

# A compression bandage system that helps to promote patient wellbeing

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Compression bandages provide the mainstay of treatment for venous diseases and their sequelae of ulceration and oedema. Selection should depend not only on the effectiveness and cost of treatment, but also on patient acceptability. If correctly applied, compression bandages provide sustained graduated pressure. This article explores the negative impact that having a leg ulcer can have on patient quality of life and introduces a new, moisturising, odour-reducing inelastic two-layer compression bandaging system that aims to improve patient wellbeing and comfort which, in turn, promotes concordance.

## KEYWORDS:

■ Leg ulcers ■ Compression bandage system ■ Quality of life

Caring for patients with leg ulcers continues to be a challenge for healthcare professionals, particularly since the current healthcare climate of an ageing population, increased incidences of obesity and diabetes, as well as other comorbidities can complicate their management (Todd, 2014). It is estimated that 1% of the population suffer from leg ulcers at some point in their lives (Callam, 1992; O'Meara et al, 2009), and in those over 65 years this increases to 3–5% (Mekkes et al, 2003). Furthermore, it has also been suggested that at least 70% of all ulcers are venous in origin (Anderson, 2006), with the annual incidence of venous leg ulcers being at least 100,000 (Posnett and Franks, 2008), costing the NHS approximately £400m per year — including recurrence rates

and nurses' time. Indeed, 13% of district nurses' workload involves management of venous leg ulcers (Simon et al, 2004).

The Lothian and Forth Valley study has helped to increase awareness of leg ulceration (Callam et al, 1987). However, despite this, their incidence continues to grow with most being treated in a community setting and, although with appropriate management it is

accepted that they can heal within four weeks, an international study has maintained that only one-fifth of ulcers heal within this timeframe, with only 40–50% in three months and some taking up to ten years to heal, with a 70% recurrence rate (White, 2011).

Given the debilitating impact that leg ulceration (both venous and arterial) can have on patient quality of life and wellbeing, as well as healthcare budgets (Douglas, 2001), and with compression therapy being seen as 'gold standard' treatment (Royal College of Nursing [RCN], 2006), it is vital that healthcare professionals choose the most appropriate compression delivery system for their patients, and one which they are happy to wear, as concordance with treatment directly impacts on healing outcomes (Moffatt, 2004a; Van Hecke et al, 2007).

## PATIENT QUALITY OF LIFE AND LEG ULCERATION

The journey of patients with leg



Figure 1. HERO H-2 two-layer compression bandaging system.

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Figure 1.  
Layers 1 and 2 of HERO H-2 compression bandaging system.

ulcers can be both distressing and lonely (Moffatt et al, 2009). Leg ulcers are clearly associated with reduced quality of life as a result of pain, sleep disturbance, anxiety, depression and poor self-esteem, which negatively impact on work and social life (Persoon et al, 2004; Moffatt et al 2009; Upton, 2013).

Patients' quality of life is affected by their expectations and how they cope with an illness, bringing into play many different physical and psychosocial factors (Williams, 2010). Physically, leg ulcers can be painful (Persoon et al, 2004; Williams, 2010) and result in itching, as well as causing odour and exudate leakage. The latter two factors can be particularly difficult to cope with, leading to embarrassment, social isolation, poor body image and low self-esteem (Hareendran et al, 2005).

Leg ulcers can also affect a person's role within the family, as with increased immobility, they may no longer be able to perform their normal activities of daily living such as domestic chores and shopping. Thus, selecting a treatment regimen that helps to promote healing or

prevent recurrence will, in turn, improve patient wellbeing.

### COMPRESSION THERAPY

Before choosing any compression system, full holistic patient assessment must be undertaken to accurately identify the underlying aetiology, as well as any other factors that might be affecting the patient, such as arthritis (Moffatt, 2004b). A patient's arterial status should always be evaluated by measuring their ankle brachial pressure index (ABPI) (Furlong, 2013), as if insufficient (ABPI less than 0.5), this will contraindicate the application of compression bandaging (Scottish Intercollegiate Guidelines Network [SIGN], 2010).

Assessing the condition of the patient's skin is also vital, as this

will indicate how far the disease has progressed. Regular skin care including limb washing, exfoliating, drying thoroughly and moisturising are also vital components of effective leg ulcer management regimens (Timmons and Bianchi, 2008). It is also important to measure the limb (RCN, 2006), as if the shape is disproportionate, this can affect the level of compression applied. The limb should be re-measured at each review to monitor the sub-bandage pressure and to ensure that it has not risen causing pressure damage (Moffatt, 2007).

Patient lifestyle, mobility and how acceptable the compression system chosen is to them, should also be considered, as this will affect concordance with treatment (Lay-Flurrie, 2011). Bulky, unsightly

Table 1: HERO H-2 bandage system sizes

|                              | Ankle size in cm | Level of compression applied |
|------------------------------|------------------|------------------------------|
| HERO H-2 Lite two-layer kit* | 18-25            | 25-30mmHg                    |
| HERO H-2 two-layer kit*      | 18-25            | 35-40mmHg                    |
| HERO H-2 XL two-layer kit*   | 25-32            | 35-40mmHg                    |

*Note: extra padding can be added if necessary to protect bony prominences*  
\* Bandages are also available as single components

bandages that restrict footwear choice, for example, would not be well-received, as not only are they hot and uncomfortable to wear, but they could also lower the patient's self-esteem in today's fashion-conscious world.

It is also important that compression bandages fit well and do not slip down, thereby negating their beneficial therapeutic effects and becoming uncomfortable to wear. Ill-fitting bandages might also cause pain (Hareendran et al, 2005), which inevitably impacts on patient wellbeing (International Consensus, 2012) and concordance with treatment (Van Hecke et al, 2007). There is also the issue of exudate leaking if bandages slip, which can cause great distress and embarrassment, particularly as leg ulcers can be malodorous.

Thus, the introduction of a two-layer compression bandage system (HERO H-2, H&R Healthcare Ltd) that has been designed with a patient-centred approach to promote ease of use and comfort, while providing the benefits of compression therapy, should help patients and healthcare professionals when planning care.

## HERO H-2

This odour-reducing and moisturising inelastic compression bandage system consists of two layers that, being latex, paraben and chlorine-free, are both hypoallergenic. This makes them safe to use on patients with known sensitivities.

### Layer 1

The first layer is a gentle, conformable cohesive foam bandage, which contains pure Aloe and Cyclodextrin.

### Aloe

Aloe has known moisturising properties (<http://www.ncbi.nlm.nih.gov/pubmed/17026654>) and has been incorporated into HERO H-2 to help reduce the dry skin associated with venous ulcers, thus playing a part in the patient's skin care regimen.

## Box 1

### Patient feedback:

*'I like the fact that the bandages are so lightweight and so easy to apply. I also like the fact that they do not let any odour out. I can wear normal trousers and shoes with this. I feel like I can walk normally again.'* 20-year-old patient who has had leg ulceration since he was 16 and has applied his own compression for many years. He is self-managing with HERO H-2.

*'You have made my day, this is so lightweight and so comfortable. I feel like I want to skip out of here... thank you. The first layer feels so soft and comfortable next to my skin, which by the way has improved since wearing these bandages and getting rid of all the fluffy layers.'* 56-year-old female patient with bilateral leg ulceration, chronic oedema and very dry skin. She has reported that HERO H-2 nicely moisturises her skin and that the bandages do not slip like her previous two-layer system.

*'It's just so lightweight and so flexible. I like the reassurance that it controls the smell, especially for my summer holidays.'* Male patient who has suffered recurrent leg ulceration over 16 years and has spent many years in two-layer compression systems. His leg ulcer healed within 12 weeks of treatment with HERO H-2 and he is going to stay in this bandage system for six weeks before going into compression hosiery.

### Clinician feedback:

*'So easy to learn and so simple to apply.'* District nurses, practice nurses, carers and patients taught self-application required only one demonstration and one observed application of HERO H-2. Layer 1 has been applied at 50% overlap but has also been applied at minimal overlap allowing an even lower profile application and more conformability to misshapen contours.

*'This bandage conforms easily to awkward limb contours... I had one patient with displacement oedema due to previous bandage slippage, so I applied HERO H-2. The mechanical hold and conformability to the misshapen limb was amazing.'*

CS and NI, Cardiff

### Cyclodextrin

This offers additional benefits. It is a known odour-reducing agent (<http://en.wikipedia.org/wiki/Cyclodextrin>), as well as being naturally present in Aloe (<http://www.aqnovel.com/mytag.php?id=29204>), so together with Aloe helps to bind odour and release a fresh scent.

This first layer is easy to apply with a 50% overlap, and conforms well to the shape of the limb. It offers a low profile protective layer and stays in place due to its cohesive nature, thus providing a secure base for layer 2.

### Layer 2

This light tan-coloured,

hypoallergenic, cohesive inelastic compression bandage locks mechanically to layer 1 for secure application. It is easy to apply to the limb from the roll, and can be torn by hand without needing scissors.

The HERO H-2 compression bandaging system can be worn for up to seven days. It is also available in a variety of sizes (*Table 1*), giving healthcare professionals greater choice to ensure that the correct size is applied.

### Community application

The properties of HERO H-2 kits and components make them an ideal choice when treating people who require the application of

## CASE REPORT

Mrs X is a 93-year-old lady who sustained a trauma injury to her left anterior leg in April 2014. She sustained a similar injury in 2010, which resulted in a leg ulcer that took approximately one year to heal due to multiple skin allergies.

At presentation, a full holistic assessment was undertaken. The ulcer measured 1.6x2cm, and comprised 100% sloughy tissue. The limb was very oedematous and the patient said that the ulcer was painful. A Doppler test was undertaken and venous disease was diagnosed, with no arterial impairment. The patient's ankle brachial pressure index (ABPI) was 0.92. Although compression bandages were the treatment option of choice, the patient expressed concerns due to her previous bad experience with multilayer bandaging. She was also visually impaired and felt that bulky bandages would impact on her mobility and make her feel unsafe to move about.

The new HERO H-2 bandage system was explained to Mrs X and she agreed to try it, but with no promises that she would concord with treatment. This system is hypoallergenic and designed for sensitive skin like Mrs X's. It is also low profile and conforms to the limb shape, and so Mrs X could wear her normal shoes.

At the first bandage change, the oedema had reduced significantly and Mrs X reported that she 'loved the bandages'. She said that they did not wrinkle, but felt supportive and flexible and did not impede her mobility. She also stated that she was no longer in pain.

Mrs X was so pleased with this compression system that she continued with treatment. She was seen twice a week at the clinic and her leg ulcer steadily improved. In just three and a half weeks the ulcer had reduced in size to 0.5x0.5cm and remained superficial in depth.

Mrs X's daughter often brought her to the Leg Ulcer Clinic and on one occasion she expressed her delight in the product being a British invention, and designed with patients in mind.

HERO H-2 met Mrs X's needs for effective compression and helped to improve her quality of life while undergoing treatment for leg ulceration.

TG, Chislehurst



Figure 3.  
*Left anterior leg ulcer at presentation on 1 July 2014.*



Figure 4.  
*Left anterior leg ulcer on 15 July 2014.*



Figure 5.  
*Left anterior leg ulcer on 22 July 2014.*



Figure 6.  
*Left anterior leg ulcer on 29 July 2014.*



Figure 7.  
*Mrs X wearing HERO H-2.*

compression in the community. Not only is the system comfortable for the patient (being lightweight and non-bulky), and easy to accurately apply for the nurse (*Box 1*), it also reduces odour, protects the patient's skin from dryness and stays in place for up to a week. This is crucial for nurses who may have busy caseloads and who need to feel confident that a bandage will remain effective between visits, while also being comfortable for the patient to wear.

## CONCLUSION

It is widely recognised that leg ulcers have a debilitating effect both physically and psychosocially and that compression therapy is the 'gold standard' treatment. Given that this life-limiting condition requires long-term treatment, a compression therapy system that meets patients' expectations and needs by being easy to apply, fitting comfortably and staying in place, as well as having properties to address skin care and the issues of odour and exudate leakage should help patients concord with treatment and improve their wellbeing. **JCN**

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## KEY POINTS

- Compression therapy is accepted as the 'gold standard' treatment for leg ulcers.
- A significant percentage of community nurses' workload involves management of venous leg ulcers.
- Leg ulcers are associated with reduced quality of life as a result of pain, sleep disturbance, anxiety, depression and poor self-esteem.
- Before choosing any compression system, holistic assessment must be undertaken to identify accurately the underlying aetiology.
- A patient's arterial status should always be evaluated by measuring their ankle brachial pressure index (ABPI).
- Finding a compression therapy system that is easy to apply, fits comfortably and stays in place is crucial for community nurses.
- A system that addresses the issues of odour and exudate leakage will help patients concord with treatment.