequences.

Following the intervention, despite an ambitious 100% target, documented shared decision making increased to 26%, demonstrating meaningful progress and improved documentation of patient choices, rationales, and shared risk discussions. While meaningful progress has been demonstrated, work remains ongoing to fully embed shared decision making as a routine element of pressure ulcer prevention practice. All registered nurses (100%) reported that the SDM record supported and enhanced conversations with patients.

Feedback was gathered for 15 patients who had initially declined prevention measures. All six patients with existing pressure ulcers showed improvement, and none of the nine patients without pressure ulcers developed a new ulcer. Thirteen of the 15 patients (87%) accepted at least one prevention strategy following an SDM discussion. No new pressure ulcers developed during the review period.

Conclusions

This abstract brings together two equally important perspectives on shared decision making (SDM) in pressure ulcer prevention: the lived experience of an individual navigating complex care decisions, and the practical application of SDM through a Quality Improvement initiative. Margaret's story powerfully illustrates the personal impact of pressure ulcer prevention strategies and highlights the importance of listening, flexibility, and partnership in achieving a balance between quality of life and skin integrity. Complementing this narrative, the QI project demonstrates how structured tools, education, and collaborative working can support clinicians to embed SDM into everyday practice, improve documentation, and increase patient engagement with prevention strategies. Together, these elements reinforce that meaningful shared decision making is a person-centered necessity underpinned by clear processes and practical tools to support consistent, compassionate community care.



Conflict of Interest

No

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SHARED CARE IN PRESSURE ULCER PREVENTION: SUSTAINING PRESSURE ULCER PREVENTION IN THE COMMUNITY

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Introduction

Pressure ulcer prevention is a critical component of community health in Ireland, spanning diverse populations from paediatric patients with mobility issues to frail elderly. The Health Service Executive (HSE) National Improvement Programme for Wound Management introduced the Clinical Resource Pack: Pressure Ulcers (2025) to provide an evidence based standard pathway of care in the prevention and management of pressure ulcers [6]. While designed to be used across all age groups, the practical efficacy of these tools in fostering 'shared care' between community nurses and family caregivers in the home setting require validation to ensure long-term sustainability.

Methods

This study utilized a descriptive qualitative approach. Semi-structured interviews were conducted with a purposeful sample of 25 participants, 12 family caregivers and 13 community nurses, recruited from the Laois/Offaly Public Health Nursing Service. Informal interviews focused on the application of specific tools from the HSE Clinical Resource Pack (2025), such as the aSSKING care bundle and the Patient/Carer Information Leaflets. Data was analysed using thematic analysis.

Results

Three major themes were identified:

1. Universal language of the aSSKING Framework:
Participants across all age groups found the aSSKING (Assess risk, Surface, Skin inspection, Keep moving, Incontinence/moisture, Nutrition/hydration and Giving information) framework provided a clear, consistent language for shared care. Parents of paediatric patients particularly noted that it 'professionalised' their caregiving role.
2. The Clinical Resource Pack as a Partnership Tool
The Information leaflets for Patients and Carers were viewed as essential 'boundary objects' that bridged the gap between professional nursing visits and daily family care, providing confidence to family members in identifying early skin changes.
3. Contextual challenges to Sustainability
While the tools were highly valued, barriers such as varying health literacy levels of caregivers and language diversity were highlighted as challenges to the sustained use of the Resource Pack in the community setting.

Conclusions

The HSE 2025 Clinical Resource Pack facilitates a shift towards a more equitable shared care model by providing standardized tools like the aSSKING bundle. The success of pressure ulcer prevention depends upon a shared care approach between the health care professional and family care givers while utilizing a standardized evidence based pathway of care.

Conflict of Interest

No conflict of interest

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EVALUATING HUMAN FACTORS & DIGITAL TECHNOLOGY USEABILITY IN COMMUNITY PRESSURE ULCER MANAGEMENT

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Introduction

Prolonged immobility is common in community settings, particularly among individuals with multiple comorbidities, where risks may go unrecognised by patients, carers and health care providers (HCPs). This can lead to poor self-management and limited support for movement, increasing the risk of pressure ulcers (PUs), significantly impacting quality of life. PUs represent a global burden and contribute to a UK chronic wound care cost of £8 billion p.a. [1]. Despite this, research into technologies to support PU prevention in the community settings remains limited. Technologies that monitor mobility and provide actionable feedback may enhance prevention, support self-management and improve care delivery. This study aimed to evaluate human factors, specifically usability and user experience (UX), of a continuous pressure monitoring (CPM) in community care.

Methods

This multi-site, human factors co-production study was conducted across private homes, care and nursing homes. Participants included patients, carers, and HCPs, who met eligibility criteria. The study followed Medicines and Healthcare products Regulatory Agency (MHRA) guidance on human factors and usability engineering for medical devices. Baseline data included demographics, co-morbidities, medications, skin health, PU risk, and current interventions. The CPM system comprised a sensing mat and monitor that continuously recorded pressure distribution, displaying real-time visual feedback. Usability and UX were evaluated using mixed methods, including qualitative interviews and quantitative surveys. Patient, public involvement and engagement (PPIE) contributors supported the development of patient-facing materials, review of anonymised data, and refinement of training and implementation guidelines. Recruitment is ongoing, with completion June 2026.

Results

Preliminary findings include eight patients (aged 56-83), six carers, four HCPs across community settings. Initial thematic analysis indicates that CPM enhances confidence and reassurance among carers and HCPs, by providing real-time evidence to guide repositioning. Most participants reported that the visual image was easy to understand. However, some identified usability challenges, including a visually busy interface with difficulty distinguishing colour contrasts (particularly blue/green and red/yellow, especially among those with cataracts). One participant stated: *"it's real proof what I'm doing, how, how I can do better, what I need to look, what I need to change"*. Carers described improved confidence in care delivery and highlighted the systems' potential to support shared decision-making. Patients lacking capacity demonstrated improved engagement, comfort, and perceived quality of care.

Conclusions

Early results suggest that visual feedback from CPM systems is easily understood by both patients and carers, providing reassurance, hope, and confidence in supporting pressure ulcer management. For patients with limited communication or capacity, the system may help to improve comfort and perceived quality of care, strengthening collaborative care. Further changes need to be considered to make usability more inclusive. These findings highlight the potential for digital technologies to support self-management and improve pressure ulcer care in community settings.

Conflict of Interest

I have no conflicts of interest to declare.

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EMBEDDING SUBEPIDERMAL MOISTURE (SEM) SCANNING TECHNOLOGY: A PRACTICE DEVELOPMENT APPROACH

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Introduction

Early identification of pressure damage remains challenging in community and rehabilitation settings, where reliance on visual inspection and palpation can miss subtle, sub-surface tissue changes particularly in patients with darker skin tones, presence of oedema, or limited mobility. Sub-epidermal moisture (SEM) scanning technology provides an objective, point-of-care measure for early inflammatory response to mechanical loading associated with pressure-induced cell damage. By detecting tissue stress before visible signs emerge, SEM scanning assessments support earlier, targeted prevention and more consistent clinical decision-making across nursing and rehabilitation teams.

Aim: To evaluate the impact of a practice development (PD) and Plan-Do-Study-Act (PDSA) framework on the integration of SEM scanning within inpatient rehabilitation settings. The evaluation examined three core pillars: (a) the establishment and validation of workforce competency frameworks; (b) the cultivation of psychologically safe pedagogical environments to facilitate reflective practice; and (c) the formal synthesis of SEM-informed clinical triggers into standardised pressure ulcer (PU) prevention pathways.

Methods

A practice development and PDSA approach was employed to operationalise the integration of SEM scanning into admission assessments, daily skin checks, and escalation pathways across inpatient rehabilitation units. The intervention strategy encompassed psychologically safe pedagogical training, competency-based validation, and reflective practice facilitated through group clinical supervision. To ensure systemic alignment, clinical workflows and monitoring documentation were co-designed with frontline staff. Evaluation followed a mixed-methods approach: quantitative adoption and fidelity metrics (e.g., scan frequency, documentation completeness, and trigger-to-intervention time) were tracked via descriptive statistics and run charts; qualitative insights from staff surveys and focus groups were analysed thematically to guide iterative refinements.

Results

SEM scanning achieved high levels of staff acceptability, with clinicians valuing the transition to objective metrics and reporting increased self-efficacy in early pressure ulcer detection. Implementation success correlated with the establishment of psychologically safe, hands-on training and structured reflective practice. High fidelity was maintained through the standardisation of anatomical scanning sites and integrated documentation prompts, which ensured longitudinal consistency. Operational feasibility was demonstrated by the seamless embedding of SEM assessments into admission and daily workflows. Notably, SEM-derived data served as a reliable clinical trigger, facilitating a significant shift toward earlier preventive interventions and streamlined escalation.

Conclusions

Embedding SEM scanning through a practice development framework proved both feasible and highly acceptable. The quality improvement initiative successfully enhanced early detection, strengthened clinical reasoning, and established a sustainable culture of proactive prevention within inpatient rehabilitation. Following the success of this pilot, a formal business case to scale SEM technology across wider community services has been submitted and is currently undergoing organisational consideration.

Conflict of Interest

The author declares no conflicts of interest related to this work.



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IMPLEMENTATION OF SUB-EPIDERMAL MOISTURE (SEM) ASSESSMENT TECHNOLOGY IN COMMUNITY INPATIENT SETTINGS

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Introduction

Early identification of tissue damage before visible skin breakdown is critical for enabling timely and targeted preventative interventions. Traditional pressure ulcer (PU) risk and skin assessment methods often fail to detect early inflammatory changes and may be less reliable in patients with darker skin tones. SEM assessment provides an objective method for identifying early inflammatory changes by measuring localised variations in tissue moisture beneath the skin surface. This technology was implemented in two community inpatient units, selected due to historically higher rates of newly acquired PUs, to achieve a minimum a 50% reduction in overall new PUs. NICE (1) acknowledge the clinical value of SEM assessment, but it does not specify recommended scanning frequency. This project, undertaken for 12 months (Dec 2023-Dec2024), aimed to establish a minimum frequency of assessments with-in the community inpatient setting.

Methods

- SEM scanning was conducted on admission for 3 consecutive days.
- Patients with Waterlow scores between 0 and 19 were rescanned x3 per week, while those with scores ≥ 20 were not routinely rescanned unless clinical concerns arose.
- SEM delta readings of ≥ 0.6 prompted review of repositioning schedules and pressure-relieving equipment.

As clinical confidence increased and reductions in PUs were observed, the protocol was refined. Admission scanning was conducted for two consecutive days, follow-up scanning for at-risk and high-risk patients was reduced to 2x weekly to improve cost-efficiency whilst assessing that patient safety was not compromised.

If there was any delay in the timely assessment and prescribing of care interventions, then admission scanning was completed for 3 days.

Results

- 376 scanning episodes: Elevated SEM delta readings (≥ 0.6) recorded in 93% of scanning episodes.
- 42% of scanning episodes showed elevated readings without visible skin discolouration, affecting 124 patients (56% of total cohort).
- 41% of scanning episodes; SEM findings directly influenced or altered nursing clinical decision-making, supporting earlier or more targeted preventive interventions.
- Significant improvements observed during the implementation period; by month 9, newly acquired Category 2 PUs decreased by 60%, and overall new PUs decreased by 46.5%.
- End of the 12-month project, reductions stabilised at 41% for new Category 2 PUs and 15% for overall PUs, influenced by an increase in validated unavoidable cases associated with end-of-life care and patient non-compliance.
- No new avoidable Category 2 PUs were reported from month five onwards, and no new Category 3 or Category 4 PUs occurred during the project period.
- Moisture-associated skin damage decreased by 87.5%.
- Increased confidence in decision making reported and patients demonstrated greater engagement with PU prevention strategies.

Conclusions

SEM assessment technology can be integrated effectively into community hospital inpatient care to support earlier identification of PUs and improve prevention outcomes. Admission scanning for two days, combined with twice-weekly follow-up scanning for at-risk and high-risk patients, proved to be an effective balance between clinical benefit and cost efficiency. Financial modelling, using the NHS PU Productivity Calculator (2) with updated reference costs, indicated a positive ROI, further supporting the sustainability of the intervention. SEM technology should be considered a valuable clinical decision-support tool within a broader system of PU prevention.



Conflict of Interest

None

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PATIENT AND PUBLIC INVOLVEMENT IN PRESSURE ULCER RESEARCH: A SCOPING REVIEW

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Introduction

Patient and Public Involvement (PPI) involves active collaboration and partnership with public members, such as patients, caregivers, and community representatives with relevant lived experience, at any stage of the research process¹. Although the importance of PPI in research is widely acknowledged, its practical application in pressure ulcer (PU) research is still inconsistent². Embedding PPI in PU research is critical for generating high-quality, relevant, and impactful evidence³. This scoping review examined how PPI is incorporated in PU research. It identified the research stages where PPI occurs, the methods used to support it, the terminology applied, and its reported impact on research quality, practice, organisations, patients, and society.

Methods

Nine electronic databases were searched from inception to March 2025. Studies with an objective to prevent or treat PUs, that actively involved people with lived experience of PUs as PPI contributors during the research lifecycle were included. Articles were independently screened and pre-defined data were extracted by two authors. Results were synthesised using the Patterns, Advances, Gaps, Evidence for practice and Research recommendations framework⁴. Two PPI contributors collaborated across each stage of this review.

Results

Twenty studies were included, with a median of 6.5 (1-48) PPI contributors, involved in a median of 2.5 (1-6) research stages. Participatory methods ranged from structured frameworks to flexible, adaptive engagement strategies (i.e., workshops/consultations). The impact of PPI was reported across 80% (n=16) of studies, predominately in the research quality domain. Limited use of the Guidance for Reporting of Patients and the Public (GRIPP2)⁵ checklist was observed (5%, n=1). Multiple terminology was used to describe PPI. PPI had a substantial influence on this review by shaping meaningful data items for extraction and highlighting important gaps in the literature. PPI partners contributed to the use of accessible language throughout the manuscript and co-developed graphics and illustrations.

Conclusions

While PPI in PU research is growing, reporting and integration vary widely. GRIPP2 checklists can enhance transparency. Studies should involve PPI contributors across the full research lifecycle in future PU research for maximal impact. A standardised terminology, agreed with PPI contributors, could enhance clarity and equity, reflecting their level of partnership and expertise.

Conflict of Interest

No conflict of interest to declare. This work was supported by funding from the European Pressure Ulcer Advisory Panel, Research Committee starting grant [24335A001].

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PRESSURE INJURIES (PI) RISK ASSESSMENT FACTORS FOR HOSPITALISED PAEDIATRIC PATIENTS WITH DARKER SKIN TONES (DST)

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Introduction

Pressure injuries (PIs) are a significant and largely preventable source of harm among hospitalised infants, children, and young people (CYP). Prevalence ranges from 1.4% to 8% in general paediatric inpatients and up to 43% in critically ill children [1–3]. PIs are associated with pain, infection, prolonged hospitalisation, increased morbidity, and substantial healthcare costs; in the UK, wound care is estimated to cost the NHS approximately £4 million per day [4,5]. Preventing avoidable harm from PIs is therefore a priority within the World Health Organisation Global Patient Safety Action Plan [6].

Accurate risk assessment is essential for early identification and prevention. Several paediatric tools exist, including the BRADEN-QD; however, these were largely developed using populations with lighter skin tones [7]. Infants and CYP with darker skin tones (DST) remain underrepresented in development and validation studies, potentially limiting tool accuracy and generalisability. Evidence suggests that patients with DST may experience more severe PIs, partly due to challenges in recognising early indicators such as erythema [8,9]. Emerging mechanobiological research also suggests that physiological differences, including increased transepidermal water loss, may influence susceptibility to pressure-related tissue damage [10].

Methods

Phase 1 used a sequential mixed-methods design comprising two work packages. Work Package 1 involved a systematic review of international literature on paediatric PI risk assessment tools alongside semi-structured interviews with healthcare professionals and parents. Interviews were audio-recorded, transcribed verbatim, and analysed thematically to identify additional risk factors not captured in existing tools.

Work Package 2 consisted of a prioritisation workshop using the Nominal Group Technique combined with a modified Delphi approach [11]. Participants independently ranked identified risk factors by clinical relevance. Items achieving ≥70% agreement were considered to have reached consensus for potential inclusion in the BRADEN-QD. Ethical approval was granted by the East Midlands–Research Ethics Committee (REC reference: 25/EM/0117).

Results

The systematic review identified 39 eligible studies evaluating paediatric PI risk assessment tools and their components. Across the review and interviews, 28 potential DST-relevant risk factors were identified. Eighteen participants, including healthcare professionals and parents, contributed to the study.

Following consensus prioritisation, 21 clinically relevant risk factors were grouped into seven domains: acuity, skin integrity, moisture, oedema, hydration, skin surface visualisation, and localised changes in skin colour or tone. Participants also identified contextual influences on assessment quality, including limited time, variability in cultural competence, and concerns regarding the long-term impact of PIs on children.

Conclusions

This study is among the first to systematically identify PI risk factors specific to paediatric patients with DST. The findings highlight gaps in current assessment tools and identify candidate variables to improve risk detection in this underserved population. Integrating DST-relevant factors into tools such as the BRADEN-QD may enhance accuracy, inclusivity, and clinical utility, supporting more equitable prevention strategies for hospitalised children.

Conflict of Interest

None – NIHR funded research study



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PRESSURE INJURY STAGING IN THE PREMATURE INFANT

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Introduction

Accurate staging of pressure injuries is necessary for the treatment of this hospital acquired condition. The NPIAP/EPUAP staging system was created for individuals with fully developed skin. Pressure injuries occur in premature infants, however the staging system is not accurate in this population.

Methods

An international collaborate was created in the Spring of 2025 to perform a systematic review of the literature with two aims. (1) At what gestational age can the NPIAP/EPUAP pressure injury staging system be use accurately for infants? (2) How should we categorize pressure injury damage in premature infants that are younger than age when the current staging system can be accurately utilized?

Results

The systematic review revealed a gestational age when the staging system could be used with accuracy. The Collaborate agreed unanimously on this gestational age. The Collaborate's work has shifted to the creation of a staging system that is appropriate for infants aged 22-weeks' gestation – term.

Conclusions

As the aims are completed, the Collaborate will perform a consensus model on the outcomes and the results will be presented to NPIAP/EPUAP/PPPIA for ratification.

Conflict of Interest

The author has no conflicts of interest for this work.

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INCIDENCE DENSITY AND DEVICE-RELATED PRESSURE INJURY PATTERNS IN PEDIATRIC INTENSIVE CARE

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Introduction

Pressure injuries (PIs) remain a critical quality and patient safety indicator in pediatric intensive care units (PICUs). Unlike adult populations, pediatric PIs are predominantly associated with medical devices and underlying diagnostic conditions rather than immobility alone. However, epidemiologic data describing incidence density and diagnosis-specific anatomical and device-related patterns in PICUs remain limited. This study aimed to determine the incidence density of PIs and to identify diagnosis-specific anatomical and device-related patterns in a PICU population.

Methods

A retrospective descriptive study was conducted in a tertiary-care PICU. We analyzed 107 Stage 2 or higher PIs identified between January 2021 and December 2025. Data were retrospectively retrieved from the unit's quality indicator database, and all patient data were de-identified. Incidence density was calculated as the number of PIs per 1,000 patient-days. Medical records were reviewed to determine anatomical location and device association. Patients were categorized into Cardiovascular, Respiratory, Neurological, Hemato-Oncology, and Gastrointestinal diagnostic groups.

Results

During 12,371 patient-days, 107 PIs were identified, yielding an incidence density of 8.65 per 1,000 patient-days. Distinct diagnosis-specific patterns emerged. Cardiovascular patients (42.1%, n=45) were significantly younger (median 29 months) and most frequently developed pelvic and gluteal PIs (37.8%), likely reflecting hypoperfusion and therapeutic immobility. In contrast, Respiratory (18.7%, n=20) and Neurological (16.8%, n=18) patients predominantly developed head and neck PIs (85.0% and 83.3%, respectively). Among head and neck PIs (n=66), 86.4% were directly associated with respiratory devices, primarily endotracheal tubes. Overall, 82.2% of PIs occurred in patients using at least one medical device.

Conclusions

Clear diagnosis-specific and device-related PI patterns were identified in this PICU population. Cardiovascular patients require pelvic-focused prevention strategies, whereas Respiratory and Neurological patients need targeted interventions for medical device-related head and neck injuries. These findings provide actionable epidemiologic evidence and support the integration of device-sensitive risk assessment tools, such as the Braden QD scale, to guide targeted prevention protocols in pediatric critical care.

Conflict of Interest

The authors declare no conflict of interest.

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PAIN AND VISUAL SKIN ASSESSMENT IN EARLY PRESSURE ULCER DETECTION IN PAEDIATRIC ORTHOPAEDIC SURGERY: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction

Pressure ulcers remain a significant concern in paediatric healthcare, yet research on their incidence, prevalence and early detection is limited. Pain has been proposed as a potential early indicator of pressure ulcer development, but evidence in paediatric populations is scarce [1, 2]. This study aimed to explore PU development and pain scores in children.

Methods

A prospective observational study was conducted in an acute paediatric hospital across three clinical areas (pre-assessment clinic, orthopaedic ward, and high dependency unit) involving surgical paediatric patients. Visual skin assessments and pain scores were obtained at anatomical locations to support early pressure ulcer detection, incorporating skin tone classification using the Fitzpatrick Skin Typing Tool [3], and adhering to STROBE [4] guidelines for observational research.

Results

Among 40 participants in the prospective observational study, three participants had four stage I pressure ulcers, yielding an incidence of 7.5%. Two occurred at the head/face region, both occurring on postoperative day 1. In contrast, a stage I pressure ulcer that developed on the left heel in one participant occurred on postoperative day 2 and day 3. Pain scores varied across participants at various stages during the study. Pain scores were most frequently reported on post-operative day two. The most frequently reported score was 2/10, with no pain score exceeding 4/10 at any anatomical location.

Conclusions

The study found a 7.5% pressure ulcer incidence, with pressure area-related mild pain peaking on post-operative day two. The focus on early mobilisation likely reduced PU risk. Excluding children with complex care needs may have limited the applicability of findings to higher-risk populations. As a result, the study was unable to establish a conclusive correlation between pain and PU development. Future research should consider including higher-risk populations to provide a more comprehensive understanding of PU risk factors and the potential role of pain in early detection.

Conflict of Interest

The author has no conflicts of interest to declare.

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PROTEIN-ENRICHED PLATELET-RICH PLASMA (PEFPRP) IN PRESSURE INJURIES IN SPINAL CORD INJURY: A PROSPECTIVE CASE SERIES

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Introduction

Pressure injuries (PIs) remain a major secondary complication in patients with spinal cord injury (SCI), driven by sensory loss, immobility, impaired microcirculation, and frequent malnutrition. Healing is often delayed and recurrence rates are high, leading to increased healthcare burden[1]. Platelet-derived products have been proposed as regenerative therapies due to their ability to deliver growth factors and bioactive proteins to the wound bed [2]. Protein-Enriched Filtered Platelet-Rich Plasma (PEFPRP) is a novel allogeneic platelet concentrate obtained through ultrafiltration, enriched in both platelets and plasma proteins, potentially enhancing extracellular matrix reconstruction and tissue repair [2]

This study aimed to evaluate feasibility, safety, and preliminary effectiveness of PEFPRP in SCI patients with stage II–IV PIs.

Methods

A prospective case series was conducted in a neurorehabilitation unit specialized in SCI. Seven adult patients (ASIA A–D) with ten stage II–IV PIs were included. Risk was assessed using the Braden Scale (range 12–17), and nutritional status (albumin, total proteins, weight) was monitored and optimized. All wounds received standard care including pressure redistribution, repositioning, nutritional support, and Wound Hygiene.

PEFPRP was obtained from allogeneic AB platelet apheresis units via ultrafiltration (platelets $\approx 1 \times 10^6/\mu\text{L}$; proteins 12–16 g/dL) and applied topically twice weekly for up to 8 weeks using a **hyaluronic acid carrier**. Wound assessment included serial measurement of area, depth, undermining, and tissue characteristics using the PUSH tool.

Results

Ten pressure injuries were treated (5 sacral, 2 heel, 1 dorsal, 1 tibial, 1 elbow). Complete closure was achieved in 7/10 lesions (70%) within 8 weeks; one lesion healed at week 9. Two lesions were lost to follow-up but showed significant reduction before interruption. Mean wound area decreased from $5.8 \pm 6.7 \text{ cm}^2$ to $1.2 \pm 1.9 \text{ cm}^2$ (–74%), with >90% reduction in healed lesions. Depth decreased from $0.64 \pm 0.6 \text{ cm}$ to $0.18 \pm 0.2 \text{ cm}$ (–72%). Undermining resolved in 100% of affected lesions. Granulation tissue increased from <30% to >80% within 4 weeks, while fibrinous tissue was completely eliminated. Nutritional parameters improved (albumin increase ~ 2.5 to $\sim 2.9 \text{ g/dL}$). Healing progression was observed even in severe SCI (ASIA A–B). No adverse events were reported.

Conclusions

In this prospective SCI case series, PEFPRP demonstrated feasibility, safety, and a strong regenerative signal, with substantial reductions in wound size and depth. The allogeneic formulation enables standardized application without repeated blood collection in fragile patients. Despite limitations, these findings support further controlled trials to define the role of PEFPRP in SCI-related pressure injuries.

Conflict of Interest

The authors declare no conflicts of interest and no industry funding.

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APP-BASED ASYNCHRONOUS FOLLOW-UP FOR TREATMENT AND PREVENTION OF PRESSURE ULCER

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Introduction

Videoconference-based follow-up for individuals with spinal cord injury (SCI) and pressure ulcers (PU) has been shown to be as effective as traditional outpatient care and is perceived as safe and beneficial for people with PU (Irgens et al 2023; Chen 2022). However, some patients seek greater flexibility, while others require more frequent contact than can be provided through standard consultations or videoconferencing. The aim of this pilot project was therefore to examine an app-based asynchronous follow-up service that enables close and flexible monitoring, early detection of pressure ulcers, and secure image sharing.

Method

This pilot study examined the implementation of an asynchronous app-based follow-up solution designed to support treatment and prevention of PU among community-dwelling individuals with SCI. The follow-up was provided by a Norwegian spinal cord unit during 2025. The app-based follow-up enabled communication through three structured follow-up questionnaires addressing: (1) basic wound assessment, (2) pressure ulcer prevention, and (3) prevention of recurrence following flap surgery. It also allows image submission and communication via an encrypted chat.

Demographic data were collected and analyzed descriptively. User experience data were obtained from patients and healthcare professionals through semi-structured individual interviews and analyzed thematically. Inclusion criteria were individuals with acquired SCI and PU; or at risk of PU, capable of providing informed consent, as well as healthcare personnel from the SCU.

Results

The study included 23 participants, median age: 55, gender: 19 men and 4 women. Participants received app-based follow-up only: 13, app-based follow-up in combination with video or outpatient visits: 10. Number PU healed during the app-based follow-up: 11, healing time: one to three months.

Time spent by healthcare personnel per patient consultation outpatient consultation: 90 minutes, video follow-up: 30 minutes, and app-based follow-up: 4 minutes.

Individual interviews were conducted with seven patients and healthcare personnel. The app-based follow-up demonstrated high user satisfaction among both patients and healthcare professionals. Patients reported a strong sense of continuity from experts, close monitoring, and increased involvement in their own care. Healthcare personnel reported that reduced time use and continuous follow-up made it possible to follow more patients, detect PU at an early stage, and that encrypted image transfer and chat made the service safe.

Conclusions

App-based asynchronous follow-up was feasible, acceptable, and was time efficient. The approach enhanced early detection of PU and self-management. Findings indicate added value as a supplement to conventional outpatient or videobased follow-up. Further evaluation in larger studies is warranted.

Conflict of Interest

No conflict of interest

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CARE TRANSITION AND PRESSURE INJURY PREVENTION AFTER STROKE: BARRIERS AND FACILITATORS IN A QUALITATIVE LONGITUDINAL STUDY

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Introduction:

Stroke survivors represent a vulnerable group for pressure ulcer (PU) development, as motor and sensory deficits impair mobility and increase the risk of tissue damage[1]. Increasingly, individuals are discharged home with ongoing functional limitations and care needs[1]. In this context, care is often provided by informal caregivers, typically family members, who may lack adequate preparation and support to manage complex demands[2]. Evidence on how PU prevention is addressed in the home setting following hospital discharge remains limited. Therefore, this study aimed to identify barriers and facilitators to PU prevention among informal caregivers of stroke survivors after discharge.

Methods:

This longitudinal qualitative study included 31 informal caregivers of patients who had previously been admitted to a stroke unit at a public university hospital in Brazil. Participants were recruited at hospital discharge and followed for 30 days. Data were collected through semi-structured interviews at three time points (7, 15 and 30 days post-discharge) between April and August 2025. Data were analysed using a thematic analysis approach[3].

Results:

A total of 89 interviews were conducted. Analysis identified three main themes related to barriers and two related to facilitators, each comprising multiple subthemes (Figure 1). Key barriers included challenges with patient transfer and mobilisation due to reduced mobility, caregiver physical and emotional burden, and difficulties in retaining and applying discharge education for home care. Facilitators included improvements in



patient autonomy, as well as caregivers' prior experience, adaptability, and resilience, which supported confidence and coping with daily care demands.

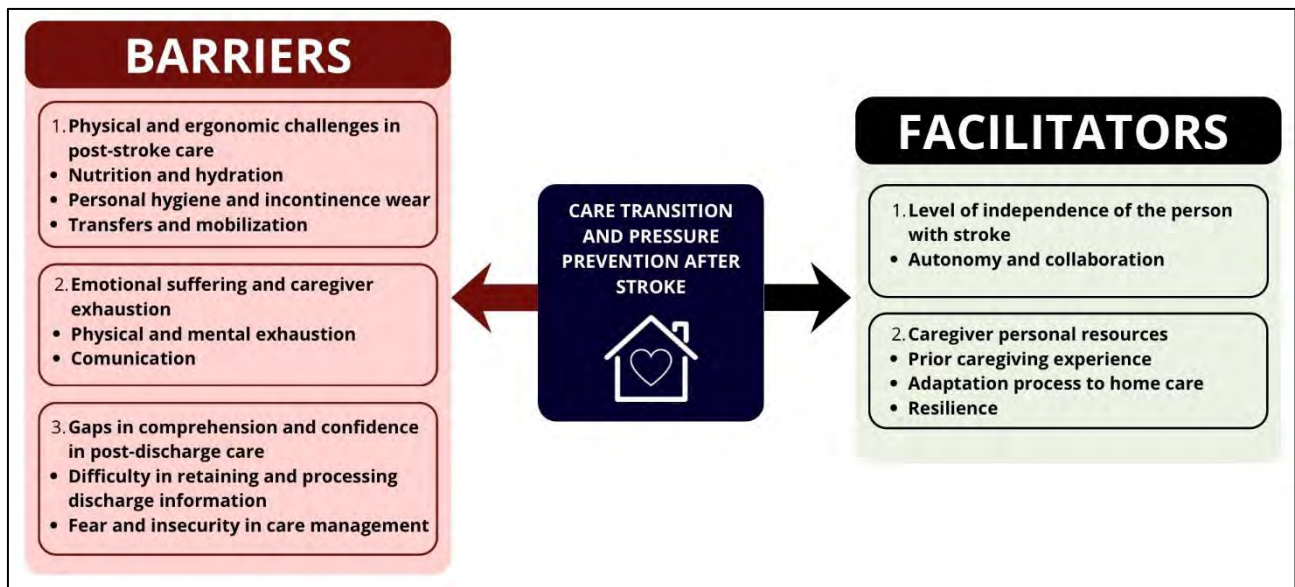


Figure 1. Themes and subthemes of the study.

Conclusions:

PU prevention in the home setting appears closely linked to the quality of transition from hospital to primary care. The findings suggest the importance of structured, gradual discharge planning initiated during hospitalization, alongside effective integration between hospital and community services. Strengthening communication across care teams may support continuity of care and provide ongoing support for informal caregivers. In addition, caregiver training during hospitalization may enhance confidence and contribute to reducing preventable PUs in the home setting.

Conflict of Interest:

None.

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SYSTEMATIC REVIEW OF THE IMPACT OF CARE BUNDLES ON THE INCIDENCE OF PRESSURE ULCERS AMONG AT-RISK OLDER ADULTS

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Introduction

The incidence and severity of preventable pressure ulcers (PU) are important indicators of quality of care (Barry and Nugent 2015). Care bundles augment clinical outcomes when used regularly with reliable interventions (Lavallée et al., 2017).

Methods

A systematic search was conducted in PUBMED, CINAHL, Scopus and Cochrane in May 2025. Studies were eligible if they focused on care bundle interventions designed to prevent PU in older adults. Two reviewers independently screened titles, abstracts, and full texts, with verification by a third reviewer. Quality appraisal was performed using the evidence-based librarianship (EBL) checklist. Meta-analysis was conducted for studies with comparable methodologies, whereas highly heterogeneous studies were reported narratively.

Results

The search strategy identified 1,482 citations of which 11 studies met the inclusion criteria, comprising randomized controlled trials, quasi-experimental studies, quality improvement projects, and observational designs. Care bundles typically included structured skin assessment, repositioning schedules, pressure redistribution strategies, and moisture management. Two meta-analyses found no statistically significant differences between care bundles and usual care, with wide confidence intervals and high heterogeneity limiting certainty. In contrast, a third meta-analysis reported that patients receiving care bundles overall odds ratio for PU development was 0.45 (95% CI: 0.33 to 0.61; $p < 0.00001$), indicating that patients receiving the care bundle were 55% less likely to develop a PU compared to those receiving usual care. Evidence-Based Librarianship (EBL) quality scores ranged from 64% to 96.5%, with the majority ($n = 8$) scoring $\geq 75\%$, reflecting strong methodological quality.

Conclusions

This systematic review demonstrates that the implementation of care bundles has the potential to lower PU incidence in older adults. Given the substantial heterogeneity and variation in study designs, the results should be interpreted with caution.

Conflict of Interest

Please declare any funding of the research by industry here.

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GLOBAL PREVALENCE OF INTERTRIGO ACROSS HEALTHCARE SETTINGS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction

Intertrigo is an inflammatory skin condition affecting opposing skin surfaces and is considered a form of moisture-associated skin damage. Although clinically relevant across the lifespan and in different care settings, its epidemiology has not been systematically synthesized. This review aimed to summarize the available epidemiological data of intertrigo across healthcare settings.

Methods

A systematic review and meta-analysis were conducted according to a predefined PROSPERO-registered protocol (CRD42024558239) [1]. Observational studies reporting prevalence or incidence of intertrigo in humans of any age and setting were eligible. MEDLINE, Embase, CINAHL, Cochrane, Web of Science, and grey literature sources were searched. Risk of bias was assessed using the Hoy et al. [2] tool. Because substantial heterogeneity was expected, studies were grouped by healthcare setting. Random-effects meta-analyses with inverse-variance weighting and logit transformation were conducted for prevalence estimates. Incidence was synthesised narratively because too few studies were available for pooling.

Results

A total of 3,063 records were identified, of which 2,060 were screened after duplicate removal. Following full-text screening, 81 studies were included in the review, including 6 from the updated search.

Overall, 89 prevalence estimates from 80 studies were identified. After combining selected effects, 82 effects from 75 studies were included in the meta-analysis. Five studies reported incidence, but incidence estimates were not pooled.

The pooled prevalence was 5.4% (95% CI 3.9% to 7.3%). Heterogeneity was considerable ($I^2 = 99.62\%$) with a broad prediction interval (0.3% to 51.7%). The test for subgroup differences was not statistically significant ($Q = 3.69$, $df = 3$, $p = 0.297$). Setting-specific pooled prevalence estimates were 8.6% (95% CI 4.4% to 16.0%) in hospital non-dermatology settings, 5.0% (95% CI 3.2% to 7.8%) in non-hospital dermatology settings, 3.2% (95% CI 1.2% to 8.1%) in non-hospital non-dermatology settings, and 6.5% (95% CI 4.8% to 8.6%) in nursing homes. Hospital dermatology studies were too few for pooling and reported prevalence estimates ranging from 3% to 8%. Most included studies were judged to have high risk of bias.

Conclusions

Intertrigo appears to be a frequent skin problem across healthcare settings, with the highest pooled prevalence in hospital non-dermatology populations and substantial burden also in nursing homes. However, the evidence base is limited by extreme heterogeneity and predominantly high risk of bias. More rigorous epidemiological studies with standardized case definitions are needed to improve estimates and support prevention and skin integrity management.

Conflict of Interest

None

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DIFFERENCES IN PRESSURE ULCER INCIDENCE AND PREVALENCE AMONG ADULTS WITH DARK SKIN TONES: A SYSTEMATIC REVIEW

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Introduction

Pressure ulcers (PUs) remain a significant global health concern, associated with increased morbidity, healthcare costs, and reduced quality of life. Emerging evidence suggests disparities in PU detection and outcomes among individuals with different skin tones, particularly in those with darker skin pigmentation. However, the extent to which PU incidence and prevalence differ in adults with dark skin tones remains unclear [1]. This systematic review aims to examine the incidence and prevalence of pressure ulcers among adults with dark skin tones and explore potential variations across healthcare settings and clinical characteristics.

Methods

This systematic review follows PRISMA guidelines. A comprehensive search was conducted across multiple databases, including MEDLINE, EMBASE, CINAHL, Cochrane CENTRAL, and Scopus, from inception to September 2025. Additional sources included grey literature and reference list screening. Eligible studies include quantitative designs (e.g., cohort, cross-sectional, and observational studies) reporting incidence or prevalence of pressure ulcers in adults (>18 years) with dark skin tones. Two independent reviewers conducted study selection and data extraction using a pre-defined extraction table. Data synthesis will involve a narrative approach, with meta-analysis planned where sufficient homogeneity exists. Subgroup analyses will explore differences by healthcare setting, anatomical location, and pressure ulcer severity. Quality appraisal will be conducted using EBL critical appraisal tools.

Results

A total of 23 studies met the inclusion criteria. Preliminary analysis demonstrates considerable heterogeneity in the assessment and reporting of skin tone, with a lack of standardized classification approaches across studies. Early patterns suggest potential disparities in reported pressure ulcer prevalence among individuals with darker versus lighter skin tones. However, variation in study design, populations, and outcome definitions limits comparability and precludes definitive conclusions at this stage. Further analysis, including potential meta-analysis where appropriate, is ongoing. Final results will be presented at the conference.

Conclusions

This review will provide a comprehensive synthesis of current evidence on pressure ulcer incidence and prevalence among adults with dark skin tones. The findings are expected to highlight gaps in measurement, reporting, and equity in pressure ulcer assessment. This work will inform future research and support the development of more inclusive and accurate clinical assessment strategies for diverse populations.

Conflict of Interest

None declared.

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DIFFERENTIATING HIGH-MOVING AND IMMOBILE OLDER ADULTS: DEVELOPING A SUITE OF MOVEMENT DESCRIPTORS FOR BEDFAST AND CHAIRFAST POPULATIONS

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Introduction

Pressure ulcers (PUs) remain a significant global concern, contributing to increased healthcare costs and adverse patient outcomes(1). Emerging evidence challenges the traditional focus on immobility as the primary risk factor. Budri et al. (2020)(2) demonstrated that 72.7% of individuals classified as immobile exhibited high levels of movement, with 47% subsequently developing a PU. Despite the availability of multiple assessment tools, current approaches fail to adequately characterise mobility, particularly in distinguishing immobility from agitation(3), with most tools focusing on immobility alone(1). This study aimed to differentiate high-moving individuals from those truly immobile in chairfast/bedfast older adults and develop a suite of descriptors.

Methods

An interpretivist qualitative think-aloud design was employed. Following ethical approval, the study was conducted across two units within a community hospital. Participants included healthcare staff. Semi-structured interviews were undertaken over a nine-month period. Data were managed using NVivo(4) and analysed using Graneheim and Lundman's qualitative content analysis approach (5,6).

Results

A total of 21 healthcare professionals participated, including nine nurses, six healthcare assistants, two doctors, two physiotherapists and two student nurses. Preliminary analysis identified 15 descriptors of movement in bed/chair-fast patients. High-moving individuals were described using terms such as agitated, restless, impulsive, climbing, shuffling, excited, continuous, erratic, confused and side-to-side movement.

Conclusions

Assessment of patient mobility remains an important component of PU risk evaluation, particularly in identifying high-moving individuals. In the absence of movement monitoring technology, the use of a structured suite of descriptors may support HCP in recognising patterns of movement, including those associated with higher levels of movements within bedfast and chairfast populations. This approach may contribute to more informed clinical judgement and the selection of appropriate prevention strategies in practice.

Conflict of Interest

None to declare. This project received financial support from the Royal College of Surgeons in Ireland Strategic Academic Recruitment (StAR) programme.

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DO PRESSURE MATTRESSES IMPACT BED MOBILITY AND INDEPENDENCE? A SPINAL CORD INJURY PERSPECTIVE

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Introduction

Individuals with a spinal cord injury (SCI) are at a higher risk for the development of pressure ulcers (PU) [1] and pressure mattresses have been shown to aid in the prevention and management of PU's within SCI [2]. Individuals with SCI struggle to balance prevention with an active lifestyle [3] and PU management for those individuals is complex and requires an individualised approach [4]. Currently there appears to be no exploration around the impact mattresses may have on SCI individuals in relation to bed mobility and independence to maintain an active lifestyle. This study forms part of a wider PhD program and aims to explore the perceptions of health care professionals (HCP) working in SCI units and individuals with a SCI who currently use, or have previously used pressure mattresses, on the impact they have upon bed mobility and independence.

Methods

Semi structured interviews were completed virtually and via telephone between December 2022 and December 2024. Recruitment was via social media, word of mouth, online platforms and charity newsletters. Participants were included if they met the following criteria.

1. HCP's – registered with their governing body. Treated/assessed at least 1 individual with a SCI who used a pressure redistribution mattress.
2. Anybody who had been diagnosed with a SCI who had used a pressure mattress for over 24 hours in the last 10 years. Able to speak and understand English. No cognitive impairments.

Results

Five HCPs and eight individuals with SCI were interviewed. Findings indicated that the impact of pressure redistribution mattresses varied with injury level. Although specialist SCI units were perceived to be well resourced for pressure-care education, this did not appear to be replicated on general wards, where HCPs were perceived to have limited SCI-specific knowledge, affecting wider care needs. Pressure-injury prevention was not always prioritised by individuals unless shaped by personal or observed experience. Participants reported limited mattress provision in the travel and tourism sector and longer-term SCI survivors frequently resorted to private mattress purchases, creating financial and accessibility challenges.

Conclusions

The perceived impact of mattresses varying depending upon SCI level reinforces the need for mattress selection to use a patient-centered approach which should be reviewed regularly. Choice should be aligned with injury level, functional ability, individual goals and incorporate the wider inter-disciplinary team. Inconsistencies in both SCI and pressure-care knowledge outside specialist units highlight the importance of improving education for HCPs to ensure safe, equitable care across the wider healthcare setting. Clinically, services should strengthen interdisciplinary training and ensure mattress decisions consider both function and skin health. Future research should explore optimal mattress choice across different SCI levels and evaluate solutions to improve access beyond healthcare settings, especially within the travel and tourism sector.

Conflict of Interest

No conflicts of interest.

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PREVALENCE AND RISK FACTORS OF PRESSURE INJURIES IN INDIVIDUALS WITH SPINAL CORD INJURY IN SWITZERLAND

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Introduction

Individuals with a spinal cord injury (SCI) are frequently affected by pressure injuries (PIs). One cause for this is prolonged pressure and shear forces on the skin (e.g., due to long periods of sitting in a wheelchair), combined with limited sensory and motor function [1]. PIs contribute to significant morbidity, reduced quality of life, and independence, as well as substantial healthcare costs. While previous studies have documented a high prevalence, current data on the prevalence of PIs among people with SCI living in Switzerland are limited. The aim of this study was to determine the occurrence of PIs in the past year (period prevalence), the most common anatomical locations, and treatment of PIs in persons with SCI in Switzerland. Furthermore, factors associated with the PI period prevalence were identified.

Methods

Data from the survey of the Swiss Spinal Cord Injury Cohort Study (SwiSCI) [2] from 2022 were analysed. Individuals with traumatic or non-traumatic SCI over the age of 16 living in Switzerland were eligible to participate. The period prevalence, location, and treatment of PIs were analysed descriptively. Potential risk factors were identified in the literature, including variables related to the person and lesion, health behaviour, secondary health problems, and independence. Subsequently, multivariate logistic regression was used to determine which of these factors were most relevant in the current data.

Results

In total, 1318 individuals participated in the survey (70% ♂, 30% ♀; 70% paraplegia, 30% tetraplegia; 33% complete lesion, 67% incomplete lesion; mean (SD) age 58 (15) years; time since onset of SCI 20 (14) years). The period prevalence of PIs was 15% (95% Wilson CI [13%, 17%]). The most common locations for PIs were the feet (41%) and the sitting area (buttocks: 31%, tailbone: 16%). For 55% of PIs, professional treatment was obtained (physician visit: 36%, hospital: 19%). Compared to individuals with incomplete paraplegia, increased odds of having a PI were observed in those with complete paraplegia (OR = 2.46; 95% CI [1.66, 3.66]) and those with complete tetraplegia (OR = 2.81; 95% CI [1.59, 4.99]). Compared to non-smokers, current or former smokers showed higher odds of having a PI (OR = 1.62; 95% CI [1.17, 2.24]). Higher functional independence (measured with the Spinal Cord Independence Measure) was associated with lower odds of having a PI (OR = 0.98; 95% CI [0.97, 0.99]). Finally, individuals receiving support at home showed higher odds of having a PI than those without support (OR = 2.06; 95% CI [1.28, 3.32]).

Conclusions

This study demonstrates that the prevalence of PIs and the utilisation of professional treatment thereof remain high. Most PIs were located in the sitting area or on the feet. Furthermore, the following factors were associated with increased odds of having a PI: complete lesion, lower functional independence, receiving support at home, and being a current or former smoker. These results help identifying individuals who are at increased risk of developing PIs and highlight the potential need for closer monitoring and improving preventive behaviour of these individuals.

Conflict of Interest

The authors declare no conflict of interest.

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TRANSFORMING PRESSURE INJURY PREVENTION: DEVELOPMENT AND VALIDATION OF AN AI-ENABLED RISK PREDICTION TOOL USING ELECTRONIC HEALTH RECORDS FROM 638,000 NHS ADMISSIONS

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Introduction

Hospital-acquired pressure injuries (HAPIs) remain a leading cause of avoidable harm in acute care, affecting approximately 700,000 patients annually in the United Kingdom at an estimated cost of £1.4–2.1 billion per year. Existing risk stratification approaches rely on manual, intermittent scoring with limited predictive accuracy (reported AUROC values typically 0.55–0.70). AI models trained on routinely collected electronic health record (EHR) data offer the potential for continuous, automated risk prediction with materially improved performance. This study reports the development and validation of an AI-enabled pressure injury risk prediction tool using de-identified data from a large NHS acute trust, with outcome verification against incident reporting.

Methods

A retrospective cohort study was conducted using de-identified data from the iCARE Secure Data Environment at Imperial College Healthcare NHS Trust, comprising three hospitals (Hammersmith, Charing Cross, St Mary's). The cohort included adult inpatients admitted between January 2015 and August 2025 with a minimum stay of 24 hours. The primary outcome was development of any hospital-acquired pressure injury during the index admission, identified from structured clinical documentation and verified by linkage to the trust's Datix incident reporting database. The AI tool was developed using routinely collected EHR data including demographics, admission characteristics, vital signs, laboratory results, medications, and mobility assessments. Performance was evaluated on a held-out temporal validation set using AUROC, AUPRC, sensitivity, specificity, positive predictive value (PPV), and calibration. Subgroup analyses assessed fairness across age, sex, and ethnicity.

Results

The cohort comprised 638,125 admissions, of which 13,634 (2.1%) developed a hospital-acquired pressure injury. The AI tool achieved an AUROC of 0.95 on the temporal validation set. At a sensitivity of 66%, the tool achieved a specificity of 96%, PPV of 38%, and AUPRC of 0.62. Calibration demonstrated good agreement between predicted and observed event rates. Subgroup analyses revealed variation in performance across age groups, sex, and ethnic categories with differences observed in precision and recall.

Conclusion

An AI-enabled pressure injury risk prediction tool, developed and validated on routinely collected NHS data with outcome verification against incident reporting, achieved discriminative performance significantly superior to any risk stratification tool currently used in clinical practice. Consistent accuracy across demographic subgroups supports equitable deployment. These findings provide strong evidence that AI-driven automated risk stratification can transform pressure injury prevention in acute care. Prospective evaluation in a live NHS environment is underway.

Acknowledgments

This research was undertaken within the Imperial Secure Data Environment and used the iCARE team and data resources. Infrastructure support for this research was provided by the National Institute for Health Research (NIHR) Imperial Biomedical Research Centre (NIHR203323). The views expressed are those of the authors and not necessarily those of the NHS, the NIHR, or the Department of Health and Social Care. The research database was given favourable ethics approval by the South West - Central Bristol Research Ethics Committee (reference 21/SW/0120; IRAS project ID 282093).

Reference

The AI-enabled pressure injury risk prediction tool described in this abstract is PressureAI (Prelego Holdings Limited, London, UK).

AUTOMATED 3D DEPTH MORPHOMETRY OF COMPLEX WOUNDS: FUSING AI, MOBILE LIDAR AND PHOTOGRAMMETRY

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Introduction

Accurate assessment of wound depth is critical for monitoring healing trajectories and staging complex wounds, particularly pressure ulcers. However, standard clinical practice relies on two-dimensional imaging and manual probing. These conventional methods are notoriously subjective, difficult to standardize, and inadequate for capturing irregular or deep volumetric wound geometries. The objective of the study is to develop and validate an automated, mobile-based three-dimensional (3D) pipeline combining LiDAR-assisted photogrammetry and artificial intelligence (AI) segmentation for objective and repeatable wound depth measurement.

Methods

A 3D surface model of the wound is reconstructed using Apple's Object Capture framework, integrating LiDAR depth sensing and high-resolution photogrammetry, via a mobile application. The reconstructed mesh is rendered from predefined viewpoints, allowing an AI model to segment the wound across multiple 2D views. These 2D contours are then projected back onto the 3D surface using a rasterization-based mapping approach. Adaptive geometric constraints are applied to ensure anatomical consistency and exclude non-relevant surfaces. Wound depth is computed as the maximum perpendicular distance from the wound bed to the surrounding healthy tissue contour on the 3D mesh.

Results

The pipeline was validated against three 3D wound models with known ground-truth depths. Across all models, the system achieved a mean absolute error (MAE) of 0.93 mm, corresponding to a mean relative error of 6.6%. The method demonstrated exceptional accuracy for deeper, more complex wounds; for a 21.5 mm deep model, the absolute error was just 0.29 mm (1.3%). While the relative error increased for shallower wounds (9.4% for a 5.3 mm depth), the absolute deviation remained within a clinically acceptable sub-millimeter threshold 0.50 mm), confirming the system's robust sensitivity to minor geometric variations.

Conclusions

Integrating mobile LiDAR, photogrammetry, and AI segmentation provides a highly accurate and objective pipeline for automated 3D wound depth estimation. By coupling advanced mesh rendering with optional clinician-guided refinement, this accessible point-of-care tool reduces measurement subjectivity, standardizes longitudinal monitoring, and offers a scalable digital solution for routine clinical wound assessment.

Conflict of Interest

The authors declare a conflict of interest, as this study involves the technical validation of a proprietary 3D wound measurement system developed by their affiliated organization.



AI CHALLENGES BUT DOES NOT CHANGE CLINICAL DECISIONS: EVIDENCE FROM PRESSURE INJURY SIMULATION

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Introduction

Artificial intelligence (AI) is increasingly integrated into clinical decision-making; however, its influence on how nurses construct clinical reasoning remains unclear. In pressure injury management, decision-making requires prioritization and integration of multiple clinical cues. Understanding nurses' responses to AI-generated recommendations is essential for developing safe educational approaches.

Methods

A qualitatively driven sequential mixed-methods design was employed. Forty-one nurses completed validated self-report scales assessing self-efficacy, clinical decision-making, and AI dependence. Participants evaluated eight pressure injury scenarios in a standardized simulation, recording decisions before and after exposure to AI-generated responses. For each scenario, wound staging, priority interventions, and preventive strategies were documented. Decision stability was defined as consistency between initial and final judgments. Quantitative data were analysed using non-parametric tests and logistic regression, and qualitative data were analysed using reflexive thematic analysis.

Results

Decision change following AI exposure was limited; 53.7% of participants did not change any decisions, and the mean number of changes was low (0.85 ± 1.31). Clinical experience was the only significant predictor of decision change, with less experienced nurses being less likely to modify their decisions ($OR=0.086$, $p=0.002$). Self-efficacy and AI dependence were not associated with decision stability. Qualitative findings demonstrated that AI functioned primarily as a reflective trigger rather than a decision authority. Participants engaged in comparative reasoning, re-evaluation, and critical appraisal of AI outputs. Six themes were identified, including AI as a reflective trigger in clinical decision-making, decision behaviors during AI interaction, preservation of clinical authority, conditional and limited trust in AI, clinically incomplete yet superficially plausible, and defining boundaries for AI use in nursing practice. These findings indicate that AI reorganises reasoning processes without necessarily altering decision outcomes.

Conclusions

AI did not meaningfully change nurses' clinical decisions despite its frequent use. Instead, it triggered reflection, prompting nurses to recheck and question their judgments but not consistently translate them into action. Notably, less experienced nurses were even less likely to modify their decisions, indicating that AI does not automatically override clinical judgment. Nurses retained strong ownership of decision-making and used AI cautiously, primarily as a verification tool rather than guidance. In pressure injury management, this pattern highlights a critical gap between reflection and action. Future efforts should focus on strengthening nurses' ability to critically interpret and safely integrate AI into clinical decision-making.

Conflict of Interest

The authors declare no conflict of interest.

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MAKING CLINICAL REASONING VISIBLE: AI AS A COGNITIVE TRIGGER IN PRESSURE INJURY EDUCATION

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Introduction

Clinical reasoning is a core competency in nursing education, particularly in pressure injury (PI) prevention and care prioritisation [1]. However, educational effectiveness is predominantly evaluated using self-reported outcomes, which fail to capture how clinical reasoning is structured [2]. Therefore, there is a need for methodological approaches that make reasoning processes visible. This study aimed to examine how an artificial intelligence (AI)-supported tabletop simulation restructures clinical reasoning in pressure injury prevention and prioritisation.

Methods

This qualitative descriptive study was conducted with 30 senior nursing students divided into five groups. Data were collected using a triangulation approach, including structured group-based clinical decision records (pre- and post-AI), a clinical reasoning rubric, and semi-structured group interviews. A pressure injury case scenario was used in a tabletop simulation, and AI-generated responses were introduced as a comparison stimulus. AI was used not as a decision-making tool but as a cognitive trigger to expose reasoning processes. The process was interpreted within the framework of Cognitive Dissonance Theory to examine how discrepancies between students' initial reasoning and AI-generated input triggered restructuring. Data were analysed using rubric-based evaluation and reflexive thematic analysis.

Results

AI exposure did not significantly change the accuracy of clinical decisions, particularly wound staging. However, it led to a restructuring of clinical reasoning processes. Improvements in prioritisation and evidence-based reasoning were observed across all groups (n=5), while integration of clinical knowledge remained largely unchanged. Structural improvement in clinical reasoning was identified in 3 out of 5 groups, and partial improvement in 2 groups. Qualitative findings revealed a three-stage process: (1) construction of reasoning, (2) cognitive tension triggered by AI, and (3) restructuring of reasoning. Students shifted from intervention-focused thinking to risk-based prioritisation and developed more systematic and evidence-based justifications.

Conclusions

AI-supported tabletop simulation makes clinical reasoning processes visible and enables evaluation beyond decision accuracy. The findings indicate that transformation occurs primarily in prioritisation logic and justification structure rather than decision content. Using AI as a cognitive trigger offers a novel methodological approach for examining complex learning processes. This method has the potential to inform future AI-integrated educational models in pressure injury prevention and nursing education. This approach shifts the focus from what decisions are made to how clinical reasoning is constructed in pressure injury care.

Conflict of Interest

The authors declare no conflict of interest.

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REAL-WORLD CLINICAL EVALUATION OF AN ARTIFICIAL INTELLIGENCE-ENABLED AUTONOMOUS PRESSURE MANAGEMENT SURFACE FOR PRESSURE INJURY PREVENTION AND MANAGEMENT ACROSS ACUTE AND INTERMEDIATE CARE SETTINGS

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Introduction

Pressure injuries remain a major patient safety challenge across acute and long-term care settings. Support surfaces are a cornerstone of prevention, but comparative evidence for advanced technologies remains limited. This study evaluated the real-world performance of an autonomous pressure management surface (APMS) incorporating sensor-based monitoring and artificial intelligence-driven adaptive pressure redistribution.

Methods

We conducted a prospective, open-label, non-comparative clinical evaluation in a healthcare trust in Barcelona, Spain, including one acute care hospital and two intermediate care centres. Adults at risk of pressure injury development, or with pre-existing pressure injuries, were consecutively included when the APMS was available. The primary outcomes were the incidence of new pressure injuries during APMS use and the evolution of baseline lesions assessed in routine practice. Descriptive statistics were used.

Results

Sixty-one patients were included (mean age 77.4 ± 16.2 years; 57.4% women), representing a highly dependent, high-risk population (mean Braden score 12.92 ± 1.34 ; mean Barthel Index 33.83 ± 30). Total exposure was 1,071 patient-days, with a mean APMS use of 17.45 ± 10.29 days. No device-related adverse events were reported. Two patients developed a new pressure injury, yielding a cumulative incidence of 3.27% and an incidence rate of 2.14 per 1,000 patient-days. Among patients with pressure injuries at baseline, 81.0% of lesions healed or improved during follow-up.

Conclusions

In this pragmatic real-world evaluation, an AI-enabled autonomous pressure management surface was associated with a low incidence of new pressure injuries and favourable outcomes in pre-existing lesions across acute and intermediate care settings. These findings support the feasibility and potential clinical value of adaptive autonomous support surfaces in high-risk populations, although controlled comparative studies are needed to confirm effectiveness.



CO-DESIGN AND EARLY EVALUATION OF AN AI-DRIVEN, PATIENT-CENTRED PLATFORM FOR PRESSURE INJURY MANAGEMENT – THE ICAREWOUNDS PROJECT

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Introduction

Pressure Injuries (PI) present a significant global healthcare challenge, impacting patient's quality of life through prolonged healing, psychological stress, and disruptions to daily life. Addressing these issues with effective care strategies and preventive measures is critical, not only for economic reasons but also to enhance the overall well-being of the affected population. ICAREWOUNDS, a European Commission-funded project, aims to develop and validate a digital, patient-centric model that combines reliable artificial intelligence (AI) technologies to empower non-expert clinical staff, enabling faster, data-driven decisions that improve patient outcomes, and transform the efficiency of healthcare delivery.

Methods

A co-design methodology was used to align knowledge partners' expertise with local healthcare-ecosystem needs. Stakeholder mapping and co-design workshops in Ireland identified key challenges in pressure injury management, with participants including clinicians, patients, patient support groups, and policymakers.

ICAREWOUNDS follows a three-phase, 11-month pilot. Phase 1 (November 2025) identified initial usability issues and user needs through structured expert feedback from clinicians, informing iterative design refinements. Phase 2 (5 months) will validate the concept by assessing feasibility, validity, acceptability, and perceived clinical value using validated tools. Phase 3 (2 months) will evaluate the platform's usability, exploring participant interactions, user-friendliness, cognitive load, and overall experience through validated instruments and focus groups.

Results

Co-design workshops with multidisciplinary stakeholders revealed key challenges: poor information flow across care settings, gaps in patient-professional communication, and weak inter-professional coordination. Participants stressed the need for a patient-focused IC model to standardise treatment, reduce fragmentation, and enable timely interventions, improving outcomes. Additional barriers included high staff turnover in acute hospitals in Ireland and limited tissue-viability training in nursing curricula. Preliminary results from Pilot Phase 1 showed that participants appreciated the AI-enabled clinical decision support system, particularly the suggested treatment options. They recommended offering 'recommendations to patients' as an optional, clinician-editable feature, and suggested adding a 'Help' option in each section to support smoother navigation. Overall, the responses showed that the platform is functionally sound, with opportunities to enhance clarity, and improve the visibility of guidance throughout the workflow.

Conclusion

The ICAREWOUNDS project demonstrates that a patient-centred, AI-supported model can effectively address key wound-care challenges, from fragmented information flow to weak coordination and communication. Early findings confirm that clinicians value the AI-enabled decision support and see strong potential to enhance patient outcomes and drive wider adoption of AI-assisted care across healthcare systems.

Conflict of Interest

The authors declare no conflicts of interest.



NEXT-GENERATION ENCYCLOPEDIA: AN XR-AI-CHATBOT SIMULATION FOR PRESSURE INJURY PREVENTION IN NURSING EDUCATION

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Introduction

Pressure injuries (PIs) remain a major patient safety problem and are often preventable with timely risk assessment and evidence-based nursing care. However, nursing students commonly experience difficulty translating theoretical PI prevention knowledge into clinical reasoning and practice. Emerging educational technologies, particularly extended reality (XR) and artificial intelligence (AI)-supported chatbots, offer new opportunities to strengthen knowledge retention, clinical judgment, and self-efficacy in nursing education [1,2]. This study evaluated a theory-informed XR–AI chatbot simulation model (“Next-Generation Encyclopedia”) designed to improve pressure injury prevention learning outcomes in undergraduate nursing students.

Methods

An explanatory sequential mixed-methods design was used. The quantitative phase employed a one-group, three-time-point quasi-experimental structure (pre-test, post-test 1, post-test 2) to assess changes after a three-week self-directed XR–AI chatbot simulation intervention. The qualitative phase consisted of focus group discussions conducted after quantitative data collection to explore learners’ experiences and contextualize quantitative findings. The intervention and interpretation were guided by the Health Belief Model, with emphasis on perceived susceptibility, severity, benefits, cues to action, and self-efficacy.

A convenience sample of 52 undergraduate nursing students participated in the quantitative phase, and 28 students joined focus groups. Outcomes included PI knowledge (PUKAT 2.0 and Modified Pieper), XR attitude (VRAS), and behavioral intention to use and learn with chatbot-supported education (BIULCES). Repeated-measures analyses (Friedman/ANOVA), post-hoc tests, correlations, and multiple linear regression were performed. Qualitative data were analyzed thematically.

Results

The XR–AI chatbot simulation significantly improved PI prevention learning outcomes, with gains maintained at follow-up. Theoretical knowledge (PUKAT 2.0) increased markedly from pre-test to post-test and remained high at post-test 2 ($\chi^2(2)=63.27$, $p<0.001$). Clinical knowledge (Modified Pieper) also improved significantly and was sustained over time ($\chi^2(2)=14.13$, $p<0.001$). XR attitudes (VRAS) and behavioral intention to use chatbot-supported learning (BIULCES) both increased significantly across the three measurements, with a moderate effect for behavioral intention ($F(2,102)=13.78$, $p<0.001$). Behavioral intention was positively associated with clinical knowledge and XR attitude, and both significantly predicted intention in regression analysis ($R^2=0.28$, $p=0.001$), whereas theoretical knowledge was not a significant predictor. Qualitative findings supported and contextualized the quantitative results, highlighting increased clinical risk perception, stronger awareness of PI severity, improved self-efficacy, and students’ perception that XR–AI learning was realistic, engaging, and transferable to clinical practice.

Conclusions

The XR–AI chatbot simulation model significantly improved nursing students’ PI prevention knowledge, technology acceptance, and behavioral intention, with sustained effects over time. Findings suggest that combining immersive XR experiences with an AI chatbot can support deeper learning, stronger clinical



confidence, and readiness for evidence-based preventive nursing practice. This approach appears to be a promising, scalable model for technology-enhanced nursing education.

Conflict of Interest

The authors declare no conflict of interest related to this study.

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IMPACT OF SKIN MICROBIOME CHARACTERISTICS ON THE DEVELOPMENT OF PRESSURE ULCERS AMONG ADULTS: A SYSTEMATIC REVIEW

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Introduction

Pressure ulcers (PUs) remain a significant global healthcare challenge, associated with increased morbidity, healthcare costs, and reduced quality of life. While traditional risk factors such as immobility, moisture, and impaired perfusion are well established, emerging evidence suggests that the skin microbiome may play a role in tissue breakdown and ulcer development. The skin microbiome, comprising diverse microbial communities, may influence skin integrity, immune response, and susceptibility to injury [1]. The association between microbiome characteristics and PU development has not yet been comprehensively examined. This systematic review aims to evaluate how skin microbiome features influence the development of pressure ulcers in adults by comparing individuals with and without PUs.

Methods

The review follows a systematic approach guided by the PRISMA 2020 framework. Electronic databases including CENTRAL, MEDLINE, EMBASE, CINAHL, and Scopus will be searched from inception to 026 without restrictions. Additional sources will include grey literature, conference proceedings, and reference list screening. Eligible studies include quantitative, qualitative, and mixed-methods research examining skin microbiome characteristics in adults (≥ 18 years) in relation to pressure ulcer development. Studies involving pediatric populations, animal models, or not addressing microbiome characteristics will be excluded. Study selection will be conducted independently by two reviewers, with disagreements resolved through discussion or a third reviewer. Data extraction will include study characteristics, microbiome sampling and analysis methods, anatomical site, and microbiome findings. Risk of bias will be assessed using the EBL Critical Appraisal Checklist, with additional assessment for randomised studies where applicable. A narrative synthesis will be undertaken, with meta-analysis considered if sufficient homogenous data are available.

Results

Study screening and data extraction are currently ongoing. Preliminary observations suggest variability in microbiome assessment approaches, including differences in sampling techniques, sequencing platforms, and how microbial diversity and composition are reported. Early trends suggest potential differences in microbiome characteristics between individuals with and without pressure ulcers, such as variations in diversity and the presence of particular taxa. However, heterogeneity across study designs, especially in sampling procedures and analytical methods, limit the ability to draw definitive conclusions at this stage. Ensuring that studies use comparable sample collection methods and analytical workflows is essential for meaningful comparison and interpretation of microbiome findings. A complete synthesis of findings, including subgroup analyses and quantitative pooling where feasible, is currently underway.

Conclusions

This systematic review will provide a comprehensive synthesis of current evidence on the role of the skin microbiome in pressure ulcer development. Understanding microbiome-related mechanisms may offer novel insights into risk assessment and prevention strategies.

Final results will be presented at the conference.

Conflict of Interest

None declared.

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Does an innovative mattress align with International Guidelines? Tissue Tolerance and Mechanical Load

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Introduction

Recent international guidelines [1] place clear emphasis on tissue tolerance, perfusion and microclimate management as key factors in the prevention of pressure ulcers. Tissue tolerance is the ability of skin and underlying soft tissues to withstand pressure, shear and other mechanical loads without breaking down and developing a pressure ulcer. When tissue tolerance is reduced, the same amount of pressure or shear is more likely to cause tissue deformation resulting in the development of pressure ulcers [1].

Intrinsic factors that reduce tissue tolerance include age, poor nutrition, mobility, anaemia, dehydration, vascular disease, perfusion & oxygenation, diabetes, fever and comorbidities that impair healing or circulation [2]. Extrinsic factors such as microclimate (e.g. skin temperature and moisture) also influence tolerance as warm, moist skin is more vulnerable to deformation and breakdown [1].

An innovative medical mattress made of thermoplastic elastomer with continuous filament and random 3D looped structure [7] claims to have a multifactorial role in helping to prevent the development of pressure ulcers by improving pressure distribution and tissue tolerance.

Methods

Studies were carried out comparing the new thermoplastic elastomer mattress to a standard foam mattress. These studies focused on perfusion, mobility, pressure distribution and microclimate.

Perfusion study [3] - NIRO-200NX Infrared Oxygenation monitor was used to measure the value of oxygenated haemoglobin in five subjects on the thermoplastic material versus foam.

Mobility/ Hysteresis study [4]– a force versus compression test was carried comparing the hysteresis loss in the thermoplastic mattress compared to standard foam mattress.

Pressure Distribution study [5]– interface pressure measurements were taken using a pressure mapping system on a life size articulated dummy with soft tissues and bony prominences within.

Microclimate study [6]– a study using a breathable measurement method (JIS-L-1096A/1018), compared the thermoplastic elastomer mattress to a standard foam mattress.

Results

Perfusion study [3] – the decrease of oxygenated haemoglobin in the thermoplastic elastomer material was lower than in the foam material, indicating improved blood flow.

Mobility/Hysteresis [4] -The thermoplastic elastomer mattress demonstrated less than 50% hysteresis loss compared to foam, indicating that the possibility to turn in bed was significantly improved.

Pressure Distribution [5]– The pelvis peak interface pressures on the thermoplastic mattress were 64mmHg, indicating significant lower pressures than on the foam mattress.

Microclimate [6] - The thermoplastic elastomer material was 10× more breathable than foam, with internal humidity of 20–30% (vs 50–90%) and temperature of 20–25°C (vs up to 35°C), indicating significant better microclimate.

Conclusions

The thermoplastic mattress supports pressure distribution and tissue tolerance aligning with the 2025 International Guidelines [1]. These findings highlight its potential to reduce pressure ulcer risk supporting both clinical and commercial applications.

Conflict of Interest

NUA Medical funded the research carried out by Dr. Duncan Bain, Evaluation of pressure properties...2019

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THE PROTECTIVE STRAIN REDUCTION EFFECT OF SLIDABLE LAYERS IN A PROPHYLACTIC DRESSING

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Introduction

Previous *in vitro* and *in silico* studies have demonstrated that prophylactic dressings with able to slide pad layers can reduce strain in underlying soft tissue. [1][2] To better understand this, this work evaluates how a prophylactic dressing, with unbonded, slidable layers redistributes strain and dissipates energy through frictional sliding compared to a bonded dressing, can contribute to the protection of soft tissue.

Methods

A finite element analysis (FEA) using an anatomically representative heel model assessed strain within dressing layers under compression and shear loading. The dressing architectures were modelled with compressive elasticity moduli, Poisson's ratio and where appropriate coefficients of friction. Comparisons were made between unbonded (slidable) and bonded multilayer dressings.

Results

The unbonded dressing exhibited greater reduction in strain between contiguous layers, effectively redistributing mechanical energy through layer-to-layer movement with frictional sliding. Strain between layer 1 (skin side) and layer 2 decreased by 74% in the unbonded dressing versus 23% in the bonded version, a threefold difference. Between layers 2 and 3 (support side), reductions were 68% versus 32%. Energy dissipation through frictional work was 83.9% greater in the unbonded dressing, demonstrating superior capacity to mitigate shear forces and enhance tissue protection.

Conclusions

FEA indicates that unbonded, slidable pad layers absorb and redistribute strain energy before reaching tissue, substantially reducing soft tissue strain under combined loading. These findings highlight the potential benefit of prophylactic use unbonded multilayer dressings as part of a pressure injury prevention protocol.

Conflict of Interest

The authors disclose that this research was solely funded by Smith+ Nephew Ltd

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THE IMPACT OF DRESSING PAD DESIGN FOR PRESSURE INJURY PREVENTION: A FINITE ELEMENT STUDY

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Introduction

Pressure ulcers pose significant healthcare challenges, causing morbidity, prolonged hospitalization, and high costs. Prophylactic dressings can mitigate mechanical forces at vulnerable sites, but performance depends on material properties and interlayer mechanics.[1]

This study compared an unbonded multilayer dressing (UD*), a bonded dressing (BD†), and a single-layer hydrogel dressing (HD‡) regarding mechanical force dissipation.

Methods

This work brings together multiple finite element modelling studies. The following parameters were assigned to the relevant materials or dressings: compressive elastic moduli, Poisson's ratio, and interlayer friction where appropriate. UD* layers: mask, superabsorbent polymer (SAP), and foam were assessed individually; BD† and HD‡ were tested in bulk. Data informed a finite element (FE) heel model incorporating skin, adipose, and bone under compression and shear.

Results

FE simulations showed UD* reduced peak adipose strain by 19.9% versus undressed heel, 3.9% for BD†, and 2.2% for HD‡. In high-strain regions (>0.7), UD* achieved reductions of 67.1% versus no dressing, BD† achieved 26.6%, and HD‡ achieved 8.8%. Comparing the percentage difference of elements experience strain >0.7 in UD* and BD† a difference of 55.3% was evaluated. In another study, when comparing UD* and HD‡ a difference of 63.9% was evaluated. Interlayer sliding in UD* dissipated shear more effectively than bonded or single-layer designs, promoting strain dissipation.

Conclusions

Layer-specific mechanics and interfacial dynamics influence dressing efficacy. UD*'s unbonded architecture provided superior strain reduction compared to bonded and single-layer dressings. This experimental–computational approach offers a framework for optimizing next-generation prophylactic dressings.

Conflict of Interest

The authors disclose that this research was solely funded by Smith+ Nephew Ltd

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*ALLEVYN™ COMPLETE CARE Foam Dressing, Smith & Nephew.

†Mepilex™ Border Dressing, Molnlycke.

‡OptiView™, Medline.



EVALUATION OF EGF LOADED ALGINATE-HYALURONIC ACID MICROBEADS SYSTEM FOR WOUNDS IN RAT MODEL

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Introduction

Alginate is a naturally derived polymer that is widely used for tissue engineering to treat acute and chronic injuries by maintaining wound integrity. Hyaluronic acid (HA) is an important part of the extracellular matrix (ECM), and HA along with alginate is used for the preparation of hydrogels in biomaterials research. HA has the efficiency to induce wound healing process. EGF is one of the growth factors that help in wound healing by inducing cell proliferation. As our ALG-HA bead system exhibited significant results related to wound healing, we aimed to test the effect of the same system on EGF for wound healing purposes.

Methods

We have used alginate (Alg) and hyaluronic acid (HA) composite (80:20) beads for epidermal growth factor (EGF) delivery, using heparin as a cross-linker. Beads were prepared in CaCl₂ at different concentrations; 90:10, 80:20, 60:40, 40:60, and 20:80. Based on the degradation behavior, the beads were prepared using 80:20 (AlgHa) along with 2 µg of heparin using 23-gauge needles. An injector (at the speed of 10 ml/hour) was used for the drop-by-drop pouring into 5 molar CaCl₂ solution with continuous gentle stirring. The beads were washed three times with distilled water and dried overnight at 37 °C.

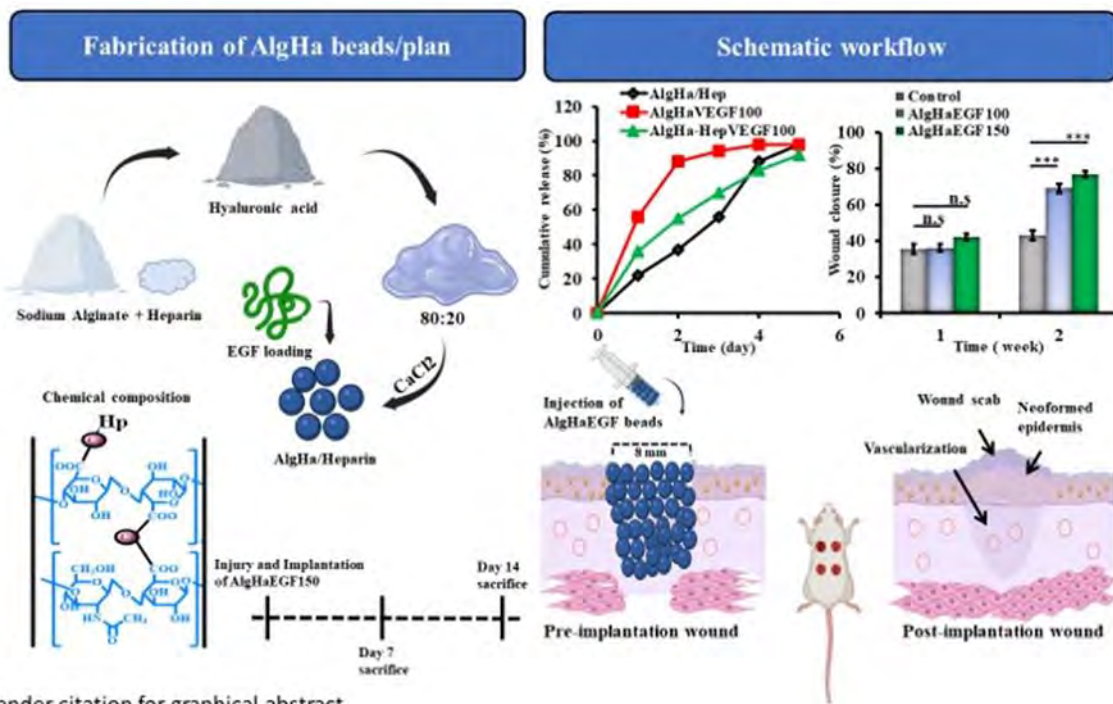
Results

Encapsulated EGF showed significant EGF entrapment in the AlgHaEGF100 and AlgHaEGF150 groups along with the sustained release of EGF within five days. For in vitro studies, encapsulated beads demonstrated biocompatibility in rat L929 cells and significant migration at the concentration of 50 and 10 ng/ml of EGF within 24 hours. AlgHaEGF100 and AlgHaEGF150 significantly improved the expression of Fetal Liver Kinase 1 (FLK-1) and Intercellular Adhesion Molecule-1 (ICAM-1) in rbMSCs. In vivo assessment showed 69.12 % to 76.9 % of wound closure in the AlgHaEGF100 and AlgHaEGF150 groups, respectively. Both the treatment groups exhibited significant epithelialization and wound closure gaps within two weeks. Immunohistochemistry of both groups shows markedly significant levels of ICAM-1, FLK-1, and FN.

Conclusions

The treatment groups also demonstrated increased epidermal layer formation and endothelial vascularization in the wounds. Clinically, frequent dressing changes are one of the major barriers to wound healing. Our bead system is proposed to maintain therapeutic levels of EGF at the wound site, thereby avoiding the need for daily or frequent dressing changes. It can be a promising candidate for wound healing by providing convenience to both patients and healthcare workers.





Biorender citation for graphical abstract

Conflict of Interest

Nothing to declare.

References

CONTROLLED RELEASE OF VEGF IN ALG-HA BEAD SYSTEM TO PROMOTE WOUND HEALING IN PUNCH-INDUCED WOUND RAT MODEL

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Introduction

Wounds with compromised vascularity and hypoxia may be healed with the additional growth factor to promote vascularity. Among the different angiogenic growth factors, vascular endothelial growth factor (VEGF) is a crucial and important candidate.

Methods

To address this issue, a combination of two different polymers, alginate (ALG) and hyaluronic acid (HA) in 80:20 ratio composition is used to optimize the bead system along with the 5 IU heparin (Hep) by crosslinking into calcium chloride (CaCl₂). Encapsulation of Vascular endothelial growth factor (VEGF) in the bead system shows delayed cumulative release in phosphate buffer saline (PBS).

Results

For in vitro studies, ALG-HA/VEGF150 improves endothelial Vascular cell adhesion protein 1 (VCAM1) and endothelial nitric oxide synthase (eNOS) expression markers in CPAE cells. In vivo evaluation of the bead system shows around 68 % of wound closure 2 weeks post-implantation in 8 mm punch wound models. The treatment group shows decreased epithelial gap between the ends of the wound and neo-epidermal regeneration.

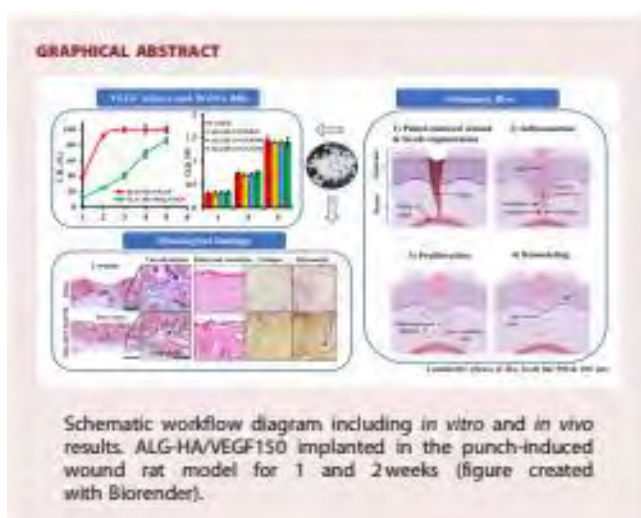
Conclusions

The objective of our study is to fabricate a dual polymer bead system for wound dressing that can be degraded in 5 to 6 days; the beads could be slowly releasing VEGF growth factor and to investigate the effect of VEGF incorporation into the bead system to improve wound healing. From clinical aspects, our bead system might be reducing pain and lowering dressing cost for the patient and convenience for the healthcare provider in future.

Conflict of Interest

Nothing to declare

References



AN ACID GEL FOR THE TREATMENT OF CHRONIC ULCERS THROUGH BIOFILM DISRUPTION:IMPLICATIONS FOR PRESSURE INJURY MANAGEMENT.

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Background:

Biofilm formation is a major barrier to healing in chronic wounds, including pressure injuries. The extracellular polymeric matrix protects bacterial communities from host immune responses and reduces the effectiveness of topical antimicrobials and silver-based dressing. In the context of increasing antimicrobial resistance, biofilm-targeted strategies have become central to wound bed preparation. Effective disruption of biofilm may help restore healing trajectories in stalled wounds. This study aimed to evaluate the clinical effectiveness, safety and tolerability of an acid gel designed to rapidly desiccate and disrupt biofilm in chronic lower-limb ulcers, with potential implications for pressure injury management.

Methods:

We conducted a prospective observational study including 20 consecutive patients with chronic lower-limb ulcers of arterial (n=5), venous (n=8), or mixed etiology (n=7). Chronicity was defined as failure to progress toward healing despite appropriate standard care, including compression therapy when indicated and offloading strategies where relevant.

The acid gel was applied to fully cover the wound bed and periwound skin for 60 seconds. Its mechanism of action relies on a rapid dehydration through water molecule sequestration, leading to structural biofilm disruption. After 60 seconds, the wound was thoroughly irrigated with saline solution and covered with standard dressings according to wound characteristics.

Patients were reviewed every three weeks over a four months follow-up. The primary endpoint was complete wound healing at four month. Secondary endpoints included clinical improvement, ulcer stability, pain during application and adverse events.

Results:

Application-related pain was reported in 3 patients (15%) and was transient and manageable. No major adverse events occurred.

At four months, complete healing was achieved in 10 patients (50%). Two ulcer (10%) remained stable, while 5 patients (25%) demonstrated delayed or incomplete healing compared with expected progression. Overall, 60% of patients achieved complete healing or marked clinical improvement.

Conclusion:

These findings support the role of acid gel biofilm disruption as a valuable adjunct in chronic wound management. Within the T.I.M.E, wound bed preparation framework (Tissue, Infection/inflammation, Moisture balance, Edge advancement), this approach specifically targets the “Infection/Inflammation”, component by facilitating rapid biofilm control. By reducing bacterial burden and persistent local inflammation, it may help restore progression toward healing in stalled wounds. The favorable safety profile and feasibility in outpatient care enhance its clinical relevance. Controlled comparative studies, including patients with pressure injuries, are warranted to confirm these findings and define its role within evidence-based pressure injury management algorithms.

No Conflict of Interest



EPIDEMIOLOGY OF PRESSURE ULCERS IN INTENSIVE CARE UNIT: A RETROSPECTIVE STUDY

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Introduction

Pressure injuries (PIs) are a common and largely preventable complication across healthcare settings, particularly among patients presenting some degree of dependency. Critically ill patients face multiple challenges that increase PI risk, including immobility, administration of intensive care therapies such as vasopressors, haemodynamic instability and frequent laboratory abnormalities. [1,2] Among all hospital settings, ICUs report some of the highest rates of hospital-acquired PIs due to disease severity, immobility and treatment-related factors.[3] Consequently, PIs remain a significant patient-safety issue and a preventable hospital-acquired complication, making their prevention and early treatment an international priority.[4]

Methods

The present retrospective study follows a quantitative, descriptive and inferential design, using a non-probabilistic convenience sample. Data were obtained from nursing records documented in the institutional electronic platform. No pre-defined sample size was established, as the number of eligible patients depended on admissions during the study period (8months) who met the criteria, resulting in a total of 328 patients. Correlational analysis between clinical characteristics, patient risk factors and the level of risk for PI development, using non-parametric tests (as the sample did not follow a normal distribution). Statistical analysis was conducted using SPSS version 28.0.

Results

A PI prevalence rate of 10.5% was recorded, with 8.5% of patients developing a PI during their stay in the unit. Of these, 50% were located in the sacral region, 3% on the left heel, and 9% on the right heel; the remaining 38% occurred at other anatomical locations. Regarding the PI category, 43% were Category I, 44% Category II, 3.4% Category III, and 8.6% were unstageable. The mean time from admission to the development of the first PI was 10.02 ± 9.331 days. A statistically significant association was found between high PI risk at admission, according to the Braden Scale, and the development of PIs after 24 hours in the unit ($p < 0.001$). There was also a statistically significant association between male sex and PI development ($p = 0.046$). A statistically significant association was found between degree of obesity and PI development in the unit ($p = 0.001$). Likewise, a significant association was observed between length of stay and PI development ($p = 0.001$). Lower albumin levels were significantly associated with PI development during hospitalisation ($p = 0.013$). A statistically significant association was found between norepinephrine administration and PI development ($p = 0.000$).

Conclusions

Pressure injury prevalence was 10.5%, with the sacral region being the most frequently affected site. Pressure injury development was significantly associated with male sex, obesity, prolonged length of stay, hypoalbuminaemia and vasopressor use.

Conflict of Interest

None

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THE PREVALENCE OF PRESSURE ULCERS IN EUROPE: WHAT DO THE EUROPEAN DATA TELL US? AN UPDATED SYSTEMATIC REVIEW

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Introduction

Pressure ulcers (PUs) remain a significant patient safety issue, associated with increased morbidity, reduced quality of life, and substantial healthcare costs [1]. Since the last European synthesis in 2019 [2], new evidence has emerged. This study aimed to update the evidence on PU prevalence across Europe and examine patterns in reporting, classification, and clinical characteristics.

Methods

This systematic review updates previous work by including studies published in 2019. A comprehensive search of Cochrane, Medline, Embase, CINAHL, PubMed, Scopus, and Web of Science was conducted (August 2025). Quantitative studies reporting PU prevalence in European settings were included. Data extraction and critical appraisal were performed using a predefined tool and the Evidence-Based Librarianship checklist. Descriptive statistics and a random-effects meta-analysis were used to synthesise prevalence estimates.

Results

A total of over 100 prevalence studies conducted between 1979 and 2025 across a wide range of care settings were included. The pooled prevalence of pressure ulcers (PUs) was 16.0% (95% CI 15.54%–16.58%), with substantial heterogeneity across studies. Across care environments, prevalence varied by setting, with higher rates generally observed in long-term care and intensive care compared to acute and community settings. Considerable variability in reporting approaches and classification methods was observed across studies.

Conclusions

Pressure ulcer prevalence in Europe remains clinically significant, with wide variation across countries and settings. While pooled estimates suggest lower prevalence, reported rates remain high in many contexts, highlighting ongoing challenges in prevention and surveillance. Methodological inconsistencies, particularly in classification and reporting, limit comparability across studies. Standardisation of data collection and reporting is urgently needed to support benchmarking, improve clinical practice, and inform policy. Continued investment in prevention strategies and monitoring systems remains essential.

Conflict of Interest

None declared.

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'REPORTED INCIDENCE AND PREVALENCE RATES OF PRESSURE ULCERS IN THE PAEDIATRIC POPULATION: A META-REVIEW OF SYSTEMATIC REVIEWS'

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Introduction

Pressure ulcers (PUs) remain a significant concern in paediatric healthcare, contributing to avoidable harm and increased care complexity [1]. Despite this, research examining their incidence and prevalence in paediatric populations remains limited. This meta-review aimed to examine the incidence and prevalence rates of PUs in paediatric populations.

Methods

A meta-review of systematic reviews was conducted following the PRISMA guidelines [2] to synthesise existing literature on PU incidence and prevalence in paediatric populations, including medical-related pressure ulcers (MRPUs).

Results

Three types of PUs were discussed across the included studies: hospital-acquired pressure ulcers (HAPU), MDRPU, and tracheostomy-related pressure ulcers (TRPU) [3,4,5,6,7]. TRPU was analysed separately due to significantly higher reported rates than MDRPU alone, which is an important finding. The pooled incidence rate for HAPU was 8% (95% CI: 4% - 13%), and for MDRPU, 9% (95% CI: 2% - 19%). The pooled prevalence rate for HAPU was 8% (95% CI: 5% - 12%), and for MDRPU, 10% (95% CI: 1% - 26%). Interventional studies on TRPU showed a pooled risk ratio of 0.35 (95% CI 0.26 – 0.49).

Conclusions

PUs are a concern in paediatric populations, with comparable incidence and prevalence rates between HAPU and MDRPU. Children with tracheostomies had an approximately 2.9-fold increased risk of PU development. Healthcare workers must remain vigilant about the risks of HAPU and MDRPU when caring for paediatric patients.

Conflict of Interest

The author has no conflicts of interest to declare.

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WHAT IS THE PREVALENCE OF PRESSURE ULCERS WITHIN A MATERNITY SETTING WITHIN AN ACUTE ACADEMIC HOSPITAL?

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Background:

The prevalence of pressure ulcers (PUs) in the general population is well documented, however, specific data related to the development of PUs among women undergoing labour and childbirth is lacking. The development of a PU in this population is devastating and is considered an adverse event. This study aimed to determine the prevalence of PUs and associated risk factors among women undergoing labour and childbirth.

Methods:

An observational cross-sectional prevalence study was undertaken and following ethical approval, women in the immediate postpartum period (24-48 hours after childbirth) were included. Data were collected using subepidermal moisture assessment (SEM), visual skin assessment, Braden risk assessment, skin tone evaluation, and pain scores. Data were also collected on the nature of labour and childbirth, as well as individual patient demographic variables.

Results:

A total of 121 women were included in the baseline analysis (day 1), of whom 79 participated in the overall endpoint analysis (day 2). Although multiple variables were examined, spontaneous vaginal delivery was associated with statistically significantly lower odds of early pressure ulcer development compared to childbirth by lower segment caesarean section (OR 0.17; 95% CI 0.04–0.71; $p = 0.014$).

Conclusion:

This is the first prevalence study in Ireland in this population, and PU development, as identified using SEM assessment, is a problem. Furthermore, unique PU risk factors associated with labour and delivery were identified. Thus, investment in prevention strategies is warranted.

Conflict of Interest:

Grant funded by the RCSI, University of Medicine and Health Sciences Strategic Academic Recruitment (StAR) Programme.



WHAT IS THE FEASIBILITY AND ACCEPTABILITY OF A PRESSURE ULCER CARE BUNDLE IN A MATERNITY SETTING IN AN ACUTE HOSPITAL?

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Background:

An observational study conducted by the researcher has identified that women are at risk of pressure ulcer (PU) development during labour and childbirth, highlighting the need for effective prevention strategies in maternity care.

Methods:

A feasibility study design was used to measure primary outcomes of intervention fidelity, recruitment, retention, and acceptability of a PU prevention care bundle. Secondary outcomes included the incidence of subepidermal moisture PUs (SEM PU) and visually assessed PUs (VSA PU). Ethical approval was obtained prior to study commencement. Participants included women approaching childbirth and those up to 72 hours postpartum, along with their healthcare providers. The intervention involved a pressure ulcer prevention care bundle, which included prophylactic dressings.

Results:

The care bundle was fully implemented among all 37 women included. However, fidelity decreased over time. Participants rated the intervention as completely acceptable, while 71.4% (n=15) of staff rated it as completely acceptable and 28.6% (n=6) as acceptable. No VSA PUs were identified; however, a SEM PU was detected in 50% (n=13) of participants, in one or more anatomical areas.

Conclusion:

The implementation of a PU care bundle is feasible in the maternity setting and is acceptable to both women and healthcare staff. While initial implementation was successful, a decline in fidelity over time was observed. Thus, further research is needed to explore strategies to sustain and improve fidelity with a PU prevention care bundle.

Conflict of Interest:

Grant funded by the RCSI, University of Medicine and Health Sciences Strategic Academic Recruitment (StAR) Programme.



INCIDENCE AND RISK FACTORS OF PRESSURE ULCERS' DEVELOPMENT IN PATIENTS FOLLOWED BY A PREVENTATIVE CARE BUNDLE IN TWO ITALIAN EMERGENCY SETTINGS

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Introduction

Pressure ulcers (PUs) are a major patient safety issue, especially among older and critically ill patients (1). Emergency Departments (EDs) are particularly challenging settings for prevention because overcrowding, prolonged stays, and competing clinical priorities may delay timely skin care (2). Although care bundles may improve prevention, evidence in ED settings remains limited. This study aimed to assess the incidence of PUs in two Italian EDs among patients managed with a standardized preventative care bundle and to identify factors associated with PU development during the ED stay.

Methods

A prospective observational cohort study was conducted in two EDs in Lazio, Italy. Consecutive adults at risk of PU development (Braden score <18) were enrolled; patients with pre-existing PUs or severe cognitive decline were excluded. All participants received a standardized bundle including Braden-based risk assessment, skin inspection, pressure-relieving support surfaces, two-hourly repositioning, protective silicone dressings for high-risk sites, moisture management, nutritional assessment, and electronic documentation. PU-free survival was estimated with Kaplan-Meier curves and predictors were analysed using Cox regression.

Results

A total of 201 patients were included (mean age 81.3 years, SD 8.3; 53% male). Mean ED stay was 3.53 days (SD 1.94). Twelve patients developed PUs, yielding an incidence of 5%; all lesions were stage 1 and located at the sacrum. The probability of remaining PU-free fell from 98% at 24 hours to 80% at 168 hours. In multivariable analysis, older age increased PU risk (HR 1.13; $p=0.004$), while longer ED stay was associated with lower risk (HR 0.36; $p<0.001$). The observed incidence appears lower than rates reported in previous ED-focused reviews and meta-analyses (3,4).

Conclusion

This study adds evidence on PU incidence and risk factors in high-risk ED patients managed with a preventative bundle. The relatively low incidence suggests that early, nurse-led standardized prevention may support PU reduction in emergency settings, although further multicentre comparative studies are needed (5).

Conflict of Interest

The authors have declared no conflict of interest

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HEALTH OUTCOMES LED BY ADVANCED PRACTICE NURSES IN PATIENTS WITH CHRONIC WOUNDS: A SCOPING REVIEW

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Introduction

Chronic wounds, including pressure injuries, place a substantial burden on patients and health systems (1). Advanced practice nurses (APNs) increasingly lead wound care pathways, yet evidence on their clinical and economic impact remains fragmented. This scoping review mapped outcomes associated with APN-led chronic wound care, with particular attention to pressure injury practice and resource use (2).

Methods

A scoping review was undertaken using the Arksey and O'Malley framework and PRISMA-ScR guidance (3). PubMed, CINAHL, Cochrane Library and Scopus were searched between 1 May and 31 October 2025. Observational and experimental studies involving adults with chronic wounds managed by APNs or wound specialists were eligible. Outcomes were grouped as clinical, patient-reported, and organisational/resource-use outcomes.

Results

The search identified 1,956 records; 31 studies published between 1994 and 2024 were included, representing 14,800 participants. Wound types included venous leg ulcers, pressure injuries, diabetic foot ulcers, and mixed chronic wounds. Across settings, APN-led models were associated with faster healing, lower recurrence and complication rates, improved referral appropriateness, and reduced care fragmentation. In pressure injury care, one additional certified wound care nurse per 1,000 beds was associated with a 17.7% relative reduction in hospital-acquired pressure injury rates (4), and a WOCN-led management protocol was more effective and cost-effective than conventional care (5). Some studies also reported fewer referrals, lower dressing use, and lower direct costs.

Conclusions

APN-led wound care models improve clinical and organisational outcomes and show promising economic benefits, particularly in pressure injury prevention and management. These findings support investment in advanced nursing roles for quality improvement and cost containment. Future studies should report standardised economic outcomes alongside healing, recurrence, and patient-reported measures.

Conflict of Interest

The authors have declared no conflict of interest

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WHAT ARE THE PSYCHOMETRIC/ CLINIMETRIC PROPERTIES OF MOBILITY ASSESSMENT TOOLS USED IN PRESSURE ULCER RISK ASSESSMENT IN ADULTS AT RISK OF DEVELOPING PRESSURE ULCERS?

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Introduction

Pressure ulcers (PU) pose a global concern (1), not just negatively affecting patients, but also straining health services financially (2). Essential for prevention are risk assessment tools that are accurate, valid and reliable (1). In assessing PU development, patients' mobility stands out as a critical indicator (3). The aim of this SR is to determine the clinimetric/psychometric properties of commonly used mobility assessment tools with reference to PU development risk.

Methods

Using a PICO-centred question (4), the following databases were searched for English-language studies: CINAHL, Medline, EMBASE, Cochrane, Scopus, and PubMed. Findings were reported following the PRISMA guidelines (5). Data extraction was organized using a structured table, and findings were presented in a narrative format due to heterogeneity.

Results

Eight articles met the inclusion and exclusion criteria. The evaluation examined sensitivity, specificity, positive and negative predictive values, area under the receiver operating characteristic curve, as well as convergent and construct validity, interrater agreement, and test–retest reliability. Across all studies, favourable psychometric properties of mobility assessment tools in relation to PU development were reported. Overall, the findings demonstrated moderate to high performance across the evaluated domains, indicating that accurately assessed mobility is a meaningful predictor of PU risk.

Conclusions

The systematic review revealed encouraging psychometric properties within mobility assessment tools and devices. However, the existing research on these properties remains limited, indicating a gap in understanding. This highlights the need for further extensive research to enhance our knowledge and validate the psychometric/clinimetric properties of mobility assessment tools more comprehensively.

Conflict of Interest

None to declare. This project received financial support from the Royal College of Surgeons in Ireland Strategic Academic Recruitment (StAR) programme.

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MICROCIRCULATION-BASED DEVICE FOR PRESSURE INJURY RISK ASSESSMENT: A DIAGNOSTIC ACCURACY STUDY

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Introduction

Pressure injuries remain a significant challenge in clinical care, often developing despite routine risk assessments [1]. A major limitation of current tools is their inability to capture early physiological changes at the tissue level. Impaired microcirculatory response under sustained pressure is considered a key mechanism in pressure injury development, often preceding visible skin damage [2]. Objective physiological measurements, such as skin blood flow and temperature, may therefore provide additional insight into early tissue vulnerability [3].

Methods

In a multicenter, prospective, double-blind diagnostic accuracy study (n=433; per-protocol set n=338), patients underwent routine clinical risk assessment, including the Modified Norton Scale, and examination with a sensor system on admission. The system used a non-invasive optical method (photoplethysmography) combined with local skin temperature monitoring to assess tissue response under controlled loading conditions (body weight) at the sacrum. Pressure injury occurrence was evaluated at discharge or after four weeks using thorough skin inspection according to standardized criteria. Diagnostic performance and the effect of combining sensor-based and established clinical assessments were analyzed. All assessments were performed independently and blinded to each other.

Results

Implementing the sensor system alongside traditional risk assessment methods enhanced the detection of at-risk patients. The highest performance was achieved when the sensor system was combined with thorough skin inspection on admission, with a sensitivity of 86% and a specificity of 70% (OR 14.9; 95% CI: 7.06–31.60). Risk assessment according to the Modified Norton Scale resulted in a sensitivity of 36% and a specificity of 85%. When combined with the Modified Norton Scale, the sensor system increased sensitivity to 64%, with a corresponding decrease in specificity to 59%.

Conclusions

By combining optical and thermal monitoring, this approach provides an objective, physiology-based method to detect compromised tissue perfusion under load. Its integration into routine clinical workflows may enhance early identification of patients at risk for pressure injuries, offering a valuable complement to established assessment tools.

Conflict of Interest

Simon Münch is affiliated with Rabe Medtech AB, current owner of the sensor system. Eila Sterner declares no conflict of interest.

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REVISITING SODIUM HYPOCHLORITE IN COMPLEX PRESSURE INJURY MANAGEMENT: A CASE REPORT CHALLENGING CLINICAL PARADIGMS

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Introduction

Pressure injuries remain a major challenge in nursing practice and are widely recognized as key indicators of healthcare quality, particularly in complex and chronic clinical situations^(1,2). Their management requires systematic, individualized, and evidence-based approaches. The use of sodium hypochlorite in wound care continues to be controversial, with regulatory bodies highlighting concerns related to its potential cytotoxic effects. However, emerging evidence suggests that, under controlled conditions, it may contribute to infection control, reduction of bacterial load, facilitation of debridement, and improvement of wound healing outcomes⁽³⁻⁵⁾. This apparent discrepancy between regulatory recommendations, scientific evidence, and clinical practice supports the relevance of reporting real-world clinical experiences.

This study aims to evaluate the healing process of a category 4 pressure injury in the sacral region using sodium hypochlorite in a hospital setting.

Methods

A longitudinal descriptive case study was conducted, ensuring ethical principles including confidentiality and informed consent. We report the case of a 69-year-old male with a history of stroke, type II diabetes mellitus, and hypertension. Following a fall in August 2025, the patient underwent C6–C7–T1 laminectomy and required prolonged intensive care, complicated by pulmonary embolism requiring extracorporeal membrane oxygenation and prolonged invasive mechanical ventilation, leading to tracheostomy. During hospitalization, he developed a category 4 sacral pressure injury.

Upon admission to a surgical ward on January 22, 2026, the wound measured 10×10 cm, with 60% granulation tissue and 40% fibrin, and moderate exudate, under negative pressure wound therapy with limited progression. As surgical reconstruction was not indicated, a structured wound care plan was implemented, including systematic monitoring and daily application of a 5% sodium hypochlorite solution.

Results

Initial assessment revealed stagnation in wound healing. Following initiation of sodium hypochlorite on February 5, progressive improvement was observed. By February 16, the wound presented 90% granulation tissue and 10% fibrin, with a reduction in size and improved tissue quality. The treatment plan included continued wound cleansing and application of silver-impregnated hydrofiber dressings. By March 2, the wound showed sustained favorable evolution, including reduction in depth, increased viable tissue, and absence of adverse events or complications.



Conclusions

This case highlights the potential role of sodium hypochlorite as an adjunct in the management of complex pressure injuries when integrated into a structured and closely monitored care plan. Despite existing controversies, its use was associated with positive clinical outcomes. These findings reinforce the importance of individualized, multidisciplinary, and evidence-based approaches in wound care, and support further research to clarify the role of sodium hypochlorite in contemporary clinical practice.

Conflict of Interest

The authors declare no conflicts of interest.

Keywords

Pressure Ulcer, Nursing Care, Sodium Hypochlorite, Patient Care Team

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PREDICTIVE ACCURACY OF EVARUCI, CALCULATE AND BRADEN SCALES IN INTENSIVE CARE: PROTOCOL OF A COMPARATIVE OBSERVATIONAL STUDY

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Introduction

Pressure injuries (PI) remain a frequent complication among critically ill patients admitted to Intensive Care Units (ICUs), being associated with increased morbidity, prolonged hospital stay and higher healthcare costs⁽¹⁾. Early identification of patients at risk is essential for implementing effective preventive strategies⁽²⁾. The Braden scale is widely used in clinical practice; however, it was originally developed for general hospital populations and may present limitations when applied to critically ill patients⁽³⁾. In this context, ICU-specific instruments such as the EVARUCI and CALCULATE scales have been proposed as potentially more appropriate tools for risk assessment in intensive care settings⁽⁴⁾.

This study aims to calculate the predictive value of the EVARUCI, CALCULATE, and Braden scales in adults admitted to the intensive care units under study.

Methods

A quantitative observational study of predictive validity will be conducted in four ICUs of a hospital in the Lisbon region. Adult patients admitted to the participating ICUs during the study period will be included.

The risk of developing PI will be assessed using the EVARUCI, CALCULATE, and Braden scales within the first six hours after admission to the ICUs and every 24 hours of hospitalization.

Demographic/clinical data will be collected regarding sex, age, weight/height, APACHE II score, length of stay (days), presence of PI at admission, presence and location of medical devices, admission diagnosis, referring service and destination after discharge from the ICU.

Predictive performance will be evaluated using diagnostic accuracy indicators, including sensitivity, specificity, positive predictive value, negative predictive value and the area under the receiver operating characteristic curve (AUC)⁽⁵⁾. Category 1 pressure injuries and mucosal pressure injuries without categorical classification will be considered as outcomes.

Results

The study is currently in the implementation phase and data collection is ongoing across the participating ICUs. The comparative analysis is expected to identify potential differences in predictive performance among the evaluated scales.



Conclusions

The comparative evaluation of EVARUCI, CALCULATE and Braden scales may contribute to identifying more suitable risk assessment tools for pressure injury prevention in critically ill patients, supporting more effective preventive strategies and improving the quality and safety of care in intensive care units.

Keywords: Pressure injury; Intensive care units; Risk assessment; Predictive validity; Clinical scales

Conflict of Interest

The authors declare no conflicts of interest.

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RELIABILITY STUDY OF THE MONK SKIN TONE SCALE IN THE CONTEXT OF NURSING SKIN ASSESSMENT

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Introduction

In healthcare facilities, patients with dark skin tones are more likely to be diagnosed with stage II, III, and IV pressure injuries (PI), and less likely to be diagnosed with stage I PIs, suggesting delayed detection^{1,2}. Including skin tone assessment as a component of PI risk assessment may help clinicians identify patients likely to benefit from enhanced assessment techniques. The Monk Skin Tone Scale (MST) has emerged as a more inclusive skin tone classification alternative to the Fitzpatrick scale, though validation of the MST in real-world clinical practice context is limited^{3,4}. This study aims to evaluate interrater reliability of the MST when incorporated into routine nursing assessment. Secondary aims include evaluating agreement between in-person and photograph-based nurse MST assessment, and between nurses' photograph-based MST assessments and MST assessments produced from a photograph using a skin tone selection software tool.

Methods

Observational reliability study of the 10-point MST Scale conducted in the context of routine nursing skin assessments at an acute inpatient rehabilitation hospital in the United States. Two nurses independently assessed each participant's MST during in-person skin assessment. A third nurse independently assessed MST based on a clinical photograph of the sacrum and buttocks and produced a software-generated MST using a skin tone selection software tool. Raters were not fixed and were blinded to previous ratings. Krippendorff's alpha was used to evaluate interrater agreement. Intraclass correlation coefficient was used to evaluate intra-rater agreement. Bland-Altman plots were used to visualize trends and biases.

Results

The sample included 102 participants, 51 with initial MST 1-5, and 51 with initial MST 6-10. Agreement was sufficiently high for in-person MST assessments (Krippendorff's $\alpha=.863$) and when comparing in-person assessment to unaided assessment of a photograph (K $\alpha=.843$). Agreement between unaided photograph assessment and software-assisted photograph assessment was poor (ICC=.447), with proportional bias. The software tended to assign higher MST grades than nurses when used to assess participants with light skin tones.

Conclusions

The MST Scale demonstrated high interrater reliability when used during in-person nursing assessments, and nurse assessment of MST from clinical photographs may also be feasible. Software-derived MST from clinical photographs should not be substituted for clinical judgement without validation. Software performance may be poor when assessing photographs captured in non-standardized conditions, particularly for individuals with light skin tones.

Conflict of Interest

The authors have no conflicts of interest to disclose.

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NURSES' CLINICAL DECISION-MAKING ABOUT PRESSURE INJURY PREVENTION IN HOSPITAL SETTINGS: A SCOPING REVIEW

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Introduction

Despite the development of international clinical practice guidelines and patient safety initiatives, pressure injuries continue to pose a significant challenge in hospital settings globally. Preventing pressure injuries is a key component of the nursing role. Nurses make decisions about what to do, or not do, regarding pressure injury prevention many times each shift. These decisions are influenced by many factors and multiple competing demands. This scoping review sought to explore research on nurse's clinical decision-making about pressure injury prevention, and the factors which influence that decision making, when providing care to hospitalised patients at risk of developing a pressure injury. Understanding the decision-making processes of nurses may help to reduce the incidence of pressure injuries by improving how evidence-based pressure injury prevention interventions are implemented in hospital settings.

Methods

A scoping review was conducted using Arksey and O'Malley's [1] five step framework. Three databases were searched on 11 July 2024 using the keywords "pressure injur*" OR "pressure ulcer*" OR "bed sore*" OR "decubitus ulcer*" AND ("clinical decision making" OR "clinical decision*" OR "clinical judgement" OR "clinical reasoning" OR "decision making" OR "critical thinking") AND (nurs*) AND (hospital OR "acute care" OR inpatient). Studies were included if they were published in English and if the study: (a) included participants 18 years or older; (b) examined care provided by nurses to hospitalised patients; (c) explored pressure injury prevention and (d) explored or reported on decision making/clinical judgement of nurses. Studies were downloaded into EndNote and then independently screened in Covidence by multiple reviewers. The Mixed Methods Appraisal Tool and the Critical Appraisal Skills Programme checklist for systematic reviews was used to undertake quality appraisal.

Results

A total of 2894 studies were identified. Duplicates were removed ($n = 69$) and 2825 studies were subjected to title and abstract screening. Full text screening was undertaken on 121 studies. Thirty-eight studies were included in the final review. There were 8 systematic reviews, 23 quantitative studies, 6 qualitative studies and 1 mixed methods study included in the final review.

The factors influencing nurses' decision-making in pressure injury prevention included: 'support systems', 'knowledge and attitudes', 'barriers to implementing prevention practices' and 'risk assessment tools and clinical judgement'. However, no studies that explicitly explored nurses' clinical decision-making processes on implementation of pressure injury prevention activities were identified. This scoping review has highlighted a significant gap in the literature.

Limited research exists on the processes nurses use to make clinical decisions about pressure injury prevention for hospitalised adults at risk of pressure injury.

Conclusions

More research on nurses' clinical decision-making related to pressure injury prevention is needed to enhance education, support effective care and reduce the incidence of pressure injuries. This presentation will share findings from this scoping review and the subsequent research that has been conducted as part of a Doctoral study to address this gap in the literature.

Conflict of Interest

The authors declare no conflicts of interest in relation to this work.

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CLINICAL VALIDATION OF A MOBILE LIDAR BASED 3D SYSTEM FOR PRECISE PRESSURE ULCER MORPHOMETRY

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Introduction

Pressure ulcer management relies on accurate and repeatable measurement of wound area, depth, and volume to monitor healing progression, guide treatment decisions, and support clinical documentation. Traditional methods lack depth and volume accuracy, while current 3D solutions are costly and hard to integrate. This study aimed to validate the metrological accuracy and repeatability of a mobile, consumer-grade 3D wound measurement system and to assess its suitability for pressure ulcer monitoring.

Methods

A controlled technical validation study was conducted using four standardized wound geometries (flat, cylindrical, convex, and concave) across three sizes. 3D reconstructions were generated using Apple's Object Capture API, combining LiDAR depth sensing with photogrammetric reconstruction from a mobile device. Three independent raters acquired scans at varying image counts (5, 10, and 20 input images), with five repeated measurements per condition. The 540 resulting measurements were compared to CAD ground-truth dimensions to assess accuracy, bias, and reliability.

Results

The 3D measurement system demonstrated high accuracy and repeatability across the evaluated geometries and metrics. Area measurements showed low systematic error overall, with concave models improving from 3.28% bias at 5 images to 0.76% at 20 images, alongside improved repeatability (95% CI: 12.59% to 2.92%). Depth measurements (concave models) showed the lowest bias overall (0.63 –1.18%) and improved repeatability with increased image count (95% CI: 5.74% to 1.94%). Volume was the most sensitive metric, with bias decreasing from 4.24% at 5 images to 2.76% at 20 images, and the largest improvement in precision (95% CI: 20.24% to 3.39%). Overall, measurement precision improved with increasing image count, particularly between 5 and 10 images, and was most pronounced for concave geometries and volumetric measurements.

Conclusions

This study demonstrates that mobile, consumer-grade 3D scanning using LiDAR-assisted Object Capture can deliver accurate and repeatable wound measurements across a range of clinically relevant geometries. A minimum acquisition of 10 images provides a practical balance between workflow efficiency and measurement reliability, while 20 images offer optimal performance for complex or concave wounds. This supports the transition toward fully automated, operator-independent wound monitoring.

Conflict of Interest

The authors declare that this study was conducted as part of the technical validation of a proprietary wound measurement application.



AI POWERED DEPTH CAMERA SYSTEM TO DETERMINE PATIENT POSITION IN BED TO AID TURNING PROTOCOLS

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Introduction

To combat pressure injuries, hospitals implement turning protocols to ensure that a patient is not in the same position for longer than a pre-defined interval (e.g. 2 hours) [1]. Currently this is managed by having a caregiver reposition a patient at these intervals to relieve pressure [2]. However, this may be done without accurate knowledge of the patient's prior positions or last turning time. Further, low uptake of pressure injury guidelines is common which can contribute to the development of pressure injuries [3]. Our aim is to provide an AI powered camera solution which will be able to track patient position over time and personalize the turning protocol for each patient. Acting on information provided by our technology will enable the caregiver to determine how and when best to turn the patient.

Methods

Data was collected by recording employees and healthy volunteers lying in a bed in various positions. The camera used captures 3 video streams simultaneously: RGB, IR and Depth. To prepare the data for AI model training, each frame of the RGB videos were labeled with a posture. These labels were mapped to the corresponding image in the depth channel. The depth channel contains information of the 3D morphology of the patient in bed and, as such, allows for a much more accurate interpretation of patient posture. Once the data is labeled, it is used to train an AI model to identify patient position. The figure shows an example of a labeled RGB image (left) with the label mapped to the corresponding depth image (right).



Results

The labeled data was used to build a prototype AI model to predict patient posture. The model is a bespoke convolutional neural network. The model predicts patient posture with reasonable accuracy based on the limited amount of data collected and labeled to date. More labeled data is required to capture potential edge cases that could be present. This data will include a wide range of information such as sleeping postures, patient demographics, bed types, bed coverings, objects in the scene, medical equipment, and caregiver interactions.

Conclusions

We are developing an AI-based posture monitoring solution based on a depth camera system. The results to date provide reasonable accuracy based on limited data. However, we require much more labeled data before the system could be deployed in clinical practice. We are currently in the process of collecting more data on healthy volunteers, planned to be completed by the end of the year. Latest performance results of the model will be presented at conference.

Conflict of Interest

All authors are full-time employees of Medtronic, a global medical device manufacturer.

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SMART PATCH FOR EARLY DETECTION OF PRESSURE ULCERS: COMPENSATING DIFFERENT BODY POSTIONS

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Introduction

Pressure ulcers remain a significant challenge in healthcare [1]. The main reason for this is that patients are unable to recognize when they need to redistribute their body weight due to a lack of sensory function.

This research project is part of an investigation on how smart patches can provide sensory feedback to at-risk patients by continuously monitoring their tissue condition. We have previously demonstrated the feasibility of this approach [2]. Building on this, we developed a new smart patch. The research question is how the position of the patch on the body influences sensor data.



Fig. 1: Smart patch comprising a soft disposable part (white module) and an integrated sensor and AI analysis unit (grey module)

Methods

For data collection we developed a soft smart patch [3] that integrates sensor hardware as depicted in **Fig. 1**. This allows measuring tissue vital signs and motion data continuously at any given body position. Here, we investigate the skins vital data and motion patterns at different body positions. To accomplish this, 5 people are currently monitored over 24h with three patches at different body positions (chest, abdomen, lower back).

Results

Skin temperature is one important parameter for assessing skin condition, as it indicates low perfusion or inflammation. As expected, **Fig. 2** reveals very similar skin temperature for all patch positions. Only a slightly lower temperature is recorded on the abdomen, which is most likely due to more fatty tissue compared to chest muscle tissue with higher perfusion. In order to use motion data for pressure ulcer

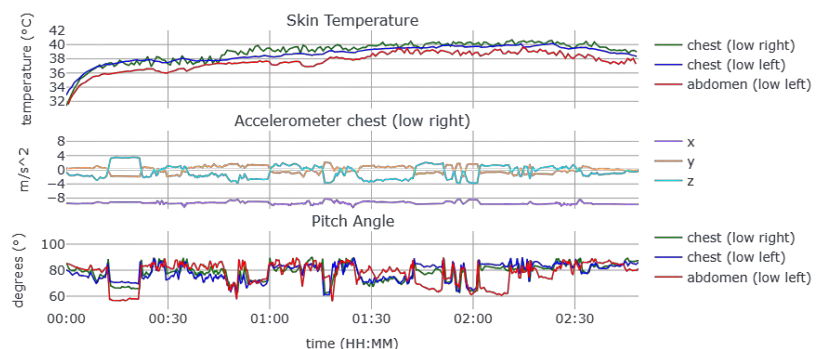


Fig. 2: Time series of skin temperature measurement in comparison with movement data (pitch) for three smart patches at different body positions

prevention, it is essential to consider the relative patch position. **Fig. 2** shows the three pitch angles all indicating an upright body position. Small differences in pitch likely stem from a rounded back posture.

Conclusions

The study highlights promising progress in the development of a smart patch for pressure ulcer prevention. For that, we have investigated the influence of applying a smart patch at different body positions. This can be used in prophylaxis algorithms to compensate for patch application at various locations of the body core.

Conflict of Interest

The research is funded by the German Federal Ministry for Economic Affairs and Energy via the program "EXIST – University-Based Business Startups" (03EFBY0358).

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BEYOND CONVENTIONAL RISK SCALES: TEMPORAL PATTERNS AND MULTIDIMENSIONAL PREDICTORS OF EARLY DEEP TISSUE INJURY IN ICU

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Introduction

Deep tissue pressure injury (DTPI) is a severe form of pressure-induced soft tissue damage that often begins in deeper tissues before visible skin changes emerge, making early recognition difficult in intensive care settings [1,2]. Critically ill patients are particularly vulnerable because of immobility, hemodynamic instability, sedation exposure, edema, and nutritional deterioration [3–5]. Although the Braden Scale is routinely used for pressure injury risk assessment, its ability to identify DTPI risk in ICU populations is limited when used alone [4,6]. This study aimed to evaluate temporal patterns and multidimensional clinical predictors of early versus late DTPI development in adult ICU patients, with particular focus on nutritional risk, edema, sedation, and routinely assessed bedside parameters.

Methods

A retrospective cohort study was conducted in adult ICUs of a tertiary university hospital in Türkiye between January 2022 and June 2025. A total of 211 ICU-acquired DTPI cases were identified through structured chart review and classified according to international guidelines [1]. DTPI onset was dichotomized using the cohort median (≤ 9 days = early onset; > 9 days = late onset). Demographic, clinical, laboratory, hemodynamic, and treatment-related variables were extracted from routine records, aligned to the 24 hours preceding DTPI onset, and analyzed using non-parametric tests, chi-square tests, binary logistic regression, and receiver operating characteristic (ROC) analyses. Model performance was further evaluated using calibration metrics, decision curve analysis, and reclassification indices (IDI/NRI).

Results

Of 211 patients, 93 (44.1%) developed early DTPI and 118 (55.9%) developed late DTPI. Compared with the late group, early DTPI patients were older and had slightly higher Braden scores; however, both groups remained within a high-risk range, limiting the clinical discriminatory value of Braden alone. Late DTPI was associated with longer hospital and ICU stays, higher edema frequency, and greater sedative use. Ankle involvement was significantly more frequent in the early-onset group, suggesting earlier distal tissue vulnerability. In multivariable analysis, ICU length of stay, nutritional risk, edema, and sedative use were independent predictors of DTPI timing, whereas age, Braden score, and hemoglobin were not retained as significant independent predictors. ROC analyses showed limited discrimination for Braden score, age, and single hemodynamic/laboratory parameters. In contrast, adding nutritional risk score, edema, and sedation improved model discrimination (AUC increased from approximately 0.60 to 0.70) and yielded better net clinical benefit and reclassification performance.

Conclusions

DTPI timing in ICU patients reflects multidimensional clinical vulnerability rather than conventional risk scale scores alone. Early-onset DTPI may occur despite routine Braden-based assessments, underscoring the limitations of surface-oriented tools for detecting deep-tissue compromise. Integrating simple bedside parameters, particularly nutritional risk, edema, and sedation, into routine nursing assessment may improve early risk stratification and support more targeted skin surveillance during the first 7–10 days of ICU admission. These findings support the development of pragmatic, multidimensional bedside approaches for DTPI



prevention in critical care. These findings support the development of pragmatic, multidimensional bedside approaches for DTPI prevention in critical care.

Conflict of Interest

The authors declare no conflict of interest. This research received no industry funding.

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CHATGPT TODAY, ROBOTIC PARTNERS TOMORROW: HUMAN AUTHORITY IN PERSON-CENTRED WOUND ASSESSMENT

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Introduction

Wound assessment is a complex nursing activity that requires interpretation of wound characteristics, infection risk, pain, and patient-specific clinical context, and is therefore highly dependent on clinical judgement. Recent literature suggests that artificial intelligence (AI) can support wound assessment by improving efficiency, facilitating information processing, and enhancing the objectivity of assessment processes; however, its impact on the relational, ethical, and person-centred dimensions of nursing care remains insufficiently understood [1–3]. As large language models such as ChatGPT become more visible in clinical settings, there is a growing need to understand how nurses integrate AI-supported “shadow consulting” into wound assessment and how they define the boundaries of responsibility, trust, and professional autonomy in this process [4,5].

Methods

A qualitative study using constructivist grounded theory was conducted. Data were collected through four focus group discussions with 27 nurses working in diverse clinical settings. Analysis followed iterative coding procedures informed by constructivist grounded theory, with the Person-Centred Fundamental Care Framework and Posthumanist Care Ethics used as sensitising concepts. The study adhered to COREQ guidance.

Results

Nurses described AI as a supportive informational partner rather than an autonomous decision-maker. Five interrelated categories were developed: (1) AI as an informational partner, not a moral agent; (2) preserving professional autonomy under AI shadow consulting; (3) embodied and relational knowledge as the core of person-centered care; (4) delegating tasks without delegating ethical responsibility; and (5) reconfiguring trust, accountability, and governance in posthuman care. These categories were integrated into the core category: Human Authority as the Final Moral and Clinical Anchor in AI- and Robot-Mediated Wound Care. Participants reported that ChatGPT could support rapid access to knowledge, broaden clinical thinking, and reduce cognitive workload, yet its outputs always required human verification, contextual interpretation, and ethical oversight. Nurses emphasized that touch, empathy, privacy, contextual judgment, and accountability remain non-transferable elements of care. Future robotic systems were viewed as possible assistive team members for technical or routine tasks, but not as moral agents or independent clinical decision-makers.

Conclusions

Nurses position ChatGPT and future robotic systems as supportive actors within wound care, while retaining final authority for clinical judgment, ethical responsibility, and person-centred decision-making. The findings offer a theoretical framework for human-AI-robot collaboration in wound care and highlight the need for nurse-led governance, clear accountability structures, and careful protection of privacy and professional autonomy as AI-enabled technologies become more integrated into practice.

Conflict of Interest

The authors declare no conflict of interest. This research received no specific funding.

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Real-World Evaluation of Patients' and Healthcare Professionals' Experience with an Artificial Intelligence-Enabled Autonomous Pressure Management Surface for Pressure Injury Prevention and Management Across Acute and Intermediate Care Settings

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Background:

Emerging technologies may improve both the performance and acceptability of support surfaces used for the prevention and management of pressure injuries. The perspectives of patients and healthcare professionals regarding their experience with these devices are important dimensions of clinical evaluation; however, this aspect has been only rarely explored in the literature.

Methods:

Within the context of a prospective, open-label, non-comparative clinical evaluation conducted in a healthcare trust in Barcelona, Spain, including one acute care hospital and two intermediate care centres, we assessed the experience and perceptions of patients and healthcare professionals using an artificial intelligence-enabled autonomous pressure management surface (APMS).

Results:

Sixty-one patients were included in the evaluation representing a highly dependent, high-risk population. Total exposure was 1,071 patient-days, with a mean duration of APMS use of 17.45 ± 10.29 days. No device-related adverse events were reported. Two patients developed a new pressure injury, corresponding to a cumulative incidence of 3.27% and an incidence rate of 2.14 per 1,000 patient-days. Among patients with pressure injuries at baseline, 81.0% of lesions healed or improved during follow-up. Descriptive findings on user experience indicated a favourable level of acceptability among both patients and healthcare professionals. We obtained information about the experience with the systems of 52 healthcare professionals (31 from Hospital, 9 from intermediate care and 12 in shared care) and from 44 patients.

Conclusions:

In this pragmatic real-world evaluation, the AI-enabled autonomous pressure management surface was associated with a low incidence of new pressure injuries, favourable outcomes in pre-existing lesions, and good acceptability among both patients and healthcare professionals. These findings support the feasibility and potential clinical value of adaptive autonomous support surfaces in high-risk care settings.



PRESSURESMART: A MULTI-PARTNER CONSORTIUM TO DEVELOP REAL-TIME AI POSTURE MONITORING FOR PRESSURE INJURY PREVENTION

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Introduction

Pressure injury (PI) costs the US healthcare system \$26 Billion per annum [1]. Healthcare staff are under resourced and pressure injury prevention and detection is vital to our patient population. Current PI prevention, detection and management process is very labor intensive. We are developing a touchless posture monitoring technology based on a depth sensing camera. This uses an AI model to determine the posture of the patient and provides valuable information to the clinician for use in preventing the development of pressure injuries.

Methods

We are developing a range of tools for pressure injury prevention based on the depth camera information derived from the scene. These are as follows: (1) a posture monitoring technology that alerts the clinician if the patient has remained in a particular position past a threshold time and therefore needs turning; (2) given also patient specific demographic and clinical information, we may assess patients risk of pressure injury and provide this information to the clinician and/or use it to personalize turning intervals; (3) given demographic data which may also include body measures such as height and weight, we aim to predict a pressure surface mapping between the patient skin and the mattress

Results

We have received a Canadian government Digital Innovation grant for \$7.2M CAD as part of a multi-partner consortium [2], including SME's, an academic AI department and a healthcare provider, with Medtronic taking the lead role. The consortium members are as follows: (1) Swift Medical tracks skin and pressure injuries through pictures and helps provide clinicians with next steps; (2) Excelar aggregates this information in a longitudinal view of patient deterioration and recovery; (3) Providence Health Care Ventures is the health innovation leader providing clinical needs and expertise and access to real-life operational settings with patients; and, (4) Amii as a Canadian national leader in ML and AI research.



Conclusions

We are developing an AI-deep-learning model for patient posture recognition and interpretation. A multi-partner consortium has been formed to move this technology to the next stage of commercial development which will allow us to develop tools for bed sore prevention.

Conflict of Interest

All authors are full-time employees of Medtronic, a global medical device manufacturer.

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SUB-EPIDERMAL MOISTURE (SEM) SCANNER FOR PRESSURE ULCER PREVENTION IN INTENSIVE CARE UNITS: A SCOPING REVIEW

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Introduction

Pressure ulcers (PU) remain a major challenge in intensive care units (ICUs), where critically ill patients are exposed to multiple intrinsic and extrinsic risk factors, including immobility, hemodynamic instability, and impaired tissue perfusion [1]. Traditional assessment methods, such as risk scales and visual skin inspection, have limited sensitivity in detecting early tissue damage. The Sub-Epidermal Moisture (SEM) Scanner has emerged as an innovative technology capable of identifying subclinical changes associated with early tissue injury. However, evidence on its use in ICU settings remains fragmented. This scoping review aimed to map and synthesise the available evidence on the use of the SEM Scanner for pressure ulcer prevention in adults admitted to ICUs and to identify knowledge gaps [2,3].

Methods

A scoping review was conducted following the Joanna Briggs Institute (JBI) methodology and reported according to PRISMA-ScR guidelines. The PCC framework (Population, Concept, Context) guided the eligibility criteria: adult patients (≥ 18 years) admitted to ICUs (Population), use of the SEM Scanner for pressure ulcer prevention (Concept), and ICU settings (Context). A comprehensive search was performed across PubMed/MEDLINE, Scopus, CINAHL, Cochrane Library, MedicLatina, Web of Science, and grey literature, without time restrictions. Studies in English, Portuguese, and Spanish were included. Study selection and data extraction were performed independently by two reviewers. Data were analysed descriptively and presented narratively.

Results

Three studies published between 2023 and 2025 were included: one quality improvement programme, one descriptive comparative longitudinal study, and one prospective cohort study. Methodological and clinical heterogeneity was observed.

Across the included studies, the SEM Scanner was used as an adjunct to standard pressure ulcer prevention strategies, particularly at the sacrum and heels, with daily or twice-daily measurements.

SEM assessment showed higher sensitivity than the Modified Cubbin and Jackson Scale (89.2% vs 48.6%) and a higher area under the curve (0.880 vs 0.739). Risk was identified earlier in 35.1% of measurements, with a mean lead time of approximately three days.

In a quality improvement programme, SEM implementation within a broader multimodal intervention was associated with a reduction in hospital-acquired PU rates from 14.46% to 6.97% (51.8%); this reduction cannot be attributed exclusively to SEM. In the prospective cohort, PU incidence was 9.89%, and SEM values were not statistically associated with PU development at group level. Limitations included small samples, single-site designs, methodological heterogeneity, and variable implementation protocols.

Conclusions

The SEM Scanner may support earlier identification of sub-epidermal tissue changes and more timely preventive decision-making in critically ill adults. It should be considered a complementary technology within multimodal PU prevention strategies, not a replacement for comprehensive clinical assessment. Evidence



remains limited, recent, and methodologically heterogeneous; robust multicentre ICU-specific studies are needed to clarify effectiveness, predictive value, cost-effectiveness, feasibility, and sustainability.

Conflict of Interest

The authors declare no conflicts of interest. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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CLOSING THE GAP: A NURSE-LED DIGITAL MODEL FOR REDEFINING PREDICTIVE PRESSURE ULCER CARE IN COMMUNITY REHAB

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Introduction

Pressure ulcers (PUs) remain a largely preventable cause of harm in community inpatient rehabilitation, where multimorbidity, deconditioning, and care transitions heighten risk. Traditional risk assessment tools and visual skin checks detect damage after tissue injury has begun. Sub-epidermal moisture (SEM) scanning provides an earlier, objective signal of tissue oedema, enabling detection up to five days before visible or tactile skin changes and supporting genuinely proactive prevention.

Aim: The aim of this quality improvement project was to implement and evaluate a nurse-led digital prevention model that embeds SEM scanning assessments into standard community inpatient rehabilitation workflows. The objective was to shift from reactive to predictive care by integrating objective technology with a structured practice development framework to reduce pressure ulcer incidence and enhance frontline nursing competencies.

Methods

Central London Community Healthcare (CLCH) implemented a technology-enabled prevention model that embeds SEM scanning into routine nursing practice in community rehabilitation wards. The model couples SEM delta thresholds with a standardised escalation pathway, bite-sized competency teaching, group clinical supervision sessions, an optimised SEM Patient Data Monitoring Sheet, and monthly audit-feedback focus group discussions on integrating SEM into everyday workflows rather than treating it as an add-on routine. Using the Model for Improvement and iterative Plan-Do-Study-Act (PDSA) cycles, the project piloted in two Brent rehabilitation wards (Willesden Centre for Health & Care), then entered a sustainability and scale phase across all the other CLCH inpatient rehabilitation units. Primary process aims were to raise SEM scanning assessment and documentation compliance from a 10% baseline to $\geq 50\%$ within three months and to embed SEM-triggered actions (reassessment, targeted offloading, and early interventions). Monthly audits, clinical supervision reviews, and staff feedback informed rapid-cycle refinements.

Results

Following the adoption of the SEM-enabled workflow, the project achieved a 30% reduction in attributable pressure ulcers. This clinical improvement was underpinned by a marked increase in documentation reliability; skin redness documentation rose from 1/10 to 10/10 charts, while delta score documentation reached 100% early and remained consistently high (8–10/10). Furthermore, the rate of early interventions increased from 1/10 to 7/10 charts by the fourth PDSA cycle. Despite these successes, a persistent gap remained for admission to 3rd day SEM assessments, which consistently scored between 1/10 and 3/10, highlighting specific workflow and prioritisation barriers that must be addressed during the scale-up phase.

Conclusions

The transition from reactive to predictive care in community rehabilitation is not merely a technological upgrade, but a profound clinical culture shift. By embedding SEM scanning within routine nursing processes, we have redefined pressure ulcer prevention, shifting the needle from reactive treatment to predictive intervention. Our findings confirm that technology-enabled workflows when paired with structured clinical supervision, targeted micro-teaching, and audit-feedback loops deliver sustained safety gains and cost-effective care. This work operationalises the NHS Long Term Plan's prevention-first ambition through a pragmatic, nurse-led, digital innovation that is transferable across community inpatient rehabilitation settings.

Conflict of Interest

The author declares no conflicts of interest related to this work.



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WOUND MEASUREMENT PRACTICES AMONG WOUND CARE NURSES: A NATIONAL PERSPECTIVE ON PRESSURE INJURY MONITORING

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Introduction

Accurate wound dimension assessment is essential for monitoring healing and guiding clinical decision-making, particularly in pressure injury management. However, wound measurement in routine practice often relies on manual techniques, leading to variability and limited standardization [1,2]. This study aimed to explore wound assessment practices among wound care nurses in Turkey and examine perspectives on improving measurement in clinical practice.

Methods

A descriptive cross-sectional study was conducted between April and November 2025 among wound care nurses working in healthcare institutions across the seven geographical regions of Turkey. Data were collected using an online survey and participants were recruited through snowball sampling. The survey included questions on nurses' characteristics, wound assessment practices, wound dimension measurement methods, perceived barriers and facilitators, and perspectives on improving wound measurement. Descriptive statistics and thematic analysis were used to analyse the data.

Results

A total of 103 wound care nurses participated (mean age 39.28 ± 7.46 ; 88.3% female). Almost all (97%) performed wound assessment; however, only 45.6% used a standardised scale, most commonly PUSH. Manual ruler measurement was the most common method (86%), followed by photographic documentation (60%). Visual estimation was reported by 15%, while only 1% used digital systems. Measurements were most often performed weekly. Confidence in current methods was moderate (2.93 ± 1.23). Key barriers were time constraints (49.5%) and lack of devices (46.6%). Despite limited experience with digital systems (5.8%), most nurses (85.4%) supported digital measurement. Thematic analysis identified five improvement areas: digitalisation, accuracy in complex wounds, workflow efficiency, integration into clinical records, and need for equipment, education and institutional support.

Conclusions

Wound dimension assessment in Turkey remains largely based on manual measurement methods. Although nurses routinely perform wound measurement, confidence in current methods is moderate and several organisational barriers affect measurement practices. The findings highlight a clear gap between the recognised need for digital wound measurement systems and their current use in clinical settings. Developing user-friendly, workflow-integrated digital wound measurement technologies may improve accuracy, support clinical decision-making and enhance monitoring of chronic wounds, including pressure injuries [3]. These findings emphasise the urgent need for standardised and technology-supported wound measurement practices in clinical settings.

Conflict of Interest

The authors declare no conflict of interest.

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BRIDGING THE GAP BETWEEN STANDARDS AND GUIDELINES: THE ROLE OF SEATING SUPPORT SURFACES IN PRESSURE INJURY PREVENTION

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1. Vicair B.V., The Netherlands

Introduction

Current pressure injury (PI) prevention guidelines [1] predominantly focus on support surfaces in lying positions, while individuals with mobility impairments often spend a substantial proportion of their day seated. This creates a potential mismatch between clinical guidance and real-world exposure. In parallel, ISO standards for support surface [2] evaluation incorporate a broad range of biomechanical factors relevant to both lying and sitting, including immersion, stability, and load distribution. This study explores the alignment between standardized testing, clinical guidelines, and real-world needs for seating support surfaces, and introduces a framework to support more comprehensive evaluation of pressure injury prevention strategies.

Methods

A comparative analysis was conducted between ISO testing protocols for support surfaces and current pressure injury prevention guidelines. Key biomechanical parameters included in ISO standards—such as pressure distribution, immersion, stability, and microclimate—were systematically mapped against factors addressed in clinical guidelines. In addition, these parameters were compared with data from an international user survey investigating the needs and preferences related to seating support surfaces among individuals with mobility impairments (see Figure 1). Finally, a series of internal validation studies were performed to assess how well standardized testing reflects real-world conditions, contributing to the formulation of a comprehensive “test package” for seating support surfaces.

Results

ISO testing protocols incorporate multiple parameters relevant to both seated and supine conditions, capturing aspects that influence tissue loading and postural stability. These parameters showed strong alignment with user-reported needs and real-world usage patterns identified in the survey, particularly regarding prolonged sitting duration and the importance of stable posture. However, current clinical guidelines place limited emphasis on seated conditions, despite evidence that individuals at risk of pressure injuries may spend over half of their day sitting. This discrepancy suggests that important risk factors may be underrepresented in guideline-driven decision-making.

Furthermore, the validation framework demonstrated that combining multiple test parameters—rather than relying on a single outcome measure—provides a more comprehensive assessment of support surface performance. This “perfect package” approach enables evaluation of both beneficial and potentially harmful characteristics, supporting more robust product assessment and selection.

Conclusions

A gap exists between standardized testing and clinical guidance in pressure injury prevention, particularly regarding the role of sitting and sitting support surfaces. Greater alignment between ISO standards and clinical guidelines, both grounded in robust scientific evidence, may support a more comprehensive, 24-hour approach to postural management. Recognizing both lying and sitting as critical components of pressure injury prevention has implications not only for clinical outcomes, but also for sustainability through reduced incidence, lower resource use, and improved long-term care efficiency.

Conflict of Interest

Conducted within an industrial research setting; no external funding.

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Figure 1. Survey results; element size indicates the relative importance assigned by respondents.

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PUTTING SUPPORT SURFACE CLASSIFICATION TO BED, ONCE AND FOR ALL

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Introduction

The classification of active therapy (powered) support surfaces has been a long-standing grey area for medical device regulators, manufacturers and healthcare providers [1]. This has resulted in a confused marketplace where it is difficult for healthcare providers to decipher fact from fiction when choosing the most appropriate support surface for their patients or service users. [1]

This poster aims to help healthcare professionals understand the rules of device classification that apply to support surfaces and to examine the regulatory consequences (requirements and implications) that relate to those rules. It is important to note that in Europe the regulatory landscape is governed by a single Medical Device Regulation (EU-MDR 2017/745), however the UK (Great Britain) currently accepts devices in compliance with either the EU-MDR or the UK Medical Device Regulation (UK-MDR 2002) – which is derived from the EU Medical Device Directive (EU MDD 93/42/EEC). For simplicity this poster will focus on CE marked devices only and the device classification rules set out in the EU-MDR.

Methods

Historically, UK and EU regulators have accepted powered pressure area care (PAC) support surfaces as either Class I or Class IIa medical devices. This inconsistent approach to device classification has increased the confusion around these devices and ultimately resulted in an uneven playing field for manufacturers with some opting for Class I classification while others opt for Class IIa classification.

As Class I devices, manufacturers lodge their device under Rule 1 of the EU-MDR which states: *All non-invasive devices are classified as class I, unless one of the rules set out hereinafter applies.*

As Class IIa devices, manufacturers apply EU-MDR Rule 9 which states: *All active therapeutic devices intended to administer or exchange energy are classified as class IIa.*

Results

The general consensus in the current market is that powered PAC support surfaces are Class IIa medical devices and sit under Rule 9 of the EU-MDR. Whilst this difference in device classification may seem an irrelevant technicality, in reality it has significant downstream consequences for manufacturers, providers and potentially for patients and end users of these devices depending on which rule is applied. The primary reason for these differences arises because Class I devices are 'self-certified' by the manufacturer, whereas Class IIa devices must undergo comprehensive auditing by an independent Notified Body prior to CE marking. Auditing incurs significant financial costs to the manufacturer; however, it simultaneously guarantees accuracy of device claims around performance and safety.

Conclusions

With regulators historically permitting an 'either/or' approach to powered PAC support surface classification most manufacturers are now transitioning from Class I to Class IIa device classification. Ultimately this is good news for service providers and end users as it will add quality, transparency, rigor and accuracy to claims of device performance and safety, however it could see product costs rise as a result of the increased investment required to achieve a Class IIa CE marked device.

Conflict of Interest

None

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LET'S CE IF YOU ARE SERIOUS ABOUT THE DEVICES USED FOR PRESSURE ULCER PREVENTION & MANAGEMENT

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Introduction

All medical devices used in the EU must be CE marked to evidence compliance with the EU Medical Device Regulation (EU-MDR 2017/745). Post-Brexit in 2017, the UK (Great Britain) has pursued its own route to device compliance. As a result, UK medical devices can be either CE marked (in compliance with EU-MDR) and/or UKCA marked in compliance with the UK Medical Device Regulation (UK-MDR 2002).

Whilst CE or UKCA marking may seem like a minor detail, there are important differences underpinning the medical device regulations governing the EU and UK.

Methods

In 2017 Europe replaced the existing Medical Devices Directive (MDD, 93/42/EEC) with the significantly more stringent Medical Device Regulation (EU-MDR 2017/745) which tightened the clinical and safety requirements, and increased transparency and traceability for medical devices when compared to the MDD.

Whilst the EU has made significant strides in strengthening its requirements around medical device regulation, the UK (Great Britain, excluding Northern Ireland) has implemented its own Medical Device Regulation (UK-MDR 2002), which is essentially an adaptation of the less stringent EU MDD.

This means that the current Great Britain route to market and UKCA marking requirements are based on the requirements derived from the EU MDD 93/42/EEC legislation.[1]

Results

So what does this mean for medical device manufacturers, healthcare providers or service users?

The EU does not recognize the UKCA mark therefore only CE marked medical devices can be used in Europe. At present the UK accepts both UKCA and/or CE marked medical devices. CE marked devices comply with one of the most stringent Medical Device Regulations (EU-MDR) on the planet. For UKCA only marked devices, manufacturers require fewer checks and balances to achieve compliance with this regulation. However, this does not mean UKCA marked devices are less safe or less effective – they just have fewer regulatory requirements around clinical, safety, transparency and traceability.

An important consideration for UK-based healthcare providers is the current direction of travel for the MHRA in relation to UKCA and CE marking. With the UK aligning itself more closely with European legislation and regulation there is a growing probability that the UK will accept CE marked devices indefinitely, and it may over time obsolete the UKCA mark. This could represent a risk for healthcare providers who use devices that only carry a UKCA mark as they may have to source alternative suppliers who offer CE marked devices.

Conclusions

With the EU-MDR being a more comprehensive, risk-based, and transparent regulatory framework compared to EU-MDD (or UK-MDR 2002), devices carrying the CE mark are doing everything required for a UKCA mark AND a lot more in addition to this. The EU-MDR is essentially the gold standard for device regulation. It strengthens clinical and safety requirements, enhances post-market surveillance, and improves traceability, ensuring higher protection for healthcare providers and patients while simultaneously increasing compliance obligations for manufacturers and distributors.

Conflict of Interest

None

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FROM METRICS TO CLINICAL DECISION-MAKING: APPLYING ISO 16840 TESTING TO SEATING SUPPORT SURFACES FOR PI PREVENTION

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Introduction

Wheelchair cushion selection plays a critical role in pressure injury (PI) prevention, yet clinical decision-making in this process is often based on subjective assessment rather than objective data. ISO 16840 standards [1] provide a structured framework to evaluate biomechanical characteristics of seating support surfaces, but their clinical relevance remains underutilized. This study explores how ISO-derived metrics can support evidence-based cushion selection and contribute to pressure injury prevention.

Methods

A set of ISO 16840 test parameters was analyzed, including immersion, pressure distribution, envelopment, horizontal stiffness, lateral stability, impact damping, hysteresis, and 10% force deflection. These parameters were systematically mapped to clinically relevant risk factors associated with pressure injury development, such as tissue loading, shear forces, postural instability, and long-term performance consistency. Test results from a range of commercially available wheelchair cushions were reviewed to identify variation in performance across these parameters. Although individual products were evaluated, the analysis focused on how combinations of biomechanical characteristics influence clinical outcomes and decision-making.

Results

Substantial variation was observed across cushions in all tested parameters. Increased immersion was associated with improved pressure distribution and reduced peak loading, indicating a potential reduction in tissue stress. Higher horizontal stiffness and lateral stability were linked to reduced sliding and improved postural control, factors known to influence shear forces and deformation of the tissue. Differences in hysteresis and 10% force deflection suggested variation in long-term performance and the ability to maintain consistent support over time. No single parameter alone was sufficient to characterize performance; instead, clinically relevant outcomes depended on the interaction between multiple characteristics.

These findings demonstrate that ISO-derived metrics can be translated into clinically meaningful information, enabling more targeted selection of seating support surfaces based on individual risk profiles, needs and preferences. This supports a shift from product-based selection to parameter-based decision-making. An example classification model is presented to illustrate how ISO-derived metrics can be translated into clinically relevant domains (see figure 1).

Conclusions

ISO 16840 testing provides a valuable but underutilized framework for evidence-based wheelchair cushion selection. Linking biomechanical test parameters to pressure injury risk factors supports more informed clinical decision-making and may contribute to improved prevention strategies. Incorporating standardized metrics into clinical practice has the potential to enhance both patient outcomes and resource efficiency by reducing trial-and-error selection processes.

Conflict of Interest

Conducted in an industrial research setting; no external funding was received.

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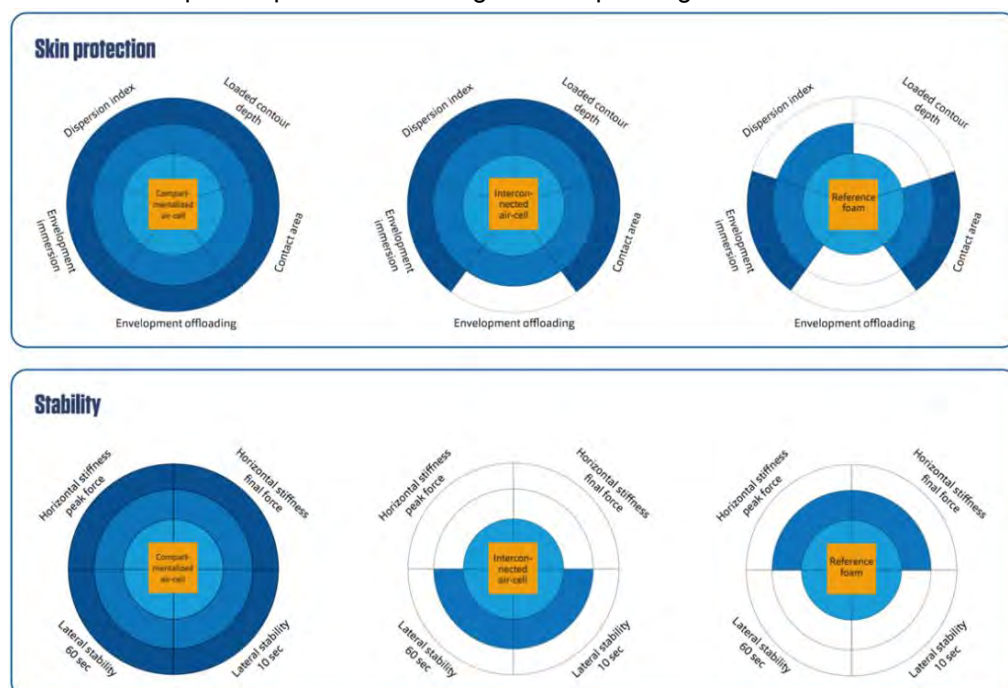


Figure 1. Example of a classification model based on ISO 16840 parameters, illustrating how different cushion design principles perform across skin protection and stability domains.

SUSTAINABILITY IN PRESSURE INJURY PREVENTION: THE IMPACT OF PRODUCT LIFESPAN AND MAINTENANCE ON LONG-TERM OUTCOMES

Nienke Conijn (1), Tim Helming (1)

1. Vicair, The Netherlands

Introduction

Sustainability in pressure injury (PI) prevention is often approached from a manufacturing perspective, focusing on materials and environmental impact. However, the long-term clinical performance and maintenance requirements of support surfaces may have a greater influence on both healthcare resource use and patient outcomes. Current decision-making is frequently based on purchase price rather than lifetime performance. This study explores how product design, maintenance demands, reparability, and lifespan contribute to the sustainability of pressure ulcer prevention in wheelchair users.

Methods

A Total Cost of Ownership (TCO) analysis was conducted comparing three commonly used wheelchair cushion: interconnected air-cell cushions, hybrid foam–gel cushions, and a multi-compartment air-cell cushion with hundreds of individually encapsulated cells (referred to as ‘Compartmentalized air-cell cushion’). Four user profiles were defined to reflect real-world variability in independence and care needs (low, medium, high, and neglect scenarios). Maintenance tasks—including cleaning, adjustments, pressure checks, and repairs—were identified from manufacturer guidelines and mapped over a five-year period [1], [2], [3]. Time investment from users, caregivers, and professionals was quantified and translated into cost using standardized hourly rates. In addition, long-term performance data and field observations were used to assess the relationship between product lifespan, maintenance dependency, and risk of performance degradation.

Results

Substantial differences were observed in maintenance requirements between cushion types. Over a five-year period, total maintenance time ranged from approximately 48–55 hours for compartmentalized air-cell cushions to 58–79 hours for hybrid foam–gel systems, and up to 200 hours for interconnected air-cell cushions. These differences translated into significant variation in total cost of ownership. While initial purchase prices were comparable, cumulative costs increased markedly in cushions requiring frequent adjustment or professional intervention, particularly in medium- and high-need user profiles (see figure 1). In these groups, total costs for high-maintenance systems increased several-fold due to caregiver involvement and recurring adjustments. Importantly, the nature of maintenance tasks differed in clinical relevance. In some systems, inadequate maintenance (e.g. insufficient pressure checks or adjustment) increased the risk of bottoming-out and tissue loading, potentially elevating PI risk. In contrast, other designs demonstrated lower dependency on critical maintenance tasks, reducing the risk associated with non-adherence. Long-term observations further indicated that certain cushion (compartmentalized air-cell cushions) designs maintained functional performance beyond the assumed five-year lifespan, suggesting that durability plays a key role in both sustainability and consistent pressure redistribution.

Conclusions

Sustainability in PI prevention extends beyond environmentally responsible manufacturing and should be evaluated across the full product lifecycle. Cushion design influences not only cost, but also maintenance burden, caregiver workload, and risk of performance failure. Products with low maintenance dependency and stable long-term performance may reduce both healthcare resource utilization and PI risk. Integrating total cost of ownership and lifespan into clinical decision-making supports more sustainable, patient-centered care.

Conflict of Interest

Conducted in an industrial research setting; no external funding was received.

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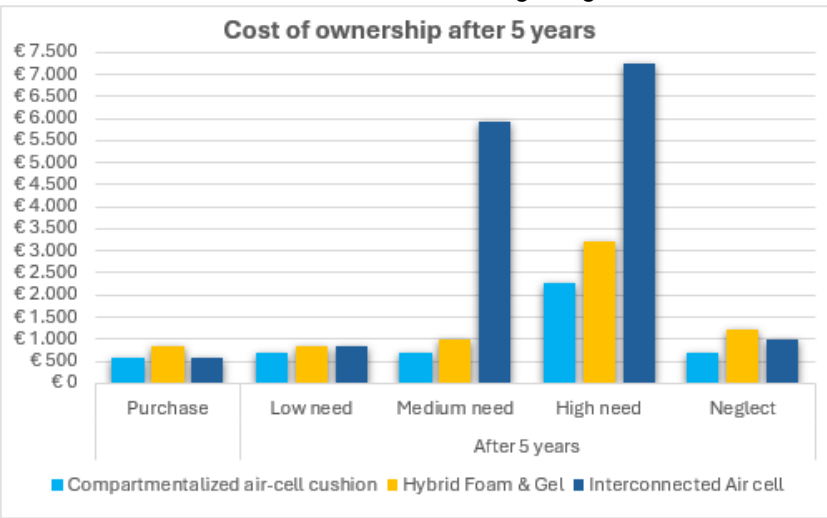


Figure 1. 5-year TCO across user dependency levels by cushion design.

IMMERSE IN AIR: ARE ALL AIR IMMERSION SUPPORT SURFACES IDENTICAL?

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Introduction

Pressure air support surfaces can be used for patients at risk of developing pressure injuries [1]. One type is the immersion/envelopment air mattress. This type provides high pressure redistribution without continuous mattress movement, unlike alternating mattresses. Because of this, it may be better tolerated by conscious patients, but it may also reduce patient mobility [1]. Several immersion/envelopment mattress designs are available on the market, including constant low pressure (CLP). Another immersion/envelopment technology is called “optimal immersion”, which aims to achieve the best individual balance between immersion and envelopment without exceeding critical immersion. It does so by dynamically adjusting to the pressure profile of individual body regions, rather than applying a uniform pressure based on total body weight, as is common with CLP. However, evidence remains limited on which approach is the most effective. This study aimed to compare a commercially available optimal immersion mattress (OIM) with two mattresses with a CLP function in different positions using high-resolution pressure mapping.

Methods

Immersion and envelopment were evaluated using high-resolution pressure mapping to measure interface pressure (IP) and contact area (CA). A single female volunteer with low BMI (BMI 18.3, 56 kg, 175 cm) was assessed on all mattresses in supine and 30° Semi-Fowler positions, with and without thighrest. IP and CA were compared for the whole body. IP values recorded over 6 minutes were averaged to create one representative pressure map for each mattress and position. This helped identify higher-pressure areas despite minor movements during testing. From each map, average pressure, pressure peaks, and CA were analysed and compared.

Results

The OIM demonstrated the lowest average pressure in all positions: 16.7 mmHg in supine, 17.3 mmHg in Semi-Fowler without thigh rest, and 18.6 mmHg in Semi-Fowler with thigh rest.

In supine OIM showed 27.2% and 21.0% lower average pressure, and 2.0% and 7.7% larger CA, than the two mattresses with CLP mode.

In Semi-Fowler without thighrest, OIM showed 25.4% and 24.7% lower average pressure, with 14.9% and 18.5% larger CA compared to two mattresses with CLP mode.

In Semi-Fowler with thighrest, OIM showed 16.9% and 20.6% lower average pressure, with 16.7% and 17.9% larger CA compared to two mattresses with CLP mode.

Conclusions

OIM showed lower IP due to high immersion and envelopment. OIM effectively redistributed pressure across all tested positions, including the Semi-Fowler position. In the supine position, CA was similar across mattresses. This may reflect not only mattress performance but also the measurement method, as the pressure map could not detect pressures below 10 mmHg. Because the OIM had very low pressure values, some CA contributing to pressure redistribution may not have been captured by pressure mapping. This was a single-subject measurement; further studies with larger and more diverse samples are needed. Furthermore, the mattresses with CLP mode have an alternating function, and this combined design can affect CLP mode performance. For further investigation of immersion/envelopment pressure air support surfaces, more designs should be included for comparison.



Conflict of Interest

Authors are employees of L I N E T spol. s.r.o., Czech Republic.

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VIRTUE OF AIR: ARE ALL ALTERNATING SUPPORT SURFACE DESIGNS EQUIVALENT?

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Introduction

The principle of alternating pressure (AP) was established in 1961, when Exton-Smith showed that regular pressure relief restores circulation to ischemic tissue and helps prevent pressure injuries (PI) [1]. Also, recent study from Caggiari demonstrated that both 2-cell and 3-cell AP mattresses can restore transmucosal gas levels close to baseline during the deflation phase [2].

Although full-body support surfaces with AP can be recommended for patients at risk of PI, it remains unclear whether some designs are more effective than others [3]. PI prevention depends on a combination of interventions rather than a single one. However, if one support surface design achieves greater pressure reduction than other, it may provide improved protection under identical prevention protocols.

Methods

Interface pressure (IP) was measured using a high-resolution pressure-mapping system. Testing was performed on female volunteer (BMI: 18.3; 56 kg; 175 cm) in the supine position. The following alternating support surfaces were compared: a 2-cell hybrid mattress, a 2-cell overlay, a 2-cell mattress, a 3-cell overlay, and a 3-cell mattress.

All support surfaces were set to the shortest available cycle time (10 min. for 2-cell and 7.5 min. for 3-cell systems). Analysis focused on 9 (8 for hybrid) cells under the torso, where was the highest IP. Differences in average IP and percentage contact area (CA) were calculated from inflation and deflation phases of the cells. These values were compared across designs to identify differences in pressure reduction and offloading during the AP cycle.

Results

Differences in average IP and CA between phases were observed across all systems. The smallest average IP difference was for the 2-cell hybrid mattress (1.3 mmHg), while the largest for the 3-cell mattress (6.5 mmHg). The 2-cell overlay, 2-cell mattress, and 3-cell overlay showed similar values (3.7-3.9 mmHg). Similar results can be explained by a similar design, in which the overlays can fully deflate the cell, but the height of the overlays is half compared to mattress. In addition, a 2-cell mattress cannot deflate the cell to the full depth compared to 3-cell technology, because of risk of bottoming out.

The smallest difference in CA between phases was observed for the 2-cell hybrid mattress (5%). The 2-cell and 3-cell overlays, together with 2-cell mattress, demonstrated changes ranging from 7% to 17%. The 3-cell mattress showed the greatest offloading effect, with a 25% change in CA between cycle phases.

Conclusions

Alternating support surface designs do not produce equivalent results in IP or CA during the cycle. Both cell construction and the number of alternating cells influence performance. 3-cell mattress showed highest offloading due to design, compared to other tested mattresses and overlays. These findings highlight the importance of clearly defining mattress design in comparative studies and suggest that different AP systems may provide different offloading effects, which may influence PI development even when identical prevention protocols are applied. As this was a single-subject pilot study, further research with larger and more diverse populations is needed to confirm these findings.



Conflict of Interest

Authors are employees of L I N E T spol. s.r.o., Czech Republic.

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EVALUATING PULSE PRESSURE CYCLE PERFORMANCE IN AN ADVANCED CONTINUOUS LOW PRESSURE MATTRESS SYSTEM.

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Introduction

The design of pressure redistribution products has been heavily influenced during recent years by the growing focus on patient comfort as well as clinical objectives and outcomes. There is a need to assess the clinical effect of the discrete technical parameters that are delivered through a pulse pressure cycle to obtain a better understanding of the relationship between the achieved technical parameters of a pulsation pressure cycle and the likely clinical effect.

Methods

This study recruited 23 healthy participants (21-77 years) to test four mattress pulse settings (5/med, 2/Low, 10/High and the default Continuous Low Pressure (CLP) mode) across three common lying postures (supine, lateral lying and high sitting). Research design for the study was conducted in accordance with institutional ethics approval (68051.A2), following an adapted published protocol [1]. Several parameters were measured to evaluate the effectiveness of the support surface including transcutaneous tissue gas tension in the sacrum, interface pressure, microclimate and perceived comfort.

Results

There was a significant effect of posture and mattress setting on interface contact area (Fig 1) and peak pressure index ($p < 0.01$). However, irrespective of mattress and posture, sacral tissue remained perfused indicated by high transcutaneous oxygen (TcPO₂ 55-65mmHg) and low carbon dioxide (TcPCO₂ 45-52mmHg). Microclimate was in normative ranges across all mattress settings and postures ~28-30°C and 58-68%RH. All participants reported high comfort irrespective of mattress mode or posture.

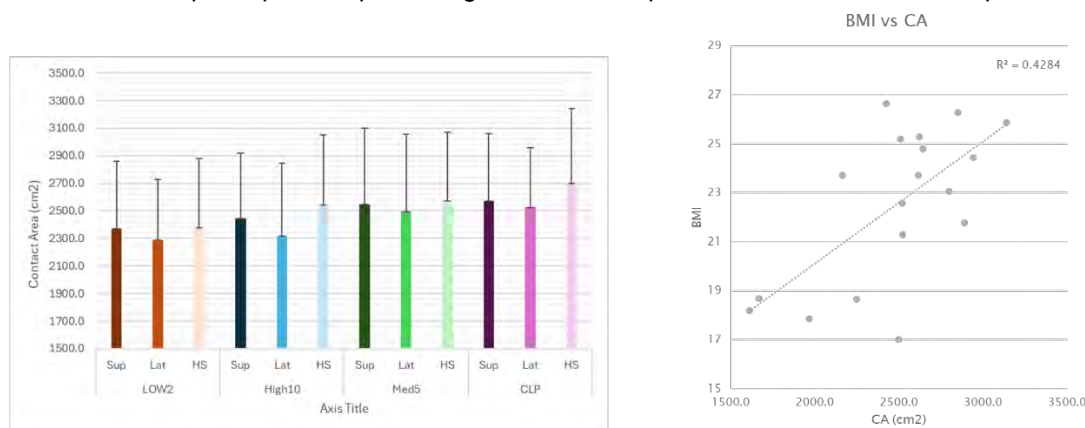


Figure 1. Interface contact area across four mattress modes and three postures. Associated with BMI (right).

Conclusions

A high level of immersion was reported resulting in low peak pressures for the mattress, for each given pulse cycle and CLP default comparator. This resulted in high levels of comfort and sacral perfusion. This provides a benchmark by which the performance of the mattress could be tested in representative postures using a diverse healthy cohort.

Conflict of Interest

Industry funding was received from Arjo Huntleigh Ltd.

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BASIC STUDY ON THE DESIGN OF PRESSURE-REDISTRIBUTING CUSHIONS THAT TAKE INTO ACCOUNT THE USER'S PHYSIQUE

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Introduction

Prevention of pressure ulcers (PUs) is of increasing importance in aging or aged societies. Developing appropriate cushions for that purpose is highly required, in addition to regular repositioning, given the declining number of caregivers and heavy burden placed on them. Since the main cause of PU is prolonged exposure to high pressure on bony prominences, the air-cell, which possesses pressure redistribution effect and pressure variability, is a promising material for such a cushion. While air-cell cushions have been studied for the purpose of PU prevention [1], the focus has mainly been on how to use commercially available air-cell cushions, rather than how to design air-cell cushions, which would be more important. In addition, the need to consider the user's physique in designing the cushion has been pointed out [2]. Therefore, this study aims to clarify the effect of body/cushion specifications on the interface pressure distribution.

Methods

We examine various body-cushion pairs experimentally and numerically. Bodies with cylindrical or spherical surfaces with different curvature radii, and cushions made of air cells, polyurethane, or combinations thereof are tested. In the experiment, the pressure distribution is measured by a sensor sheet placed between the body and the cushion, for different body shapes, masses, cushion types, and inner air pressures of air cells. In the numerical simulation, the curvature at each point of the cushion surface is calculated by solving simultaneous equations. Then the cushion profile and the interface pressure distribution are calculated.

Results

The measurements revealed the dependencies of the interface pressure on the basic body/cushion specifications, which were qualitatively reproduced by the numerical simulations. Main results are as follows: The interface pressure increases with increasing the mass or the surface curvature of the body. The influence of the curvature is greater for spherical bodies than for cylindrical bodies. Also, the spatially averaged pressure is inversely proportional to the contact area, which is consistent with the theoretical prediction. The interface pressure is highly dependent on the air pressure. If the air pressure is properly adjusted, the interface pressure is redistributed much more effectively by air cells than by polyurethane. However, if the air pressure is too low, bottoming out occurs, and if it is too high, the expanded air cells harden, both resulting in the concentration of interface pressure in small contact areas. It was confirmed that the risk of bottoming out can be avoided by using polyurethane in combination with air cells, which implies the potential of hybrid cushions of air cells and polyurethane for PU prevention.

Conclusions

The influence of the basic body/cushion specifications on the interface pressure has been investigated experimentally and numerically. These results will contribute to the low-cost, short-term realization of pressure-redistributing cushions tailored to individual physique, based on numerical simulations.

Conflict of Interest

This work was supported by JSPS KAKENHI Grant Number JP 23K11978, but no funding by industry.

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THEATRE: MOVING FROM MANUAL OFF-LOADING TO IMMERSIVE PRESSURE REDISTRIBUTION IN COMPLEX BARIATRIC SURGERY

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Introduction

In 2023, a sentinel incident involving a bariatric patient undergoing an 8-hour panniculectomy developed rhabdomyolysis, acute kidney injury requiring ITU admission. Analysis revealed multifactorial risks:- namely bariatric theatre surfaces of rigid foam cores designed primarily for stability, anaesthetised immobile patients, extended operation times. "Incidence of pressure ulcers for patients undergoing surgery ranges from 4% to 45%" "with surgeries over 3 hours at significantly higher risk" [1] Initial attempts to mitigate risk via a 2023 protocol [2] involving "Intra-operative Manual Offloading" (turning the patient laterally for 60 seconds) were deemed ineffective. This manual intervention introduced significant risks, including patient hemorrhage, anesthetic instability, loss of the sterile field, and insufficient time for effective tissue reperfusion. Consequently, a Multi-Disciplinary Team (MDT) led by Manual Handling Advisers implemented a 30mm air-filled pressure-redistributing overlay an immersive redistribution solution.

Methods

To avoid high-risk manual transfers, the MDT introduced the 30mm air-filled pressure-redistributing overlay directly onto the surgical table with 6 bariatric patients. A clinical risk justification was established: while the patient's weight exceeded the device's stated limit, a "fail-safe" framework ensured that "bottoming out" would simply return the patient to the current clinical standard. The MH team commissioned an independent clinical scientist report to pressure-map the solution using a Sidhil MAP 100 system. Total validation focused on five pillars: Reduce Peak Pressure Loading, Surgical Tolerance, Anaesthetic Safety, Environmental Resistance (chemicals/diathermy), and Thermal Management (compatibility with active heater mats via thermal camera study)

Results

Quantitative mapping confirmed that the 30mm overlay achieved immediate immersion and envelopment, significantly reducing peak pressures compared to standard foam surfaces and heater mats alone. Thermal imaging demonstrated excellent heat transfer, maintaining NICE-compliant active warming [3]. The MDT validation recorded "Zero Interference" with surgical access. Anaesthetic monitoring remained fully compatible. In practice, the device provided continuous weight redistribution, eliminating the need for disruptive manual turns. Following the success of this bariatric intervention, the risk of rhabdomyolysis has been significantly mitigated, and no instances of theatre-acquired pressure damage were recorded in the pilot cohort.

Conclusions

This project demonstrates that interdisciplinary "Dynamic Problem Solving" can overcome the limitations of static theatre equipment. By prioritizing the "Risk-to-Time" ratio over rigid Safe Working Loads, the MDT successfully preserved skin integrity for high-BMI patients. This intervention is now being rolled out to all patients undergoing surgery exceeding 120 minutes. Furthermore, the Manual Handling team is collaborating with external partners to support the international licensing of this design specifically for the theatre environment.

Conflict of Interest

The authors declare no industry funding.

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‘PROTECTING YOUR ASSETS’ – MAINTAINING SKIN INTEGRITY AND ENHANCING MOBILITY WITH ACTIVE SEATING

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Introduction

Pressure injuries (PIs) continue to pose a significant challenge, affecting around 2.5M individuals in US acute care settings and contributing to an estimated \$22B in healthcare costs.[1] Ensuring early mobility can be difficult when dependent on existing bed-focused equipment. However, caregivers can face challenges implementing optimal Pressure Redistribution (PR) solutions for patients sitting in a bedside chair.

Extended periods of sitting can heighten the risk of PIs, particularly over the buttocks, due to sustained compression of soft tissue between the seating surface and the pelvic bones.[2] Solutions combining bed-based and chair-based PI prevention/treatment solutions should be considered. Particular sustainability benefits also exist when a single pump can be used to provide functionality for both mattress and seat pad. The aim was to evaluate the PR performance properties of an active seat cushion system to help guide clinical practice. The study also links these product measurements with published scientific research[3].

Methods

Pressure Relief Index(PRI) values were calculated and documented at clinically relevant thresholds below 30mmHg,20mmHg and 10mmHg for two loads on an alternating therapy bedside seat cushion.

Results

PRI-measured and calculated % of time interface pressures are below listed thresholds[4]:

40kg load:<30mmHg=100%,<20mmHg=76.3%,<10mmHg=47.1%

75kg load:<30mmHg=46.7%,<20mmHg=45.1%,<10mmHg=43.7%

Conclusions

Support surfaces are a clinically proven tool in the prevention and treatment of pressure injuries when the patient is in bed. Since standard early mobility practice involves sitting the patient on a bedside chair, it is important to continue addressing their PR needs.[5] A single system that can operate in-bed and out-of-bed supports proactive care strategies, mitigates risk factors and ultimately may affect patient outcomes.

Although there are extensive testing standards for full body support surfaces and wheelchair seating, there are no applicable US consensus standards for bedside seating. The specific operation of an active seat cushion[4] differs from a reactive cushion. Therefore, the above performance testing focuses on PR through offloading as described by PRI measurements rather than traditional immersion and envelopment.

Active seating therapy, with cell inflation and deflation facilitates targeted PR and offloading, significantly reducing the duration and intensity of localized tissue deformation. Alternating pressure can be integral to PI prevention and treatment strategies by aligning with best practice for tissue viability and early mobility.

Active seating can therefore provide another tool to help ‘Protect your ASSETS’.

Conflict of Interest

This work was funded and performed by industry .

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ABSORPTION AND WICKING IN BED SHEETS FOR REPOSITIONING

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Introduction

Caregivers commonly use sheets designed to assist with bed repositioning of caretakers with limited mobility. The choice of sheets varies by the individual caretaker's need and the care unit's practices. Sometimes both draw and slide sheets are used together with bed sheet below and/or on top of these. These repositioning sheets are fabric layers in contact with the caretaker's skin and should minimize friction and presence of moisture to prevent pressure ulcers from developing. In this preliminary study we compare the effects of different layer combinations of a regular bed sheet, a draw sheet, and a slide sheet (hereinafter referred to as Sheet, Draw, and Slide) regarding fluid absorption and wicking.

Methods

Different layer combinations were tested according to AATCC TM217 [1]. The absorption of water mass (g) of different layer combinations was measured by gravimetric method with an analytical balance while areal wicking (mm²) was examined using WickView, a moisture management instrument with advanced imaging system. Differences in absorption and areal wicking between the layer combinations were statistically tested by independent t-tests after Shapiro-Wilk normality tests.

Results

The preliminary data in this study of two examples of combinations of layer show significant differences in the absorption on the skin-side and the areal wicking on the skin-side and on the Support Surface side (SS-side). The second combination with bed sheet towards the skin (Sheet_Draw_Slide) showed less areal wicking on the skin-side while the first combination with draw sheet towards the skin (Draw_Slide_Sheet) showed greater wicking (Figure 1 left). The second combination had less absorption in the skin-side compared to the first combination, and the slide sheet in the second combination absorbs more being in the bottom (SS-side) than the first combination with bed sheet in the bottom (Figure 1 right).

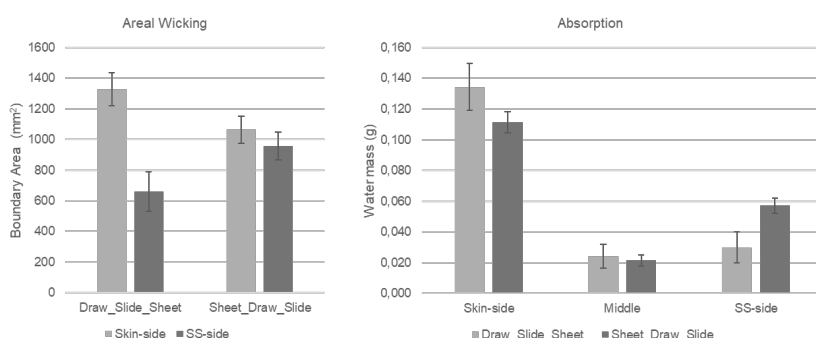


Figure 1. Areal Wicking (left) and Absorption (right) of two type of three-layered combinations.

Conclusions

This preliminary study shows that the different layer combination including bed sheet, and repositioning sheets affects both the areal wicking and the absorption, which can be directly linked to the presence of moisture against the skin.

Conflict of Interest

The authors declare no conflict of interest related to this study.

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WHO IS UNDER MORE PRESSURE?! INCIDENCE OF NASOGASTRIC TUBE RELATED PRESSURE INJURY IN INTERNAL WARD AND ICU: PROSPECTIVE SINGLE HOSPITAL STUDY

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Introduction

Incidence of Medical Device-Related Pressure Injuries (MDR-PI) related to Nasogastric Tubes (NGT) is under-investigated. This is particularly significant in Intensive Care Units (ICUs) and internal wards because those patients are highly susceptible to MDR-PI development (1-6). Objectives of the study is to conduct ongoing monitoring of patients with NGT in ICU and internal ward to ascertain the incidence of NGT MDR-PI in both settings.

Methods

Prospective cohort study. Inclusion criteria: adult ICU/internal ward patients with NGT inserted during ICU/internal ward stay or shortly before the admission. Exclusions: patients with facial injuries/wounds/ulcers. Research team conducted daily monitoring for the NGT-MDR-PI. Upon PI detection, its location&stage documented

Results

Data were collected over two years beginning in July 2022 from a 900-bed general medical center ICU and IW departments, including 88 ICU patients and 48 IW patients. The incidence rate of NGT-MDR-PI was significantly lower in the ICU (0.47 per 100 patients day; 4/88) compared to the IW (3.02 per 100 patients day; 13/48) ($p<0.001$). No significant associations were found between NGT-MDR-PI and age, gender, or admission albumin levels. The Charlson Comorbidity Index was higher in IW patients (2.39 ± 7.7) than in ICU patients (3 ± 2.41) ($p=0.02$). NGT fixation methods differed significantly between departments ($p<0.001$).

Conclusions

to the best of our knowledge, this is the first prospective long-term study dedicated solely to the incidence of NGT-MDR-PI in both the ICU and internal ward. The incidence of NGT-MDR-PI is lower in the ICU compared to the internal ward. This may be due to several factors: more intensive nursing care in the ICU, and a higher Charlson comorbidity score in the internal ward, which indicates that more chronically ill patients are hospitalized there rather than in the general ICU. Another possible explanation is the different types of fixations used: simple plaster in the ICU and special plaster for NGT fixation in the internal ward. Further research is needed to clarify these findings.

Conflict of Interest

none.

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CATHETER ASSOCIATED MEATAL PRESSURE INJURIES: OUTCOMES OF AN INTERDISCIPLINARY INTERVENTION IN LONG TERM CARE

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Introduction

Catheter-associated meatal pressure injuries are a largely preventable condition that can significantly impair health and wellbeing. In long-term care settings, prevention and management are particularly challenging due to limited recognition and understanding of these injuries, uncertainty regarding appropriate treatment and care options, and insufficient access to interdisciplinary expert support.

Methods

A nurse-led interdisciplinary in-reach intervention was implemented in Victoria, Australia, in response to increasing demand for support to prevent and manage catheter-associated meatal pressure injuries among long-term care residents. The intervention was delivered across long-term care homes in 2025 and included grading of existing injuries, regular face-to-face assessments, geriatrician-led telehealth consultations, care planning, routine injury surveillance and bedside education for nurses and residents.

Results

In total 30 long term care homes engaged with the service and of the 66 residents involved, 48 injuries were identified among 56 of the residents. This represented an increase from the seven injuries identified by the service among 58 residents in 2024 and the one injury identified among 46 residents in 2023. Nearly one third of the 2025 resident cohort (n=18/56) had a grade 2 or 3 injury. The majority of residents (n=47/56) received a telehealth consultation and all residents and staff participated in face-to-face education. A trial of void was successful for seven residents (13%). Following urological review, six residents (11%) required suprapubic catheter insertion, while seven residents (12%) did not require this intervention. Overall, most residents (n=36, 77%) were managed conservatively.

Conclusions

There is a need for increased awareness of catheter-associated meatal pressure injuries and the ongoing implications for those affected and those who care for them. Structured support and guidance is required, and particularly in the long-term care setting. The multi-component intervention enables a shared, interdisciplinary approach to prevention and management. At the same time, the intervention is strengthening the capacity of the long-term care workforce to deliver timely, coordinated care to prevent and manage these injuries among residents.

Conflict of Interest

Nil to declare

References



NOVEL CORE TEMPERATURE MANAGEMENT FOR PREVENTING INTRAOPERATIVE ACQUIRED PRESSURE INJURY: A HIGH-RISK CASE

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Introduction

Intraoperatively acquired pressure injuries (IAPIs) represent a significant challenge in the operating room. Our previous studies identified that patients undergoing surgery in the park-bench position a significantly elevated risk of developing IAPIs when the operative time exceeds 6 hours and the core temperature surpasses 38.1°C. Based on these findings, we developed a novel, dynamic core temperature management protocol that meticulously titrates forced-air warming devices in response to real-time core temperature monitoring. This report presents a compelling case demonstrating the successful prevention of an IAPI in an extremely high-risk patient by integrating this novel core temperature management protocol with established international guideline-based interventions.

Methods

The patient was a 72-year-old female (BMI: 21.6 kg/m²) presenting with right-sided upper and lower extremity paralysis secondary to a previous cerebral infarction. She was scheduled for the resection of a cerebellopontine angle tumor, requiring placement in the left lateral park-bench position. The estimated operative time was exceptionally long at 8.5 hours. A preoperative risk assessment utilizing the ELPO (IAPI risk assessment scale) risk score was 21, indicating severe IAPI risk. Following EPUAP/NPIAP guidelines, we used support surfaces, prophylactic dressings, and manual repositioning every two hours. To mitigate the risk of intraoperative hyperthermia and subsequent diaphoresis (sweating), the target core temperature was set at 37.5°C. By continuously monitoring the core temperature in real-time, the surgical team dynamically adjusted the forced-air warming system to rigorously ensure the patient's core temperature consistently remained below the critical threshold of 38.1°C.

Results

The actual operative time was 6 hours and 22 minutes. Throughout the intraoperative period, the patient's maximum core temperature, as well as her core temperature at the immediate conclusion of the surgery, was successfully maintained exactly at the target of 37.5°C. Upon comprehensive skin inspection from the end of surgery to discharge from the operating room, there was absolutely no evidence of erythema, blistering, or tissue damage (NPIAP Stage 1 or greater) on highly susceptible pressure points, including the lateral chest wall and the iliac crest.

Conclusions

Despite the patient surpassing the critical 6-hour risk threshold established in our previous studies and possessing a notably high ELPO risk score, the development of an IAPI was entirely averted. We heavily attribute this clinical success to the rigorous execution of the core temperature management protocol. The park-bench position often predisposes patients to unintended heat accumulation. By employing dynamic core temperature control to maintain levels below 38.1°C, we effectively prevented hyperthermia and detrimental diaphoresis. This proactive intervention dramatically optimized the local skin "microclimate"—the temperature and humidity at the skin-surface interface—which is a major exacerbating factor for pressure injuries. The current standard of care heavily relies on "external physical protection" utilizing support surfaces and prophylactic dressings. This case strongly suggests that integrating these established external defenses with "internal physiological regulation" via meticulous core temperature management provides a highly synergistic and effective strategy for preventing IAPIs, even in the most clinically challenging, high-risk surgical scenarios.

Conflict of Interest

The authors declare no conflict of interest.



NICU MEDICAL DEVICE-RELATED PRESSURE ULCER IN A NORTHERN ITALIAN UNIVERSITY HOSPITAL: A 7-YEAR INCIDENCE ANALYSIS

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Introduction

Pressure ulcers (PUs) represent a major patient safety concern in neonatal intensive care units (NICUs), where highly vulnerable infants are exposed to multiple risk factors, including immature skin, hemodynamic instability, and the extensive use of medical devices [1,2]. A substantial proportion of PUs are device-related, commonly associated with respiratory support interfaces, monitoring equipment, and vascular access devices. Despite increasing awareness, epidemiological data on pressure injuries in NICUs remain limited. Therefore, this retrospective analysis aimed to estimate the incidence of medical device-related pressure injuries (MDRPIs) in the NICU of a tertiary-level hospital in Northern Italy.

Methods

A retrospective analysis of routinely collected monitoring data was conducted in a 30-bed NICU at a tertiary-level university hospital in Northern Italy. Trained ICU Link Nurses (LNs) collected data over a seven-year period (2018-2024) following an established hospital protocol. Monthly incidence was assessed by recording all PUs identified by LNs through clinical assessment. Collected data included demographic characteristics (age, sex), ulcer stage classified according to EPUAP/NPIAP/PPPIA guidelines [3], and anatomical location. Incidence density was calculated as the number of PU per 1,000 patient-days, using monthly bed-days as the denominator. Device-related PU were categorised into five groups based on the associated medical device: non-invasive ventilation, invasive ventilation, monitoring devices, venous access, and umbilical access. Absolute and relative frequencies were computed for each category. Descriptive statistics were used to summarise data using R version 4.3.3 with relevant packages.

Results

A total of 121 PUs were identified, 113 (93.4%) were MDRPIs. Affected infants were predominantly preterm, with a median gestational age of 29 weeks (IQR 26–31). At the annual level, the highest incidence was observed in 2018 (4.80 per 1,000 patient-days), while the lowest was recorded in 2024 (1.08 per 1,000 patient-days), showing an overall decreasing trend over time (Figure 1). MDRPIs stage I lesions were the most frequent (n=59; 52.1%), followed by Stage II lesions (n=50; 44.2%). MDRPIs were mainly located on the face (n=53; 43.8%) and ankle (n =14; 14.6%). The devices most associated with MDRPIs were respiratory support devices for non-invasive ventilation (n=49;43.4%) and monitoring devices (n=39; 34.5%).

Conclusions

MDRPIs remain a relevant safety issue in NICU settings, particularly among preterm infants exposed to prolonged use of respiratory and monitoring devices. The observed decreasing trend over time may reflect increased awareness and the implementation of preventive strategies; however, the persistence of injuries highlights the need for continued efforts. Targeted interventions focusing on high-risk devices, regular skin assessment, and staff education are essential to further reduce the burden of MDRPIs.



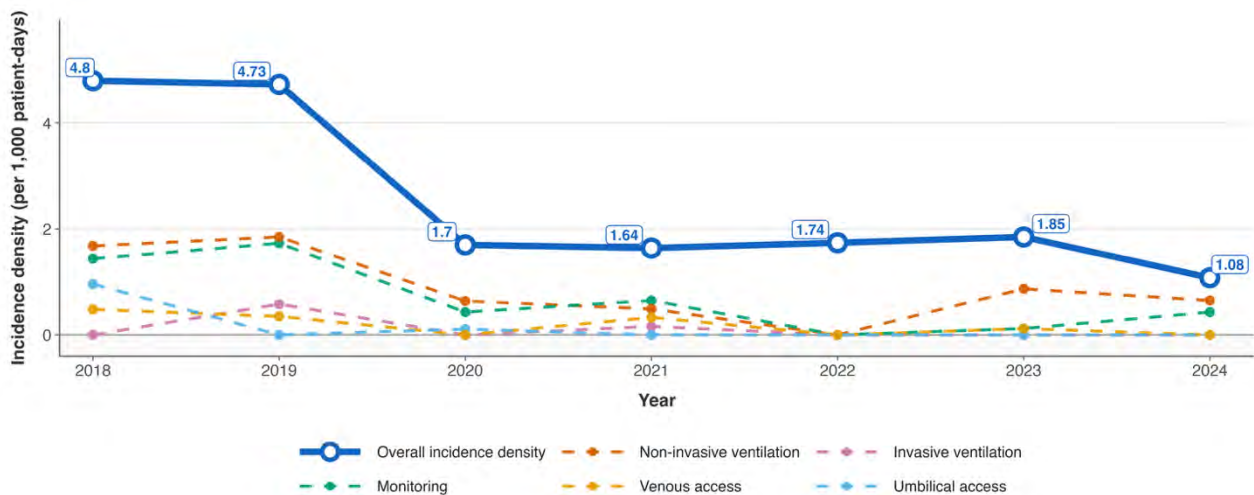


Figure 1. Annual pressure injury incidence density (per 1,000 patient-days) overall and stratified by device category.

Conflict of Interest

None

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Pressure Injury Patterns and Clinical Characteristics in a Neurological ICU

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Introduction

Pressure injuries (PIs) are a major patient safety concern, and in clinical practice, prevention is consistently prioritized over treatment. A thorough understanding of incidence patterns is essential for effective prevention, particularly when tailored to specific clinical settings and patient populations.

Although numerous risk factors for PI have been identified, analyzing real-world incidence within a specific unit provides more meaningful insights for developing targeted prevention strategies.^{1,3}

Following a transition from hospital-wide PI management to a neurological intensive care unit (ICU), the need to better understand unit-specific PI characteristics became evident. This study aimed to analyze the incidence and clinical characteristics of PIs over a two-year period in a neurological ICU and to provide a basis for unit-specific prevention strategies.

Methods

This retrospective observational study included patients who developed PIs in a neurological ICU at a tertiary hospital between January 2024 and December 2025.

Data collected included age, Braden score, mechanical ventilation, vasopressor use prior to PI development, and serum albumin levels. PI characteristics included location, stage, and device-related pressure injuries (DRPI).

Results

A total of 45 patients developed 64 pressure injuries during the study period.

The mean age was 71.7 years, and the mean Braden score was 8.8, indicating a high-risk population. Mechanical ventilation was used in 75.6% of patients, and 55.6% received vasopressors prior to PI development. The mean serum albumin level was 3.23 g/dL.

Stage 2 was the most common category (48.3%), while deep tissue injury accounted for approximately 25% of cases. The sacrum was the most frequent site. Device-related pressure injuries were rare (1.6%).

Conclusions

Pressure injuries in the neurological ICU were closely associated with critical illness characteristics, particularly hemodynamic instability. The high prevalence of vasopressor use suggests that impaired tissue perfusion may play a key role in PI development.^{1,2}

These findings highlight the need for targeted prevention strategies focusing on hemodynamically unstable patients and support a unit-specific, WOCN-led integrated approach beyond hospital-wide protocols.

Conflict of Interest

None declared.

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THE ACCEPTABILITY, APPROPRIATENESS AND FEASIBILITY OF PROPHYLACTIC DRESSINGS AMONG AT RISK OLDER ADULTS IN A RESIDENTIAL CARE SETTING: A QUALITY IMPROVEMENT

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Introduction

Pressure ulcers (PUs) threaten patient well-being and place a heavy burden on healthcare. (Reid et al., 2016). Evidence shows that protective dressings to the sacrum and heels, alongside standard care, can significantly reduce the risk of PU and protect patients.(Hahnel et al., 2020; Forni et al., 2018).

Methods

Ethical approval was obtained in December 2025. The project was conducted across four residential care wards. All participant and staff information leaflets and consent forms were completed before data collection. Twenty-one participants aged ≥65 years were enrolled in Phase One and monitored for four consecutive days, with daily skin assessments, SEM delta measurements, and prophylactic dressing integrity checks. Fidelity to the combined prevention bundle was evaluated using indicators including SEM delta values, dressing status, and skin integrity outcomes. Phase Two analysed questionnaire responses from 47 residents and staff regarding their experiences and perceptions of the care bundle.

Results

All residents maintained intact skin throughout. Adherence to the care bundle including SSKIN components, silicone dressings, and SEM scanning was high: sacrum adherence was 98.1%, while right and left heel adherence were 40.95% and 39.05%, influenced by heel dressing displacement. Recruitment and retention rates were 72.4% and 95.24%. Questionnaire findings indicated favourable acceptability, feasibility, and appropriateness among residents and staff (AIM 18.44; IAM 18.33; FIM 18.22). Resident-only scores were also positive (AIM 17.25; IAM 17.15; FIM 17.40).

Conclusions

This QIP demonstrates that integrating the SSKIN care bundle with prophylactic silicone dressings and SEM scanning is feasible in residential care. Positive feedback from residents and staff indicates that this combined approach is acceptable, appropriate, and supports early PU prevention.

Conflict of Interest

No Conflict of interest to declare. This project received financial support from the Royal College of Surgeons in Ireland Strategic Academic Recruitment (StAR) programme.

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Effectiveness of an Automatic Alternating Pressure Air Mattress with Integrated Usage History: A 12- Week Observational Study

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Introduction

Pressure ulcers (PUs) remain a major clinical and regulatory concern in long-term care, particularly among residents with dementia and severe immobility [1]. Traditional alternating pressure air mattresses (APAMs) depend on manual weight adjustment, introducing variability and risk of suboptimal pressure redistribution [2]. Additionally, surface movement and instability may contribute to distress and reduced adherence in cognitively impaired populations [7].

Automatic APAM systems that continuously adapt pressure and provide auditable usage data may address these limitations while supporting compliance with Regulation 9: Person-centred care, Regulation 12: Safe Care and Treatment and Regulation 15: Equipment [3,10].

Aim

To evaluate the effectiveness of an automatic **close-packed cell APAM with integrated History of Use (HoU)** in maintaining skin integrity, improving comfort, supporting vascular health, reduced distress and enhancing operational compliance in a very high-risk care home environment. [10]

Methods

A **12-week prospective observational study** was conducted in an 80-bed UK care home.

Participants (n=16):

- Mean age: 85.0 ± 7.3 years
- 68.8% living with dementia
- All classified **very high risk (Waterlow ≥20)** [4]

Intervention:

Continuous use of a **close-packed cell APAM** with real-time pressure adjustment and integrated HoU. The system evaluated is a UKCA-marked device; evidence of MHRA registration as a **Class IIa medical device** was verified prior to use.

Outcome measures:

- Comfort (PAINAD) [5]
- Skin integrity
- Vascular status (TBPI) [6]
- Emotional well-being
- System performance (HoU + ECR triangulation)

Results

- **32,256 hours** of use (100% uptime)
- **0 pressure ulcers developed**
- Repositioning frequency: **2.41 hours (mean)**

Key findings:



- Improved comfort and reduced agitation in residents with dementia [7]
- No mattress abandonment observed
- One chronic venous leg ulcer fully healed
- TBPI (n=4 residents): 37.5% improved, 12.5% stable, 50% no decline

Operational outcomes:

- Automatic pressure adjustment eliminated manual setting variability and errors
- HoU provided **objective, time-stamped repositioning data**
- High concordance with electronic care records
- Reduced documentation burden and improved staff confidence

Discussion

- The absence of pressure ulcers in a very high-risk cohort supports the effectiveness of automated pressure redistribution.
- The **close-packed cell dual-layer design** improved stability and comfort compared to deeper cell systems, contributing to higher acceptance in residents with dementia—a group particularly vulnerable to distress and non-adherence [7,9].
- Observed vascular stability and ulcer healing are consistent with previous findings suggesting improved microcirculation associated with active mattress use [8].
- Importantly, the integrated HoU enabled **objective verification of care delivery**, supporting governance and compliance with regulatory standards [3].

Conclusions

The automatic **close-packed cell APAM**:

- Maintained skin integrity (0 PU incidence)
- Improved comfort and compliance
- Reduced agitation with Dementia patients
- Supported vascular stability
- Eliminated reliance on manual adjustment
- Provided **auditable evidence of repositioning and device use**

Conflict of Interest

None.

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PRESSURE RELIEF PERFORMANCE OF MANUAL WHEELCHAIR USERS WITH COMPLETE SPINAL CORD INJURY

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Introduction

Individuals with spinal cord injury (SCI) who rely on a wheelchair for mobility and activities of daily living are frequently affected by pressure injuries (PIs) [1]. This is often caused by prolonged sitting in a wheelchair, combined with impaired sensory and motor function [2]. To prevent PIs, clinical guidelines recommend performing pressure relief (PR) regularly. These guidelines suggest a frequency of once every 15 minutes to once per hour, with a duration of 15 seconds to one minute. PR techniques include lifting the buttocks off the cushion by pushing up with both arms (PR lift), leaning forward, or leaning to the side. Despite its importance, there is little objective data on how individuals with SCI perform PR in daily life. This study aimed to objectively quantify the PR behaviour of manual wheelchair users with complete SCI in their daily lives.

Methods

Individuals with a complete SCI of at least five years' duration and the ability to perform PR independently were recruited. To measure PR behaviour, participants were equipped with a textile pressure measurement mat. This mat was placed underneath the wheelchair cushion and recorded pressure distribution continuously for three weeks at a frequency of 5 Hz. Using a machine-learning algorithm [3] and individual calibration of PR techniques before and after the measurement, the frequency, duration, and technique of PR were determined.

Results

The study included 46 participants. Participants were predominantly male (39 ♂, 7 ♀) and had paraplegia (40 with paraplegia, 6 with tetraplegia). Mean (SD) age was 56 (13) years and time since injury 26 (16) years. Data were collected over a total of 939 days, with a mean (SD) sitting time of 11 (3) hours per day. Per sitting hour, participants performed PR lifts 1 (2) times, leaned forward 5 (5) times, leaned right 5 (6) times, and leaned left 3 (5) times. The mean (SD) duration of PR for each technique was 9 (1) s for PR lifts, 14 (2) s for forward leans, 13 (3) s for right lean, and 13 (2) s for left leans.

Conclusions

The results show that participants performed PR regularly. Unlike previous studies, the minimal clinical guidelines for PR frequency were met, but guidelines for duration were not. Since duration is crucial for the effectiveness of PR, this aspect requires additional emphasis during clinical instruction. Furthermore, PR lifts – the technique that puts the most strain on the shoulders – were the least frequently performed PR technique. This may be beneficial regarding shoulder fatigue and pain, which are common in people with SCI.

Conflict of Interest

The authors declare no conflict of interest.

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SPINAL CORD INJURY PATIENT PASSPORT FOR PRESSURE INJURY PREVENTION IN IRELAND

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Introduction

Pressure injuries remain one of the most significant yet preventable secondary complications for people with spinal cord injury (SCI), leading to recurrent hospitalisation, increased morbidity and mortality, and substantial reductions in quality of life. Despite national initiatives such as the Pressure Ulcers to Zero collaborative, individuals with SCI in Ireland continue to experience a disproportionately high burden of pressure injuries, highlighting persistent gaps in continuity of care. NRH audit data from 2020–2025 show consistently high annual admissions with advanced Stage 3 and Stage 4 injuries, underscoring the need for more effective, patient-centred prevention strategies. The clinical and economic impact is considerable, with a 2021 audit reporting prolonged bed rest, extended inpatient stays, and excess costs exceeding €2.3 million. This quality improvement project introduces Pressure Injury Prevention leaflet in 2022 and a continuation to this QIP the team agreed and the CNS tissue viability taken the lead to prepare a Pressure Injury Prevention Patient Passport to enhance communication, document individual risk, and support coordinated, proactive management across healthcare settings.

Methods

This quality improvement project is currently in Phase 1. A co-design approach is being used, involving key stakeholders including interdisciplinary team members, medical staff, clinical nurse specialists, patients, and service users. Initial engagement includes structured meetings and focus groups with patients, families, and carers to explore experiences, identify gaps in pressure injury prevention, and determine key components for inclusion in a patient-held passport. Planned subsequent phases include development of a draft Pressure Injury Prevention Patient Passport (Phase 2), followed by pilot testing in a clinical setting. Feedback from the pilot will inform iterative refinement (Phase 3), with further stakeholder consultation prior to finalisation and planned implementation.

Results

As this project is in its initial phase, outcome data are not yet available. Evaluation is planned using a quality matrix audit 12 months post-implementation to assess reductions in pressure injury prevalence on admission. Additional measures will include feedback from the interdisciplinary team (IDT), patients, families, carers, and key stakeholders across community and acute services. Anticipated outcomes include improved information sharing and person-centred care, increased staff knowledge and confidence, enhanced communication and continuity across settings, and earlier intervention leading to a reduction in preventable pressure injuries and related hospital admissions.

Conclusions

Preventing pressure injuries in people with SCI requires a targeted, system-wide approach. A patient-held Pressure Injury Prevention Passport has the potential to improve continuity, safety, and quality of care across settings, particularly in non-specialist environments. By supporting consistent care delivery, this initiative aims to reduce pressure injury incidence and enhance patient outcomes and experience.

Conflict of Interest

There is no conflict of interest

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CARE IN THE MARGINS: TREATING PRESSURE ULCERS IN THE HOMELESS POPULATION

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Introduction

Homelessness in Ireland remains a significant societal concern. As of March 2024, 13,866 individuals were accessing emergency accommodation (1). People experiencing homelessness have substantially poorer health outcomes than the general population, with mortality estimated to be four times higher (2). Traditional wound care models are structured around consistent follow-up, optimal hygiene environments and high levels of adherence. These assumptions often fail to reflect the realities of homelessness and substance abuse, resulting in services that are unsustainable for this population. Pressure injuries are typically associated with advanced age and chronic immobility and are therefore under-recognized in younger, transient populations. This case highlights how prolonged substance-related immobility can result in significant pressure injury within this cohort.

Methods

A 44 year old male presented to a nurse led clinic for homeless with an unstageable pressure injury to the hip following prolonged substance-related immobility. The patient had a history of alcohol dependence, substance abuse, inconsistent healthcare engagement and refusal of acute hospital care. Baseline assessment recorded wound size, tissue type, exudate and periwound condition. Pressure redistribution advice was provided in line with international guidance (3); however, adherence could not be assured. An adapted foam dressing was applied to assist local pressure dispersion. An enzyme alginogel was used to support autolytic debridement and maintain a moist wound environment, whilst providing antimicrobial protection. Conservative debridement was performed when indicated. Negative pressure therapy was declined by the patient.

Results

The patient attended weekly clinic reviews. Despite refusal of surgical debridement and advanced therapies, progressive softening and removal of devitalised tissue was achieved using enzyme alginogel in combination with conservative debridement. Over a 16-week period, the wound transitioned from necrotic tissue to a granulating wound bed, with subsequent reduction in wound dimensions and progression toward epithelialisation. Weekly attendance, flexible appointment scheduling and adaptation of offloading strategies were instrumental in facilitating improvement. Healing was achieved without hospital admission.

Conclusions

This case demonstrates that significant pressure injury can develop in socially marginalised populations following substance-related immobility. Management required adaptation of standard pressure injury principles to a complex social context. The enzyme alginogel supported effective autolytic debridement and was particularly suitable in a setting where follow-up could not be guaranteed. Successful outcomes in this population require flexible, trauma-informed and community-based approaches that address both clinical and social determinants of health. Understanding this complexity is essential to providing inclusive, sustainable care to this population.

Conflict of Interest

None

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MANAGEMENT OF PRESSURE ULCER IN A PALLIATIVE CARE PATIENT: A CLINICAL CASE REPORT

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Introduction

Pressure ulcers among patients receiving palliative care remain an under-researched area, with limited and fragmented evidence available to guide prevention and management strategies[1]. In this context, the nursing process stands out as an essential tool for early identification of risks, planning interventions and monitoring the evolution of pressure ulcers, enabling individualized, humanized and evidence-based care.

Methods

Descriptive clinical case report conducted in a palliative care ward of a teaching hospital in São Paulo State, Brazil. The patient was a 57-year-old male diagnosed with primary diffuse large B-cell non-Hodgkin lymphoma of the central nervous system, with no curative treatment options. The nursing process was used as the methodological framework, supported by the NANDA International taxonomy[2].

Results

The patient was admitted on September 18, 2025, referred from a tertiary hospital, presenting severe neurological impairment, hemiplegia and total dependence for activities of daily living. A stage 3 pressure ulcer in the sacral area was identified (5 cm diameter, presence of slough, moderate exudate and important tunneling). Nursing diagnoses included impaired tissue integrity and risk for pressure injury. Over four months, nursing-led interventions were implemented, including systematic wound monitoring, use of hydrofiber dressings with silver, wound cleansing with polyhexamethylene biguanide, regular repositioning, skin care, and nutritional support. Pressure redistribution strategies included the use of an alternating pressure air mattress. Moisture management strategies and protective barrier products were applied to preserve periwound and overall skin integrity. Pain assessment and comfort measures were incorporated during wound care procedures. Serial wound assessments and documentation were conducted to monitor healing. Clinical improvement was observed, with reduction of slough, increased granulation tissue, and reduction in wound size, reaching partial closure (1 cm in diameter).

Conclusions

The management of pressure ulcers in palliative care patients represents a significant clinical challenge, requiring continuous assessment and individualized decision-making. In this case, the systematic application of the Nursing Process supported effective monitoring and implementation of evidence-based interventions, contributing to positive wound evolution. Even in the absence of curative treatment, appropriate care strategies may promote comfort, prevent complications and preserve patient dignity [3].

Conflict of Interest

The present study did not receive funding from any public, private or non-profit funding agency.

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Sustainable education as a key factor in pressure ulcer prevention for oncology patients

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Introduction

Patients receiving systemic anticancer therapy are at high risk for pressure ulcer development due to immunosuppression, impaired nutritional status, reduced mobility, and treatment-related skin toxicities. Systematic risk assessment and timely preventive interventions are essential to reduce incidence. Variability in knowledge and adherence to preventive measures among healthcare professionals remains a challenge. Sustainable, targeted education is increasingly recognized as a key component for improving quality of care and patient safety.

Methods

A literature review was conducted to analyse evidence on educational interventions for healthcare professionals, oncology-specific patient needs, and multi-component prevention strategies. Clinical guidelines, systematic reviews, and implementation studies were included.

At the Oncology Institute Ljubljana, a structured approach to pressure ulcer prevention was implemented. This includes regular risk assessment using the Waterlow scale at admission and during hospitalization, alongside standardized preventive measures. In line with EPUAP recommendations, emphasis was placed on comprehensive clinical judgement.

Based on identified needs, a short, targeted educational programme for healthcare staff was developed. The programme covers risk factor recognition, correct use of assessment tools, implementation of preventive interventions (repositioning, support surfaces, skin care), documentation, and interdisciplinary collaboration. The model is designed for sustainability, with regular repetition and integration of newly employed staff.

Results

Evidence shows that multi-component interventions incorporating continuous staff education improve care processes and reduce pressure ulcer incidence. Key components of successful programmes include standardized interventions, multidisciplinary collaboration, ongoing education, and continuous monitoring with feedback.

For patients receiving systemic therapy, special attention is required for treatment-related risk factors such as skin toxicities, nutritional status, skin hydration, and appropriate support surfaces.

Following implementation of the educational programme, increased awareness among healthcare professionals, more consistent use of risk assessment tools, and earlier initiation of preventive measures were observed. Improvements were also noted in documentation quality and team communication. Preliminary data indicate a trend towards reduced incidence of hospital-acquired pressure ulcers.

Conclusions

Sustainable education of healthcare professionals is a key element in effective pressure ulcer prevention and should be integrated into broader multi-component strategies. For patients on systemic therapy, an individualized approach addressing treatment-specific risk factors is essential. This model supports long-term quality improvement, enhances patient safety, and is transferable to other clinical settings.

Conflict of Interest

The authors declare no conflict of interest.



MALIGNANT SKIN CANCER DEVELOPMENT IN CHRONIC WOUNDS: A RETROSPECTIVE CASE SERIES OF MARJOLIN ULCERS

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Introduction

Marjolin ulcer (MU) refers to an aggressive malignancy arising from chronic wounds, persistent ulcers, and scars, most frequently following burn injuries. [1,5] Despite its clinical significance, the diagnosis is often delayed due to exceptionally long latency periods, leading to poor oncological outcomes. [2] This study aims to analyze the clinical characteristics, histopathological distributions, and anatomical locations of six Marjolin ulcer cases to emphasize the critical necessity of early diagnostic intervention and clinical vigilance in chronic wound management.

Methods

A retrospective clinical analysis was performed on six patients (4 females, 2 males) presenting to the Department of Dermatology at Severance Hospital (2016–2023) for malignant transformation of chronic lesions. Data reviewed included the mechanism of the primary injury, anatomical site of the malignancy, latency period, histological classification, TNM staging, metastatic status, and clinical outcomes.

Results

The case series identified three instances of malignant melanoma (50%) and three instances of squamous cell carcinoma (SCC) (50%). Burn scars were the predominant etiology (n=4), followed by traumatic amputation and hidradenitis suppurativa. Anatomically, the lesions were distributed across the trunk (back and abdomen, n=3), upper extremities (hand and finger, n=2), and gluteal region (n=1). The latency periods were characteristically prolonged, ranging from 20 to over 50 years. Most patients presented with advanced-stage disease (Stage IIIA to IIC) at the time of diagnosis. Metastatic involvement was frequent, including regional lymph nodes and distant sites such as the lungs, bone, and liver. One patient (Case 1) was deceased 2.4 years post-operation due to rib metastasis.

Conclusions

Marjolin ulcers represent a high-risk malignancy with significantly greater metastatic potential than primary skin cancers. This series highlights that MU is not limited to SCC but can frequently manifest as malignant melanoma. We propose a mandatory "4~12 week rule": any atypical chronic wound failing to respond to standard therapy within this timeframe requires an immediate biopsy. Maintaining high clinical vigilance regarding morphological changes (e.g., rolled margins, bleeding) is paramount for patient survival.

Conflict of Interest

none

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CHRONIC HEEL ULCERS DIAGNOSED AS AMELANOTIC MELANOMA: A REPORT OF TWO CLINICAL CASES

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Introduction

Amelanotic melanoma (AM) is a lethal subtype of cutaneous malignancy that lacks characteristic melanin pigmentation, often masquerading as benign inflammatory conditions or non-healing chronic ulcers. Because it lacks the classic "ABCD" clinical markers, AM is frequently mismanaged as a standard chronic wound, leading to significant diagnostic pitfalls. This study evaluates the critical impact of delayed recognition on disease progression, emphasizing that the absence of pigment is the primary driver of advanced-stage presentation and poor survival.

Methods

A retrospective analysis was conducted on clinical cases of AM presenting as atypical wounds at Severance Hospital in **2023**. We analyzed two specific cases—an 82-year-old female and a 68-year-old male—focusing on the duration of misdiagnosis, clinical presentation (e.g., erythematous nodules initially treated as granulation tissue), and subsequent oncological outcomes including TNM staging and metastatic progression.

Results

Clinical data from the cases identified in 2023 highlight a devastating pattern of diagnostic delay and rapid systemic progression:

- **Extensive Diagnostic Delay:** In the representative case of an 82-year-old female, a heel lesion was treated as a simple chronic wound in a local clinic for **2 years and 6 months (30 months)** without any suspicion of malignancy.
- **Clinical Misidentification:** AM was consistently mistaken for "atypical granulation tissue" or "persistent ulceration," causing clinicians to miss the critical window for early excision.
- **Aggressive Upstaging Post-Surgery:** Despite definitive surgical intervention (MMS and Lymph Node Dissection) in 2023, the prolonged delay allowed for silent systemic dissemination, with the patient's condition progressing rapidly from Stage IIIC to Stage IV.
- **Rapid Systemic Metastasis:** Systemic failure occurred shortly after surgery, with multiple metastatic nodules detected in both lungs within **3 to 6 months post-operatively**, confirming the catastrophic impact of the initial 30-month delay.

Conclusions

The absence of pigment in AM is directly correlated with catastrophic prognostic outcomes due to clinical invisibility. As demonstrated by these 2023 heel ulcer cases, AM "hides in plain sight," allowing for silent systemic dissemination during the 2.6-year delay. We strongly advocate for a mandatory **"4–12 week biopsy rule"**: any persistent, atypical ulcer—particularly on the heel—failing to show significant healing within this window must undergo histological evaluation, regardless of the absence of pigmentation. Early detection through high clinical suspicion is the only definitive way to prevent rapid progression to Stage IV disease.

Conflict of Interest

None



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Acesulfame potassium chronic consumption exacerbates pressure ulcer development in mouse model of diet-induced obesity

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Introduction

Non-nutritive sweeteners are mainly consumed by overweight or obese individuals¹. However, their long-term health effects remain controversial, as sweetener consumption in the context of obesity has been associated with altered glycemic control, increased cardiometabolic risk, and inflammatory changes in adipose tissue.^{2,3} In addition, recent evidence suggests that the non-nutritive sweeteners acesulfame potassium (aceK), may affect skin fragility and wound susceptibility, raising the possibility that chronic exposure could worsen pressure ulcer development⁴.

Our aim was to evaluate the impact of chronic aceK consumption on skin integrity and wound healing in a mouse model of diet-induced obesity.

Methods

Mice were fed a high-fat (HF) and high-sugar (HS) diet for 8 weeks, followed by 8 additional weeks of a HF diet combined with either water (HF water group), sugar (HF HS group) or a non-nutritive sweetener such as aceK (HF aceK group) or sucralose (HF sucralose group). Skin barrier function was evaluated by trans-epidermal water loss and microvascular reactivity was assessed by iontophoresis of acetylcholine, phenylephrine and sodium nitroprusside. Pressure ulcers were then induced by repeated ischemia-reperfusion cycles, using two magnets placed on either side of the dorsal skin. Wound healing was monitored photographically until complete closure. Gene expression of inflammatory and metabolic markers was analyzed by quantitative PCR in healthy skin, ulcer and adipose tissue, together with histological analysis.

Results

All the mice developed metabolic disorder such as glucose intolerance and obesity. The HF aceK group exhibited a reduced response to acetylcholine iontophoresis compared to the HF sucralose group while no other significant differences in cutaneous microcirculation vascular reactivity were observed between groups.

Compared to HF water group, HF aceK group exhibited early and more pronounced development of pressure ulcers, with significantly larger lesions. Mice in the HF sucralose group also developed larger ulcers than HF water diet group, similarly to HF HS diet group. Further results are in process to focus on inflammation and tissue histology.

Conclusions

These findings suggest that, non-nutritive sweeteners consumption particularly aceK, associated with an obesogenic diet, may increase skin fragility, and promote pressure ulcers development. This effect is not explained by impaired microcirculatory function alone. Overall, our results support a potential link between the dietary sweetener aceK consumption and skin fragility, pressure ulcer risk in obesity.

Conflict of Interest

Please declare any funding of the research by industry here.

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Hydrocolloid versus polyurethane foam dressings for prevention of non-invasive ventilation interface-related pressure injuries in adults: an empty systematic review

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Introduction

Non-invasive ventilation (NIV) is a cornerstone treatment for acute and chronic respiratory failure, yet its clinical benefit may be compromised by poor interface tolerance. Among the most significant causes of intolerance are medical device-related pressure injuries, particularly on the nasal bridge and facial contact points, which may increase pain, reduce adherence, interrupt treatment, prolong hospital stay, and add avoidable burden to patients and healthcare systems [1,2]. Prophylactic dressings are increasingly used beneath NIV interfaces, but whether hydrocolloid or thin polyurethane foam offers greater preventive benefit remains unclear [1,2]. In this context, the present review addressed a clinically frequent but insufficiently resolved question.

Methods

A systematic review was conducted following Joanna Briggs Institute methodology [3] and reported according to PRISMA 2020 [4]. The protocol was prospectively registered in PROSPERO (CRD4202510874941). The review question was structured using the PICO framework. Eligible studies were randomized controlled trials or quasi-experimental studies including adults receiving NIV and directly comparing hydrocolloid with thin polyurethane foam dressings applied prophylactically under the interface. Outcomes of interest included incidence or prevalence of facial pressure injuries, time to injury onset, lesion stage, and other quantitative indicators of interface-related skin damage. Searches were performed on 4 March 2025 in PubMed/MEDLINE, Cochrane Library, and CINAHL. Screening was conducted independently by two reviewers, with a third reviewer available to resolve disagreements [3,4].

Results

Twenty-eight records were identified, including 7 from PubMed, 15 from Cochrane Library, and 6 from CINAHL. After removing 5 duplicates, 23 records underwent title and abstract screening, and 22 were excluded. One full-text article was assessed for eligibility but excluded because it was available only in Chinese and could not be reliably appraised by the review team. No study met all predefined inclusion criteria. Therefore, no direct comparative evidence was found on hydrocolloid versus thin polyurethane foam dressings for preventing NIV interface-related pressure injuries in adults. This result should not be interpreted as evidence of no difference; rather, it indicates that this highly relevant clinical decision is currently being made without direct comparative evidence [5].

Conclusions

This empty systematic review highlights a significant evidence gap at the intersection of respiratory care, skin integrity, and nursing prevention. Although prophylactic dressings are widely used in routine NIV care, current evidence is heterogeneous and no head-to-head studies support the superiority of hydrocolloid over polyurethane foam, or vice versa, in this context. This is a clinically important finding, as it reveals a mismatch between common preventive practice and the comparative evidence needed to guide it. Until comparative evidence becomes available, dressing choice should be part of a broader preventive strategy based on careful interface fitting, regular skin inspection, and individual clinical assessment. Future research should prioritise pragmatic comparative studies with standardised outcomes and economic endpoints, so that dressing selection can move from local preference to evidence-informed decision-making.

Conflict of Interest

The authors declare no conflict of interest. No industry funding was received for this research.



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Enhancing healing in diabetic foot ulcers: a rapid umbrella review of fish-derived dermal substitutes

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Introduction

Diabetic foot ulcers (DFUs) are among the most burdensome complications of diabetes, with major implications for infection, hospitalisation, amputation risk, mortality, and healthcare use [1,2]. Their management is inherently multidisciplinary and remains grounded in standard care, including offloading, debridement, infection control, advanced dressings, and optimisation of systemic risk factors [2,3]. However, a substantial proportion of ulcers remain difficult to heal despite appropriate care, prompting growing interest in advanced biological matrices and skin substitutes [4]. Among these, fish-derived acellular dermal substitutes have attracted attention because of their collagen-rich structure, biocompatibility, low immunogenicity, and potential to support tissue regeneration [5,6]. This rapid umbrella review aimed to synthesise the available secondary evidence on the clinical effectiveness of fish-derived dermal substitutes in the treatment of diabetic foot ulcers.

Methods

A rapid umbrella review was conducted following PRISMA 2020 and Joanna Briggs Institute methodological guidance [7,8]. The protocol was prospectively registered in PROSPERO (CRD420251087298). The review question was structured using the PICO framework. Eligible studies were secondary studies with explicit and reproducible methodology, including systematic reviews, meta-analyses, umbrella reviews, rapid reviews, and structured literature reviews focused on fish-derived dermal substitutes for adult patients with diabetic foot ulcers. Searches were conducted in PubMed and Scopus in July 2025. Two reviewers independently screened records and extracted data, with a third reviewer involved when required. Narrative synthesis was used to summarise findings on complete healing, time to healing, ulcer area reduction, recurrence, safety, and clinical applicability [8,9].

Results

The search retrieved 506 records. After duplicate removal, 335 titles and abstracts were screened; 7 articles underwent full-text assessment and 2 systematic reviews with meta-analysis met the inclusion criteria [9]. Both reviews were published in 2024 and evaluated acellular fish skin grafts as an adjunct to standard care. Across the included evidence, fish skin grafts were consistently associated with a significantly greater likelihood of complete ulcer healing compared with standard care alone. Ruiz-Muñoz et al. reported an odds ratio of 3.44 (95% CI 2.03–5.82; $p < 0.001$), while Gao et al. reported an odds ratio of 3.34 (95% CI 2.14–5.20; $I^2 = 0\%$; $p < 0.01$) [10,11]. Evidence on time to healing was less consistent, with one review showing no statistically significant difference. However, reductions in ulcer area were substantial, with percentage area reduction values ranging from approximately 71.6% to 97.3% across the included studies. Rates of recurrence and serious adverse events did not differ significantly between groups, suggesting a safety profile broadly comparable with standard care.

Conclusions

This review suggests that fish-derived dermal substitutes may represent more than a promising innovation: they may offer a clinically meaningful opportunity to increase the probability of complete healing in hard-to-heal diabetic foot ulcers when added to optimal standard care. The most compelling message is not simply that these biomaterials may enhance repair, but that they may help selected chronic DFUs move from stalled healing to actual closure. At the same time, the evidence base remains relatively narrow and methodologically heterogeneous, which means that enthusiasm should be matched by careful patient selection and integration within established diabetic foot pathways. Future research should prioritise robust comparative studies, standardised healing endpoints, and cost-effectiveness analyses, so that fish-derived grafts can move from promising adjuncts to evidence-informed components of routine DFU care.



Conflict of Interest

The authors declare no conflict of interest. No industry funding was received for this study.

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EDUCATION PLAN FOR TYPE II DM / WAGNER 2 PATIENTS: AMPUTATION PREVENTION USING THE TRANSTHEORETICAL MODEL AND STAGES OF CHANGE - COLOMBIA.

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Introduction

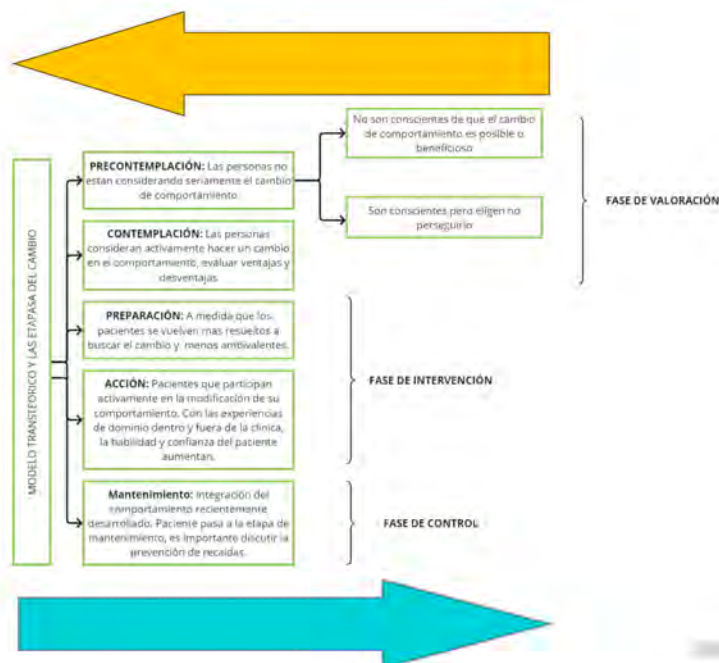
Type II Diabetes Mellitus poses a growing global challenge due to its complications, notably foot ulcers and related amputations. These complications not only severely impact patients' quality of life but also generate significant economic and social costs. Health education and behavior change models play a fundamental role in preventing amputations.

Methods

A scoping review was conducted following the Arksey and O'Malley framework. Scientific literature from the past 20 years related to educational interventions for the prevention of amputations in individuals with Type I Diabetes Mellitus/Wagner II was identified and analyzed. Both quantitative and qualitative studies were included, mainly from PubMed and Cochrane, prioritizing interventions based on the transtheoretical model and the theory of change.

Results

Out of 3,818 articles identified, 29 met the inclusion criteria. Most studies showed that educational interventions, especially those structured in phases (precontemplation, contemplation, preparation, action and maintenance), improve self-management, self-care, and adherence to healthy lifestyles. Effective strategies included group educational sessions, use of technology (apps and teleconsultation), educational materials, and multidisciplinary follow-up. The need to adapt interventions to the patients' socioeconomic and cultural context was highlighted.



Conclusions



Educational interventions based on the transtheoretical model and the theory of change are effective for preventing amputations in patients with Type II Diabetes Mellitus. It is recommended to implement structured education and continuous support plans, integrating technological resources and personalized strategies according to the stages of change. The active role of nursing and multidisciplinary teams is essential for the success of these interventions and for sustainable improvement in quality of life.

Conflict of Interest

No conflicts of interest or industry funding.

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IMPORTANCE OF GRADE 0 IN PRESSURE INJURIES PREVENTION IN A POPULATION OF INSTITUTIONALIZED ELDERLY PEOPLE: THE ROLE OF HYALURONATE AND AMINO ACIDS

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Introduction

At the EPUAP meeting of Ghent in 2015 we demonstrated that Linda Russel's Grade 0 can be considered the expression of a new concept of prevention that we can call "metaprevention"[1]; at the EPUAP Meeting of Rome in 2018 we presented a study in preventing pressure injuries, comparing a silver spray powder with a blend of hyaluronic acid (HA) and amino acids (AA) in spray formulation[2]. Aim of this work is to evaluate the effectiveness of this HA+AA blend comparing three different population among elderly people.

Methods

45 institutionalized patients over 80 years (mean age 89.4) and with Norton Score 12 or less divided into three groups were enrolled: 15 (Group A) without skin lesions, 15 (Group B) with "blanchable erythema", Linda Russel's Grade 0, and 15 (Group C) with "non-blanchable erythema" (Stage 1); cachectic, cancerous and terminally ill patients were excluded. All patients used memory foam mattresses and a standard positioning schedule (position changes every 2 hours). The main at-risk areas (sacrum and trochanters) were analyzed and treated with three sprays of a blend of hyaluronic acid and amino acids in a fluid spray formulation*, applied every morning, at each diaper change, and every evening. Observation period: 4 weeks. Main outcomes: no development of lesions of any grade and comparison of results between the three groups.

Results

44 out of 45 patients (97.8%) had an excellent outcome; in Group A only one patient developed a "blanchable erythema" (Grade 0); in Group B only two patients remained unchanged, while the other 13 had complete resolution; in Group C only one patient developed a Stage 2 lesion, 12 remained unchanged, and 2 had complete resolution. Overall results: 29 patients had no lesions (64.4%), 3 with Grade 0 "blanchable erythema" (6.7%), 12 with Stage 1 "non-blanchable erythema" (26.7%), and 1 with a Stage 2 lesion (2.2%).

Conclusions

This work demonstrates that the treatment results in patients with Grade 0 lesions are comparable to those obtained in patients without lesions and significantly superior to those in patients with Stage 1 lesions. This means that obviously it is necessary to start prevention before the appearance of Stage 1 lesions, but above all that, even in the presence of Grade 0 lesions, we have a treatment available that allows us to avoid the onset of pressure ulcers with the same efficacy demonstrated in the treatment of patients without lesions[3].

*Vulnamin Spray (Professional Dietetics-Italy)

Conflict of Interest

No conflict of interest.

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LOCAL TREATMENT FOR NON-HEALING PRESSURE INJURIES: A NEW PROTOCOL INCLUDING AN INJECTABLE STEP

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Introduction

Hyaluronate (HA) plus amino acids (AA) dressings already demonstrated a significant effectiveness in wound care, especially reducing the filling time also in case of hard-to-heal wounds[1]. The aim of this work is to suggest a new approach to the wounds, focusing the "Filling Time" as main target.

Methods

We recruited 10 patients with stage IV pressure injuries, deep, cleansed and not critically colonized nor infected. The protocol we suggest consists of a weekly intra/subdermal injection, to be performed under the edge of the wound, of a mixture of HA + 6 AA (glycine, lysine, proline, leucine, valine, alanine)* followed by a dressing with the same mixture in powder** and cream*** formulation and with moist gauzes with chlorhexidine as secondary dressing; this medication must be renewed every day. After an observation period of 4 weeks the injectable treatment has to be stopped and after 2 other weeks it's possible to resume with another 4 weeks of treatment. Wound Area Reduction (WAR), Wound Depth Reduction (WDR) and Filling Time (FT) were evaluated. End of the study: 12 weeks or complete filling of the lesion or complete healing.

Results

All patients achieved very impressive results within the first four weeks of treatment[2]; already after the first two injections there was an evident depth reduction and a significant growth of granulation tissue. Two patients recovered completely within the first treatment round and one achieved complete filling within 10 weeks. Mean WDR was 93.1% and WAR 81.4%. No perilesional skin damages or to the wound edge, nor inflammatory reaction at the injection sites. No adverse reactions.

Conclusions

These results confirm the effectiveness of this new technique[3] for approaching hard-to-heal deep pressure injuries, especially by comparing literature data regarding other treatments and/or medical devices and/or dressings: an injectable treatment, the only one currently available, synergic with the topic one. The cost-benefit ratio is clearly advantageous as the significant reduction in healing times allows for significant cost savings. Although it is an invasive treatment, it can be easily administered on an outpatient basis and, given the absence of complications and adverse events, can be defined as safe.

*Vulnamin Inj **Vulnamin PWD ***Vulnamin Cream (Professional Dietetics-Italy)

Conflict of Interest

No conflict of interest.

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PREVENTING PROGRESSION FROM MOISTURE-ASSOCIATED SKIN DAMAGE TO PRESSURE ULCERATION: A MULTICENTRE OBSERVATIONAL EVALUATION

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Introduction

Moisture-associated skin damage (MASD), particularly incontinence-associated dermatitis (IAD), is recognised as a precursor to pressure ulceration due to epidermal barrier disruption, friction, and microbial imbalance [1,2]. This process increases tissue vulnerability to pressure and shear, contributing to avoidable skin breakdown. However, MASD remains under-recognised within pressure ulcer prevention pathways, representing a missed opportunity for early, targeted intervention in high-risk patients.

Methods

An ongoing, prospective, multicentre observational evaluation across three sites in Ireland (acute and community) is collecting real-world data on patients with MASD managed using a structured approach, including Enzyme Alginogel. Data collected includes patient risk profile (e.g. Waterlow score), MASD severity and classification, contributing factors such as incontinence, presence of local infection or bioburden, treatment regimen, and clinical outcomes including skin integrity, symptom change, and progression. Descriptive analysis of interim data was performed

Results

Nine patients (100% acute) at moderate to very high risk of pressure ulceration were included. All presented with MASD consistent with IAD, including erythema (100%), maceration (majority), and superficial skin breakdown. Evidence of local infection or increased bioburden was present in a subset.

Prior to intervention, patients required frequent nursing input and reported pain and irritation, with limited response to previous management strategies. Following implementation, **100% (9/9)** demonstrated improvement in skin condition and **0% (0/9)** progressed to pressure ulceration. Reductions in erythema, maceration, and patient-reported symptoms were observed, suggesting improved skin barrier function and control of the local skin environment.

Conclusions

Interim findings suggest that a structured MASD management approach is associated with improved skin integrity and prevention of progression to pressure ulceration in high-risk patients. The inclusion of therapies supporting moisture balance and local skin environment, including Enzyme Alginogel, may contribute to these outcomes. Further recruitment across acute and community settings is ongoing.

Conflict of Interest

None

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IMPROVING DIFFERENTIAL DIAGNOSIS OF SELECTED SKIN LESIONS IN NURSING CARE

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Introduction

Correct differential diagnosis of selected skin lesions is essential for safe and effective nursing care. In clinical practice, pressure injuries, including medical device-related pressure ulcers (PUs), incontinence-associated dermatitis (IAD), skin tears, and medical adhesive-related skin injuries (MARSIs) are often misidentified because of overlapping clinical features. Misclassification may lead to inappropriate prevention and treatment strategies and may negatively affect patient outcomes. The aim of this project phase was to assess the baseline knowledge of non-physician healthcare professionals regarding the differential diagnosis of selected skin lesions in nursing care.

Methods

This initial phase of the project focused on baseline knowledge assessment using a survey as a pre-test. The target group comprised 200 non-medical healthcare professionals (mainly general nurses) working in home care agencies, social services, and acute inpatient care settings. The pretest was designed to assess knowledge related to the recognition, differentiation, and basic management of the four abovementioned categories of skin lesions that are frequently misclassified in clinical practice: PUs, including MDRPUs; IAD; skin tears; and MARSIs. The pre-test results were intended to identify knowledge gaps and to provide a basis for subsequent targeted educational activities and the development of practical care algorithms.

Results

The results identify differences in knowledge levels among healthcare professionals from different care settings, with particular emphasis on their ability to differentiate between selected skin lesions. The nurses from acute inpatient facilities have been able to identify PUs, skin tears, and IAD lesions more accurately. The most frequent areas of uncertainty and misclassification were related to PUs and IAD classifications, due to their visual or clinical presentations. The most appropriate classification was for skin tears. These findings will be used to define priority topics for further education and post-test among the target population.

Conclusions

A baseline knowledge assessment may help identify specific weaknesses in the differential diagnosis of selected skin lesions relevant to nursing care. Early identification of these gaps is important for designing targeted educational interventions and improving diagnostic accuracy and the consistency of care across healthcare settings. The pretest findings will serve as the foundation for the next phases of the project.

Conflict of Interest

The authors declare no conflict of interest related to this project.

Funding

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A MULTIDISCIPLINARY TEAM (MDT) WORKING GROUP AUDIT OF THE 30° TILT REPOSITIONING PROGRAMME IN BEAUMONT HOSPITAL.

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Introduction

The 30° tilt repositioning programme is recommended in NICE guidelines (1) for the prevention and management of Pressure Injuries (PI), particularly over high-risk areas, while also enhancing patient comfort. PI are more likely to develop in dependent patient populations and, when they occur, can significantly impact quality of life, functional ability, length of hospital stay, and mortality (2).

The aim of this audit was to determine whether the 30° tilt repositioning programme is being implemented for inpatients who require it in Beaumont Hospital. A secondary aim was to identify barriers and facilitators to its use on inpatient wards, and to inform the need for additional education or resources to support its implementation.

Methods

A multi-phase audit was undertaken, with the initial phase conducted in April 2024, followed by a second phase in May 2025 after the implementation of targeted educational interventions. A third and final phase is scheduled for May 2026. The working group comprised Occupational Therapists, Physiotherapists, and Tissue Viability Nurses (TVNs), reflecting a multidisciplinary approach to practice improvement. One ward per directorate (n = 6) was randomly selected using a computer-generated randomisation process. The initial audits were conducted in two phases—pre- and post-educational intervention—to evaluate bedside practice and staff knowledge relating to the implementation of the 30° tilt repositioning programme. With the third planned phase to monitor adherence and evaluate the long-term impact of these improvements.

Inclusion criteria were patients who required assistance of 2 for bed mobility.

Audits were conducted in pairs, comprising a TVN and a therapist (Physiotherapist or Occupational Therapist), to enhance consistency in data collection and support a multidisciplinary perspective.

Results

Overall, the audit demonstrated that the 30° tilt repositioning programme was underutilised, with over three-quarters of eligible patients not having it implemented on the days of audit. Following the educational intervention, staff knowledge improved markedly, with a greater proportion correctly identifying the programme and positioning patients appropriately. Despite these improvements, barriers such as staffing constraints, limited pillow availability, and knowledge gaps continue to limit adherence, highlighting the need for ongoing support, resources, and multidisciplinary engagement to embed best practice.

Conclusions

This MDT approach supports holistic patient care, enhances consistency in practice, and promotes shared learning and accountability, thereby strengthening the implementation and sustainability of best practice. The audit highlighted that the 30° tilt repositioning programme is underutilised but also highlighted opportunities to further enhance the utilisation of the 30° tilt repositioning programme within current practice. A range of targeted actions have been identified to support improvement, including the introduction of hospital-wide poster and video-based education, dissemination of resources via BORIS/Q-Pulse, and the development of ward-level procedures to ensure appropriate pillow use and availability. In addition, collaboration with the Pressure Injury (PI) working group will facilitate the assignment of ward champions and the rollout of



multidisciplinary training across the organisation. Follow-up audits in 2026 will monitor adherence and evaluate the long-term impact of these improvements.

Conflict of Interest

No conflict of interest to disclose

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“A Multidisciplinary approach to Heel Pressure Ulcer Prevention”

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Introduction

Heel pressure ulcers pose a significant challenge in clinical practice owing to their complex aetiology, difficulty healing and potential to lead to serious complications and risk of amputation(1). Heel ulceration was the main anatomical site for acquired pressure damage from Datix incidence data within the hospital site. Recognition of this and discussions with podiatry personnel led to exploring pressure offloading devices for lower limbs, incorporating heel prevention strategies in Tissue Viability Nurse delivered staff inductions and pressure ulcer prevention and management programs plus production of specific CPR for feet Posters and ward per ward multidisciplinary education which was also supported by industry on the correct use of the offloading boot devices themselves.

Clinical guidelines, multifactorial evidenced based risk assessments and care bundles, do not reduce pressure ulceration if staff in clinical practice lack awareness and knowledge of the importance of effective heel offloading or how to float the heels of vulnerable at-risk populations in immobile bed bound patients.

Despite the use of pillows and offloading devices this was inconsistent and varied between ward areas, staff and patient background aetiologies and identified Purpose T risk status.

Aim

To implement a multidisciplinary approach to reduce acquired, heel pressure damage as part of a patient safety campaign and sustained drive to reduce avoidable harm in a regional acute hospital in Northern Ireland.

Methods

The Tissue Viability and Podiatry staff implemented a CPR for Feet pathway, across 16 wards including various medical, surgical and emergency department areas in one acute hospital setting. The adaptation of the Stang' and Leese (1) CPR for Feet was utilized in combination with ward based education sessions in order to provide a written, structured decision guide for clinical staff and the use of accessible, standardized offloading boot devices(single use and multiple use devices) with agreed storage and local signposting to highlight to all staff when and on whom to use the devices, early in the patient journey as an effective preventative strategy and not wait for damage to be discovered or be reactive to the damage post occurrence.

This preventative approach aims to integrate education and empowerment of staff to positively change behaviours to embed the pathway, utilize appropriate offloading devices and implement early preventative strategies to prevent acquired, avoidable patient harm.

Comparison of datix incident data is being collated to assess differences from prior to Campaign implementation, with potential spread and roll out across other sites in the Trust.

Conflict of Interest

The offloading device education was supported by industry :Talarmade, however they were brought in after the campaign and its components were devised by the TVN and podiatry staff.

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Talarmade Devices: footsafe and heel pro advanced boots utilized in this project



EVALUATION OF COMMERCIALY AVAILABLE HEEL PADS FOR THE PREVENTION OF PRESSURE ULCERS

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Introduction

Surgical patients are at increased risk of developing pressure ulcers (PUs) due to prolonged immobility and sustained exposure to pressure and shear forces^{1,2,3}. Visual Skin Assessment (VSA) enables detection of visible PU-related skin changes, whereas Sub-Epidermal Moisture (SEM) assessment identifies early, non-visible tissue damage^{4,5}. Combined use of VSA and SEM enables earlier detection and targeted intervention, with significantly lower SEM delta values reported in patients receiving targeted prevention compared with standard care (MD = 0.49; 95% CI: 0.59–0.39; $p < 0.0001$)⁶. Heel off-loading devices have been shown to reduce Stage I heel PUs by more than 50%⁷, emphasising their importance for patients undergoing surgery. This study aims to evaluate heel PU incidence using VSA and SEM among surgical inpatients positioned on a heel off-loading pad, and to explore multidisciplinary theatre staff perceptions of heel pad usability, acceptability, and value in intraoperative PU prevention.

Methods

This single-site, multiphase research study comprises two phases. Phase 1 is an observational, prospective cohort study involving surgical patients at-risk of heel PUs. The primary objective is to measure intraoperative and postoperative heel PU incidence using concurrent SEM and VSA assessments in patients positioned on the heel pad intraoperatively. Eligible participants are adults, undergoing elective surgery, with a hospital stay ≥ 72 hours. VSA and SEM assessments will be performed pre-operatively, hourly intra-operatively, and daily for 72 hours post-operatively on both heels. Phase 2 is a qualitative study exploring multidisciplinary theatre staff experiences with the heel pads through semi-structured interviews to examine usability, acceptability, and perceived clinical value for PU prevention. Participants include staff who used the heel pads during phase 1. A patient and public involvement (PPI) collaborator contributed from early study design, co-developing patient information leaflets, consent forms, and interview guide. Their input enhanced the relevance, accessibility, and patient-centredness of study design. Planned sample sizes are 35 patient participants for phase 1 and 15 staff participants for phase 2. Quantitative data will undergo descriptive and inferential analysis; qualitative data will be analysed thematically.

Results

Recruitment and data collection will occur June-August 2026 post-ethics approval. Provisional outcomes include heel PU incidence rates, intraoperative SEM delta patterns, and time-to-event data over 72 hours. Preliminary quantitative and qualitative findings will be presented.

Conclusions

Intraoperative heel protection devices remain under-evaluated in PU prevention literature. This two-phase study will provide new evidence on device performance and staff perceptions. The integration of PPI



throughout study design and conduct will ensure that the research is accessible, patient-centred, and aligned with real-world needs.

Conflict of Interest

This study is sponsored by the manufacturer of the heel off-loading device under evaluation.

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Product information: Oasis Elite Heel Pad (EL130), Trulife, Dublin, Ireland (CE-marked Class I medical device)



IDENTIFYING RESEARCH PRIORITIES FOR PRESSURE ULCER PREVENTION THROUGH LIVED EXPERIENCE PARTNERSHIP.

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Introduction

Involving patients and caregivers in research question development and study design enhances the relevance of research outputs, improves study design, and ensures alignment with the needs of those impacted¹. Effective pressure ulcer (PU) prevention and treatment depend on addressing individual needs, preferences, and values². This project aimed to establish a diverse patient and public involvement (PPI) panel to identify future research priorities and address the gap in patient and caregiver involvement in PU research in Ireland.

Methods

Following a modified James Lind Alliance (JLA) approach³, the first PPI partner joined in 2024 to build a panel of eight individuals with diverse lived experience of PUs. Since February 2025, the PPI advisory panel has collaborated with healthcare professionals and researchers in 2-hour meetings held every other month to identify gaps, uncertainties, and challenges in PU prevention during the evidence gathering stage. The process includes: interim priority-setting workshop in April 2026 and a final all-Ireland workshop 29 May 2026, where people with lived experience will vote on the top 10 research priorities.

Results

To date, the meetings have generated 66 evidence uncertainties, shaped through discussion with the PPI advisory panel, and grouped into eight topic areas: (1) pressure/heat mapping, (2) nutrition, (3) PU prevention care pathway, (4) education, (5) clothing, footwear, and socks, (6) psychological impact leading to PUs, (7) pressure-relieving mattresses, cushions and devices, and (8) artificial intelligence. The process, interim findings, and final top 10 priorities from the May 2026 workshop will be presented at the conference.

Conclusions

This modified JLA approach established a diverse PPI advisory panel with lived experience, embedding real-world perspectives in PU prevention research prioritisation. The final top 10 priorities will shape Ireland's PU research agenda.

Conflict of Interest

No conflict of interest to declare. This work was supported by funding from the European Pressure Ulcer Advisory Panel, Research Committee starting grant [24335A001].

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DOES A NURSING-LED MOBILIZATION PROTOCOL REDUCE PRESSURE ULCERS IN THE ICU? A RETROSPECTIVE COHORT STUDY

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Introduction

Pressure ulcers (PUs) are a significant burden in intensive care. While nursing-led mobilization is recognized as a critical preventive strategy, clinical practices vary widely in terms of adherence and protocol type (1,2).

Objectives

To evaluate the impact of an advanced nursing-led mobilization protocol on the development and progression of PUs in critically ill patients

Methods

We retrospectively compared conventional care (6-hourly repositioning) to an advanced protocol care (3-hourly repositioning, specialized pressure relieving mattresses, and re-education of nursing staff on screening, risk assessment and prevention of pressure ulcers) in a cohort of 188 patients at our ICU. Patients were retrospectively divided into two groups according protocol enrolment. Outcomes included PU development and progression of pre-existing PUs.

Results

Between January 2024 and February 2025, 188 consecutive patients were included, 77 (41.0%)(LOS=16,8 days $\pm$ 26,6, APACHE II = 20,2 $\pm$ 8,0, SOFA=8,3 $\pm$ 4,2) in the advanced care group (ACG) and 111 (59.0%)(LOS=15,5 $\pm$ 16,6, APACHE II=19,7 $\pm$ 8,1, SOFA=8,5 $\pm$ 3,6) in the conventional care group (CCG). A total of 155/188 patients (LOS=14,6 $\pm$ 27,9, APACHE II=19,1 $\pm$ 8,3, SOFA=8,1 $\pm$ 10,1), were admitted without pre-existing PUs, and 28/155 (18,0%) of them developed PUs (grade I-IV) during hospitalization. Incidence was similar in the ACG (13 out of 62/155; 16.1%) and the CCG (15 out of 93/155; 21%), with an OR of 1.38 (95% CI: 0.605–3.145; p = 0.52). Comparison between the two groups (ACG vs CCG) of those without pre-existing PUs (N=155), revealed no statistically significant differences (p < 0.05) for the Length of ICU stay (ACG: 14.7 $\pm$ 23.7 days vs CCG: 14.7 $\pm$ 17.4 days), APACHE II score (19.8 $\pm$ 8.6 vs 18.7 $\pm$ 8.2), and SOFA score (7.9 $\pm$ 4.3 vs 8.2 $\pm$ 3.9), respectively. A total of 33/188 patients (LOS=27,9 $\pm$ 32,1, APACHE II=23,5 $\pm$ 5,7, SOFA=10,12 $\pm$ 2,6), were admitted with pre-existed PUs (grade III and IV). Among the 33 patients, 15 patients received advanced care and 18 received conventional care. Advanced care was associated with improvement in 8 of 15 cases (53.3%) while none of the 18 (0%) patients receiving conventional care showed improvement (χ^2 = 0,0016, OR 41,9, 95%CI: 2.1– 822.6).

Conclusions

We found that patients admitted in an ICU having pre-existing PUs may benefit by the application of advanced nursing-led mobilization protocol while the same protocol may not be helpful for the prevention of PUs development in patients admitted without pre-existing PUs. These findings should be further investigated in larger cohorts under randomization.

Conflict of Interest

The authors declare no conflict of interest. This research received no external funding.

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An Efficient Method to Prevent Additional Whole Arm Skin Injuries in patients with Physical restraints

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Introduction

Physical restraints are physical devices and they are used to restrict the movement of the whole body or body parts. Looking at the domestic physical restraints application rate, it was reported that the physical restraints application rate in general wards was 3.5%, while the physical restraints application rate in the intensive care unit was 31.4%-43.4%. Device-related pressure injuries may occur at the application site due to the application of physical restraints. Therefore, it is necessary to take appropriate preventive activities to prevent pressure injuries in the area where the physical restraints are applied. From January to September 2025, the average number of wounds that occurred on the hands, elbows and arms referred to the wound care team was 45.4 cases per month. Of these, 23.7 patients were wearing physical restraints. Therefore, when a physical restraints are applied to the wrist, appropriate intervention is required to prevent skin damage to the hands and elbows.

Methods

Usually, we used square shaped foams when applying a prophylactic dressing to the arm. However, it was not easy to apply a prophylactic dressing to the joints(hands, wrists, elbows) that were a lot of the movement and curved. So we used heel shaped foam rather than square shaped foam and it could adequately protect the patient's skin.

Results

The method we applied to protect the elbow was very effective in protecting the skin of the patients who applied the physical restraints. We found that there is no skin damage after applying the heel shaped foam and it lasted longer than the conventional square shaped foam.

Conclusions

Nurses should be able to identify psychological, physical, and environmental causes that threaten patient safety, and find alternatives to deal with and prevent them. In addition, after starting the application of the body protector, it is necessary to periodically assess the skin condition of the applied area and be familiar with the appropriate knowledge for evaluating the timing of discontinuation. Education is important to enhance knowledge of physical restraints, and nursing performance for the application of physical restraints can be improved through appropriate education programs so that practical use can be achieved in the field¹⁰. In addition, it is thought that they will focus more on skin care related to the application of physical restraints. In order to prevent additional skin damage to the arm in patients, applying heel shaped foam rather than square shaped foam was an efficient method to prevent skin damage on arms.

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“Pressure injury prevention is inseparable from postural management” — Managing Pressure Injuries in Patients with Complex Posture and Contractures: A Community-Based Case Series

Eva Harris & Danielle Base

Introduction

Patients with complex posture and established contractures are at increased risk of pressure injuries due to atypical loading, restricted mobility, and difficulty achieving consistent 24-hour postural management. This population often requires highly individualised intervention and coordinated interprofessional working, yet there is limited guidance specific to their needs. This community-based case series describes the management of pressure injuries in adults with significant postural deformity and examines the impact of collaborative postural intervention on wound healing outcomes.

Methods

Seven adult community patients with pressure injuries and identified postural support needs were reviewed. Patients either developed contractures following prolonged immobility without structured positioning or had pre-existing fixed deformities. Underlying conditions included spinal cord injury, neurological disease, and orthopaedic disorders. Data collected included wound dimensions (surface area and volume), wound location, postural presentation, equipment provision, interface pressure (mmhg) and interprofessional involvement. Outcomes were assessed using percentage reduction in wound surface area and volume.

Results

All patients presented with complex postural patterns such as pelvic obliquity, wind-sweeping, knee flexion contractures, or fixed spinal deformity. Wound locations reflected atypical loading, including the ischial tuberosities, iliac crest, malleolus, and popliteal fossa.

Comprehensive postural assessments were completed, and a 24-hour positioning approach was implemented for each patient. All individuals were reviewed for suitable lying surfaces, seating systems, and positional supports to improve alignment, prevent further contractures, and offload areas of high pressure.

Quantitative wound outcomes demonstrated substantial improvement across the cohort:

Wound Healing Data

Patient	Assessment	Review	% Area Reduction	Assessment	Review	% Volume Reduction
	Initial Area (mm²)	Current Area (mm²)		Initial Volume (mm³)	Current Volume (mm³)	
MB	238	24	89.9	2380	120	95
VH	1500	750	50	30000	7500	75
VM	36	1	97.2	0	0	0
VA	131200	0	100	9184000	0	100
JD	216	170	21.3	3240	2550	21.3
DH	5600	2070	63	0	0	0
HM	1500	240	84	52500	0	100

Key Findings



- **Surface area:** Median reduction **84%**, with four patients achieving **≥85%** contraction (VM, VA, HM, MB).
- **Volume:** Among patients with measurable depth, three achieved **≥95%** reduction (VA, HM, MB), and two showed **complete depth resolution** (VA, HM).
- The largest wound (VA, initial area 131,200 mm²) achieved full closure with sustained offloading and postural correction.
- Patients with slower progression (JD, DH) still demonstrated measurable improvement linked to improved equipment access and postural stability.

Interprofessional involvement included Community Nursing, Tissue Viability, Occupational Therapy, Physiotherapy, Wheelchair Services, and where required, Dietetics, Podiatry, Geriatrics, and Specialist Disability Teams. Patient goals focused on meaningful functional activities such as sitting out safely and accessing personal hygiene routines.

Conclusions

Patients with complex posture and contractures benefit significantly from personalised 24-hour postural assessment and coordinated interprofessional care. Adaptive seating, tailored offloading, and timely equipment provision supported wound healing and improved quality of life. Persistent gaps in equipment pathways and delays highlight the need for further research into integrated postural management and its role in preventing recurrent harm.

Conflict of Interest

None .

References

None

EFFICACY AND SAFETY OF PORCINE-DERIVED ACELLULAR DERMAL MATRIX FOR CHRONIC WOUNDS: A PROSPECTIVE CLINICAL STUDY

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Introduction

Among skin substitutes for chronic wound reconstruction, human-derived acellular dermal matrices have demonstrated efficacy but remain cost-prohibitive, driving growing interest in porcine-derived ECM alternatives. Chronic wounds present significant therapeutic challenges due to impaired healing and degraded ECM. This study evaluated the efficacy and safety of porcine-derived acellular dermal matrix versus standard treatment in chronic wound healing.

Methods

This prospective, single-center, controlled study enrolled 40 patients with chronic wounds. Participants were sequentially assigned to Control (standard dressing, n=20) or Experimental group (porcine ECM, n=20). The Experimental group received porcine ECM application with secondary dressing changes, while the Control group received conventional foam dressings. Wound images were obtained at baseline, 2, 4, and 12 weeks and analyzed using ImageJ software. Primary endpoint was complete healing rate at 12 weeks; secondary endpoints included wound depth reduction, time to healing, wound contraction, and safety.

Results

Complete healing rate at 12 weeks was 50% (10/20) in porcine ECM group versus 35% (7/20) in Control group (RR 1.43, p=0.523). Porcine ECM demonstrated significantly greater wound depth reduction at 2 weeks (p=0.025) and improved wound bed quality with G/N ratio of 4.78 versus 2.67 in controls at 12 weeks. Among healed patients, mean time to closure was shorter with porcine ECM (7.60 weeks) than Control (9.14 weeks, Cohen's d=0.465), with large effect size for wound contraction (Hedges' g=0.825). Regression analysis identified diabetes mellitus as a significant predictor of impaired healing (p=0.015). No adverse events occurred in either group.

Conclusions

This study demonstrated that porcine ECM provides favorable safety and promising efficacy in chronic wound management. In this exploratory study, porcine ECM significantly accelerated early wound depth reduction with substantial effect sizes for contraction and epithelialization, suggesting it facilitates transition from inflammatory to proliferative healing phases.

Conflict of Interest

Nothing to declare

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

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Introduction

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

Methods

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

Results

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

Conclusions

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

Conflict of Interest

Industry study.

References

1. No reference



EVALUATION OF POLYABSORBANT TLC-NOSF FOR PRESSURE INJURIES IN A PRE-IMPLEMENTATION HOSPITAL REVIEW

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Introduction

TLC-NOSF (Technology Lipido-Colloid - Nano Oligosaccharide Factor) dressings have been recommended by several expert groups for the management of chronic wounds^{1,2}, including pressure injuries (PIs).

An evaluation of the TLC-NOSF treatment range was requested at our facility by the pharmacy department before inclusion of this local wound therapy in the hospital formulary. The evaluation was conducted between Nov 2024 and Feb 2025.

The poster presents the results achieved with the inclusion of the TLC-NOSF dressings within our established standard of care in the management of patients with wounds, with a focus on the results of 4 patients with pressure injuries (PIs).

Methods

An internal evaluation was conducted including 20 inpatients with 28 wounds (including venous and arterial leg ulcers, traumatic wounds and PIs). Aetiological management was implemented according to the approved standards of care, including position turning and offloading for all patients with PIs.

A total of 9 patients with PIs were included. Data from 7 patients were ultimately analysed (2 excluded due to loss to follow-up or protocol deviation). Among these, 4 elderly patients benefited from complete documentation and continuous monitoring, allowing an in-depth clinical description.

Results

The patients were aged 74 to 90 years. Initial wound sizes ranged from 3×1 cm to 8×5 cm, located on the heel, sacrum, and ischium. Marked reduction in wound surface area was noted, with 3 out of 4 PIs achieving complete closure in 69 days (mean). Considering local tolerance of evaluated dressings, irritations and deteriorating of the peri wound skin condition were documented in two patients.

Conclusions

This evaluation showed that TLC-NOSF dressings provided clinical benefits in the management of PIs with a positive benefit-risk ratio, with visible improvements over relatively short follow-up periods.

Based on the observed effectiveness and alignment with national recommendations (including the French Society for PIs), the hospital pharmacy decided to reference TLC-NOSF dressings and make them available to the wound care department for routine practice.

Conflict of Interest

No conflict of interest.

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MANAGEMENT OF A CHRONIC PRESSURE ULCER IN A YOUNG ADULT WITH SPINA BIFIDA WITH POLYABSORBENT FIBRE ROPE

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Introduction

Patients with spina bifida (SB) face increased vulnerability to pressure ulcers (PU)¹. The annual prevalence rate of PU in individuals with SB is 34%, a much higher rate than in the general population².

Polyabsorbent fibres are indicated for the continuous debridement of slough³, as demonstrated in a randomised controlled clinical trial⁴. The efficacy of the rope version was demonstrated in a prospective, multicentre, non-comparative clinical study⁵.

This presentation will highlight the management of a pressure ulcer on a BF patient with the PAF rope.

Methods

20-year-old male with SB presented with 3-year-old ischial pressure ulcer, complicated by osteomyelitis and Fournier's gangrene.

On referral (beginning of March 2025), the wound was covered by 80% slough and measured 15 cm in depth. PAF rope was selected as the primary dressing based on the dressing's ability to manage heavy exudate, support the removal of slough, and reduce bacterial load, which were key factors in promoting healing.

Results

By August 2025, the wound has decreased in size to 1 x 1 x 0.5 cm, with 100% granulation tissue.

The patient noted a significant improvement in his quality of life, with reports of reduced pain and discomfort. He was able to resume normal daily activities, including going on holiday and attending college part-time.

The involvement of the patient's father in the dressing changes, supported by the community team, was instrumental in improving care consistency and engagement.

Conclusions

PAF rope demonstrated significant efficacy in promoting healing in a previously non-responsive chronic PU. The active involvement of caregivers in the wound care process was crucial to the success of treatment. This collaborative approach highlights the potential benefits of family involvement in wound care, particularly in long-term and complex cases.

Conflict of Interest

Nil to declare.

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17 yr PU healed with a polyabsorbent fibre dressing incorporating TLC-NOSF to heal

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Introduction

Local wound factors such as an increase in matrix metalloproteinase (MMP) activity can increase the healing time of pressure ulcers¹. Controlling elevated and prolonged expression of MMPs produced during the inflammatory phase of healing can lead to excessive ECM degradation associated with impaired healing.

Technology Lipido-Colloid Nano-Oligosaccharide Factor (TLC-NOSF) is a combination of the TLC technology, which is intended to create a moist protective wound healing environment, and the NOSF, which reduces protease activity, specifically MMPs². It is claimed to reduce time of healing and has been shown to improve wound area reduction^{2,3}. The use of TLC-NOSF is recommended by the National Institute for Health and Care Excellence (NICE, UK)³.

This presentation will highlight the management of a 17-year-old pressure ulcer with the TLC-NOSF technology.

Methods

48-year-old male heavy goods vehicle driver, with a long history of type II diabetes, COPD, hypertension and gout. 17 years ago, after he lay unconscious on the floor for a long period of time he developed a pressure ulcer to his right ischial tuberosity. Primary care and his mother supported with shared care which consisted of a pressure relief regime and a wide selection of dressings. His current regime was an antimicrobial hydrofiber, a non-adherent dressing, gauze and strong surgical tape.

He was referred to the Tissue Viability Nurse in November 2021. The primary dressing was changed to TLC-NOSF polyabsorbent fibre pad dressing. his mother was taught how to redress the wound, so that the treatment could continue without interruption. TLC-NOSF contact layer was used to dress a small sinus undermining to the lower left wound margin.

Results

On the last review, in September 2022, the wound area was significantly decreased. The current wound care regime was continued as the wound was on a healing trajectory.

The patient's pain score was noted to be 8 on the Numeric Rating Scale (NRS) on first assessment. However, this reduced to between 1 and 0 following commencement of the current treatment.

Conclusions

By selecting an evidence based local wound treatment as an adjunct to pressure relief, the patient is able to independently manage his wound and demonstrate positive results. These results have provided the TVN with confidence to use the UrgoStart Plus treatment range, expanding its use to other wound aetiologies.

Conflict of Interest

Nil to disclose.

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POSITIVE IMPACT OF EARLY INTERVENTION USING TLC-NOSF IN THE MANAGEMENT OF A HEEL PRESSURE ULCER

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Introduction

After the sacrum, the heel is frequently reported as the second most common site for the development of pressure ulcers (PU), as well as the site where the most severe pressure ulcers tend to develop¹. Heel pressure ulcers, when not promptly and effectively managed, are prone to complications², with delayed healing presenting as a common problem³.

Technology Lipido-Colloid–Nano-Oligo Saccharide Factor (TLC-NOSF), reduces matrix metalloproteinase (MMPs)⁴. The TLC-NOSF treatment range is an interactive dressing that has been shown to statistically improve time to complete wound closure when compared to standard wound dressings⁵.

This presentation will portray the successful management of a stage 2 PU.

Methods

71-year-old male, immobile and suffering from peripheral arterial disease, Parkinson's disease with suspected Lewy body dementia, presented with a Stage 2 pressure ulcer on the lateral aspect of his left heel which was cared for at home by his wife and supported by community nurses visiting 3 times a day. The initial blister had broken and had started to necrose. The urgency was to prevent this from becoming a non-healing wound and to avoid any associated risks to the patient. The TLC-NOSF dressing was initiated as the primary dressing, along with other measures such as area offloading.

At onset the wound was 5cm wide and 7cm in length, with low exudate levels. The dressing was changed every 3 days during the first two weeks and thereafter every 5 days.

Results

The patient did not complain of discomfort or pain on application or removal. The nurse found the dressing easy to apply as it conformed well to the heel area. The peri-wound skin improved in its condition and remained intact. No other treatment was required, and full healing was achieved within a 5 week period.

Conclusions

A positive clinical result was seen quickly and TLC-NOSF proved to be a very cost-effective alternative to what might have been a long-term non healing wound exposing the patient to unnecessary risks and further distress.

Conflict of Interest

Grothier L is an employee of Urgo Medical that produces TLC-NOSF dressings.

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PERFORMANCE OUTCOMES OF A NEXT-GENERATION FIVE-LAYER FOAM DRESSING IN THE MANAGEMENT OF PRESSURE ULCERS

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Introduction

Pressure ulcers remain a significant clinical challenge, particularly in older adults with multiple comorbidities [1]. Effective exudate management is a critical component of pressure ulcer care, as excessive or poorly controlled exudate can delay healing and increase the risk of peri-wound maceration [2].

Methods

A sub-analysis of a retrospective, real-world cohort focusing exclusively on pressure ulcers was conducted, examining performance outcomes and healthcare professional (HCP) experience, of a next-generation five-layer foam dressing*. This analysis was conducted across two healthcare organizations in the United States (US), in post-acute care settings including homecare, outpatient clinics and skilled nursing facilities.

Outcomes were assessed from treatment commencement with the next generation five-layer foam dressing to treatment discontinuation. Descriptive analyses were performed at the wound level. Continuous variables were summarised using mean, median, standard deviation, and range. Categorical variables were summarised using frequencies and percentages.

Results

16 pressure ulcers from 16 patients were analysed. Patients had a mean age of 74.3 years and a high prevalence of comorbidities. The ulcers were predominantly located on the sacrum (62.5%), and the median ulcer area was 3.75 cm² at treatment commencement.

Over a mean treatment duration of 44.8 days, peri-wound condition improved substantially. The number of wounds exhibiting maceration decreased from 68.8% at treatment commencement to 0% at treatment discontinuation, and those presenting with healthy peri-wound skin increased from 25.0% to 93.8%. Exudate levels improved or remained stable in all ulcers. The median absolute area change in these ulcers was -0.63 cm², corresponding to a median percentage reduction of -24.9%.

HCP-reported outcomes were consistently positive. Overall dressing performance exceeded expectations in 94% of cases, with similarly high ratings for exudate retention, wear time, and ease of removal.

Conclusions

This sub-analysis demonstrates that the use of this next-generation five-layer foam dressing was associated with meaningful improvements in peri-wound condition and favourable clinician-reported performance in the management of pressure ulcers. These findings support the role of five-layer foam dressings as part of comprehensive pressure ulcer care in real-world clinical settings.

Conflict of Interest

Research funded by Smith+Nephew. Ms. Milne and Dr. McFee are engaged in consulting agreements with Smith+Nephew. Mr. Tompkin and Ms. Megginson are employees of Smith+Nephew.

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*ALLEVYN[®] COMPLETE CARE Foam Dressing (Smith+Nephew)

[®]Trademark of Smith+Nephew.



STAYS PUT AND SURVIVES THE PEEL: TWO COMPLEMENTARY VOLUNTEER STUDIES OF A NEW 5-LAYER SILICONE FOAM DRESSING

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Introduction

Foam dressings used within Pressure Injury Prevention (PIP) protocols must stay in place and tolerate repeated lifting for routine skin inspection [1]. These complementary healthy-volunteer studies were designed to holistically evaluate a new 5-layer silicone foam dressing for both sustained wear and inspection-relevant manipulation, in comparison to two marketed 5-layer foam dressings.

Methods

A new 5-layer silicone foam dressing (Dressing 1*) and two marketed comparators (Dressings 2† and 3‡) were assessed for key PIP performance indicators in two volunteer studies:

Study 1: Randomised 7-Day Wear Assessment

A single-centre, open-label, prospective, randomised volunteer trial evaluated the three 5-layer silicone foam dressings over 7 days. Dressings were applied to thighs and shins (two applications of Dressing 1* per participant; one each of Dressings 2† and 3‡). The primary outcome measure was Acceptable Dressing Presence (ADP), defined as presence with no border lift, pad exposure, or tears, at day 7. Secondary outcome measures included dressing presence, and participant reported pain on dressing removal.

Study 2: Peel-and-Peek Model

A single-centre, prospective, comparative study evaluated silicone adhesive border strips (1.5 × 8.0 cm) from each of the three dressings (Dressings 1*, 2† and 3‡). Each volunteer received nine strips (three per product) randomized across their backs. Adhesive strip presence (<50% lift) was assessed after twice-daily lift-and-re-adhere procedures over 5 days.

Results

Study 1: ADP at day 7 was 72.9%, 83.3%, and 65.0% for Dressings 1*, 2†, and 3‡ respectively; dressing presence was 95.0%, 94.5%, and 90.9%. Pain on removal was "None" or "Mild" for all dressings.

Study 2: After 3 days, ≥95% of all strips remained in place; after 5 days, ≥90% remained in place. Each of the evaluated strips demonstrated a median presence of ≥4 days with similar tolerance to repeated lifting.

Conclusions

Across two complementary models, the new 5-layer silicone foam dressing demonstrated strong performance during sustained wear and repeated lifting, supporting its suitability for pressure injury prevention strategies involving prophylactic dressings requiring both secure adhesion and the ability to lift and reapply.

Conflict of Interest

Research funded by Smith+Nephew. All authors are employees of Smith+Nephew.

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*ALLEVYN® COMPLETE CARE Foam Dressing (10x10cm; Smith+Nephew); †ALLEVYN® LIFE Foam Dressing (12.9x12.9cm; Smith+Nephew); ‡Mepilex™ Border Flex dressing (10x10cm; Mölnlycke Healthcare)

◇Trademark of Smith+Nephew



PERFORMANCE AND SAFETY OF A THIN POLYURETHANE FOAM DRESSING ACROSS MULTIPLE WOUND TYPES: A RETROSPECTIVE CHART REVIEW

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Introduction

Foam dressings are widely used in wound care to maintain a moist healing environment and support management of low-exudate wounds. A thin polyurethane foam (PUF) dressing¹ was developed for low-to-non-exuding wounds, offering a gentle silicone adhesive interface and moisture-retentive properties to promote healing. The aim of this analysis was to evaluate the real-world performance and safety of PUF in routine wound care practice.

Methods

A multi-site, retrospective chart review of patients managed with PUF (between June 2023 and 2025) was conducted in August 2025 across the United Kingdom, France, and Italy. Wound characteristics, treatment outcomes, and safety were evaluated.

Results

A total 389 wounds were evaluated, including pressure ulcers (n=87; 22%), venous leg ulcers (n=82; 21%), traumatic wounds (n=64; 17%), partial-thickness burns (n=62; 16%), diabetic foot ulcers (n=45; 12%), mixed-etiology leg ulcers (n=34; 9%), and arterial leg ulcers (n=15; 4%). Wound size reduced by a mean of 2.8 cm (51%) in length, 2.2 cm (54%) in width, and 0.7cm (53%) in depth. Tissue composition outcomes represent the percentage of wounds in which each tissue type was present. Epithelializing tissue was observed in 18% of wounds pre-treatment (n=389) and 74% post-treatment (n=228), while necrotic tissue decreased from 50% (n=389) to 15% (n=228). Overall, 59% of wounds healed and 37% improved, with adverse events reported in 1% of cases.

Conclusions

PUF was associated with favourable wound progression, reductions in wound size and low incidence of safety events across various wound types, supporting its use in routine clinical practice.

Conflict of Interest

Funded by Convatec.

References

1. Foam Lite™



USE OF MEDICAL HONEY IN THE TREATMENT OF PRESSURE ULCERS

Violeta Vaidotienė (1), Laima Kalpokienė (2), Daiva Didvalė- Anušauskė (3)

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Introduction

Pressure ulcers are a common and complex clinical problem associated with tissue ischemia, infection, and impaired healing. Despite advances in treatment, chronic wounds remain a major challenge due to infections, biofilms, and antibiotic resistance. In recent years, medical honey has gained increasing attention as a potential alternative or adjunct therapy for pressure ulcer management due to its broad biological activity [1].

Methods

A systematic review of the literature and clinical studies focusing on the use of medical honey in the treatment of chronic wounds, particularly pressure ulcers, was performed. Additionally, clinical case analysis and presentation were conducted.

Results

Medical honey demonstrates multiple beneficial effects in the management of pressure ulcers: it exhibits antimicrobial activity (including against MRSA), inhibits biofilm formation, reduces inflammation and pain, promotes autolytic debridement, maintains a moist wound environment, and stimulates tissue regeneration. Clinical studies show that it accelerates the healing of chronic wounds, reduces infection rates, and decreases the need for surgical debridement [2].

Clinical case No. 1. A 77-year-old male (85 kg) with a stage IV pressure ulcer in the left gluteal region, admitted on December 12, 2025, to the Department of Vascular Surgery. Diagnosis: peripheral arterial atherosclerosis with gangrene; lower limb arterial embolism and thrombosis (Figure 1).

Figure 1. Clinical case No. 1



Clinical case No. 2. A 69-year-old male (75 kg) with a stage III pressure ulcer in the left greater trochanter region, admitted in October 2025 to the Department of Nursing and Palliative Care. Diagnosis: dementia associated with Parkinson's disease (Figure 2).

Figure 2. Clinical case No. 2



Conclusions

Medical honey is an effective treatment option for pressure ulcers, capable of accelerating healing by up to four times, and can be used as an alternative or adjunctive therapy [3].

Conflict of Interest

I have no financial interests or relationships to disclose with regard to the subject matter of this abstract.

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SUCCESSFUL TREATMENT OF PRESSURE ULCERS WITH A CHITIN WOUND HYRDOGEL

(1), Heather Hodgson

Glasgow UK

Introduction

Pressure ulcers are common but preventable wounds occurring as a result of pressure or in combination with shear forces. Worldwide, the incidence of pressure ulcers in healthcare settings ranges from 4.5%-78.4% [1]. In the UK, over 700,000 people are affected by pressure ulcers each year, and 180,000 of those are acquired each year [2]. The aim of this study was to evaluate a chitosan-based medical wound healing gel [3] in the treatment of a variety of acute and chronic wounds, including pressure ulcers.

Methods

A prospective, multicentre, non-comparative clinical study was undertaken. Patients with a venous leg ulcer, diabetic foot ulcer, pressure ulcer, post-operative surgical wound, traumatic wound, or burn wound were recruited from acute and community services across the NHS Greater Glasgow and Clyde region. The primary objective was to evaluate the medical wound healing gel on wound healing progression – as measured by percentage change in wound area from baseline – and wound bed condition. Secondary objectives included assessment of wound bed condition, wound pain, wound infection, and overall product performance, as measured by clinician satisfaction. Wounds were assessed weekly for 4 weeks.

Results

To date, 47 patients with 62 wounds have completed the study, with 20 patients (20 wounds) having pressure ulcers. In this interim analysis of the sub-group PU, the median percentage reduction of wound area from baseline to final visit was reduced. Wound improvement was observed. Percentage of the wound bed covered by devitalized tissue (necrosis and slough) decreased over the assessment period and a corresponding increase in granulating and epithelialising tissue was noted. Although pain levels were low, seven (38.9%) patients reported improvement (reduction) in wound pain. Clinicians noted no wound infection in any patients with pressure ulcers throughout the study. Clinical performance of the chitosan hydrogel was rated as “very good” or “good” >70% was all parameters measured.

Conclusions

The chitosan medical wound healing gel was associated with wound progression, wound bed improvements, and good clinical performance in patients with pressure ulcers.

Conflict of Interest

This study was funded by Primex ehf, Iceland.

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3. ChitoCare® medical Wound Healing Gel, Primex ehf, Iceland.



USING PRESSURE MAPPING AS AN EDUCATIONAL TOOL FOR PRESSURE ULCER PREVENTION

Heather Hodgson

Scotland

Introduction

Despite adherence to scheduled repositioning, healthcare-acquired pressure damage continues to occur. Staff often assume that movement or transfers alone provide effective pressure relief; however, this misconception may contribute to ongoing risk and unfortunately patient harm arising from pressure damage as patients are often left for long periods without appropriate pressure relief.

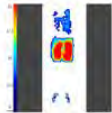
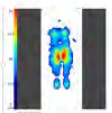
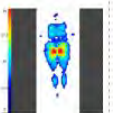
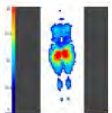
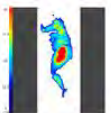
Methods

To improve staff understanding of the relationship between repositioning, pressure redistribution, and tissue reperfusion using pressure mapping as an educational and quality-improvement tool.

Pressure mapping technology was used to visualise real-time pressure distribution across different positions in bed and chair, including use of profiling functions such as knee break. Images were incorporated into bedside teaching sessions, posters, and educational resources, and a quiz (see below) to support experiential learning and discussion.

Image one Pressure Mapping Quiz

Match the pressure mapping image with the position the person is in

 1.	 2.	 3.	 4.	 5.
 A	 B	 C	 D	 E

Results

Pressure mapping demonstrated that small, purposeful positional changes resulted in significant reductions in pressure over high-risk areas such as the sacrum and heels, while movement without meaningful repositioning often failed to achieve pressure relief. Visual feedback was consistently described by staff as 'eye-opening' and improved understanding of why repositioning must facilitate reperfusion rather than simply movement. Using the pressure mapping images was described by delegates as 'the best educational resources' that they had encountered relating to pressure ulcer prevention.

Conclusions

Pressure mapping is a powerful educational intervention that challenges misconceptions, strengthens clinical reasoning, and supports consistent, evidence-based pressure ulcer prevention practice. Its use has enhanced staff engagement and informed safer repositioning strategies across clinical settings.

Conflict of Interest

No funding was provided; however, industry supported this initiative by undertaking the pressure mapping.

HARNESSING CHITOSAN BASED TECHNOLOGY TO ACCELERATE MASD HEALING AND POTENTIALLY REDUCE PRESSURE ULCER RISK : FINDINGS FROM A CLINICAL EVALUATION OF A CHITOSAN BASED WOUND HEALING GEL

(1), Eilidh Henderson

Glasgow UK

Introduction

This abstract forms part of a wider clinical evaluation examining the impact of an innovative medical wound healing gel across a range of wound aetiologies, including Moisture-Associated Skin Damage (MASD). Within this broader programme of work, the author sought to determine whether the use of this wound gel could positively influence the clinical trajectory of MASD lesions and, crucially, reduce the risk of these wounds progressing to pressure ulcers.

MASD is increasingly recognised as a significant precursor to pressure-related skin injury. When moisture-compromised skin is left unmanaged, the resulting inflammation, maceration, and barrier disruption can rapidly escalate vulnerability to deeper tissue damage. As highlighted in clinical practice guidance, “skin weakened by prolonged moisture exposure becomes markedly more susceptible to pressure, friction, and shear, creating a pathway through which MASD can evolve into pressure ulceration without timely and effective intervention.” (1)

Given this established relationship, early, proactive management of MASD is essential to maintaining skin integrity and preventing avoidable deterioration. This abstract explores whether a Chitosan based medical wound healing gel—through its protective membrane formation, and tissue-supportive properties—could stabilise MASD lesions, promote healing, and interrupt the progression toward pressure-related injury.

Methods

Wounds were assessed weekly for 4 weeks. The MASD findings presented represent a subset of data collected from 16 patients with MASD who participated in a larger clinical study evaluating the impact of the wound healing gel across multiple wound types

Results

Overall Lesion Progression -Across the evaluation period, the majority of MASD lesions demonstrated clear improvement.

Reduction in Lesion Area -A meaningful decrease in lesion area ,median wound area reduced substantially between baseline and the final visit.

Wound Bed Tissue Changes -A clear shift from granulation tissue being the predominant tissue type at baseline to epithelial tissue becoming the main tissue type at the final visit

Wound Bed Condition -Most lesions demonstrated an overall improvement .

Peri-Wound Skin Condition -Improved with more MASD lesions assessed as healthy at final review.

Wound Pain -Decreased,with most lesions pain-free by the final visit, none showed worsening pain or peri-wound deterioration

Conclusions

The evaluation demonstrates a consistent pattern of clinical improvement across all key wound-healing parameters. Supported consistent improvement in MASD, with reduced lesion size, increased epithelialisation, better wound-bed quality, and healthier peri-wound skin. Pain remained stable or improved, and no lesions deteriorated. By restoring skin integrity and resilience, the Chitosan based wound healing gel helped prevent further breakdown, with no MASD lesions progressing toward pressure ulceration



1.

Conflict of Interest

This study was funded by Primex ehf, Iceland.

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PREVENTING WOUND DEFORMATION DURING NPWT FOR PRESSURE INJURIES: EFFICACY OF MECHANICAL STABILIZATION

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Introduction

Negative Pressure Wound Therapy (NPWT) is a widely established treatment for hard-to-heal wounds, utilizing macro-deformation for wound contraction and micro-strain to stimulate cellular proliferation and angiogenesis. However, in the treatment of pressure injuries, delayed granulation and prolonged wound closure are frequently observed when compared to other wounds, such as diabetic foot ulcers (DFUs). While these delays are classically attributed to inadequate pressure redistribution, impaired healing often persists even when optimal standard care—including rigorous pressure redistribution utilizing advanced support surfaces, frequent repositioning, and adequate nutritional support—is provided.

We hypothesize that the very interventions intended for strict pressure redistribution, such as frequent repositioning and the resultant movement of the hip joint, paradoxically cause repeated structural deformation of the wound cavity and the gravity-induced sagging of periwound soft tissues. This dynamic movement shifts the NPWT foam dressing under negative pressure, which physically disrupts and tears away newly formed delicate granulation tissue, thereby hindering the healing process.

Therefore, this study aimed to evaluate the clinical efficacy of mechanical stabilization—achieved through external splinting or strict unilateral repositioning protocols—on the healing duration of pressure injuries complicated by undermining and deep pockets undergoing NPWT.

Methods

This observational study included 13 patients presenting with pressure ulcers featuring undermining and deep pockets. To prevent the internal deformation of the wound cavity and maintain the precise, uninterrupted placement of the foam dressing, specific movement restrictions were implemented based on the ulcer's anatomical location. For ischial and trochanteric ulcers, external splints were applied to completely restrict the hip joint's range of motion. For sacral ulcers, traditional alternating bilateral repositioning was completely avoided; instead, patients were strictly maintained in a unilateral lateral decubitus position on the same side, alternating only between 90, 60, and 45-degree angles. The primary outcome was the duration from post-surgical debridement and NPWT initiation to the complete resolution of the undermining/pocket and the shallowing of the ulcer via granulation.

Results

The cohort consisted of 13 patients (mean age 53.1 ± 19.3 years; 11 males (84.6%)). Ulcer locations were ischial ($n=8$), trochanteric ($n=1$), and sacral ($n=4$). The overall mean time to pocket resolution and wound shallowing was 51.7 ± 32.7 days. A subgroup analysis was performed on the 9 patients with ischial and trochanteric ulcers. Two patients who refused splinting due to adherence issues formed the non-splinted control group, while the remaining 7 formed the splinted group. The mean healing time was significantly shorter in the splinted group compared to the non-splinted group (41.0 ± 16.1 days vs. 115.0 ± 4.9 days; $p = 0.00002$, Welch's t-test). Notably, three of these cases (two ischial, one trochanteric) had been completely refractory to standard wound care for over a year at previous institutions. Furthermore, despite the intentionally restricted and unilateral repositioning protocol, zero patients developed newly acquired pressure ulcers on the weight-bearing healthy side. We attribute this safety profile to the enhanced preventative efficacy of modern, high-performance support surfaces.

Conclusions

The efficacy of NPWT in treating pressure ulcers is profoundly dependent on maintaining the static morphology of the wound bed and ensuring the uninterrupted contact of the foam dressing. Implementing mechanical stabilization techniques—such as hip immobilization using external splints for ischial and trochanteric ulcers, and strictly restricted unilateral positioning for sacral ulcers—effectively prevents wound deformation. This approach significantly accelerates granulation, dramatically shortens the healing duration for pressure ulcers with undermining, and can be safely executed without inducing secondary pressure injuries.

Conflict of Interest

The authors declare no conflict of interest.



FAST-TRACK TREATMENT ALGORITHM FOR PATIENTS WITH STAGE IV PRESSURE ULCERS

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Introduction

To develop a fast-track treatment algorithm for patients with EPUAP stage IV pressure ulcers.

Method

Starting in October 2024, 15 patients (7 women, 8 men; mean age 36.5 years) with stage IV pressure ulcers were treated on an outpatient basis using an innovative algorithm. Key elements included multidisciplinary collaboration (dietitian, physiotherapist, nurse, surgeon) and assessment of transcutaneous oxygen pressure (TcpO₂). Only patients with TcpO₂ values above 40 mmHg at the wound edges were qualified for wound closure with an antibiotic-releasing implant.

Results

The average time to complete wound healing from surgery was 42 days (range: 15–160 days). Patients with properly implemented prevention, monitored TcpO₂, adequate nutrition, and wounds in the proliferative phase may be considered for simple reconstructive procedures. This approach can help avoid complex, costly, and high-risk operations in the operating theatre, limiting treatment to simple wound suturing in an outpatient setting.

Conclusion

Appropriate diagnostic methods enable the qualification of selected patients with pressure ulcers for simple wound suturing with an antibiotic implant, reducing both the costs and risks of treatment.

Conflict of Interest

I declare no conflict of Interest

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Extensive Pelvic Bone Necrosis and Septic Complication of a Stage IV Pressure Ulcer in a Young Paraplegic Patient

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Introduction

Pressure ulcers remain a major complication in patients with neurological deficits, particularly in those with paraplegia, due to prolonged immobilization and impaired sensation. Advanced-stage pressure injuries may progress to deep tissue destruction, including bone involvement, leading to osteonecrosis, osteomyelitis, and systemic infection. Such cases are associated with high morbidity and require complex multidisciplinary management. We present a severe case of a chronic pressure ulcer complicated by extensive pelvic bone necrosis and sepsis in a young paraplegic patient.

Methods

A young patient with a history of lower paraplegia was admitted to our department in septic condition. The patient had a three-month history of a progressively worsening pressure ulcer in the sacro-ischial region. Clinical evaluation, laboratory investigations, and imaging studies (including CT) were performed to assess the extent of soft tissue and bone involvement. Microbiological samples were obtained from the wound for culture and sensitivity testing. A multidisciplinary treatment approach was initiated, including broad-spectrum intravenous antibiotics, hemodynamic stabilization, and surgical intervention. Serial surgical debridement was performed to remove necrotic soft tissues.

Results

Clinical and imaging findings demonstrated extensive necrosis involving the acetabulum, ischial bone, and sacrum, consistent with advanced osteonecrosis. The patient presented with systemic inflammatory response syndrome, including fever, tachycardia, and elevated inflammatory markers. Microbiological analysis revealed polymicrobial infection, typical of chronic pressure ulcers. Aggressive surgical debridement combined with targeted antibiotic therapy led to gradual clinical stabilization. The patient showed improvement in systemic condition, with reduction of inflammatory markers and control of the septic process. Ongoing wound management and reconstructive planning were considered as part of further treatment.

Conclusions

This case illustrates the severe progression of untreated or inadequately managed pressure ulcers in patients with paraplegia. Deep tissue involvement with pelvic bone necrosis and sepsis represents a life-threatening condition requiring prompt recognition and aggressive multidisciplinary treatment. Comprehensive care involving surgical, infectious disease, and wound care teams is critical for improving patient outcomes.

Conflict of Interest

The authors declare no conflict of interest and no industry funding related to this study.

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CHALLENGES IN MANAGING GRADE 4 ISCHIAL TUBEROSITY PRESSURE ULCER IN A PARAPLEGIC PATIENT: A CASE STUDY

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Introduction

This case study describes the management of a 53-year-old paraplegic male with a Grade 4 ischial tuberosity pressure ulcer following traumatic spinal injury at T6–T7 some 26 years prior. Pressure injuries are defined as localised skin or tissue damage caused by pressure, friction or shear typically over bony prominences (EPUAP et al., 2019). Paraplegic patients are at risk of developing pressure ulcer with lifetime incidence rates of 25–85% in spinal cord injury populations (Vecin & Gater, 2022). Patients with impaired mobility are particularly susceptible to ulceration at the sacrum, buttocks, hips and heels (Fletcher et al., 2025). His medical history included ischaemic heart disease, myocardial infarction, paroxysmal atrial fibrillation, malignant neoplasm and right hip osteomyelitis of 15 years' duration. This study aims to highlight the clinical challenges encountered and demonstrate the value of a coordinated multidisciplinary approach. The case further underscores the considerable economic burden of pressure injuries, with annual management costs in Ireland estimated at approximately €250 million (Gethin et al., 2005).

Methods

Holistic wound assessment was guided by the T.I.M.E. framework. Risk assessment tool was implemented, the Waterlow score and SCIPUS score, both indicating very high-risk score. Investigations included FBC, CRP, urea, electrolytes, wound swabs, MRI, echocardiogram and chest X-ray. Interventions across multiple admissions included sharp debridement, advanced dressings (hydrogel, hydrocolloid, charcoal, silver gauze), intravenous antibiotics (Tazocin and Vancomycin) and Negative Pressure Wound Therapy (NPWT). A Multidisciplinary Team (MDT) comprising Tissue Viability, Infectious Diseases, Microbiology, Reconstructive Plastics, Surgery, Dietetics, Physiotherapy, Occupational Therapy, Psychiatry and community nursing delivered patient care during hospitalisation.

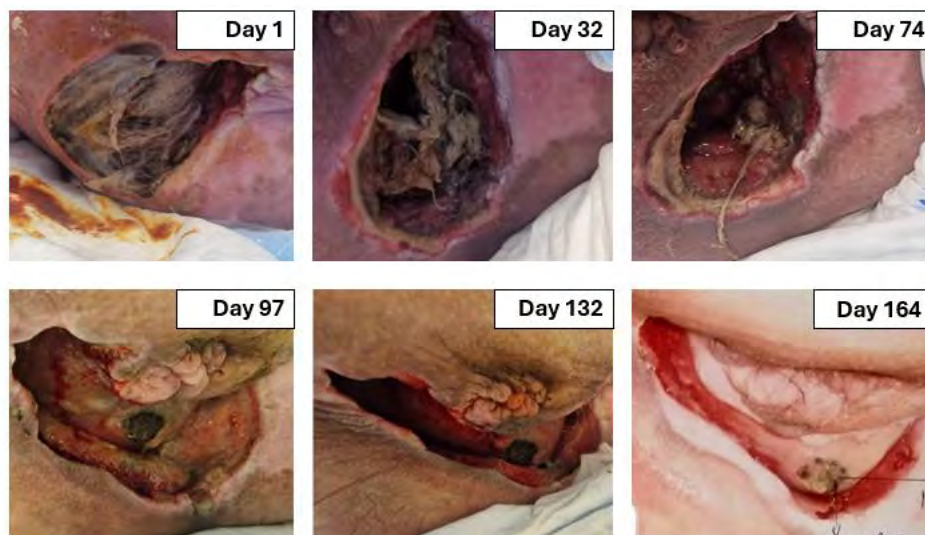


Figure 1. Healing of a Grade 4 Pressure Ulcer Over 164 Days: Sequential images show progressive improvement with multidisciplinary care. Day 1 shows extensive necrosis and heavy exudate and malodour. By Days 32–74, debridement and NPWT reduced non-viable tissue. Ongoing debridement, antibiotics and advanced dressings promoted granulation and wound reduction by Days 97–132. Following de-functioning colostomy, the wound was cleaner, shallower and with the evidence of epithelialisation tissue by Day 164.

Results

Over four admissions spanning 164 days, wound dimensions peaked at 16 cm × 8 cm × 4 cm. MRI confirmed osteomyelitis and myositis of the left ischium and ischial tuberosity. Cultures identified *Escherichia coli*, *Staphylococcus aureus* and *Corynebacterium striatum*. Haemoglobin was 7.3 g/dL, requiring transfusion and echocardiogram showed an ejection fraction of 35%. Recurrent pressure ulcers and frequent admissions are common in patient with spinal cord injury due to impaired mobility and reduced neurological sensation (Vecin & Gater, 2022). Maintaining a dressing seal was persistently problematic due to proximity to the anal margin and faecal contamination. A de-functioning colostomy was performed, a surgical intervention which is highly effective for complex peri-anal wounds in improving wound healing and improve quality of life (Marti et al., 2017). NPWT was discontinued after 100 days, with granulation and present of epithelialisation tissue by Day 164.

Conclusions

This case highlights the complexity of managing Grade 4 pressure ulcers in paraplegic patients with multiple comorbidities. Positive outcomes were achieved through holistic assessment, evidence-based wound management, timely surgical intervention and sustained MDT collaboration. The Tissue Viability Nurse was central to decision-making and care coordination throughout. Clear communication and comprehensive documentation were essential to cohesive, patient-centred care and improve quality of life

Conflict of Interest

I declare that there is no conflict of interest and that no industry funding was received for this research.

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INTERDISCIPLINARY REHABILITATION AFTER FLAP SURGERY IN SPINAL CORD INJURY: EXPERIENCES FROM CLINICAL PRACTICE

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Introduction

A rehabilitation institution offering lifelong follow-up for individuals with spinal cord injury treats patients with severe pressure ulcers requiring reconstructive flap surgery. Postoperative rehabilitation demands prolonged off-loading, structured mobilization and broad interdisciplinary expertise. A clinical procedure has been developed based on research evidence and clinical experience. The aim of this poster is to describe how the interdisciplinary team works to optimize wound healing, functional recovery and a safe transition home.

Methods

Clinical practice is guided by recommendations from the European Pressure Ulcer Advisory Panel and the National Pressure Injury Advisory Panel, combined with extensive institutional experience. Procedures include pre-admission preparations, assessments on arrival, a phased mobilization plan, systematic skin and wound evaluations, interdisciplinary meetings, patient and caregiver education, and coordinated discharge and follow-up planning. The team consists of physicians, nurses, occupational therapists, physiotherapists, psychologists, and social workers, with wound care nurses as key clinical resources.

Results

Clinical experience demonstrates that an interdisciplinary approach is essential for effective rehabilitation after flap surgery. Patients are admitted for a mobilization stay with continuous reassessment of wound status, functional capacity, and risk factors. Assessments of skin, positioning and mobilization potential form the basis for a shared plan, and early agreement on loading regimes reduce complications. In the early phase, patients remain in off-loading supine positions. When sitting is initiated, a nurse, occupational therapist and physiotherapist jointly assess pressure distribution, enabling immediate adjustments to seating and equipment. This coordinated start supports safety and stable progression. As sitting tolerance increases, conventional transfer methods are introduced and daily activities are simulated. The skin is assessed after each session to detect early changes. Most patients can sit 2 hours x 4 per day at discharge, with restrictions continuing for at least one year. Nurses provide continuous monitoring, wound care, nutritional support, pain management, and assistance with bladder and bowel routines. Occupational therapists assess pressure distribution in daily activities, adjust equipment and guide safe transfers. Physiotherapists work to prevent muscle loss, maintain joint mobility and support respiratory function. Collaboration on positioning and transfers is central to preventing complications and supporting recovery. The psychological burden is considerable due to prolonged bedrest and reduced participation, making psychological support essential.

Conclusions

Structured and close interdisciplinary collaboration is essential for safe and effective rehabilitation following flap surgery. Continuous shared assessments, tailored interventions and active involvement of patient and community care providers promote wound healing, reduce complications and enhance the patient's ability to return to daily activities.

Conflict of Interest

No funding from industry was received for this work.

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BRIDGING KNOWLEDGE TO PRACTICE: A LINK NURSE PROGRAMME TO STRENGTHEN PRESSURE ULCER PREVENTION IN ACUTE CARE

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Introduction

In Ireland, pressure ulcers have an average prevalence of approximately 12%, which places a significant financial burden on health services due to prolonged intensive treatments and increased hospital bed days [1]. Nurses play a key role in assessing pressure ulcer risk and implementing prevention strategies [2]. A structured tissue viability link nurse education programme is delivered annually in Beaumont Hospital, incorporating a dedicated study day focused on pressure ulcer prevention and management. The programme's impact was evaluated by examining hospital-acquired pressure ulcer incidence within the same year.

Methods

The 2025 tissue viability link nurse education programme was delivered over a 10-month period in a model 4 hospital. Recruitment yielded 94 link nurses from 40 wards across multiple directorates and nursing homes. The programme comprised of 3 core study days dedicated to pressure ulcer prevention and management, lower limb care and appropriate dressing selection, each accredited with 7 CPD points by the NMBI. In addition, link nurses were required to complete the online tissue viability BORIS training, covering pressure ulcers, surgical wounds, and other wounds of various aetiologies.

To promote interactive learning, the study day incorporated SSKIN stations that highlighted best practices in the prevention and management of pressure ulcers (skin assessment, surface support, keep moving, incontinence care, and nutrition). The programme also included education on medical device-related pressure ulcers, a refresher on accurate completion of the Beaumont SSKIN bundle and pressure ulcer incident reporting, and an impactful illustration of patient harm through a coroner's court case. An informal evaluation survey was conducted at the end.

Hospital-acquired pressure ulcer data was collected hospital-wide throughout 2025 and categorised as All Pressure Ulcers (Stage 1-4) or Serious Reportable Events (Stage 3-4). These were compared with the corresponding 2024 data to evaluate patterns during the link nurse programme period.

Results

Over the course of the programme, hospital-acquired pressure ulcer rates exhibited variable trends across clinical areas. Reductions in overall pressure ulcer incidence were observed in surgical (46%), medical 1 (53%), medical 2 (68%), neurocent (2%), and critical care and anaesthesia (12%) while TUN (transplant, urology and nephrology) and the emergency department figures remained unchanged.

Focusing specifically on Stage 3-4 pressure ulcers, reductions were noted in surgical (44%), the emergency department (100%) and medical 2 (60%). Neurocent and medical 1 data were unchanged from 2024, whereas increases were observed in critical care and anaesthesia (200%) and TUN (33%).

Conclusions

Implementation of the tissue viability link nurse programme was associated with a reduction in hospital-acquired pressure ulcers. While causality cannot be established, these findings suggest that strengthening link nurse knowledge, heightening awareness, and empowering practice likely improved clinical outcomes. The absence of baseline data on staff knowledge and confidence is acknowledged as a limitation. Future tissue viability link nurse programmes will include formal pre- and post-education evaluation to better measure the impact on staff knowledge, confidence, and clinical practice.

Conflict of Interest

The authors declare no conflicts of interest.



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A NURSE-LED APPROACH TO PREVENTING HOSPITAL-ACQUIRED PRESSURE INJURIES (HAPI'S)

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Introduction

Hospital-acquired pressure injuries (HAPIs) are a significant concern in healthcare settings, leading to prolonged hospital stays, patient discomfort, and increased healthcare costs. Timely detection and intervention are crucial to preventing these injuries, with early identification of at-risk patients being a key strategy. Preventive measures, such as repositioning patients or providing specialized pressure-relieving mattresses, play a vital role. However, these interventions are often delayed due to centralized distribution systems or reliance on specialized staff, contributing to unnecessary delays in treatment. A nurse-led approach, enabling nurses to promptly take preventive action, may offer a more efficient strategy (2-3).

Methods

In this retrospective study conducted at the VieCuri Medical Centre from 2017 to 2025, we evaluated the effect of transferring control over pressure-relieving mattresses to primary care nurses on the prevalence of HAPIs. The focus was on the use of a static air mattress(1), which was readily available on all wards. Nurses had direct access to these mattresses without needing to wait for centralized ordering or specialized consultation. For patients with pressure injury grades above "2", a tissue viability nurse was consulted for additional recommendations. Data on patient outcomes, including pressure injury incidence, were collected and compared to national averages.

Results

The prevalence of pressure injuries in our cohort was 0.8% (2017), with a total of 107 patients developing pressure injuries (severe) out of 12.923 hospital admissions. This was compared to a national nosocomial prevalence of 2.6% in 2017 (5). 2025(0.7%) was comparable to 2017(0.8%). Patients reported that the static air mattresses were comfortable, and nurses felt empowered by being able to initiate interventions promptly. The costs of the static air mattresses were significantly lower than those of alternating pressure mattresses. Despite a slight increase in the use of static air mattresses compared to previous practice, the overall costs and effectiveness remained favorable when compared to the use of alternating mattresses including centralized distribution systems and reliance on specialized staff.

Conclusions

The nurse-led approach to managing pressure injury prevention through immediate access to static air mattresses was associated with a lower prevalence of HAPIs compared to national averages. This model empowered nursing staff to take prompt action, which enhanced patient care and reduced delays in treatment. Moreover, the static air mattress was found to be a cost-effective alternative to more expensive alternating mattresses, contributing to overall cost savings without compromising patient outcomes. These findings suggest that decentralized decision-making in pressure injury prevention may lead to improved clinical outcomes and efficiency in hospital settings.

Conflict of Interest

No conflict of interest



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“SSKIN PROMPT”

Nicky Jefferson . Northern Ireland

Introduction

The Care Home Support Team (CHST) within the Belfast Health & Social Care Trust CHST is comprised of Nurses and AHP's. We provide clinical support and education to 44 nursing homes across Belfast, including frail elderly, learning disability and mental health. CHST maintain a database of all Category 2 and above pressure ulcers reported by Adverse Incident Reports across the 44 nursing homes to support governance. PURPOSE T Pressure Ulcer Risk Assessment has been implemented as the standard pressure ulcer risk assessment tool across all Health & Social Care (HSC) settings in Northern Ireland, supporting a shared language for risk communication, continuity of care and safe discharge. However, its adoption within nursing homes has been variable (14%) and Braden is still the common Risk Assessment Tool. This may be due to accessing PURPOSE T software. PURPOSE T also triggers completion of SSKIN Bundle documentation. Nursing Homes in Northern Ireland do not have access to NHS standardised SSKIN Bundle documentation. . . In absence of SSKIN Bundle Documentation CHST have developed a 'SSKIN Prompt'. (Surface; Skin check; Keep Moving; Incontinence skin management; Nutrition.) The 'SSKIN Prompt' aims to guide holistic care planning following completion of Braden or PURPOSE T Pressure Ulcer Risk Assessment.

Methods

CHST has delivered pressure ulcer awareness and prevention training for over 15 years, including multidisciplinary training and bespoke in-reach education following Pressure Ulcer Incident Reviews (PUIRs). It was a result of reviewing incidents of pressure damage that identified gaps in knowledge and practice. The fundamental principles of pressure ulcer prevention were not clearly assessed and identified and therefore individualized care plans did not always meet resident's needs.

CHST liaised with BHSCT TVN Lead and spoke to staff working in the Nursing Homes. A 'SSKIN Prompt' poster was developed (2023) by the CHST, that reflects the principles of the Belfast HSC Trust Community SSKIN bundle documentation and EPUAP guidelines (2019).

The 'SSKIN Prompt' summarizes core SSKIN principles in clear, accessible language.

A learning lunch session was held with CHST Clinical Nurse Facilitators (CNFs) to share and direct them on the use of the SSKIN Prompt.

In addition, all homes were provided with copies of the SSKIN Prompt for display, it was added to residents' records for reference, shared at Nursing Home Managers Meetings and provided throughout CHST training sessions.

Results

The majority of Nursing Homes now display and utilise the 'SSKIN Prompt' to support pressure ulcer prevention care planning for Residents in their Homes. CHST CNFs report on consistent use of the SSKIN Prompt as an educational and reflective governance tool.

PURPOSE T training was also incorporated into the CHST training calendar in 2024 along with the 'SSKIN Prompt' being developed.

Conclusions

The 'SSKIN Prompt' supports consistent, holistic pressure ulcer prevention, increasing resident safety from pressure damage and strengthens clinical governance within nursing homes through partnership working and targeted education. We have also shared SSKIN Prompt with our Community AHP Teams in our MDT approach for caring and providing a service for Nursing Home Residents.



SSKIN CARE PLAN
PROMPT 2-26 (003).d

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FROM A SINGLE SPECIALIST TO A HOSPITAL-WIDE NETWORK: STRENGTHENING NURSING LEADERSHIP IN WOUND CARE AND PRESSURE ULCER PREVENTION

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Introduction

Until 2024, wound care services at North Estonia Medical Centre (NEMC) relied on a single wound care nurse responsible for outpatient appointments and consultation across all inpatient departments. This centralized model limited accessibility, continuity of care and the systematic development of nursing expertise. To address these challenges, a strategic shift was made from an individual-based service model to a clinic-level network approach. The Wound Care Nurses' Network was established to ensure uniform and high-quality wound care in both inpatient and outpatient settings while strengthening nursing leadership and shared responsibility across the organization.

Aim is to develop and implement a sustainable, hospital-wide Wound Care Nurses' Network that improves the accessibility, quality and continuity of wound care services and supports nursing leadership development.

Methods

A developmental project design was applied. Each clinic appointed at least one wound care nurse with additional training who provides consultation within their clinical unit. Network nurses are supported by senior wound care nurses from the Surgery Clinic. Standardized guidelines, documentation processes, training programs and intranet-based resources were developed. Hospital-wide hybrid education, including lectures, workshops and e-learning, supported competence development. Collaboration with international professional organizations strengthened evidence-based practice.

Results

The Wound Care Nurses' Network has been actively operating since May 2024. It includes six clinics (excluding Diagnostics) and has expanded to hospitals of the North Estonia Medical Centre group, including Rapla Hospital (since August 2025) and Hiiumaa Hospital (since October 2025). A comprehensive set of standardized materials was developed, including a wound care guideline with an integrated wound care model, an activity guide for network nurses, essential supply lists for initial wound dressing, guidelines for pressure ulcer prevention, treatment, and documentation, One Minute Wonder (OMW) learning materials, product-specific guidance materials and a dedicated wound care section on the hospital intranet.

A structured training program for network nurses was implemented, covering basic wound care, stoma care, handling of surgical instruments, wound infections, lymphedema therapy, chronic venous ulcer bandaging and pain management, also workshops on pressure ulcer prevention and management. Senior wound care nurses from the Surgery Clinic provide continuous training and consultation, while independent outpatient appointments continue in the general surgery outpatient clinic. Documentation of wounds and pressure ulcers, including Braden Scale assessment, was fully integrated into the "ÖDE" electronic nursing documentation system. Pressure ulcers are registered through the Patient Safety Incident Reporting System (POL). Collaboration with the European Pressure Ulcer Advisory Panel (EPUAP) supports continuous quality development.

To ensure more effective hospital-wide management of pressure ulcer prevention and care, a dedicated steering group was established within the network. The group's responsibilities include collecting, recording, and documenting pressure ulcer statistics, as well as conducting correlation analysis, research, and development. Furthermore, the group is tasked with hospital-wide information sharing, planning and conducting training sessions, performing audits, and implementing subsequent improvement activities.

Conclusions

Implementing a wound care nursing network improves patient care quality, patient safety and service accessibility while optimizing staff workload and strengthening teamwork. The model supports sustainable nursing leadership, enhances nurses' career development and provides a transferable framework for nurse-led service development in complex healthcare organizations.



IMPACT OF PRESSURE INJURY PREVENTION EDUCATION ON ICU NURSES' KNOWLEDGE AND PRACTICE

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Introduction

Pressure injuries remain a major patient safety concern in intensive care units (ICUs), particularly among critically ill patients with limited mobility and multiple comorbidities. Effective prevention requires nurses to possess adequate knowledge and to consistently implement evidence-based preventive practices. However, variations in nurses' knowledge and preventive care practices may affect the quality of pressure injury prevention. This study aimed to evaluate the effect of a pressure injury prevention education program on ICU nurses' knowledge and preventive practices.

Methods

This quality improvement project employed a pre–post design and was conducted in three intensive care units. A pressure injury prevention education program consisting of theoretical education, hands-on training, and online learning sessions was implemented for ICU nurses. Data were collected using structured questionnaires measuring pressure injury prevention knowledge and preventive practices. A pre-intervention survey was conducted with 85 nurses in April 2024, and a post-intervention survey with 90 nurses in November 2024.

Results

Preventive practices increased from 78.8% at baseline to 95.0% after the intervention. The mean knowledge score increased from 65.3 to 89.2. Improvements were observed across multiple domains, including pressure injury staging, wound assessment, dressing selection, and preventive interventions.

Conclusions

The education program significantly improved ICU nurses' knowledge and preventive practices. Structured education may enhance nurses' competencies and contribute to improved pressure injury prevention in critical care settings.

Conflict of Interest

The authors declare no conflict of interest.

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EFFECTIVENESS OF A NURSING PRESSURE INJURY PREVENTION CARE BUNDLE ON HOSPITAL-ACQUIRED PRESSURE INJURY RATES IN AN ADULT ICU: A RANDOMIZED CONTROLLED TRIAL

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Introduction

Patients in intensive care units (ICUs) are at high risk for hospital-acquired pressure injuries (HAPIs), which increase hospitalization, costs, and reduce patient comfort and quality of life [1]. Although evidence-based strategies such as risk assessment, regular skin inspection, repositioning, support surfaces, and nutritional evaluation exist, implementation in ICUs is often inconsistent, and methodological gaps remain in the literature [2,3]. To address these gaps, we developed a structured Pressure Injury Prevention Care Bundle (PIP-CB) specifically for adult ICU patients, integrating multiple evidence-based interventions into a standardized protocol. This study aimed to evaluate the clinical effectiveness, feasibility, and nurse adherence of a context-specific PIP-CB in adult ICUs.

Methods

A randomized controlled trial was conducted in the adult ICU between January and May 2025 and was prospectively registered at ClinicalTrials.gov (NCT06770686). Adult patients (≥ 18 years) at risk for PI, without baseline injuries, and expected to stay in the ICU ≥ 24 hours were included. Ninety patients were randomized to the intervention (PIP-CB) or control (standard care) group. The PIP-CB was developed via systematic review and expert validation, and nurses received structured training prior to implementation. Fidelity monitoring confirmed adherence rates of $\geq 95\%$ in pilot and 100% during the study. The primary outcome was HAPI development; secondary outcomes included time to injury, stage, and location. Statistical analysis included descriptive statistics, group comparisons, and multivariate logistic regression to identify risk factors.

Results

Ninety patients (45 per group) and 20 nurses participated. Groups were comparable in demographics, Braden scores, and comorbidities. ICU length of stay was longer in the control group (12.5 ± 8.5 vs. 8.5 ± 6.1 days, $p = 0.012$). HAPIs occurred in 17.8% of the intervention group versus 46.7% of the control group ($p = 0.003$), and developed later in the intervention group (median 7 vs. 3 days, $p = 0.002$). No differences were observed in PI stage or anatomical location. Logistic regression indicated that standard care increased the odds of HAPI development 6.5-fold (OR = 6.45; 95% CI 1.49–10.44; $p < 0.001$). High BMI and glucose levels increased risk, while higher albumin and prealbumin were protective. Nurses' adherence to the bundle remained 100% throughout the study.

Conclusions

of a structured PIP-CB significantly reduced HAPI incidence and delayed injury onset in adult ICU patients. An evidence-based, structured intervention bundle improved consistency in preventive care and demonstrated clinical feasibility. Nutritional status remained an important modifiable factor in HAPI risk. Findings support integrating nurse-led PIP-CBs into routine ICU practice to enhance patient safety and care quality.

Conflict of Interest

No funding from industry was received for this research.

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One Team, One Goal - A Multi-Disciplinary Approach to Reducing Pressure Injury Incidence by 50% Hospital-Wide in 2025

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Introduction

Pressure injuries result in significant psychological and physical challenges for patients, having a negative impact on activities of daily living, with pain as the most common and difficult condition of living with a PI. Hospital-acquired PI makes up 62% of the 8.5% of pressure injuries worldwide, reiterating the need to focus on PI prevention and increase resources for treatment to decrease these numbers. (Li, Lin, Thalib, & Chaboyer, 2020) (Siotos, et al., 2022) (HSE, Health Service Executive, 2018)

In February 2025, a Pressure Injury working group was established. Representation was sought across a wide range of disciplines, including Nursing, Healthcare Assistance, Physiotherapy, Occupational therapy and Dietetics. The aim was to reduce PI hospital-acquired incidence by 50% through a structured quality improvement initiative using the SMART framework.

Methods

A multidisciplinary approach was implemented focusing on governance, communication, education, documentation and learning from after action reviews. Oversight was maintained through monthly Director of Nursing (DON) steering meetings, fortnightly working groups, biannual governance reviews, quarterly ward manager updates, and real-time Tissue Viability Nurse (TVN) data monitoring.

Following any stage 3 or higher PI, an after-action review was conducted within 72 hours with key staff and senior nursing leadership to identify contributory factors and promote a non-blame learning culture. A structured safety communication cascade was introduced to support timely escalation and shared learning. Bedside head-to-toe skin assessment education, delivered by the Tissue Viability Team and reinforced by Clinical Nurse Managers, embedded the SSKIN framework into routine practice and clinical handover.

Results

Pressure injuries hospital acquired decreased from 297 incidents in 2024 to 168 incidents in 2025, representing a **43% reduction** following implementation of the initiative. Although the target of a 50% reduction was not fully achieved, the results demonstrate substantial improvement. Seasonal peaks in PI incidence were also identified, and serious reportable events (SREs) remain an area requiring continued focus. Early review of the findings identified medical device-related pressure injuries as a key contributory factor, informing targeted prevention strategies.

Structured governance, education, and communication processes supported improved staff awareness, accountability, and PI prevention practices.

Conclusion

Seasonal peaks and medical device-related pressure injuries will be key areas of focus for 2026, alongside continued alignment with the latest HSE clinical resources to sustain improvements in skin integrity and patient safety.

Empowering patients and families: the PI working group will initiate a hospital wide roll out of the newly developed patient and family information leaflet for PI prevention.

The aim of 2026 is to measure the prevalence of bedside education across wards and to assess whether consistent delivery is associated with reduced pressure injury incidence.

Conflict of interest

All authors declare that they have no conflicts of interest.



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PROCESS AUDIT AS A BEHAVIORAL CHANGE STRATEGY FOR PRESSURE ULCER PREVENTION IN INTENSIVE CARE UNITS: AN EXPERIENCE REPORT

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Introduction

Pressure ulcers remain a major patient safety concern in intensive care units (ICUs), particularly among elderly and critically ill patients. The ICU environment presents significant challenges for prevention due to hemodynamic instability, reduced mobility, use of medical devices, and complex care demands. Although preventive protocols are well established, adherence in daily clinical practice is often inconsistent. Process audits have emerged not only as tools for monitoring compliance but also as strategies to promote behavioral change among healthcare professionals. This study aims to describe the implementation of a structured audit process to improve adherence to preventive measures and promote behavioral change in pressure ulcer prevention in ICUs.

Methods

This is an experience report conducted in adult ICUs of a large private hospital. Preventive strategies were initiated with staff training focused on moisture-associated skin damage and rational diaper use, supported by informal bedside guidance. A structured weekly audit process was subsequently implemented, led by a wound, ostomy and continence nurse.

The audit included direct patient assessment, electronic medical record review, and interaction with the care team, using a standardized tool evaluating risk assessment (Braden Scale), patient positioning, use of pressure-relieving devices, moisture management, and diaper indication. Immediate feedback was provided after each audit, and non-conformities were compiled into monthly indicators presented to unit leadership. Special emphasis was placed on rational diaper use and early removal of diapers in continent patients.

Results

The transition to structured audits resulted in improved clinical outcomes and staff engagement. Between January and April 2023, the ICUs achieved four consecutive months without hospital-acquired pressure ulcers, despite the high-risk clinical profile of critically ill patients.

Significant behavioral changes were observed among healthcare professionals, including a shift from reactive to proactive care, with increased autonomy in risk identification and early implementation of preventive measures. Preventive practices became progressively embedded into daily routines, with greater involvement of the multidisciplinary team and reinforcement of care with patients and caregivers.

In addition, the perception of audits evolved from a punitive approach to an educational strategy, fostering shared responsibility and sustained adherence to best practices. This contributed to reduced inappropriate diaper use, decreased moisture-associated skin damage, and more efficient use of healthcare resources.

Conclusions

Structured process audits, combined with education and continuous feedback, can effectively promote behavioral change in ICU settings. This approach supports improved adherence to preventive protocols and contributes to meaningful clinical and organizational outcomes. The active role of the specialized nurse is central to sustaining these improvements and strengthening patient safety.

Conflict of Interest

The authors declare no conflict of interest.

References

None.



Pressure Ulcer Quality Improvement Collaborative Dublin Midland Hospital Group – St. James Hospital

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Introduction

Patient safety incidents such as pressure ulcers (PUs) and wounds remain a persistent challenge for healthcare systems in Ireland and internationally. Pressure ulcers continue to occur across both acute and long-stay care settings, reflecting trends observed throughout Europe. Their ongoing prevalence underscores the need for robust prevention strategies, timely identification, and sustained quality-improvement initiatives to minimise their clinical and organisational impact.

Beyond their economic burden, PUs significantly affects patients' overall wellbeing. They contribute to physical discomfort, psychological distress, reduced functional ability, and a diminished quality of life, often leading to prolonged hospital stays and increased care needs. In response to these challenges, this collaborative aims to reduce stage 3 hospital-acquired pressure ulcers by 30% across three wards in St. James's Hospital by the end of the first quarter of 2025 and to sustain these improvements over time.

Methods

A Plan–Do–Study–Act (PDSA) quality-improvement approach was used to systematically test and refine interventions aimed at reducing stage 3 hospital-acquired pressure ulcers. This four-stage iterative cycle supported structured planning, implementation, evaluation, and adaptation of changes within the participating wards. Outcomes were assessed using data from the Tissue Viability monthly pressure ulcer validation reports, complemented by staff nurses' qualitative feedback to capture both measurable results and frontline perspectives on the effectiveness and feasibility of the interventions.

Results

The collaborative achieved a reduction in pressure ulcers, supported by improved PU reporting, targeted education, and strengthened management practices. Staff engagement increased, with Clinical Nurse Managers playing a key role in reinforcing best-practice care. Regular PU reviews and ongoing collaboration with the Tissue Viability Nurse team became embedded, helping sustain these improvements in patient outcomes.

Conclusions

Sustaining long-term improvements require the continued integration of hospital-wide education, including the use of the latest HSE pressure ulcer classification as a standard across all wards. Strong clinical leadership, regular PU reviews in partnership with the TVN team, and consistent auditing—supported by targeted quality improvement projects (QIPs)—enhance early detection and reinforce high-quality, evidence-based care. Collectively, these measures provide a robust foundation for maintaining lasting improvements in patient safety and clinical outcomes.

Conflict of Interest

Na

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CLOSING THE GAP: AN AUDIT ON PRESURE ULCER PREVENTION

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Introduction

Pressure ulcers (PU) are preventable but remain a common hospital-acquired condition. They increase patient suffering, length of stay, and healthcare costs ^[1, 2]. International data reported an overall European pressure ulcer prevalence of 10.8% among hospitalised patients and for Ireland it was 12.0% ^[3]. Reducing pressure ulcer results in cost savings from a financial and quality of life perspective to both service users and providers ^[4]. A pressure ulcer prevention care plan focused in the aSSKINg bundle is important to guide and anticipate early detection ^[4].

Methods

A pressure ulcer prevention audit was performed based on NICE standards ^[5] examining risk assessment, reassessment, skin inspection, repositioning, support surface, nutritional assessment, incontinence and care planning. The audit data included all adults over 65 years who are risk of developing pressure ulcers in a community hospital with residential and rehabilitation services. The main aim was to identify the gaps in pressure ulcer prevention practice and to develop a targeted quality improvement plan.

Results.

The compliance for initial pressure ulcer risk assessment on admission was high (94%), reassessment (97%) and skin inspection 97%. However, key gaps identified includes absent repositioning chart (0%) and 60% of people admitted were using the appropriate high specific pressure relieving surface according to the pressure ulcer risk. Individualized care plans were documented for 82% of people. However, risk assessment tool was fully completed for 43% of people assessed and only 14% were corresponding to the person's clinical presentation and needs. The aSSKINg bundle was present but it was incomplete for the patients assessed (0%). The nutritional needs were considered in the care plan merely for 17% of at risk people.

Conclusions

Although strong compliance with initial assessment, significant deficit existed in documentation, implanting interventions and person-centred care planning. To address these gaps a multidisciplinary quality improvement initiative was developed focusing on standardised pressure ulcer prevention strategies, adherence to aSSKINg bundle and person-centred pressure ulcer prevention practices.

Conflict of Interest

The authors declare that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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IMPROVING PRESSURE INJURY PREVENTION INTERVENTIONS THROUGH CONSENSUS IN MEDICAL-SURGICAL HOSPITAL SETTINGS

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Introduction

Effective pressure injury prevention relies on the application of several evidenced-based clinical interventions tailored to individual risk factors. Key interventions include regular risk and skin assessments, scheduled repositioning, nutritional support, pressure redistribution surfaces, and the use of prophylactic dressings [1]. Prophylactic dressings are a recognised component of prevention, yet their use is often variable and inconsistent, with application sometimes driven by convenience rather than patient-specific risk assessment. Such variation highlights the importance of understanding the clinical and organisational contexts that shape practice so that pressure injury prevention strategies are appropriately targeted and effective. This study aimed to establish consensus on key barriers to pressure injury prevention and to collaboratively recommend intervention strategies to address these prioritised barriers in acute medical-surgical hospital settings.

Methods

A priority setting study using the Nominal Group Technique [2] was conducted. Participants included clinicians and non-clinical personnel involved in pressure injury prevention across acute medical-surgical services in a tertiary Australian hospital. Purposive sampling recruited participants with relevant expertise. Pre-reading materials informed structured discussion on barriers to prevention. Participants ranked 11 collaboratively developed barriers and identified practical context-specific solutions. Data were analysed using inductive content analysis.

Results

Nine multidisciplinary clinicians participated, including registered nurses, nurse unit managers, clinical nurse educators, clinical nurse consultants, dietitians, occupational therapists and podiatrists. Participants had between 6 and 15 years of clinical experience. Participants prioritised three key barriers to effective pressure injury prevention: i) inadequate skin assessment and monitoring; ii) competing priorities and workflow pressures, and iii) insufficient education and inconsistent knowledge. Participants described limited removal of prophylactic dressings for daily review, superficial assessments, and reduced clinician confidence as contributing factors to missed early signs of pressure injury development. Participants reported that whilst prophylactic dressings were seen as beneficial, their use sometimes discouraged regular skin inspections. Prevention activities were often deprioritised amid competing clinical tasks, leading to inconsistent and opportunistic care delivery. Variation in pressure injury preventative care was further compounded by reliance on informal peer learning rather than structured, evidence-based education. Participants agreed that improving access to formal training and targeted clinical support tools would strengthen confidence, promote consistency, and improve early identification of patients at risk. Proposed solutions focused on developing concise and accessible decision support tools to enhance implementation of evidence-based prevention practices.

Conclusions

The Nominal Group Technique enabled consensus-building, guided the development of actionable priorities and informed targeted intervention strategies to address key barriers in acute care nursing practice. Findings from this study offer nurse leaders and researchers practical insights to co-create decision-support interventions to enhance consistency, improve clinical confidence and strengthen early identification of at-risk patients in acute medical-surgical settings

Conflict of Interest

The authors declare no conflicts of interest in relation to this work.

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CAN THE USE OF MULTI-LAYERED SILICONE DRESSINGS BE ECONOMICAL IN AMBULANCE? A PROBABILITY ASSESSMENT

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Introduction

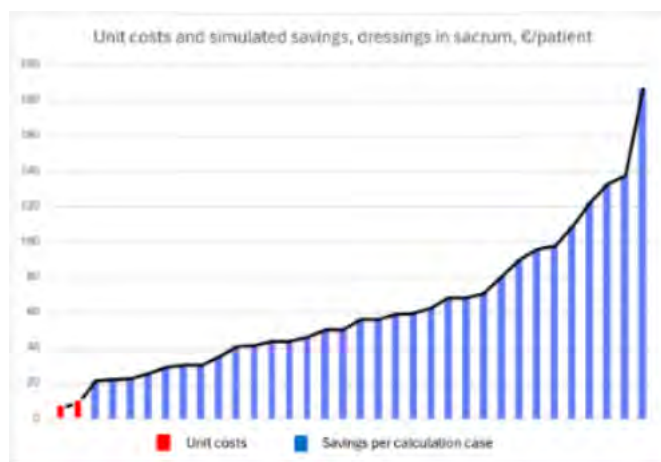
We wanted to know if the use of multi-layered silicone dressings is economically efficient in the prevention of pressure injuries (PIs) in an ambulance. Lack in intervention studies made the assessment difficult. To find indicative results, we estimated possible savings by calculating results from various combinations of variables from studies made in acute health care settings [1-5].

Methods

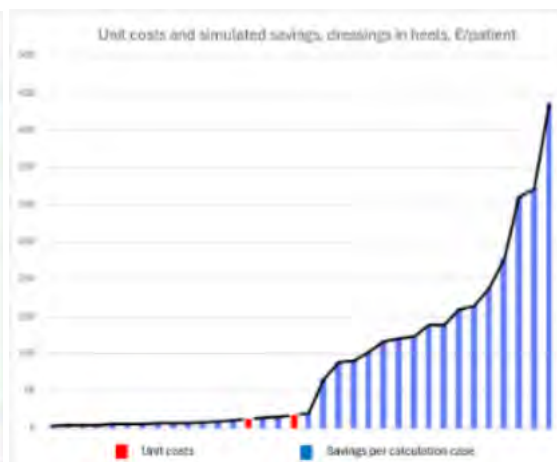
Due to dearth of intervention studies in an ambulance, it was possible to calculate only reasonable costs using protective dressings in an ambulance. We calculated two labor and product cost assumptions. We simulated potential savings by calculating 32 different combinations of the initial values concerning the risk for PIs, prevalences of various PI stages, and unit costs per stage.

Results

The simulated costs and savings are presented in pictures 1 and 2. The use of protective dressings in sacrum is economically efficient: in all simulations. The costs of using protective dressings in heels seems to be near the median of the potential savings. Still, saving potentials in many simulations are substantial.



Picture 1. Cost-efficiency of dressings in sacrum.



Picture 2. Cost-efficiency of dressings in heels.

Conclusions

The use of protective dressings in an ambulance is probably economically efficient.

Conflict of Interest

No conflict of interest.

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MEASURING THE VISIBILITY OF THE PRESSURE INJURIES –DAYS

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Introduction

To benchmark the visibility of our STOP Pressure Injuries (PIs)–Day events, we collected contact numbers achieved in other similar events. Our hospital district and wellbeing services county have produced videos, podcasts, web material, lobby events and information for info screens in hospital lobbies. To assess the efficiency of our work, we wanted to compare our numbers of contacts with figures by other actors.

Methods

We collected information from PubMed, EBSCOHost, Google Scholar, and EPUAP's STOP PU Day Reports of years 2017 – 2025 in Europe. Studies assessing the prevalences or nurse knowledge on the PIs were excluded, since we wanted to assess only the number of contacts to nursing staff at public events.

Results

126 event reports were found at the EPUAP web pages, of which 10 had numerical information on the contacts. The contact numbers of various STOP PIs –Day events are presented in Table 1.

Type of event	Contacts	Place and year
Info stand	Apprx. 100	Marienhause Klinikum, Germany 2024
Instagram, LinkedIn, Facebook	Over 6000	National event, 403 institution, Türkiye 2024
Web site	183 likes	Diakonhjemmetssykehus, Norway 2023
Lobby event	Apprx. 350	Nemocnice Jihlava, Czech Republic 2022
Symposium	90	University Hospital Plzeň, Czech Republic 2021
Stand	120	Clontarf Orthopaedic Hospital, Ireland 2020
Rolling training sessions	Over 100	Dunedin, New Zealand 2020
Web sites	Over 60 likes	Universitätsklinikum Bonn, Germany 2020
Formal presentations	Apprx. 70	Belfast City Hospital, Ireland 2018
Education with workshops	Apprx. 50	Uppsala, Sweden 2018

Table 1. Contacts received in various STOP Pressure Day –events.

Our four videos produced in the years 2021 – 2024 have had 6600, 3300, 5000, and 1800 viewers. The seven podcasts produced in the year 2025 had 34 – 197 listeners each, 516 in total. In addition, people have seen the videos and heard the podcasts at the lobby events. In 2024, our two annual lobby events had more than 500 visitors. In addition, a release on our intranet had 713 viewers in the university hospital, 326 in the wellbeing services county, and 3191 in the university hospital's social networking service.

It is difficult to compare the actual efficacy of various media. A like in social media differs from watching a video or taking part in a hands-on –activity at an event in a lobby or a ward. The sizes of hospitals are different. The percentage of nurses contacted would be a more informative figure. For comparison, our university hospital has approx. 14 500 and the wellbeing services county approx. 900 of nursing staff.

Conclusions

In numbers, our STOP PIs –Day events' visibility is comparable to that of other hospitals. However, the true efficacy of STOP Pressure Injuries –Days is measured as changes of pressure injury prevalences.

Conflict of Interest

No conflict of interest.



UNLOCKING KNOWLEDGE UNDER PRESSURE: IMPLEMENTATION OF AN ESCAPE ROOM ON PRESSURE INJURY PREVENTION

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Introduction

Pressure injuries (PI) are a substantial burden on healthcare systems globally, often exceeding many other reportable adverse events [1]. They are also a significant patient safety concern resulting in prolonged hospital stays, increased costs and morbidity [2]. Effective prevention relies on timely risk assessment and appropriate PI care interventions [3].

Nursing education promotes lifelong learning. Continued professional development is imperative to enable nurses to be effective decision makers. Gamification (Escape rooms) have emerged as an innovative educational method, providing participants with a fun, engaging environment that requires collaboration, communication, and application of theoretical knowledge [5]. To improve staff awareness and confidence in PI care, an education session incorporating a PI prevention escape room was introduced. The aim of this initiative was to reinforce the key principles of PI care while promoting multidisciplinary teamwork.

Methods

An educational programme was developed for clinical staff. It consisted of an evidenced based presentation outlining risk identification, skin inspection, equipment selection, implementation of appropriate interventions, grading of PIs, nutrition, moisture management and documentation.

Following the presentation, the participants worked collaboratively in teams to solve a simulated complex patient scenario with 6 sequential challenges using the knowledge acquired. The challenges consisted of identifying the patients risk factors, accurately calculating the Waterlow Score, identifying errors on the aSSKING bundle, solving the puzzle matching the grade, description and image, ascertaining the correct PI diagnosis and finally implementing the correct interventions.

Facilitators timed and observed the participants and provided feedback to reinforce learning objectives. Participant feedback was collected using an anonymous evaluation exploring satisfaction, perceived knowledge gained, confidence and relevance to clinical practice.

Results

The interactive education was positively received. Staff reported it was engaging, enjoyable and encouraged active participation and teamwork. Participants highlighted increased confidence in translating learning into practice and this helped them to achieve the learning outcomes. Staff requested a preference for interactive learning moving forward.

Conclusions

Gamification offers a practical and engaging alternative to traditional teaching methods. The escape room encouraged collaboration, problem-solving and application of knowledge. Further evaluation is required to determine the impact on clinical practice and patient outcomes, participant feedback suggests this approach has the potential to enhance staff engagement.



Conflict of Interest

No conflicts of interest.

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CAREGIVER BURDEN IN THE HOME CARE OF PATIENTS WITH PRESSURE INJURIES: A PILOT CROSS-SECTIONAL STUDY IN A TERTIARY HEALTHCARE SETTING

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Introduction

Home health caregivers of patients with pressure injuries (PIs) play a pivotal role in treatment and prevention. However, this responsibility often imposes significant psychological, social, and economic strain, which may compromise both caregiver well-being and patient outcomes.[1] This pilot study aimed to assess the level of burden experienced by home health caregivers of patients with PIs and to explore the correlations between caregiver burden, quality of life, and socio-economic factors.

Methods

A cross-sectional pilot study was conducted among caregivers (n=42) of patients with PIs following discharge from a large tertiary hospital. Data were collected using a structured tool encompassing caregiver demographics, patient clinical characteristics and socio-economic factors. The 22-item Zarit Burden Interview (ZBI) was employed to quantify caregiver strain.[2] Statistical analysis was performed using IBM SPSS Statistics 24.0, with significance set at $p < 0.05$.

Results

The mean age of caregivers was 51.6 ± 11.1 years (73.1% female), with 37.8% being sole providers of care. The mean ZBI score was 32.42 ± 10.45 . Notably, 46.2% of caregivers reported burden levels ranging from moderate to very severe (ZBI > 20). Significant predictors of higher burden included: extended daily caregiving (> 8 hours, $p < 0.05$), absence of secondary or professional assistance ($p < 0.05$), and increased out-of-pocket financial expenses related to PI care ($p < 0.01$).

Conclusions

These preliminary findings indicate that home health caregivers of patients with PIs experience substantial levels of burden, exacerbated by financial strain and lack of support. This pilot study highlights the urgent need for integrating systematic caregiver support initiatives and educational interventions into holistic PI management pathways to ensure sustainable home-based care.[3]

Conflict of Interest

The authors received no financial support for the research.

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BEYOND TEAMS: ADVANCING PRESSURE INJURY PREVENTION THROUGH A MULTIDISCIPLINARY COMMUNITY OF PRACTICE

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Introduction

Pressure injury prevention and management thrive on collaboration—no single discipline can optimally address the complex, multifactorial risks alone (1). In long-term care (LTC) and home care settings, success depends on the seamless integration of clinical expertise across professions (2). Recognizing the opportunity to harness this collective strength, Nova Scotia launched a dynamic, multidisciplinary approach to unify practice, close gaps, and elevate resident and client outcomes through collaboration, support, and shared leadership.

Methods

The Nova Scotia Wound Leadership Group, a provincial Community of Practice, was established with 44 wound leads representing multiple licensed disciplines, including nurses, physicians, nurse practitioners, occupational therapists, physiotherapists, and dietitians. All members completed a nationally accredited wound care champion program. The group meets regularly through a virtual platform guided by collaboratively developed terms of reference. Members identified key gaps and formed working groups to address priorities, including implementing standardized risk assessment tools with associated interventions, enhancing education for continuing care assistants, advocating for funding of preventive skin care products, and eliminating reusable soaker pads to improve microclimate. Participants also lead local quality improvement projects, trial products with provincial oversight, and contribute to case study development.

Results

While initiatives are ongoing, strong engagement and momentum have been established across the group. Members demonstrate high levels of motivation for professional growth and a shared commitment to improving outcomes and quality of life. The Community of Practice has fostered collaboration, strengthened relationships across disciplines and sectors, and created a supportive environment for knowledge exchange and practice improvement.

Conclusions

Multidisciplinary collaboration is foundational to advancing pressure injury prevention and management; however, moving beyond siloed teamwork to a unified Community of Practice elevates impact. By intentionally bringing disciplines together to collaborate, share expertise, and lead change collectively, this model drives sustainable practice improvement and meaningful gains in patient outcomes and quality of life, with strong potential for broader application (3).

Conflict of Interest

No conflicts of interest to declare.

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RETHINKING PRESSURE MATTRESSES: CHALLENGING TRADITION THROUGH INTERDISCIPLINARY PRACTICE

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Introduction

Pressure care mattresses are traditionally evaluated primarily on their ability to redistribute pressure [1]. However, this narrow focus may overlook other critical factors influencing patient outcomes, usability, and sustainability [2]. Increasing demands on healthcare systems, alongside environmental considerations, necessitate a broader, more holistic approach. This project explores how interdisciplinary collaboration can redefine what constitutes an “effective” static pressure mattress, moving beyond traditional thinking toward a multidimensional evaluation framework.

Methods

A structured questionnaire has been developed and will be shared through a variety of platforms, both online and in person. Respondents will be invited to participate through conferences and industry links. The survey will explore participants’ experiences and opinions in relation to a number of mattress characteristics, including clinical effectiveness, microclimate, comfort, usability, and support for independence and mobility. Additional system-level factors such as sustainability, recyclability, cost, longevity, cleanability, inspectability, and transportability will also be considered.

Results

Data collection is currently ongoing. The aim of the survey is to understand interdisciplinary differences and opinions of effective mattress characteristics.

Objectives:

1. To identify the drivers and characteristic priorities of healthcare professionals when prescribing static pressure care mattresses.
2. To identify the drivers and characteristic priorities of industry partners when developing and marketing static pressure care mattresses.

Conclusions

Pressure mattresses should no longer be viewed as static, single-function devices but as complex systems requiring multidimensional evaluation. This study looks to explore the value of interdisciplinary collaboration in challenging traditional assumptions and broadening evaluation criteria. The findings of this study have the potential to inform procurement decisions, guide innovation, and ultimately improve patient outcomes while addressing sustainability and system-wide pressures.

Conflict of Interest

The survey will be shared and analysed by employees of BES Healthcare Ltd.

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SUSTAINING PERSON-CENTRED PRESSURE PREVENTION ACROSS THE LIFESPAN: A SCOPING REVIEW OF MULTIDISCIPLINARY TEAM ROLES

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Introduction

Pressure ulcers (PUs) pose a significant patient safety challenge that can affect individuals across the entire lifespan and impose substantial physical, emotional, and economic burdens. Multifaceted interventions, including staff training, patient education, and systematic risk assessment, have demonstrated effectiveness in reducing PU incidence in hospital settings; however, the extent to which these efforts are sustained through coordinated, person-centred multidisciplinary team (MDT) practice across diverse populations and life stages remains poorly understood. Thus, this scoping review aimed to identify, map, and synthesise evidence on MDT roles in sustaining person-centred PU prevention across the lifespan.

Methods

This scoping review followed Arksey and O'Malley's five-step methodological framework and was enhanced as recommended by Levac et al. (2010). A literature search was conducted in MEDLINE/PubMed, CINAHL Ultimate, the Cochrane Library, PEDro, and Web of Science, supplemented by grey literature searches in Google Scholar, hand-searching of documents from websites such as the European Pressure Ulcer Advisory Panel (EPUAP), National Pressure Ulcer Advisory Panel (NPUAP), and Pan Pacific Pressure Injury Alliance (PPPIA), as well as reference list screening. Studies were included if they addressed MDT roles or interprofessional collaboration in PU prevention, incorporated person-centred care principles, engaged at least one population group across the lifespan, and were published in English between 2015 and 2026. Data was extracted from the selected studies using a charting table and synthesised through narrative analysis.

Results

Eight studies published between 2018 and 2025, spanning six countries and multiple care settings including acute, rehabilitation, community, and home care, were included. Across studies, MDT members contributed to PU prevention through a continuum of interconnected activities. Clinical assessment and risk identification were fundamental, with nurses holding the most consistently documented role alongside physicians, wound care specialists, and allied health professionals using standardised tools such as the Braden scale. Person-centred care planning was highlighted as a shared MDT responsibility, integrating patient and family preferences, dignity, and holistic needs rather than clinical parameters alone. Interprofessional collaboration, through rapid-response teams, wound boards, and digital communication platforms, was linked with improved outcomes and reduced incidence of hospital-acquired pressure injuries. Education of patients, carers, and staff was identified as a shared MDT responsibility across all disciplines, with evidence favouring experiential, tailored, and early-delivery approaches to support self-management and adherence. Care coordination across settings, including discharge planning and post-discharge follow-up, was also highlighted as essential yet insufficiently evidenced, particularly at the hospital-to-community interface. Organisational-level efforts, shared documentation systems, audit cycles, and oversight structures, underpinned the sustainability of person-centred practice over time.

Conclusions

Sustaining person-centred pressure prevention across the lifespan is a fundamentally multidisciplinary endeavour requiring coordinated, clearly defined, and continuously supported team roles. Structured interprofessional practice, shared communication systems, and meaningful patient and carer involvement can reduce PU incidence and improve care. Future research should address underrepresented populations, particularly in paediatric, neonatal, and transitional care contexts, and explore the potential of digital health technologies to sustain MDT coordination and person-centred care across the lifespan.

Conflict of Interest

This work was funded by Edinburgh Napier University, School of Health and Social Care, Research and Knowledge Exchange Fund.



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CONTINUOUS DEBRIDEMENT OF 67 PATIENTS WITH PRESSURE INJURIES WITH CHARGED POLYABSORBENT DRESSINGS

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Introduction

Excessive amount of sloughy tissue on cutaneous wounds has been associated with inflammation, malodour, infection, biofilm and delayed healing. Continuous debridement is a key step in optimal wound care management but can represent real challenge in outpatient care setting. Charged polyabsorbent fibre dressings with Magnet Fibers technology enhance continuous debridement by leveraging electrostatic charge attraction to physically trap slough residues and also remove bacteria and exudates by absorption. The aim of this work was to evaluate the performance of these dressings in the local treatment of exuding cutaneous wounds, under real-life conditions.

Methods

A prospective observational clinical study was conducted in Germany (May 2025 - Feb 2026). The wounds were treated with the dressings for a maximum of three follow-up visits or eight weeks. Main endpoints included changes in wound healing progression and wound's characteristics, acceptability and tolerance of the dressings. The results focus on pressure injuries (PI).

Results

In total, 67 patients (aged 22-100 years) with PI (stages 2 to 4 or unstageable, mostly located on heels and sacrum) were treated with the dressings for a mean period of 39 ± 18 days. Ten early withdrawals were reported (four patient deaths, unrelated to the dressing, and six lost to follow-up). At the initial visit, 93% of PIs showed slough or necrotic tissue on their wound bed, 76% were painful, 28% were macerated and 18% were malodorous. Dressings were changed on average twice a week; mechanical debridement (using dry compress or gauze) was carried out once a week; and sharp debridement (using debridement (using a curette, scalpel or surgical blade) was performed once a month. At the last visit, 91% of wounds had healed or improved, 3% remained unchanged and 1% worsened (4% missing). The dressings were found to be effective in removing sloughy tissue, enabling 76% of wounds that were initially at debridement stage to show $\geq 70\%$ granulation tissue after a median duration of 25 days. The dressings were considered extremely useful by most clinicians (79%), facilitating mechanical debridement and reducing the need for surgical debridement; they were also very well tolerated and very well accepted by most patients (88% and 81%, respectively). The removal of slough at the removal of the dressing was notably associated with no pain in 83% of patients and with only slight short pain in 15%. The border version of the dressing, applied in 48% of patients, was also found conformable, easy to apply and remove, and to have good adhesion over time in all cases. No adverse events related to the dressing were reported.

Conclusions

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

Conflict of Interest

This study was sponsored by Laboratoires Uro. L. Thomassin is an employee of Laboratoires Uro.

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CONTINUOUS INTEGRAL DEBRIDEMENT

The author list goes here (“Authors” style)

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Introduction

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

Methods

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

Results

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

Conclusions

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

Conflict of Interest

Document compiled under a grant from Uro Medical, France.

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CHALLENGE THE ESTABLISHMENT – TO DTI OR NOT DTI THAT IS THE QUESTION?

Acton Claire (1),

1. United Kingdom,

Introduction

The National Wound Care Strategy Programme (NWCSP) recently reviewed guidance and recommended that the category of Deep Tissue Injury (DTI) be removed. Under this proposal, any suspected DTI should be reported as unstageable pressure damage until the lesion either reveals its true depth or resolves.

Our organisation assessed this recommendation and identified two key concerns. Insufficient supportive evidence to justify removing the DTI category entirely. Immediate adoption could unnecessarily increase moderate harm incident reporting and significantly raise workload for clinical services without clear benefit to patient safety.

We decided to test the change locally rather than implement it wholesale.

Methods

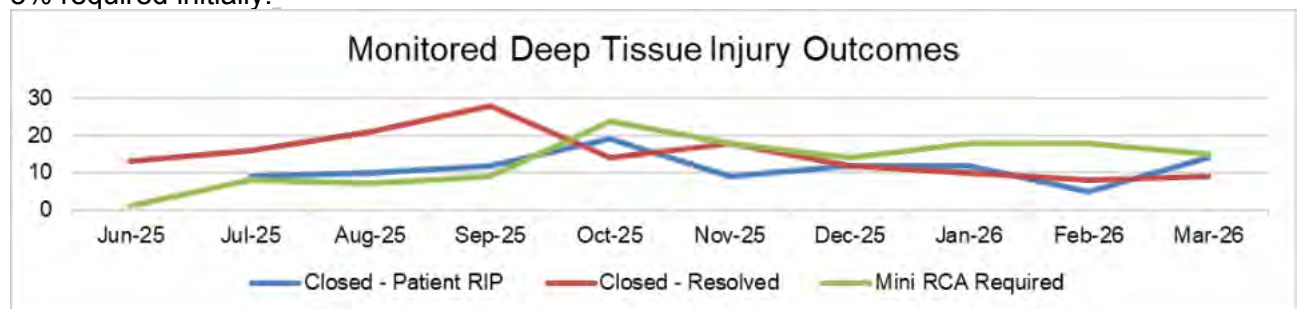
- **Test of Change Initiated:** Two community nursing teams were engaged in a pilot supported by the Tissue Viability Service to strengthen prevention and early intervention.
- **Review of Themes and Processes:** Ongoing analysis of trends to inform improved reporting and clinical support. This includes a review of the non-concordance pathway and heel offloading device usage.
- **Datix Reporting Enhancement:** Real-time refinement of Datix processes to improve ease of use and ensure consistent, standardised reporting across services.

These actions aim to drive learning, improve compliance, and enhance patient safety through better data visibility and targeted interventions

Results

What the data shows:

The project commenced in June 2025 and concluded in March 2026, the reporting within the clinical areas clearly demonstrates that with considered reporting and monitoring we have reduced the number of DTIs that required a full mini-RCA that exceeds the 5% required initially.



Project Impact Summary

Key Finding: Many DTIs reported subsequently resolve without progressing to full-thickness pressure damage, aligning with national guidance that recommends a “watch and wait” approach.

Operational Benefit:

- Current process requires a mini root cause analysis (RCA) for every reported DTI, taking approximately **45 minutes per incident**.



- With a significant number of DTIs (252) resolved between June–March 2025/26, this equates to **~189 hours of clinical time saved**.
- Time released can be redirected to managing pressure ulcer interventions, improving patient outcomes.

Clinical Insight:

- Most DTIs resolve within 2 weeks, supporting the implementation of a review window before escalation.
- Pathways and prevention strategies are effective and embedded.
- For patients who pass away within the 2-week review period, the Datix is examined in detail, including a review of all assessments and interventions undertaken. This ensures that any gaps in care are identified and addressed, and that learning is captured to support continuous improvement in practice.

Conclusions

While national recommendations provide a useful framework, they should be critically evaluated locally to ensure relevance and measurable impact on clinical outcomes, effectiveness, safety, and assurance. This approach supports evidence-based decision-making tailored to the needs of our population and services.

Whilst there has not been a change in reporting the watch and wait approach has provided a more accurate picture of moderate harms and targeted investigations for persistent pressure injuries.

What's Next:

- **Organisation-wide Implementation:** Roll out from January 2026, supported by an extensive three-month communications and education programme to embed best practice.
- **Ongoing Data Monitoring:** Continue to track impact on harm reduction and reporting accuracy throughout the implementation phase.
- **Clinical Feedback Collection:** Collate end-point feedback from frontline teams to evaluate effectiveness and inform strategies for future staff engagement and improvement initiatives.

Conflict of Interest

Please declare any funding of the research by industry here.

References

1. Enter your references in this block using the "References" style. References should be listed in order of appearance and formatted as shown below. In the text, use numbering in brackets to indicate the references, e.g. [1].
2. Somebody et al, 45:1-10, 2014.
3. Someone et al,30:100-107, 2015.



A multi-product approach to managing bioburden and autolytic debridement in an infected pressure ulcer

Sophie Cornwell-Boote (1), Nigel Clancy (2)

1. Tissue Viability Specialist Nurse, Gloucestershire Health and Care UK, 2. Smith Nephew UK, United Kingdom

Introduction

This case study follows the treatment of a tetraplegic patient who developed a bilateral hip pressure ulcer after undergoing spinal surgery due to increased challenges in movement and posture. The wound on the left hip showed clear signs of local infection following initial assessment, which would delay wound healing and could lead to systemic sepsis if left untreated.¹ This case explores the use of a nanocrystalline silver dressing in helping manage infection, allowing the patient's wound healing journey to continue.

Methods

The wound had been present for over 18 months before referral to a Tissue Viability Nurse for assessment and management. On initial assessment, the wound bed was 100% dark, dehydrated slough with some undermining and measured 6.2 cm (length) × 6.5 cm (width), with an unknown depth due to slough. A nanocrystalline silver dressing was selected for its sustained silver release² to address and manage infection, which included erythema, purulent discharge, malodour, and delayed healing. Hydrogel Wound Dressing was also used to promote a moist wound environment and support autolytic debridement without damaging fragile granulation tissue.³⁻⁵ Wound progress was assessed over a two-week period.

Results

After one week of treatment, the wound showed signs of improvement. It measured 6.2 cm × 6.0 cm, with depth remaining unknown and no undermining recorded. Signs of infection were reduced, with no erythema, less malodour, and evidence of autolytic debridement. Healthy granulation tissue was visible at 20%, while slough, covering approximately 80% of the wound bed, appeared moist. Dressing changes were reduced from daily to every other day.

By week two, all signs of infection had resolved. Slough had reduced to 40%, while granulation tissue covered 60% of the wound bed. Accurate measurement showed the wound size to be 7.5 cm (length) × 7.0 cm (width) × 1.4 cm (depth). Antimicrobial dressing was discontinued, and the patient continued treatment with Hydrogel wound dressing alongside a foam dressing. The patient reported feeling generally better.

Conclusions

This case study demonstrates the efficacy of a multi-product approach in managing a complex, infected hip pressure ulcer that had not responded to previous treatment. After two weeks of therapy, signs and symptoms of infection had resolved. This successfully placed the wound on a clear healing trajectory and improved the patient's quality of life.

Conflict of Interest

All clinical information and outcomes were provided by the treating clinician. Smith+Nephew provided editorial support for the preparation of this case study. No payment was made to the clinician.

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Resolution of infected pressure ulcer within two weeks of using a nanocrystalline silver dressing

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Introduction

This case study presents a 45-year-old patient with a complex medical history including muscular atrophy, low body mass index (BMI), a percutaneous endoscopic gastrostomy (PEG) tube, acquired scoliosis, and ventilator dependency when not wearing a chest brace. The patient developed a device-related pressure ulcer over the scapula, classified as a Category 4 pressure ulcer according to the European Pressure Ulcer Advisory Panel (EPUAP), involving full-thickness tissue loss with exposed structures and potential slough, eschar, undermining, or tunnelling.¹ Local infection and biofilm were contributing to delayed healing and reduced quality of life.

Methods

Preventive care was delivered in line with the ASSKING framework: Assess risk, Surface, Skin inspection, Keep moving, Incontinence/moisture, Nutrition, and Giving of information.² Despite these measures, the patient's low BMI and small body frame required a smaller, more customised brace to reduce pressure and risk. On initial assessment by the Tissue Viability Nurse (TVN), the pressure ulcer was deteriorating and measured 5 cm (length) × 2 cm (width) × 2 cm (depth), with evidence of undermining. The wound bed consisted of approximately 90% friable granulation tissue and 10% slough, with visible inflammation likely due to poorly managed biofilm. Exudate levels were moderate, and clinical signs of infection included erythema, warmth, increased exudate, hypergranulation, and delayed wound healing. At this stage, the dressing required changing three to four times per week, and the patient was not receiving antibiotic therapy. To address the signs of localised infection contributing to delayed healing, treatment was initiated with a nanocrystalline silver dressing. This was used in combination with Single Use Negative Pressure Wound Therapy (sNPWT). The aim was to help kick-start the wound healing process.

Results

After seven days of treatment, the wound demonstrated clear signs of improvement. The wound measured 5 cm × 2 cm × 1 cm, with undermining present and 100% granulation tissue. Signs and symptoms of infection had significantly decreased, with only slight erythema and oedema remaining. Dressing changes were reduced to twice weekly in line with the instructions for use. After 14 days, all signs and symptoms of infection had resolved. The pressure ulcer had reduced in size to 4 cm (length) × 1 cm (width) × 0.5 cm (depth), with 100% healthy granulation tissue present, although some undermining remained. The structured approach to dressing changes supported wound healing and allowed the patient to manage daily life more effectively.

Conclusions

This case study describes that the use of a nanocrystalline silver dressing which may have contributed to the resolution of infection within 14 days and clear improvement of a previously stalled Category 4 pressure ulcer. These outcomes highlight the importance of consistent care planning, including the ASSKING framework, in the management of complex pressure ulcers.

Conflict of Interest

All clinical information and outcomes were provided by the treating clinician. Smith+Nephew provided editorial support for the preparation of this case study. No payment was made to the clinician.

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HOW COULD WE REDUCE PRESSURE INJURY: EXPERIENCE OF A PRESSURE INJURY PREVENTION(PIP) ROUNDING OVER 3 YEARS

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Introduction

This hospital is a tertiary facilities that treats acute patients, and most of the patients have complicated diagnoses and high severity. The incidence of pressure injuries is an essential indicator for evaluating the quality of patient care. The nursing department and WOCN planned Pressure Injury Prevention(PIP) Rounding to reduce the incidence of pressure injuries by implementing appropriate interventions for patients' pressure injury risk factors through a multidisciplinary approach.

Methods

Every six months from 2023 to 2025, eight target units were determined based on pressure injury incidence, high-risk occupancy rate, and unit's willingness. For 6 months, PIP Rounding was performed once a week by the nursing unit manager, unit wound care nurse, WOCN, and, when necessary, by doctor and nutritionist. The target was patients at high risk for pressure injuries who had been pre-selected by the unit. The risk factors and skin conditions were identified, and individualized preventive nursing care was planned and implemented for the patients. Additionally, WOCN provided small group education that requested depending on the characteristics of nursing unit and best practices were shared.

Results

Pressure injury prevention rounding was conducted in 48 nursing unit from 2023 to 2025. Pressure injuries were decreased by an average of 35.4% during the 6 months after PIP Rounding compared to the 6 months before PIP Rounding.

Conclusions

Through PIP Rounding, we were able to elicit interest and participation in preventing pressure injuries and reduce the occurrence of pressure injuries. We will continue to strive to maintain and improve the results of preventing pressure injuries by providing patient and nursing unit-tailored pressure injury prevention nursing.

Conflict of Interest

I have no personal or financial interests to declare: I have no financial support from an industry source at the current poster presentation.

References

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