

# Value-based healthcare using a SAP containing silicone-bordered dressing under compression therapy

Keeley Chapman, Vicki Gunn, Rachel Colton

This article provides an overview of venous leg ulcers, the current landscape and an evaluation of an intervention strategy implemented in York. The authors' lower limb specialist wound clinic was set up to reduce variations in management and improve standardisation of care when treating venous leg ulcers. The purpose of the evaluation was to demonstrate the impact of a specialist wound clinic implementing evidence-based strategies and early interventions in line with national guidance for venous leg ulceration. The results demonstrate how this approach can improve outcomes and deliver value-based healthcare.

## KEYWORDS:

■ Lower limb specialist wound clinic ■ Leg ulcers ■ Value-based healthcare ■ Early interventions ■ Evidence-based strategies ■ SAP dressings

A leg ulcer can be defined as a wound on the lower limb, originating on or above the malleolus and below the knee that has not healed within two weeks (National Institute for Health and Care Excellence [NICE], 2013; National Wound Care Strategy Programme [NWCSP], 2023).

A venous leg ulcer occurs in the presence of venous disease (NICE, 2024). According to statistics, there are an estimated 739,000 leg ulcers in England with estimated associated healthcare costs of £3.1 billion per year (Guest et al, 2020).

A wound that fails to heal and remains open for longer than four to six weeks can be defined as a chronic wound (Frykberg and Banks, 2015). Chronic wounds, particularly of the lower limb, are recognised as a significant health-economic pressure within the NHS as demonstrated by the Burden of Wounds study (Guest

et al, 2020). Furthermore, the impact to the individual of living with such a wound cannot be underestimated — often described as having a devastating effect on individual quality of life as well as financial implications and social impacts (Isoherranen et al, 2023).

In England, there exists significant variation in the management and treatment of leg ulcers, which has been shown to influence both the cost of care and time required for healing (NWCSP, 2023). This variation could result from differences in access to specialist care, diagnostic delays, or variations in resources available at different healthcare facilities. Published healing rates of venous leg ulcers also differ; for patients treated in the community healing rates of six months have been reported at 45% compared to 70% for those treated in specialist clinics (NICE, 2024). Due to the recognition of these variations in care and treatment, the NWCSP was set up to offer a more standardised approach to wound care and a focus on early intervention.

Early intervention with the correct treatment can reduce the negative impact of wounds on patients and contribute to more efficient use of resources as well as associated reductions in cost (Dowsett, 2024). Early intervention recommendations and 'gold standard' treatment proposed by the NWCSP (2023) for lower limb wounds are:

- ▶ Immediately escalate any 'red flags' (for example, acute infection, acute/chronic ischaemia, suspected cancer or deep vein thrombosis [DVT])
- ▶ Arrange for a comprehensive assessment of the patient within 14 days of presentation. This should involve holistic assessment of the patient, including ankle brachial pressure index (ABPI) measurement, an initial diagnosis and a treatment plan for each individual patient
- ▶ For suspected venous disease, refer to vascular services and apply strong compression therapy of at least 40mmHg.

The evaluation presented here demonstrates the positive impact of early intervention when treating venous leg ulcers with a superabsorbent polyacrylate polymer (SAP) silicone-bordered dressing alongside compression therapy.

## BACKGROUND

The lower limb specialist wound care clinic in York was set up in July 2023 to reduce variation of lower limb management and improve standardisation of care when treating venous leg ulcers, in line with the NWCSP. The team consisted of a tissue viability specialist nurse (service lead) and two senior podiatrists, who worked

*Keeley Chapman, previously tissue viability specialist nurse; Vicki Gunn, lead podiatrist; Rachel Colton, podiatrist, all at York and Scarborough Teaching Hospitals NHSFT*

in partnership to provide holistic care. Patients with a new wound to the lower limb were referred predominantly from community nursing services and received an initial appointment with both the tissue viability nurse and podiatrist present. An ABPI was carried out at this initial assessment and a treatment plan formed. Patients returned to the clinic after 12 weeks if unhealed or sooner if there were any concerns. Dressing changes between these appointments were either carried out by the patient, carer/relative or by a primary care nurse. Before the introduction of this clinic, these patients would have been seen by primary care services, either by the district nursing team or their general practice nurse (GPN), only being reviewed by specialist practitioners upon specific request.

## AIM

The purpose of the evaluation was to demonstrate the impact of a specialist wound clinic implementing evidence-based strategies and early interventions in line with national guidance for venous leg ulceration.

## METHOD

Information was collated by the clinicians leading the clinic maintaining records of treatment regimen, products used and healing time. Healing time was calculated using the date when the patient was first assessed in the clinic to the time the patient was healed and discharged.

Between July 2023 and July 2024 110 patients were actively treated and subsequently healed in the lower limb clinic. Of these, 52 were treated using RespoSorb® Silicone Border (formerly Zetuvit® Plus Silicone Border; Hartmann) — a SAP containing silicone-bordered dressing — alongside compression therapy in the form of hosiery or a wrap system.

Superabsorbent dressings maintain their fluid retention capacity under compression (World Union of Wound Healing Societies [WUWHS], 2019) making them suitable for managing lower limb ulceration. The

dressing of choice within the lower limb clinic was RespoSorb Silicone Border. This dressing is a sterile, self-adhesive absorbent dressing with a silicone interface. It comprises:

- ▶ A backing film permeable to air but waterproof
- ▶ An absorbent pad containing cellulose and superabsorbent
- ▶ Polyacrylate — a silicone contact layer to facilitate application and atraumatic dressing changes.

SAP dressings are highly absorbent and recommended for use on exuding wounds (WUWHS, 2019). Their mode of action, which includes the ability to bind and sequester potential wound inhibitors (such as proteases or microorganisms), reduces the risk of further damage to the tissue while supporting wound healing (WUWHS, 2020). Recent evidence has demonstrated the ability of SAP dressings to balance the microclimate of the wound bed; this reduces potentially harmful biomarkers which in turn allows the wound to re-establish an acute-like state to enable wound healing to occur (Mikosinski et al, 2022).

## RESULTS

In nearly 50% of the patients treated, RespoSorb Silicone Border was the dressing of choice because of ease of use. The clinicians stated that it was easy to apply as well as having the ability to manage wound exudate more effectively than other dressings traditionally used such as foams. Foam dressings have been used widely in wound care for many years (Cook, 2012). Due to their versatility and availability in various shapes and sizes, foam dressings are often the dressing of choice including under compression (NHS Clinical Evaluation Team, 2018). However, according to the British National Formulary (BNF; British Medical Association and Royal Pharmaceutical Society, 2025), saturated foam dressings can cause maceration to healthy skin if left in contact with the wound. Foam dressings can vary in composition and structure and therefore the performance of the dressing can differ. Poor dressing choice could

result in delayed wound healing, poorer outcomes, and complications such as periwound maceration (Santamaria et al, 2023).

Being available in various shapes and sizes, RespoSorb Silicone Border provides the same versatility as a foam dressing, but can manage exudate more effectively due to the SAPs, which not only absorb exudate but can also retain it within the dressing core. Additionally, SAPs have the ability to bind and sequester matrix metalloproteinases (MMPs) (Faucher et al, 2012; WUWHS, 2020).

Ease of application and adherence of RespoSorb Silicone Border was also noted by the clinicians involved to be of benefit when patients were participating in shared care or self-management (explored further in the discussion).

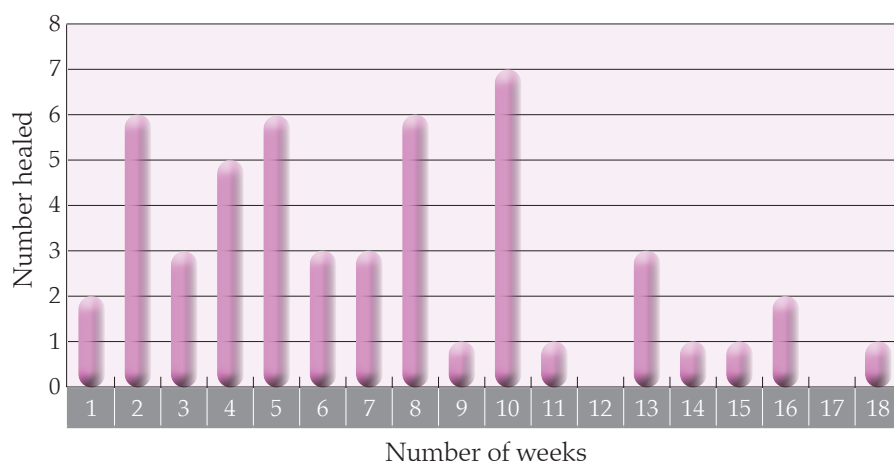
Of the 52 patients treated with RespoSorb Silicone Border, 81% (42) healed within 10 weeks with the majority (50 patients) healing within 16 weeks. The average healing time was 7.67 weeks. *Figure 1* demonstrates the number of wounds healed per week.

## COST OF TREATMENT

The cost of treatment used in the lower limb clinic (RespoSorb Silicone Border alongside compression hosiery) was compared to the usual standard of care provided by community nurses before the clinic was established. *Table 1* demonstrates the cost-effectiveness of the treatment provided in the lower limb clinic.

### Costing calculations explained

To carry out a fair costing exercise, the comparison was made between the standard of care provided by community nursing teams prior to the lower limb clinic being established. A direct patient comparison was not possible due to this clinic accepting patients with newly developed lower limb wounds only. Therefore, the team looked at the usual plan of care provided by the community nursing team. Patients who were able to go into compression generally started



**Figure 1.**  
Total number of wounds healed per week in the York lower limb clinic.

a multilayer compression bandage system and would be seen by the community nursing team anywhere from daily to weekly, dependent on individual patient need. For a fair comparison of price, the calculations were based upon a dressing change of twice per week with prices taken from the Drug Tariff — correct at time of writing in October 2024.

The cost of nursing time was based upon the hourly rate calculated in the *Unit Costs of Health and Social Care 2023 Manual* (Jones et al, 2024), which stated the hourly rate of nursing time to be £47. According to a patient survey conducted in 2018, the average time to carry out a dressing change was 18 minutes (Fisher, 2018). For ease of calculation, the hourly rate was divided by three (reflecting 18-minute dressing changes) — resulting in the sum of £15.66 nursing time cost for a 20-minute dressing change.

Another point to highlight in this costing exercise is the fact that there is a significantly higher initial cost for the lower limb clinic standard of care due to providing two pairs of compression hosiery garments to each patient — one to wear and one to wash. However, this is not an ongoing cost, as compression hosiery has the potential to last for six months before needing replacing. Therefore, there are two separate calculations to consider; the initial cost added to the ongoing cost of treatment. This ongoing cost is the sum of the nursing time plus the dressing cost multiplied by the average healing time of 7.67 weeks.

## DISCUSSION

Due to current health-economic pressures on the NHS, early intervention is key to prevent lower limb wounds becoming chronic. Guest et al (2020) has demonstrated the significant burden these wounds can place on the healthcare system. In response to the Burden of Wounds study, the NWCSP (2023) developed guidance within lower limb management to aid early identification and implementation of evidence-based practice. These recommendations specify that in the absence of red flags, 20mmHg of compression can be applied immediately alongside a ‘simple, low adherent dressing with sufficient absorbency’. In this evaluation, implementing the use of a SAP containing silicone-bordered dressing as an early intervention helped maintain an optimal wound environment from the outset. The ability of the dressing to absorb all levels of exudate and bind bacteria and sequester potential wound inhibitors, ensures that the healing process is not interrupted (Eming et al, 2008). When combined with compression therapy, it aligns with best practice outlined above.

As said, the lower limb specialist wound care clinic achieved an average healing time of 7.67 weeks (Figure 1), significantly faster than the national average. Guest et al (2018) reported that only 53% of venous leg ulcers heal within 12 months, with an average healing time of three months. Such findings highlight the importance of early intervention and

how compression therapy, combined with appropriate dressing selection, can lead to improved healing outcomes, as demonstrated in this evaluation of the use of compression therapy and a SAP containing silicone-bordered dressing.

Furthermore, specialist wound care clinics allow for ambulatory patients to be seen in a timely manner which frees up primary care and community nurse appointments and enables better use of resource, as in line with the *NHS Long Term Plan* (NHS England, 2019). However, it is essential to note the specific factors that may have influenced the healing process, such as underlying health conditions, age, and lifestyle factors.

## SELF-MANAGEMENT

Supported self-management is providing personalised care to support better health outcomes as demonstrated by the personalised care model from NHS England (2018). Self-management is a way of enabling self-care to support those living with long-term health conditions and should always be tailored and personalised to individual needs (Wounds UK, 2023a). This approach to healthcare has the potential to improve patient engagement and may also offer benefits to quality of life (Kapp and Santamaria, 2020). With the ever-increasing demand on the NHS, self-management needs to be adopted within wound care to empower patients and to ensure resources are used effectively (Wounds UK, 2023a).

The use of RespoSorb Silicone Border alongside compression hosiery or a wrap system enabled patients, relatives or carers to participate in their own care if they wished. One example taken from this clinic was a patient with lymphoedema and associated lymphorrhoea, who was struggling to self-care with previously used dressings. Due to the ease of application and adherence of RespoSorb Silicone Border, the patient was able to maintain their independence by being competent to apply the dressing themselves underneath their

compression wrap, thus reducing nurse visits. This is an example of supported self-management and has the potential to result in cost savings, as demonstrated in *Table 1*. This supports emerging evidence that compression wraps have the potential to be cost-effective and improve quality of life through self-management (Stather et al, 2019; Payne, 2022).

VALUE-BASED HEALTHCARE

Utilising existing resources effectively aligns with the concept of value-based healthcare. This approach focuses decision-making on achieving the best possible health outcomes with available resources, either by producing better outcomes with the same resources or by producing the same outcomes with less resources (Posnett, 2022). When this is applied to wound care, it is important to note that dressing characteristics rather than price should be considered. The lowest cost dressing does not necessarily provide the most value. For example, if a dressing offers higher absorbency, allowing for less frequent dressing changes, this has the potential to reduce clinician time and overall cost of wound care (Posnett, 2022).

Clinicians should make sure that all long-term costs are considered, including those related to patient outcomes, such as quality of life, adherence to the treatment plan and productivity of staff (Wounds UK, 2023b). Velickovic et al (2021) stated that RespoSorb Silicone Border may lead to better healing rates and improved quality of life when compared to standard of care dressings (these included a mix of superabsorbent dressings, foams, antimicrobials, alginates, alongside others). The findings indicated fewer dressing changes with better healing progression when using RespoSorb Silicone Border (Velickovic et al, 2021).

When considering cost of treatment, as said the initial cost is higher when using a SAP containing silicone-bordered dressing alongside compression hosiery (due to providing two compression

Table 1: Cost comparison				
	Usual standard of care	Drug tariff Oct 2024	Lower limb clinic standard care	Drug tariff Oct 2024
Contact layer	10x10cm contact layer	£3.16	Not required	£0.00
Superabsorbent dressing	10x10cm superabsorbent dressing	£1.32	RespoSorb® Silicone Border 15x15cm	£4.20
Compression	Multi-layer compression bandage kit 25–32 (10cm)	£9.47	Compression hosiery kit — 2, £34.09 per kit	£68.18
Cost of products based on two x dressing changes per week	Initial cost	£27.90		£72.38
	Weekly cost	£27.90		£8.40
Nursing time*	Two x clinic/practice nurse appointments	£31.32	One x clinic One x patient self-management	£15.66
Total weekly cost (after initial visit)		£59.22		£24.06
Cost of treatment for 7.67 weeks**		£422.90		£232.86
*Nursing time calculated at £47 per hour (Jones et al, 2024). Dressing change of 20 minutes based on average dressing change of 18 minutes (Fisher, 2018)				
**Cost of treatment based upon average healing rate of the lower limb clinic				

garments). However, the potential for shared care and fewer clinic appointments demonstrates value-based healthcare.

CONCLUSION

The findings from this lower limb specialist wound care clinic underscore the critical role of early intervention in wound care. By using RespoSorb Silicone Border dressings in conjunction with compression therapy, the clinic achieved faster healing times compared to national averages; the healing rate in the lower limb clinic was 7.67 weeks compared to the national average of 12 weeks as reported by Guest et al (2018). These results demonstrate that implementing evidence-based strategies can effectively optimise wound healing conditions, reduce chronicity of wounds, and alleviate the economic burden on the NHS. Aligning with NWCSP recommendations, this approach not only enhances clinical outcomes, but also has the potential to improve quality of life by helping patients regain independence as discussed under self-management.

By focusing on more consistent practices and outcomes, healthcare providers can improve both the efficiency and effectiveness of leg ulcer treatment, ultimately benefitting both patients and the healthcare system.

This evaluation provides insight into the effectiveness of a treatment protocol and highlights areas for further research to improve outcomes for all patients, such as further exploration of self-management. JCN

REFERENCES

British Medical Association and Royal Pharmaceutical Society (2025) *British National Formulary (BNF) 78*. BMJ Publishing Group, London. Available online: <https://bnf.nice.org.uk/> (accessed 16 April, 2025)

Cook L (2012) The practical use of foam dressings. *Wound Essentials* 7(2): 77–81

Dowsett C (2024) Prevention, identification, and management of surgical wound dehiscence: Early intervention and treatment. *Wounds UK* 20(4): 20–4

## KEY POINTS

- Providing immediate and necessary care at the first point of contact and implementing evidence-based strategies have optimised healing outcomes. The evidence-based strategy implemented here was the use of a SAP containing dressing alongside compression therapy which resulted in an average healing time of 7.67 weeks.
- With limited resource and the ever-growing pressures placed upon the NHS, it is important to address the burden of wound care. To alleviate this burden, a potential solution is implementing self-management into everyday practice. It has been highlighted within this paper that due to the ease of application of RespoSorb® Silicone Border, patients were able to participate in self and shared care. The dressings were also able to be applied under compression hosiery and wraps, further supporting self-care models.
- Value-based healthcare focuses decision-making on achieving the best possible health outcomes with available resources, either by producing better outcomes with the same resources or by producing the same outcomes at lower cost. The costing exercise (Table 1) demonstrated the cost-effectiveness of using a SAP containing silicone-bordered dressing alongside compression hosiery, thus supporting value-based healthcare.

- Eming S, Smola H, Hartmann B, et al (2008) The inhibition of matrix metalloproteinase activity in chronic wounds by a polyacrylate superabsorber. *Biomaterials* 29: 2932–40
- Faucher N, Safar H, Baret M, Philippe A, Farid R (2012) Superabsorbent dressings for copiously exuding wounds. *Br J Nurs* 21(12): S22, S24, S26–S28
- Fisher L (2018) Opinion Matters 'Professional Health Care Treatment for Wounds' survey conducted June–July 2018. Mölnlycke, Milton Keynes, UK. Available online: [www.molnlycke.co.uk/news-events/news/new-research-finds-uk-nurses-carry-out-180-wound-dressing-changes-a-year/](http://www.molnlycke.co.uk/news-events/news/new-research-finds-uk-nurses-carry-out-180-wound-dressing-changes-a-year/) (accessed 1 April, 2025)
- Frykberg RG, Banks J (2015) Challenges in the treatment of chronic wounds. *Adv Wound Care* 4(9): 560–82
- Guest JF, Fuller GW, Vowden P (2018) Venous leg ulcer management in clinical practice in the UK: costs and outcomes. *Int Wound J* 15(1): 29–37
- Guest JF, Fuller GW, Vowden P (2020) Cohort study evaluating the burden of wounds to the UK's National Health Service in 2017/2018: update from 2012/2013. *BMJ Open* 10(12): e045253
- Isoherranen K, Conde E, Atkin L, Collier M, Hogg A, Ivory JD, et al (2023) Lower leg ulcer diagnosis and principles of treatment. *J Wound Management* 24(2 Sup1): s1–76
- Jones K, Weatherly H, Birch H, et al (2024) *Unit Costs of Health and Social Care 2023 Manual. Technical report*. Personal Social Services Research Unit (University of Kent) & Centre for Health Economics (University of York), Kent, UK. Available online: <https://doi.org/10.22024/UniKent/01.02.105685> (accessed 1 April, 2025)
- Kapp S, Santamaria N (2020) The effect of self-treatment of wounds on quality of life: a qualitative study. *J Wound Care* 29(5): 260–8
- Mikosinski J, Kalogeropoulos K, Bundgaard L, Larsen CA, Savickas S, Haack AM, et al (2022) Longitudinal evaluation of biomarkers in wound fluids from venous leg ulcers and split-thickness skin graft donor site wounds treated with a protease-modulating wound dressing. *Acta Derm Venereol* 102: adv00834
- NHS Clinical Evaluation Team (2018) *Clinical review: Foam dressings*. Available online: <https://tinyurl.com/zrn6vf75> (accessed 1 April, 2025)
- NHS England (2018) *Comprehensive model of personalised care*. Available online: <https://www.england.nhs.uk/publication/comprehensive-model-of-personalised-care/>
- NHS England (2019) *The NHS Long Term Plan*. Available online: [www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf](http://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf)
- National Institute for Health and Care Excellence (2013) *Varicose veins: diagnosis and management*. Clinical Guideline [CG168]. NICE, London. Available online: [www.nice.org.uk/guidance/cg168](http://www.nice.org.uk/guidance/cg168)
- National Institute for Health and Care Excellence (2024) *Leg ulcer — venous*. NICE, London. Available online: <https://cks.nice.org.uk/topics/leg-ulcer-venous/>
- National Wound Care Strategy Programme (2023) *Recommendations for Leg Ulcers*. Available online: [www.nationalwoundcarestrategy.net/wp-content/uploads/2024/07/NWCSP-Leg-Ulcer-Recommendations-final-version-15.07.2024.pdf](http://www.nationalwoundcarestrategy.net/wp-content/uploads/2024/07/NWCSP-Leg-Ulcer-Recommendations-final-version-15.07.2024.pdf)
- Payne D (2022) Use a wrap instead: using compression wraps in lymphoedema and venous disease. *Br J Community Nurs* 27(12): 586–90
- Posnett J (2022) Value-based procurement in wound care. *Wounds UK* 18(1): 42–9
- Santamaria N, Woo K, Beeckman D, Alves P, Cullen B, Gefen A, et al (2023) Clinical performance characteristics for bordered foam dressings in the treatment of complex wounds: An international wound dressing technology expert panel review. *Int Wound J* 20(9): 3467–73
- Stather P, Petty C, Howard A (2019) Review of adjustable Velcro wrap devices for venous ulceration. *Int Wound J* 16(4): 903–8
- Velickovic VM, Lembelembe JP, Cegri F, Binic I, Abdelaziz AB, Sun S, et al (2021) Superabsorbent wound dressing for the management of patients with moderate to highly exuding chronic leg ulcers: An early-stage model-based benefit-harm assessment. *Int J Low Extrem Wounds* 22(2): 345–52
- World Union of Wound Healing Societies (2019) *Wound exudate: effective assessment and management*. Available online: [www.woundsinternational.com](http://www.woundsinternational.com)
- World Union of Wound Healing Societies (2020) *The role of non-medicated dressings for the management of wound infection*.

Wounds International, London. Available online: [www.woundsinternational.com](http://www.woundsinternational.com)

Wounds UK (2023a) *Best Practice Statement: Personalised self-care for people with venous leg ulcers: a toolkit for change*. Wounds UK, London. Available online: [www.woundsuk.com](http://www.woundsuk.com)

Wounds UK (2023b) *Best Practice Statement: Development of a wound care formulary using clinical evidence and ensuring effective change management*. Wounds UK, London. Available online: [www.woundsuk.com](http://www.woundsuk.com)