# Using newly acquired skills to debride a heel ulcer: a reflective account

Changes to revalidation mean nurses will need to produce written reflective accounts of their continuing professional development. The author offers an example of this type of account, exploring and reflecting on the personal learning experiences of undertaking a short debridement course.

*"I identified myself as being at the advanced beginner stage of learning because I was able to cope in my day-to-day practice."*

DEBRA HOUGHTON
*Tissue Viability Nurse,*
*South Tyneside NHS Foundation Trust*

From April 2016, the Nursing and Midwifery Council (NMC) is introducing changes to revalidation. Designed to encourage reflection and the development of new skills, it requires the completion of written reflective accounts relating to continuing professional development, feedback or an experience within practice, or a combination of all these examples. In this article, the author will explore and reflect on the personal learning experiences of undertaking a short debridement course.

Benner (1984) described five stages of knowledge when acquiring and developing new skills — novice, advanced beginner, competent, proficient, and expert. Having limited experience of debridement before studying this course, I identified myself as being at the advanced beginner stage of learning because I was able to cope in my day-to-day practice as a district nurse with limited debridement methods available.

However, upon reflection, I agree with Gray et al (2011) who emphasise the method of debridement chosen should be the one which is most beneficial to the patient, rather than one restricted to the skills of the clinician. Enrolling on this programme would allow consideration of all debridement methods available, enabling me to become a more effective practitioner, and improve holistic care for my patients.

## *Definitions of debridement*

There are a range of debridement definitions. Madhok et al (2013) stated that debridement is the removal of necrotic tissue and foreign body from a wound, however, the periwound area is not included. The European Wound Management Association debridement document acknowledges that the wound edges and periwound skin, as well as the wound bed, are important for successful wound healing (Strohal et al, 2013).

To assist clinicians identify barriers to wound healing and subsequently facilitate care planning, the TIME framework (T=tissue, I=infection or inflammation, M=moisture imbalance, E=edge of the wound) was devised (Schultz, 2003). The 'T' of TIME recognises whether tissue is non-viable. Non-viable tissue has no blood supply and irrespective of treatment or time, will not come back to life (Wounds UK, 2013).

This includes slough or necrosis. Slough is fibrous material obtained from proteins, fibrin and fibrinogen (Tong, 1999). It can be loose and stringy in nature, but also dehydrated. Necrosis is usually black in colour. It is produced after the death of fibroblasts and endothelial cells (Dowsett and Newton, 2005).

## *Debridement and wound healing*

The benefits of wound debridement have been well documented over the years. Gray et al (2003) identified a wound can progress along the wound healing continuum once debridement has occurred. The wound healing continuum is a framework devised to help clinicians ascertain where a wound is in correlation to healing. It does this by using colours — black, yellow, red, pink and the shades in between (Gray et al, 2009). This aids identification of the primary colour of the wound, allowing treatment goals to be set accordingly.

The presence of devitalised tissue to the wound bed can create overproduction of exudate and odour (Vowden and Vowden, 2011), with Kubo et al (2001) identifying that non-viable tissue is a barrier to healing furthermore providing a source of nutrients for bacteria (Leaper, 2002).

Despite these well-documented advantages, Atkin (2014) highlighted there is a lack of evidence as to whether wound healing is actually accelerated following debridement. Kamolz and Wild (2013) also argued there are no universal protocols on how or when to debride, or how much tissue should be removed.

From my own experiences as a learner, I also found this to be the case. There appears to be minimal guidance on undertaking the procedure itself. I was only able to find one piece of literature that discussed performing sharp debridement under sterile conditions and preparing the area using an antiseptic solution (Kamolz and Wild, 2013). I was also unable to identify any clear instructions on undertaking a Doppler assessment prior to debridement to identify whether there is any arterial insufficiency to a limb prior to intervention.

Wounds UK (2013) stated that debridement can be performed on a wound which is not covered with granulation tissue and explains there are very few wounds that cannot be debrided. It does nonetheless address areas of concern where greater caution is required, with limb ischaemia being included. However, Leaper (2002) recommends debridement in this instance if it allows for a clearer assessment of the wound bed. Local protocols for debridement in these limbs must be followed.

## *Methods of debridement*

There are a variety of debridement techniques used in clinical practice, such as autolytic, biosurgical, hydrosurgical, mechanical, sharp, surgical, and ultrasonic methods.

Autolytic debridement utilises the body's own enzymes and moisture to rehydrate, loosen and liquefy hard eschar and slough (Gray et al, 2011). This process is facilitated by using occlusive or semi-occlusive dressing products, creating a moist environment. This can be slow, increasing the risk of infection and maceration (Benbow, 2011a). Conversely, it causes no or little pain for the patient, does not require a specialist practitioner and is selective, leaving healthy tissue undamaged (Strohal et al, 2013). It is particularly useful when eschar needs to be softened prior to using other debridement methods (Vowden and Vowden, 2011).

Biosurgical debridement uses greenbottle fly larvae to remove devitalised tissue from a wound bed. The larvae feed off necrotic tissue and exudate. Proteolytic enzymes are secreted from the larvae's digestive enzymes, which selectively debride necrotic tissue, leaving viable tissue undamaged (Chambers et al, 2003). As well as being selective, this method is also rapid. However, the condition and position of the wound need to be considered (Vowden and Vowden, 2011). The larvae are at risk of drowning if high levels of exudate are present, and the larvae can suffocate and die in areas of the body subject to pressure, for example, heels.

Hydrosurgery involves removing non-viable tissue using a high energy saline beam as a cutting implement (Vowden and Vowden, 2011). The results of using this technique are immediate, but it is recommended by Weir et al (2007) that dry eschar is removed by sharp debridement beforehand.

Newer methods of mechanical debridement include using a single use monofilament debridement pad. The National Institute for Health and Care Excellence (NICE) has published recommendations for use of Debrisoft® (Activa Healthcare), a fleece-like contact layer (NICE, 2014a). It is suggested that slough and hyperkeratosis bind to the fibres of the pad, removing them from the wound bed and surrounding skin (Haemmerle et al, 2011). The product is not suitable to use on hard, dry eschar and this would require softening prior to use (Benbow, 2011b).

Sharp debridement uses a scalpel, scissors and forceps to remove dead or devitalised tissue. This method is effective, giving instant results and, therefore, reducing the risk of infection. It is also selective, but as Gray et al (2011) points out, it does not result in total debridement.

Surgical removal of necrotic tissue requires hospital admission, theatre

time and an anaesthetic. This consequently makes this a costly and restrictive option as not all patients are medically fit for anaesthetic. It is nonetheless very effective when larger areas are needing debridement.

Ultrasonic devices deliver ultrasound either by direct contact with the wound bed, or via an atomised solution (Vowden and Vowden, 2011). Many devices designed for direct contact have a built-in lavage system which can reduce cell debris and bacteria. Ultrasound via atomised saline maintains debridement by cleansing (Gray et al, 2011). Due to aerosol contamination, room decontamination is required following this procedure, so it is not an option in many situations, especially in a community setting.

## Linking theory to practice

Prior to becoming a specialist nurse, I worked in a rural community with no tissue viability service. Leaper et al (2014) believe that in primary and secondary care, a tissue viability service should be a priority. Consequentially, sharp debridement was rarely an accessible or feasible option and wounds were debrided using autolytic debridement. Gray et al (2011) state that the method of debridement chosen by clinicians will be influenced by the resources and skills available.

Wounds UK (2013) appreciated the provision of services enabling access to debridement can be challenging. At the time, it did not feel a challenge because the option of using other debridement methods was limited. Having now studied this course and reflecting on my practice, I can appreciate that this lack of resource restricted options for debridement, and failed to provide patients with care in a timely manner (Moore, 2015).

When I first began working in the field of tissue viability before studying this module, sharp debridement was not an obvious choice to me. This was predominantly due to my mindset (I was not used to having the resource available), but also because of my limited understanding of the subject. Debridement, especially sharp debridement, is an essential part of my new role. I, therefore, needed to develop professionally, enhancing my skills and allowing a move away from ritualistic practice by relying on autolytic debridement (Wounds UK, 2013).

I have read a substantial amount of the debridement literature, which has increased my understanding immensely. I benefited most from reading *Effective Debridement in a Changing NHS: A UK Consensus* (Wounds UK, 2013). The information was the most constructive and informative on debridement, but the consensus document also recommended guidelines that could be followed and integrated into practice.

## Case study

The following case study is a reflection of how the knowledge and skills I have acquired during this course have benefited patient interventions.

Mrs A is a 93-year-old woman with hypothyroidism and osteoarthritis. She moved in to a residential home one month ago due to frequent falls, and developed a ruptured blister to her right heel, classified as a category 2 pressure ulcer (European Pressure Ulcer Advisory Panel [EPUAP], 2009). She had been sitting in a self-propelled wheelchair and using this heel to push herself around the home. Deterioration of the pressure ulcer instigated a tissue viability referral.

Previous therapies included Allevyn™ Gentle Border (Smith & Nephew), later changed to IntraSite Conformable (Smith & Nephew), by the district nurses to provide a moist environment and soften the tissues externally to enhance autolytic debridement.

The depth of the wound was masked due to slough and necrosis covering the wound bed. The necrotic tissue had begun to separate at the wound edges, and the surrounding skin was macerated *(Figure 1)*. Given the amount of devitalised tissue present and the anatomical position of the ulcer, with the calcaneum having little subcutaneous tissue volume, prolonged pressure exerted directly to the heel had resulted in deep tissue injury (Cichorritz et al, 2009).

A holistic assessment identified that Mrs A was aware of the odour from her wound and the amount of exudate being produced since autolytic debridement had begun. Odour can have a large impact on quality of life (Downe, 2014). This issue needs to be considered when planning care (Atkin, 2014). Gray et al (2011) agree that identifying that malodorous devitalised tissue promotes the need for rapid debridement in order to improve the patient's quality of life.

Considering all the debridement options available (Atkin, 2014), patient consent was obtained to undertake sharp debridement. This method was indicated due to the presence of a solid layer of necrotic tissue, and the clear demarcation line between viable and non-viable tissue (Brigido, 2006). Necrotic tissue obstructs the migration of epidermal cells, hindering wound healing (Dowsett and Newton, 2005). Performing sharp debridement would enable the healing process to start immediately (Strohal et al, 2013). Reducing the period of time non-viable tissue is present in the wound bed will also decrease the risk of infection (Young, 2012).

Performing sharp debridement in practice for the first time, I was quite anxious and felt the weight of the responsibility.

Adhering to the Sharp Instruments in Healthcare Regulations (2013), a risk assessment was performed to

ensure Mrs A could comfortably lie in a suitable position for the wound bed to be prepared to prevent risk of accidental injury. To further minimise this risk, her foot was stabilised by a colleague should any movement occur during the procedure. Guided by my supervising mentor, I successfully prepared the wound bed using a sterile scalpel and forceps to remove the necrotic tissue. This actually felt very satisfying.

Most importantly, Mrs A was happy that my intervention had created an environment that would now enable wound healing to begin.

In order for wound progression or deterioration to be monitored, measurements of depth, width and length were recorded (Eagle, 2009; Fletcher, 2010). Post-debridement the wound measured 48×47×12mm.

I agree with Keast et al (2004) that description of the tissue types on the wound bed can be subjective and I have found variances between clinicians in my own field of practice. This indicates the need for clinical photography, allowing for a detailed wound assessment (Sperring and Baker, 2014).

Removal of the necrotic tissue allowed for a thorough assessment of the wound bed (Haycocks and Chadwick, 2012; Ousey and Cook, 2012). Calcaneum was visible in the centre of the wound, enabling exact categorisation of the pressure ulcer to a category IV (EPUAP, 2009; Stephen-Haynes and Callaghan, 2012). Confirming Gray et al's (2011) observation, some fixed slough remained to the wound bed, which would require further maintenance debridement in the future (*Figure 2*).

Pitting oedema was present bilaterally. Due to signs of venous disease, Doppler signals were recorded, taking a whole leg approach to chronic ulceration of the lower limb (Downe, 2014).

***Figure 1.*** ***Slough and necrosis covered the wound bed and the surrounding skin was macerated.***

Class 1 ActiLymph® (Activa Healthcare) hosiery to the left leg was prescribed. Liaising with the GP, I arranged an X-ray of the right heel to exclude osteomyelitis. Medical grade honey was applied to debride the remaining slough and manage wound bioburden as there are a substantial number of microbes in the majority of debrided wounds (Kamolz and Wild, 2013). Honey facilitates autolytic debridement by osmotically drawing fluid from the surrounding tissues (Chilvers and Maloney, 2006).

A recent article on desloughing discusses implementing a cycle to prevent and treat slough (Percival and Suleman, 2015). Using an antimicrobial wound cleanser, such as Prontosan® (B. Braun), which contains polyhexamethylene biguanide (PHMB) removes debris and disturbs biofilm. Following this, mechanical debridement using Debrisoft is recommended to dislodge slough, and a second cleansing treatment to further remove any loose slough and micro-organisms. This process removes any non-viable tissue and biofilm that may be present in the wound bed and acting as barriers to healing.

Both Mrs A's heels were offloaded (NICE, 2014b) using Devon™ Foot

***Figure 2.*** ***After sharp debridement, some fixed slough remained attached to the wound bed, and this will require further debridement.***

and Heel Protectors (Aria Medical). If her X-ray results were negative, full compression therapy was to be applied, increasing venous blood return and reducing oedema (Fletcher et al, 2013).

## Reflection

This patient case study highlighted that an essential nursing skill is having the ability to identify when to refer a patient to the best clinician to undertake wound debridement (Wounds UK, 2013). It is also a requirement of the NMC Code of Practice (NMC, 2015).

Patients are initially seen by community practitioners and, therefore, their prompt actions and decisions about wound debridement are vital to wound progression (Wounds UK, 2013). Tissue viability services rely on these decisions to ensure patients receive appropriate and timely care. Failure to do so contests against evidence-based and effective care provision (Young, 2011).

My knowledge and skills have developed immensely throughout studying this course. The design of the module suited my learning style. I believe in gaining the theoretical principles behind a subject prior to undertaking newly acquired skills in clinical practice and obtaining competencies.

I have expanded my assessment skills by gaining a deeper understanding of wound bed preparation. I have also grown in confidence as a practitioner, by having the increased knowledge to reliably consult with patients about debridement options, but also through having the clinical skills to undertake the interventions that may be required.

I am by no means at an expert level (Benner, 1984), but feel with continual practice I can progress from competent to proficient over time.

## Implications for future practice

Our tissue viability service has recently introduced aide-memoires on a variety of different aspects of wound management. I would like to implement one addressing wound bed preparation, including debridement. I hope this will facilitate generalist nurses to make prompt referrals to specialist services if sharp debridement is indicated.

The *Best Practice Statement: Optimising Wound Care* identifies organisations are failing to provide nurses with clear care guidelines and referral pathways to follow (Wounds UK, 2008). Ensuring patients have all the necessary information regarding debridement, especially sharp debridement, is crucial before informed consent can be given. Producing information leaflets can aid with this process.

By the implementation of this new documentation in our service, we can work towards creating an ideal debridement service (Wounds UK, 2013). WE

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