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Understanding the importance of holistic wound assessment

It is important to undertake a holistic assessment of the patient who presents with a wound.

Karen Ousey and Leanne Cook give an overview of the key responsibilities of the practice nurse.

Wound care is an expensive area of treatment, costing the NHS between £2.3 and £3.1 billion per year (Posnett and Franks, 2007).

The importance of understanding wound assessment and the complexities of clinical management is essential in ensuring that cost-effective and evidence-based interventions are used.

The government's agenda for wound care has suggested that, as a result of advances in tissue viability, more complex wound care can now be provided in community settings (Department of Health (DH), 2009).

Practice nurses will need to develop accurate wound assessment skills and understand the complexities of wound assessment.

This article discusses the importance of accurate wound assessment and identifies related areas of care that require attention.

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Why is assessment important?

Although this article focuses on wound assessment, it is also important to undertake a holistic assessment of the patient when managing acute or chronic wounds.

This type of assessment should include the several factors, including history of the wound and current medication (Table 1).

Accurate wound assessment is an essential skill required by all practitioners to be able to effectively plan, implement and evaluate care for patients.

Several studies have suggested that nurses fail to appropriately assess wounds and do not always provide optimal care, resulting in an increase in time for the wound to heal, discomfort for the patient, increased risk of infection, inappropriate use of wound dressings, and a reduction in the quality of life of these patients (Ashton and Price, 2006; McIntosh and Ousey, 2008; Dowsett, 2009).

Maylor (2002) questioned the reliability of these assessments, suggesting that many may be inaccurate and a waste of nurses' time.

However, in 2008, the World Union of Wound Healing Societies (WUWHS) (2008) identified the importance of effective assessment and diagnosis in the treatment of wounds, highlighting that, in the

effective treatment of patients with wounds, the diagnostic process would:

- Find the wound's cause
- Identify any comorbidities or complications that may contribute to the wound or delay healing
- Assess the wound's status
- Help to develop a management plan.

Structured approach

Harding et al (2008) suggested that providing a good standard of care requires a structured approach, including a thorough patient assessment by skilled and competent practitioners who adhere to local and national guidelines.

It is important that every health professional understands and develops the skills and knowledge to enable accurate and timely assessment of wounds.

Assessing a wound

Documentation

Health professionals should provide a wound assessment chart that all practitioners can access. Charts act as a guidance tool for assessing a wound, and they also provide a template for the practitioner.

However, it should be noted that assessment charts will not provide any understanding of underlying abnormalities, medical conditions or medications

that may affect the wound healing process. This is important to be aware of, as this knowledge may enable the nurse to understand why a wound is not healing (Schultz et al, 2004).

Dowsett (2009) argued that assessment is an area of practice which is often carried out poorly or sporadically.

However, despite recommendations for formalized wound assessment (Harding et al, 2008), there are no formalized guidelines as to what should be included. Fletcher (2010) presented a draft example of a wound assessment tool that incorporated demographic information and descriptors of areas that should be considered (Table 2).

Health professionals should use assessment tools such as Fletcher's (2010) as a guide, while also using their judgement to decide on a patient's plan of care.

Table 1. Factors of wound assessment

History of the wound
Site and size of the wound
Condition of the wound bed
Underlying medical conditions, e.g. diabetes, rheumatoid arthritis, or peripheral vascular disease
Current medication
Nutritional state
Pain assessment
Mobility
Social circumstances

Table 2. Categories of wound assessment

Date of assessment
Wound number, if more than one is present
Has the wound been traced?
Type of wound
Duration of the wound
Tissue type and percentage
Clinical signs of infection
Indicators of infection
Swab sent and result
Wound moisture levels
Surrounding skin condition
Wound pain (level and frequency)
Wound odour
Current status, e.g. is it deteriorating, static, improving or healed?
Treatment objectives
From: Fletcher, 2010

Pain assessment

Patients with a wound will suffer with pain. Different types of pain can occur as a result of a chronic wound, including neuropathic pain, pain caused by the wound treatment, and anticipatory pain (Solowiej et al, 2010).

Assessing and measuring pain is essential when planning a patient's care, as this will provide the health professional with a baseline to select appropriate management strategies and dressing products.

Unresolved pain that leads to stress can result in prolonged wound healing (Reddy et al, 2003). The practice nurse or GP must explain all procedures to the

patient and attempt to reduce any anxiety or stress.

Patients can expect to feel some sensation during a dressing-related procedure, but the aim should be to limit pain and discomfort to a minimum, and to involve the patient in their care planning.

WUWHS (2004) suggested the use of a layered approach to pain assessment, and that realistic individual patient goals should be set. Three stages of assessment were advised, which are described below.

Initial assessment

An initial assessment that includes a full pain history and a body map diagram, showing the location/site of the pain, especially if there is

more than one painful area that needs to be scored independently. An assessment should be performed each time a dressing-related procedure is carried out.

Background pain

Background pain, pain before the dressing procedure, pain during and after the dressing procedure, and any new pain and intensity should be assessed and recorded by the health professional.

Review assessment

A review assessment should be carried out by an experienced clinician as part of a wider case review, and there should be an ongoing evaluation to assess treatment

strategies and progress.

The triggers and reducers of pain should be identified and documented. Using a pain scale can be useful for the patient to assess their own pain levels. There are a variety of scales to choose from, including (WUWHS, 2004):

- Visual scales, which may include pictures of faces ranging from a smiling face for 'no pain' to a tearful face for 'worst pain'
- Visual analogue scales (VAS), to indicate the level of pain commonly drawn as a 10 cm line between two extremes, for example 'no pain' to 'worst pain'. Patients are asked to point to a position on the line that best represents their level of pain
- Numerical and verbal scales. The numerical rating scale (NRS) includes a range of numbers, e.g. 0–10 to indicate the range from 'no pain' to 'worst possible pain'.

Recording pain in a diary is also beneficial for some patients, as it allows them to assess if the pain becomes worse at certain times of the day or before a dressing procedure takes place.



Figure 1. Mixed disease ulceration: evidence of slough and maceration

Nutritional assessment

Good nutritional support promotes wound healing, whereas malnutrition delays, inhibits and complicates the healing process (Williams and Leaper, 2000).

All patients who present with a wound should undertake a nutritional assessment, and the results should be recorded. If a deficit is identified, health promotion advice should be offered and referral to a dietitian may be appropriate.

Tools to assess nutritional status include body mass index (BMI) and the Malnutrition Universal Screening Tool (MUST) tool.

Medication

Anti-platelet and anti-coagulant drugs can disrupt the clotting process, thus adversely affecting normal wound healing. Medication, such as corticosteroids, non-steroidal anti-inflammatory drugs (NSAIDs) and disease modifying anti-rheumatic drugs (DMARDs), can affect all infection rates because of their effect on the immune system (Cooper, 2005).

Additionally, certain drugs have been directly associated with causing ulceration. In some patients, nicorandil is

known to cause ulceration of the oral mucosa, anal and perianal regions, and various cutaneous sites, including lower leg ulceration (World Health Organization, 2008).

Wound size

Every wound should be reassessed and measured at each dressing change, and the results should be documented in the nursing records.

The depth of a wound can be assessed by measuring from the epidermis to the deepest part of the wound. Grey et al (2006) suggested that the outline of the wound margin should be traced on to transparent acetate sheets and the surface area estimated.

In wounds that are circular, multiply the longest diameter in one plane by the longest diameter in the plane at right angles. In irregularly shaped wounds, add up the number of squares contained within the margin of the outline of the wound from an acetate grid tracing.

This is not 100% accurate, but permits for a professional assessment of any signs of deterioration or improvement.

It is also important to document the depth of the wound, which is assessed by measuring from the epidermis to the deepest part of the wound. When dealing with sinuses, the use of a probe can be useful to determine the depth of the cavity.

Photography can provide additional advantages, including providing an image of the wound bed, which acts as a visual guide as to whether the wound dressing is promoting wound healing.

If photography is to be used, permission must be gained from the patient. There are local protocols that need to be accessed and followed before images are captured, and protocols where the images will be digitally stored, as this must adhere to the strict Caldicott guidance regarding information governance (DH, 2010b).



Figure 2. Dehiscent amputation wound

It should be noted that no method of wound measurement is 100% accurate, but all provide baseline measurements for practitioners to refer to as the wound progresses.

Wound site

Identifying and recording the site of the wound is important, especially if there is more than one area of skin breakdown.

Additionally, the site of the wound can aid in the diagnosis of any underlying disease processes that could be associated with the development of the wound.

Diabetic foot ulcers often arise in areas of abnormal pressure distribution, and venous ulcers occur in the

gaiter area of the leg (Grey et al, 2006). Venous ulcers are caused by increased venous pressure and pressure ulcers often occur where there is sustained unrelieved pressure, e.g. the sacrum.

Infection

The WUWHS (2008) stressed that, when bacteria in a wound causes problems, intervention is required to facilitate healing and prevent further deterioration. Wound bacteria may result in:

- Contamination, where bacteria do not increase in number or cause clinical problems
- Colonization, where bacteria multiply, but wound tissues are not

Table 3. Definition of TIME acronym

T	Tissue, non-viable or deficient
I	Infection or inflammation
M	Moisture imbalance
E	Edge of wound, non-advancing or undermined

From: Schultz et al, 2003

- damaged
- Infection, where bacteria multiply, healing is disrupted, and wound tissues are damaged.

There are many definitions of infection that can aid the process of accurate diagnosis. Infection presents as a purulent discharge or a painful erythema indicative of



Figure 3. Venous leg ulceration. Steep cliff edges and evidence of friable beefy red granulation tissue. This can be a sign of wound bed colonization

cellulitis (Peel and Taylor, 1991) (*Figures 1 and 2*).

The severity of a wound infection will impact on its management, and therefore early recognition and differentiating between localized, spreading and systemic infection are essential.

However Cutting et al (2005) suggested additional criteria when identifying wound infection as being:

- Delayed healing (compared with normal rate)
- Discolouration
- Friable granulation tissue that bleeds easily
- Unexpected pain
- Pocketing at wound's base
- Bridging of epithelium or soft tissue
- Abnormal smell and wound breakdown.

It may be necessary for microbiological analysis, blood tests or imaging investigations to confirm wound infection, detect complications such as osteomyelitis, and guide management (WUWHS, 2008).

Exudate

A wound that is infected will have purulent discharge. This discharge must be effectively managed to maintain a warm, and moist healing environment (Winter, 1962), as well as preventing skin maceration.

Healthy exudate is normally clear and amber coloured with no odour, although it may become malodorous as bacterial growth increases.

A change in consistency should be reported, as the increased protein content associated with infection may cause exudate to become thick and sticky.

Exudate that appears thin and runny may be a result of

low protein content associated with, for example, venous or congestive cardiac disease or malnutrition (WUWHS, 2007).

WUWHS (2007) suggested that practitioners should assess and record four categories when assessing wound exudate, including:

- Colour
- Consistency
- Odour
- Amount.

Measuring and recording the amount of exudate a wound has can be difficult. Traditionally, the symbols +, ++, and +++ have been used to denote mild, moderate and heavy exudate. However, this type of recording is subjective, and a more reliable way is to weigh dressings before they are applied to the wound and weighed again when removed, allowing assessment of the amount of exudate.

This is generally not practical for hospital or community-based practitioners. White and Cutting (2006) suggested that a record should be made of the type and amount of dressings used over a certain time frame, and to observe and record staining, presence of strike through, maceration, or leakage around the dressing. These observations can be indicative of exudate levels increasing, decreasing or remaining static.

Wound bed preparation

Wound bed preparation offers an opportunity for the management of chronic wounds, including the assessment of basic aspects such as management of infection, necrotic tissue and exudate, up to more complex

management (Falanga, 2000).

The International Advisory Board on Wound Bed Preparation produced the TIME acronym to provide health professionals with a tool enabling a systematic approach to the management of wounds (Schultz et al, 2003) (*Table 3*).

This acronym was introduced to optimize the wound bed by reducing moisture and exudate, reducing the bacterial burden and correcting any abnormalities that may be present (Falanga, 2004).

Tissue

Assessment and identification of specific tissue is important. Where tissue is non-viable or deficient, healing is delayed and treatment or removal of this tissue is a vital part of the healing process (*Figure 3*).

Devitalized tissue not only hinders wound healing, but can also provide a focus for infection, prolong the inflammatory response, mechanically obstruct contraction and impede re-epithelialization (Baharestani, 1999).

Necrotic tissue should be removed, as it will delay wound healing. Eschar (black hard dry tissue) makes it difficult to assess the condition of the tissue below its presence and also causes localized wound bed ischaemia.

Slough is a yellow fibrinous tissue that consists of fibrin, pus and dead cells, and is often present in chronic wounds. Its presence in the wound bed prolongs the inflammatory process and inhibits the proliferative phase of wound healing (Stephen-Hayes and Thompson, 2007). Slough requires removal to

promote wound healing.

Infection or inflammation

If a wound is infected, treatment is required, as again the wound healing process will be delayed and can cause pain and discomfort to the patient. It is important to remember that all wounds contain bacteria ranging from contamination, through critical colonization to infection (Cooper, 2005).

Cooper (2005) stated diagnosis of infection is primarily a clinical skill and microbiological data should be used to supplement clinical diagnosis. A wound swab may be taken to determine type of bacteria and subsequent appropriate antibiotic therapy.

Moisture imbalance

Moisture is needed in a wound to enhance the autolytic process and acts as a transport medium for essential growth factors during epithelialization (Cutting and Tong, 2004).

When the wound becomes too dry, a scab will form that will delay healing and wound contraction. However, if the wound becomes too wet, the exudate will damage the peri-wound skin and cause maceration. The choice of wound dressing to maintain correct moisture levels is crucial for wound healing.

Edges of wound

The European Wound Management Association (EWMA) (2008) suggested that a useful general measure of healing outcomes in different wound types is through recognition of a reduction in wound size by measuring the advancement of the wound edge (epithelial

KEY POINTS

- Accurate wound assessment is an essential skill required to effectively plan, implement and evaluate care
- Wounds should be measured and documented at each dressing change
- The TIME acronym provides practitioners with a tool allowing for a systematic approach to the management of wounds

advancement). This is referred to as the 'wound edge effect.'

However, EWMA warned that measurement of the wound edges is only one component of the healing process, and that other characteristics should be considered (Falanga et al, 2006):

- Peri-wound dermatitis
- The presence of eschar
- Callus and/or fibrosis
- A pink or red wound bed
- Exudate and oedema.

Failure of a wound to heal can be diagnosed through a lack of improvement in wound dimensions and the epidermal edge failing to improve over time.

If the margin of the wound is undermined, this may be indicative of infection or critical colonization. If this occurs, the wound and current treatments require reassessment. Referral to the tissue viability specialist may be appropriate for advice.

Psychosocial considerations

It is important to consider, assess and implement interventions that can reduce the effect a wound can have on patients' everyday lives.

Wounds can cause sleep deprivation, be malodorous, restrict mobility, and cause social hardship, which can further lead to depression and anxiety (EWMA, 2004).

Inclusion and referral to the multidisciplinary team will ensure that the appropriate health professionals are involved in care. This should include social care workers who can advise on a range of benefits that may be beneficial.

Housing needs may need to be discussed, as patients may need relocation to more suitable accommodation, e.g. to a ground floor flat if climbing stairs is impossible, or to assisted housing.

Health professionals must give priority to maintaining a good quality of life for patients with wounds. Effective symptom control and pain management must be the main aim for all practitioners when caring for patients, and integral to this care is the inclusion of family.

Conclusions

Wound assessment is a complex process which does not simply focus on the care of the wound, but also the psychosocial needs of the patients and their families. Assessment of the wound, wound bed and surrounding skin should be undertaken at each dressing change and the results recorded.

Careful and accurate documentation will identify any signs of improvement or deterioration that will ensure early interventions are instigated. Referral and discussions with patients regarding the plan of care should be accurately documented, ensuring that holistic needs are met.

Conflict of interest: none declared

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