Cutimed DebriClean: a 23-patient wound bed preparation product evaluation

KEY WORDS
- Wound bed preparation
- Debridement
- Chronic leg ulcers
- Cutimed DebriClean

The overall goal of wound bed preparation (WBP) is to create an optimal wound healing environment and enhance the effectiveness of therapeutic measures (Falanga, 2000; Schultz et al, 2003). All WBP should be based on holistic patient assessment, utilising a systematic approach to evaluate and eliminate barriers to healing (Dowsett and Newton, 2005). Debridement is a key focus that needs to be considered in all wounds.

Successful WBP should use a structured framework for wound assessment. It is recommended to use the TIMES framework as a structured approach, identifying barriers to the healing process and taking action accordingly (Wounds UK, 2016). The acronym forms the basis of WBP in practice and incorporates the following elements:

- Tissue (non-viable or deficient)
- Infection or inflammation (including biofilm)
- Moisture imbalance (too much or too little exudate; risk of maceration)
- Edge of wound (non-advancing or undermining)
- Surrounding skin.

Assessment should be holistic, looking at the whole patient as well as their wound. This should encompass all aspects of the patient's health and wellbeing, resisting the temptation to make the wound the sole focus (Wounds UK, 2018). As well as the TIMES framework, holistic assessment should encompass the individual's overall health, medical history and environmental factors (LeBlanc et al, 2021).

Engaging the patient with their wound assessment and treatment has also become an important focus and has been shown to improve outcomes (Moore et al, 2016). See Table 1 for examples of patient factors to consider as part of a holistic assessment.

THE CASE TOOL

The CASE (cause, assess, select, evaluate) wound assessment framework (Scott-Thomas et al, 2017) was developed to help clinicians to assess the wound holistically and in context, taking appropriate action based on the assessment findings and continuing to evaluate care to be tailored to the individual and their healing journey (see Figure 1), to be used in conjunction with the TIMES framework.

Cause of the wound: Establishing wound cause and type is fundamental to objective setting, care planning and management (Wounds UK, 2018).

Assess the wound: A review of the patient's medical history and comorbidities should identify the factors that could hinder wound healing (Wounds UK, 2018).

Select objectives and care planning: Based on the findings of the holistic wound assessment and discussion with the patient, a care plan should

Table 1. Patient factors to consider as part of holistic assessment

Patient factors to consider		
Medical and surgical history	Medication	Activities of daily living
Nutrition and hydration	Pain assesments	Psychosocial
	Overal skin integrity	

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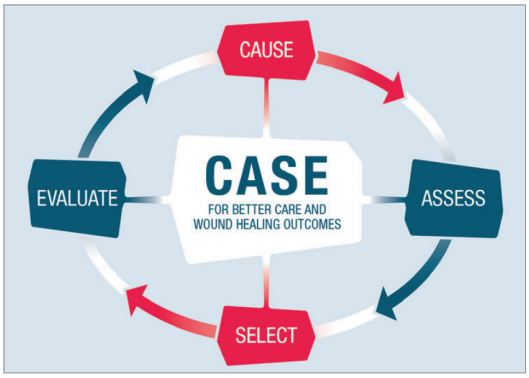


Figure 1. The CASE wound assessment framework (Wounds UK, 2018)

be devised to prioritise achievable objectives (Wounds UK, 2018).

Evaluate treatment plan: Intermediate reviews (shorter and less formal assessments) should be conducted at each dressing change to monitor the patient and wound for improvement or deterioration that would require a change in management plan (Wounds UK, 2018).

Evaluating the treatment plan should also include consideration of a patient's ability to participate in supported self-care. As such, patients need to know signs and symptoms to look for and when to ask for help. These might include:

- Unusual wound leakage, pain or smell
- Wound increasing in size
- Increasing redness around the wound
- Generally feeling unwell.

Patients can be advised to photograph their wound to measure its progress.

THE IMPORTANCE OF THE SURROUNDING SKIN

It is important to note that the original TIME acronym for WBP was expanded to include the surrounding skin as a key area of assessment and removing barriers to healing (Wounds UK, 2016). The surrounding skin, or periwound, is an important but sometimes overlooked area, despite the important impact it has on wound bed preparation and wound healing (LeBlanc et al, 2021).

The skin surrounding a wound is particularly vulnerable and, although it may appear healthy, periwound complications frequently occur. This may be due to wound-related factors, such as exposure to exudate, dressing adherence or allergic reactions. Types of periwound damage include maceration, excoriation/denuded skin, erosion, skin stripping and allergic reactions affecting the skin. Skin irritation can also lead to excoriation (Bianchi, 2012).

Periwound damage can contribute to:

- Delayed healing
- Wound deterioration
- Pain and discomfort
- Reduced quality of life (Woo et al, 2017).

Clinicians should be aware of the key factors that may exacerbate the vulnerability of the periwound and how to prevent or reduce the risk of further damage (Bianchi, 2012; Beeckman et al, 2020). These may include:

- History of skin damage and cause
- History of medical adhesive use and how it affected the skin (e.g. allergy/sensitivity)
- Skin conditions (e.g. psoriasis/eczema/skin frailty; LeBlanc et al, 2021).

See Table 2 for considerations as part of assessment of the surrounding skin.

FOCUS ON DEBRIDEMENT

As well as the removal of non-viable tissue, debridement plays a key role in all elements of the TIMES framework. With regard to infection, non-viable or devitalised tissue can contain a large proportion of the wound's bacterial load, so disruption via debridement aids in subsequent removal of the bioburden.

Table 2. Considerations in assessing the surrounding skin

Is intervention needed for any of the following?		
Is the skin red or inflammed?	Is there any signs of hyperkeratosis or dry skin?	Are there signs of lipodermasclerosis or excoriation?
Is there any itching or blistering?		Is there any moisture-associated dermatitis?

The growing issue of antimicrobial resistance (AMR) means that physical means of reducing bioburden, such as debridement, should be used wherever possible, as opposed to antimicrobial agents (WUWHS, 2020). See Box 1 for an overview of AMR.

Potential presence of biofilm should also be a consideration in WBP. Suspected biofilm should be treated proactively by breaking up and removing the biofilm, through active cleansing and/or appropriate debridement (Ovens and Irving, 2018).

Debridement can also aid healing in wounds where moisture is an issue: either removing dead skin in dry wounds, or using debridement to reduce the body's automatic responses to produce moisture in wounds with high exudate levels and removing macerated tissue that may impede the healing processes.

Where healing is not progressing normally at the wound edges, debridement can help to enable any material such as encrusted exudate at wound edges, helping to remove local barriers to healing.

Including the surrounding skin in assessment means that additional barriers to healing such as hyperkeratosis, dry surrounding skin or skin conditions affecting the surrounding skin can be identified, and the skin can be protected from further damage in line with best practice (Wounds UK, 2016; LeBlanc et al, 2021).

Aims of debridement are to remove:

- Necrotic, devitalised or sloughy tissue
- Sources of infection or inflammation
- Exudate (including dried exudate)
- Dry skin/hyperkeratosis
- Pus
- Haematoma
- Debris or foreign bodies
- Any other barriers to healing.

There are various methods of debridement – including autolytic, sharp, surgical or larval therapy. Mechanical debridement is a method that can be carried out by clinicians, but is also suitable as part of supported care via the patient or carer. Mechanical debridement is generally conducted via monofilament pads or debridement cloths containing a surfactant. Monofilament pads can help to remove bacteria and biofilm.

It is important to note that debridement methods require varying levels of expertise. Skills and competency need to be considered before performing the task, and the patient should be referred to the specialist best qualified to debride if necessary (Vowden and Vowden, 2011). Not debriding (or not referring to the appropriate specialist) can potentially cause harm to the patient, so multidisciplinary team involvement is required in order to provide optimum care (Harries et al, 2016).

Box 1. Antimicrobial resistance (adapted from Fletcher et al, 2020)

Antimicrobial resistance (AMR) describes when micro-organisms evolve over time and no longer respond to antimicrobial therapy. Antimicrobial therapy includes antibiotics, antiseptics, disinfectants, as well as other agents such as antiviral, antifungal, antibacterial and antiparasitic medicines.

The United Nations and other international agencies estimate that, if no action is taken, AMR-related diseases could cause 10 million deaths each year by 2050, costing £66 trillion (Interagency Coordinating Group on Antimicrobial Resistance, 2019). AMR is associated with the widespread use and misuse of antibiotics. Therefore, it is essential that topical antimicrobials are appropriately used in wound care, especially for infected or open wounds healing by secondary intention. It is imperative that clinical practices minimise the possibility of micro-organisms developing resistance to these therapies as well.

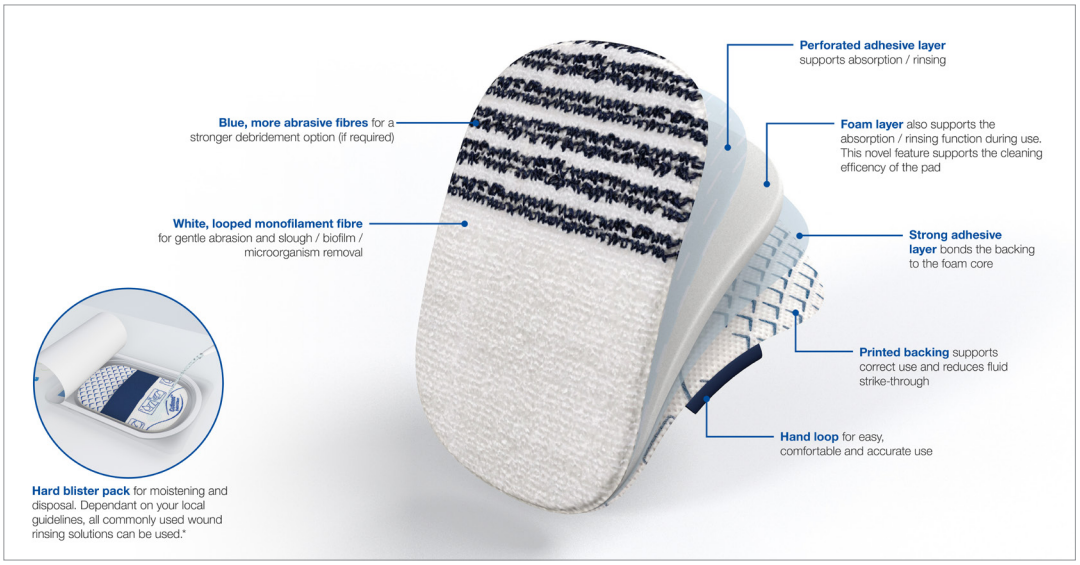
An approach focusing on antimicrobial stewardship should be used by all practitioners, thereby optimising and conserving all antimicrobial interventions, using other means of controlling bioburden and infection risk wherever possible.

CUTIMED DEBRICLEAN

Cutimed DebriClean is a monofilament debridement pad that aids the debridement of superficial wounds and surrounding skin (Figure 2). It is suitable for use in a range of wounds, such as diabetic foot ulcers, venous and arterial leg ulcers, pressure ulcers, postoperative wounds and wounds healing by secondary intention, superficial burns, the absorption of exudate, slough and dry skin flakes.

The debridement pad has two options: white monofilament microfibre loops for gentle

Figure 2. Cutimed DebriClean



debridement at one, and blue tougher fibres at the other for when stronger debridement is required. This choice enables debridement to be tailored to the individual patient and their wound characteristics, such as whether hard slough needs to be removed (blue) or the patient has fragile surrounding skin (white). In practice, either one option or a combination of the two can be used depending on the patient and their needs, making Cutimed DebriClean a suitable debridement pad for WBP in a range of wounds.

The monofilament fibres are looped, consisting of one long looped strain. These loops have been reported to irritate nerves much less than non-looped fibres, resulting in less pain for the patient. There is also a significantly lower risk for fluff or debris in the wound bed.

CUTIMED DEBRICLEAN PRODUCT EVALUATION

Clinicians using Cutimed DebriClean in practice completed 23 product evaluations, all reporting that Cutimed DebriClean was effective and easy to use. Cutimed DebriClean was selected for use on a range of wound types, mostly venous leg ulcers (VLUs), but also acute/trauma wounds and hard-to-heal chronic wounds. Clinicians reported that the efficiency of Cutimed DebriClean resulted in time (and, resultantly, cost) savings. Time and cost savings can also be made by expediting the time to healing, which was a common treatment objective. Treatment objectives were generally met, and clinicians and patients pleased with the treatment (Box 2).

Box 2. Clinician comments on Cutimed DebriClean in practice

'Cost-effective and time-saving'
'Much more time-efficient'
'Like the option of the more abrasive part'
'Achieved objective in one clean'
'Healed after one really good clean'
'Easier to use, less painful and more flexible'
'Better as can see slough and fibrin being lifted'
'A lot better, really like it'
'Removed more debris than others'
'Liked option of blue side'

AIMS

The aim was to evaluate the use of Cutimed DebriClean in practice, focusing on WBP; secondary criteria assessed included effectiveness of Cutimed DebriClean as an alternative debridement tool, time taken to debride, ease of use, pain, and patient/clinician satisfaction.

METHOD

The evaluations involved selected patients with wounds that needed WBP via debridement and included various wound types, such as VLUs, a cancerous growth, post-radiation back wound, trauma wound and infected macerated skin from a blister.

RESULTS

Cutimed DebriClean supported fast and effective wound debridement and helped clinicians to meet objectives. In terms of time taken to debride, 2 minutes was the average length of time reported; 1 minute as the minimum amount of time spent and 7 minutes as the maximum. Overall, 73% of clinicians rated ease of use with Cutimed DebriClean 'good', 23% 'excellent' and 4% 'average' (Figure 3). Both parts of the debridement tool were used by 77% of the clinicians, 18% used only the white fibres and 5% only the blue fibres. Patients' pain levels were recorded at each debridement session and some patients required debridement

Figure 3. Cutimed DebriClean ease of use

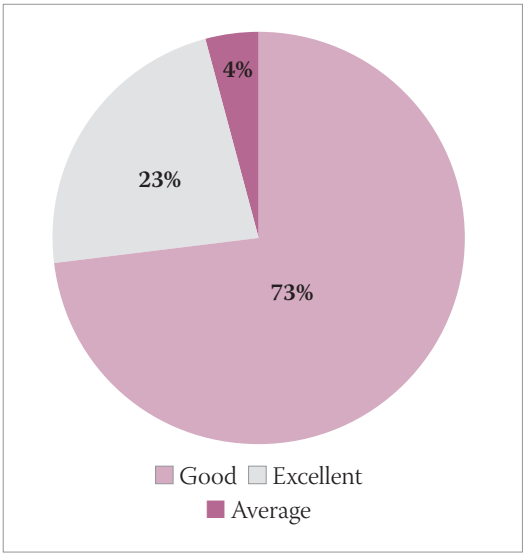
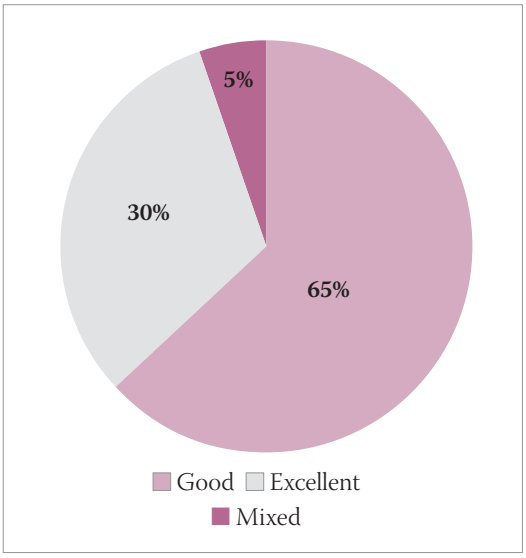


Figure 4. Cutimed DebriClean overall patient experience



more than once. Out of a total of 47 sessions, most patients reported that they had experienced no pain; 65% of patients rated their experience with Cutimed DebriClean 'good', 30% 'excellent' and 5% 'mixed' (Figure 4). Clinical experience with the tool was positive; Cutimed DebriClean was time efficient, easy to use and a preferred option compared to alternative debridement tools previously used in practice.

DISCUSSION

Use of Cutimed DebriClean helped clinicians to achieve the wound management objectives set out prior to debridement and enabled ease of use and flexibility to reach areas where debridement was needed. Clinicians favoured the tool, as slough and fibrin lifted easily during use and they particularly liked the blue (more abrasive) fibres for a stronger debridement option, when required. Similarly, most patients rated their experience as either 'excellent' or 'good'. The debridement pad proved safe, effective, and suitable for effective WBP.

LIMITATIONS

A limitation of this product evaluation was that only a small number of patients were involved, and the number of times the wounds were debrided varied depending on the patient needs.

CASE STUDY: USE OF CUTIMED DEBRICLEAN IN CHRONIC LEG ULCERS

Cutimed DebriClean was used in a series of case studies and found to be effective and easy to use in practice.

This case involved a patient with extensive chronic leg ulcers in both legs. Previously, another debridement product had been used but the wounds were not healing, so Cutimed DebriClean was selected in order to cleanse and debride the wounds gently and efficiently. The wounds contained sloughy and necrotic tissue that needed to be debrided to promote healing. The patient's initial pain score was rated at 7.

Cutimed DebriClean was immediately found to improve the wound bed and was rated more highly than the previous product used. It was noted that the shape of Cutimed DebriClean helped efficient debriding.

The patient and clinician were both 'very happy' with the treatment and the clinician would recommend it to colleagues for use going forward. Over time, the patient's skin condition improved and the leg ulcers were progressing to healing due to the improved WBP observed (see Figure 5a–f). See Box 2 for further clinician comments about Cutimed DebriClean.

SUMMARY

WBP is a cornerstone of wound management, which needs to be based on thorough holistic assessment. The TIMES and CASE frameworks together form a basis for assessment and ongoing treatment and evaluation to optimise outcomes for patients. Debridement is a key tool within all elements of the TIMES framework, improving the

Figure 5a–f. The progress of the wounds

wound bed and surrounding skin while reducing bacterial load through physical means that do not risk contributing to AMR.

Cutimed DebriClean is a debridement tool with two options available, so that debridement can be tailored to the individual patient and their wound, depending on whether debridement needs to be gentler or tougher. Case studies have reported that Cutimed DebriClean works better in practice than other debridement tools, and outcomes have been reported positively both from clinician and patient. WUK

REFERENCES

Beeckman D, Campbell K, LeBlanc K et al (2020) Best practice recommendations for holistic strategies to promote and maintain skin integrity. *Wounds International*

Bianchi J (2012) Protecting the integrity of the periwound skin. *Wound Essentials* 1:58-64

Dowsett C, Newton H (2005) Wound bed preparation: TIME in practice. *Wounds UK* 1(3):58-70

Falanga V (2000) Classifications for wound bed preparation and stimulation of chronic wounds. *Wound Repair Regen* 8(5):347-52

Fletcher J, Edwards-Jones V, Fumarola S (2020) Best Practice Statement: Antimicrobial stewardship strategies for wound management. *Wounds UK*

Harries R, Bosanquet D, Harding K (2016) Wound bed preparation: TIME for an update. *International Wound Journal* 13(Suppl.S3) 8-14

Interagency Coordinating Group on Antimicrobial Resistance (2019) *No Time To Wait: Securing The Future From Drug-Resistant Infections. Report to the Secretary-General of the United Nations. Interagency Coordinating Group on Antimicrobial Resistance.* Available at: https://www.who.int/antimicrobialresistance/

LeBlanc K Beeckman D, Campbell K et al (2021) Best practice recommendations for prevention and management of periwound skin complications. *Wounds International*

Moore Z, Bell T, Carville K et al (2016) International Best Practice Statement: Optimising patient involvement in wound management. *Wounds International*

Ovens L, Irving S (2018) Advances in wound cleansing: an integrated approach. *Wounds UK* 14(1):58-63

Scott-Thomas J, Hayes C, Ling J et al (2017) A practice guide to systematic wound assessment to meet the 2017–19 CQUIN target. *J Community Nurs* 31(5) 30-4

Schultz G, Sibbald G, Falanga V et al (2003) Wound bed preparation: a systematic approach to wound management. *Wound Repair Regen* 11(1):S1-28

Vowden K, Vowden P (2011) Debridement made easy. *Wounds UK* 7(4) S1-4

Woo KY, Beeckman D, Chakravarthy D (2017) Management of moisture-associated skin damage: A scoping review. *Adv Skin Wound Care* 30(11):494-50

World Union of Wound Healing Societies (2020) The role of non-medicated dressings for the management of wound infection. *Wounds International*

Wounds UK (2016) Best Practice Statement: Holistic management of venous leg ulceration

Wounds UK (2018) Best Practice Statement: Improving holistic assessment of chronic wounds