Prepare to Heal

Webinar series
Wound Assessment

The Coloplast 3 Step Approach
Simplifying wound management

Step 1: Assess

Triangle of Wound assessment. Assessment is paramount in defining treatment objectives.

Step 3: Treat

Portfolio of dressings to manage a wound at any depth/stage of healing.

Step 2: Prepare

Wound preparation is key to create an optimum healing environment.

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Wound Assessment

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Learning objectives

After completing this course, you will be able to:

- Appreciate the importance of undertaking a detailed patient history and examination
- Identify the barriers to healing using the Triangle of Wound Assessment
- Accurately document wound assessment data

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The aims of wound assessment[1]:

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- Identify cause of skin breakdown
- Identify associated risk factors
- Correct or treat underlying cause
- Identify appropriate management options
- Control wound related symptoms
- Prevent further skin/wound deterioration
- Identify the patient's expectations
- Provide psychosocial support and promote patient independence

1. Brown, A. and Flanagan, M. (2013). Chapter 4: Assessing Skin Integrity. In M. Flanagan (Ed.), Wound Healing and Skin Integrity. Principles and Practice (pp. 52-65). West Sussex: John Wiley & Sons, Ltd.

The outcomes of wound assessment

The framework outlined in this course will help clinicians to assess wounds and skin integrity in the context of the whole person, resulting in an individualised, meaningful and comprehensive assessment.

By doing so you will:

- Improve clinical decision making
- Make clinical outcomes more achievable
- Improve cost effectiveness
- Identify the patient's expectations
- Facilitate better communication

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Frequency of wound assessment

- Frequency of wound assessment will depend on the condition of the patient, the condition of the wound and the care setting

A holistic wound assessment should, as a minimum, be:

- Every two weeks in an acute setting
- Every four weeks within a primary care and community setting

Inadequate wound assessment

Leads to:

- Inability to identify factors that delay healing
- Inappropriate management choice
- Development of complications e.g. infection
- Delayed healing
- Costs

Therefore, a careful assessment is needed in order to devise the most appropriate treatment plan[1]

1. Schultz, G. S., Sibbald, R. G., Falanga, V., Ayellow, E. A., Dowsett, C., Harding, K., Romanelli, M., Stacey, M. C., Teot, L., Vanscheidt, W. (2003). Wound bed preparation: a systematic approach to wound management. Wound Repair and Regeneration,11, 1-28.

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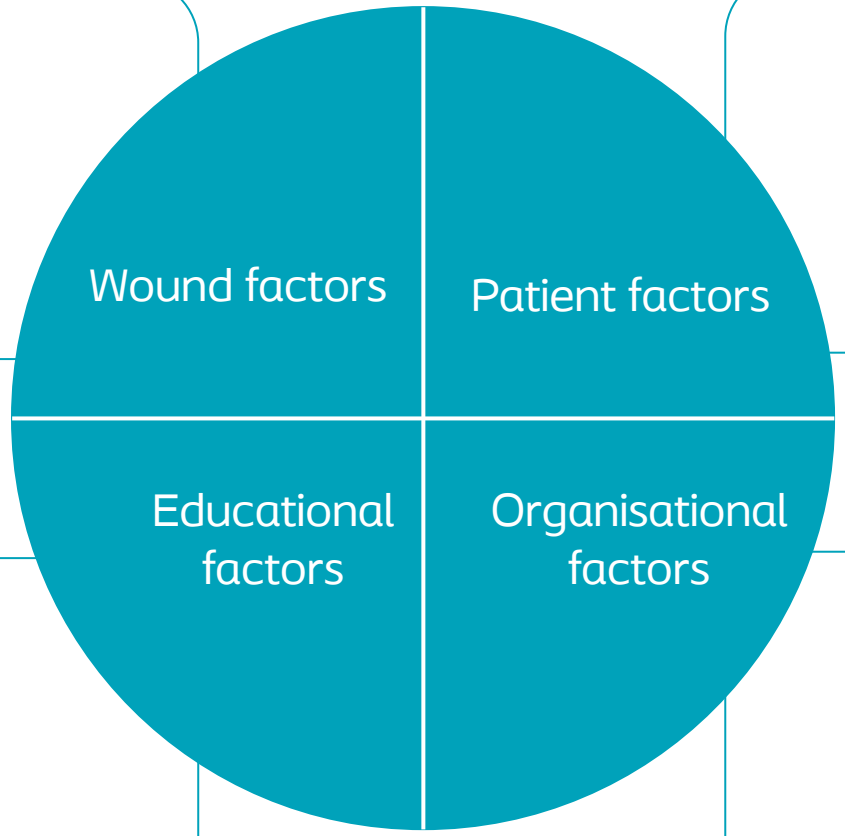
Wound assessment is challenging

- Wound depth/size/location
- Wound chronicity
- Tissue perfusion (local blood supply)
- Devitalised tissue
- Bacterial burden (infection)
- Oedema
- Exudate
- Skin damage and barrier function



- Co-morbidities
- Immune status
- Effects of pain
- Mental health
- Reduced motivation
- Social isolation
- Poor compliance
- Inability to self care

- Traditional knowledge
- Ritualistic practice
- Lack of understanding
- Negative attitudes
- Information overload
- Poor quality research
- Lack of critical appraisal skills
- Inappropriate training & support

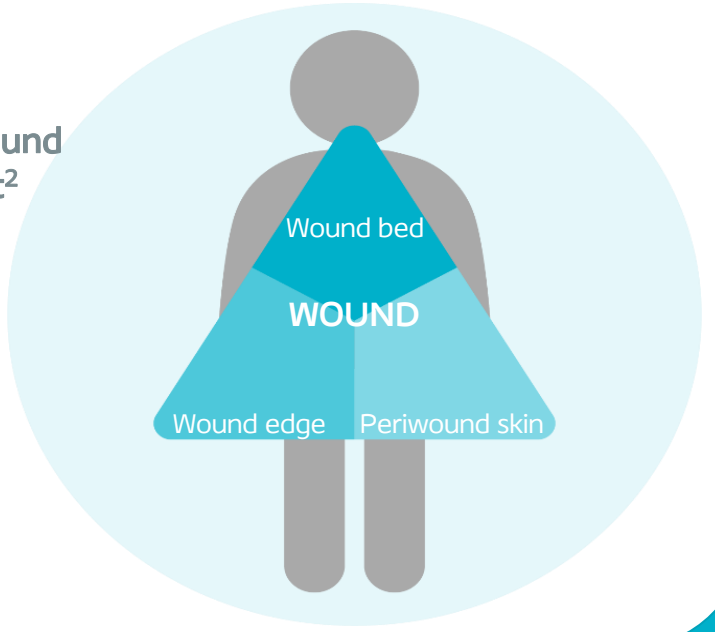
- Instability of heath services
- Lack of consensus
- No standardisation of accepted practice
- Ineffective team working
- Inadequate resources
- Inappropriate skill mix
- Lack of clinical guidelines

Wound assessment frameworks

Wound Bed Preparation (WBP)
2000

T.I.M.E.[1]
2002

Triangle of wound assessment[2]
2015



The Triangle of Wound Assessment was developed in response to a global study of clinicians which highlighted the importance of including periwound skin in a full wound assessment.

The framework built on the knowledge from the TIME concept to include the periwound skin in an easy-to-use way.

1. Dowsett, C. and Newton, H. (2005). Wound bed preparation: TIME in practice. Wounds UK, 1(3), 58-70.
2. Schultz, G. S., Sibbald, R. G., Falanga, V., Ayellow, E. A., Dowsett, C., Harding, K., Romanelli, M., Stacey, M. C., Teot, L., Vanscheidt, W. (2003). Wound bed preparation: a systematic approach to wound management. Wound Repair and Regeneration,11, 1-28.

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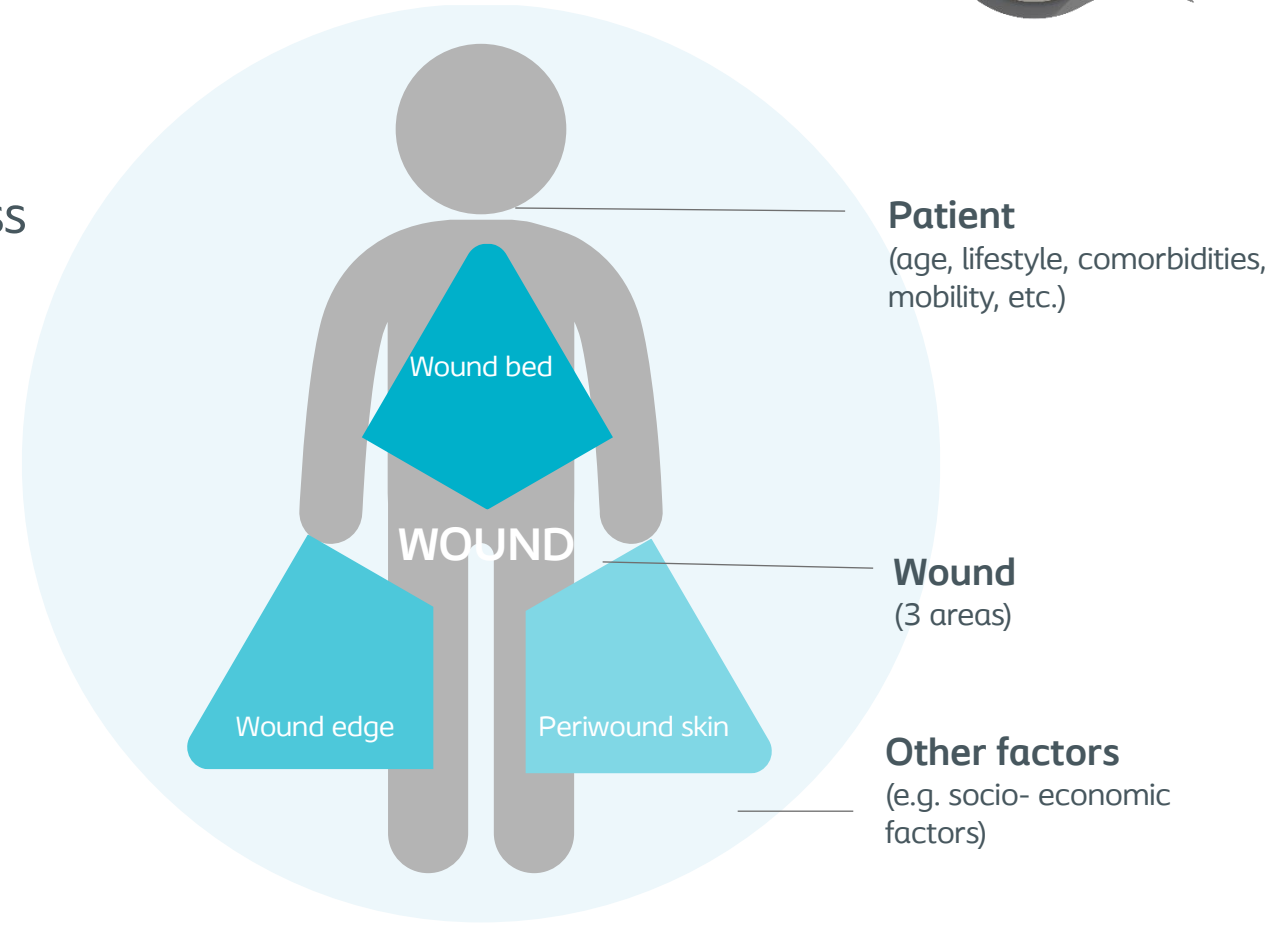
The Triangle of Wound Assessment

A holistic wound assessment framework, to assess and manage all areas of the wound

☑ Wound bed ☑ Wound edge ☑ Periwound skin

To support optimal clinical decision making all three areas of the wound should be considered



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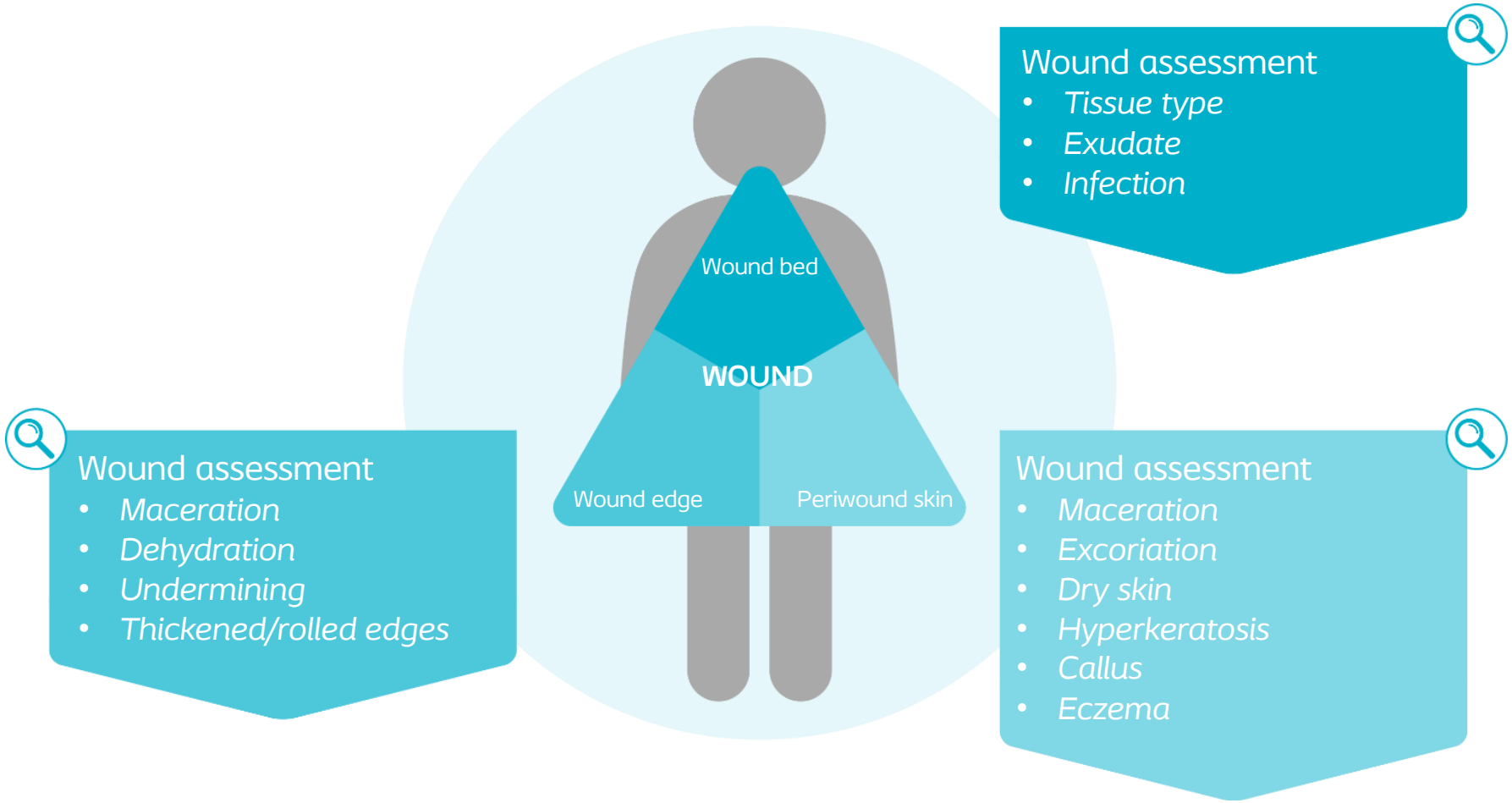
Assessing the wound using the *Triangle of Wound Assessment*



Gathering information through patient assessment

- First it is important to take the holistic approach and assess the patient
- To do this effectively it is important to carefully gather information
- This is done by listening e.g. taking a patient history
- Only after this should the examination take place (looking, touching, smelling) so that a diagnosis and appropriate treatment can be implemented

Listening

History:

- Identify factors that may delay healing, patients concerns, rapport building

Medications:

- Record all current medications, including those that have recently been changed or discontinued, check dosage and frequency, efficacy, side effects, compliance

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Looking

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- *Age*
- *Body weight*
- *Mobility*
- *General demeanour – are they anxious, tired or confused?*
- *Clinical observations*
- *Illness status – are they sweaty, in pain or breathless?*
- *Previous dressing*

Looking

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A top-to-toe skin assessment will:

- *Confirm or reject differential diagnosis or treatment plans.*

Things to look for:

- *Skin dryness, dehydration, moisture, maceration, exudate, incontinence, lymphoedema, oedema*
- *Pulses: present or absent*
- *Pain: is it nociceptive or neuropathic*
- *Temperature: inflammation, infection, non-blanchable erythema, ischemia, DTI*
- *Skin sensitivity: is there numbness, burning or tingling*

Odour

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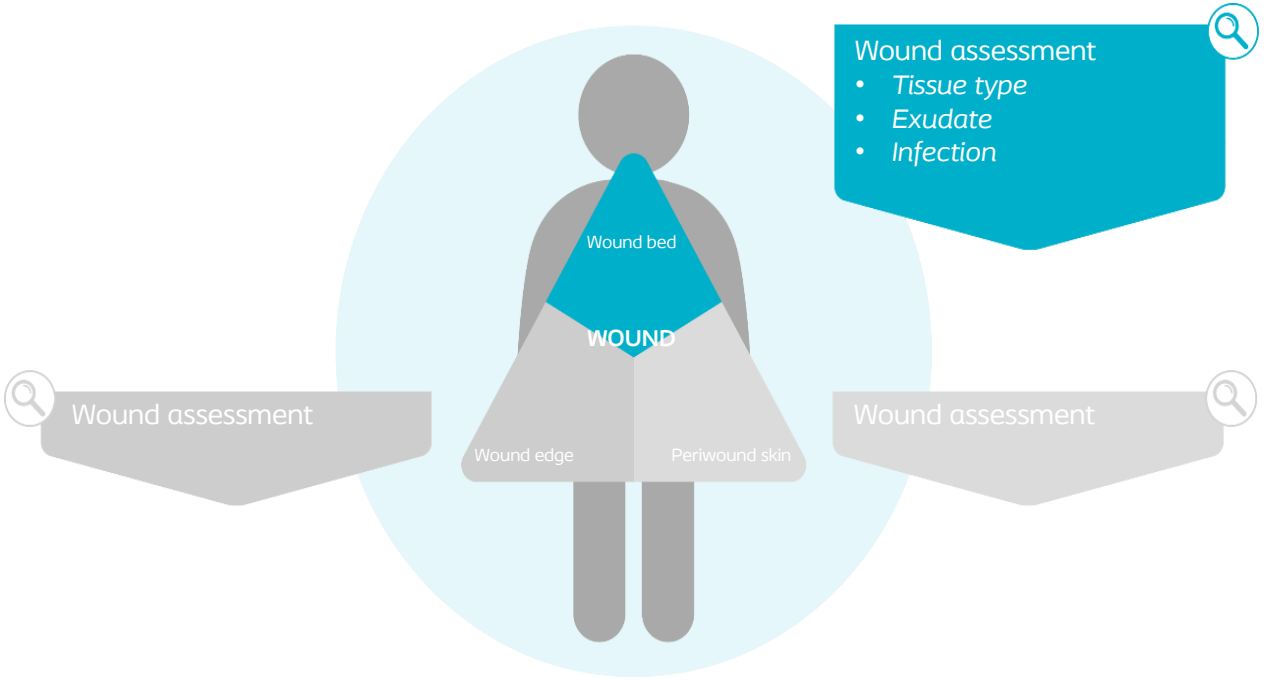
Odour is undervalued during skin assessment and can provide useful information about skin condition. However, it must be used sensitively

Odour can reveal several things, including:

- Poor personal hygiene
- Incontinence – both urine and faeces
- Wound exudate
- Wound infection
- Necrosis and slough
- Malignancy

What is the effect of wound odour on your patient?

Wound bed assessment[1]



Assess 1

Tissue type

Necrotic

Sloughy

Granulating

Epithelialising

1. Dowsett, C., Protz, K., Drouard, M. and Harding, K. G. (2015). Triangle of Wound Assessment made easy. Wounds International, May.

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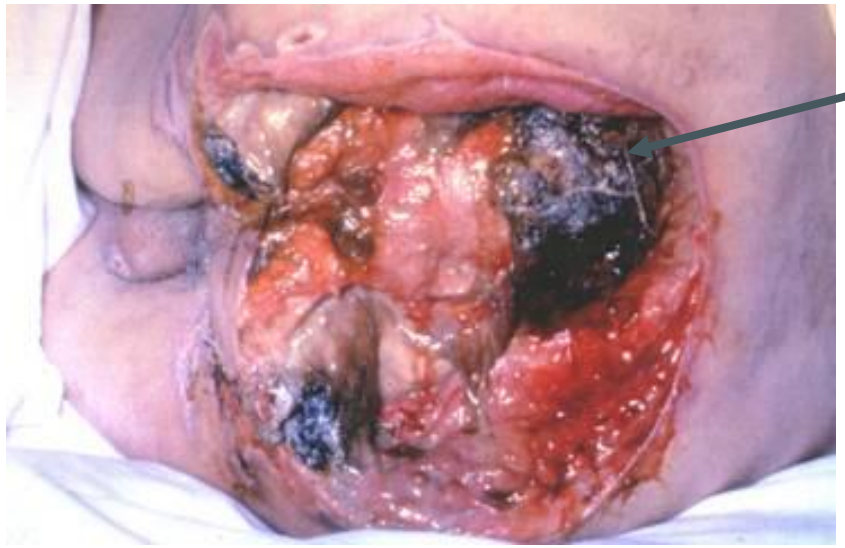
Necrotic tissue



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- Necrotic tissue is either soft and wet or hard and dry. It is black or dark brown in appearance
- It is dead tissue which contains dead cells and cellular debris that collect on the surface of the wound
- Poor tissue perfusion will cause rapid necrosis which can spread quickly
- Necrotic tissue delays wound healing and needs to be carefully removed

Sloughy tissue

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- Sloughy tissue varies in colour but is typically yellow or has a grey-green colouration
- It consist of fibrin, pus, proteinaceous material and dead cells
- As neutrophils in the wound get exhausted and die, they can be seen as a creamy white film on the surface of the wound
- Slough typically collects in deeper areas of the wound bed and may indicate rising bio-burden and/or infection
- Slough build up is detrimental to healing and should be carefully removed

Granulation tissue

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- Granulation tissue is pink or red and is new connective tissue and microscopic blood vessels that form on the surfaces of a wound during the healing process
- Granulation tissue typically grows from the base of a wound and is able given time to fill wounds of almost any size
- If granulation tissue is friable and bleeds easily, it may indicate local infection especially if the patient complains of wound pain

Epithelialisation tissue

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- Epithelialisation is pink/white tissue seen in the final stages of healing where epithelial cells resurface the wound
- Newly formed epithelial cells unusually collect at the wound margin and around remnants of hair follicles as seen in the photo
- It is at this stage of healing that cells particularly require moisture to divide and move across the wound surface.
- Dressings that promote a moist wound environment enhance healing by providing the right conditions to facilitate tissue repair

Wound bed assessment

Wound Exudate

- **Volume**: dry, low, medium high
- **Consistency**: thin/watery or thick
- **Colour**: clear, cloudy, purulent, pink/red
  - *Sanguineous fluid = bloody (red)*
  - *Serosanguineous = serous, (straw colour/pale yellow)*
  - *Seropurulent = purulent/pus (green, grey, yellow)*

As wounds progress, exudate levels will reduce indicating that the wound is healing.

Wound bed assessment[1]

Infection

Both images: Copyright of Sylvie Meaume

Local

- *Increased pain*
- *Erythema*
- *Oedema*
- *Local warmth*
- *Increased exudate*
- *Delayed healing*
- *Friable granulation tissue*
- *Malodour*
- *Pocketing*

Spreading/systemic

- *Increased erythema*
- *Pyrexia*
- *Abscess/pus*
- *Wound breakdown*
- *Cellulitis*
- *General malaise*
- *Raised WBC count*
- *Lymphangitis*

1. Dowsett, C., Protz, K., Drouard, M. and Harding, K. G. (2015). Triangle of Wound Assessment made easy. Wounds International, May.

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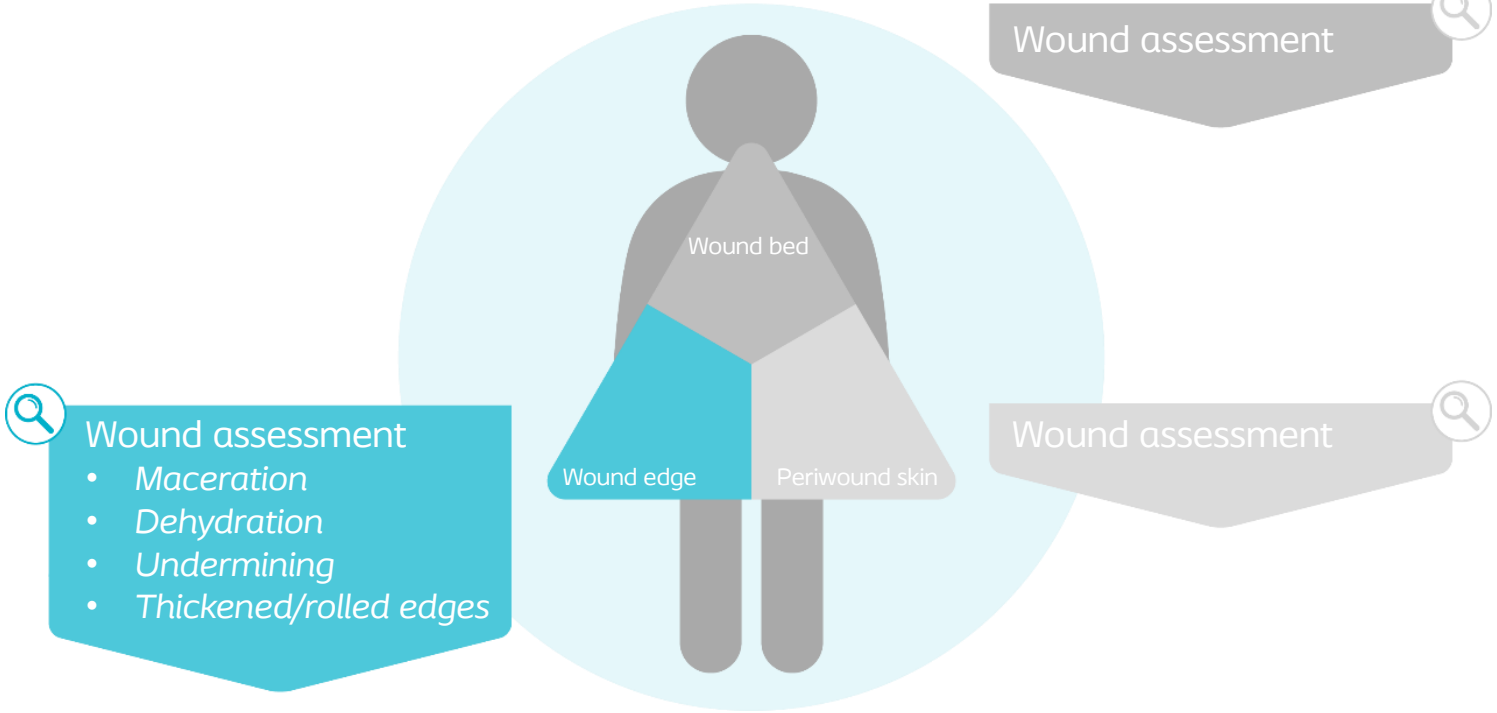
Summary of wound bed assessment

Clinicians should notice:

- What type of tissue is present, and what is the predominant colour?
- How much exudate, and what colour and thickness is it?
- Are there any signs of infection?
- How deep is the wound?
- What structures are visible?
- Can you see tendon, fascia, muscle, fat, a joint capsule or bone?

Wound edge assessment[1]



Maceration

Dehydration

Undermining

Rolled edges

1. Dowsett, C., Protz, K., Drouard, M. and Harding, K. G. (2015). Triangle of Wound Assessment made easy. Wounds International, May.

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Maceration

- Maceration is waterlogged tissue that looks white around the wound edge
- Maceration indicates that there is sub-optimal exudate management or that an occlusive dressing has been used
- Maceration may delay wound healing and can lead to fungal and bacterial wound/skin infections

Dehydration

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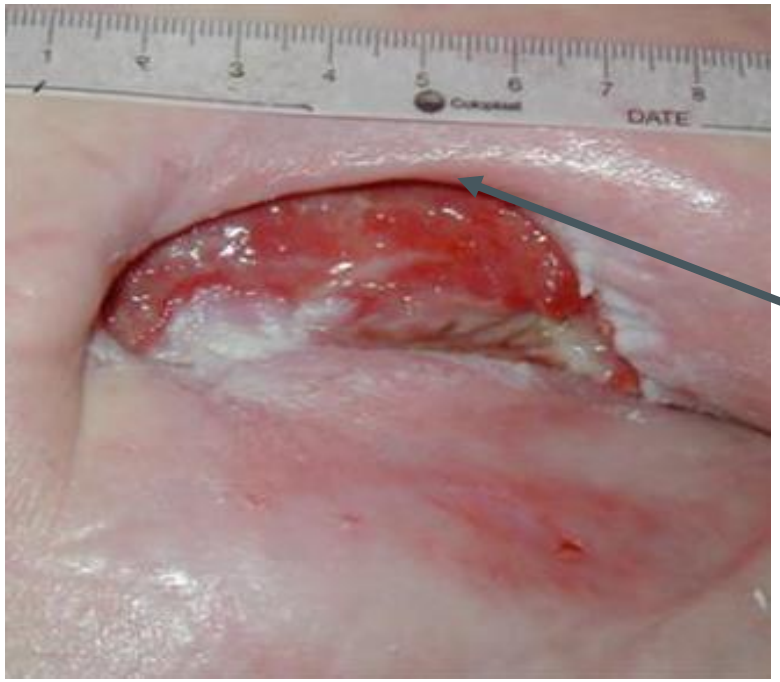
- Dehydrated wound edges are a result of diminished exudate production in healing wounds. Dry wound edges will benefit from rehydration as this provides the right conditions for epithelial cells to divide and cover the wound surface
- Dry wounds slow down the division and migration of epidermal cells across the surface of the wound and delay healing

Undermining



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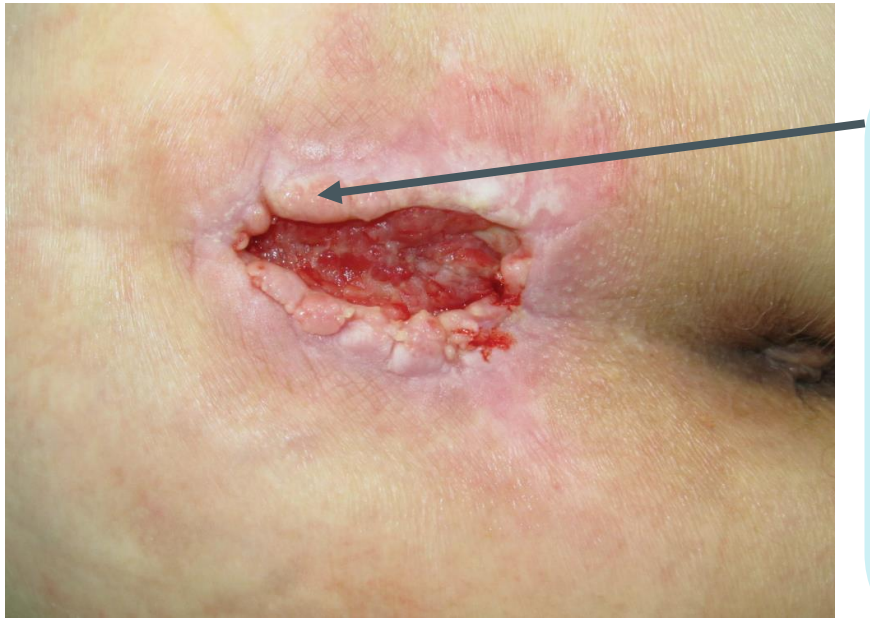
- Undermining at the wound edge may indicate chronicity and tissue loss usually associated with large, non healing wounds in patients with comorbidities

Rolled edges



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- In deeper/larger wounds, the edges may become rolled under and thickened
- Wounds with rolled edges are difficult to heal as the wound edge inverts into the wound slowing granulation and epithelialisation
- This type of problem can benefit from surgical intervention
- Rolled or raised edges can sometimes be an indication of malignancy and if suspected appropriate referral should be made

Summary of wound edge assessment

Clinicians should notice:

- If maceration is present anywhere?
- Are there any signs of dehydration?
- If there is any undermining, and if so to what extent and where?
- Are there any signs which may require further investigations, such as rolled edges?

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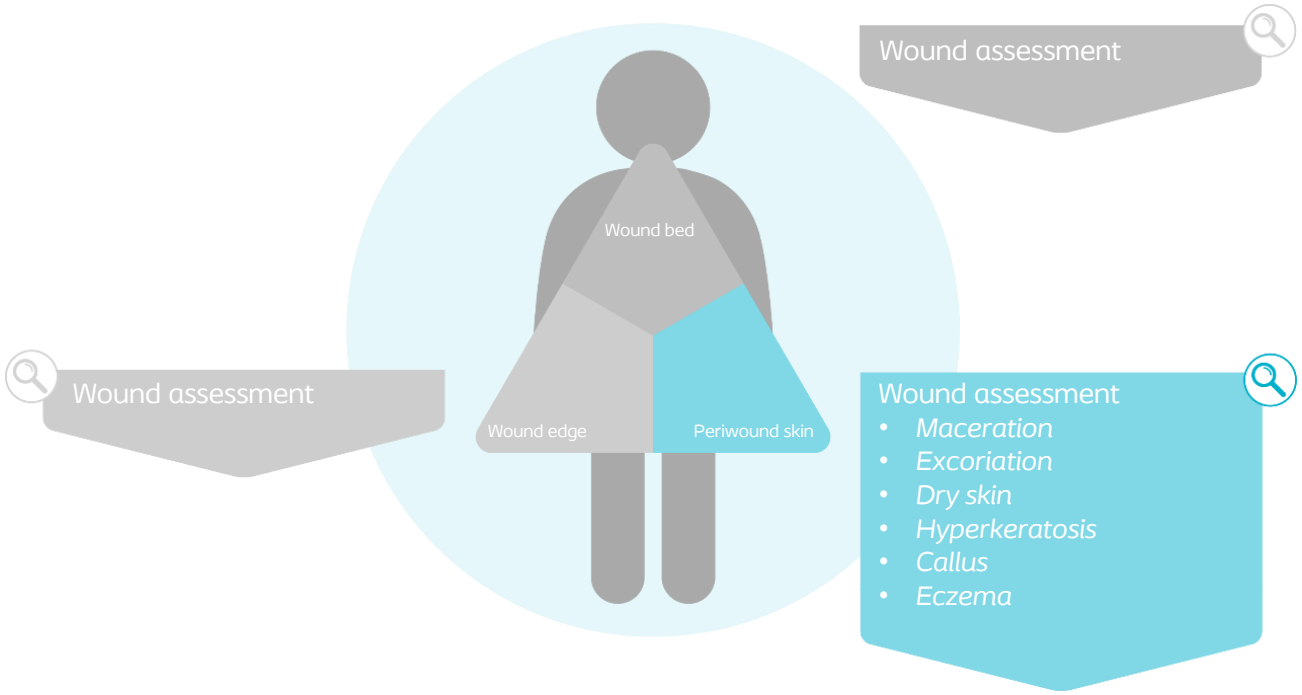
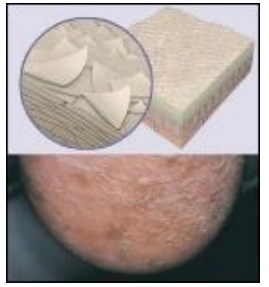
Periwound skin assessment[1]



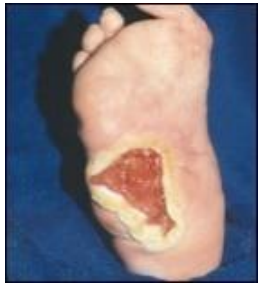
Maceration

Excoriation



Dry skin

Hyperkeratosis



Callus

Eczema

1. Dowsett, C., Protz, K., Drouard, M. and Harding, K. G. (2015). Triangle of Wound Assessment made easy. Wounds International, May.

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Maceration

- In this photo the maceration is exacerbated as the exudate produced from the wound contains irritant proteins that can cause inflammation
- Dressings and bandages can make maceration worse if they trap wound fluid at the surface of the skin

Excoriation

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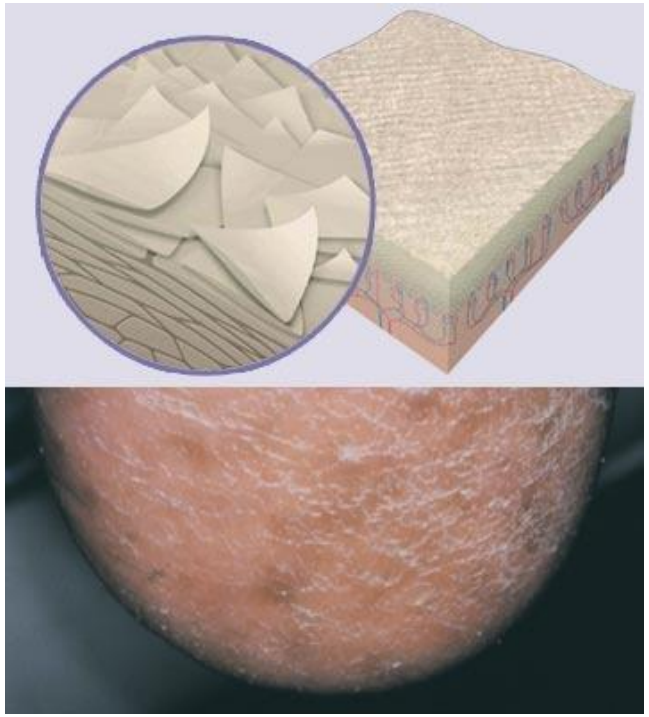
- Excoriation is caused by repeated injury to the surface of the skin body caused by trauma, e.g. scratching, abrasion, drug reactions or irritants
- Use of emollients can interrupt the itch scratch cycle by improving barrier function and reducing further inflammation

Dry skin



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- When the skin is dry, keratin cells become flat and scaly. The skin feels rough, and flaking may be visible
- Dry skin often itches, causing the person to scratch, which may damage the protective barrier of the skin
- When skin is dry, the function of the acid mantle is reduced resulting in reduced protection against bacteria. This, together with minor trauma from scratching, increases the risk of skin infection

Hyperkeratosis

- Hyperkeratosis is a term used to describe an excessive build up of dry skin (keratin) often on lower limbs, hands, heels, soles of feet
- Hyperkeratosis may form around the wound edges, especially diabetic foot ulcers and impedes healing

Callus

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- Callus is the term used to describe a thick build up of dry, hard, avascular tissue at the wound edges of diabetic foot ulcers
- Thickened and hardened part of the skin or soft tissue, especially in an area that has been subjected to friction or pressure
- Callus is caused from pressure on the wound, especially seen in diabetic foot ulcers

Eczema

Eczema (dermatitis) is inflammation of the skin. It is characterised by, itchy, erythematous, vesicular, weeping, and crusting

The cause is unclear: one possibility is a dysfunctional interplay between the immune system and the skin

Varicose eczema is associated with venous insufficiency and venous leg ulcers

Summing up on periwound skin assessment

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Clinicians should notice:

- The overall condition of the skin surrounding wounds as this can give a general indication of the status of the wound
- Healing wounds display flat, moist wound margins surrounded by healthy intact skin
- Non healing wounds display deeper, dry, wound margins surrounded by oedematous, inflamed skin which may be broken and painful to touch

Diagnosis – Assess wound characteristics

Asking the following questions will help to confirm the cause of the wound:

- *How long has the wound been present?*
- *What is the nature of the wound location?*
- *What is the wound size, depth and shape?*
- *Is tracking, undermining or tunneling present?*
- *What is the condition of surrounding skin?*
- *What type of tissue is in wound bed?*
- *What is the amount and consistency of exudate?*
- *Does the patient experience wound pain?*
- *What is the condition of the wound edges?*

Use this information to confirm cause of wound

Further investigations to aid diagnosis

Investigation	Wound type	Determines
Full blood screen (FBC, U&E, RBS, ESR, CRP)	Non healing wounds	Anaemia, hyperglycemia, systemic infection
Wound swab	Non healing wounds (failed to progress/deteriorated with current antimicrobial)	The pathogen/s causing the infection along with relevant sensitive antibiotics
Ankle Brachial Pressure Index	Leg ulcers	Arterial perfusion to lower limb
Pressure perception	Diabetic foot ulceration	Sensory neuropathy

Documentation[1]

Patient records should be:

- Factual, relevant, consistent and accurate
- Relevant positives
- Relevant negatives
- Written as soon as possible after the event, providing current information on the care/condition of the patient
- Clearly written with evidence of the management plan, decisions made, care delivered, and information shared
- Dated accurately, timed and signed with readable signature alongside every entry

1. Knowlton, S. P. and Brown, G. (2011). Chapter 3: Legal Aspects of Wound Care. In S. Baranoski and E. A. Ayello (Eds.), *Wound Care Essentials* (pp. 37-56). Philadelphia: Lippincott Williams & Wilkins.

Confirm the action plan with the patient

The action plan should include:

- What you are going to do
- What, if any, special investigations will occur
- Will there be team involvement or referral to other team members
- Details of specific treatment
- Plans for shared/self care if appropriate
- Plans for discharge

The clinicians should involve the patient, check that the patient understands the action plan and address any questions and concerns that the patient may have.

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Assess 1

Supported shared/self care

- Patients should be encouraged to share/self care where willing and able to do so safely
- Assess if the patient is fit for shared/self care
- Provide a simple wound management plan
- Provide instructions on how to wash hands and change the dressing
- Educate patients on how to monitor for signs of problems arising

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Summary

- Wound assessment is a complex process that helps to determine wound causation and the progress of healing over time
- The patient consultation is the key to assessment and is based on effective communication skills and allows clinicians to make appropriate management decisions
- The skin should be systematically assessed from head-to-toe to identify any vulnerable areas, trauma or wounds and carefully recorded in the patients notes
- Wound assessment should be based on a structured approach, e.g. the Triangle of Wound Assessment, so that hard to heal wounds are identified early and an appropriate management plan is implemented promptly
- Wounds that do not show signs of healing within 2 weeks should be carefully re-assessed to identify barriers to healing

Please join us for our next Prepare to Heal webinars

February: Prepare
Wednesday 8th February, 12:00 - 13:00 or

Wednesday 22nd February, 19:00 - 20:00

Learning objective - Simplifying wound preparation to remove the barriers to healing.

March: Treat

Wednesday 8th March, 12:00 - 13:00 or

Wednesday 22nd March, 19:00 - 20:00

Learning objective - Having assessed and prepared the wound for healing, learn how to simplify your treatment regimes.

Led by our Tissue Viability Nurse Advisors

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