

CONSENSUSDOCUMENT



WOUND CARE AND
DRESSING SELECTION
FOR PHARMACY
TEAMS

Wounds UK

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Introduction

Pharmacists play a key role and are often the first point of contact for people with wounds, both chronic and acute. During the COVID-19 pandemic, this has only become more apparent.

The burden of wound care is increasing through the ageing population, growing comorbidities and increased skin integrity issues (Guest et al, 2015; Guest et al, 2020), with the annual prevalence of wounds increasing by 71% between 2012/2013 and 2017/2018 (Guest et al, 2020) – and with many people being reluctant to go into the hospital or primary care setting, the key role of the pharmacist will continue to develop and grow.

However, there is little written about the role, responsibilities and skills of the pharmacist in wound management. It is well established that the management of wounds is best practised by an organised multidisciplinary team (MDT) that can offer support to the individual (Jin, 2015). The pharmacist's role within the MDT is invaluable and requires an integrated approach with wound care colleagues.

A multidisciplinary group of experts, including pharmacy and nursing colleagues, met online in October 2020 to discuss the roles and responsibilities of pharmacy teams in wound care and dressing selection. The discussions formed the basis of this consensus document.

The document aims to inform pharmacy colleagues about the underpinning principles of best practice and the latest evidence base in wound care and dressing selection, and to educate other clinicians about the role that pharmacy teams play in wound care. This guidance should assist pharmacy teams to manage wounds and select appropriate dressings with confidence. As always, the overall aim is to improve clinical outcomes for the patient.

Karen Ousey, Chair

The role of the pharmacist

The pharmacist is often the first point of contact with the patient, and so represents a pillar of safety in healthcare, leading on prescribing and maintaining safety standards and also being closely involved with the management side of care (e.g. through contracts with local clinical commissioning groups and primary care networks).

The role of the pharmacist has moved on substantially in recent years. As well as playing a key role in the safety of patients, crucially, pharmacists are often the first contact for patient information and education.

Depending on the care setting, in the course of their daily roles, pharmacists are often expected to deal with a wide variety of conditions and health questions, so can be responsible for effectively diagnosing as well as prescribing (NHS, 2015; Pharmacy Magazine, 2020).

A BRIEF HISTORY OF MODERN PHARMACY

Historically, pharmacists were known as apothecaries and operated independently (Pearson, 2007). When the UK NHS was founded in 1948, high street pharmacists were then afforded unprecedented funding to dispense medicines.

Prior to the availability of tissue viability services, the pharmacist was generally the point of contact for nursing staff regarding selection and use of appropriate dressings.

In 1990, Hepler and Strand set out the responsibilities of modern pharmaceutical care. Their paper explored 'pharmacy's opportunity to mature as a profession by accepting its social responsibility to reduce preventable drug-related morbidity and mortality'. They noted that, while the role of the pharmacist had moved on from the apothecary era, this was still under-used and under-appreciated in medical care.

Therefore, it was not enough 'just' to dispense the correct drug, nor could this situation be

improved by devising new technical functions for the job role. Instead it was suggested that the only meaningful way to expand and optimise the role was to focus on truly patient-centred care (Hepler and Strand, 1990). Changing the focus of practice away from products, towards ensuring the best drug therapy and patient safety would raise the pharmacist's level of responsibility and require a change of mindset. Through providing patient-centred care, pharmaceutical services could reduce the number of adverse drug reactions, length of hospital stays, and cost of care – and ultimately improve outcomes for patients (Hepler and Strand, 1990).

This shift in mindset resulted in development of the concept of 'pharmaceutical care', meaning that when a medicine is dispensed, the pharmacist's job involves informing the patient of the risks/benefits and agreeing the course of action in partnership with the patient.

In 2013, an updated debate on Hepler and Strand's definition noted that – over 20 years later, despite multiple additional statements, consensus meetings and position papers – questions still remained over the definition of the pharmacist's role (Foppe van Mil and Fernandez-Llimos, 2013).

While the role of pharmacy teams continues to evolve, particularly in the context of the COVID-19 pandemic, these questions remain up to the present day.

TYPES OF PHARMACIST

A key evolution within pharmacy teams is the development of different types of pharmacist. There are different roles for pharmacists and the wider pharmacy team.

Most pharmacists work across the following settings (Work Gateways, 2020):

- Primary care pharmacy (including GP surgery)
- Community pharmacy
- Hospital pharmacy.

Primary care pharmacists may work directly for a GP as a practice pharmacist, or for a clinical commissioning group (CCG), integrated care partnership (ICP) or Local Health Board (LHB). These pharmacists have a strong role to play in wound management and communication between colleagues, and in providing:

- Medicine management
- Prescribing advice
- Professional development advice
- Pharmacy clinical governance coordination.

Community pharmacists work in pharmacies open to the public. It is UK law that every community pharmacy be under the 'direct supervision' of a pharmacist. Community pharmacists are responsible for:

- Selling and supplying medicines
- Providing advice about medicines
- Providing advice about symptoms and general health matters
- Counselling patients on the proper use of medicines
- Ensuring that different treatments are compatible.

Hospital pharmacists work directly for hospitals and have an expertise in medicines and their use. Responsibilities include:

- Purchasing, manufacturing and dispensing medicines
- Providing quality testing and supply of medicines
- Providing advice on the selection of medicine and the dosage.

Pharmacists often have other more specialised skills within their roles, such as being independent prescribers or working within the Healthy Living Pharmacies (HLP) framework. The HLP framework, developed in Portsmouth, was originally based around public health interventions, but has expanded and become much broader. The framework is aimed at 'achieving consistent provision of a broad range of health promotion interventions through community pharmacies to meet local need, improving the health and wellbeing of the

local population and helping to reduce health inequalities' (PSNC, 2020), encompassing three strata of activity:

- Level 1 – health information
- Level 2 – prevention
- Level 3 – treatment.

Community pharmacy contractors will be required to become an HLP in 2021/2, reflecting the priority attached to public health and prevention work (PSNC, 2020). In the UK, pharmacists work as part of a pharmacy team, which may include a pharmacy technician or pharmacy assistant. The role of the pharmacy technician involves:

- Preparing and delivering drugs
- Storing incoming drugs
- Making up sterile preparations.

Pharmacy technicians are regulated professionals, who are required to keep up-to-date and maintain capabilities, whereas dispensing staff are not registered professionals. Pharmacy technicians tend to be underutilised in community pharmacy – many pharmacies do not have a technician on the team.

PHARMACY TEAMS ACROSS THE UK

The role of pharmacy teams can vary across the UK, according to geographical location. There are overall differences across the devolved nations (e.g. whether prescriptions are free, the range of services offered to the public). The differences in funding models across the four UK nations also affect the range of services available to the public.

In England, community pharmacy has a focus on urgent care, with self-care currently being encouraged. Appliance dispensing is often outsourced in England; therefore, dressings are ordered through a contractor and pharmacies may not stock a wide range of dressings. In Wales, funding has moved away from dispensing and into clinical services, freeing pharmacist teams' capacity to allow more time with patients. Wales also uses a 'triage and treat' approach for patients who cannot get to hospital.

Wound care and the skin

Best Practice Statement

Pharmacy teams should have knowledge of the skin and wound healing processes



Pharmacists' role in wound care can range from providing first aid, to identifying and prescribing for different wound types, to providing education and support to those living with chronic wounds and associated conditions. However – due to the wide range of wound types, dressings and products available and, in some cases, a lack of specialist knowledge – many pharmacists do not feel confident providing wound care advice (Bennett-Marsden, 2010).

AN OVERVIEW OF THE SKIN

The skin is the body's largest organ, accounting for around 15% of body weight (Wingerd, 2013). See Figure 1 for further information on the main layers of the skin.

The skin's primary function is to act as a barrier against chemical, physical and mechanical hazards, and invasion from micro-organisms and allergens (Proksch et al, 2008). In healthy individuals, the skin is strong, resilient and has a remarkable capacity for repair (Wounds UK, 2018).

The skin can be an underappreciated organ, with diverse functions ranging from protection,

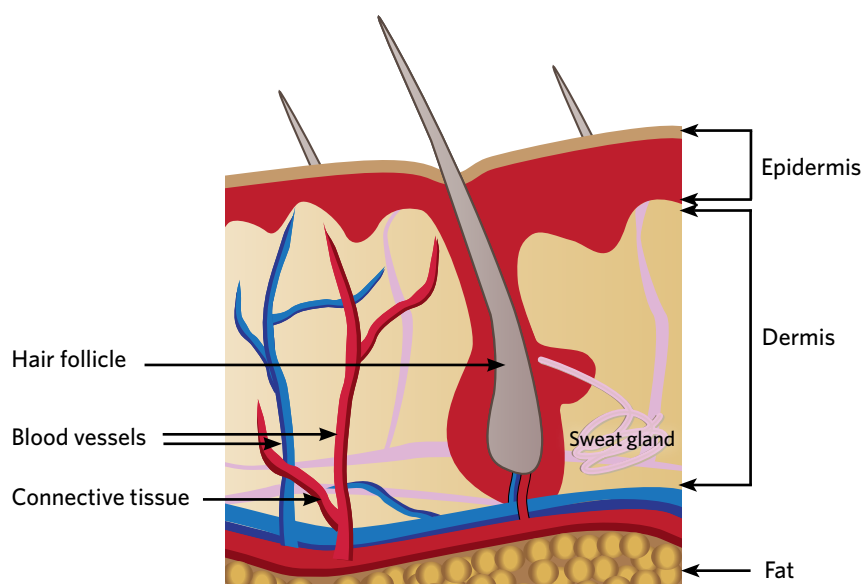
thermal regulation, metabolism, sensation, synthesis and communication (Baranoski et al, 2012). Additionally, the skin's outer appearance and capacity for sensation are important factors for wellbeing, self-esteem, cosmetic attractiveness, and communication (Kottner et al, 2019).

SKIN INTEGRITY

As well as wound management, overall skin integrity should be considered in individuals who may be at risk of skin breakdown or have skin conditions. It is now well established that skin integrity is an important concept, and that preventative measures can be taken in those with frail or at-risk skin, such as older people or those with comorbidities, incontinence, or taking medications that affect the skin (Beeckman et al, 2020).

Regular moisturising should be viewed as a vital part of skincare in individuals with frail skin, in order to promote general skin health and reduce the risk of skin damage (Wounds UK, 2015). The benefits of moisturising to treat specific skin conditions are well recognised, but in patients at risk of skin breakdown, this should also be used as part

FIGURE 1 | The main layers of the skin



Phase	Timeframe	Cells involved	Function	Cellular and biophysical events
Haemostasis	Instant	Platelets	Clotting to prevent blood loss	Vascular constriction, Platelet aggregation, degranulation, Thrombus formation
Inflammation	1-4 Days	Monocytes, Lymphocytes, Neutrophils, Macrophages	Phagocytosis (white blood cells destroying debris)	Neutrophil infiltration, Monocyte infiltration, Lymphocyte infiltration
Proliferation	4-12 Days	Lymphocytes, Macrophages, Angiocytes, Neutrophils, Fibroblasts, Keratinocytes	Wound bed filling, Wound closure	Re-epithelialisation, Angiogenesis, Collagen synthesis
Maturation	21+ Days	Fibrocytes	Develop tensile strength	Collagen remodelling, Vascular maturation, Regression

of a full everyday skin care routine (Wounds UK, 2018). The use of moisturisers has been found to aid prevention of forms of skin damage including skin tears and superficial pressure ulcers (Bale et al, 2004; Carville et al, 2014). Focus on skin integrity and prevention is also required in patients at risk of moisture-associated skin damage (MASD), such as incontinence-associated dermatitis (IAD), peristomal dermatitis, intertriginous dermatitis (intertrigo), and periwound maceration (Fletcher et al, 2020).

Moisturising products are available in various forms (creams, ointments and lotions), as well as liquid body wash and gels, which should be pH-balanced (i.e. with a pH level of 4.5–6.5) fragrance-free and non-sensitising (Wounds UK, 2018). These should ideally be used as part of a standardised regimen supported by the MDT (Beeckman et al, 2020), but suitable products may be recommended by pharmacy teams. This can be particularly helpful in supporting self-care, which is vital, as involving the individual in their own care is key to the success of any care regimen (Beeckman et al, 2020).

It is important that a holistic view is taken on the skin, encouraging the patient to

be as healthy as possible; nutrition and hydration are key to skin health and can help to prevent skin damage (Beeckman et al, 2020). Polypharmacy issues should also be taken into consideration where necessary, as some medications can cause changes to the skin that need to be managed appropriately (LeBlanc et al, 2018).

PROCESSES AND PHASES OF WOUND HEALING

When the skin is wounded, the body should trigger the stages of wound healing. Wound healing is a complex process, yet in healthy individuals should follow the stages of normal wound healing in an automated fashion, encompassing four processes: haemostasis, inflammation, proliferation and maturation (Stacey, 2016; see Table 1).

However, local and systemic factors can delay or disrupt these phases, and complications can develop. Certain chronic illnesses (such as diabetes, Raynaud's disease, heart disease and rheumatoid arthritis) and ageing make the skin more vulnerable to damage and slower to repair.

During an individual's lifespan, there may be periods of enhanced skin vulnerability,

Best Practice Statement

Pharmacy teams should take a holistic approach to their patient with a wound



Patient Expectation

You should be asked about your wound, how you got it and your overall health



Best Practice Statement

Pharmacy teams should have knowledge of common wound types



Patient Expectation

Your pharmacy team should be able to tell you about your wound type and how it can be treated



which render the individual more prone to the development of skin problems or issues around wounds and healing (Beeckman et al, 2020). These phases include:

- Early in life (when the skin is not fully mature)
- When individuals are suffering from dermatological or other systemic and chronic diseases
- At advanced age
- During severe illness or at the end of life.

Minor wounds usually heal within a couple of weeks, but complicated wounds heal much slower. In broad terms, a wound can be considered 'chronic' or 'hard-to-heal' if it 'fails to heal with standard therapy in an orderly and timely manner' (Troxler et al, 2006). More specifically, a chronic or hard-to-heal wound can be defined as a wound that has not healed in 12 weeks, or if the wound has not improved — or not reduced in area by 40% — in 4 weeks of standard care following an

appropriate treatment pathway (Wounds UK, 2016).

Wound complexity can increase the risk of a wound becoming chronic or developing complications. This can generally be defined as a wound being:

- Hard-to-assess
- Hard-to-manage
- Hard-to-heal.

Recognising, understanding and addressing the factors that may contribute to wound complexity can help to direct treatment and impact on healing progression (Wounds UK, 2019).

Equally, depending on the wound type and complexity, acute wounds may require specialist treatment, first aid or referral. See Table 2 for a list of commonly seen wound types.

Table 2. List of common wound types

Wound type	Special considerations
<i>Acute:</i>	
Abrasions	Initial first aid if necessary
Lacerations	Initial first aid if necessary
Burns and scalds	Initial first aid if necessary; appropriate dressing selection
Skin tears	Initial first aid if necessary; likely to affect older people, consider skin frailty and comorbidities
Bites	Infection and allergy risk, potential cellulitis (if the skin is broken, the patient should be referred to GP or walk-in centre)
Surgical wounds	Infection and other complications (e.g. dehiscence)
Haematoma	Ascertain cause and required treatment
<i>Chronic:</i>	
Venous leg ulcers	Patient quality of life and comorbidities, need to address underlying cause
Diabetic foot ulcers	Patient quality of life and comorbidities, need to address underlying cause
Pressure ulcers	May need to be referred for specialist assessment and treatment

The importance of assessment

On presentation, it is vital to correctly assess all wounds in order to guide appropriate treatment. As well as improving treatment plans and patient outcomes, effective assessment also helps to reduce variation in practice; therefore, ideally, assessment should be conducted according to a structured assessment tool (WUWHS, 2020a) – e.g. TIME (Schultz et al, 2003), TIMES (Wounds UK, 2016), TIMERS (Atkin et al, 2019).

The 2015 Burden of Wounds study (Guest et al) and further update (Guest et al, 2020) identified significant and ongoing variations in clinical practice, and reported that many patients with wounds received poor assessment and inaccurate diagnosis, underuse of evidence-based practice and wide variations in the quality of services provided by wound care teams.

Gaps in the provision of best practice wound care were also reported for patients living with chronic wounds; all patients with leg ulcers or diabetic foot ulcers should have ankle-brachial pressure index (ABPI) readings, but only 16% had this recorded in their records (Guest et al, 2015). ABPI testing is a non-invasive way of assessing a patient's vascular status and establishing or excluding the presence of peripheral arterial disease (PAD). Terminology can vary, with terms also used such as ABI (ankle brachial index); ABPI testing may also be

referred to as 'Doppler' testing, as the Doppler ultrasound is the traditional means used to conduct ABPI testing, although automated testing devices are now available. A Doppler ultrasound uses high-frequency sound waves to measure the amount of blood flow through the patient's arteries and veins, usually those that supply blood to the legs, comparing systolic blood pressure at the ankle with that in the arm (Fletcher et al, 2019).

It is important that evidence-based practice is used, in order to reduce variation and improve outcomes for patients (see Figure 2).

TIME PRINCIPLES

The TIME concept is well established in wound care, originally developed by Schultz et al (2003) to provide a structured framework for wound assessment. Several variations have been suggested since, but the four key principles of TIME are:

T - Tissue within the wound

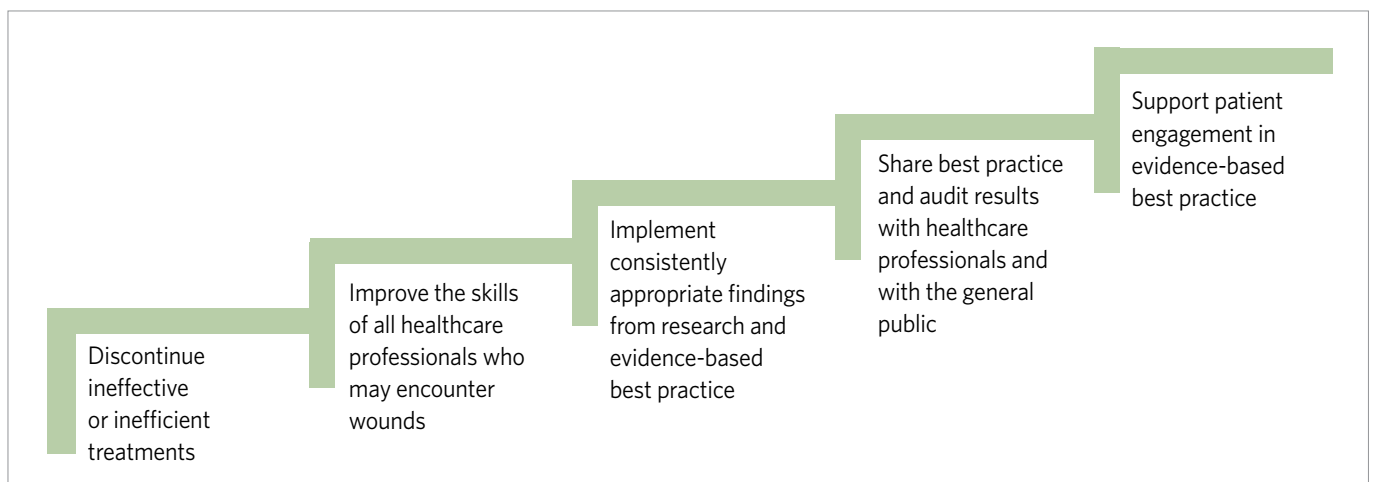
I - Infection and/or Inflammation

M - Moisture balance

E - Edge of the wound.

More recently, there have been variations and additions to the TIME principles, such as TIMES (Wounds UK, 2016), with the addition of surrounding skin, and TIMERS (Atkin et al, 2019), which adds regeneration and social

FIGURE 2 | How to reduce practice variation in wound management



The importance of assessment

Best Practice Statement

Wounds should be assessed according to a structured framework such as TIME



Patient Expectation

Your wound should be fully assessed



Patient Expectation

You should be asked about your overall health and wellbeing



factors to the framework. The TIME framework is a useful practical tool based on identifying the barriers to healing and implementing a plan of care to remove these barriers and promote wound healing (Dowsett and Newton, 2005). The structure of TIME can help to guide care and to increase confidence in carrying out the processes of wound care. See Table 3 for more information about each of these principles, their effects and possible actions that can be taken to improve the wound bed and remove barriers to healing.

In cases where wounds do not progress to healing, the TIME framework should be used systematically to re-assess wounds where appropriate – for example, reducing infection, or managing exudate.

HOLISTIC ASSESSMENT

While there may be limited capacity to conduct a fully comprehensive patient and wound assessment and diagnose the wound aetiology, as far as possible, assessment should also consider the whole patient, as well as the wound.

Where possible, patient assessment should highlight the cause and underlying aetiology of the wound, and any other factors that may impede wound healing, such as pain and poor nutrition. Individual patient concerns need to be addressed, as well as the patient's capacity, environment, support available, psychosocial factors and quality of life issues. Patients need to understand the underlying cause of their wound and the rationale for any treatments (Dowsett and Newton, 2005). Involving the patient and their family is essential to encourage concordance with treatment (Beeckman et al, 2020).

TREATMENT GOALS

All wound and patient assessment should be conducted with the objective of taking action and setting treatment goals in order to guide appropriate care. This may be through dressing selection and other wound care products, providing the patient with information and support, or signposting to further information or services. Any need for urgency or further referral should be identified.

Table 3. Principles of TIME, their effects and possible actions to improve the wound bed and healing

Clinical observations	Proposed pathophysiology	Clinical actions	Effect of actions	Clinical outcome
Tissue non-viable or deficient	Defective matrix and cell debris impair healing	Debridement (episodic or continuous): <ul style="list-style-type: none"> Autolytic, sharp surgical, enzymatic, mechanical or biological Biological agents 	Restoration of wound base and functional extracellular matrix proteins	Viable wound base
Infection or Inflammation	High bacterial counts or prolonged inflammation <ul style="list-style-type: none"> ▲ Inflammatory cytokines ▲ Protease activity ▼ Growth factor activity 	Remove infected foci topical/systemic: <ul style="list-style-type: none"> Antimicrobials Anti-inflammatories Protease inhibition 	Low bacterial counts or controlled inflammation: <ul style="list-style-type: none"> ▼ Inflammatory cytokines ▼ Protease activity ▲ Growth factor activity 	Bacterial balance and reduced inflammation
Moisture imbalance	Desiccation slows epithelial cell migration Excessive fluid causes maceration of wound margin	Apply moisture-balancing dressings Compression, negative pressure or other methods of removing fluid	Oedema, excessive fluid controlled, maceration avoided	Moisture balance
Edge of wound — non-advancing or undermining	Non-migrating keratinocytes Non-responsive wound cells and abnormalities in extracellular matrix or abnormal protease activity	Re-assess cause or consider corrective therapies: <ul style="list-style-type: none"> Debridement Skin grafts Biological agents Adjunctive therapies 	Migrating keratinocytes and responsive wound cells. Restoration of appropriate protease profile	Advancing edge of wound

Best Practice Statement

Treatment goals should be set and discussed with the patient before decisions are made about their wound



Patient Expectation

You should have the opportunity to be involved in setting treatment goals for your wound



In some instances, where assessment is not possible, the goal may be to provide 'stop gap' assistance or first aid, while signposting the patient elsewhere. It is important to be realistic about what is possible, and it may be the case that 'something' is better than nothing, depending on the individual patient's needs and availability of products, information and support

Equally, the goal of treatment in wound care is not necessarily to 'heal the wound', rather the goal should be based on the outcome of the

assessment. The goals may be, for example, to control exudate, limit infection risk or improve patient quality of life through using a comfortable and reliable dressing.

It is important to acknowledge that resources and facilities such as consultation room space can vary significantly, meaning that differing levels of service provision are possible and it is necessary to work with whatever is available, while always aiming for best practice and patient-focused care.

Dressing selection and use

Best Practice Statement

Pharmacy teams should have basic knowledge of dressing selection



Selecting the appropriate dressing for a wound is a key element of treatment and can have a significant impact on the wound healing trajectory. Factors to consider in dressing selection must encompass the patient's individual needs as well as the wound itself.

The vast range of dressing types available means that dressing selection – especially for complex wounds – can be an advanced skill. Many clinicians lack the confidence to select the best dressing for use in practice (WUWHS, 2020b). However, the group agreed that – particularly when combined with appropriate assessment – the risk of causing harm through 'getting it wrong' is very low. It should also be noted that pharmacists do not need to have knowledge of every dressing that is available, but to know the principles of assessment-based dressing selection in order to treat common wound types, and to know how to access further information and resources where necessary.

It is also noted that there can be issues with availability, and not every dressing is available in every area. Often, decision-making regarding dressings can be made based on the size of dressing, rather than the individual dressing characteristics, as the formulary is limited. Decision-making should be based on the individual patient and their wound, within the parameters of dressing availability.

It is important to remember that a wound dressing does not heal the wound but provides the optimum environment for healing to take place – for example, the right dressing can remove dead tissue, provide a warm, moist environment, or reduce bacterial burden in the wound (Morris, 2006). However, there are dressings available that are recommended by NICE, as they are associated with increased wound healing compared with non-interactive dressings (NICE, 2019).

The principle reasons for applying a dressing can be summarised as follows (Thomas, 1997):

- To provide rapid and cosmetically

acceptable healing

- To remove or contain odour
- To reduce pain
- To prevent or combat infection
- To modify or inhibit MMP activity within the wound
- To contain exudate
- To cause minimum distress or disturbance to the patient
- To hide or cover a wound for cosmetic reasons.

DRESSING TYPES

The main types of dressings can be selected according to the wound type and the specific needs of the wound and patient, assessed via the TIME framework (see p9). See Table 4 for a summary of common dressing types and the wounds on which they can be used.

FACTORS INFLUENCING DRESSING SELECTION

In addition to a structured wound assessment, the process of dressing selection is determined by a number of factors including the nature and location of the wound, availability and cost.

Potential factors that may influence dressing selection include:

- Type of wound/cause
- Wound characteristics (e.g. granulating, epithelialising, sloughy, necrotic)
- Treatment goals (e.g. to manage exudate, manage infection risk)
- Anatomical location
- Patient-related factors (e.g. pain levels, fragile skin, capacity to self-care)
- Cost.

DRESSING CHANGE AND SELF-CARE

As well as selecting dressings, pharmacy teams are ideally placed to advise patients on dressing usage, encouraging best practice and ongoing self-care in suitable patients. Patients should be informed to change dressings in accordance with the manufacturers' instructions and in line with agreed treatment goals.

Best Practice Statement

Pharmacy teams should be able to dispense the correct dressing based on wound type and individual patient need



Patient Expectation

You should be advised on the most suitable dressing for your wound type and individual needs



Table 4. Common dressing types, suitable wounds and notes for use (Bennett-Marsden, 2010; Dabiri et al, 2016; Morris, 2006; WUWHS, 2020c)		
Dressing type	Suitable wounds	Notes
Film	Superficial acute wounds with low exudate levels, including minor burns	Not absorptive; adhesive not suitable for those with fragile skin (e.g. elderly patients)
Film plus pad/island dressing (all-in-one)	Consists of non-adherent absorbent pad bonded to larger thin film transparent dressing	Suitable for acute/surgical wounds
Silicone wound contact layer	Suitable for fragile skin, skin tears	Prevents the dressing from sticking to the wound/skin
Foam	Wounds with low/moderate levels of exudate; provide cushioning if necessary	Thicker absorptive dressings, can be adhesive or non-adhesive depending on need
Superabsorber (SAP)	Wounds with moderate/high exudate levels	For where exudate management is priority; sequesters bacteria, debris and MMPs to prevent maceration; may require a secondary dressing; available in adhesive variants
Alginate	Wounds with moderate/high exudate levels, sloughy wounds	Forms a gel when in contact with a moist wound; frequently requires secondary dressing (e.g. plastic film adsorbent dressing, vapour-permeable film or foam adhesive)
Hydrofiber® Technology/ carboxymethylcellulose (CMC) dressings	Moderate to highly exuding wounds, can be used in cavity wounds	Micro-contours and eliminates dead space in the wound; desloughs and sequesters bacteria and debris; prevents periwound maceration; forms a cohesive gel for one-piece removal and reduces pain; requires a secondary dressing
Hydrocolloid	Minor abrasions, postoperative wounds, smaller/superficial pressure ulcers, burns, blisters; granulated wounds; mild/moderate levels of exudate	Encourages epithelialisation in granulated wounds; occlusive and waterproof
Acrylic polymer	Minor abrasions, postoperative wounds, smaller/superficial pressure ulcers, burns, blisters; granulated wounds; mild/moderate levels of exudate	Can be left in place for longer wear time if necessary
Hydrogel	Dry wounds, wounds with thick eschar (dead tissue)	Hydrates the wound and promotes autolytic debridement of dead tissue; can be removed painlessly; potential risk of periwound maceration; requires a secondary dressing
Hydrogel sheets	As above, plus suitable for burns	Hydrates the wound and absorbs moisture where necessary
Antimicrobial (e.g. silver, iodine, PHMB, honey)	Infected wounds or wounds at high risk of infection	Dressings impregnated with topical antimicrobial
Non-medicated wound dressing (e.g. CMC, DACC, SAP, hydro-responsive)	Infected wounds or wounds at high risk of infection	Sequesters bacteria to control infection without the need for antimicrobial agent
Hydro-responsive wound dressing	Dry wounds or wounds requiring debridement of eschar, necrosis or slough	Donates moisture to hydrate the wound, and absorbs exudate; sequesters bacteria, MMPs and debris; may require a secondary dressing
Polyabsorbent fibre dressing	Sloughy (0-100%), granulating and epithelialising wounds with low to moderate levels of exudate.	In contact with exudate, the fibres gel, ensuring pain-free and atraumatic removal; absorb exudate and trap and retain slough, keeping the wound bed clean
Protease-modulating matrix/ protease inhibitor dressing	All non-infected wounds, with the exception of hard necrosis, or suspected malignancy	Contains TLC-NOSF clinically proven to heal wounds sooner and recommended by NICE guidance (2019)
Cavity/packing materials (e.g. alginates, hydrofibres)	Deep/tunnelling wounds	Packing a deep wound can help to absorb exudate and expedite healing
Charcoal dressing	Wounds with odour issues	Only suitable as a secondary dressing; can stick to wounds if allowed to dry out

Dressing selection and use

Best Practice Statement

Patients should be given the appropriate information for self-care and changing their own dressings



Patient Expectation

You should be advised on how to change your own dressing, care for your own wound and advised where to access further support if needed



Best practice in dressing removal is particularly important to avoid further damage to the skin or medical adhesive-related skin

injury (MARSI), particularly in individuals with fragile or aged skin (Le Blanc et al, 2018). See Box for tips in practice.

Tips for dressing change and explaining best practice for self-care (adapted from Le Blanc et al, 2018)

- In wounds such as skin tears, mark the dressing with an arrow to indicate the correct direction of removal
- Adhesive removers can be used when removing the dressing to minimise trauma
- Take time to remove dressings slowly
- Consider using a skin barrier product to protect the surrounding skin (e.g. to prevent maceration if the wound has high exudate levels)
- Use an emollient to soften and smooth wider skin area and prevent further damage
- Continue to monitor the wound for changes or signs of infection; if the patient returns and there is no improvement or the wound has deteriorated, advise to contact GP for review/referral.

Lower limb ulcers and compression

Lower limb ulcers are common and have been identified as an area of wound care requiring a unified approach. Lower limb ulcers can be defined as wounds on the lower leg (below the knee) and foot (see Figure 3) that are slow to heal. It is estimated that approximately 1.5% of the adult population in the UK is affected by active leg and foot ulceration (NWCSP, 2020).

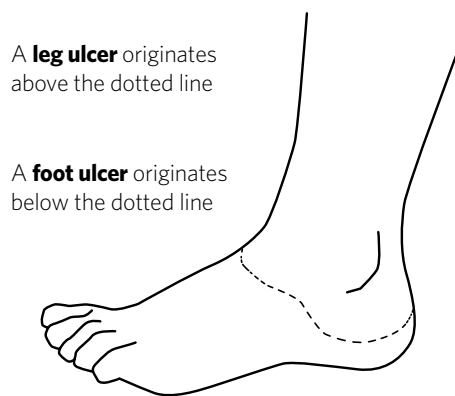


FIGURE 3 | Location of leg and foot ulcers (NWCSP, 2020)

The biggest proportion of leg ulceration is due to venous insufficiency. There is strong evidence to support the use of compression therapy as a first-line therapy to promote healing of venous leg ulceration (O’Meara et al, 2012).

Foot ulceration is also an issue of concern. People with diabetes are 23 times more likely to have a leg, foot or toe amputation than someone without diabetes, and both ulceration and amputation are associated with high mortality (Kerr, 2017).

Therefore, the National Wound Care Strategy Programme (NWCSP) lower limb stream have created recommendations to optimise care of lower limb ulcers.

Compression therapy is a vital consideration in all lower limb wounds. Unless specified ‘red flags’ are present, the benefits of first-line mild compression outweigh the risks, even

for people without obvious signs of venous insufficiency (BLS, 2019).

It is recommended that all people with leg wounds should be treated with mild compression (NWCSP, 2020) and that compression should be applied as early as possible. In most clinical situations, it is not possible to precisely measure the level of compression that is applied, since this is dependent on several factors including ankle circumference, choice of compression system and clinician skill. Therefore, for these purposes, ‘mild compression’ can be defined as a compression system that is intended to apply 20mmHg or less at the ankle (WUWHS, 2020d).

The ‘red flags’ that contraindicate mild compression (Table 5) can be assessed by the pharmacy team, meaning that no further initial assessment is required to supply compression to individuals with lower limb wounds. Therefore, supplying compression therapy as a first-line treatment should be supported by pharmacy teams. See Figure 4 (p16) for the full pathway.

Table 5. Red flags (NWCSP, 2020)

▶ Acute infection of the leg or foot (e.g. increasing unilateral redness, swelling, pain, pus, heat)
▶ Symptoms of sepsis
▶ Acute or chronic limb-threatening ischaemia
▶ Suspected acute deep vein thrombosis (DVT)
▶ Suspected skin cancer
<ul style="list-style-type: none"> • Treat suspected infection in line with NICE antimicrobial guidelines • Immediately escalate to relevant clinical specialist • For people in the last few weeks of life, seek input from their other clinicians to agree an appropriate care plan

There is currently an awareness-raising campaign for the NWCSP guidelines and recommendations, with pharmacists being targeted as point of contact for this wherever

Lower limb ulcers and compression

Overview of compression (Wounds UK, 2014)

Compression applies graduated pressure to the leg with the highest pressure at the ankle, gradually reducing towards the knee. Compression increases venous blood flow up the leg, allowing fluid to drain from the tissues into the venous and lymphatic system, thereby reducing oedema and underlying tissue inflammation.

Compression as a therapy is only effective if it is worn consistently. To facilitate this, patients need to have choice and know that if they cannot tolerate one type of bandage, compression wrap or hosiery there are others they can try. The key function of hosiery is prevention of recurrence; therefore, compression therapy should be recognised as a long-term treatment.

Best Practice Statement

All patients with a lower limb wound should be given mild compression as soon as possible, if red flags are not present



Patient Expectation

If you have a lower limb wound, you should be given compression as soon as possible



possible, and a drive for funding to facilitate this. In the future, there is scope for pharmacy teams to be increasingly involved with compression – e.g. pharmacists performing ABPI testing, measuring patients for hosiery, or referring – aiming to optimise patient care and create a less siloed approach.

It is evident that there is a need for synergy and sharing of best practice between organisations and disciplines, with this link between wound care and pharmacy

teams being vital to effective patient treatment.

OTHER TYPES OF ULCER

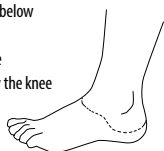
If presenting in practice, other types of ulcer may require specialist assessment and treatment after initial first aid needs. Diabetic foot ulcers (DFUs) may need to be urgently referred to the patient's GP or podiatrist. Pressure ulcers (PUs) may need to be referred to tissue viability or practice/district nurse for prevention assessment and management.

Immediate and necessary care

For people with one or more wounds below the knee.

Leg wound - originating on or above the malleolus (ankle bone) but below the knee

Foot wound - originating below the malleolus



RED FLAGS

- ▶ Acute infection of the leg or foot (e.g. increasing unilateral redness, swelling, pain, pus, heat)
- ▶ Symptoms of sepsis
- ▶ Acute or chronic limb-threatening ischaemia
- ▶ Suspected acute deep vein thrombosis (DVT)
- ▶ Suspected skin cancer
- Treat infection
- Immediately escalate
- For people in the last few weeks of life, seek input from their other clinicians

Immediate care

- Cleaning and emollient
- Simple low-adherent dressing
- Leg wounds, first-line mild graduated compression
- Supported self-care (when appropriate)

Assessment time for diagnosis and treatment

- In hospital with diabetic foot wound - refer to MDT **within 24 hours**
- Any other type of foot wound - refer to MDT **within 1 working day**
- Leg wound - assess **within 14 days**

Wounds on the foot

One or more wounds below the malleolus

Diagnosis and treatment

1 Assess and identify contributing causes for non-healing

2 Diagnose cause of non-healing and formulate treatment plan

People with confirmed or suspected diabetic foot ulceration

- Refer to diabetic foot team
- Provide care in line with [NICE Guidelines for Diabetic Foot Problems](#)

People with confirmed or suspected peripheral arterial disease

- Refer to vascular surgical opinion
- Provide care in line with [NICE Guidelines for Peripheral Arterial Disease](#)

Ongoing care and review

Review at each dressing change and at weekly intervals

- Monitor healing at **4-week intervals** (or more frequently if concerned)
- In unhealed at 12 weeks, reassess

Wounds on the leg

One or more wounds below the malleolus

Diagnosis and treatment

1 Assess and identify contributing causes for non-healing

2 Diagnose cause of non-healing and formulate treatment plan

Leg wounds with an adequate arterial supply and no aetiology other than venous insufficiency

- Refer for venous surgical/endovenous interventions
- Strong compression therapy

Leg wounds with signs of arterial disease

- Refer for venous surgical/endovenous interventions and advice on compression
- Pending vascular opinion, if no symptoms of arterial insufficiency, continue with mild graduated compression

Leg wounds of other or uncertain aetiology

- Refer for dermatology opinion (or other specialist depending on symptoms and service arrangements)
- Pending specialist opinion if no symptoms of arterial insufficiency, continue with mild graduated compression

Lymphoedema

- Refer for expert diagnosis and advice about lymphoedema

Ongoing care and review

Review at each dressing change and weekly intervals

Monitor healing at 4-week intervals (or more frequently if concerned)

- If deteriorating or no significant progress towards healing, escalate
- If progressing to healing but still unhealed, undertake comprehensive re-assessment
- If deteriorating or no significant progress towards healing, escalate

Following healing

Venous leg ulceration

- Compression hosiery
- 6-monthly review for replacement of compression garments and ongoing advice
- If changes in lower limb symptoms or skin problems relating to hosiery, undertake comprehensive re-assessment

FIGURE 4 | Lower limb care pathway (NWCSP, 2020)

Education and the future

The future development of pharmacy teams is vital to patient care, and evidently becoming ever more so as the role continues to evolve. The pharmacist should be viewed as the best-placed person to help influence long-term health and goals for the patient, and to encourage ongoing self-care in a positive way.

Although it should be noted that pharmacy teams are not always the most appropriate personnel to fulfil every role, they are often the only trained clinicians that the patient sees, providing the entry point through which the patient receives care.

When considering the role of the pharmacist and pharmacy teams, this should always be viewed in the context of the patient journey and patient outcomes. The more patient-focused care is, the more outcomes can be improved.

However, as the role grows and evolves, the task of dispensing and acting as a 'pillar of safety' will always be paramount.

As well as formalised education on wound care, awareness is required in how the role of pharmacy teams can be developed within

wound care, in order to break down barriers and create a less siloed system. For example, pharmacy teams being commissioned to provide dressings, or becoming more involved in supplying compression garments and carrying out ABPI testing, with more liaison from specialist wound care practitioners. Support networks need to be developed to facilitate multidisciplinary working.

This will require funding to promote effective implementation – for time as well as resources. Integration and recognition of the role of the pharmacist and pharmacy teams in being the first port of contact for people with wounds offers an opportunity to influence the ways in which care is delivered and how roles can be made more efficient. Particularly in light of the COVID-19 pandemic, there is potential to make a case for change.

The pharmacists of the future need to be educated about this potential evolution and the difference that they may be able to make to patient outcomes.

References

- Atkin L, Bucko Z, Conde Montero E et al (2019) Implementing TIMERS: The race against hard-to-heal wounds. *J Wound Care* 28: 3a
- Bale S, Tebble N, Jones V, Price P (2004) The benefits of implementing a new skin care protocol in nursing homes. *J Tissue Viability* 14(2):44-50
- Baranoski S, Ayello E, Tomic-Canic M, Levine J (2012) *Skin: An essential organ*. In: Baranoski SA and Ayello EA (ed.) *Wound Care Essentials: Practice Principles* (3 ed., p. 57) Wolters Kluwer, Lippincott Williams and Wilkins, Philadelphia, PA, USA
- Beeckman D, Campbell J, Le Blanc K et al (2020) Best Practice Recommendations for holistic strategies to promote and maintain skin integrity. *Wounds International*. Available online at: <https://www.woundsinternational.com/resources/details/best-practice-recommendations-holistic-strategies-promote-and-maintain-skin-integrity> (accessed 20.11.2020)
- Bennett-Marsden J (2010) How to select a wound dressing. *The Pharmaceutical Journal*. Available online at: <https://www.pharmaceutical-journal.com/cpd-and-learning/learning-article/how-to-select-a-wound-dressing/11039846.article> (accessed 20.11.2020)
- British Lymphology Society (2019) Position paper for assessing vascular status in the presence of chronic oedema prior to the application of compression hosiery. Available online at: <https://www.thebls.com/documents-library/assessing-vascular-status-in-the-presence-of-chronicoedema-prior-to-the-application-of-compression-hosiery-position-document-to-guide-decision-making-a5> (accessed 25.11.2020)
- Carville K, Leslie G, Osseiran-Moisson R et al (2014) The effectiveness of a twice-daily skin-moisturising regimen for reducing the incidence of skin tears. *Int Wound J* 11(4): 446-53
- Dabiri G, Damstetter E, Phillips T (2016) Choosing a wound dressing based on common wound characteristics. *Adv Wound Care* 5(1): 32-41
- Dowsett C, Newton H (2005) Wound bed preparation: TIME in practice. *Wounds UK* 1(3): 58-70
- Fletcher J, Beeckman D, Boyles A et al (2020) International Best Practice Recommendations: Prevention and management of moisture-associated skin damage (MASD). *Wounds International*. Available online at <https://www.woundsinternational.com/resources/details/best-practice-recommendations-prevention-and-management-moisture-associated-skin-damage-masd> (accessed 4.01.2021)
- Fletcher J, Buxey K, Conway K et al (2019) Ankle brachial pressure index (ABPI) in practice. *Wounds UK*. Available online at: <https://www.wounds-uk.com/resources/details/best-practice-statement-ankle-brachial-pressure-index-abpi-practice> (accessed 4.01.2021)
- Foppe van Mil JW, Fernandez-Llimos F (2013) What is 'pharmaceutical care' in 2013? *Pharm Pract* 11(1): 1-2
- Guest JF, Ayoub N, McIlwraith T et al (2015) Health economic burden that wounds impose on the National Health Service in the UK. *BMJ Open* 5: e009283
- Guest JF, Fuller GW, Vowden P (2020) Cohort study evaluating the burden of wounds to the UK's National Health Service in 2017/18: Update from 2012/13. *BMJ Open* 10: e045253
- Hepler CD, Strand LM (1990) Opportunities and responsibilities in pharmaceutical care. *Am J Hosp Pharm* 47(3): 533-43
- Jin S (2015) A day in the life: A pharmacist's role in wound care. *Wound Care Canada* 13(2): 34-7
- Kerr M (2017) Diabetic foot care in England: An economic study. Insight Health Economics. Available online at: <https://www.evidence.nhs.uk/document?id=1915227&returnUrl=Search%3Fq%3D+Diabetic%2BAmputation&q=Diabetic+Amputation> (accessed 25.11.2020)
- Kottner J, Beeckman D, Vogt A, Blule-Peytav U (2019) Chapter 11: Skin Health and Skin Integrity. In: *Innovations and Emerging Technologies in Wound Care 1st Edition*. Editor: A. Gefen. p183-92
- LeBlanc K, Campbell K, Beeckman D (2018) Best practice recommendations for the prevention and management of skin tears in aged skin. *Wounds International*. Available online at: <https://www.woundsinternational.com/resources/details/istap-best-practice-recommendations-prevention-and-management-skin-tears-aged-skin> (accessed 23.11.2020)
- Morris C (2006) Wound management and dressing selection. *Wound Essentials* 1: 178-83
- NHS (2015) Role of pharmacists is set to grow and grow. Available online at: <https://www.england.nhs.uk/blog/keith-ridge-2/> (accessed 28.01.2021)
- NICE (2019) UrgoStart for treating diabetic foot ulcers and leg ulcers. Medical technologies guidance [MTG42]
- National Wound Care Strategy Programme (2020) Lower limb: Recommendations for clinical care. Available online at: <https://www.ahsnetwork.com/wp-content/uploads/2020/11/Lower-Limb-Recommendations-20Nov20.pdf> (accessed 25.11.2020)
- O'Meara SO, Cullum N, Nelson AE, Dumville JC (2012) Compression for venous leg ulcers. *Coch Sys Rev* 11: CD000265
- Pearson GJ (2007) Evolution in the practice of pharmacy - not a revolution! *CMAJ* 176(9): 1295-6
- Pharmacy Magazine (2020) First aid and wound care. Available online at: <https://www.pharmacymagazine.co.uk/bare-necessities> (accessed 20.11.2020)
- Pharmaceutical Services Negotiating Committee (2020) Healthy Living Pharmacies. Available online at: <https://psnc.org.uk/services-commissioning/essential-services/healthy-living-pharmacies/> (accessed 25.11.2020)
- Proksch E, Brandner JM, Jensen JM (2008) The skin: an indispensable barrier. *Exp Dermatol* 17(12): 1063-72
- Schultz GS, Sibbald RG, Falanga V et al (2003) Wound bed preparation: a systematic approach to wound management. *Wound Rep Reg* 11: 1-28
- Stacey M (2016) Why don't wounds heal? *Wounds International* 7(1): 16-21
- Thomas S (1997) A structured approach to the selection of dressings. *World Wide Wounds*. Available online at: <http://www.worldwidewounds.com/1997/july/Thomas-Guide/Dress-Select.html> (accessed 24.11.2020)
- Troxler M, Vowden K, Vowden P (2006) Integrating adjunctive therapy into practice: the importance of recognising 'hard-to-heal' wounds. *World Wide Wounds*. Available from: <http://www.worldwidewounds.com/2006/december/Troxler/Integrating-Adjunctive-Therapy-Into-Practice.html> (accessed 20.11.2020)
- Wingerd B (2013) *The human body: Concepts of anatomy and physiology* (3rd ed). London: Lippincott, Williams and Wilkins
- Work Gateways (2020) UK Guide for Pharmacist Jobs. Available online at: <https://www.workgateways.com/industries/pharmacist> (accessed 25.11.2020)
- World Union of Wound Healing Societies (2020a) Strategies to reduce practice variation in wound assessment and management: The TIME Clinical Decision Support Tool. *Wounds International*. Available online at: <https://www.woundsinternational.com/resources/details/strategies-reduce-practice-variation-wound-assessment-and-management-time-clinical-decision-support-tool> (accessed 23.11.2020)
- World Union of Wound Healing Societies (2020b) Optimising wound care through patient engagement. *Wounds International*. Available online at: <https://www.woundsinternational.com/resources/details/optimising-wound-care-through-patient-engagement> (accessed 23.11.2020)
- World Union of Wound Healing Societies (2020c) The role of non-medicated dressings for the management of wound infection. *Wounds International*. Available online at: <https://www.woundsinternational.com/resources/details/the-role-of-non-medicated-dressings-for-the-management-of-wound-infection> (accessed 25.11.2020)
- World Union of Wound Healing Societies (2020d) Demystifying mild, moderate and high compression systems - when and how to introduce 'lighter' compression. *Wounds International*. Available online at: <https://www.woundsinternational.com/resources/details/demystifying-mild-moderate-and-high-compression-systems---when-and-how-to-introduce-lighter-compression> (accessed 4.01.2021)
- Wounds UK (2014) Compression Made Easy. Available online at: <https://www.wounds-uk.com/resources/details/compression-made-easy> (accessed 25.11.2020)
- Wounds UK (2015) All-Wales guidance for the prevention and management of skin tears. Available online at: <https://www.wounds-uk.com/resources/details/prevention-and-management-skin-tears> (accessed 23.11.2020)
- Wounds UK (2016) Best Practice Statement: Holistic management of venous leg ulceration. Available online at: <https://www.wounds-uk.com/resources/details/best-practice-statement-holistic-management-of-venous-leg-ulceration> (accessed 20.11.2020)
- Wounds UK (2018) Best practice statement: Maintaining skin integrity. Available online at: <https://www.wounds-uk.com/resources/details/maintaining-skin-integrity> (accessed 23.11.2020)
- Wounds UK (2019) Best Practice Statement: Addressing complexities in the management of venous leg ulcers. Available online at: <https://www.wounds-uk.com/resources/details/best-practice-statement-addressing-complexities-management-venous-leg-ulcers> (accessed 20.11.2020)

Appendix: Glossary of terms to facilitate patient communication and education

(adapted from WUWHS, 2020b)

Chronic wound: A wound that is not healing (or not healing as quickly as expected, or as predicted).

Debridement: Removing dead, infected or damaged skin from the wound, so it does not hinder the healthy skin from healing — may be done in different ways that should be clearly described to patients so that they know what to expect.

Dehiscence: Separation of the wound edges in post-surgical wounds, due to the wound failing to heal properly.

Delayed (or stalled) wound healing: When wound healing progresses at a slower rate than expected.

Epidermolysis bullosa (EB): EB is a group of rare genetic conditions that result in easy blistering of the skin and mucous membranes. Blisters are caused by minor trauma or friction and are very painful.

Exudate: Fluid that comes from the wound — it is important to the healing process, but may cause problems if there is too much or too little (if the wound is too wet or too dry).

Friable tissue: Skin that bleeds easily.

Granulation tissue: Healthy new skin forming that is red or pink in colour and indicates that the wound is healing.

Infection: When outside bacteria cause problems with the wound, such as further damage to the skin or general illness in some cases.

Inflammation: This causes the wound to be red, swollen, painful or hot; sometimes, but not always, a sign of infection.

Multidisciplinary team (MDT): The MDT is a group of health care workers who are members of different disciplines (e.g. nurses, psychiatrists), each providing specific services to the patient. An 'MDT approach' aims to co-ordinate their services and work together towards a specific set of goals.

Necrotic tissue: Dead skin that is often dark in colour, made up of dehydrated dead skin cells, which can get in the way of healing.

Odour/malodour: Bad smell associated with the wound, which may also be related to infection.

Periwound: The skin immediately around the wound.

Slough: A yellow/white layer of dead skin in the wound, which can prevent or slow down healing.

Undisturbed wound healing: Leaving the wound untouched, and using dressings that can be left in place for longer, as studies have shown that this helps healing.

Wound dressing: A dressing is a sterile pad or compress applied to a wound to promote healing and protect the wound from further harm. A dressing is designed to be in direct contact with the wound.

