Meeting report: the Triangle of Wound Assessment: implementing a simple and structured approach to wound management


Emmy Muller-Sloof MSc (left), Tracey McKenzie (right)

A symposium entitled 'The Triangle of Wound Assessment: Implementing a simple and structured approach to wound management' was held by Coloplast at the European Wound Management Association (EWMA) conference in Amsterdam, The Netherlands, 2017. The symposium highlighted the ease-of-use in clinical practice of the Triangle of Wound Assessment: a systematic framework that provides a holistic approach to wound management including all three areas of the wound (wound bed, wound edge and periwound skin), as well as the patient and their social context (Dowsett et al, 2015a). The Triangle of Wound Assessment also provides a simple framework to educate other healthcare professionals, patients and caregivers.

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Emmy Muller-Sloof, Advanced Nurse Practitioner, began the session by explaining the importance of a thorough wound assessment to gather information in order to formulate an appropriate management plan. Wound assessment is an integral part of wound management, but it can often be completed inconsistently (Dowsett et al, 2015a).

There are many wound assessment frameworks currently available to aid decision-making, but an evaluation of 14 wound assessment tools found that none meet all the criteria necessary for optimal wound healing (Greatrex-White and Moxey, 2013).

Most of the existing 14 frameworks record certain parameters of wound status; however, many do not help clinicians to document their findings in an objective manner or aid in the creation of a management plan, which is a key step in guiding practice and educating generalist colleagues.

The evaluation by Greatrex-White and Moxey (2013) determined that an optimal wound assessment tool should be easy to use, facilitate documentation of observations and a management plan and improve continuity of care. Emmy emphasised that effective wound care requires a systematic and consistent approach: one that reduces subjectivity and variables in assessment, management goals and treatment to aid the continuity of care.

Key components of optimal wound management

Based on the evaluation of 14 existing frameworks and a global anthropological study *[Box 1]*, Emmy described how the Triangle of Wound Assessment (Dowsett et al, 2015a) was developed to offer a systematic approach to wound management through a holistic framework. The holistic framework takes into account patient information, such as age, gender, comorbidities, medication, nutrition and mobility, smoking and alcohol, and medical history, while considering the patient as a whole and their social context (Dowsett et al, 2015b). The objective is to set wound management goals, with the potential for better treatment outcomes, while remembering the patient behind the wound within their social context (Dowsett et al, 2015b) *[Figure 1]*.

The systematic approach of the Triangle of Wound Assessment comprises assessment of the wound, appropriate management goals and the provision of clear information and communication that incorporates an explanation of treatment, and addresses patient compliance, lifestyle and reassessment (Dowsett et al, 2015b) *[Figure 2]*.

Full assessment of the patient, taking into account the wound and social context, enables clinicians to set optimal, appropriate management goals and identify suitable treatment decisions. The Triangle of Wound Assessment should be used for reassessment, as

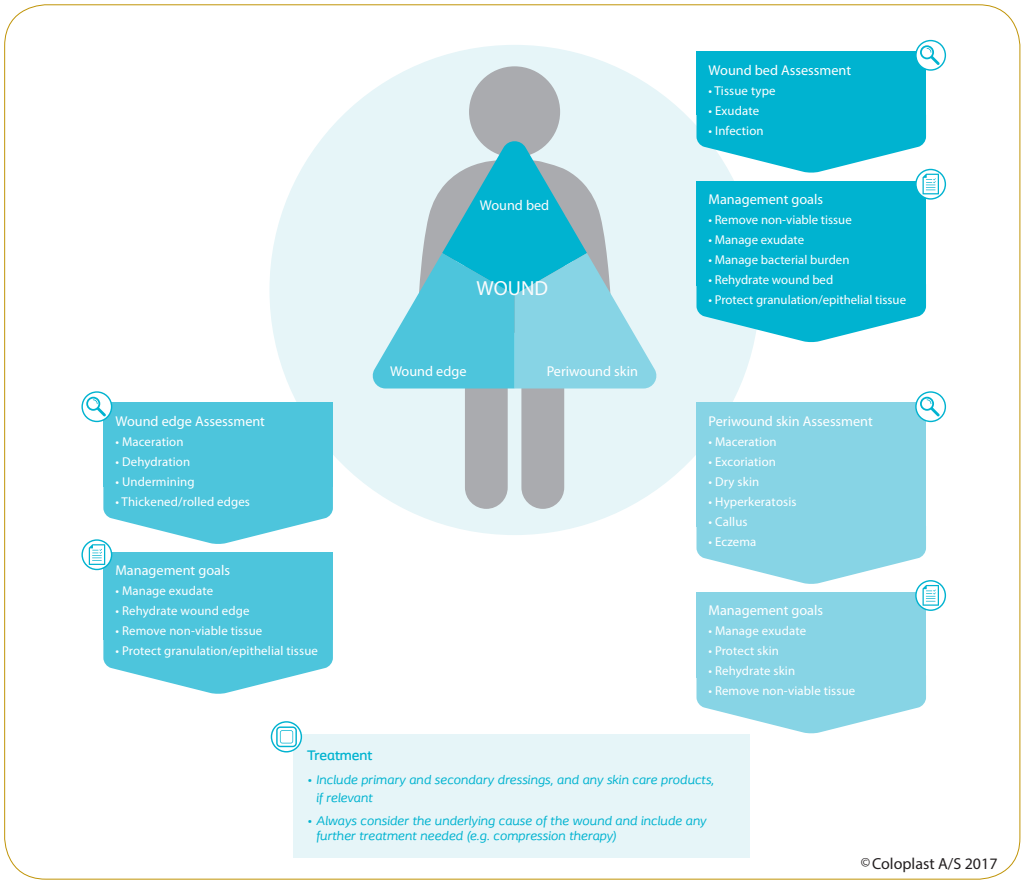


Figure 2. The Triangle of Wound Assessment — combining the systematic approach of assessment and management goals in a holistic framework to take into account each of the three areas of the wound (wound bed, wound edge and periwound skin).

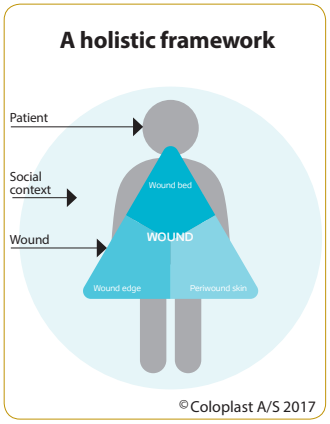


Figure 1. The Triangle of Wound Assessment offers a systematic approach to wound management through a holistic framework.

well as initial assessment (Dowsett et al, 2015a). Reassessment of the wound and the patient is crucial to check if management goals are being achieved and whether the selected treatment options remain appropriate. If management objectives are not met within the specified time frame, clinicians should consider an alternate treatment or refer the patient to a specialist (Dowsett et al, 2015a).

Assessing the wound

Emmy presented the audience with details on how to assess each of the three distinct, yet interconnected areas of the wound — wound bed, wound edge and periwound skin — following a systematic approach to assessment, management goals and treatment (Dowsett et al, 2015b) *[Figure 2]*.

Emmy showed how the Triangle of Wound Assessment could be implemented in practice *[Figures 3–5]*. She highlighted the importance of clear documentation of observations and management and treatment goals to guide clinical, objective decision-making (Dowsett et al, 2015b).

Wound bed assessment

The wound bed needs to be monitored closely due to its unpredictability (Dowsett et al, 2015a). Baseline and serial measurements of the wound size, appearance and location will steer treatment and management. The method of measurement should be consistent to aid meaningful tracking of changes over a specified number of days (Dowsett et al, 2015b). Observing and recording

Box 1. A brief history of the Triangle of Wound Assessment.

A global anthropological study was conducted in 2013–14 with the aim of better understanding the impact of chronic wounds on patients and to explore everyday wound management practice (Dowsett et al, 2015a). The study highlighted the importance of the periwound skin (i.e. the skin within 4 cm of the wound edge as well as any skin under the dressing), to both healthcare professionals and patients, and its relevance to wound progression and healing.

Existing wound assessment tools offer a standardised approach to assessment of the wound, but often fail to incorporate the periwound area into the wound management process (Dowsett et al, 2015a).

There was a need for an easy-to-use wound assessment tool that integrated the periwound area and used a holistic approach to the patient; therefore, the Triangle of Wound Asesssment was developed. The Triangle of Wound Assessment (Dowsett et al, 2015a) focuses on three areas (wound bed, wound edge and periwound skin) and extends the concepts of wound bed preparation and the TIME framework (Schultz et al, 2003) to include the periwound skin and provide a holistic framework to wound assessment.

Figure 3. Using the Triangle of Wound Assessment — Wound bed.

Wound bed Assessment

Tissue type

Necrotic ☐ ____ %

Granulating ☐ ____ %

Sloughy ☐ ____ %

Epithelialising ☐ ____ %

Exudate

Level ☐ Dry ☐ Low ☐ Medium ☐ High

Type ☐ Thin/watery ☐ Cloudy ☐ Thick ☐ Purulent ☐ Clear ☐ Pink/red

Infection

Local

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

Spreading/systemic

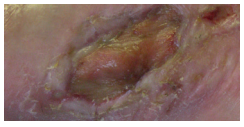
- ☐ Increased erythema
- ☐ Pyrexia
- ☐ Abscess/pus
- ☐ Wound breakdown
- ☐ Cellulitis
- ☐ General malaise
- ☐ Raised WBC count
- ☐ Lymphangitis

Figure 4. Using the Triangle of Wound Assessment — Wound edge.

Wound edge Assessment

Maceration ☐

Dehydration ☐



Undermining ☐

Mark position

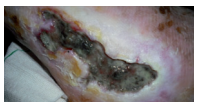
Extent: ___cm

Rolled edges ☐

Figure 5. Using the Triangle of Wound Assessment — Periwound skin.

Periwound skin Assessment

Maceration



☐ _____ _____ CM

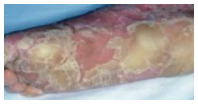
Excoriation

☐ _____ _____ CM

Dry skin

☐ _____ _____ CM

Hyperkeratosis



☐ _____ _____ CM

Callus

☐ _____ _____ CM

Eczema

☐ _____ _____ CM

the tissue type, assessing the levels and type of exudate and monitoring the presence or absence of local and/or systemic wound infection are all part of the wound bed assessment (Dowsett et al, 2015b) *[Figure 3]*.

Wound edge assessment

Assessment of the wound edge can provide valuable information on wound progression and the effectiveness of the current management plan (Dowsett et al, 2015a). It is a concept that is often poorly understood and applied in practice. Epithelial edge advancement is a good indicator of healing and is seen as a reliable predictor of wound progression and healing, so assessment of the edge of the wound can provide information on wound aetiology, how healing is progressing and whether the current plan is effective (Dowsett et al, 2015b). Common problems that may disrupt healing of the wound edge include maceration, dehydration, undermining and rolled edges (Dowsett et al, 2015b) *[Figure 4]*.

Periwound skin assessment

Damaged or unhealthy periwound skin is a significant problem in chronic wounds (Dowsett and Allen, 2013) and may delay healing, cause pain and discomfort, enlarge the wound and adversely affect the patient's quality of life (Lawton and Langøen, 2009; Cartier et al, 2014; Dowsett et al, 2015a). The periwound skin is an area that extends 4 cm beyond the wound edge, but it can also include any skin under the dressing or further in certain cases. It is important to demarcate this area from the existing wound and reduce the likelihood of skin breakdown by protecting it from exudate, avoiding damage or preventing further damage to the periwound skin (Dowsett et al, 2015b) *[Figure 5]*. Common problems that may impact the periwound skin are maceration, excoriation, dry skin, hyperkeratosis, callus and eczema.

Case study

Emmy presented a case study of a 63-year-old man with peripheral oedema where the Triangle of Wound Assessment framework has been successfully used in clinical practice. *Box 2* shows how the Triangle of Wound Assessment was used for this patient, and *Box 3* shows the progression of the wound once the Triangle of Wound Assessment had been implemented.

Emmy's closing remarks

Summing up her session, Emmy re-emphasised how the Triangle of Wound Assessment guides the clinician, whether a specialist or a generalist, through a simple and structured approach to wound assessment in the clinical setting. While Emmy focused on implementing the Triangle of Wound Assessment in clinical practice, the second speaker of the symposium, Tracey McKenzie, Head of Tissue Viability Services at Torbay & South Devon NHS Foundation Trust, explained how to implement the Triangle of Wound Assessment and how it can be used to educate others in the audience's own organisations and encourage organisational buy-in.

Encouraging organisational buy-in of the Triangle of Wound Assessment

Tracey provided delegates with the means and know-how to implement the Triangle of Wound Assessment in their organisation. She began her session by reiterating that, as there have been a number of wound management frameworks that clinicians have been encouraged to use over the years (Dowsett et al, 2015a), there is sometimes scepticism when a new framework is introduced to improve wound care assessment, management and treatment outcomes.

To encourage organisational buy-in, Tracey addressed the importance of considering the driving forces (i.e. the positive influencers for change) and the restraining forces (i.e. the barriers to change *[Box 4]*) that one may come up against when pushing for change.

The Triangle of Wound Assessment not only encourages clinicians to think more carefully about how to assess each individual wound (Dowsett et al, 2015a), but also what they need to do in order to record effectively their initial observations and subsequent follow ups (Nursing and Midwifery Council, 2015). Elements in the framework, including a clock face to record the position of undermining *[Figure 4]*, make it easier for clinicians to record what they see, and also can reduce the levels of subjectivity that often arise with documenting observations. This makes the Triangle of Wound Assessment a useful education tool (Dowsett et al, 2015a).

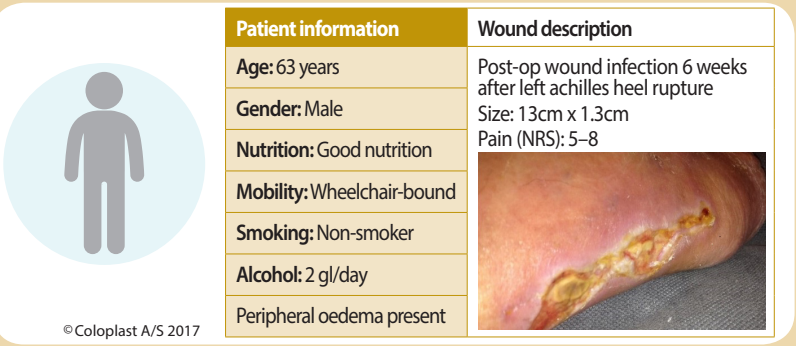
Education and knowledge transfer for buy-in

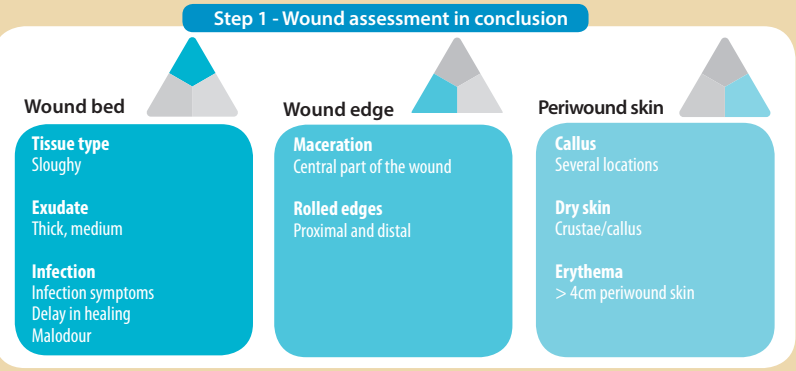
The Triangle of Wound Assessment provides specialist clinicians with a simple framework to uniformly assess, document and evaluate the management of wound care. It also provides them with a simple tool that can be used to educate healthcare professionals, and even patients and their caregivers and families, to help increase their wound care knowledge,

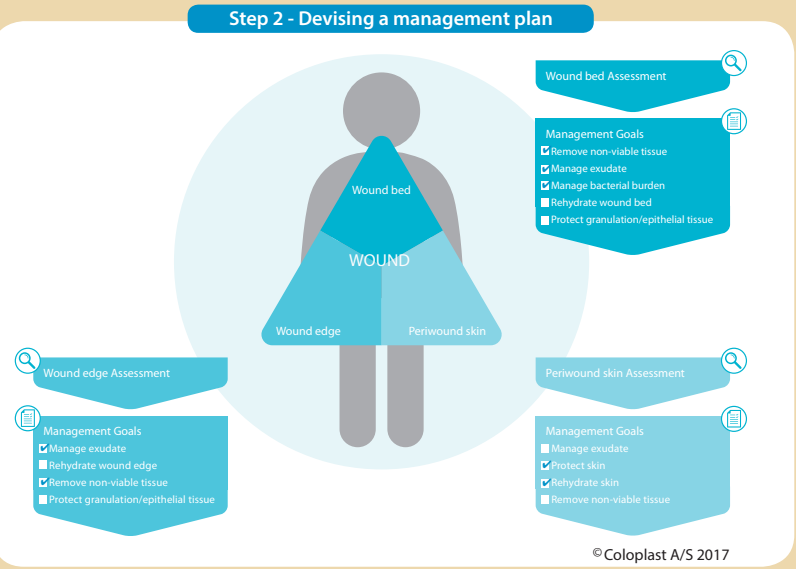
Box 4. Barriers to change (adapted from Lewin, 1945).

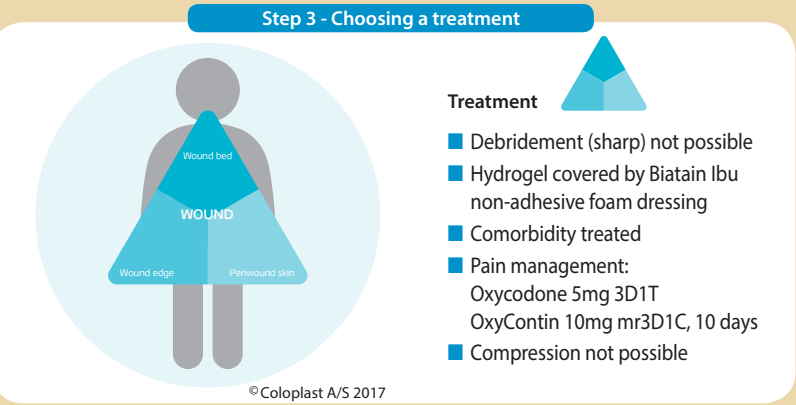
- Previous bad experiences
- Loyalty to an existing framework
- Time constraints (i.e. learning to use a new tool in an already busy schedule)
- Increased, or perceived increase of, admin
- Apathy and malaise
- General resistance to change

Box 2. Case study of a 63-year-old man with a post-op wound infection. Courtesy of Emmy Muller-Sloof.









and the management and treatment of the individual wound (Dowsett et al, 2015a).

In order to support generalist clinicians who may not be as familiar with the wound management process, more education may be needed to form a solid foundation on which to base the Triangle of Wound Assessment (Dowsett et al 2015b). This might include providing them with a glossary of terms (e.g. exudate, sloughy, rolled edges), a more detailed look at the stages of wound healing (haemostasis, inflammation, proliferation and maturation) and the intention of wound healing (i.e. primary, secondary or tertiary intention). Educational tools on the Triangle of Wound Assessment are available to clinicians to increase wound care knowledge, including e-learning courses, case report templates, case-based activities, handbooks and publications (e.g. Dowsett et al, 2015a; 2015b; World Union of Wound Healing Societies, 2016).

In the UK, the Triangle of Wound Assessment is being introduced across the NHS Sustainability and Transformation Plan in Tracey's local area as part of blueprint for accelerating its implementation of a five-year plan to improve health care. The tool has also been rolled out in care home settings in conjunction with the 'skin tear pathway' in partnership with Coloplast. These examples of how the Triangle of Wound Assessment have been rolled out show that it can be used in many situations by a variety of clinicians.

Conclusion

During an engaging and interactive session, Emmy and Tracey explained how the Triangle of Wound Assessment is intended to provide an easy-to-use systematic framework that can be fully integrated into a holistic patient assessment. The simplicity of assessing three wound areas (wound bed, wound edge and periwound skin) lends itself to engaging the patient in the management of their wound (Dowsett et al, 2015b).

A framework that goes beyond the wound edge to include the periwound skin, as well as the patient themselves, extends the opportunities for improved decision-making (Dowsett et al, 2015b). Assessing accurately, reporting observations in detail and setting management goals can help clinicians to achieve better results more quickly, significantly improving the patient experience and healing outcomes.

The Triangle of Wound Assessment is a simple and structured approach to wound management that can be used in clinical

Box 3. Progression of the wound from the case study described in Box 2 (Muller-Sloof, 2017).

Progression of the wound


After operation


Post-op wound infection


Slough/callus/infection


Slough/hypergranulation


Persistent infection


Slow improvement


Removal of callus


Epithelialisation

practice and by specialists and educators to educate other healthcare professionals, patients and caregivers.

More information can be found at www.triangleofwoundassessment.com.

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Key points

1. The Triangle of Wound Assessment is a simple and structured approach to wound management, guiding the user from wound assessment to management goals and treatment options.
2. The Triangle of Wound Assessment addresses all three distinct, yet interconnected areas of the wound: wound bed, wound edge and periwound skin.
3. The Triangle of Wound Assessment can be used by specialists and educators to educate and train other healthcare professionals, patients and caregivers.
4. Clinicians are already implementing the Triangle of Wound Assessment in their daily practice.
5. It will improve patient outcomes through a systematic framework, using a holistic approach to wound management.