Wound bed preparation made easy

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Introduction

Wound bed preparation (WBP) assists clinicians to identify and address the barriers of wound healing to create an optimal wound healing environment. WBP is a multifaceted approach that includes cleansing and debridement to enhance the effectiveness of therapeutic measures and prepare the wound for healing (Falanga, 2000; Schultz et al, 2003). The COVID-19 pandemic has led to an increase in supported self-care, but this has focused mainly on ensuring the supply of wound dressings, and that patients can identify wound deterioration and change dressings. As the effects of the pandemic continue, there is an opportunity to formalise a supported self-care framework for patients and carers that includes WBP.

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Debridement is a foundation of wound healing and involves the removal of slough, necrosis, haematomas, eschar, debris, foreign bodies and infected tissue that accumulates on the surface of chronic wounds (Malone and Swanson, 2017). Debridement can (Gray et al, 2010; Strohal et al, 2013; Davies et al, 2015):

- reduce odour
- reduce excess moisture
- reduce the risk of inflammation and infection
- stimulate wound edges and epithelialisation
- reduce potential pain associated with devitalised tissue
- improve quality of life
- aid correct wound assessment
- promote a healing trajectory.

Tools to support wound bed preparation

TIMES

The concept of effective wound bed preparation (WBP) was recognised by Schultz et al (2003), and a structured framework known as TIME (Tissue, Inflammation/Infection, Moisture balance, Edge of wound/epithelisation) was developed to focus wound assessment and identify the barriers to healing. Since publication of the original WBP concept, research has developed understanding and knowledge of the biological basis for wound healing. TIME has since been developed to include Surrounding skin (TIMES; Wounds UK, 2016) and Repair and Regeneration and Social factors, which recognises the importance of patient engagement in wound care management (TIMERS; Atkin et al, 2019).

CASE: Wound assessment

CASE (Cause, Assess, Select, Evaluate) is a framework that includes all the elements of the Generic Wound Assessment minimum data set ([MDS] Coleman et al, 2017; Scott-Thomas et al, 2017; Wounds UK, 2018), plus the elements of TIMES and WBP into one structured framework to guide wound assessment and direct successful wound bed preparation *(Figure 1)*.

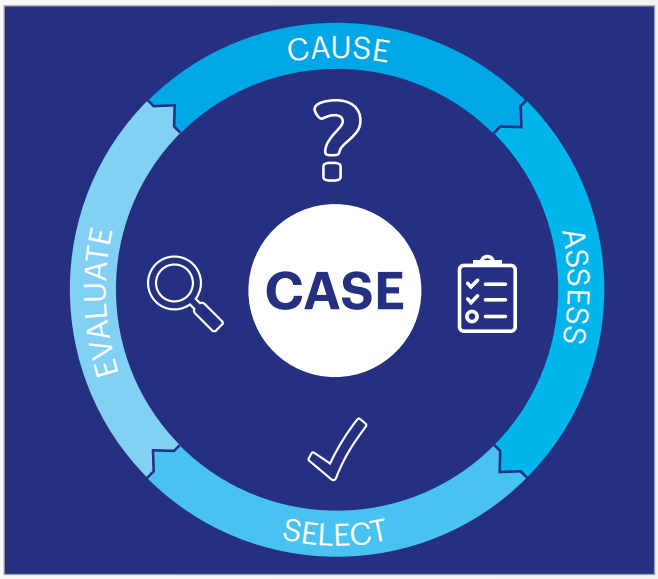


Figure 1. CASE guides wound assessment using the TIMES concept

- **Cause:** Identify the patient barriers to healing. Beyond the wound, assess the patient's medical and surgical history, medication, activities of daily living, nutrition and hydration, level of pain, psychosocial impact of the wound and overall skin integrity.
- **Assess:** Identify the wound barriers to healing using the five components of TIMES to guide WBP.
- **Select:** Select the right treatment plan and wound care based on the identified barriers to healing.
- **Evaluate:** Evaluate wound assessment and management if healing stalls or the wound deteriorates (Wounds UK, 2018). Consider reassessment and modify the wound care plan as needed.

How TIMES directs WBP

Tissue: Role of debridement

A structured holistic assessment should be completed and documented prior to choosing a debridement technique. There are many ways to debride a wound; the most common are autolytic, mechanical and sharp debridement. The choice of technique will depend on results of the wound bed assessment, local policy and capability level of the clinician providing debridement. It is important to remember that not debriding the wound and not referring the patient to a specialist in a timely manner is harmful to the patient. Many specialists will have completed training that allows them to use a range of debridement techniques in a safe and competent manner.

Inflammation/Infection: How to control and manage infection

Devitalised tissue is the perfect environment for bacteria to thrive and for infection to develop (Atkin et al, 2019). Debridement reduces the risk of infection by removing bacteria and disrupting biofilm. The primary clinical signs of wound infection are well understood (i.e. new or increasing pain, odour, increased green/yellow slough), but as biofilms are invisible to the the naked eye, there are more subtle signs that indicate the presence of biofilm (International Wound Infection Institute [IWII], 2016; ***Box 1***). The clinician should be aware that in non-progressing, static, hard-to-heal wounds, biofilm should be considered. These wounds require thorough cleansing and debridement to prepare the wound bed for topical antimicrobials or other dressing types. Mechanical debridement, using monofilament pads, can help remove bacteria and biofilm (see ***Box 2*** for example).

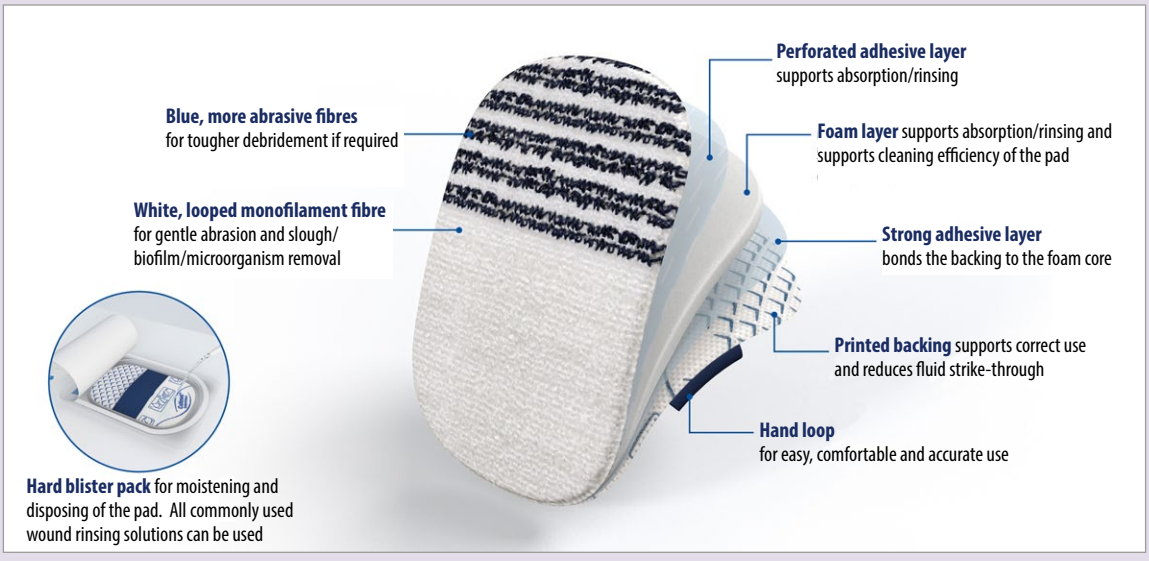
Box 1. Clinical indicators of biofilm (IWII, 2016)

A biofilm is an aggregated community of slow-growing bacteria. They are often polymicrobial and produce their own encapsulation that is tolerant to antimicrobial agents.

- Failure of appropriate antibiotic treatment
- Response to antimicrobial treatment ineffective
- Recurrence of delayed healing on cessation of antibiotic treatment
- Poor granulation/friable hypergranulation
- Low-level chronic inflammation
- Low-level erythema
- Delayed healing despite optimal wound management and health support
- Increased exudate
- Secondary signs of infection.

Box 2. Cutimed® DebriClean (essity)

Cutimed® DebriClean is a debridement pad that can be used with any surfactant fluid (e.g. saline, PHMB) for mechanical debridement. There are two types of monofilament fibres on the pad, which allow for gentle (white fibres) and tougher (blue fibres) debridement when required. The pad is able to absorb and retain bacteria in the product, remove >99% of biofilm *in vitro* with just four wipes (data on file) and remove firm and viscous slough. There is a hand loop to aid accuracy and for comfort of the user. The pad comes in a hard blister pack for ease of use when moistening and disposing.



Moisture management

Exudate is a normal part of healing and supports healing by maintaining a moist environment (Romanelli et al, 2010). However, healing can be compromised if the exudate level decreases or increases by slowing down or preventing cell proliferation, interfering with growth factor availability, and elevating levels of inflammatory mediators and activated matrix metalloproteinases (Yager et al, 1996; Trengove et al, 1999; Vowden and Vowden, 2004; Romanelli et al, 2010). It is therefore essential that dressing selection, following cleansing and debridement, reflects the amount of exudate present and ensures appropriate fluid handling capacity, size and shape to cover the wound, dressing fixation and retention of fluid under compression if required.

Wound edge

Epithelial edge advancement is the formation of new epithelial tissue or re-epithelialisation until the wound is completely healed and closed. For successful edge advancement, devitalised tissue should be debrided to remove the physical barriers to epithelial growth across the wound bed.

Surrounding skin

Assessment of surrounding skin is a key part of the holistic wound assessment, and, if compromised, can hinder wound healing. The surrounding skin should be cleansed as per local protocol to remove any residual debris and/or hyperkeratosis. A skin barrier product may be considered to protect the surrounding skin, for example to prevent maceration if the wound has high exudate levels (LeBlanc et al, 2018).

Supported self-care

During the COVID-19 pandemic, service and staffing issues presented unprecedented challenges in the delivery of wound care and held back national improvement work (Adderley, 2020). Currently there is a lack of robust data to understand the full extent of the pandemic on wound care; however, there have been frequent reports of patients unable to access appointments, advice, home visits, dressings and equipment (Adderley, 2020; Atkin, 2020). The pandemic has necessitated changes in practice, with the National Wound Care Strategy Programme (NWCSP; 2020a) recommending supporting more patients to self-care, increasing the use of telemedicine and using tele-triage before home visits.

Informal and anecdotal reports during the pandemic suggest that self-care has focussed on ensuring that the patient has a supply of the correct dressings and that the patient can change their dressing. In some areas, patients have been encouraged to keep diaries or take photos to monitor their own progress. In an unpublished audit of 20 patients conducted by AS, patients reported a lack of supporting education and advice in their initial self-care experience. They were familiar with applying dressings and identifying infection and deterioration, but they were unfamiliar with how to care for the wound in terms of WBP. This audit highlights the opportunity and need to support patients to be able to safely perform WBP.

Practical solutions to support self-care

To support patients and their caregivers to self-care safely, a structured supported self-care framework is required. Patients and carers should be involved in creation of the treatment plan with clear, achievable metrics developed and recorded to safeguard that they are confident to manage their own treatment. One of the first important steps is to consider whether the patient and their carers are capable to be involved in their care. The patient must be willing, health literate, at the centre of decision-making and supported by healthcare staff and/or carers.

A patient's ability to self-care can be assessed using CASE (Capacity, Approach and Aims, Situation and Education; ***Figure 2)***.

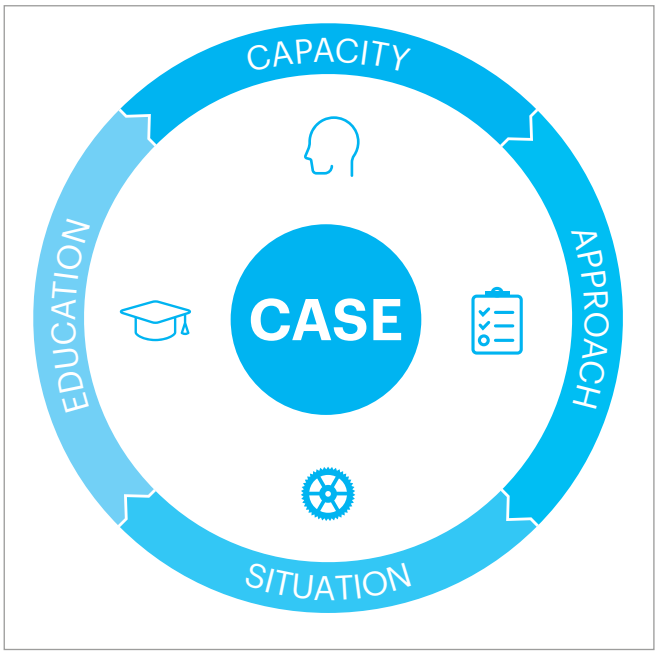


Figure 2. CASE guides assessment of a patient's ability to self-care

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- **Capacity:** Whether a patient has the ability to self-care is underpinned by the patient's mental capacity. If the patient is unable to self-care, can consider whether the carer can be involved in self-care.

Does the patient have the capacity to self-care?

- **Approach and Aims:** When considering whether a patient is suitable to become involved in supported self-care, it is important to assess their understanding, fears or concerns, priorities and willingness to be involved.

Do they understand the treatment plan and goals of treatment?

- **Situation:** The patient's environment and situation will have an impact on their physical ability to participate in supported self-care.

Can they physically perform self-care? I.e. Can they reach their wound?

- **Education:** It is important that the patient has access to education to help them to care for their wound successfully and to know when to seek help. This will include understanding the dressings to use and when and how to change it, and where and how to access additional dressings.

Do they have all the tools and education to perform WBP and dressing changes?

Once the patient and caregiver's ability to be involved in care has been assessed, a suitable framework can be implemented. The framework should include information for patients about wound healing, how to cleanse and prepare the wound bed before applying a dressing, the mode of action of the dressing, when a dressing requires changing and when to seek specialist help and advice. There is a need for focused education and information for patients and carers on the signs of wound infection and the importance of infection prevention and control. To become more familiar with their wound and condition, patients and their carers can be shown and advised to photograph their wound to measure its progress.

Conclusion

It is possible that empowering patients and carers to conduct some wound care encourages concordance (Schofield, 2021). However, it is important to remember that supported self-care can only safely occur once the following are in place:

- Full holistic assessment of the patient and wound (***Figure 1***)
- Assessment of the patient and carer's ability to successfully perform self-care (***Figure 2***)
- Organisational shared-care systems to ensure adequate dressings, clinical review and support are available (NWCSP, 2020b).

Essity aims to support nurses and allied healthcare professionals to understand and use systematic assessment tools (e.g. TIMES), to provide effective WBP, and to help educate patients with regards to WBP.

References

Adderley U (2020) National Wound Care Strategy Programme: looking at the impact of COVID-19. *Wounds UK* 16(2): 11

Atkin L (2020) *Don't Let Problem Legs and Feet be a COVID-19 Casualty*. Legs Matter, UK. Available at: https://legsmatter.org/updates-events/dont-let-problem-legs-and-feet-be-a-covid-19-casualty (accessed 18.05.21)

Atkin L, Bucko Z, Conde Montero E et al (2019) Implementing TIMERS: The race against hard-to-heal wounds. *J Wound Care* 28(3 Suppl 3): S1-S49

Coleman S, Nelson EA, Vowden P et al (2017) Development of a generic wound care assessment minimum data set. *J Tiss Viabil* 26(4): 226–40

Davies CE, Woolfrey G, Hogg N et al (2015) Maggots as a wound debridement agent for chronic venous leg ulcers under graduated compression bandages: a randomised controlled trial. *Phlebology* 30(10): 693–9

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

Gray D, Acton C, Chadwick P et al (2010) Consensus guidance for the use of debridement techniques in the UK. *Wounds UK* 6(4): 77–84

International Wound Infection Institute (2016) *Wound infection in clinical practice.* Wounds International, London

LeBlanc K et al (2018) *Best practice recommendations for the prevention and management of skin tears in aged skin.* Wounds International, London.

Malone M, Swanson T (2017) Biofilm-based wound care: the importance of debridement in biofilm treatment strategies. *Br J Community Nurs* 22(Sup6): S20–5

National Wound Care Strategy Programme (2020a) COVID-19 – Advice in Relation to Wound Care in Community Services. Academic Health Science Networks Network

National Wound Care Strategy Programme (2020b) Shared Care for Wounds. Academic Health Science Networks Network.

Romanelli M, Vowden K, Weir D (2010) *Exudate Management Made Easy.* Wounds International, London; 1(2)

Schofield A (2021) What have tissue viability services learnt from the coronavirus pandemic? *Nursing Times* 117(3): 23-5

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

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* 3(5): 30–4

Strohal R, Apelqvist J, Dissemond J et al (2013) EWMA Document: Debridement. *J Wound Care* 22(Suppl 1): S1–52

Trengove NJ, Stacey MC, MacAuley S et al (1999) Analysis of the acute and chronic wound environments: the role of proteases and their inhibitors. *Wound Repair Regen* 7(6): 442–52

Vowden K, Vowden P (2004) The role of exudate in the healing process: understanding exudate management. In: White, R (ed). *Trends in Wound Care*: Volume III. Salisbury: Quay Books, MA Healthcare Ltd; 3-22

Wounds UK (2016) *Best Practice Statement: holistic management of venous leg ulceration*. Wounds UK, London. Available at: https://www.wounds-uk.com/resources/details/best-practice-statement-holistic-management-of-venous-leg-ulceration (accessed 22.04.21)

Wounds UK (2018) *Best Practice Statement: Improving holistic assessment of chronic wounds. Wounds UK, London*. Available at: https://www.wounds-uk.com/resources/details/best-practice-statement-improving-holistic-assessment-chronic-wounds (accessed 22.04.21)

Yager DR, Zhang LY, Liang HX et al (1996) Wound fluids from human pressure ulcers contain elevated matrix metalloproteinase levels and activity compared to surgical wound fluids. *J Invest Dermatol* 107(5): 743-48