

WOUND ASSESSMENT: THE PATIENT AND THE WOUND

Thorough assessment, correct diagnosis and effective documentation are essential to treat wounds effectively. Specific diagnosis of the underlying cause of the wound can be ascertained from clinical signs and appropriate investigations. Assessment should include identification of all factors that may delay healing. Other factors to assess include current care and local wound environment (Miller, 1999).

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Assessment can be defined as information obtained via observation, questioning, physical examination and clinical investigations in order to establish a baseline for planning intervention (Collins et al, 2002). The effective management of patients with wounds and wound problems depends on the nurse taking a systematic, logical, holistic approach to assessment. This includes assessment of the individual, the wound, factors affecting healing and the environment in which the patient lives and functions (Bale and Jones, 1997). Management of the individual patient is of the utmost importance and the patient journey should be monitored, assessed and reassessed at every stage to maintain high standards (Timmons, 2007).

This article explains how to carry out a systematic assessment of a patient and their wound.

Patient assessment History-taking

A wound should always be

assessed in the context of the patient's overall medical status and history, considering the presenting symptoms, the results of any investigations, as well as the indicators for the success or failure of treatment. Focusing on the whole patient and not just the 'hole' in the patient is essential to ensure that the underlying cause of the wound is known, and that the subsequent treatment plan is optimal for each individual (Hampton and Collins, 2004). A full medical and nursing history creates a complete picture of the patient's health and identifies factors contributing to the wound which can be documented and addressed (*Table 1*).

When carrying out the patient's assessment, investigation of their psychological wellbeing, pain experience and nutritional status are key.

Psychological wellbeing

When appropriate, it is important to involve the patient with all aspects of their care, as the wound and its encumbering problems are with the patient 24 hours a day. Body image can be changed or altered which can have a dramatic negative effect. Hopkins (2001) suggested that psychological aspects of wound management are poorly

addressed in the literature, while Husband (2001) considered that patients' greatest problems occur because nurses fail to hear what they are saying in the context of their lives. During assessment, patients' views and opinions must be heard. Godsell and Scarborough (2006) suggested considering the barriers to communication, and for healthcare professionals to use terminology that patients can understand. Patients' perceived needs must be taken into account with regard to their wound management. Wound healing may not be their top priority, but rather freedom from exudate or pain relief. Open, honest discussion with the patient can help to ensure that the care plan is the most appropriate for that individual patient. This, in turn, will lead to greater concordance with the wound management regime and dressing and bandage selection.

Pain

Chronic wound pain is frequently severe, persistent and quickly leads to sleeplessness, emotional distress, loss of self-esteem, social isolation and depression (Flanagan, 2007). Young (2007) suggested that all wounds have the potential to become infected and, as a result, the patient may

Table 1**Assess factors influencing wound healing**

Factor	Explanation
Associated disease processes: Anaemia Arteriosclerosis Cancer Diabetes Immune disorders Inflammatory disease Jaundice, liver failure Rheumatoid arthritis Uraemia	Effects due to secondary physiological changes: reduction of tissue collagen. Consider decreased oxygen supply, loss of vascularity, loss of mobility, underlying disease may complicate healing process A whole range of disease processes that adversely affect metabolism are also likely to delay or prevent wound healing (Bale and Jones, 1997)
Infection	Infection is caused by organisms that invade the host's immunological defence mechanism. Host response to bacteria may delay healing (Miller, 1999)
Age and body composition	Skin capacity to repair reduces with age (Desai, 1997)
Nutritional status	Reduced nutritional intake slows healing (Gilmore and Rolumson, 1995)
Tobacco usage	Reduces oxygen supply to damaged tissues, depressing peripheral blood flow and delaying delivery of nutrients which are essential for wound healing (Siana and Gottrup, 1992)
Medication and drug therapy	Steroid, non-steroidal anti-inflammatory drugs, immunosuppressive agents, antiprostaglandins may impair normal healing (McCulloch et al, 1997; Hunt, 1969). Risk of infection is increased if the patient is immunocompromised.
Social environment	Black (1982), in his report demonstrated a link between poor social circumstances and ill health
Lifestyle/psychological status	Research focuses on clinical aspects of wound care rather than psychological aspects (Hollinworth and Hawkins, 2002). Kiecolt-Glaser et al (1995) suggest that factors such as stress may contribute to poor wound healing
Care environment	Miller (1999) suggests provision of resources may be limited, e.g. access to equipment (V.A.C. therapy) and constraint of local dressing formularies
Previous wound management	Evaluation of current and previous treatment regimes must ensure it remains appropriate to the current needs of the wound

experience pain associated with this infection and the associated inflammatory response.

People with chronic wounds often believe that pain is acceptable, inevitable and untreatable because that has

been their experience (Flanagan, 2007; Young, 2007). This is unacceptable — accurate pain assessment using a validated pain assessment tool is key to implementing an effective management strategy (Young, 2007). Pain assessment tools

can be either simple numerical or visual scales (smiley/sad face tool), which are quick and easy to use, or more in depth and able to 'pinpoint' the exact cause of pain. When appropriate, a full pain assessment should be undertaken and documented, with the results being acted upon. Pain is a marker of wound progress or deterioration: pain may diminish as oedema resolves, whereas a sudden increase may be a sign that infection is present.

Nutritional status

Nutrition has a vital role to play in the process of wound healing (Perkins, 2000). Gilmore and Rolumson (1995) have demonstrated that reduced nutritional intake and malnutrition slow healing. The concept of malnutrition is often related to inadequate diet leading to weight loss. However, Neno and Neno (2006) debated that malnutrition also refers to over-nutrition (intake of nutrients in excess of requirements). Despite being central to public health, there is less research into obesity and over-nutrition than under-nutrition (Department of Health [DoH], 2004).

As a result of being deprived of one or more essential nutrients, some wounds may become 'stuck' at a certain stage during the wound-healing cascade, (Lansdown, 2004). *Table 2* lists the main nutrients currently known to fulfil roles as structural components, enzyme co-factors or physiological mediators in skin repair and regeneration. Successful wound healing and other treatment may depend on a patient's nutritional status

Table 2**Essential nutrients for a healthy skin and repair following trauma or injury**

- ▶▶ Protein
- ▶▶ Amino acids: proline, hydroxyproline, cysteine, cystine, methionine, tyrosine, lysine, arginine, glycine
- ▶▶ Carbohydrates: glucose
- ▶▶ Lipids: linoleic and linolenic acids; arachidonic acid; eicosanoids; fatty acids (unspecified)
- ▶▶ Vitamins: A, B complex, C, D, E, K
- ▶▶ Trace element minerals: sodium, potassium (electrolytes), copper, calcium, iron, magnesium, zinc, nickel, chromium
- ▶▶ Water

Adapted from Lansdown (2004)

(Williams and Leaper, 2000). It is essential to assess nutritional status to ensure a balanced diet that meets the wound's requirements and addresses the need to reduce obesity and/or malnutrition. An adequate supply of nutrients is generally found in a normal, well-balanced diet containing carbohydrates, fats, protein, vitamins, trace elements and fluid. Patients should be referred to a dietitian if the wound is not progressing to healing or if their diet is in doubt and they are gaining or losing excessive amounts of weight.

Assessing the wound**Wound history**

It is important to determine how long the wound has been present, and any factors that may have contributed to the wound's development, e.g. surgery, trauma, poor seating, inadequate pressure care, infection or general poor health.

Inadequate wound assessment can lead to incorrect,

Table 3**General check list**

Wound bed/stage of healing	Tissue type identification is necessary to decide management therapy and dressing selection
Wound site	Position of wound will influence dressing choice
Wound size	Measure depth, breadth, length, size of base Sinus, cavity, tract Undermining Increase or decrease in size of wound Regular measurement: trace, photograph, tape measure Wound healing is demonstrated by reduction in wound size
Amount of exudate	Check moisture levels: wet or dry. Exudate quantities: low, medium, or high Consistency: frank pus, serous or bloodstained
Odour	None, present or offensive
Pain	Cause (inflammation, infection), site, frequency, severity, all the time, at dressing change
Wound edge/margin	Cliff edge, sloping, rolled, regular, irregular, elevated
Surrounding skin	Macerated, scaly, dry

Consider and assess other influencing factors, including management strategies

Clinical infection	Discussed earlier in article
Address causal factors	Identify wound type and treat appropriately Pressure ulcers — remove and redistribute pressure Venous leg ulcers — compression therapy Arterial leg ulcers — refer for vascular opinion
Wound care/management	Ensure it is appropriate for the needs of the wound
Dressing selection	Do not ask a dressing to do what it is not designed to do Do not use dressing inappropriately
Mechanical stress/shear	Supply appropriate equipment
Wound temperature	Do not allow wound to get cold during dressing changes
Desiccation (drying out) Maceration (too wet)	Has the appropriate dressing been selected?
Malignancy	Refer and collaborate with multidisciplinary team

inadequate or inappropriate treatment, with potentially serious consequences. Local assessment of the wound provides information relevant to three areas: type of wound; stage of wound healing; and increase or decrease in wound

size. All influencing factors need to be considered and assessed (Table 3).

Type of wound

Wounds can be acute or chronic, and heal by either primary or secondary intention.

Acute wounds result from surgery or trauma, and usually have a relatively short, uneventful healing time. Burns, due to the area of tissue damage, will often behave more like chronic wounds.

Chronic wounds are those such as leg ulcers, pressure ulcers, diabetic foot ulcers, and malignant wounds. They tend to have longer healing times, are prone to episodes of infection, and may have increased levels of exudate due to prolonged inflammation.

Healing by primary intention occurs when the wound edges are brought together by sutures, clips, staples or glue (*Figure 1*). There is often minimal tissue loss and the healing process is relatively short.

In secondary intention healing, the wound edges cannot be easily brought together, usually due to a loss of tissue or infection. Thus, there is an open wound, occasionally a cavity, which heals from the base of the wound and, in the latter stages, by contraction of the wound edges (*Figure 2*).

Examples of different types of acute and chronic wounds can be seen in *Figures 3–10*.

All wounds have the potential to become chronic if the treatment regime is incorrect or inappropriate.

Wound bed/stage of healing

To decide upon the correct care and management of a wound and appropriate dressing selection it is necessary to identify the tissue type (*Table 3*).

Wound bed: what tissue types are present?

The characteristics of the wound bed vary and wounds may be classified according to the tissue types present. These may include necrotic, sloughy, granulation, epithelial and hypergranulation tissue. A wound may have a variety of these tissues present at any one time.

Necrotic tissue

As a result of tissue death, the surface of the wound is covered with a layer of dead/devitalised tissue (eschar) that is frequently black/brown in colour. Initially soft, the dead tissue can lose moisture rapidly and become dehydrated with the surface becoming hard and dry (*Figure 11*). Necrotic tissue can delay healing and provide a focus for infection. Prompt removal is needed for the wound to progress on to the next stage of healing. This can be achieved with dressings that rehydrate the hard tissue. Lavage can be used if the necrotic tissue is soft. Surgical sharp debridement (removal) of necrotic tissue should only be carried out by a competent practitioner who has received extended certificated training.

Necrotic tissue on the feet should be treated with extreme caution, particularly if the patient has diabetes. The wound should be covered with a 'dry' dressing and urgent referral to a vascular consultant or diabetic foot clinic is required. Delay could be limb threatening.

Slough

Slough is seen as a soft, yellow glutinous covering on the wound

and is also a type of necrotic tissue. Made up of dead cells, a wound may be completely or partially filled with slough. It may also be fibre/string/strand-like, adhering to the wound bed (not to be confused with pus which can be irrigated off a wound). Slough may predispose to wound infection and delay healing, however, the presence of slough is not necessarily indicative of clinical infection (*Figure 12*). Exposed tendons may be mistaken for slough and care must be taken before sharp debridement is undertaken (*Figure 5*). As with necrotic tissue, sharp debridement should only be undertaken by a clinician who has received appropriate training. To encourage the wound to granulate and remove excess exudate (wound fluid), slough is removed by the application of a suitable dressing, thus allowing the wound to progress to the next stage of healing.

Granulation tissue

Healthy granulation tissue is pale pink or yellow and has a bumpy or cobblestone appearance. It is firm to touch, painless and does not bleed easily (Bale and Jones, 1997). Open wounds will vary in shape and size with superficial or deep areas. There may be significant tissue loss and a granular pink/yellow 'pebble-like' appearance containing a network of newly-formed vessels (*Figure 2*). Bright red granulation tissue, which bleeds easily, may indicate infection. The aim of wound management is to:

- ▶▶ Optimise moist wound healing
- ▶▶ Remove and manage exudate
- ▶▶ Protect from infection
- ▶▶ Reduce factors which may retard healing

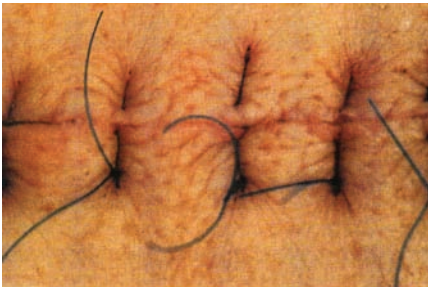


Figure 1. Wound healing by primary intention.



Figure 2. Granulation on a dehiscid abdomen healing by secondary intention.



Figure 3. Surgical (acute) wound. Closed with the aid of sutures, clips, staples, adhesive strips or glue (see Figure 2). As shown here, such wounds can burst open (dehiscence), or be reopened due to the presence of fluid, blood (haematoma) or infection.



Figure 4. Leg ulcer (chronic) showing epithelialisation. Leg ulcers can be venous, arterial, diabetic or a combination of factors. Assessment must be completed to identify the underlying aetiology/causal factor. The assessment should include Doppler ultrasound to exclude any arterial disease, general health of the patient to exclude other causal factors, a full clinical examination, and a full wound assessment.



Figure 5. Ischial tuberosity grade 4 pressure ulcer (acute with potential to become chronic) with exposed tendon that looks like slough — primarily caused by shear and friction.



Figure 6. Malignant fungating (chronic) breast lesion. Assessment of such wounds is holistic and multidisciplinary, patients' perceptions of their priorities should be reflected in the management plan, with the wound symptoms being monitored to control and reduce the impact of the wound on the patient's daily activities (Eagle, 2004).



Figure 7. Pre-tibial laceration (acute) — pre-tibial lacerations cover a range of injuries from small, linear injuries to major degloving.



Figure 8. Full-thickness burn from a radiator. Scalds/burns are acute wounds which can be difficult to assess. Careful assessment is extremely important when there are elements of doubt as to the extent of the burn. Assessment of the wound should include estimation of burn and extent of body surface involved (1% of the patient's total body surface is the palm surface of their hand with the fingers closed), site of burn, depth of burn tissue and cause (electrical, chemical, inhalation [burns to the respiratory system]).



Figure 9. Cosmetic scar. Skin flaps/grafts (acute) are surgical procedures used to repair tissue loss. All scarring is a part of a natural continuum of tissue repair.



Figure 10. Scalp wound (acute/chronic) from an unknown cause. Many wounds do not fall into neat category types and it is important to assess these wounds effectively.

- ▶ Encourage growth of new tissue.

Hypergranulation

Hypergranulation is an over abundance of granulation tissue that progresses above and beyond the level of the wound. It is an impediment to healing that occurs in a wide range of wounds (Figure 13). The presence of hypergranulation tissue will inhibit the migration of epithelial cells, which may slow the healing process. Hypergranulation needs to be resolved to facilitate epithelialisation. There is little research to support the treatment options for hypergranulation, and for the generalist practitioner referral of the patient for specialist opinion is the best option.

Epithelial tissue

Epithelial tissue is superficial pink/white tissue that migrates from the wound margin, hair follicle or sweat glands, with minimal exudate. It eventually covers the granulation tissue. It is the final visual sign of healing (Figure 4).

Infected tissue

Infected tissue can be identified by a delay in wound healing, by wound size increase/the shape of wound changing and general breakdown. Signs of infection include redness to the wound bed or area surrounding the wound (Figure 14). In addition, the wound bleeds easily requiring frequent dressing changes. There may also be swelling/oedema/cellulitis, increased exudate with an offensive odour, an increase in devitalised tissue, bridging

at the base of the wound, collection of frank pus or fluid, new bruising or discolouration and pain in the wound, around the wound margins and in the surrounding tissue. There may be a change in sensation and/or level of pain, unexpected pain/tenderness with the patient taking more analgesia than usual. The patient will feel hot and generally unwell (Cutting and Harding, 1994; Thompson and Smith, 1994).

The percentage of tissue types present in a wound should be recorded during assessment. Changes in these percentages can act as a marker of wound improvement or deterioration, e.g. a wound that contains 70% sloughy tissue and 30% granulation tissue on assessment may improve with treatment to contain 40% slough and 60% granulation tissue. Several systems exist to allow a systematic approach to the assessment of tissue types including TIME (Schultz et al, 2003) and Applied Wound Management (AWM) (Gray et al, 2005).

Wound site

Position and site of wound will influence dressing choice. For example, the size and type of an abdominal dressing will differ from that for the heel or digits. Care must be taken to establish what is under the wound site, for example:

- ▶ A wound over a joint capsule may be leaking synovial fluid, which could be mistaken for wound exudate
- ▶ Exposed bone must be carefully treated to eliminate the potential for osteomyelitis



Figure 11. Necrotic toe.

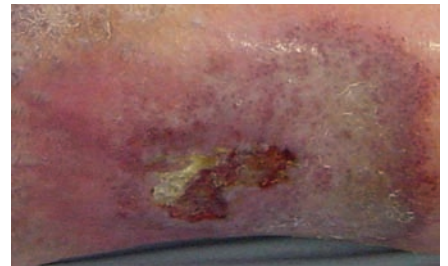


Figure 12. Venous leg ulcer with slough present in the wound bed.



Figure 13. Hypergranulation in an abdominal wound.



Figure 14. Infected wounds.

▶▶ If an organ in the abdominal or chest cavity is exposed, negative pressure machines may be inappropriate and expert opinion must be accessed.

It is important for the clinician to recognise their level of competency and refer to a specialist if appropriate.

Wound size

The wound size must be measured to include depth, breadth, length, and size of base. This will identify if the wound is increasing or decreasing in size. Tissue damage can spread laterally undermining the skin, and there is also the possibility of further, devitalised tissue being present which cannot be seen. There is a need to examine the wound to check for sinuses, hidden cavities, areas of undermining, tracts or fistulae which can lead to prolonged healing and poor drainage of exudate, potentially causing infection (Bale and Jones 1997). Regular wound measurements by simple trace, tape measure or photographs should be taken at predetermined dates. More sophisticated methods could also be used such as telemedicine and other electronic wound-measuring devices. Wound healing is demonstrated by reduction in wound size.

Exudate level

Consistency of exudate should be recorded. This can range from frank pus, serous, viscous or bloodstained fluid. The amount of exudate an open wound produces can vary throughout the healing process.

Wounds continue to produce exudate until epithelialisation is complete. The quantity of exudate can vary from low, medium, through to high and excessively high. Generally, the larger the wound the more exudate it is likely to produce. Moisture levels will govern dressing choices, as the wound may be very wet or dry and it is important to get the correct balance for moist wound healing. It is important to maintain the wound in a moist environment while removing excess exudate to prevent maceration. Modern dressings allow some moisture to evaporate away from the wound bed. The medical practitioner should be notified if excessive amounts of exudate are being lost, as exudate contains protein and, in some cases, it may be appropriate to monitor serum blood protein levels.

Malodour

Odour from a wound may be non-existent, non-offensive, present or offensive. Odour from a wound can have a huge psychological effect on a patient and their quality of life. If devitalised tissue is involved, it is important to facilitate wound debridement and remove excess exudate and toxic material (pus, dead cells and bacteria) to prevent deterioration of the wound and to control odour. However, this may not always be possible in patients with fungating lesions. Odour can be controlled by a variety of antimicrobial-impregnated dressings, larval therapy, carbon-impregnated dressings and, in some cases, antibacterial gels. Such dressings and gels promote healing while reducing odour.

Pain

Pain can restrict activity, affect mood and impact hugely on a patient's quality of life. Changes in pain level may be an indicator that something untoward is happening in the wound, such as infection. It is important to be accurate when identifying the cause of wound pain. As previously said, using a validated pain assessment tool can be key in implementing an effective management strategy (Young, 2007). Wound pain assessment should include whether there is inflammation or infection, the pain site, its frequency and severity, and whether it is present all the time or only at dressing changes. Dressings are available specifically to address the issues of pain during application, wear time and removal.

Wound edge/margin

The edge of a wound can be advancing (getting smaller) or non-advancing and/or getting bigger. There may be undermining at the edge of the wound with cavities, tracts or sinus present. The edges of the wound can be cliff-edged, sloping, rolled, regular, irregular, elevated, with changing shapes as the wound moves

Table 4

Reassessment

- ▶▶ Check vascularity to wound has not changed
- ▶▶ Ensure general health issues have not changed
- ▶▶ Evaluate that care remains appropriate to the needs of the wound
- ▶▶ Monitor appearance of the wound bed for changes
- ▶▶ Monitor exudate levels have not increased
- ▶▶ Re-measure at predetermined date
- ▶▶ Document findings at every dressing change

through the healing process. A venous leg ulcer is usually in the gaiter area, with spreading wound edges and a shallow wound bed that frequently changes shape. An arterial ulcer is often in a lower position on the ankle, and the wound is usually small with punched, cliff-like edges. It is important to monitor and record the wound edges as they can be an indicator of healing or non-healing.

Surrounding skin

Maceration of the peri-wound skin areas is due to the retention of excessive moisture, often caused by the selection of inappropriate dressings. This soggy skin can be a focus for infection and also slow healing, as the epithelium is unable to 'slide' across the new granulation tissue. Surrounding skin may also be scaly and dry with a build up of layers of dead skin tissue. These need to be removed and the surrounding skin hydrated with an emulsifying cream/ointment.

When to refer

During the assessment procedure the clinician should recognise the limits of their knowledge and refer the patient for specialist opinion. It could be argued that there is no such thing as a simple wound. All wounds can rapidly become complex. For the less experienced practitioner, immediate referral to a more experienced clinician may be appropriate after the first visit. Unusual, unexplained changes to the wound, i.e. changes in the depth of a pressure ulcer, spreading infection/cellulitis, changes in the colour or

vascularity of a limb will require specialist consultation. This may be to a senior nurse, general medical practitioner, surgical consultant, tissue viability adviser, wound care specialist, leg ulcer clinic, diabetic foot clinic, podiatrist, or vascular consultant. The importance of referral is demonstrated in *Figure 15* (with the patient lying on her left side) — the wound was debrided with dressings (in the community setting) over a three-week period. This procedure exposed a huge wound with tracts, sinus, cavities and devitalised tendon that needed specialist intervention (*Figure 16*) (patient lying on right side).

Reassessment

Continuous reassessment of the current therapy should be undertaken to ensure it remains effective (*Table 4*).

Documentation

Formal wound assessment charts are useful to ensure that all relevant areas are covered during assessment, and provide a guide as to what should be documented.

Documentation is a record of events and needs to be effective to ensure continuity of care. Commonly understood language should be used for clarity. Healthcare records are a tool of communication, providing clear evidence of the care planned (Nursing and Midwifery Council [NMC], 2004). It may be necessary to use assessment tool documents as part of a legal procedure. Therefore, as with records, it is important to remember:



Figure 15. Pre-debridement with dressing.



Figure 16. Post-debridement with dressing for three weeks in a community setting. Patient now in need of specialist intervention.

Good records = Good defence
 Poor records = Poor defence
 No records = No defence

Summary

When assessment is logical and systematic it optimises the patient's chances of healing (Miller, 1999). No wound should be classed as simple, there are invariably multiple factors that influence healing and it is important to identify these through full assessment.

Holistic wound assessment identifies predisposing, precipitating and perpetuating factors. With correct documentation and using assessment tools as organised frameworks, the clinician is enabled to: identify any specific

underlying causal factor; identify the type of wound and stage of healing; consider the wound bed and surrounding skin; and identify baseline information on which to base an informed decision-making pathway. Current care needs to be appraised and reassessed for appropriateness and effectiveness. Findings should be documented clearly using language that is commonly accepted and understood. **WE**

Bale S, V Jones (1997) *Wound Care Nursing: A patient-centred approach*. Baillière Tindall Published in association with the RCN, London

Black D (1982) *Inequalities in Health* (Black report). Penguin, Harmondsworth

Collins F, Hampton S, White R (2002) *A-Z Dictionary of Wound Care*. Quay books, Mark Allen Publishing Ltd, London

Cutting K, Harding K (1994) Criteria for identifying wound infection. *J Wound Care* 3(4): 198–201

Department of Health (2004) *Choosing Health*. DoH, London

Desai H (1997) Aging and wounds: Part 2 Healing in old age. *J Wound Care* 6(5): 237–9

Eagle M (2004) *Clinical Guidelines for the Management of Wound: E. A. G. L. E. framework*. Blackwater and Valley PCT

Flanagan M (2007) Why is pain management for chronic wounds so neglected? *Wounds UK* 3(4): 155

Gilmore S, Rolumson G (1995) Clinical indicators associated with unintentional weight loss and pressure ulcers in elderly residents of nursing facilities. *J Am Diet Assoc* 95: 984–92

Godsell M, Scarborough K (2006) Improving communication for people with learning disabilities. *Nurs Standard* 20(30): 58–65

Gray D, White RJ, Cooper P, Kingsley AR (2005) Understanding applied wound management.

Wounds UK 1(1): 62–8

Hampton S, Collins F (2004) Holistic wound assessment. In: Hampton S, Collins F, eds. *Tissue Viability*. Whurr Publications, London: 40–75

Hollinworth H, Hawkins J (2002) Teaching nurses psychological support of patients with wounds. *Br J Nurs Tissue Viability Suppl* 11(20): S8–S18

Hopkins S (2001) Psychological aspects of wound healing. *Nurs Times* 97(48): 57–60

Hunt T, Ehrlich HP, Garcia JA, Dunphy JE (1969) Effects of vitamin A on reversing inhibitory effect of cortisone on healing of open wounds in animals and man. *Ann Surg* 170(4): 633–41

Husband L (2001) Venous ulceration: the pattern of pain and the paradox. *Clin Effectiveness Nurs* 5: 35–40

Kiecolt-Glaser J, Page GG, Marucha PT, et al (1995) Slowing of the wound by psychological stress. *Lancet* 346: 1194–6

Lansdown A (2004) Nutrition 2: a vital consideration in the management of skin wounds. *Br J Nurs* 13(20): 1199–210

McCulloch J, et al (eds) (1997) *Wound Healing: Alternatives in management* 2nd edn. Davis FA, Philadelphia

Miller M (1999) *Wound Assessment: in Wound Management Theory and Practice*. NT Books Emap Healthcare Ltd, London

Neno R, Neno M (2006) Promoting a healthy diet for older people in the community. *Nurs Standard* 20(29): 59–65

Nursing and Midwifery Council (2004) *Code of Professional Conduct*. NMC, London

Perkins L (2000) Nutritional balance in wound healing. *Clin Nutrition Update* 1(5): 8–10

Schultz GS, Sibbald RG, Falanga V, Ayello EA, Dowsett, Harding K, et al (2003) Wound bed preparation: a systematic approach to wound management. *Wound Rep Regen* 11(2) Supplement 1: S1–S28

Siana J, Gottrup F (1992) The effects of smoking on tissue function. *J Wound Care* 1(2): 37–41

Key points

- ▶ Understand influential factors important to wound healing.
- ▶ Consider general and associated health issues that may influence the potential for wound healing.
- ▶ Holistic wound assessment identifies predisposing, perpetuating and presenting factors affecting healing.
- ▶ Identify the specific aetiology/causal factor of the wound and concurrent disease processes.
- ▶ Identify type of wound, stage of healing; consider wound bed and peri-wound skin.
- ▶ Identify baseline information and document findings using appropriate, logical systematic assessment tools.
- ▶ Question and identify factors that may delay healing.
- ▶ Appraise and reassess effectiveness of current wound management and adapt to changing need of wound bed.
- ▶ Recognise limitation of knowledge and make appropriate referrals.

Thompson P, Smith D (1994) What is infection? *Am J Surg* 67(1a (supplement)): 7s–11s

Timmons J (2007) The importance of a patient centred approach to care. *Wounds UK* 3(4): 6

Williams L, Leaper D (2000) Nutrition and Wound Healing. *Clin Nutrition Update* 1(5): 3–5

Young T (2007) Assessment of wound pain: overview and a new initiative. Supplement to *Br J Community Nurs* 12(12) and *Br J Nurs* 16(21)