

## Meeting report: The gap challenge in clinical practice — how do you manage it?



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A symposium titled “The gap challenge in clinical practice — How do you manage it?” was held at the European Wound Management Association (EWMA) conference in Krakow, Poland, in May 2018. The symposium tackled the clinical challenges of the wound gap — the ‘dead space’ that can present between the wound bed and the dressing. The speakers covered how to identify the gap with the Triangle of Wound Assessment and how to manage and close the gap. The Triangle of Wound Assessment provides a holistic framework with a systematic approach, from wound assessment to setting management goals, to guiding optimal treatment choice (Dowsett et al, 2015a).

### Speakers

**Caroline Dowsett** is Clinical Nurse Specialist Tissue Viability, East London NHS Foundation Trust, London & Independent Nurse, Consultant in Wound Care, London, United Kingdom

**Bernd von Hallern** is Wound Care Specialist, DGKP, Praxis Dr. R.v.d., Daele, Germany

**Marcelo Ruettimann Liberato de Moura** is Vascular and Endovascular Surgery Specialist, Chronic Venous Disease, Program Coordinator, Salvador City, Bahia, Brazil

Caroline Dowsett, clinical nurse specialist tissue viability, began the session by explaining the challenges of wound care facing clinicians today. In total, 1.5–2 million people in Europe experience acute or chronic wounds (Lindholm and Searle, 2016). Chronic wounds can be a drain on resources (Guest et al, 2015), and 21% of chronic wounds were unhealed after 1 year (Jorgensen, 2013) and 17.8% have had their wound for 1–5 years (Ousey, 2013).

Effective wound treatment relies on determining the cause and identifying any related underlying conditions that may contribute to the wound and its delayed healing (e.g. diabetes and associated comorbidities). This can be achieved through thorough initial wound assessment, monitoring of progress and development of a management plan (World Union of Wound Healing Societies [WUWHS], 2008).

### Wound assessment

Wound assessment is an integral part of wound management, but it can often be inconsistent (Dowsett et al, 2015a). A thorough wound assessment should be structured, systematic and completed within the context of holistic patient care. It should include wound measurements and assessment of the wound bed, wound edge and periwound skin, and should be clearly and easily documented so that there is a continuity of care (WUWHS, 2008).

### Triangle of Wound Assessment

The Triangle of Wound Assessment [Figure 1] was established in 2014 and is a well-recognised holistic framework for wound management with a growing evidence base (Dowsett et al, 2015a; 2015b; WUWHS, 2016; Dowsett and von Hallern, 2017). It is a simple and easy-to-use framework for wound assessment, reassessment and management, and extends the current concepts of wound bed preparation beyond the wound edge to incorporate the periwound skin (Dowsett et al, 2015b).

#### Wound bed assessment

Monitoring the viability of the tissue, exudate type and level, and presence of infection are all part of the wound bed assessment. The wound bed needs to be monitored and reassessed as the status changes with appropriate interventions (Dowsett et al, 2015a). Taking baseline and serial measurements of the wound size, appearance and location will direct treatment and management (Muller-Sloof and McKenzie, 2017). The method for measuring wound size and depth should be consistent to track wound progress or deterioration.

#### Wound edge assessment

Wound edge migration is essential for wound healing and a good indicator of wound progression: a wound area reduction of 20–40% in 4 weeks is an accepted indicator of healing (Flanagan, 2003). Assessing the wound edge for risk of maceration, degree

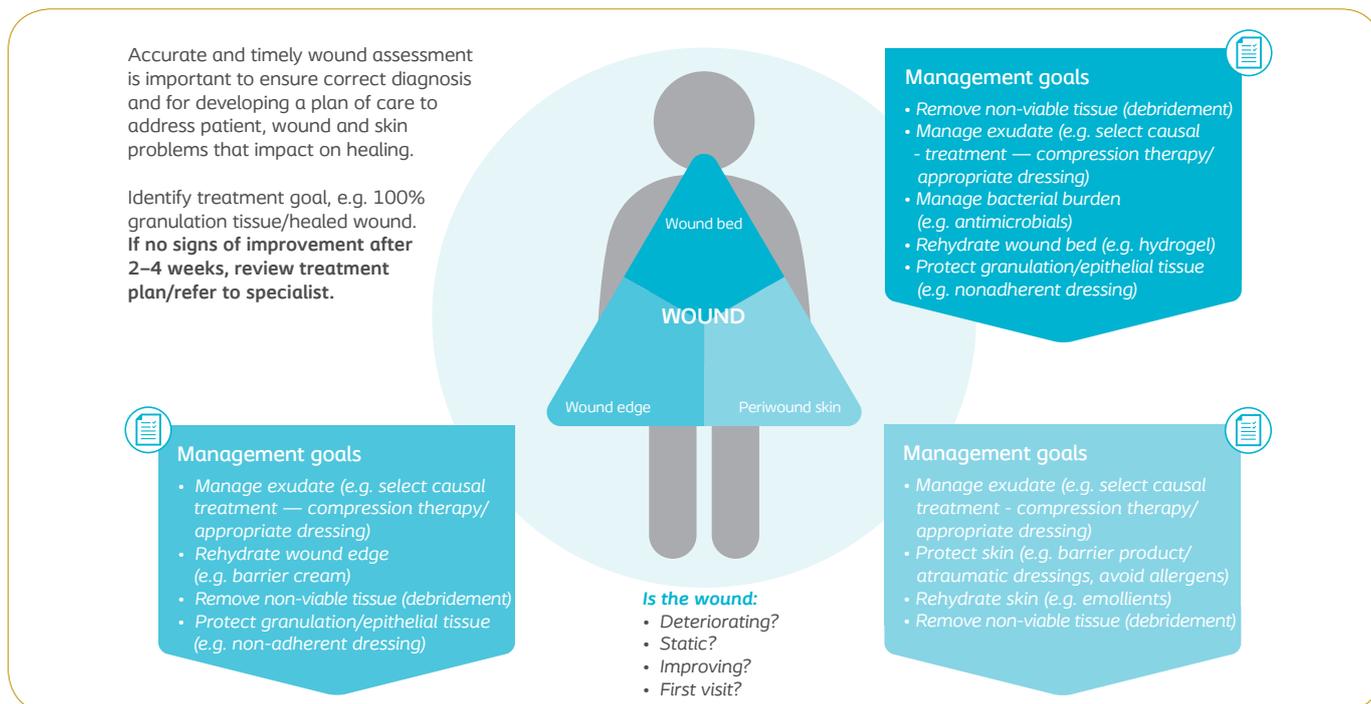


Figure 1. Using the Triangle of Wound Assessment — devising a management plan (Dowsett et al, 2015b).

of undermining and debridement required are all part of the wound edge assessment. The assessment can also determine the effectiveness of dressings in terms of absorption and fluid retention to prevent maceration.

#### Periwound skin assessment

Periwound skin has been defined as the skin surrounding a wound within 4 cm of the wound edge. While this definition covers the majority of wounds, it should be recognised that damage can extend outwards, whereby any skin under the dressing may be at risk of further breakdown (e.g. due to adhesives, moisture, exudate leakage) and should be included in an assessment. The periwound skin can be a significant problem in chronic wounds, as 60–70% of wounds have problematic (e.g. dry, irritated, macerated) or unhealthy periwound skin (Cartier et al, 2014).

#### Identifying the wound gap

The wound gap or 'dead space' is the area between the wound bed and dressing, which occurs when a dressing does not conform fully to the wound bed (Snyder, 2005; Cutting et al, 2009). Fluid can accumulate in the wound gap, which increases the risk of infection (Cutting et al, 2009) as pools of exudate are a good environment for bacterial growth (Young, 2012); therefore, it is imperative to manage the wound gap. Highly exuding wounds and wounds with undermining and a steep angle between the periwound skin

and wound bed are at a higher risk of dead space. The Triangle of Wound Assessment can be used to:

- Identify and assess the gap, and evaluate the impact of the interventions
- Measure wound depth as part of wound assessment
- Identify irregular wound bed topographies and cavities
- Identify areas of undermining.

#### Managing the gap

The ideal dressing to manage the gap conforms to the wound bed, and absorbs and retains wound exudate to help prevent wound complications. The second speaker of the session, Bernd von Hallern, reiterated why a thorough wound assessment is a crucial first step in managing the wound gap and provided delegates with tips for how to manage the gap in clinical practice.

The wound gap is a clinical challenge as there is:

- An increased risk of exudate pooling, which can increase the risk of leakage and maceration, or infection (Cutting et al 2009; Young, 2012)
- The potential for inappropriate dressing use; some dressings may not conform fully to the wound bed leading to exudate pooling or leakage.

The first step of managing the gap is to

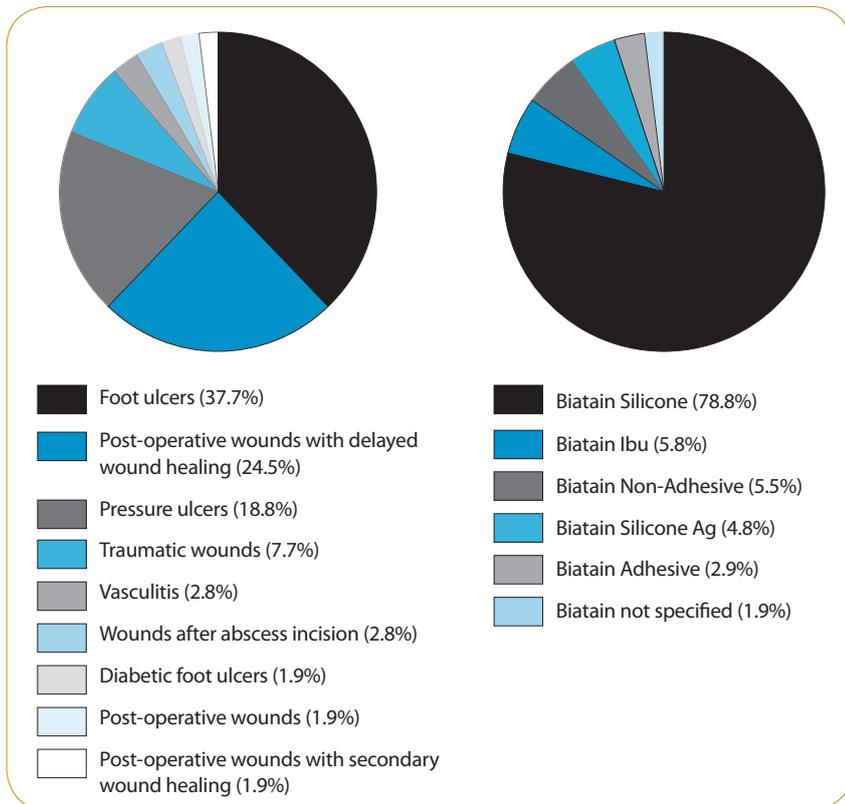


Figure 2. Patient case (n=104) and dressing types used between 2013–2014 (Braunwarth and von Hallern, 2017).

### Box 1. Practical tips for measuring wound depth.

- The wound depth should be measured on a weekly basis and documented
- Length and width can be measured with a ruler, and the wound depth, wound edge, and undermining can be measured with a probe, forceps or similar

### Box 2. Case studies courtesy of Bernd von Hallern.

#### Case 1: Infected *ulcus cruris venosum* on the lower leg after traumatic injury.

An 82-year-old patient with rheumatoid arthritis had a trauma wound of 6 weeks' duration on the lower leg, which was 6mm deep. Biatain Silicone Ag was selected as part of a local antimicrobial treatment as the wound was infected. For the first 2 days of treatment, the dressing was changed every 24 hours. When the clinical signs of infection declined, the dressing was changed every 2 days. The dressing conformed well to the wound bed and the body contours.



#### Case 2: Postoperative wound on the lower abdomen.

A female patient had a hysterectomy, but the wound dehiscenced and was producing a high amount of exudate. The wound had a depth of 12mm, and Biatain Silicone dressing was selected for the vertical absorption of exudate and the ability to conform to the wound bed. The dressing was changed after 3 days, and the wound edges showed no signs of maceration. The dressing was effective at conforming to the wound bed and reducing exudate pooling.



determine the size of the gap. Bernd von Hallern provided practical tips for measuring wound depth [Box 1].

Bernd von Hallern presented data from 2013–2017 of 104 patient cases of varying type, size and depths (1–42mm) and exudate levels, that were treated with dressings from the Biatain® foam dressing range [Figure 2] (Braunwarth and von Hallern, 2017). Dressing changes occurred every 1–4 days, and no fillers were used (Braunwarth and von Hallern, 2018).

No exudate pooling or maceration was observed at the wound edges or periwound skin. In all cases, the foam dressing conformed to the wound bed and provided sufficient vertical absorption of exudate (Braunwarth and von Hallern, 2017).

Bernd von Hallern presented case studies [Box 2] where Biatain® foam dressings were used to manage the gap. The case studies demonstrate that dressings from the Biatain foam dressing range can be used on different wound types and can conform to different wound sizes and depths of the wound bed (Braunwarth and von Hallern, 2018).

### Closing the gap

Marcelo Ruettimann Liberato de Moura, a vascular and endovascular surgery specialist,

closed the symposium with details of The Ruettiman Company training programme for chronic venous disease ([CVD] or chronic venous insufficiency) in Salvador, Brazil [Box 3]. CVD is associated with leg pain and oedema, varicose veins and itchiness, which is progressive and can develop into wounds that are difficult to treat and manage.

In Brazil, it is estimated that 6 million people have advanced CVD (Moura et al, 2018), and 1.3 million have venous ulcers. The at-risk population tend to be from low-income areas, and have multiple lesions of long duration with complex aetiologies and comorbidities. Treatment for venous ulcers should comprise a holistic, systematic approach [Figure 3]. The Ruettiman Company training programme provides training on Ultrasound Guided Foam Sclerotherapy (UGFS) to treat the cause of CVD, as well as covering patient education on compression and wound management.

#### A local CVD programme

In May 2013, an outpatient social and training programme was approved in Salvador, Brazil, to treat members of a low-income population with advanced CVD. From May 2013–2016, 2,894 patients and 4,851 limbs were treated and followed for an average of 22.5 months. An ulcer-healing rate of 77% was achieved in these first 4 years of the programme (Moura et al, 2018). A holistic systematic approach for a low-income population with advanced CVD, which comprises correct patient selection, UGFS, compression and appropriate wound

#### Box 3. The Ruettiman Company training programme.

From December 2011 to May 2018, 934 vascular surgeons from Brazil, Europe and Latin America have been trained. The training includes live case demonstrations of ultrasound guided foam sclerotherapy (UGFS), compression, wound care and dressing selection.

UGFS is an established treatment for varicose veins in Western Europe and the USA (NICE, 2013; Rabe et al, 2014). It is a 30-minute outpatient procedure, and as such is associated with lower clinical and patient costs compared to open surgery.

The Ruettiman Company training programme is supported by the Coloplast Medical Education programme and approved by local city government.

The Ruettiman Institute, a non-profit Association, organises the Outpatient Social Program, along with the Local Government System of Salvador, Bahia, Brazil.

care, can be safe and effective. While being sustainable both politically and economically for the local community.

Between May 2013 and May 2018, the outpatient social programme has treated 4,062 patients with excellent results. If the right protocol is implemented, increased clinical outcomes, such as healing and increased quality of life, are possible. In low-income areas, improvements to self-esteem and, especially, hope can have a huge impact on patients, their families and their communities.

Deep, exuding venous ulcers are a challenge faced on a day-to-day basis, and the Biatain dressing conforms to the wound bed while absorbing exudate under compression, and locking it away from the wound, making it well-suited for this patient group and wound

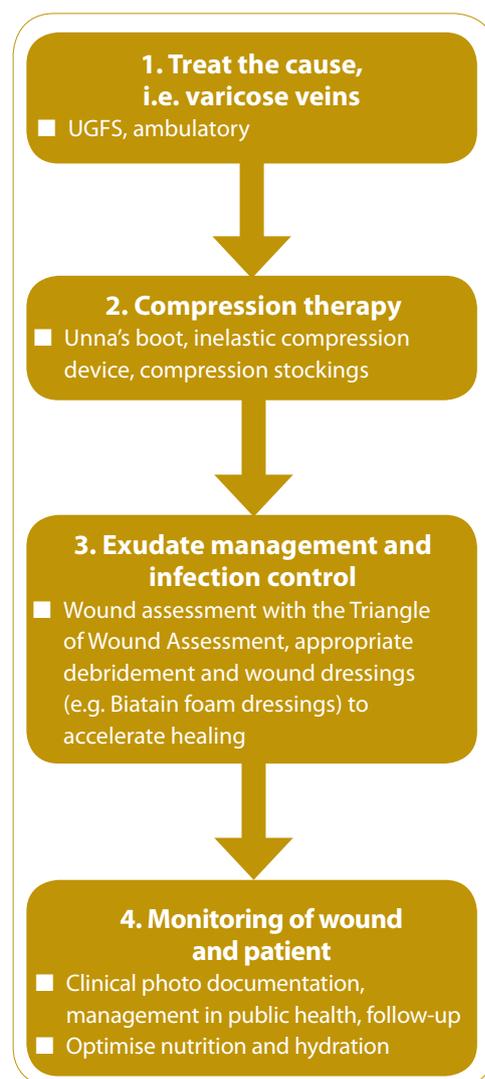


Figure 3. Treatment protocol for venous leg ulcers as part of the Outpatient Social Program Protocol and Ruettiman training programme.

## Box 4. Case studies courtesy of Marcelo Ruettimann Liberato de Moura.

### Case 1: Bilateral non-healing VLU.

This is a 40-year-old woman with bilateral non-healing VLUs present for 4 years. She had a BMI of 34.3 kg/m<sup>2</sup>, hypertension and worked as a housekeeper. The wounds were highly exuding, so the key considerations for this individual were exudate management and infection control.

The patient received UGFS and bilateral compression as part of the Outpatient Social Program Protocol [Figure 3]. The wounds were assessed using the Triangle of Wound Assessment, and a Biatain Alginate Ag dressing was used for 1 week. The Biatain Silicone dressing was then used, which conformed to the wound bed and protected the periwound skin from the high level of exudate. This patient needed high-pressure inelastic compression therapy, and the silicone dressing was suitable for use under compression. After 5 weeks of treatment, the wounds on both legs had healed.



Left leg (day 1). Left leg (day 40). Right leg (day 1). Right leg (day 22). Both wounds dressed.

### Case 2: Long-standing VLU.

This is a 44-year-old male patient with a VLU on his left leg for 12 years. He was obese (BMI of 38.7 kg/m<sup>2</sup>), and had hypertension and depression associated with the social segregation caused by the presence of the wound. He received early retirement at aged 34 years due to the VLU, so he had been away from work for 10 years and receives Government social security disability allowance. He had attended public health centres two to three times a week for 10 years with no improvement to the wound, which was painful.

As part of the Outpatient Social Program Protocol [Figure 3], care included UGFS, compression and wound management. The wound was assessed using the Triangle of Wound Assessment and Biatain Ag dressing was selected as a gentle adhesive, absorbent dressing under compression. The dressing conformed closely to the wound bed. Over 6 weeks, from November 11 2016 to December 23 2016, the wound healed. Nearly a year later in September 2017, the wound was still healed.



(from left to right)  
Day 1.  
Day 12.  
Day 16.

(from left to right)  
Day 26.  
Day 47.  
Day 194 (24 weeks and 5 days).

## Key points

1. The Triangle of Wound Assessment is a simple and structured approach to wound management, guiding the user from wound assessment of the wound bed, wound edge and periwound skin to management goals and treatment options
2. Biatain® Silicone conforms to the wound bed and provided effective exudate management, thereby reducing exudate pooling
3. As part of a holistic, structured approach to wound care, the Triangle of Wound Assessment can help reduce the burden of challenging wounds, also in the challenge of the wound gap.

type. Marcelo presented case studies [Box 4] where the Triangle of Wound Assessment and Biatain dressings were used as part of the treatment pathway. The cases highlight the impact treatment had on patients, such as improvements to quality of life, self-esteem and the ability to return to work.

## Conclusion

As part of a holistic, structured approach to wound care, the Triangle of Wound Assessment can help reduce the burden of challenging wounds and the challenge of the wound gap. The Triangle of Wound Assessment provides a holistic framework from wound assessment to setting optimal treatment goals. The case reports presented by the speakers at the symposium demonstrated that Biatain Silicone dressings provided effective exudate management by conforming to the wound bed and reducing exudate pooling. Therefore, Biatain Silicone dressings may reduce the risks associated with the wound gap and provide the wound with optimal conditions for healing.

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More information can be found at [www.triangleofwoundassessment.com](http://www.triangleofwoundassessment.com).

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