



INNOVATION IN WOUND CARE:

A REAL GAME CHANGER

AN INTRODUCTION TO WOUND EXPRESS

12 OCTOBER
2020

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LUNCHTIME
13:00 - 13:45



WOUNDEXPRESS™ - SETTING THE SCENE

Professor Keith Harding

Medical Director,

Welsh Wound Innovation Centre (WWIC)

Compression bandages... room for improvement



Indications for compression?

Venous insufficiency

Lymphoedema

Lipoedema

Cardiac oedema

Renal oedema

Nutritional oedema

Dependent oedema



Indications for compression?

- Post cellulitic oedema
- Post traumatic oedema
- Wheelchair oedema
- Diabetic foot and leg complications
- Any swollen leg that does not have ischaemic/inflammatory disease



Main effects of compression

Main effects	Mode of action
Reduction of oedema	<ul style="list-style-type: none">• Reduction of capillary filtration• Fluid shift into non-compressed regions• Improved lymphatic drainage
Venous narrowing	<ul style="list-style-type: none">• Increase of venous blood flow velocity• Reduction of venous pooling• Improved venous pumping action
Microcirculation and cytokines	<ul style="list-style-type: none">• Increase of shear stress• Release of anti-inflammatory mediators
Arterial inflow	<ul style="list-style-type: none">• Increase of arterial flow due to sustained pressure (intermittent or moderate)• Reduction of arterial flow if compression exceeds perfusion pressure

Factors influencing use of compression

Healthcare system:

- Reimbursement
- Confusion of which to use
- Inconsistent and incorrect use
- Cost effectiveness
- Lack of financial incentives
- Lack of specialist services

Factors influencing use of compression

Clinician factors

- Lack of knowledge:
 - in diagnosis
 - of importance of compression
 - of different systems
- Seen as specialist role
- Lack of skill in application
- Lack of time at appointment
- Lack of referral pathways

Factors influencing use of compression

Patient factors:

- Lack of understanding
- Unable to pay for compression
- Previous negative experiences
- Lack of access to competent clinician
- Unwillingness to wear for social/practical reasons
- Inability to attend for appointments

Current challenges

- 50% of patients treated with multi-layer bandaging systems are non-concordant
- Difficulties in applying compression therapy
- Potential deterioration in surrounding skin
- Self-application of wrap systems are associated with greater independence, self-efficacy and sense of control for patients with lymphoedema

A new development in compression

IWJ 2019



Category	At recruitment		At 8 weeks follow-up (n=18*)	
	Mean (95%CI*)	Median (IQR**)	Mean (95%CI*)	Median (IQR**)
Wound area (cm ²) n = 21	19.02 (4.29 to 33.76)	8.50(15.10)	13.15 (0.25 to 26.05)	4.30 (10.30)
Reduction in wound area (%) n = 21	-----		43.75 (29.48 to 58.04)	46.00 (37)
Pain Score (VAS***) n = 18	34.06 (16.60 to 51.51)	14 (71)	15.33 (6.77 to 23.90)	6.50 (23)
IPC device wear time n = 20	-----		127.35 (121.83 to 132.87)	120 (15)

*95% confidence intervals

***Interquartile range

***Visual Analogue Scale

The device

Intermittent pneumatic compression (IPC) comprises two components:

- A circumferential three chamber thigh garment
- An electronic pneumatic compression pump



Case study one

- 50-year-old female
- VLU to the gaiter region of her right leg
- No significant PMH — varicose veins and skin changes
- Ulcer present for one year
- Input from lymphoedema and practice nurse
- WoundExpress™ for 16 weeks wearing the garment two hours a day
- Adjunct therapy to her existing compression wrap system
- After two weeks pain levels reduced from mild to none
- Over 16 weeks — wound almost healed, surrounding skin improved, less oedema
- Positive patient experience — comfortable, reduced pain, easy to use, resulted in the wound healing

Case study one

Wound area: 7cm²



Wound area: 3.7cm²



Wound area: 0.24cm²



Case study two

- 27-year-old male
- VLU to gaiter region of left leg with skin changes
- Recurrent ulcerations over five years. Current VLU 18 months
- History of DVTs and extensive iliac vein and inferior vena cava thrombosis — on Rivaroxaban
- Active, works full-time, enjoys going to the gym
- WoundExpress™ for 16 weeks wearing the garment for two hours a day
- Adjunct therapy with two-layer bandage system
- Recurrent infections resulting in repeated courses of IV and oral antibiotics
- The wound reduced in size significantly and pain levels decreased
- Able to fit the treatment in around his working day

Case study two

Wound area = 18.5cm²



Wound area = 25cm²



Wound area = 7.8cm²



Case study three

- 70-year-old female
- VLU to right medial malleolus present for three months
- PMH includes previous varicose vein surgery, hypertension and OA to right knee
- Seeing practice nurse and wearing compression wrap — inconsistent with compression due to OA
- WoundExpress™ for 16 weeks wearing the garment two hours a day
- Able to tolerate the thigh IPC as it is positioned away from the painful wound
- Wound size reduced and showed positive signs towards complete healing
- Reported pain from moderate to 0 — enabled us to effectively cleanse and debride wound
- The reduction in pain improved tolerance of wearing the wrap
- Patient feedback positive — quality of life improved

Case study three



Feedback and findings

- All patients and clinicians who took part would recommend the therapy to other patients
- Easy to use
- All had positive results
- Reduction in pain levels
- Reduction in wound size

**The future may be less use of Angels!
RCT on WoundExpress™ being set up**





WOUNDEXPRESS™ CASE STUDY

Alison Schofield

Tissue Viability Team Lead, Clinical Nurse
North Lincolnshire and Goole NHS Foundation Trust

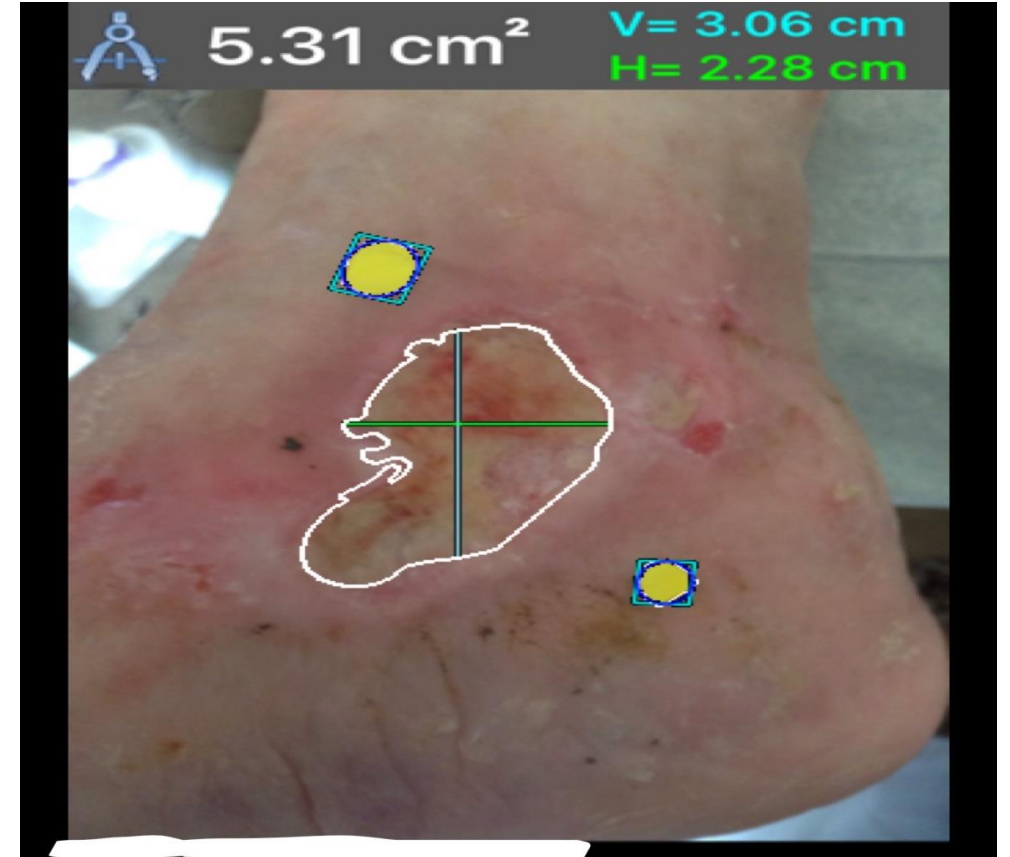
Case study

- 73-year-old female patient with chronic leg ulceration since 1995 under primary care
- History of venous disease and rheumatoid arthritis
- Referred to the community leg ulcer service in 2015
- Full assessment and compression, ulcer healed
- January 2020 leg ulceration recurred — patient had stopped wearing class 2 hosiery and applied only a liner, 10mmHg

Case study

- Treatment plan comprised dressings and a compression wrap system
- WoundExpress™ started with a shared plan of care

After four weeks of using WoundExpress™



Treatment with WoundExpress™

- Trial period currently at six weeks and continuing
- Patient is self applying WoundExpress™ each day
- She reports it is comfortable and easy to apply and use
- Shared care with clinic in dressings and compression wrap system

Treatment with WoundExpress™

Wound continues to improve at each assessment:

- Decrease in size
- Wound more viable
- Condition of surrounding skin has improved
- Patient experiencing less pain

Treatment with WoundExpress™

- How WoundExpress™ has made a difference with self-care in the Covid pandemic
- WoundExpress™ encourages patients to take an active role in their own care
- Very positive feedback from patients on ease of use in their own homes



WOUNDEXPRESS™ IN PRACTICE

Karen Staines

Director of Education and Research/Clinical Lead:
Wound Care, Accelerate

Our journey with WoundExpress™

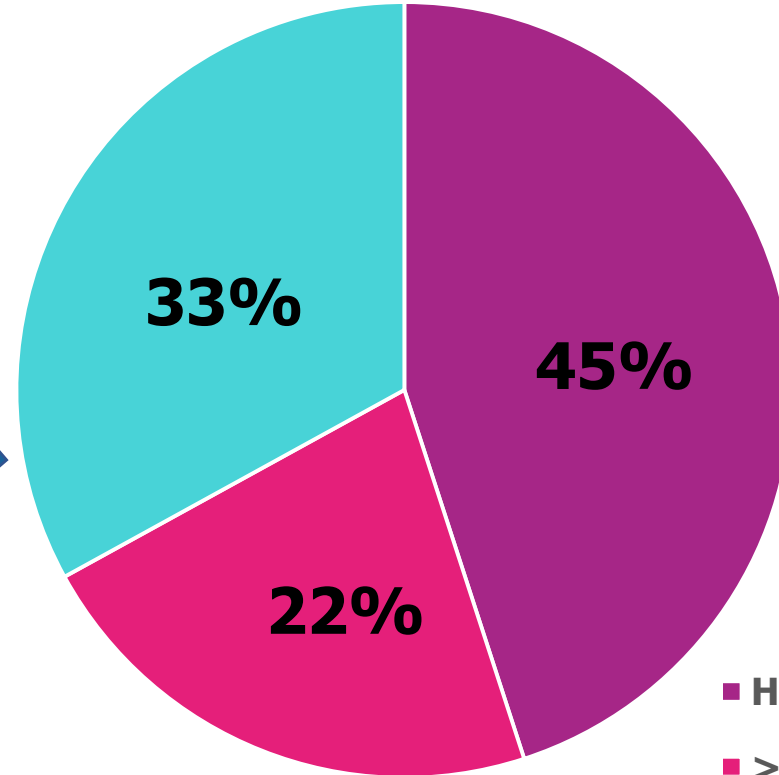
- Evaluations started in the summer of 2019
- 14 patients have been included in the 16-week programme
- Three patients terminated the evaluation early and two are ongoing
- WoundExpress™ used for two hours a day; patient diary completed
- Reported outcomes of reduction in wound size and pain on nine patients

Results on reduction in pain and healing

Nine patients

Pain reduction 100%

Healing rates



- Healed
- >75% Reduction in wound size
- >25% Reduction in wound size

What do we like about WoundExpress™?

- Unique thigh intermittent pneumatic compression (IPC) not applied over the ulcer site
- Used as an adjunct therapy
- Positive patient experience, with reduction of pain and wound size being recorded
- Ease of application and empowers patients to self-manage and suitable for home therapy

Patient pathway

- Initially used within the management of patients with ulceration from venous disease alongside compression therapy
- Positive results on patients with mixed aetiology and foot ulceration
- Exploration of patients to enable reduction of pain (sickle cell ulceration)
- Exploration of patients with lymphoedema/chronic oedema
- Self-management and shared care with local services

The patient's journey...



“Let each person tell
the truth from his
own experience”

Florence Nightingale - www.quoteikon.com

Call for action

For further information, see more patient stories and to contact us regarding any questions or to discuss a follow-up from one of our specialists, please visit:
www.woundexpress.com



References

- Harding K, et al (2015) *Simplifying venous leg ulcer management. Consensus recommendations*. Wounds International. Available online: www.woundsinternational.com/resources/details/simplifying-venous-leg-ulcer-management-consensus-recommendations
- IWJ, 2019 — Naik G, Ivins NM, Harding KG (2019) A prospective pilot study of thigh-administered intermittent pneumatic compression in the management of hard-to-heal lower limb venous and mixed aetiology ulcers. *Int Wound J* **16(4)**: 940–5
- Partsch H, Mortimer P (2015) Compression for leg wounds. *Br J Dermatol* **173**: 359–69. Available online: <https://onlinelibrary.wiley.com/doi/epdf/10.1111/bjd.13851>



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