UCS® DEBRIDEMENT CLOTH AND GLOVE:

Evidence and guidance for best practice

Best practice
in the community

UCS® debridement cloth and glove: evidence and guidance for best practice

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UCS® debridement cloth and glove: evidence and guidance for best practice

Guide to using this document

This document has been developed to provide information to all healthcare professionals who treat people with wounds and/or run wound care services. It highlights the essential role of effective wound debridement and cleansing in preparing a wound to heal, as key components of wound bed preparation (WBP). It also recognises the role of skin care and the fundamental principles of cleansing and moisturising in maintaining skin integrity. The unique structure and properties of the UCS® debridement cloth and glove are detailed, and evidence of their efficacy in helping with these fundamental tasks is presented.

Cleansing and debridement

Cleansing and debridement are complementary processes that together help create an optimal wound environment by removing devitalised tissue from the wound (Atkin et al, 2019). It is widely recognised that inadequate removal of devitalised tissue, debris, and surface contaminants can delay healing, promote bacterial proliferation, increase the risk of infection, and contribute to prolonged inflammation (Atkin et al, 2019; Mayer et al, 2024). Despite this, these interventions are frequently under utilised in clinical practice (Mayer et al, 2024; Ousey et al, 2025).

While a range of debridement methods exist, some may require specialist training, specific resources, or acute care settings, which can limit their use across community and home-based care (Mayer et al, 2024). Resource constraints, including time, staffing, equipment availability, and lack of confidence in selecting the right debridement method further emphasise the need for practical yet clinically effective solutions that are appropriate for the practice context and setting (Hoffmann et al, 2024; Mayer et al, 2024; Ousey et al, 2025).

UCS debridement cloth and glove

The UCS debridement cloth and glove are class IIb medical devices that use unique loop technology to lift devitalised tissue from the wound bed and peri-wound area. The cloth and glove are both pre-moistened in a wound cleansing solution that contains skin softening and hydrating agents, enabling the combined debridement and cleansing of wounds and peri-wound skin within a single application. Through three integrated actions – cleansing, debridement and hydration – they provide a streamlined approach to wound care that can be used across a range of wound types and clinical settings. By combining multiple functions into one product, UCS can improve clinical efficiency, reduce waste, and support cost-effective and sustainable wound management practices. The simplicity of use also means patients can carry out supported self-care reducing the frequency of appointments needed which in turn reduces demands on nursing time while empowering and engaging the patient in the management of their condition.

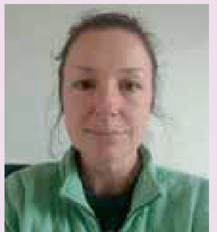
Document guidance

This document therefore provides clear guidance on:

- The increasing burden of hard-to-heal wounds and their impact on both healthcare systems and the lives of individuals living with a wound
- The properties of UCS, highlighting the unique loop technology used within the cloth structure and the unique components of the cleansing solution – allantoin, aloe barbadenis, and poloxamer 188. In combination, these enable UCS to have three actions —debriding, cleansing,

hydrating — within one single product.
- The key components of a structured and holistic approach to wound assessment.
- Improve understanding of the principles of wound healing and the factors that may influence the healing process.
- The early identification of patients at risk of delayed wound healing, with focus upon identifying factors within the local wound environment, and their removal so that wound healing can be optimised.
- The role of effective cleansing and debridement in wound bed preparation, particularly in the removal of slough and necrotic tissue to remove not only the physical barrier to healing, but also disrupt biofilm and reduce wound bioburden to support wound closure.
- Selection of the most appropriate cleansing and debridement techniques for individual patients and care settings.
- The characteristics of an ideal debridement method suitable for use in community and non-acute settings.
- Recognition of situations where referral to specialist services is required.
- The use of UCS in a range of patients with wounds of differing aetiology and in a range of care settings, through case studies and evaluations.

Review panel



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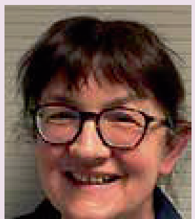

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This document was reviewed by a panel of clinicians with experience of wound management as part of their everyday clinical practice.

The review panel acknowledged the remit of the community practitioner and this document does not provide guidance on elements of care that fall into specialist provision, but rather highlights the need for referral. The review panel also fully acknowledged and recognised the real-life challenges presented by wound cleansing and debridement in the community setting, and aimed to provide realistic guidance, underpinned by best practice, in the use of UCS.

The document is arranged in sections that are colour coded for ease of reference, and the start of each section contains an overview of key points. In addition to fundamental principles and practical advice, each section provides opportunity for reflection, so the reader can consider how they might apply the information to change their own practice, if needed. Sections 3, 4, and 5, which describe the theory behind wound bed preparation, therapeutic wound and skin cleansing, and wound and skin debridement respectively, also contain case studies and evaluations that illustrate the use of UCS, to bring theoretical principles alive through clinical application.

It is hoped that this document is helpful to community practitioners when facing the ongoing challenges of growing caseloads of increasingly complex patients with wounds in the face of reduced resources, mainly nursing staff and time, and that it demonstrates how UCS may be of benefit in reducing this burden.

1. Introduction: Wounds and their impact

Key points

1. **Rising burden of wounds:** The prevalence of acute and chronic wounds in the community is increasing, with conditions such as surgical wounds, leg ulcers, pressure ulcers, and diabetic foot ulcers being the most common.
2. **Acute wounds becoming chronic:** Many acute wounds heal predictably, but without effective management they may deteriorate into hard-to-heal wounds.
3. **Evolving terminology:** The term hard-to-heal wounds is now preferred over chronic wounds to reflect the potential for healing if underlying factors are addressed.
4. **Economic impact:** Wound care costs the NHS billions annually, with the majority of costs attributed to non-healing wounds.
5. **Human costs:** Hard-to-heal wounds cause pain, loss of mobility, sleep disturbance, anxiety, and social isolation, profoundly affecting quality of life.
6. **Workforce pressures:** Wound care drives tens of millions of community nurse visits each year, while the size of the district nursing workforce has declined sharply, creating sustainability challenges.
7. **Importance of early, evidence-based care:** Timely, effective wound management reduces complications, improves outcomes, and lowers overall costs compared to delayed or inconsistent care.
8. **Core principles of wound care:** Comprehensive assessment, wound bed preparation (including cleansing and debridement), and patient engagement in self-care underpin best practice.

In recent years, the management of wounds in the community has become an increasing focus for healthcare providers (Guest et al, 2020; Díaz-Herrera et al, 2025). A growing number of patients are being treated within primary care with a wide variety of acute and hard-to-heal wounds, the most common being surgical wounds, pressure ulcers, leg ulcers and diabetic foot ulcers (Guest et al, 2020; Graves et al, 2022). While many acute wounds follow a predictable trajectory of healing, there is a well-recognised risk that, if not managed effectively, they may deteriorate and become chronic or hard to heal (Atkin et al, 2019; Gefen, 2025).

The terminology used to describe chronic wounds has shifted over time, with Atkin et al (2019) advocating for the term 'hard-to-heal wounds'. The shift from the term 'chronic wounds' to 'hard-to-heal wounds' was introduced to better reflect the clinical nature of these wounds and to avoid the negative or misleading connotations of 'chronic'. The term chronic can imply permanence or irreversibility, whereas hard-to-heal acknowledges that, with the right interventions, healing is still possible. It also emphasises the dynamic nature of wound healing and the potential for improvement if underlying factors are addressed (Murphy et al, 2022). There is also some controversy over the characteristics of a chronic wound (Falanga et al, 2022). Traditional definitions include wounds that fail to demonstrate healing or progression within four to six weeks; however, in the literature timeframes vary ranging from four weeks to three months (Falanga et al, 2022; Graves et al, 2022). Despite these differences in definitions, there is consensus that hard-to-heal wounds substantially complicate clinical management and place a considerable burden on both patients and healthcare systems (Guest et al, 2020; Graves et al, 2022).

The term chronic can imply permanence...whereas hard-to-heal acknowledges that, with the right interventions, healing is still possible.

Economic and human costs

The economic and human costs of wound care are substantial for healthcare providers worldwide

(Guest et al, 2020; Graves et al, 2022, Díaz-Herrera et al, 2025). In the UK, it was estimated that 3.8 million people required wound management in 2017–18, at a cost of £8.3 billion to the NHS (Guest et al, 2020). Notably, £5.6 billion of this expenditure was attributed to unhealed wounds, emphasising the significant financial burden. Guest et al (2020) further reported that the annual prevalence of wounds had risen by 71% since 2012–13.

In addition to the direct costs of dressings and treatment products, poorly managed wounds generate further expense by increasing nursing time, necessitating more frequent visits, and increasing the risk of complications such as infection (Guest et al, 2017, 2020; Gefen, 2025).

Beyond the economic implications, hard-to-heal wounds have a profound effect on patients' quality of life, extending well beyond the physical symptoms (Simonsen et al, 2025). The World Union of Wound Healing Societies highlighted the multidimensional impact of wounds, encompassing psychological, social, and functional consequences (Tariq et al, 2020). Additionally, persistent pain, exudate, malodour, and restricted mobility contribute to sleep disturbance, social isolation, and loss of independence (Falanga et al, 2022; Simonsen et al, 2025). Furthermore, the prolonged and uncertain healing trajectory often leads to anxiety, depression, and reduced wellbeing (Simonsen et al, 2025). Collectively, these factors significantly impair daily living and reinforce the importance of timely, effective wound management (Woo, 2018).

Workforce pressures

In community settings, wound care accounts for an estimated 54.4 million district nursing visits annually, many of which are driven by non-healing or poorly managed wounds (Guest et al, 2020). Variation in care and lack of evidence-based practice further increases resource use (Gray et al, 2018; Guest et al, 2020), highlighting the importance of standardised, evidence-based practice to reduce unnecessary nurse time, patient suffering, and system costs (Graves et al, 2022). These pressures are compounded by a declining workforce: the number of NHS district nurses fell by 43% between 2009 and 2024, from 7,643 to 4,322 full-time equivalents (Royal College of Nursing, 2024). When considered alongside population growth and ageing, staffing levels relative to need have fallen by more than 50% over the same period (Royal College of Nursing, 2024; Office for National Statistics, 2025). Without funded intervention, projections indicate that this decline will continue, further challenging the sustainability of community nursing services (Royal College of Nursing, 2024).

In addition to the direct costs of dressings and treatment products, poorly managed wounds generate further expense by increasing nursing time, necessitating more frequent visits, and increasing the risk of complications such as infection.

What is the answer?

National strategic plans, including the NHS 10-year plan (NHS, 2025), highlight the need to deliver care that is efficient, timely, and sustainable. For wound care, this means that clinicians require tools and approaches that allow them to work more quickly, more easily, and more cost-effectively, without compromising clinical efficacy or patient outcomes (Guest et al, 2020; Graves et al, 2022; Harding, 2022). Timely and effective wound management reduces pressure on nursing resources, alleviates patient suffering, minimises complications, and improves overall quality of life (Wounds UK, 2018; Hwang, 2023). In this way, the cost of 'getting it right' early is considerably lower than the cumulative impact of delayed or inadequate care.

This best practice document provides guidance on the identification, assessment, and management of wounds that are at risk of becoming, or have already become, hard-to-heal. It seeks to demystify and simplify wound care in the community, promote self-care, and support the delivery of efficient, evidence-based practice. Central to this is the importance of core wound care fundamentals, such as effective debridement and cleansing to promote healing. The document also outlines the role of the UCS® debridement cloth and glove in wound bed preparation, highlighting their unique properties and how they can be a clinically effective and efficient solution to support best practice in wound management in a variety of settings.

Reflect on your practice

- Do you spend a large amount of time managing people with hard-to-heal wounds as part of your caseload?
- Do you routinely identify factors in your patient assessment that may contribute to a wound becoming hard-to-heal?
- Do you consider wound bed preparation to be an important part of treating a wound?
- Do you think that wound debridement and cleansing are key components of wound bed preparation?
- Do you think that not using effective debridement and cleansing could be considered to be an omission of care?

2. Introducing UCS® debridement cloth and glove for debriding, cleansing and hydrating

Key points

1. **The UCS® debridement range consists of a cloth and glove.** They are pre-moistened and sterile, ready for single use.
2. **UCS combines mechanical debridement with a wound cleansing solution and skin softening and moisturising agents** removing the need for multiple different products when debriding, cleansing and hydrating.
3. **UCS features a unique loop technology** that helps to remove barriers to healing.
4. **UCS can be used on fragile skin.**
5. **UCS can be used on patients with a wide range of wound types** including acute, post-operative, and hard-to-heal wounds, all of which make up a large proportion of community workloads.
6. **UCS contains skin-friendly ingredients**, and does not contain latex, alcohol or parabens.

The UCS® debridement range consists of a cloth and glove. They are pre-moistened, sterile and ready-to-use debridement devices, designed to be used on acute and hard-to-heal wounds. They provide a simple and effective debridement and cleansing system for the wound and surrounding skin. The product combines mechanical debridement with a unique wound cleansing solution, plus skin softening and moisturising agents.

UCS has three unique actions in one single product:
1. Debride
2. Cleanse
3. Hydrate.

Physical debridement via loop technology

The unique loop technology contained within UCS (*Figure 1*) allows for quick and pain-free removal of non-viable tissue, dry skin, bioburden, slough and wound debris. These can all be barriers to wound healing. The special viscose cloth structure traps these potential barriers to wound healing between the loops, without the need to use high pressure, helping to make the debridement and cleansing process more gentle and comfortable for the patient. UCS has a high degree of acceptance from patients as a result of reduced procedural pain (Palumbo et al, 2013). The gentle yet effective action of UCS also reduces the risk of mechanical damage to newly formed granulation and epithelial tissue within and around the wound bed (Welcare, 2025).

UCS is easy and intuitive to use – it allows the operator full control and mobility of the hand during the cleaning of various wound types. Both sides of the cloth are soaked with active ingredients, providing a double debridement and cleansing surface that can be used in a gentle polishing motion both in the wound and on surrounding skin. The conformable and flexible nature of UCS (*Table 1*) make it ideal for debriding awkward-to-reach anatomical areas, such as undermining wounds, skin folds or in-between the toes.

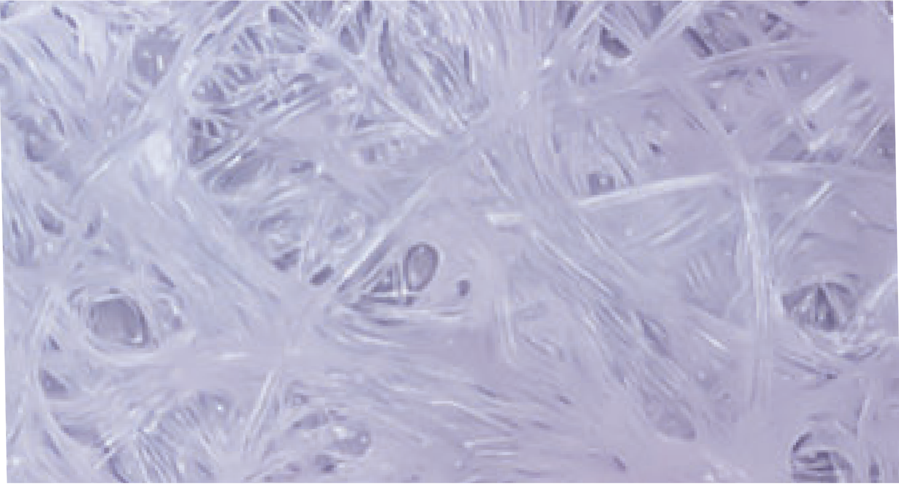


Figure 1.
The unique loop technology featured in the structure of UCS.

How UCS can assist with WBP

The unique features of UCS encompass all elements of the T.I.M.E.S. framework that supports a systematic approach to wound assessment and management (adapted from Socrates and Smith, 2017) (*Table 2*).

Ease of use

Each UCS device is individually wrapped and pre-moistened, eliminating the need for additional cleansing agents, bowls, or preparation. This ready-to-use design saves time, reduces infection risk, and is ideal for use in patients' homes, care facilities, or clinics where resources may be limited. The UCS range is designed to be easy to use, requiring no additional equipment and allowing healthcare professionals, patients, or carers to use it as part of supported self-care.

Hughes (2015) demonstrated that 100% of healthcare professionals who used UCS found it easy to use (although how many staff were included is not clear). A user evaluation involving 12 healthcare professionals rated the UCS cloth 9.83 out of 10 for ease of use, highlighting its practicality and user-friendly design (*see* Section 6, p.34 *for further detail*).

Suitable wound types and intended purpose

UCS is a sterile system that is indicated for initial maintenance wound debridement, cleansing and hydration of the peri-wound area and surrounding skin.

UCS is a class 2b medical device that is recommended for use on:

- Arterial, venous, mixed aetiology leg ulcers
- Diabetes-related foot ulcers
- Pressure ulcers
- Abrasions
- Chronic wounds
- Acute wounds
- Surgical wounds
- Traumatic wounds
- Superficial and partial-thickness burns
- Fistulae and abscesses
- Cleansing and removal of hyperkeratotic skin.

Compatibility

The skin-friendly solution is non-irritating, non-sensitising, and does not contain latex, alcohol, or parabens, which enables compatibility with other dressings or topical substances that are required for ongoing wound management (Welcare, 2025). While UCS is skin-friendly, caution should be used in patients with known sensitivity to any of the product's ingredients. The benefits of UCS for both patients and healthcare professionals are summarised in *Table 3*.

Table 1: Information and suggested use for the UCS® debridement cloth and glove

	UCS debridement cloth	UCS debridement glove
Size	20x20cm	22x16cm
Pack size	Box of 10	Box of 5
Appearance	Flat cloth	Pocket opening
Suggested use	Small to medium leg ulcers, foot ulceration, pressure ulcers and surrounding skin (including skin folds and in-between the toes) and mild-to-moderate hyperkeratosis	Wounds with large surface areas, high exudate volume, wounds on larger limbs, and/or severe hyperkeratosis on surrounding skin

Table 2: How UCS debridement cloth and glove assists with wound bed preparation

Treatment objective	How UCS can assist in managing treatment objectives
T=tissue type	
Debride wound to remove devitalised tissue	The UCS proprietary non-allergenic solution, combined with the mechanical action used, softens and breaks down non-viable tissue within the wound such as necrotic tissue or fibrinous slough. The weave of the fabric with loop technology captures and retains the debris allowing atraumatic removal
I=infection/inflammation	
Reduce bacterial bioburden	UCS is clinically proven to reduce bioburden, biofilms, sources of inflammation and infection
M=moisture balance	
Restore moisture balance	The special loop technology fibres lift, absorb and eliminate factors that may increase the production of exudate, e.g. debris, micro-organisms and wound proteases, while also adding moisture to areas of dryness to achieve moisture balance
E=edge	
Address underlying cause of non-advancing edge and refashion/debride edge of wound	UCS reduces senescent cells, hyperkeratotic edges and removes any non-viable tissue helping to promote epithelial migration
S=surrounding skin	
Promote skin health: Remove dry skin, exudate and debris with PH balanced cleanser Keep skin supple and well moisturised	UCS removes dry, scaly skin and promotes skin integrity, which may help to reduce the risk of cellulitis. Both allantoin and aloe barbadensis leaf extract help to soften hard, dry skin and improve skin hydration

The unique ingredients of UCS debridement include allantoin, aloe barbadensis and poloxamer 188

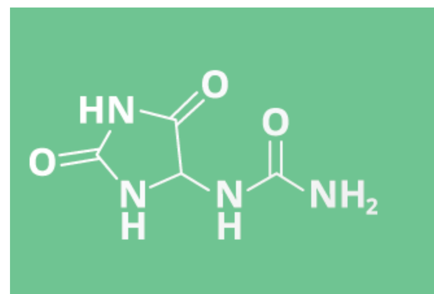
Table 3: UCS benefits for patients and healthcare professionals

For patients	For healthcare professionals
Safe and easy to use following instruction	Safe and easy to use – no specialist training required
Enables self-care	Can be used on a wide range of chronic and acute wounds
Moisturises and improves skin condition	It can be used at each dressing change
Reduces wound exudate and odour	No additional equipment or devices required
Soothing and comfortable during use	Can be used for initial and maintenance debridement

Unique ingredients of UCS

UCS is simple to use thanks to the unique combination of ingredients supporting its mode of action. These include:

- Allantoin
- Aloe barbadenis
- Poloxamer 188.



Allantoin

Allantoin is a natural compound found in plants, offering a multitude of benefits from skin protection and anti-inflammatory effects to soothing and moisturising properties. Allantoin has been shown to provide dermatological benefits, particularly in wound healing and skin regeneration (Valle et al, 2020; Vanessa et al, 2022). Its multifunctional actions help create an optimal wound environment, reduce discomfort, and promote tissue restoration.

The key benefits of allantoin are:

- **Reduces inflammation** – allantoin has been shown to modulate the inflammatory response, potentially creating a favourable environment for healing (Zhu et al, 2024).
- **Promotes cell proliferation** – allantoin stimulates activity in wound healing cells such as keratinocytes and fibroblasts, to accelerate tissue repair and re-epithelialisation (Paller et al, 2017).
- **Soothes irritation and calms the skin** – helping to maintain comfort and reduce local sensitivity (Savić et al, 2015).
- **Enhances hydration** by increasing water content within the extracellular matrix, supporting autolytic debridement and tissue flexibility (Vanessa et al, 2022).
- **Stimulates extracellular matrix synthesis and granulation tissue formation** – strengthening skin structure and aiding barrier restoration, reinforcing its therapeutic value in both dermatological formulations and wound care (Vanessa et al, 2022).
- **Reduces scar formation**, with evidence of improved cosmetic and functional healing outcomes (Prager and Gauglitz, 2018; Paller et al, 2020).
- **Continues to soften devitalised tissue**, supporting ongoing wound bed preparation and progression towards healing (Valle et al, 2020; Giacinto et al, 2024).

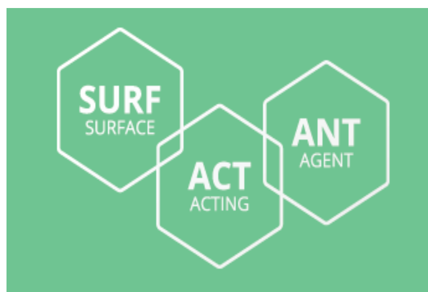
Aloe barbadensis (leaf extract)

The aloe vera leaf extract in UCS debridement is a certified organic component free of BSE/TSE, GMOs, and pesticides. Many of the compounds found in the aloe vera plant are beneficial in reducing inflammation and promoting cell proliferation and migration during wound healing (Lee et al, 2025). Aloe barbadensis leaf extract offers the following:

- **Anti-inflammatory effects** (Lee et al, 2025).
- **Collagen synthesis and remodelling.** The plant's

polysaccharides (e.g. glucomannan, acemannan, gibberellin) work by binding to fibroblast receptors, boosting fibroblast activity, collagen quantity, and tensile strength of healing tissue (Rahman et al, 2017; Hekmatpou et al, 2019).

- **Accelerating wound closure and improving tissue organisation** (Rahman et al, 2017).
- **Moisturising and soothing**. The high-water content of aloe vera provides hydration, promoting a moist wound environment (Gupta and Malhotra, 2012).



Poloxamer 188

Poloxamer 188 is a non-ionic surfactant with well-established biocompatibility and membrane-stabilising properties (Percival et al, 2018; 2019). In wound care, it contributes to an optimal healing environment by supporting cleansing, cellular repair, and biofilm management (Percival et al, 2018; Tyldesley et al, 2019). Its multifunctional activity has been demonstrated across laboratory and clinical studies, making it a valuable component in advanced wound management formulations. These activities include:

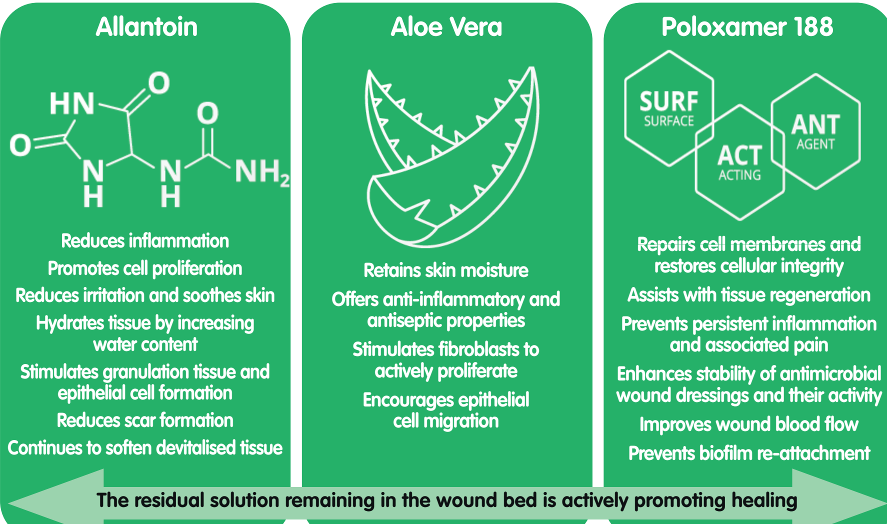
- **Reducing and preventing biofilm formation** – poloxamer 188 disrupts bacterial adhesion and extracellular polymeric substance formation, thereby reducing biofilm accumulation and preventing reattachment (Yang et al, 2017, 2018; Salisbury et al, 2018; Percival et al, 2019). *In vitro* studies using biofilms grown on porcine skin explants demonstrated that single and repeated treatments with UCS resulted in a significant removal of biofilm and prevented biofilm recolonisation over time (Hardy et al, 2019).
- **Facilitating debridement** – poloxamer 188 lowers the surface tension between the wound and cleansing solution, allowing loosening of non-viable tissue and debris (Percival et al, 2019; Giacinto et al, 2024).
- **Repairing cell membranes and enhancing cell integrity** – poloxamer 188 integrates into damaged cell membranes, stabilising and resealing them to promote cell survival and functional recovery (Merchant et al, 1998; Chen et al, 2019; Percival et al, 2019; Shang et al, 2022).
- **Assisting tissue regeneration** – by enhancing fibroblast viability and migration, poloxamer 188 supports granulation tissue development and re-epithelialisation, and promotes angiogenesis and formation of fibrous tissue (Percival et al, 2019; Shang et al, 2022).
- **Reducing inflammation** – reduction in biofilm and bioburden help moderate inflammatory activity, minimising tissue irritation and discomfort (Salisbury et al, 2018; Percival et al, 2019; Ding et al, 2020; Shang et al, 2022).
- **Enhancing antimicrobial activity and dressing stability** – poloxamer 188 acts as a solubilising and dispersing agent, improving the contact, penetration, and sustained activity of antimicrobial dressings (Yang et al, 2017). When used alone, antimicrobials act only on micro-organisms, leaving the protective biofilm layer intact and able to mature (Gillies, 2019). Combining surfactants such as poloxamer 188 with physical debridement has shown promising results in disrupting and reducing biofilms, making this combined approach essential in managing chronic wounds (Gillies, 2019).
- **Low cell cytotoxicity** – poloxamer 188 remains non-ionised in the presence of fluids, preventing cellular irritation and maintaining tissue compatibility (Zölß and Cech, 2016; Chen et al, 2019; Percival et al, 2019). It exhibits an excellent safety profile as it is non-cytotoxic and non-irritating to the skin.

Additional ingredients

Alongside the primary active ingredients, the UCS solution contains two additional components that have synergistic roles in supporting the removal of biofilm and necrotic tissue.

Essential fatty acid phospholipids:

The essential fatty acid (EFA) phospholipid complex within the UCS solution is derived from natural safflower oil, and is composed of essential fatty acids, particularly linoleic acid, in diester form. The EFA complex acts as amphoteric surfactant, meaning it can act as an acid or base depending on its environment,



and which works to enhance the surfactant action of poloxamer 188 which in combination results in a deep cleansing action on the skin (Blagojevic et al, 2017).

Benzalkonium chloride

Benzalkonium chloride is used in many preparations as an antiseptic or preservative (Maillard, 2022).

It is an antiseptic and disinfectant that has a bactericidal action on both Gram-positive and Gram-negative bacteria. It works by altering the normal structure of bacterial membranes, resulting in the loss of enzymes, coenzymes, and nutrients, and causing micro-organism death.

When used alone, antimicrobial agents act only on free bacteria, and are unable to penetrate the protective matrix that surrounds biofilm, leaving them intact (Gillies, 2019). Combining surfactants such as poloxamer 188 with physical debridement has shown promising results in disrupting and reducing biofilms, making this combined approach essential in managing chronic wounds (Gillies, 2019).

Summary of how the ingredients work together

The advanced wound cleansing formulation in UCS works in synergy with the mechanical action of the loop technology to optimise the wound healing environment.

The unique combination of ingredients in UCS debridement cloth and glove not only aligns with the core principles of wound bed preparation, but also offers a gentle, effective and time-efficient method suitable for community wound management.

The active ingredients in UCS act immediately on application, eliminating the need for soaking time, and do not inhibit the development of the new granulation tissue unlike some wound cleaning solutions which may contain cytotoxic ingredients. The loop technology then binds and lifts away devitalised tissues and debris from the wound bed.

Poloxamer 188 acts primarily as a surfactant and biofilm-disrupting agent, gently removing debris, slough and microbial contaminants while stabilising cell membranes and supporting tissue regeneration (Yang et al, 2017). Allantoin complements these effects through its anti-inflammatory, cell-proliferative and hydrating properties, promoting granulation tissue formation and epithelial repair (Valle et al, 2020; Vanessa et al, 2022).

Aloe vera offers a gentle, natural moisturising effect alongside antioxidant, antimicrobial and anti-inflammatory properties, promoting tissue regeneration.

Together, these agents help remove physical and biological barriers to healing, maintain moisture balance, and create conditions conducive to autolytic debridement and tissue renewal. This unique combination of ingredients not only aligns with the core principles of wound bed preparation, but also offers a gentle, effective and time-efficient method suitable for community wound management.

Debride

Physical debridement with **unique loop technology** allows for quick and pain-free removal of non-viable tissue, dry skin, bioburden, slough and wound debris.

Cleanse

Deep cleansing and biofilm removal with **poloxamer 188**, which is a surfactant cleanser that allows better penetration and effective cleansing of the wound surface in a few minutes. Both the UCS debridement cloth and glove are ideal for the management of biofilms and actively resist biofilm regrowth.

Hydrate

Keratolytic **allantoin** softens hard, dry skin, necrotic and sloughy tissue, and continues to work after the debridement process with UCS debridement cloth or glove. Allantoin helps to improve skin integrity, adds moisture and encourages autolytic debridement.

Aloe vera barbadensis is soothing and anti-inflammatory to the wound bed and surrounding skin.

3. Optimising the patient for healing: the role of wound bed preparation

Key points

1. **Wound bed preparation:** Provides a guide to identifying barriers to healing so that they can be addressed if possible.
2. **Identify barriers early:** Many wounds fail to heal because factors that can delay healing are not recognised or managed.
3. **Wounds can become hard-to-heal because of patient or wound-related factors:** These should be identified during holistic patient assessment, and reversed, if possible.
4. **Use a structured approach to wound assessment:** The T.I.M.E.S. framework helps assess tissue, inflammation/ infection, moisture, wound edges, and surrounding skin, guiding evidence-based wound care.
5. **Look beyond the wound:** Assess the wound bed and beyond to the surrounding skin to create a complete clinical picture.
6. **Consider the findings of wound assessment:** In combination with medical history, psychosocial factors and other findings of holistic assessment.
7. **Support healing potential:** Early intervention and standardised care improve outcomes, reduce delays, and enhance quality of life.

Wound bed preparation (WBP) is a well-recognised component of evidence-based wound care (Atkin et al, 2019). It provides a guide to identifying and removing barriers to healing (*Table 1*) so that the wound environment is optimised to allow healing to take place (Schofield and Ousey, 2021). Effective cleansing and debridement are essential components of WBP as they help to create an environment conducive to healing, which includes reducing bacterial burden, and managing exudate (Wounds UK, 2018; Atkin et al, 2019; Falanga et al, 2022).

Wound bed preparation in the community

With wound care making up a large component of community caseloads, WBP, including the cleansing and debridement components, needs to be carried out safely, effectively and in a timely manner, often in the face of limited resources. Some services may only allow a certain amount of time for wound-related tasks, for example, a short period of time for leg cleansing, which given the increasing complexity of patients is not always adequate (White et al, 2016). For example, washing both limbs of a patient with bilateral oedema and limited mobility can be challenging for the healthcare professional, both time wise and physically (White et al, 2016).

In some cases, patients based in the community can be actively engaged and empowered to take part in their own wound care between clinical visits, through supported self-care and education (Wounds UK, 2018; WUWHS, 2020). This not only reduces demand on nursing time but also enhances patient involvement in their recovery, improving adherence and outcomes

Table 1: Example of factors that may delay healing (adapted from Wounds UK, 2018; Grey and Patel, 2022; Sharpe et al, 2022)

Systemic and local factors	Wound factors	Patient factors
• Comorbidities such as uncontrolled diabetes, venous insufficiency, anaemia, malignancy • Poor vascular supply • Medication (e.g. corticosteroids, immunosuppressants) • Unrelieved pressure • Mechanical stress	• Devitalised tissue within the wound bed • Oedema • Unresolved infection and biofilm formation • Wound size • Wound location • Wound duration • Foreign body	• Psychological factors • Lifestyle choices (e.g. smoking, drug use, alcohol consumption) • Age • Poor nutrition and hydration • Obesity • Reduced mobility • Cognitive impairment

Box 1. Overview of stages of wound healing (adapted from Doughty and Sparks-DeFriese, 2016; Falanga et al, 2022)

Wound healing is a complex and dynamic process consisting of four overlapping phases. It can be compared to what happens when fighting a house fire:

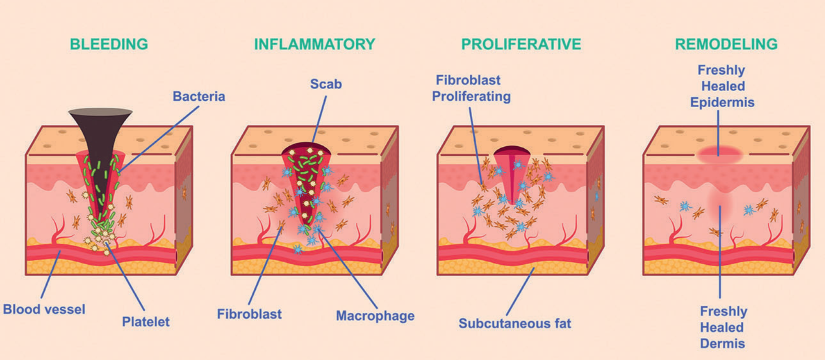
1. Haemostasis: Just as firefighters rush in and try to control a blaze, the body's first response immediately after injury involves the release of clotting factors to form a clot to seal damaged vessels and provide a provisional matrix to help cell migration. Additionally, activation and degranulation of platelets releases growth factors and compounds that attract neutrophils and macrophages (white blood cells) to the wound bed.

2. Inflammation: In the fire analogy, once the flames (bleeding) has been extinguished (stopped), the cleaners and refuse collectors are sent in to clear up the charred remains and debris. In wound healing, white blood cells such as neutrophils and macrophages are the refuse collectors and cleaners. They infiltrate the wound, clearing debris and pathogens by a process called phagocytosis. This process usually lasts approximately three days and results in a healthy clean wound bed.

3. Proliferation: Once the site (the wound bed) is cleared, rebuilding can begin. Fire-damaged buildings are rebuilt with new underlying structures: likewise, the wound is filled from the bottom up with granulation tissue, consisting of new blood vessels and tissue, which when level with the surrounding skin, is covered with new epithelium.

   Fibroblasts are key cells in the proliferation phase and are responsible for producing components of the extracellular matrix such as collagen which fill the wound space and provide a scaffolding for new cells. Fibroblasts also modify into myofibroblasts which contract to close the wound.

4. Maturation/Remodelling: Finally, just as a rebuilt house is reinforced, decorated, and lived in again, the wound matures. Collagen remodels, tissue strengthens, and skin fully covers the wound, restoring both function and appearance.



Acute wounds typically progress through the normal stages of healing and reach closure within 4–6 weeks if there are no complications. However, within the remodelling/maturation phase the immature collagen may take over a year to mature and only regains approximately 80% of its tensile strength.

(WUWHS, 2020; Blackburn et al, 2021).

An essential part of WBP is recognising the cause of the wound, what factors may be delaying healing (*Table 1*) and what can be done to address them.

Acute and hard-to-heal wounds

Acute wounds

Acute wounds usually heal in an orderly way within an expected time frame (*Box 1*) (Falanga et al, 2022; Sharpe et al, 2022).

Hard-to-heal wounds

Hard-to-heal (chronic) wounds occur when the normal sequence of healing is disrupted, most often by a dysfunctional immune response as a result of underlying pathologies (Doughty and Sparks-DeFriese et al, 2023; Raziyeva et al, 2021; Wang et al, 2023). Instead of resolving, inflammation persists and creates a hostile wound environment (Falanga et al, 2022; Wang et al, 2024). This is driven by factors such as impaired blood supply, venous insufficiency, metabolic disease (e.g. diabetes), sustained pressure, or infection with biofilm-forming bacteria (Falanga et al, 2022; Doughty and Sparks-DeFriese et al, 2023; Goswami et al, 2023). This results in excessive protease activity (matrix metalloproteinases [MMPs]), persistent pro-inflammatory signalling, and excessive levels of reactive oxygen species, which together impair cellular function and prevent progression into the proliferative and remodelling phases of healing (Rodrigues et al, 2019; Falanga et al, 2022; Wang et al, 2023) (*Box 1*).

About biofilms

Biofilms in the wound bed play a key role in delayed healing, shielding bacteria from immune responses and antibiotics, and perpetuating inflammation (Atkin et al, 2019; Raziyeva et al, 2021; Goswami et al, 2023).

What is biofilm?

Biofilm is a structured community of microorganisms that attach to the wound bed and surround themselves

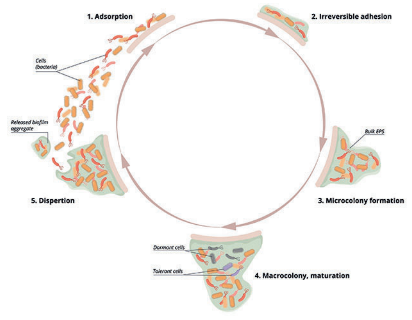


Figure 1. *The biofilm formation and maturation process.*

with a protective layer known as extracellular polymeric substance (EPS). This slimy layer shields bacteria from the immune system, antibiotics and topical antimicrobials, allowing them to persist, trigger ongoing inflammation and delay healing (Atkin et al, 2019).

How does a biofilm reform?

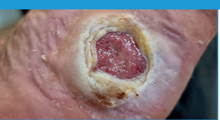
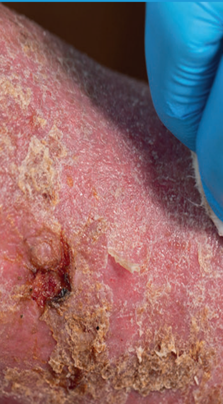
Some bacteria can survive deep within the wound tissues where normal surface cleaning cannot reach. Once antibiotics or topical antimicrobials reduce the free-floating (planktonic) bacteria, these hidden cells move back to the wound surface and begin to multiply. As they grow, the bacteria start rebuilding the EPS. They release sugars, proteins, and DNA that form a sticky, slimy coating which helps them attach firmly and protects them from treatment. More bacteria then join the community, causing the biofilm to thicken and become increasingly difficult to remove. Without regular disruption or debridement, this rebuilt biofilm can be fully re-established within 24–72 hours (Schultz et al, 2017) (*Figure 1*).

What are the signs of a biofilm?

Biofilm is thought to be present in approximately 80% of hard-to-heal wounds (Malone et al, 2017). There is currently no point-of-care test for a biofilm, and it is not visible to the naked eye making it difficult to identify. Some indicators that a biofilm may be present within a wound include:

- History of wounds that do not, or only partially, respond to antibiotic or topical antimicrobial therapy

Table 2: T.I.M.E.S. offers a systematic approach to wound assessment and management

Treatment objective		
T=Tissue type		
	Black Necrotic (non-viable, dead tissue)	Debride wound to remove devitalised tissue (may not be appropriate if limb has critical ischaemia)
	Yellow Slough (yellow, fibrous, non-viable tissue devitalised containing dead white blood cells, debris and proteins)	Debride wound to remove devitalised tissue
	Red Granulation tissue	Protect healthy granulation
	Pink Epithelial tissue	Protect delicate epithelial tissue
I=Inflammation/infection		
	Identify the presence and severity of biofilm or infection Identify the cause of inflammation	Reduce bacterial bioburden Disrupt biofilm and treat cause of inflammation
M=Moisture balance		
	Excessive exudate Too dry	Restore moisture balance: • Establish and treat cause of high exudate • Manage exudate effectively • Rehydrate wound bed
E=Edge of wound		
	Non-advancing or rolled/ undermining edge	Address underlying cause and refashion/debride edge of wound
S=Surrounding skin/periwound skin		
	Assess condition of surrounding skin, e.g. looking for excoriation, maceration, erythema, oedema and hyperkeratosis	• Manage and treat underlying cause (e.g. exudate, contact dermatitis, venous insufficiency, moisture-associated dermatitis) • Promote skin health: o Remove dry skin, exudate and debris o Keep skin supple and well moisturised

- Lack of improvement despite use of the correct antimicrobial treatment
- Slower than expected or stalled wound healing
- Repeated cycles of infection, flare-ups, or deterioration after initial improvement
- Persistent excess moisture or an unusually high volume of exudate
- Ongoing, low-grade inflammation that does not fully resolve
- Mild but continuous redness around the wound area (Atkin et al, 2019; IWII, 2022).

Why do they need to be removed?

Although the exact ways biofilms interfere with healing is not fully understood, they are known to trigger an ongoing, inappropriate inflammatory response (Schultz et al, 2017). This prolonged inflammation can damage healthy tissue and slow down the normal healing process and contribute to the chronicity of a wound (Atkin et al, 2019). Biofilms also act as a constant source of bacteria, which can lead to persistent or repeated infections (Schultz et al, 2017). As long as the biofilm remains in place, the wound may be unable to progress through the normal stages of healing. To support effective healing, the biofilm must be regularly disrupted and its rapid reformation prevented. This is achieved through therapeutic cleansing and debridement.

What is biofilm-based wound care?

Biofilm-based wound care focuses on identifying, disrupting, and preventing the rapid return of biofilm within a wound. As biofilms reform quickly, early and proactive management is essential. This approach typically involves a combination of therapies that can be escalated or reduced depending on the wound's response.

Key components include:

- Therapeutic cleansing and debridement to physically break up and remove the biofilm.
- Targeted use of topical antimicrobials to reduce bacterial load after debridement.
- Optimising the patient's ability to heal, including managing underlying conditions, addressing risk factors, and ensuring appropriate measures such as offloading or compression.
- Regular assessment and reassessment to monitor progress and adjust the treatment plan as needed.

As long as biofilm remains in place, the wound may be unable to progress through the normal phases of healing. To support effective wound closure, the biofilm must be regularly disrupted and its rapid reformation prevented. This is achieved through therapeutic cleansing and debriding.

Factors that influence healing

A wide range of intrinsic and extrinsic factors can influence the wound healing process (*Table 1*). Recognising and addressing these factors early is essential to avoid delayed healing (Doughty and Sparks-DeFriese, 2016; Grey and Patel, 2022). Evidence shows that wounds often fail to progress because underlying pathologies are not fully understood or managed (Atkin et al, 2019). Additionally, variation in practice, lack of standardisation and poor use of evidence-based practice have a negative impact on wound healing (Atkin et al, 2019; Guest et al, 2020).

Early intervention and adherence to evidence-based standards of care can significantly improve healing potential (Wounds UK, 2018, Atkin et al, 2019).

A systematic and holistic assessment is therefore critical, that encompassing both the wound bed and the surrounding skin to guide clinical decision-making (Wounds UK, 2018; Falanga et al, 2022). Careful identification of the tissue types present within the wound bed is a key step in selecting appropriate interventions (Falanga et al, 2022; Grey and Patel, 2022).

The T.I.M.E.S. framework (*Table 2*) provides a structured approach to evaluating the wound environment and surrounding skin and supports the facilitation of effective wound bed preparation which forms a key part of evidence based wound care (Atkin et al, 2019).

The remainder of this section will focus on several case studies and a clinical evaluation that demonstrate the use of UCS in a variety of clinical settings. UCS was used by clinicians on patients with a range of different wound types, to demonstrate its role in wound bed preparation and promotion of healing.

Reflect on your practice

- Regular therapeutic debridement and cleansing are an important part of managing any hard-to-heal wound. Think about what cleansing and debridement agents are available to you within your own area of practice, and if these can be changed to improve efficiency.
- Remember the importance of supporting the patient's healing potential by addressing comorbidities and modifiable risk factors, such as managing infection, improving nutrition, and ensuring appropriate offloading. Do you consider all possible barriers to healing for each individual patient?
- What framework, if any, do you use to assess patients with wounds holistically?
- Do you understand the principles of wound bed preparation?
- Are you able to identify different tissue types within the wounds you treat, and know what action to take accordingly?

Case study 1

Wound type: Infected insect bite
Treatment objectives using UCS® debridement cloth:
- wound assessment
- wound bed visibility
- wound bed preparation
- debridement of slough

Tracey Dunn, *Community Nurse, North East Essex Community Services, Clacton on Sea, Essex*

A 56-year-old male with a history of type 2 diabetes managed by metformin, attended the leg ulcer clinic following ongoing treatment from the practice nursing team at his local GP practice following a spider bite. The wound had been present for nine months. He had been treated with antibiotics but the wound had deteriorated and was very painful. The patient was overweight, yet had a busy lifestyle, working 6–7 days per week, with most of the time on his feet.

Initial presentation

The patient reported severe pain, the wound bed was covered with yellow slough, and a moderate exudate volume had caused maceration to the wound edges (*Figure 1*). The surrounding skin had spreading redness. Following assessment, a biofilm was suspected because of the chronicity and the thick slough covering the wound bed.

A UCS® debridement cloth was used to debride the devitalised tissue from the wound bed with the aim of reducing bioburden, exudate volume and periwound inflammation. Debridement achieved better visibility of the wound bed and created an environment more conducive to healing. A wound swab was taken from the cleaned wound. The main treatment goal was identified as pain management. The wound was dressed with an antimicrobial silver hydrofibre dressing to aid autolytic debridement, reduce biofilm and bioburden and prevent pain on removal. A super-absorbent dressing was then applied as a secondary dressing to manage wound exudate and prevent further irritation of the periwound area.

Ankle brachial pressure index (ABPI) assessment in conjunction with a lower limb assessment was completed to determine vascular status and aid care planning. The ABPI was 1.25 with triphasic sounds present so strong compression (40mmHg) was applied in the form of short-stretch bandaging. Compression therapy is shown to reduce local skin inflammation and improve lymphatic outflow decreasing local swelling-related symptoms and reduce exudate (Rabe et al, 2020). Additionally, the GP made a dermatology referral because of the lack of progression under the practice nursing team.

Day 2

On the next visit two days later, the wound had further deteriorated, and looked inflamed (*Figure 2*). The patient was taken out of compression until dermatology assessment had taken place as the patient was still in pain and felt that the compression was making it worse.

Day 10

No red flags were identified by dermatology. Subsequently, oral steroids were requested from the GP to try to tackle a possible ongoing reaction from the spider bite. Compression was reinstated seven days post dermatology assessment. The patient continued with three clinic visits per week and entered onto a biofilm management pathway. At each visit, the wound was cleaned and debrided with UCS and compression applied. UCS was used to debride with good effect and visible debris was removed from the wound bed around day 14 which was a turning point. Subsequently, exudate volume and pain reduced at each visit, allowing more effective wound debridement (*Figure 3*).
The patient completed a seven-day course of antibiotics and a seven-day course of steroids with good effect. Pain was more controlled requiring paracetamol 1g four times daily. After two weeks (six visits) the wound started to heal. *Figure 4* shows the wound after four weeks – the reduction in slough was the result of UCS use, with the slough physically lifting away at each debridement.

Week 7

The patient had received further antibiotics following the wound swab results, and had also taken a second course of oral steroids. The patient's pain continued to improve, with granulation tissue appearing in the wound indicating further progress towards healing (*Figure 5*).

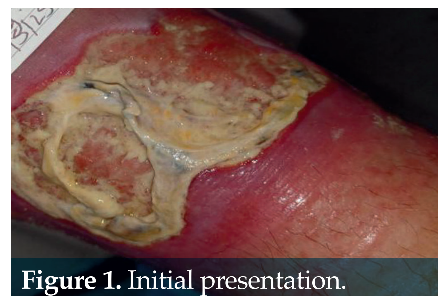


Figure 1. Initial presentation.

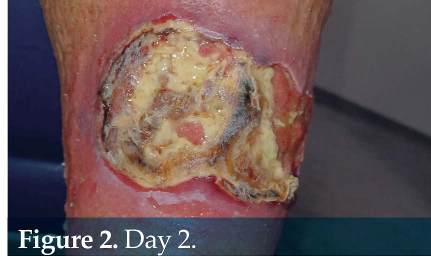


Figure 2. Day 2.

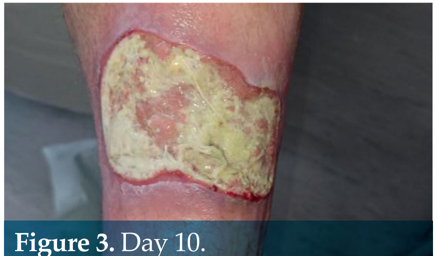


Figure 3. Day 10.

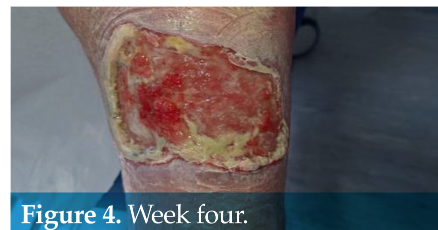


Figure 4. Week four.

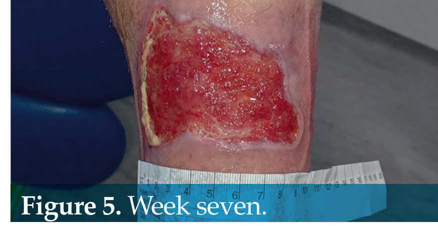


Figure 5. Week seven.

Natalie Howard, *Clinical Manager, medi UK*

Case study 2

Wound type: Pre-tibial laceration
Treatment objectives using UCS® debridement cloth:
- wound assessment
- wound bed visibility
- wound bed preparation
- debridement of necrotic tissue

An 80-year-old retired man who had a healthy and active lifestyle with no remarkable past medical history presented to the tissue viability clinic for leg ulcer assessment following a practice nurse referral.

During a game of bowls 11 weeks previously, he tripped and sustained a traumatic pre-tibial laceration to his left leg. He visited his practice nurse on the day of injury and commenced twice-weekly dressing changes.

Following four weeks of treatment from the practice nurse it was decided that due to lack of progression the GP would refer for surgical debridement. At this time a referral to the local plastics unit was made, as was a referral to the community tissue viability service for treatment while awaiting surgical debridement. He received a further six weeks of conventional treatment of twice-weekly dressing changes with hydrogel to encourage autolytic debridement with little progress. He was treated with oral antibiotics for a reported wound infection.

Initial presentation

On initial presentation at the tissue viability clinic, a necrotic leathery eschar was present measuring 4.8x4.2cm with sloughy tissue present at the wound margins *(Figure 1)*. The redness visible around the wound was a consequence of dressing removal.

Week 1

As the community tissue viability service had no staff trained in sharp debridement to remove the eschar from the wound bed, UCS was used to mechanically debride the wound twice weekly. The solution was squeezed from the cloth onto the wound edges where the eschar had begun to lift to enable the solution to act on the devitalised tissue from beneath as well as on the necrotic surface. After two episodes of mechanical debridement in one week the eschar had lifted leaving islands of granulation tissue in a sloughy wound bed *(Figure 2)*.

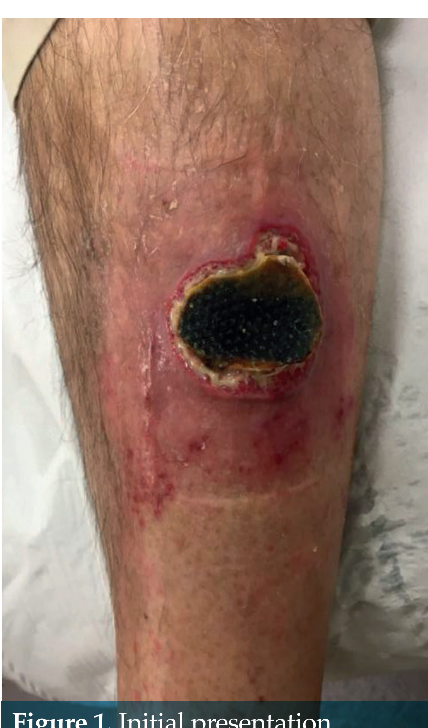


Figure 1. Initial presentation.

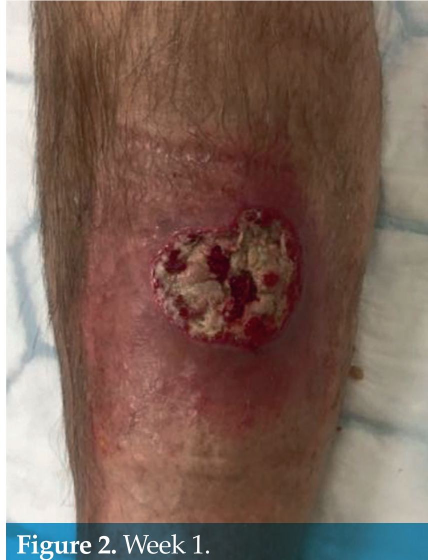


Figure 2. Week 1.

Weeks 2 and 3

As the wound was 11 weeks old on initial presentation, it was considered chronic and treated accordingly. Vascular assessment showed that there was no arterial insufficiency therefore strong compression therapy was commenced. As the patient was very active and continued to enjoy playing on his bowls team, he was concerned about compression bandages restricting his activity. He had little oedema in his lower limb and so was fitted with a juxtalite compression wrap device. This also allowed the patient to manage his personal hygiene needs and skin care during treatment.

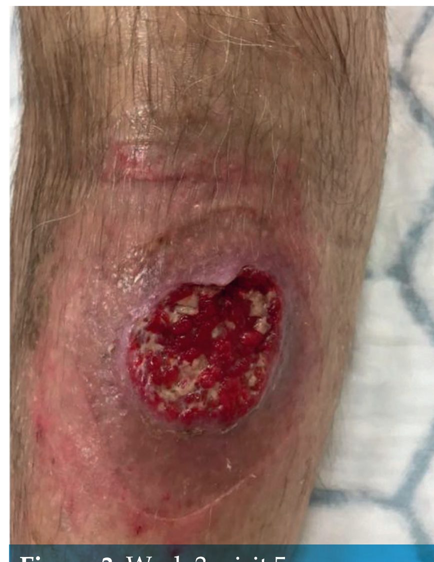


Figure 3. Week 3, visit 5.

At week two (four visits) the wound bed had improved greatly; wound edges had advanced with a reduction in wound size to 3x3.6 cm. After three weeks of treatment *(Figure 3)* in the tissue viability clinic he was discharged back to the care of the practice nurse with a self-care regimen consisting of a simple foam dressing and juxtalite compression wrap. The surgical debridement was no longer required, resulting in the avoidance of a surgical procedure for the patient and the associated costs for the health service.

Case study 3

Wound type: leg ulcer
Treatment objectives using UCS debridement cloth:
• biofilm management • self-care

Cath Cavanagh, *Practice Nurse, Wound and Lower Limb Lead, York Medical Group*

A 64-year-old man with a past medical history of peripheral arterial disease, left leg below-knee amputation, hypertension and hyperlipidaemia was referred to the practice nurse complex wound clinic with a static wound on his right leg of over 14 months duration. He had previously undergone vascular surgery and had been left with an open wound. The patient had been advised by the vascular consultant that delayed healing was likely as a consequence of poor limb perfusion and that complete healing would be difficult if not impossible to achieve.

On initial discharge from hospital the patient had been seen for eight weeks by the community nursing team. Once his mobility had improved his wound care was transferred to the practice nurse as he was no longer housebound. He received regular wound care in the practice nurse treatment room over the next five months, but his wound had become static. He stopped attending routine weekly practice nurse appointments and decided to continue with self-care dressing changes at home because he was becoming increasingly frustrated with the lack of wound progression. While he knew the consultant vascular surgeon had told him healing would be difficult to achieve, he wanted to look after the wound well and the practice nursing team were keen to support him with a supported care pathway. He would attend the treatment room to be reviewed every 4–6 weeks for assessment and wound care supplies were issued.

This lack of progression continued for a further six months, then during a routine GP review it was suggested that he could benefit from a referral to the practice nurse wound clinic for review as the lack of progression with the wound continued to frustrate him and cause him to feel depressed.

Initial assessment

On initial assessment at the wound clinic the wound had been present for 14 months in total. It was recognised that wound healing was delayed because of his inability to have compression due to his compromised vascular status. The wound bed was red and granular but static, indicating the likely presence of biofilm *(Figure 1).*

The patient wanted to continue to perform his own care and declined regular practice nurse appointments and the wound clinic. It was decided to introduce a simple physical debridement regimen using UCS debridement cloths to remove the biofilm which he was happy to use at home. Following each episode of debridement the wound would be re-dressed with a non-woven gelling fibre dressing secured with a silicone-backed foam dressing twice weekly. This change in care plan saw an improvement in wound healing and epithelial advancement at eight weeks *(Figure 2)*. This caused a rapid increase in engagement from the patient and improved patient satisfaction. The decision was made for him to continue with self-care at home with monthly reassessment at the wound clinic. The ability to provide a care plan that the patient could implement at home independently, had significant benefits for both the patient and GP practice.

As the wound was chronic and progression was slow, this self-care regimen reduced the number of appointments the patient had to attend which improved his quality of life and mood, while optimising clinical resources at the practice. Although the wound has yet to heal, slow but steady progress has been made over five months of regular weekly maintenance debridement with UCS and simple dressings *(Figures 3 and 4).*

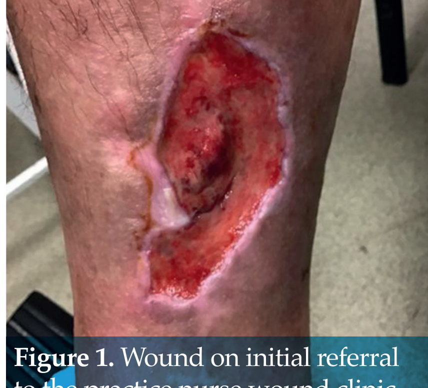


Figure 1. Wound on initial referral to the practice nurse wound clinic, 14 months after surgery.

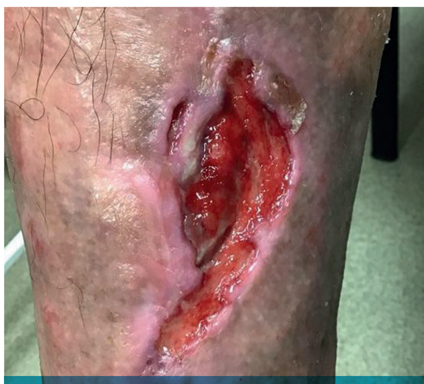


Figure 2. Wound eight weeks after patient's self -care regimen using UCS debridement cloths was put in place.

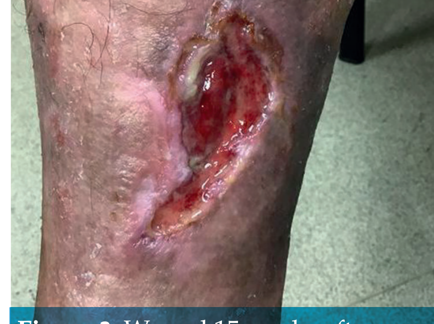


Figure 3. Wound 15 weeks after self-care regimen put in place.

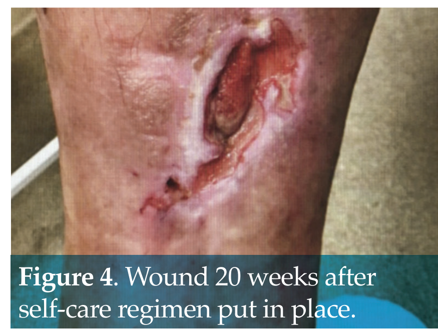


Figure 4. Wound 20 weeks after self-care regimen put in place.

Case study 4

Wound type: Insect bite
Treatment objectives using UCS® debridement cloth:
• bioburden reduction • self-care

Cath Cavanagh, *Practice Nurse, Wound and Lower Limb Lead, York Medical Group*

A 54-year-old man was referred to the wound clinic from the urgent care team. He had sustained an insect bite to his right lower leg that was initially infected and he subsequently developed cellulitis.

Initial presentation

The patient presented two weeks post-injury *(Figure 1)* with a wound that was inflamed and failing to show signs of healing. The wound edges were macerated and the periwound area was inflamed and oedematous. The base of the wound was obscured by a plug of slough.

In line with the National Wound Care Strategy Programme (Wounds UK, 2023) lower limb guidance, mild compression was initiated as the wound had been present for more than two weeks, and the limb was also notably oedematous and would benefit from compression. Red flags were ruled out and mild compression commenced with class 1 British Standard compression hosiery. As the wound bed was covered with slough it was identified that this devitalised tissue needed to be debrided to promote healing *(Figure 1).*

The patient was not able to attend clinic more than every seven to 10 days due to work commitments but was willing to self-care in between appointments with support and education on how to clean and re-dress his wound. UCS was selected as the ideal tool as it is simple to use. A care plan was initiated for twice-weekly dressing changes starting with wound debridement and cleansing with UCS, followed by application of an antimicrobial hydrofibre primary dressing secured by a foam adhesive. At week 2, the antimicrobial hydrofibre dressing was discontinued as the exudate, periwound inflammation and oedema had reduced. His compression therapy was increased to 40 mmHg with the use of a 2-layer hosiery kit to enable ongoing self-care. The patient was happy to self-care between appointments and the wound was healed in five weeks (*Figure 3*).

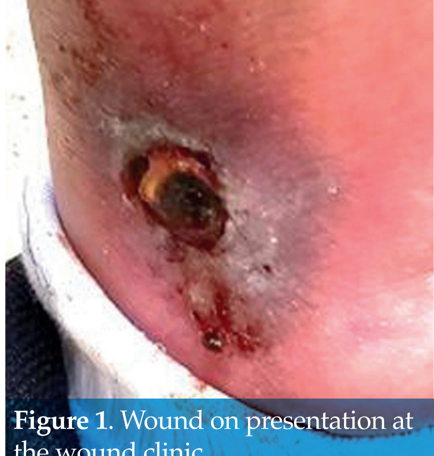


Figure 1. Wound on presentation at the wound clinic.

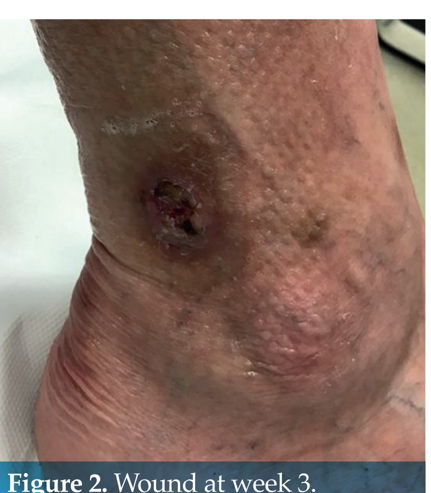


Figure 2. Wound at week 3.

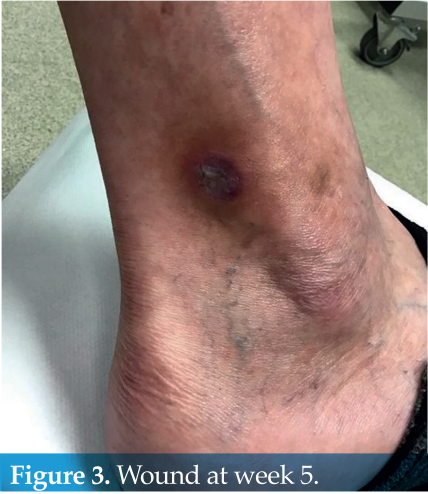


Figure 3. Wound at week 5.

Guidance to make self-care successful

- **Use self-care to improve engagement.** Supported self-management can enhance compliance, particularly for patients who cannot or will not attend regular appointments.
- **Assess suitability and readiness.** Review willingness, wound complexity, physical ability and understanding at each contact.
- **Support — don't substitute care.** Provide structured education, clear red flag advice, and explicit guidance on when to seek help. Self-care should not mean patients managing alone.
- **Plan review and share decisions.** Agree goals and review dates to maintain safety, monitor progress and enable timely escalation.
- **Recognise the benefits.** When implemented correctly, self-care can empower patients and reduce pressure on nurse and clinic time.

Clinical evaluation

Study type: 50 patient debridement product evaluation
Aim: To locally evaluate five debridement products, including UCS
Results: UCS was found to deliver superior clinical outcomes, reduce wound bioburden, remove devitalised tissue from the wound bed, promote healing and reduce patient-reported procedural pain effectively. A wound biofilm management pathway is in development.

Lydia Banfield, *Tissue Viability Nurse, Cornwall Partnership NHS Foundation Trust;* Laura-Jayne Cuff, *Lead Nurse, St Austell Healthcare, Cornwall*

An evaluation was carried out by the tissue viability team at Cornwall Partnership NHS Foundation Trust and the nursing and healthcare assistant team at St Austell Healthcare, Cornwall, to compare five different debridement methods. Each of the five manufacturers provided samples for use in the evaluation. Fifty patients needing debridement were identified among the caseload, and following their consent to take part, they were randomly assigned to treatment with one of the five debridement products. This resulted in 10 patients using each debridement product.

Every patient was given a maximum of five episodes of care with the chosen product for their treatment group. The primary outcome measure of the evaluation was to determine bacterial bioburden reduction, measured using MolecuLight, a non-invasive, class II point of care fluorescence wound imaging device that allows identification of bacterial hotspots within the wound bed, as indicated by green and red colouration on wound imaging (see *Figures 1–5*). Secondary outcomes were improvement in the wound bed determined by the percentage of tissue types present pre-*versus* post-debridement and patient-reported pain scores.

Results from the evaluation showed that the UCS debridement method delivered superior clinical outcomes, including a greater reduction in bacterial load when compared before and after debridement, as measured by MolecuLight (*Figures* 1–5). An increase in percentage of granulation tissue was observed over the course of treatment, along with a decrease in devitalised tissue across the patient group. Patient-reported pain remained the same or reduced over the course of treatment. As a result of this real-world evaluation, a wound biofilm management pathway is in development.

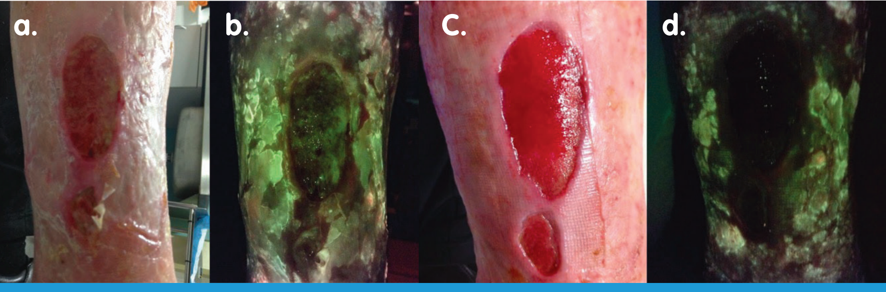


Figure 1. Patient 2. Before UCS debridement, a. clinical presentation and b. MolecuLight; After debridement c. clinical presentation and d. MolecuLight.

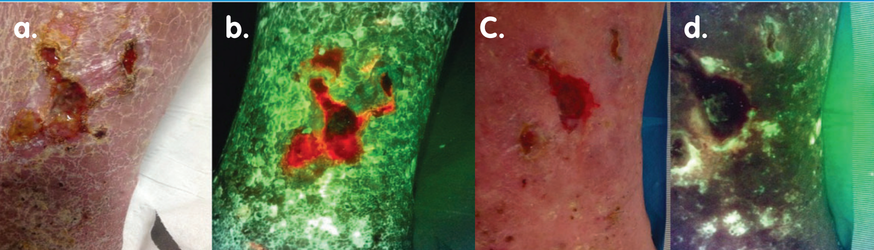


Figure 2. Patient 4. Before UCS debridement, a. clinical presentation and b. MolecuLight; After debridement c. clinical presentation and d. MolecuLight.

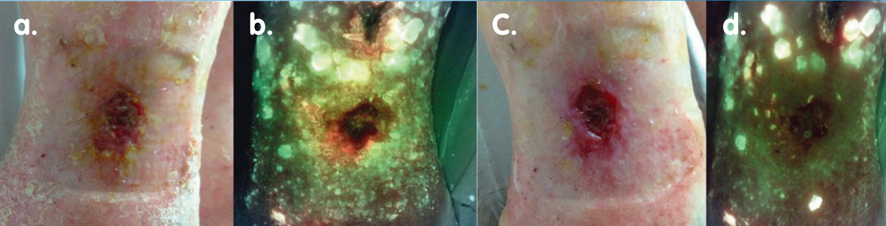


Figure 3. Patient 6. Before UCS debridement, a. clinical presentation and b. MolecuLight; After debridement c. clinical presentation and d. MolecuLight.

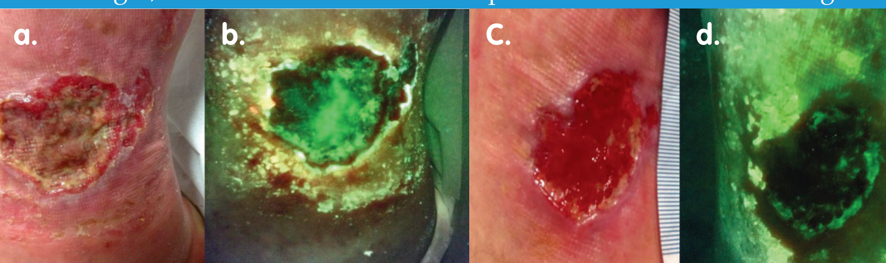


Figure 4. Patient 7. Before UCS debridement, a. clinical presentation and b. MolecuLight; After debridement c. clinical presentation and d. MolecuLight.

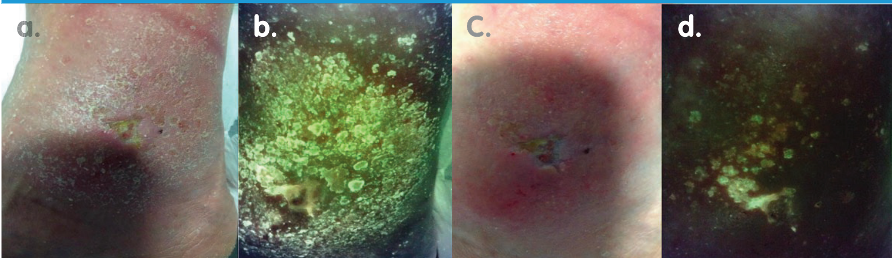


Figure 5. Patient 10. Before UCS debridement, a. clinical presentation and b. MolecuLight; After debridement c. clinical presentation and d. MolecuLight.

4. Therapeutic wound and skin cleansing

Key points

1. **Therapeutic cleansing of the wound bed is vital:** To reduce bacterial bioburden, remove debris, exudate and residue, and prepare the wound for healing.
2. **Cleansing of the area around the wound – the peri-wound skin – is also important.** This helps to maintain skin integrity and prevent wound enlargement.
3. **Selection of a cleansing agent should be guided by holistic assessment:** Encompassing wound environment, treatment goals, patient need, care setting and local policy.
4. **The wound cleansing process should be effective enough to achieve therapeutic objectives:** While also being gentle enough not to damage new tissue growth.
5. **Remember to cleanse the whole limb, not just the wound:** To remove any build up of dry, flaky skin, wound exudate, and emollients and other skin care products. This includes skin folds and in-between the toes.
6. **Cleansing is an integral part of wound and skin care.** However, it may need to be used in conjunction with debridement to obtain optimal results.

Therapeutic wound cleansing is the process of removing unwanted material from the wound bed, including microorganisms (bioburden), cellular debris, devitalised tissue, and foreign matter such as dressing fibres or residue (Weir and Swanson, 2019; International Wound Infection Institute (IWII), 2025).

Effective therapeutic cleansing creates an optimal environment for healing by reducing the risk of infection, promoting accurate assessment, and preparing the wound bed for repair and further interventions such as debridement or dressing application (IWII, 2025).

Unlike ritualistic wound cleansing, therapeutic cleansing uses appropriate solutions (e.g. saline, tap water, or surfactant/antimicrobial cleansers) and methods that are chosen based on the wound's condition and patient factors (IWII, 2022). For example, acute wounds, healing in an orderly manner with slight exudate, may need minimal cleansing to avoid damaging the new and delicate granulation or epithelial tissue, while hard-to-heal wounds with suspected biofilm or devitalised tissue may require a more vigorous cleansing technique (IWII, 2022).

The cleansing process must be gentle enough to avoid damaging new tissue growth, but effective enough to reduce wound bioburden and minimise the risk of infection or delayed healing. Consequently, it is recommended that all wounds require some level of therapeutic cleansing at each dressing change (Weir and Swanson, 2019; IWII, 2025).

Within the community setting, patients with wounds on the lower limb may have their leg(s) cleaned using a bucket of water and an emollient (Downe, 2014; Khatun, 2016). This can be very therapeutic for the patient and helps to remove debris, exudate and hyperkeratosis (Khatun, 2016). However, this method can be time consuming for the clinician, and lifting heavy buckets of water can pose a manual handling risk. There is also the potential to increase the risk of infection if buckets are not cleaned and stored appropriately after use (Khatun, 2016).

Why is cleansing the peri-wound and surrounding skin needed?

Therapeutic cleansing should not be limited to the wound bed and wound edge (IWII, 2025). The peri-wound and surrounding skin is equally important to maintain, as they can accumulate exudate, emollient residue, topical products, and dead skin cells (Milne, 2019; IWII, 2025). Consequently, prolonged exposure to these residues can result in further skin damage and wound enlargement (Le Blanc et al, 2021).

Peri-wound area

The peri-wound area refers to

the skin immediately adjacent to the wound edge extending to 4cm, which is often vulnerable to damage from exudate, maceration, or dressing adhesives (LeBlanc et al, 2021). The surrounding skin describes the broader region beyond the peri-wound, where underlying conditions such as oedema, dryness, hyperkeratosis, or dermatitis may also influence healing (Hopkins et al, 2022).

Cleansing the peri-wound and surrounding skin is a vital step in wound care, helping to remove visible contaminants and maintain a clean, healthy environment that supports healing (Hopkins et al, 2022; IWII, 2025).

Cleansing allows the healthcare professional to look for skin changes associated with underlying conditions such as lymphatic and venous disease.

Cleansing agents: an overview

Several options are available for wound cleansing in community practice. Each method has advantages and limitations, and choice should be guided by wound characteristics, patient needs, and local policies, care setting and available resources (IWII, 2025). The main options for wound cleansing include potable tap water, saline 0.9% and antiseptics. Some cleansing products also contain surfactants (surface-active agents).

Surfactants

Surfactants are substances that reduce the surface tension between liquids and solids, helping to loosen and lift contaminants where mechanical removal alone may be insufficient (Percival et al, 2017; IWII, 2025).

Choice of wound cleansing agent should be guided by factors including wound characteristics, patient needs and preferences, local policies and the resources available within the care setting.

They work by attaching to both water and lipids: one part of the surfactant molecule binds to grease, dirt, or cellular debris that is made up of lipids, while the other part binds to water (Percival et al, 2017). This action allows harmful lipid-containing substances (such as necrotic tissue fragments, exudate, slough, bacteria, or dressing residues) to be removed more easily than if using water or saline alone (Percival et al, 2017; IWII, 2025). There are some instances where wound cleansing may not be appropriate and the goal is to keep the area dry, such as a dry necrotic heel or necrosis resulting from ischaemia (IWII, 2025).

Therapeutic wound cleansing is the process of removing unwanted material from the wound bed, including micro-organisms (bioburden), cellular debris, devitalised tissue and foreign matter such as dressing fibres or residue.

Considerations when choosing a cleansing agent

The following should be considered when selecting a cleansing agent:

- Wound assessment findings (e.g. site of wound, aetiology, exudate volume, condition of wound bed and surrounding skin)
- Is the wound at risk of developing infection, does it have recurrent infection, or is it showing signs of local or spreading infection?
- The cleansing agent should be effective against microorganisms while remaining gentle enough not to damage healthy cells.
- Does the patient have any allergies to product ingredients?
- pH of wound – hard-to-heal wounds often have an alkaline pH (>7), which supports bacterial growth. Cleansers with a neutral or slightly acidic pH help create an environment less favourable to bacterial growth.
- Pain – wound cleansing and redressing can increase discomfort, and some patients report pain with solutions such as saline or antimicrobial cleansers. Choosing a product that minimises pain and is acceptable to the patient is essential.
- Practicality matters – the product should be easy to apply, readily available and in line with local policies and guidelines. Ease of use is particularly important for patients who wish to self-care. It is also a consideration for community practitioners who need to carry out wound cleansing in the patient's home.
- Must support clinical outcomes and goals of care for the patient.
- Cost considerations are important and should be considered alongside clinical effectiveness.

Reflect on your practice

- Do you clean the wound and/or the surrounding skin at every dressing change?
- What topical agents do you use in your clinical practice for cleaning the wound and surrounding skin?
- Do you find wound/skin cleansing time consuming?
- Can any of your patients help with wound/skin cleansing before or between your visits?

Case study 1

Wound type: Venous leg ulcer
Treatment objectives using UCS® debridement cloth:
• reduction in inflammation • wound and skin debridement
• biofilm disruption • reduction in inflammation

Jane Parker, *PCN Tissue Viability Specialist Nurse, West Norfolk Coastal and Kings Lynn PCNs*

An 86-year-old patient with a past history of mild aortic stenosis and hypertension presented with a leg ulcer of 14 months duration.

On initial assessment, the wound measured 2.5x1.5cm with a depth of 1mm. The wound was producing a moderate volume of exudate and the wound bed was covered in 80% slough and 20% granulation tissue. The wound was malodorous, and this in combination with inflammation, redness and delayed healing led to the presence of a biofilm being suspected. The peri-wound skin was red, excoriated, fragile, with some dryness and scales present (*Figure 1*). Treatment objectives were identified as wound and skin debridement and biofilm disruption.

UCS® was used to clean and debride the wound and lower limb, with the cloth immediately lifting away slough and devitalised material from the wound bed. After a 5-minute treatment the wound bed was more visible and could be seen to consist of 80% granulation tissue and 20% slough (*Figure 2*).

The patient reported a pain level of two on a scale of one to 10, with 10 relating to very high pain, throughout the debridement procedure. The surrounding skin was also cleansed with the cloth removing hyperkeratosis, while the UCS solution also enabled cleansing of the limb, moisturising of the skin and soothing the peri-wound area during the treatment. Afterwards the patient described the process as 'ecstasy' due to the relief experienced from dryness and itching.

A second UCS treatment was carried out (*Figure 3*) at the next clinic visit. The wound had reduced to 1.5x1cm and the wound bed consisted of 80% granulation tissue with islands of epithelium present and 20% slough. Debridement was once again carried out, taking approximately five minutes. Afterwards the patient rated procedure-related pain as one. The wound was healing, with the wound margins looking healthier and the peri-wound skin condition much improved. The patient found the procedure comfortable and even enjoyable. The clinician found the UCS cloth easy and convenient to use with immediately visible results.

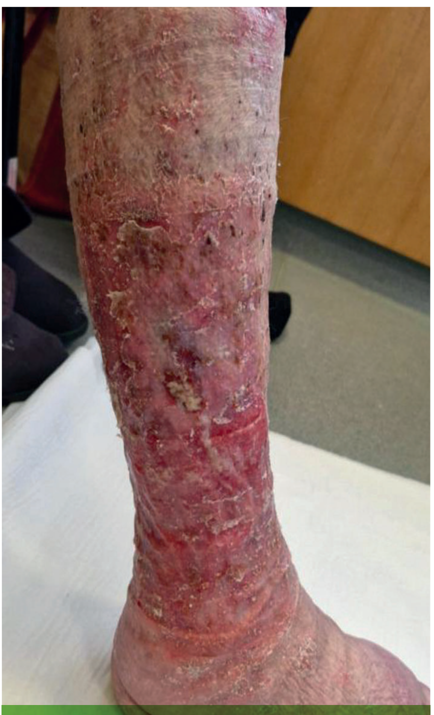


Figure 1. At presentation.

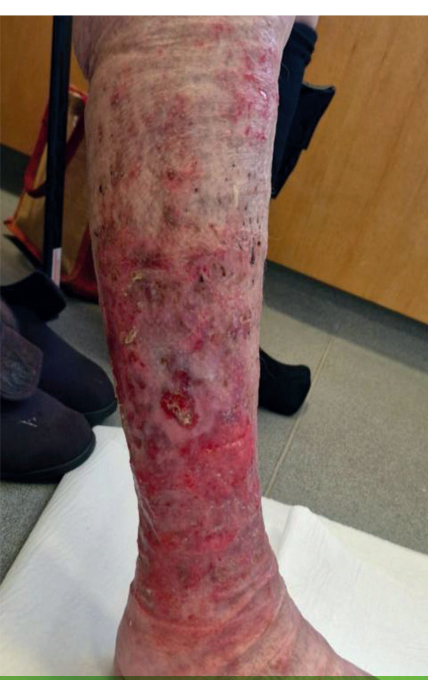


Figure 2. At presentation, following a five minute treatment with UCS.

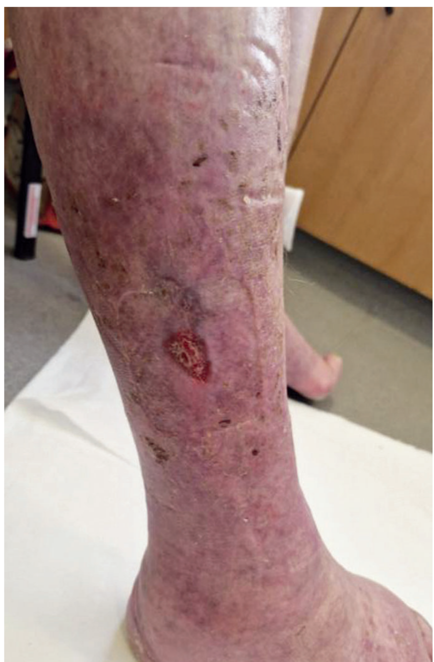


Figure 3. The limb at two weeks following UCS treatment.

Therapeutic cleansing should not be limited to the wound bed and edge. It is equally important to clean the surrounding skin. Prolonged exposure to exudate, and a build up of dead skin cells, emollients and topical creams can result in further skin damage.

Case study 2

Skin condition: Hyperkeratosis
Treatment objectives using UCS debridement cloths:
- removal of hyperkeratosis • hydrating

Natalie Howard, *Clinical Manager, medi UK*

A female patient with a long history of chronic oedema presented with varicose eczema as a result of limited mobility and a sedentary lifestyle, leading to long periods of lower limb dependency. Initially the lower legs were managed in compression bandaging. Once limb volume was successfully reduced and maintained, the patient was measured and fitted with mediven® cosy made-to-measure hosiery to maintain the oedema reduction in the lower limbs.

Following this improvement, the patient became engaged in self-care with minimal assistance from carers; however, the overall skin condition on her lower limbs remained dry and scaly. The community nursing team suggested adding in UCS as part of her skin care management plan alongside the daily application of emollients.

Debriding to remove dry skin plaques, cleansing and applying emollients are the key stones of skin care for patients with chronic oedema. Patients with lower limb conditions need to maintain their skin barrier function as they are at increased risk of cellulitis, however, the barriers to performing these tasks are recognised. Carrying out these components of care, sometimes multiple times per day, can be time-consuming and for people with limited mobility and dexterity, and comorbidities, not easy to do.

UCS was chosen as this allowed for debriding, cleansing and hydrating to be achieved in one simple application. In this case this was initially performed by the nurse, but with education and support the patient was able to self-care. The patient and the nursing staff noted an instant improvement in the appearance of the dry skin after just one treatment with UCS cloth (*Figures 1* and 2). *Figures 1a* and *2a* show the build-up of dry skin after one week in compression hosiery. *Figures 1b* and *2b* show the legs after one episode of debridement with UCS to debride, and hydrate the lower legs.

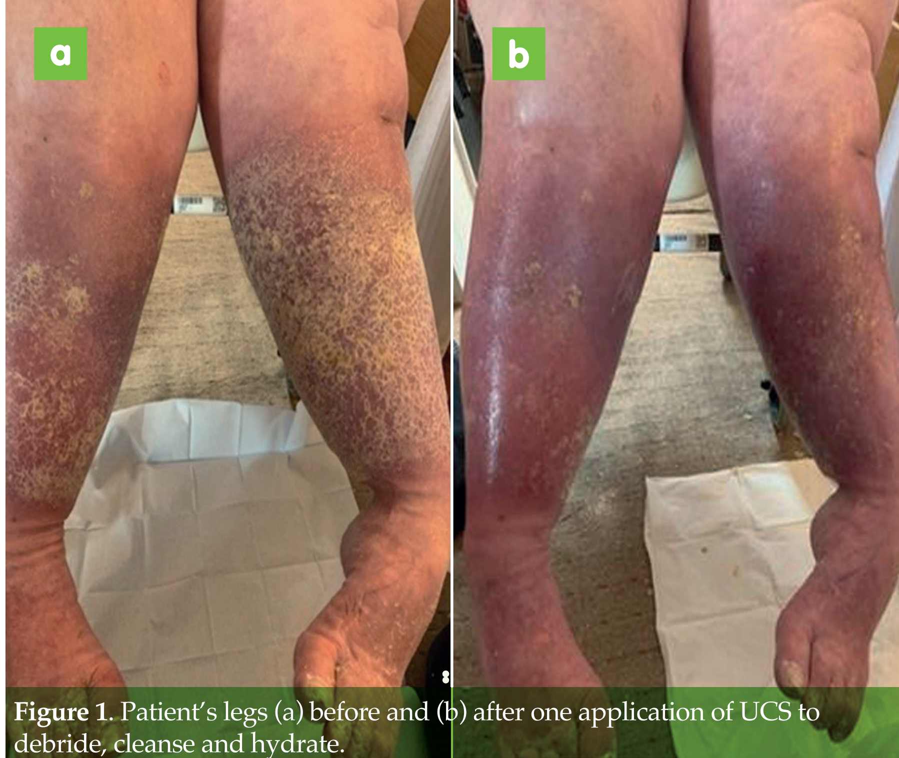
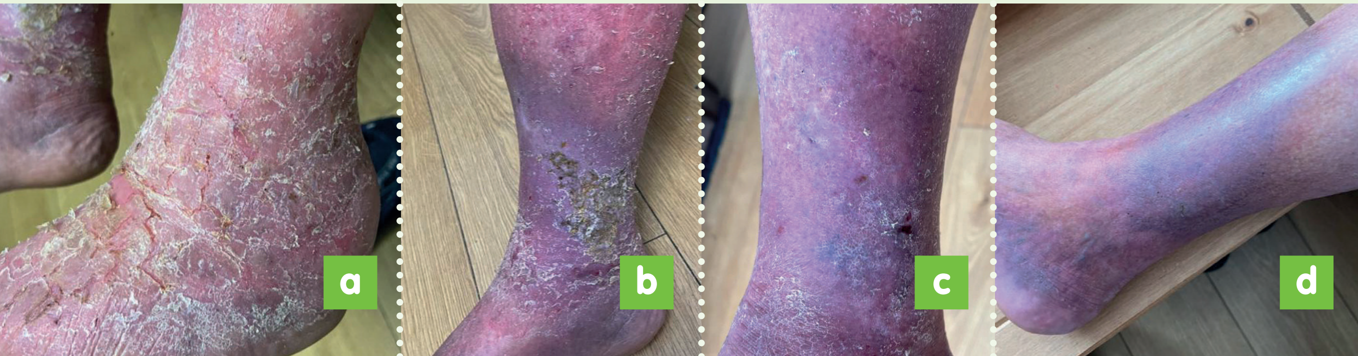


Figure 1. Patient's legs (a) before and (b) after one application of UCS to debride, cleanse and hydrate.

A 64-year-old male patient with a 25-year history of remitting-recurring venous leg ulcers presented with an episode of dry skin following an episode of cellulitis. USC was used and the images below show before (a, b) and after (c, d) treatment.



5. Wound and skin debridement

Key points

1. **Debridement is the removal of dead tissue:** This includes slough, biofilm, and debris from the wound bed.
2. **Holistic comprehensive patient assessment is essential.** It helps to determine the need for debridement and the method required.
3. **Debridement creates a clean wound environment**, reduces infection risk, and promotes healing.
4. **Common methods of debridement include:** Sharp/surgical, autolytic, enzymatic, biological (larval), and mechanical.
5. **Autolytic and mechanical techniques are most commonly used in community care** as they are readily available and require less skills training than other methods.
6. **The ideal technique should be safe, easy to use, cost-effective, and well-tolerated by patients.**
7. **Patient preferences, priorities and perspectives should form part of the holistic assessment and treatment plan.** This helps to alleviate patients' anxieties and fears regarding the debridement process.

Wound debridement is the purposeful removal of devitalised tissue (necrosis and slough), biofilm, and other debris from the wound bed (Mayer et al, 2024). Its primary aim is to restore a viable wound environment that supports cellular activity, tissue repair, and progression through the normal stages of healing (Sibbald et al, 2021; Mayer et al, 2024). Without debridement, dead tissue, debris, bacteria and biofilm act as barriers, impeding healing and creating a reservoir for infection and prolonged inflammation (Atkin et al, 2019; Sibbald et al, 2021).

Wound debridement is a critical element of wound bed preparation, facilitating the removal of barriers to repair and supporting the development of an optimal therapeutic environment for healing (Atkin et al, 2019; Mayer et al, 2024). Debridement may be a one-off procedure or may be part of a continuous process, known as maintenance debridement, depending on the requirements of the wound environment (Dearsley, 2021).

It has been estimated that about 60% of wounds are not adequately debrided, leading to prolonged wound healing and patient suffering (Mayer et al, 2024).

All clinicians involved in wound care should have the knowledge and skills to perform debridement appropriate to their level of competence (Mayer et al, 2024). This is especially important in wounds with slough, where clinicians must be able to distinguish it from underlying structures similar in colour and appearance, such as tendons or fascia, to prevent harm, particularly when performing sharp debridement (Mayer et al, 2024).

Where more advanced techniques are required, the patient should be referred to the appropriate healthcare professional, such as a tissue viability nurse, vascular surgeon, dermatologist, or podiatrist.

Why is debridement needed?

Devitalised tissue and biofilm interfere with normal wound healing by:

- Acting as a physical barrier to re-epithelialisation and formation of granulation tissue.
- Increasing bioburden, meaning that devitalised tissue creates an environment that is hypoxic and nutrient rich. This promotes microbial growth, leading to a higher risk of local or systemic infection and biofilm formation.
- Perpetuating inflammation, which can push an acute wound into a chronic or 'hard-to-heal' state.
- Preventing visualisation of the wound bed, making it difficult to undertake an accurate wound assessment especially when establishing wound depth.

Aims of debridement

By removing these obstacles, debridement promotes the transition to a healthier wound bed, reduces bacterial burden, and enhances the efficacy of other interventions such as dressings and antimicrobial therapy (IWII, 2022; Mayer et al, 2024).

The overarching aims of wound debridement are to:
- Remove necrotic tissue, slough, biofilm, and contaminants.
- Reduce bacterial burden and infection risk.
- Create a clean wound bed conducive to granulation and epithelialisation.
- Enhance the effectiveness of dressings and other therapies.
- Support the progression of wounds through the normal stages of healing, thereby improving patient outcomes and reducing long-term healthcare burden.

Types of debridement

Several debridement methods are available (*Box 1*), each with specific indications and practical considerations such as:
- Level of skill required by clinician
- Environment where debridement will be undertaken
- Factors related to patient's comorbidities, e.g. blood supply, anticoagulants, pain
- Wound characteristics, e.g. tissue type, wound size and presence of infection/biofilm
- Time taken to undertake the process
- Treatment objectives
- Alignment with local policies and procedures
- Patient acceptability
- Cost (Atkin et al, 2019; Sibbald et al, 2021; Mayer et al, 2024).

It may be necessary to use several methods of debridement depending on treatment objectives, for example autolytic debridement may be used to soften or loosen necrosis or slough before using larvae or sharp debridement (Mayer et al, 2024). Before undertaking debridement, a holistic patient assessment is essential to identify and address potential barriers to healing, establish a wound diagnosis, and define both patient- and wound-related goals (Sibbald et al, 2021; Mayer et al, 2024).

This process should include consideration of a patient's social and psychological factors, while ensuring patient understanding, consent, and engagement in their care (Sibbald et al, 2021; Mayer et al, 2024).

The assessment process will help to determine the method of debridement that is right for the patient based on clinical need and patient preference.

In the community setting, autolytic and mechanical debridement are the most commonly used techniques because they are safe, practical, and require minimal training.

Debridement should be avoided in patients with necrotic, non-infected foot ulcers associated with severe peripheral arterial disease. Caution is also required in palliative wounds with necrosis overlying vascular structures, in wounds linked to uncontrolled inflammatory conditions (e.g. pyoderma gangrenosum), and in wounds where there is a high risk of uncontrolled bleeding (e.g. patients on anticoagulants) or poorly managed pain (IWII, 2022).

Properties of an ideal community debridement method

In community settings, autolytic and mechanical debridement are the most commonly used techniques because they are safe, practical, and require minimal training (Schofield and Ousey, 2021).

However, certain wounds may demand more advanced techniques, and it is vital for clinicians to recognise when specialist referral is needed to ensure safe and effective care (Schofield and Ousey, 2021).

An effective debridement technique in community practice should be:
- Easy to use and require minimal additional training.
- Safe and well tolerated by patients.
- Cost-effective compared to more resource-intensive methods.
- Transportable and practical for use in patient's homes.
- Disposable, reducing infection risk.
- An opportunity to support self-care, enabling patients or carers to take part in wound management between professional visits.

How often is debridement needed?

Chronic wounds are prone to the accumulation of devitalised tissue and may therefore require ongoing debridement (Atkin et al, 2019; Kalan et al, 2023; Mayer et al, 2024; Ousey et al, 2025). The extent and frequency of debridement should be guided by the individual patient needs and wound characteristics, making regular reassessment essential (Mayer et al, 2024; Ousey et al, 2025). Debridement is often not a one-off intervention, particularly in hard-to-heal wounds, which are at increased risk of infection and biofilm formation. Biofilms can rapidly reform within 24–72 hours, therefore regular maintenance debridement may be required to reduce the risk of reattachment to the wound bed (Atkin et al, 2019).

Debridement of the peri-wound area and surrounding skin

Individuals with lower limb conditions such as lymphoedema and venous leg ulcers are susceptible to the development of hyperkeratosis on the skin surrounding the wound or affected area as a consequence of skin changes caused by the underlying disease processes (Wounds UK, 2015). Mechanical debridement methods, including UCS®, can be used to remove hyperkeratotic tissue. Regular removal of dry, scaly skin supports emollient absorption, reduces discomfort associated with itching, and improves the overall integrity and appearance of the skin. The frequency of intervention should be individualised, as excessive debridement may contribute to further inflammation (Wounds UK, 2015).

Box 1. Comparison of common debridement techniques (Adapted from IWII, 2022; Mayer et al, 2024)

Debridement method	Pros	Cons
Autolytic – uses the body's natural enzymes and moisture to break down devitalised tissue. This can be supported by dressings such as hydrogels, hydrocolloids, and gelling fibre wound dressings to break down dead tissue gradually	Gentle and selective for devitalised tissue, can be managed at home Pain free with little risk of bleeding	Slow process Risk of maceration May increase exudate and odour and skin irritation May not be appropriate for patients with acute infection or sepsis
Mechanical – physical removal through irrigation, monofilament pads, or pre-moistened debridement cloths	Accessible, low cost, can be performed in community, removes surface debris May disrupt biofilm	Can be painful
Sharp – rapid removal of necrotic tissue by a skilled clinician, using sterile scalpel, scissors or curette	Rapid removal of necrotic tissue Effective in reducing bioburden and biofilm if enough tissue is removed, can quickly improve wound bed	Requires skill/training Risk of bleeding Not always feasible in community settings
Biological – the use of sterile larvae (maggot therapy) to selectively consume devitalised tissue	Highly selective Effective for necrotic tissue and biofilm Can reduce infection	Acceptability issues (patient discomfort) Caution in patients on anticoagulant therapy Availability Exudate/odour can be unpleasant May cause skin irritation
Surgical – performed in sterile operating theatre by specialised skilled practitioner	Fastest and most effective for extensive necrosis, infection, and biofilm Allows thorough wound bed preparation Maximises asepsis	Requires operating theatre and general or local anaesthetic Invasive, higher risk and cost
Enzymatic (topical agent) — topical agents containing proteolytic enzymes to digest necrotic tissue	Selective Effective for slough and necrotic tissue Less invasive than sharp debridement	Expensive Limited availability May cause local irritation

Reflect on your practice

- When treating patients with wounds, do you routinely evaluate the types of tissue present in the wound bed and consider what action to take as a result in order to promote a wound healing environment?
- If you decide to debride, is appointment time a limitation and does it influence your debridement technique?
- When carrying out wound debridement, do you assess the peri-wound and wider skin condition? If so, do you debride if required, e.g. if there is a build-up of dry skin or product?
- Do you take a proactive approach to the removal of devitalised tissue or simply redress the wound?

Case study 1

Wound type: leg ulcer and fragile scar tissue

Treatment objectives using UCS debridement cloth:

- wound debridement • wound bed preparation

Cath Cavanagh, *Practice Nurse, Wound and Lower Limb Lead, York Medical Group*

A 76-year-old man had sustained severe burns to his lower body when he was young leaving him with fragile skin that was prone to skin infections and inflammation. He had experienced repeated ulceration to a particularly fragile area of skin on the left lower leg since 2008. As the skin breakdown was so recurrent he had become well versed in completing his own wound care and often managed his wounds at home with the help of his wife.

More recently his ulcerations had deteriorated, with no improvement noted for four months while self-caring at home which led him to present to the practice nurse complex wound clinic for advice as he and his wife were unsure about how best to continue to manage the wound at home independently. On initial presentation, the wound had extensive ulceration with firmly adhered slough and rolled edges *(Figure 1)*.

Following assessment and in the absence of any red flags a new wound care plan was initiated with the primary aim of debriding the wound bed to encourage healing. Debridement was performed using a UCS cloth alongside the use of 20mmHg compression. A non-woven gelling fibre primary dressing was used alongside an absorbent pad, which was replaced three times a week, for two weeks. After two weeks, a holistic lower limb assessment was completed, and the compression was increased to 40mmHg as per the National Wound Care Strategy Programme (Wounds UK, 2023) lower limb recommendations, given the patient had a competent vascular status. The wound dressing regimen remained the same and the patient attended the surgery for one dressing change and wound review per week, and self-cared for the other two dressing changes at home with the help of his wife.

UCS was simple, easy and comfortable for the patient to use, which was fundamental to softening and gently removing the firmly adhered slough from the wound bed. The removal of slough was key to improving the wound bed and enabling healing *(Figure 2)*.

Progress was steady and some weeks even surprising as the wound edges advanced more rapidly than expected. The patient and his wife were happy with the progress and were able to continue all the dressing changes independently, enabling them to go away on holidays and to family events. They attended appointments at the surgery generally, every two weeks for assessment and review *(Figure 3)*.

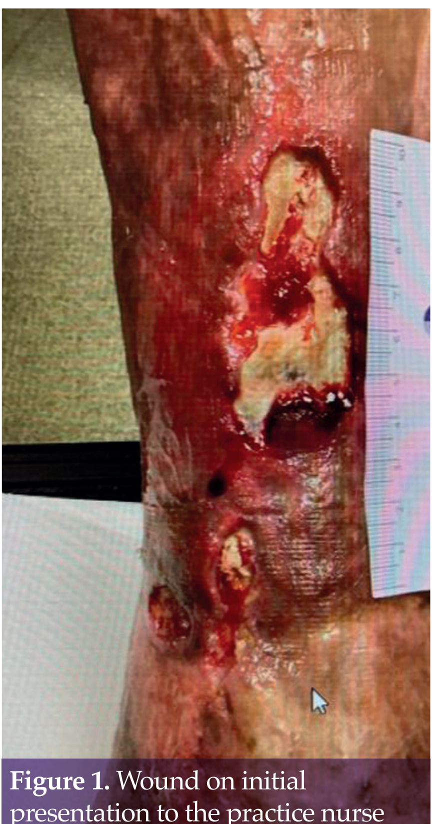


Figure 1. Wound on initial presentation to the practice nurse complex wound clinic.

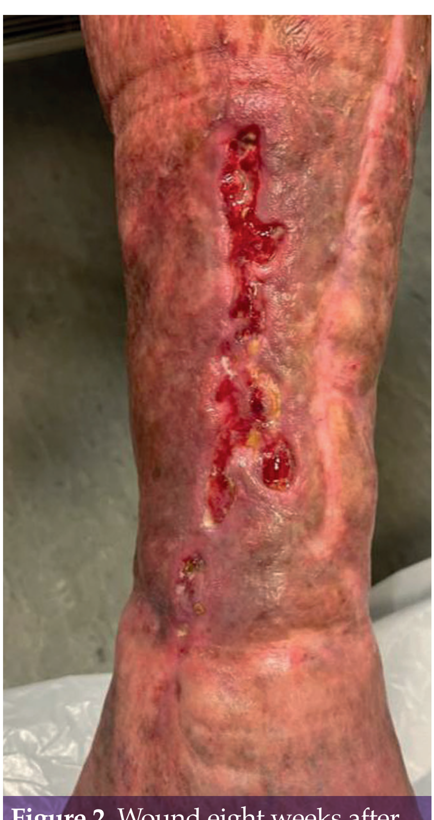


Figure 2. Wound eight weeks after initial presentation.

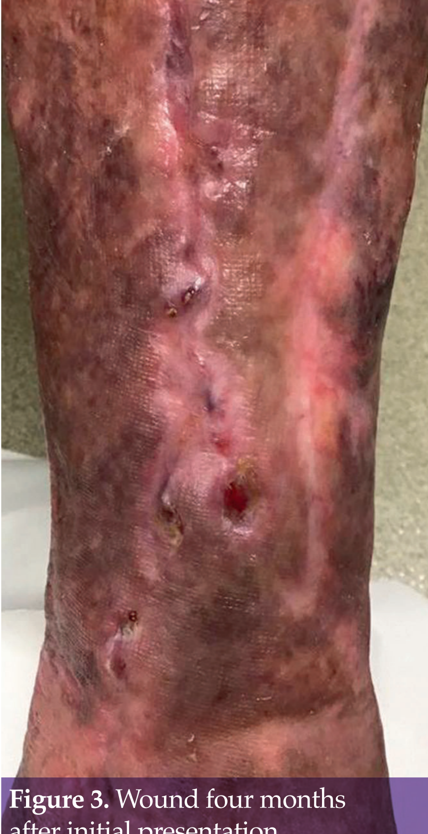


Figure 3. Wound four months after initial presentation.

Case study 2

Mel Abel, *Advanced Nurse Practitioner, Adam Practice, Dorset*

Wound type: Leg ulcer
Treatment objectives using UCS debridement cloth:
- debridement of sloughy tissue
- wound bed preparation

A 91-year-old male presented with a swollen leg. He had a past medical history of femoral artery occlusion, pulmonary oedema, heart failure, aortic stenosis, hypertension and Bell's palsy. The patient, who was pre-diabetic, had undergone transcatheter aortic valve implantation two weeks previously. He presented at clinic with a swollen right leg of one week duration. Assessment revealed a Wells score of 3, and a deep vein thrombosis was suspected. He was referred to hospital for immediate evaluation. The next day, deep vein thrombosis was excluded but femoral artery occlusion of the right leg was diagnosed. He underwent surgery to resolve the occlusion.

Post surgery the patient developed a wound covered with a brown/yellow dry scab on the right shin. The surrounding skin was also dry and the leg felt firm with pitting oedema.

The patient was booked for leg ulcer assessment and ABPI measurement at clinic two weeks later. He was then assessed for immediate and necessary care, and given his recent arterial occlusion, the use of compression therapy was ruled out until the holistic leg ulcer assessment was completed. The ulcer was redressed with a hydrogel to soften the slough, and a foam adhesive border dressing was applied.

The following week he attended clinic for routine wound care. The foam border dressing was removed and there was minimal brown-coloured exudate on the dressing. The wound bed remained covered in 100% slough, and the surrounding skin was dry and flaky (*Figure 1*). The ulcer was cleaned with UCS, after which the wound bed consisted of 70% slough and 30% granulation tissue (*Figure 2*). The UCS cloth also removed dry skin from the wound edges and surrounding skin. The patient did not find the debridement process increased his pain level.

The debridement and cleansing of the patient's wound and lower limb was quick and achieved rapid and visible results with UCS lifting away slough from the wound bed.

In this case, UCS enabled removal of devitalised tissue for accurate assessment and planning, and wound bed preparation.

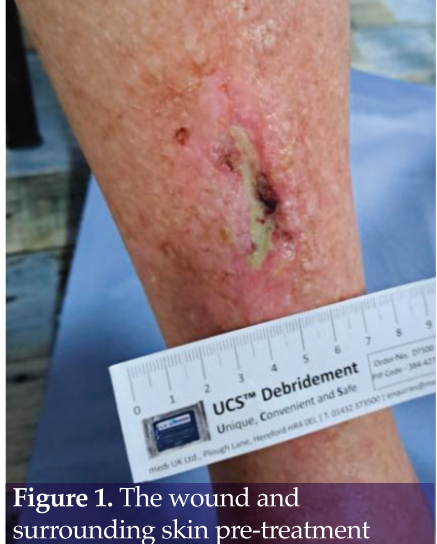


Figure 1. The wound and surrounding skin pre-treatment with UCS debridement cloth.

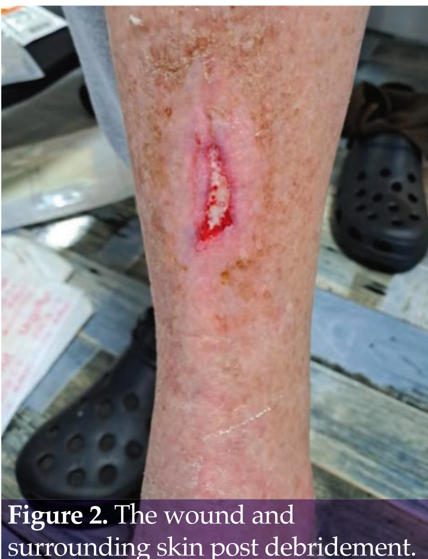


Figure 2. The wound and surrounding skin post debridement.

Reflect on your practice

- Do you have patients on your caseload who may benefit from the use of UCS?
- Do you have patients on your caseload who are engaged in their own care who may be able to integrate UCS into their supported self-care regimen?
- Could the use of UCS in your clinical practice reduce the time you spend on procedures such as wound debridement and treating lower limbs with dry, scaly skin?

Case study 3

Wound type: Lower limb ulcer
Treatment objectives using UCS debridement cloth:
- debridement of devitalised tissue
- wound bed visibility
- wound bed preparation

Mel Abel, *Advanced Nurse Practitioner, Adam Practice, Dorset*

A 77-year-old woman with a past medical history of hypothyroidism, osteoarthritis, and a right hip replacement had had a wound on her lower limb for five months.

She initially attended clinic following the development of a small lesion to her left pretibial area. She had been seen by a private dermatologist who advised excision of the lesion on the shin; however, the NHS dermatology clinic she was referred to by the GP said it was not suspicious, and a leg ulcer assessment and compression were recommended.

On assessment, the wound measured 1.5x2cm, and consisted of 90% slough and 10% granulation tissue. There were no signs of infection present and the surrounding skin was dry. As the slough was quite dry and well adhered to the wound bed a hydrogel was used to soften the slough. A secondary silicone-backed foam adhesive dressing was then applied. Exudate volume was recorded as minimal. A leg ulcer assessment was performed, and ABPI was L = 1.13, R = 1.12. Venous symptoms were noted on the lower limb – ankle oedema, haemosiderin staining, and ankle flare, so strong compression in the form of a two-layer compression hosiery kit was started to deliver 40 mmHg compression. No signs of infection were noted so the care plan advised the patient to change the dressings once at home in between the weekly clinic visit.

The following week little progress had been made with debriding the wound; the slough remained quite dry (*Figure 1*). Minimal exudate and devitalised tissue was present on dressing. Debridement with UCS was initiated at this appointment and the wound care dressing regimen of hydrogel and foam adhesive dressing continued.

By week four (*Figure 2*) the wound bed contained 10% slough and 90% granulation tissue indicating progress towards healing. UCS debridement continued and the hydrogel was stopped as the slough had debrided and the wound bed remained moist. Dressing with the foam adhesive dressing was continued. On review at week seven (*Figure 3*) the wound had healed. The patient was provided with class 2 British Standard compression hosiery below-knee for prevention of recurrence and advised to attend the well leg clinic in three months' time for review of the hosiery and measurement of her ABPI.

In this case, UCS enabled removal of devitalised tissue for accurate assessment and planning, and wound bed preparation which resulted in closure.

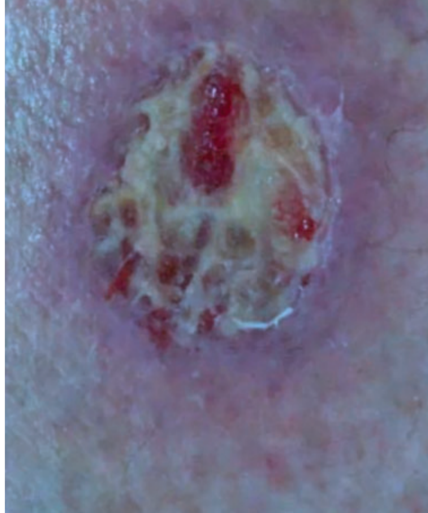


Figure 1. Lower limb ulcer one week after initial presentation.

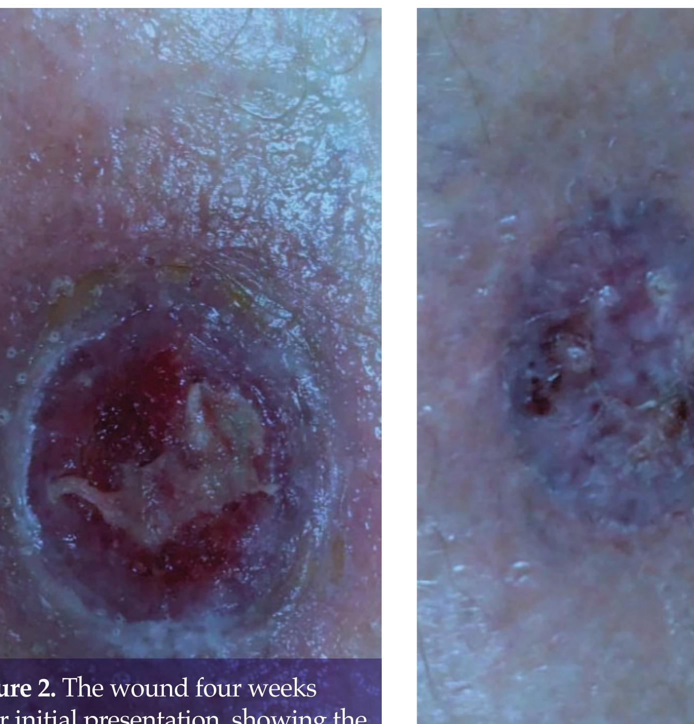


Figure 2. The wound four weeks after initial presentation, showing the wound bed consisting of granulation tissue and reduced slough, indicating progress to healing.

Figure 3. The wound was healed after seven weeks.

6. Clinical evidence summary

Key points

1. **Evidence-based practice (EBP) is founded on three inter-related pillars:** Best available evidence, clinical judgement and patient values and preferences.
2. **Critical appraisal of multiple factors within each of these pillars is needed** to deliver true evidence-based care.
3. **EBP should also consider the practice setting in which care is delivered**.
4. **EBP should take the best available evidence** and apply it to clinical scenarios to ensure it has benefits in real-life practice.
5. **EBP should focus on the care of the individual patient as a priority:** What are their key concerns and how can they be addressed in partnership?
6. **The clinical evidence for UCS® demonstrates that it** can be used to address all aspects of WBP.
7. UCS has been shown to move previously hard-to-heal wounds of varying aetiologies towards healing; reduce procedure-related pain; and improve skin condition and integrity.
8. UCS supports self-care reducing the episodes of care needed, saving nursing time and reducing associated costs. It is considered to be convenient and easy to use by both healthcare professionals and patients.

Evidence-based practice (EBP) is a structured approach to clinical decision-making that integrates the best available research evidence with clinical expertise and patient preferences to determine the most appropriate care for the individual (Muir-Gray, 1997). EBP underpins safe, effective, and patient-centred nursing care and requires clinicians to actively seek, appraise, and apply current evidence while continually reflecting on and refining practice (Kumah et al, 2022). Although EBP is embedded within professional standards, including the Nursing and Midwifery Council (NMC) Code (NMC, 2018), challenges remain, with evidence showing variability in understanding and inconsistent implementation across clinical settings (Kerr and Rainey, 2021).

Evidence to inform clinical practice is drawn from a wide range of sources, such as systematic reviews, randomised controlled trials, observational and non-experimental studies, qualitative research, expert consensus, descriptive research, and case reports (LoBiondo-Wood et al, 2019). As the strength and reliability of evidence can vary considerably (Greenhalgh et al, 2014) clinicians should be able to critically appraise the evidence available and consider its relevance to their own practice context – the situation in which the interaction between the patient and healthcare professional is taking place (Hoffmann et al, 2017).

Three pillars of EBP

EBP is founded on three interdependent pillars: the use of the best available evidence, the application of clinical expertise, and the incorporation of patient values and preferences (Kerr and Rainey, 2021). However, clinical judgement and patient choice are two pillars of EBP that can often be overlooked with most weight given to the evidence component (Greenhalgh et al, 2014). High-quality research, such as systematic reviews and randomised controlled trials, is often thought of as the most appropriate source of evidence to guide clinical decision making (Mackey and Bassendowski, 2017). However, these study designs have limitations in that they cannot always address the complexity of individual patient care in real world settings (Greenhalgh et al, 2014). Furthermore, an undue emphasis on research evidence devalues the clinical judgement and experience that accumulates with practice (Greenhalgh et al, 2014). Thus, critical appraisal skills and clinical judgement are needed when considering evidence and how it can be applied to real cases and practice (Sackett et al, 1996; Greenhalgh et al, 2014).

EBP should also focus on the care of the individual patient as a priority, considering what matters to the patient – in what way can they be empowered and how can the best evidence available be used to meet their needs while also achieving identified treatment goals (Greenhalgh et al, 2014).

Effective EBP therefore relies on balancing these elements to ensure care is both evidence-informed and tailored to the needs and circumstances of each patient, while being deliverable within the practice context and setting (Hoffmann et al, 2024).

This document contains case study examples and evaluations carried out in real-world clinical settings by clinicians working with patients and their wounds in a range of care settings that are representative of the complexity and variety of patients seen across NHS wound care services.

Clinical evidence

The case studies and evaluation presented throughout this document demonstrate the use of UCS® to achieve wound assessment and management goals. UCS was used effectively to remove devitalised tissue from wounds and surrounding skin easily and quickly. These results add to the existing body of evidence that have also shown that UCS supports effective wound bed preparation by helping to remove bioburden, slough, and exudate while protecting viable tissue (Hughes, 2015; Giacinto et al, 2024).

An observational study by Giacinto et al (2024) evaluated the use of the UCS cloth in 40 patients with chronic wounds of various aetiologies over a 42-week period. The aim of the study was to evaluate the effectiveness of the UCS cloth and solution when used for the debridement and treatment of chronic skin conditions (Giacinto et al, 2024). Outcome measures included pain before and after the procedure, improvement in wound bed preparation, wound area, peri-wound skin and wound edges, procedure time, and procedure-related bleeding.

The findings demonstrated a mean wound area reduction of 62%. Overall, there was a 78% improvement in wound bed condition by the end of the study. Infection resolved in 32 out of 40 cases, while dry skin, maceration, and inflammation were completely eliminated. Procedure-related bleeding and pain demonstrated a significant and very significant improvement, respectively, at study end when compared with baseline.

Giacinto et al (2024) concluded that the study demonstrated the clinical efficacy of UCS 'beyond expectation' in the management of patients with a variety of wound types.

Patient needs and preferences

Supported self-care encourages individuals to take an active role in maintaining and improving their health, working in partnership with healthcare professionals to manage long-term conditions, including wounds (Blackburn et al, 2021; Wounds UK, 2023). It is a key element of the NHS Long Term Plan), which emphasises empowering patients to proactively manage their condition, focusing on individual goals rather than clinician-led priorities (NHS England, 2025).

This has led to a growing emphasis on patient engagement and self-care of wounds, due to their increasing prevalence alongside pressures on the healthcare workforce (Blackburn et al, 2021; Kerr et al, 2023).

For patients, supported self-care offers greater flexibility and independence, allowing dressing changes to be carried out at convenient times, promoting social wellbeing, improving quality of life and enhancing patient empowerment (Kapp and Santamaria, 2017; 2020). It may also contribute to improved pain management and can help patients feel supported, improve knowledge and give individuals a sense of empowerment (Blackburn et al, 2021).

Some of the cases in this document highlight the benefit of engaging patients in their self-care, both in terms of healing outcomes and also from a psychosocial perspective. The case studies demonstrate how the use of UCS was quickly and easily added to the self-care regimens of patients, enabling them to address their concerns which mainly focused around an inability or unwillingness to attend frequent and multiple clinic visits for dressing changes, or a fear of missing out on social events and work.

Use of UCS meant the patients were empowered to care for their own limb / wound and improve their condition whereas previous treatment had stalled healing and led to frustration on the patients' behalf. These cases demonstrate the importance of working with the individual to address their key concerns. Clinicians can become task orientated, seeing only the wound, but in these cases, clinician engagement has empowered the patient to address their main concerns – social life, personal hygiene, ability to go on holiday or to work. An additional benefit to supported self-care is the freeing up of weekly clinic appointments when compared to the visits required before treatment with UCS.

Wound and procedure-related pain during cleansing and debridement may deter patients from attending clinic, or from engaging with self-care. Often, this pain results from chronicity as a consequence of a build up of devitalised tissue, bioburden, the presence of biofilm and the resulting cellular and molecular changes that occur in chronic wounds, and which result in wound symptoms such as prolonged inflammation, exudate and odour. Any combination of these factors can result in a stalled or enlarging wound.

The cases presented in this document demonstrate how simply debriding and cleansing the wound bed, in a single or multiple treatments, as part of a holistic care plan, can help to alleviate pain by physically removing devitalised tissue from the wound bed, reducing bioburden and disrupting biofilm and thus alleviating wound symptoms, and promoting healing after long periods of chronicity. As the wound condition improved, and pain diminished, more effective debridement was enabled.

This was also observed by Giacinto et al (2024), who reported that patient pain intensity, measured using a numerical rating scale, showed a progressive reduction over time, with pain decreasing by 43% at 14 weeks and 91% at 42 weeks when treated with UCS. Procedure-related pain also improved significantly, with reductions of 45% at week 14, rising to 81% and 98% at weeks 28 and 42, respectively.

Similarly, Hughes (2015) reported that 93% of patients (*n*=14) found UCS comfortable to use, while 67% (*n*=10) observed an improvement in their ulcer after cleansing and the same proportion found the method easier than traditional approaches. The soothing and gentle action of UCS was also reported by Downe (2014) to reduce pain in patients.

The case studies in this document demonstrate that the use of UCS brought visible and rapid improvement in the condition of skin in patients with hyperkeratosis and venous eczema, alleviating the itching associated with the conditions by removal of dry skin but also the hydrating action of the UCS solution.

Clinician perspectives

An evaluation was carried out among 12 healthcare professionals who had previously not used UCS in their practice to evaluate its performance in a number of areas when compared to their usual debridement method. The results are presented in *Box 1*, and showed consistently high satisfaction scores. From the clinicians surveyed, 75% also reported that their patients did not find debridement with the UCS cloth more painful than the usual method, with 25% being unsure.

Box 1. Property of UCS compared to current debridement method

Property	Average score out of 10
Ability to remove slough	8.25
Removal of dried exudate, encrusted cells, dry skin, plaques and hyperkeratosis from peri-wound area and surrounding skin	9.08
Provide moist wound environment and hydrates surrounding skin	8.58
Requires minimal pressure during debridement	9.08
Faster and more efficient to use	8.25

When given the option to add further detail on their experiences using UCS, comments included:

‘UCS cloths are good for dry plaques and hyperkeratosis, and also for painful, tender wounds.’

‘[UCS cloths are] convenient to use and very effective at removing skin plaques in particular.’

‘Very easy to use.’

‘Very effective on wounds that are sloughy, and soiled with bodily fluids such as blood and urine.’

These findings highlight the effectiveness, ease of use, and favourable clinician opinions when compared with their conventional debridement approaches.

Similarly, other clinicians have reported how the pre-moistened, disposable UCS cloth and glove improved efficiency and reduced nursing workload in community settings (Downe, 2014; Hughes, 2015; Khatun, 2016). The case studies in this document also found that the packs facilitated both effective debridement and cleansing in different clinical scenarios, and for patient self-care.

Summary

- UCS has successfully been used to achieve the goals of wound bed preparation – to remove devitalised tissue, reduce wound bioburden and as part of a biofilm management care pathway, reduce inflammation, achieve moisture balance, and improve the health of the peri-wound and surrounding skin areas.
- UCS does not increase procedure-related pain, and in most patients results in a decrease of the pain experienced, diminishing with each care episode. In patients with varicose eczema and hyperkeratosis it provided instant relief from itching and dryness.
- The instant benefits seen following an episode of care with UCS have encouraged patient engagement and interest in self-care, empowering the patient to carry out their own skin care and wound care with clinician support.
- Supported self-care using UCS as part of a holistic care plan has been shown to reduce the impact of attending clinic appointments on the patient’s life, leading to a reduced frequency of visits needed, and freeing up nursing time and appointments, with associated cost savings.
- Both clinicians and patients have found UCS easy, convenient and quick to use, without compromising clinical efficacy in achieving treatment objectives.

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