Enhancing a venous leg ulcer treatment pathway with compression wrap devices

KEY WORDS
- Compression
- Pathway
- Self-care
- Venous ulcer
- Wraparound

Background: Venous leg ulcers present a challenge to nursing teams and treatment options are often inconsistent, painful and restrictive for patients.
Aim: To review the current care pathway for venous leg ulcers and to look for options for adopting new developments for compression therapy.
Method: To switch patients from conventional compression therapy to an inelastic wraparound device (Juxta CURES, medi UK).
Results: Regular reviews showed improved healing, reduction of oedema and — perhaps as importantly — full acceptance of the treatment from patients who were non-compliant with traditional bandage therapy.
Conclusion: This change in practice has led to unexpected physical and psychological benefits for both the clinician and patient, with healing of venous leg ulcers and a marked improvement in the morale of patients.

NATALIE FREEMAN
Tissue Viability Nurse, Brentwood Community Hospital, North East London Foundation Trust

District nurses spend about 25–65% of their time caring for patients with leg ulcers, with staff time and wound management costs continually rising (Thambiaya, 1996). In the North East London Foundation Trust (NELFT) tissue viability service, a recent internal case load audit was completed for the Essex integrated care directorate. This audit identified 67% of the referrals are for venous leg ulcers. The audit also highlighted a year-on-year trend of increasing referral numbers from general practitioner (GP) practices and community nursing teams, with a 10% increase reported within the service from 2013/2014 to 2014/2015. The increased work load has led to a need to audit the service provision and find more efficient ways of managing the case load, with the emphasis on cost efficiency, wound healing, time saving and improving patient outcomes.

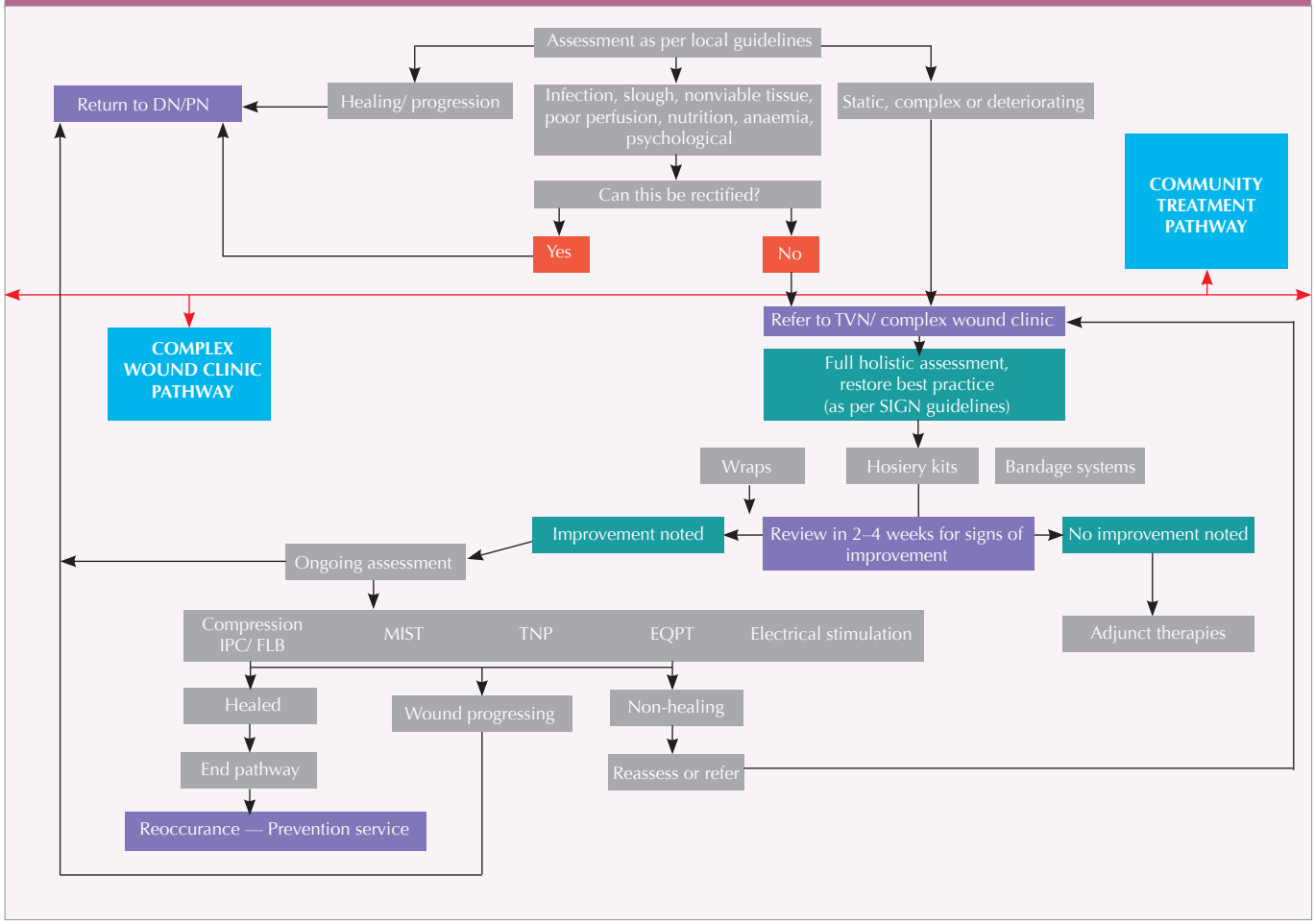
BACKGROUND

Venous disease is the most common cause of leg ulcers (Bianchi et al, 2013) and it is with this in mind that the new care pathway has been developed (*Figure 1*). It uses a 'hub-and-spoke' model, providing rapid assessment in the specialist clinic followed by the initiation of compression therapy where appropriate, in accordance with the best practice guidelines (Scottish Intercollegiate Guidelines Network [SIGN], 2010). After the rapid assessment, if suitable, patients are released to their previous care provider on a shared care programme, with regular reviews in the tissue viability clinic.

Lower leg compression therapy within the pathway was traditionally with compression bandages; however, Norris et al (2012) identified that standards for this were inconsistent within the shared care policy, as many primary care and community nurses lacked the skills to apply effective, consistent compression despite education and training. To overcome this issue, patients with little or no exudate and no reactive oedema were fitted with hosiery kits.

For the large number of patients with high exudate levels and oedema, the Juxta CURES (medi UK) was introduced with the aim of counteracting venous hypertension and controlling oedema. In achieving these functions, exudate is reduced in the non-infected venous

Figure 1. Referral pathway



DN = District nurse, EQPT = equipment, FLB = full limb bandaging, IPC = intermittent pneumatic compression, MIST = MIST ultrasound therapy, PN = Practice nurse, TNP = topical negative pressure

leg ulcer (White, 2006). This wraparound device enabled both self-care and shared-care options for these patients. Benefits over bandaging included ease of application, ability to check and adjust the pressure applied and an instant return to conventional footwear. Training for clinicians was minimal and patients are encouraged to self-help following the initial fit. Conventional dressing therapy was maintained initially and adjusted as exudate levels were reduced by effective compression.

COMPRESSION

Compression therapy is well understood (Partsch and Mortimer, 2015) to be the best method of management and prevention of recurrence of venous leg ulcers (Eagle, 2009). With the revised care pathway, a new device was used for compressing the lower leg, Juxta CURES. Recent advances in material technology have led to the development of this reusable inelastic wraparound compression device. The advantages are that it is easy to fit and the pressure applied can be accurately measured and adjusted. It is designed to allow a high degree of self-care with appropriate patients. The device was the subject of a recent product focus (Lawrence, 2014). The clinical and cost-saving benefits are the subject of a medical device technology review (National Institute for Health and Care Excellence [NICE], 2015).

An instant return to conventional footwear is a very positive benefit of this device — wearing normal shoes encourages compliance and mobility (Chase, 2000). Patients report that it is comfortable to wear and encourages compliance (Elvin and Camden, 2014), thereby reducing the

Table 1. Case study 1 summary		
Case study 1	**Pre Juxta CURES (3-month period)**	**Post Juxta CURES (3-month period)**
Total number of nursing visits	84	8
Total number of nursing hours	42	3.25
Total cost of nursing time	£2,772 (community nurse)	£240.50 (specialist nurse)
Primary dressing cost	£73.92	£24.58 (introduction of antimicrobial dressing)
Secondary dressing cost	£1,447.20	£24.12
Compression therapy system	£499.08	£381.26
Total product cost	£2,020.20	£429.96
Total overall cost	**£4,792.20**	**£670.46**

negative impact of conventional compression, such as social pressures, odour, inability to work (Hopkins and Worboys, 2005; Lawrence, 2015).

Case study 1

Patient A is a 46-year-old single mother of one, who had a history of chronic oedema, secondary to obesity with repeat episodes of lymphorrhea, lower limb ulceration and repeat cellulitis that had led to hospital admissions.

She had no other medical conditions and had been treated by both community and practice nurses in the past prior to her attendance at the tissue viability clinic. Her ankle brachial pressure index (ABPI) was within normal parameters and she had previous negative experiences with compression bandages. Her main concerns were discomfort, bandage slippage and a reduction in mobility caused by the restriction of ankle and foot movement. She was only able to tolerate reduced layered compression, which did not manage her symptoms appropriately. She was self-conscious about her appearance when bandaged, particularly as she could not wear conventional footwear. As a mother of a young child these issues heavily impacted her day-to-day routine; which had led her into a cycle of wearing cotton retention bandages with wound pads and having these changed daily to manage exudate levels, rather than wear prescribed bandages.

She was referred to the tissue viability clinic following an acute episode of cellulitis that led to a hospital admission. Following a full lower limb assessment, superficial ulcerations were identified circumferentially to both lower limbs; the most likely cause of these was poor exudate management. There were notable skin changes present, which were associated with her lower limb venous disease and both legs had symptoms of hyperkeratosis and hyperpigmentation.

It was clear that a suitable compression therapy system was required to manage the current symptoms and to reduce the risk of further cellulitis episodes.

It was suggested to Patient A that the Juxta CURES garment may provide an effective method of compression. The garments were measured and fitted over superabsorbent dressings. Patient A was shown how to check the pressure applied and adjust the devices if required. She was happy to have an active role in her management plan. She was reviewed 48 hours after the initial fit.

After 2 days, Patient A had managed well in the Juxta CURES, no complaints were made and she found them comfortable. She was delighted that she could wear more fashionable shoes and cheerfully attended clinic in new ballet pump style shoes. Her ankle circumference had reduced by 3 cm and the Juxta CURES was easily adjusted to cater for this. Exudate levels had reduced and patient A was happy that her legs finally began to feel better.

After 1 week, the ankle circumference had reduced by 5 cm; after 2 weeks exudate levels were greatly reduced and absorbent dressings were no longer required. Visits were shared by the tissue

Table 2. Case study 2 summary		
Case study 2	**Pre Juxta CURES (total treatment period)**	**Post Juxta CURES (total treatment period)**
Total number of nursing visits	20	3
Total number of nursing hours	10	2.5
Total cost of nursing time	£660 (community nurse)	£185 (specialist nurse)
Dressing and compression therapy cost	£238.98 (treatment of left leg only)	£401.10 (both legs actively treated for chronic oedema)
Total overall cost	**£898.98 Unhealed**	**£586.10 Healed and treatment complete**

viability team and the practice nurse. This helped to reduce the clinic work load and also proved convenient for Patient A as clinic was 8 miles from her home and two bus rides away.

The ulcerated areas had healed fully in just 4 weeks.

In the 4-week treatment period, the circumference setting of the Juxta CURES was adjusted 3 times to help to chase the oedema — Patient A's ankle had reduced by 6 cm during this period and it was important to maintain consistent pressure. The hyperkeratosis had also resolved following the introduction of the compression therapy and an effective skin care regimen.

The Juxta CURES provided effective compression therapy, which quickly resolved the symptoms Patient A had been experiencing when first referred to clinic. Patient A has since enrolled on a weight management programme to manage her weight as she understood the impact this has on her lower limbs. She felt that the Juxta CURES had enabled her to become motivated to increase her activity levels as they did not restrict her mobility and choice of footwear. She was once again able to go out and partake in activities with her family and had a brighter outlook on life.

Cost savings are detailed in *Table 1*. The cost of nursing time calculation is based on Personal Social Services Research Unit (PSSRU) unit cost of health and social care (2014 figures). Dressing costs were calculated from a retrospective review of reported dressing usage from clinical documentation. Figures were obtained from current NHS Supply Chain prices in May 2015.

Case study 2

Patient B is a 77-year-old gentleman who presented to the tissue viability clinic with a 4-year history of untreated chronic oedema. He reported his left leg had always been more swollen than the right. He was active and enjoyed playing golf and he remained so despite the lower limb swelling. Over time, the left leg became harder to manage and his mobility was affected as the limb increased in size.

Patient B attended his GP complaining of redness, swelling, aching and weeping to the left leg. He was referred for lower limb care to the local community nursing team who began a non-compression bandage regimen with silicone contact layers. He received twice-weekly visits to manage the lymphorrhea and varicose eczema.

Following 10 weeks of treatment with the community team, the legs had worsened and blisters had formed to the dorsum of the left foot so Patient B was referred to the tissue viability clinic for assessment. The care plan included emollient-based skin care regimen and oedema reduction with a compression bandage system. At his next appointment later that week it was notable that all residual oedema had resolved. He was fitted with bilateral Juxta CURES, shown how to adjust the

devices, and discharged with a self-management regimen. At his follow-up appointment, Patient B was pleased with all aspects of his management. He found the Juxta CURES easy to apply and remove, and had established a good lower limb care regimen, which has improved his skin condition. He had notable improvements to his mobility and was able to return to the golf course. He was amazed that the swelling that he had lived with for so long was so easily manageable and resolved in such a short period of time. He continues to wear his Juxta CURES for ongoing maintenance rather than switch to hosiery as he finds them so comfortable and manageable.

The cost of nursing time savings are detailed in *Table 2*. The calculations are based on PSSRU unit cost of health and social care (2014 figures). Dressing costs are calculated from a retrospective review of reported dressing usage from clinical documentation. Figures were taken from current NHS Supply Chain prices, 2015.

DISCUSSION

With an ever-increasing caseload, it is important to review processes, dressings and compression options to ensure that optimum wound healing outcomes are met within ever tighter budgetary and time constraints. The key factor in healing these two patients was compliance and acceptance of the compression therapy on offer — both had struggled with the traditional care pathway. The cost savings are clear in the three areas of compression, dressings and nursing time that were realised with this new pathway. Wound healing and patient discharge have added to the overall savings. One area that warrants further study is the psychological impact on patients. The ability to self-care is important to them and it is likely to have further influence on a reduction in social isolation, improved self-esteem and better mobility. Link this to a reduction or elimination of the need to have regular clinical visits and the benefits are clear to see. The improvement in their quality of life is difficult to measure — something as simple as a return to conventional footwear was enough to encourage Patient A to comply with the therapy, enrol on a weight reduction programme and take pride in her appearance.

CONCLUSION

With an increase in referrals requiring compression for symptoms of lower limb venous disease, it is important to consistently review current practice to ensure optimal use of available options. Clinical benefits and patient concordance should be considered at the outset. The introduction of compression wraps to the NELFT LU care pathway has encouraged patients to have a degree of self-care whilst providing effective, measurable compression therapy. Patients have been empowered to be actively involved in their management plans and in the application of compression therapy, this in turn has had a positive impact on patient outcomes.

What this device has provided is a refreshing change to conventional compression for both patients and clinicians. Simple application and adjustment has eased the physical strain on clinicians and encouraged self-care. With an instant return to conventional footwear, patients have found the confidence to become more mobile; the psychological benefits alone merit further study. WUK

REFERENCES

Bianchi J, Mahoney K, Nugent L et al (2013) A fresh way to treat venous leg ulcers with measured compression. *Br J Community Nurs*. Suppl: S34, S36–40

Chase S (2000) Living with chronic venous leg ulcers: a descriptive study of knowledge and functional health status. *J Community Health Nurs* 17 (1) :1–13

Eagle M (2009) Wound assessment: the patient and the wound. *Wound Essentials* 4: 21–4

Elvin S (2015) Cost efficacy of using Juxta CURES™ and UCS™ debridement cloths. *Journal of Community Nursing* 29(2): 14–24

Hopkins A, Worboys F (2005) Understanding compression therapy to achieve tolerance. *Wounds UK* 1(3): 26–34

Lawrence G (2014) Juxta CURES: An innovative method of providing compression for leg ulcer management. *Wounds UK* 10(1): 64–70

National Institute for Health and Care Excellence (2015) *The Juxta CURES Adjustable Compression System for Treating Venous Leg Ulcers*. Available online: www.nice.org.uk/advice/mib25 (accessed 6.08.2015)

Norris R, Staines K, Vogwil V (2012) Reducing the cost of lower limb wound management through industry. *J Wound Care* 21(5): 216–22

Partsch H, Mortimer P (2015) Compression for leg wounds. *Br J Dermatol Scholarly Reviews* doi: 10.1111/bjd.13851

Thambiaya K (1996) Evaluation of a leg ulcer clinic. *Nursing Standard* 10(31): 58–62

White R, Cutting K (2006) *Modern Exudate Management: a Review of Wound Treatments*. http://www.worldwidewounds.com/2006/september/White/Modern-Exudate-Mgt.html (accessed 6.08.2015)