

Burden of Wounds

- **18.6 million** practice nurse visits
- **10.9 million** community nurse visits
- **7.7 million** general practitioner visits
- **3.4 million** hospital outpatient visits
- **Estimated cost of £5.3 billion**
 - Continues to rise annually
- 730,000 patient with leg ulceration
- 1.5 – 3% adult population
- 70% of these venous ulceration

Open Access Research BMJ Open Health economic burden that wounds impose on the National Health Service in the UK

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To cite: Guest JF, Ayoub N, McIlwraith T, et al. Health economic burden that wounds impose on the National Health Service in the UK. *BMJ Open* 2015;9:e005283. doi:10.1136/bmjopen-2015-005283

► Prepublication history for this paper is available online. To view these files please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2015-005283>).

Received 1 July 2015
Revised 19 October 2015
Accepted 20 October 2015



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ABSTRACT
Objective: To estimate the prevalence of wounds managed by the UK's National Health Service (NHS) in 2012/2013 and the annual levels of healthcare resource use attributable to their management and corresponding costs.

Methods: This was a retrospective cohort analysis of the records of patients in the Health Improvement Network (HIN) Database. Records of 1000 adult patients who had a wound in 2012/2013 (cases) were randomly selected and matched with 1000 patients with no history of a wound (controls). Patients' characteristics, wound-related health outcomes and all healthcare resource use were quantified and the total NHS cost of patient management was estimated at 2013/2014 prices.

Results: Patients' mean age was 69.0 years and 45% were male. 76% of patients presented with a new wound in the study year and 61% of wounds healed during the study year. Nutritional deficiency (OR 0.53; p<0.001) and diabetes (OR 0.65; p<0.001) were independent risk factors for non-healing. There were an estimated 2.2 million wounds managed by the NHS in 2012/2013. Annual levels of resource use attributable to managing these wounds and associated comorbidities included 18.6 million practice nurse visits, 10.9 million community nurse visits, 7.7 million GP visits and 3.4 million hospital outpatient visits. The annual NHS cost of managing these wounds and associated comorbidities was £5.3 billion. This was reduced to between £5.1 and £4.5 billion after adjusting for comorbidities.

Conclusions: Real world evidence highlights wound management is predominantly a nurse led discipline. Approximately 30% of wounds lacked a differential diagnosis, indicative of practical difficulties experienced by non-specialist clinicians. Wounds impose a substantial health economic burden on the UK's NHS, comparable to that of managing obesity (£5.0 billion). Clinical and economic benefits could accrue from improved systems of care and an increased awareness of the impact that wounds impose on patients and the NHS.

INTRODUCTION

Patients requiring wound care can be found in the community, secondary care and in long-term care institutions and range from

Strengths and limitations of this study

- This study estimated the health outcomes, resource implications and associated costs attributable to managing wounds in 2012/2013 using real world evidence obtained from the Health Improvement Network (HIN) database (a nationally representative database of clinical practice among >11 million patients registered with general practitioners in the UK).
- The estimates were derived following a systematic analysis of patients' characteristics, wound-related health outcomes and all community-based and secondary care resource use contained in the patients' electronic records.
- Computerised information in the HIN database is collected by general practitioners (GPs) for clinical care purposes and not for research. Additionally, prescriptions issued by GPs and practice nurses are recorded in the database, but it does not specify whether the prescriptions were dispensed or patient compliance with the product.
- The analysis does not consider the potential impact of those wounds that remained unhealed beyond the study period. Nor does it consider the potential impact of managing patients with wounds being cared for in nursing homes. The HIN database may have under-recorded use of some healthcare resources outside the GP's surgery. However, the impact of this was addressed in sensitivity analyses.

infants to the elderly. The patient population with wounds is managed across the spectrum of different healthcare disciplines that includes general practice, specialist physicians, surgeons, nurses and allied healthcare practitioners, such as podiatrists.¹⁻³

Wound care should be viewed as a specialised segment of healthcare that requires clinicians with specialist training to diagnose and manage appropriately.⁴⁻⁶ However, the evidence suggests this is not the case.¹⁻³ Moreover, it has been suggested that better wound care, such as effective diagnosis and treatment and effective prevention of wound

Venous Ulceration

- Compression therapy is key
- Dressing selection less important
- Hosiery kits 'gold standard'



Articles

Clinical and cost-effectiveness of compression hosiery versus compression bandages in treatment of venous leg ulcers (Venous leg Ulcer Study IV, VenUS IV): a randomised controlled trial

Wheeler, Andy, Bloor, Gail, Sheikh, Ali, Liu, Audrey, Marsh, Brent, Nisija, Galina, et al. BMC Medical Research Methodology 2014, 14:107

Summary

Background: Two-layer hosiery (two-layer compression bandages) for venous leg ulcers. We have previously compared the clinical effectiveness and cost-effectiveness of two-layer compression hosiery with the four-layer bandage for the treatment of such ulcers.

Methods: We undertook this pragmatic, open, randomised controlled trial with two parallel groups in 14 centres in England and Northern Ireland. The centres were community nurse teams or services, family doctor practice, leg ulcer clinics, acute vascular clinics or services, and wound clinics. Participants were aged 18 years or older with a venous leg ulcer and an ankle brachial pressure ratio of at least 0.8, and were eligible for high compression. We randomly allocated participants (1/2 to receive two-layer compression hosiery or a four-layer bandage, using a remote randomisation service and pre-specified computer randomisation program. Participants were stratified by ulcer duration and ulcer area with permuted blocks (block sizes four and six). The primary endpoint was time to ulcer healing with a minimum follow-up of 12 months. Although participants and health-care providers were not masked to treatment allocation, the primary endpoint was measured by masked assessments of photographs. Primary analysis was intention to treat with Cox regression, with adjustments for ulcer area, ulcer duration, physical mobility, and centre. This trial is registered with the ISRCTN register, number ISRCTN45173072.

Findings: We randomly allocated 477 participants to the two treatment groups: 230 to two-layer hosiery and 227 to the four-layer bandage, of whom 413 (240 hosiery and 223 bandage) contributed data for analysis. Median time to ulcer healing was 99 days (95% CI the 12th to the 13th) in the hosiery group and 99 days (95% CI the 12th to the 13th) in the bandage group, and the proportion of ulcers healing was much the same in the two groups (78.9% hosiery and 79.4% bandage). More hosiery participants changed their allocated treatment (8.3% hosiery vs 27.8% bandage) post-trial. 200 participants had 895 adverse events, of which 81 (9.3%) were classified as serious but none led to trial termination.

Interpretation: Two-layer compression hosiery is a viable alternative to the four-layer bandage—it is equally as effective at healing venous leg ulcers. However, a higher rate of treatment changes in participants in the hosiery group than in the bandage group suggests that hosiery might not be suitable for all patients.

Trials.gov: NCT01461204

Introduction

Venous leg ulcers are open chronic wounds that occur within the gaiter region of the leg from below the ankle, up to mid-calf and are a consequence of venous insufficiency.¹ They typically present as repeated cycles of ulceration, healing and recurrence. Such ulcers can take weeks or months to heal,^{2,3} and 12-month recurrence rates are between 38% and 28%.^{4,5} They are painful, malodorous, prone to infection, and severely affect patient mobility and quality of life.^{6,7}

Compression is an effective and recommended treatment for venous leg ulcers, which works by application of graduated pressure to the leg distal to the ankle, decreasing to the knee, which improves venous return and reduces oedema.^{8,9} In a systematic review, CPMs and multi-layer bandages concluded that multi-component systems delivering high compression (defined as 40 mm Hg of compression at the ankle) were the most effective treatment for such ulcers.

The multi-layer multi-component compression bandage system (two-layer bandage) is regarded as the gold standard compression system for treating leg ulcers.¹⁰ However, some drawbacks are associated with this treatment. The amount of compression delivered might be compromised by poor application technique, bandages can slip and need reapplication, and the bulky nature can reduce ankle or leg mobility which creates difficulties in wearing of shoes and causes discomfort.¹¹

Two-layer compression hosiery systems (two-layer hosiery) have recently been marketed for the treatment of venous leg ulcers. They are designed to deliver 40 mm Hg of compression at the ankle when both

	<u>4 -layer bandage</u>	<u>2-layer hosiery kit</u>
Median time to healing	98 days	99 days
Ulcers healing	70.4%	70.9%
Ulcers recurring	23%	14%
Mean annual cost	£1,795	£1,494



“Increased use is likely to result in a substantial saving for the NHS with improved quality of life for people with venous ulcers.”

Chronic Venous Disease



Power of Compression



Presentation 27/7/09



Review 13/8/09



Healed 15/9/09

Self Care Enablers

- Leg ulcer passports
- Patient information
- Guides to washing hands/changing dressing
- Dressing logs
- Exercise logs
- SOS facilities
- Provision of equipment

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