

Standardisation through clinical audit: an example of good practice in leg ulcer management

KEY WORDS

- ▶ Audit
- ▶ Lean methodology
- ▶ Leg ulcer clinic
- ▶ Service provision

Leg ulcers represent a considerable burden both financially and in health-related quality of life terms. Nurse-led clinics are the recommended model for service provision in leg ulcer management in Scottish Intercollegiate Guidelines Network (SIGN) 120: 'Management of chronic venous leg ulcers' (2010). However, despite comprehensive guidelines, inequities and shortfalls in leg ulcer service provision remain. As part of the 'Releasing Time to Care' national programme, a team of community nurses in NHS Greater Glasgow and Clyde applied clinical audit to assist in identifying areas for improvement at their busy leg ulcer clinic and utilised principles of lean methodology for the achievement of patient-centred leg ulcer management. Specific improvements included a reduction in patient waiting times, an improvement in nurses' knowledge and skills in leg ulcer management, the standardisation of documentation and enhanced communication between members of the multidisciplinary team.

Chronic venous insufficiency (CVI) is a progressive circulatory disease causing stasis, venous hypertension, oedema and ulceration in the lower limbs. It affects up to 50% of the adult population and is a considerable burden to society both financially and in health-related quality of life (HRQoL) terms (Venous Forum of the Royal Society of Medicine, 2011). Leg ulcers affect between 1.5–1.8% of adults living in developed countries (O'Meara et al, 2009) with 60–80% of all leg ulceration being attributable to venous disease (Callam, 1999). They can also be attributed to arterial disease (15–20%) and less common causes, such as vasculitis, rheumatoid arthritis, as well as dermatological conditions, including malignancy (Anderson, 2006).

Posnett and Franks (2008) put the cost of venous ulcers at between £168–198 million per annum in the UK, with an estimated annual cost per patient as £1,500–1,800. However, with changing demographics, including an aging population who are more likely to have complex comorbidities, the burden of CVI is expected to increase along with the number of patients with complex and mixed aetiology ulcers (Moffatt, 2008). Furthermore, since

it is a chronic, progressive condition, recurrence rates are high (Morison and Moffatt, 2004). There is much evidence to support the negative impact of HRQoL and the presence of a chronic wound including physical, social and psychological impairment leading to an overall detrimental effect on wellbeing (Franks et al, 2006; Augustin et al, 2012). Jones et al (2006) found that leg ulceration causes pain, sleep disturbance, anxiety, depression, and disrupts social and work life.

Treatment pathways for various types of leg ulceration differ, therefore, it is crucial that clinicians involved in their management have the necessary knowledge and skills to deliver effective evidence-based care (Anderson, 2003; Scottish Intercollegiate Guidelines Network [SIGN], 2010). However, despite clear international, national and local guidelines outlining pathways for the management of venous leg ulcers (Marston and Vowden, 2003; Royal College of Nursing [RCN], 2006; SIGN, 2010), there is evidence to suggest a failure to meet optimum patient outcomes in the UK (Venous Forum of the Royal Society of Medicine, 2011; Vowden and Vowden, 2013).

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“Early detection of skin changes and oedema associated with chronic venous insufficiency, and the initiation of preventative measures to halt disease processes have also been identified as crucial in the effective management of leg ulcers.”

Barriers accounting for this shortfall include: lack of clinician education (White et al, 2013), lack of integration between members of the multidisciplinary team (White, 2012), inequitable service provision and shortages of resources including clinician time (White et al, 2013).

Early detection of skin changes and oedema associated with CVI, and the initiation of preventative measures to halt disease processes have also been identified as crucial in the effective management of leg ulcers (Bianchi, 2013). However, due to barriers in the implementation of standardised service provision, preventative services in Scotland also remain inequitable.

METHOD: AN AUDIT OF A LOCAL LEG ULCER SERVICE

Clydebank is a large town located within West Dunbartonshire Community Health and Care Partnership (CHCP) under NHS Greater Glasgow and Clyde Health board (NHSGGC). For over a century, it was a renowned centre of engineering, ship building and was home to a large, well-known sewing machine factory. One undesirable legacy of heavy industry has been the high incidence of chronic diseases, including ischaemic heart disease, chronic obstructive pulmonary disease and various cancers in the town's population. Long hours spent standing coupled with a high incidence of trauma and injury to the lower legs from machinery have also contributed to the prevalence of CVI and leg ulceration, which continue to affect many of the town's residents to the present day.

LEG ULCER CLINICS

Leg ulcer care delivered in a clinic setting has been reported as the most effective for patient outcomes (Beasley et al, 2013). Clinic-based services are cost effective in personnel and resource terms (Anderson, 2006), and are a useful forum for the provision of education and sharing of knowledge and skills (Anderson, 2006). Therefore, they are the recommended service model in SIGN 120: Management of chronic venous leg ulcers (SIGN, 2010). Over the past decades, the community nurse team at Clydebank Health Centre (CBHC) have established a dynamic, comprehensive leg ulcer clinic system that has evolved into a visible and continued example of evidence-based

practice. Existing strengths of the clinic at the commencement of the audit were as follows:

- ▶ The presence of several leg ulcer-trained nurses and a highly experienced and dedicated link nurse coordinator who oversaw the management of the clinic
- ▶ A Doppler assessment clinic component staffed by members of the community nursing team which facilitated the development and maintenance of knowledge and skills within the wider team
- ▶ The facility for multidisciplinary clinicians from out with the area to visit and participate in clinic activity, providing a forum for sharing evidence-based practice and education
- ▶ Utilisation of a standardised, board-wide leg ulcer care assessment and management pathway
- ▶ Utilisation of a standardised referral pathway to the clinic
- ▶ Commitment to shared working between the clinic staff and the wider multidisciplinary team.

RELEASING TIME TO CARE

In December 2012, 'Releasing Time to Care' (RTC), a national modular programme designed by the NHS Institute for Innovation and Improvement to streamline and improve the quality of direct patient care was introduced at CBHC (Healthcare Improvement Scotland, 2012). During the initial phases, community nursing teams were invited to select a specific area of practice for comprehensive review and evaluation.

As part of the 'Knowing How We Are Doing' and 'Standardised Patient Care' modules, the team running the leg ulcer clinic applied RTC lean methodology principles to assist them in critically examining existing practice and exploring standardised measures to develop and improve it. As the primary means of appraising the effectiveness of clinic outcomes, the team employed clinical audit, which is recognised as a vital tool for service design and improvement (Campbell et al, 2005).

Beasley et al (2013) recommends that in order to maximise the effectiveness of audit outcomes, specifically targeted systems for data collection are selected at initial stages of the process. This is supported by Dowsett (2011) who suggests that the first stage of a leg ulcer service audit should involve a clear identification of the aspects of care to be

Clydebank HC Doppler Treatment Planner Recall Form
 PLEASE RETURN COMPLETED FORM TO TREATMENT ROOM AFTER ARRANGING SCRIPT

Patient Details

Date: _____ Name of nurse measuring/ordering hosiery _____

Name of Nurse performing Doppler _____

Result APBI : Left leg Right leg

Venous Arterial Mixed Aetiology

Treatment Plan - Compression bandage Measurements Left Ankle Calf
 Compression hosiery Right Ankle Calf
 Length

Referral Plan -

Annual Recall Y N

Wed Bandage Clinic Y N Appt made Y N

DN Service Y N Referral made Y N

Treatment Room Y N Referral Made Y N

GP Result Letter completed and given to Practice Y N

STOCKING SELECTION Mediven Plus open Toe
 Mediven Elegence Closed Toe

Please circle selection Petite Regular

MEDIVEN I. II. III. IV. V. VI. VII.
 (RAL class 1) (complete mediven order form) PIP Code _____

Mediven for Men I. II. III. IV. V. VI. VII.
 (RAL class 1) PIP Code _____

MEDIVEN Made to Measure
 (RAL class 1) (complete mediven order form) PIP Code _____

Duomed Soft British Standard CLASS I CLASS II
 (frail/elderly) Below Knee Size Open toe
 Thigh Length Size Closed toe

DIABETICS TYPE 1/11 ON INSULIN DISCUSS WITH LINK NURSE RE CLASS 1 OR CLASS11 COMPRESSION HOISERY

Figure 1. Example of a patient treatment planner.

Table 1. Waiting times from referral to Doppler assessment.

Waiting Times (weeks)	Number of patients waiting		
	Baseline 2011*	Implementation of New System 2012	2013
1	0	1	0
2	2	4	0
3	0	1	45
4	2	3	3
5	6	3	0
6	7	0	0
7	6	6	0
8	9	3	0
9	7	1	0
10	6	1	0
11	3	0	0
12	4	1	0
13	2	1	0
14	1	1	0
15	6	0	0
16	1	0	0
17	0	1	0
18	1	1	0

examined and a clear definition of purpose. The identified purpose of the audit at CBHC was to build upon existing strengths and streamline clinical and cost-effective outcomes in the promotion of more patient-centred leg ulcer care. The specific aspects of leg ulcer care that were identified by the team as areas for improvement were as follows:

- » Length of patient waiting time from initial referral to leg ulcer clinic until Doppler ultrasound assessment
- » Length of patient waiting time until Doppler reassessment
- » Wider community nurses' knowledge pertaining to implementation of correct care pathways (i.e. correct bandage and hosiery selection for ABPI ranges, product application, Doppler ultrasound technique)
- » Standardisation of documentation on patient care pathways
- » Standardisation of communication of leg ulcer care pathways and outcomes to other disciplines, in particular patients' GPs.

Waiting time from initial referral to leg ulcer clinic to Doppler ultrasound assessment

As with all chronic conditions, timely referral for patients with legs ulcers is crucial. NHS Supply2Health (2012) advises that in order to obtain correct diagnosis and establish a suitable treatment pathway, patients with an unclassified leg ulcer should be assessed within 10 days, however, shortfalls in service provision and resources can prevent this gold standard from being achieved consistently. The time from initial patient presentation to Doppler assessment has also been identified as a key area for audit focus by the development group for SIGN 120: Management of chronic venous leg ulcers (SIGN 2010).

In CBHC, it was identified that barriers for achieving a reduction in patient waiting times were: resource shortages, including staff, time and room availability; the absence of an appointed person to coordinate administrative aspects of the clinic; and the absence of a standardised protocol to ensure consistent communication between referrers, clinic staff and members of the wider multidisciplinary team, most notably GPs. The first step was the appointment of a designated member of the team to act as coordinator for the administrative elements of the clinic. This streamlined practice and efficiency

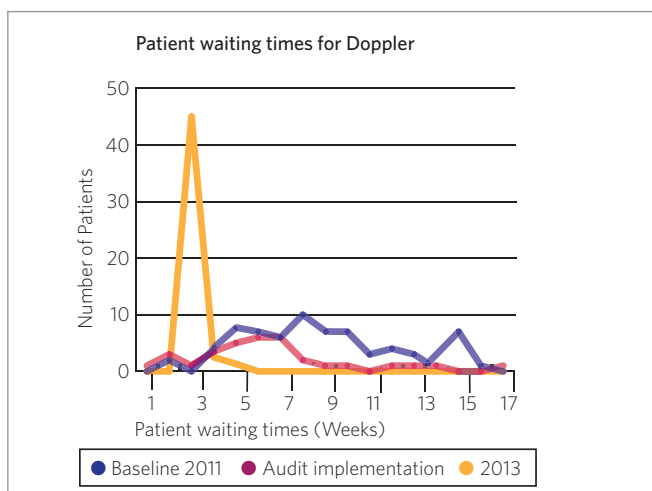


Figure 2. A graph illustrating the reduction in Doppler waiting times.

Table 2. Number of Doppler assessments/reassessments.				
	2010	2011	2012	2013
Number of patients assessed/recalled	35	15	35	31

and most importantly, allowed the clinical link nurse coordinator to focus directly upon patient care.

Following comprehensive data collection, it was established that the majority of patients referred to the leg ulcer clinic in 2011 waited 8 weeks from initial referral to completion of Doppler ultrasound. Further examination of the data revealed that the most significant factor impeding this was a shortage of resources. The team agreed that extra clinic space would significantly reduce patient waiting times and following presentation of findings and discussion with line management, this was successfully secured.

A formal staff rota, inclusive of all members of the community nursing team was also devised. This ensured both sufficient staffing of the clinic and a continued forum for education and maintenance of clinician skill in various aspects of leg ulcer management (Anderson, 2006). An electronic database was configured to record both patients on existing leg ulcer pathways and new referral/admissions to the clinic. A Patient Treatment Planner — enabling all members of the wider team to visualise stage of patient presentation on the leg ulcer care pathway — was also devised (Figure 1).

Following the implementation of the fore mentioned systems, a significant improvement in the waiting times between initial referral and Doppler Ultrasound was observed, reducing for the overwhelming majority of patients to a period of three weeks by 2013. This demonstrated a 37.5% reduction. The maximum patient waiting period reduced from 18 to 4 weeks (Table 1 and Figure 2).

Waiting time until Doppler reassessment

A study by White et al (2012) found the variation in healing rates within 12 weeks for venous leg ulcers to be between 12% and 73%. The upper figure (73%) represents patients who attend leg ulcer clinics and is further evidence to support their efficacy in the management of CVI compared to alternative community settings. In CBHC, the new database is used to initiate patient recalls, allowing status to be viewed at a glance and the invitation of those remaining actively compliant with hosiery for a reassessment appointment (Table 2).

SIGN (2010) recommends that reassessment for non-healing ulcers should be carried out at 12 weeks. However, full reassessment is also necessary for new and recurring ulcers since new presentation cannot be assumed to have the same aetiology as any previous ulceration (SIGN, 2010). Following initiation of new systems to ensure timely reassessment at CBHC, a total of seven patients who previously had ABPIs that supported suitability for full compression were identified as having developed arterial disease. This is supported by Vowden and Vowden (2001) who maintain that ABPIs are likely to reduce over time in patients with CVI, illustrating the importance of ongoing standardised measures to ensure adequate patient safety outcomes.

Finally, without ongoing preventative management using graduated compression hosiery, venous ulcers are likely to recur, with 12-month recurrence rates between 18% and 28% (Ashby et al, 2013). Recommendations for the frequency of reassessment for patients wearing hosiery is biannually (SIGN, 2010), however, although this is the aim at CBHC, current capacity at the clinic dictates that reassessment appointments can only be completed on an annual basis.

NURSES' KNOWLEDGE

Nurse knowledge and skills are vital elements in the optimum provision of leg ulcer services. Clinicians should not only be aware of the correct leg ulcer assessment and management protocols, but also remain up to date with ongoing development at board and national levels (Anderson, 2006). However, with 90% of Scotland's healthcare now being delivered in the community (National Framework for Service Change, 2004), community nurses are increasingly expected to maintain satisfactory levels of knowledge in expanding areas

Table 3. Diabetic type I and type II insulin controlled leg ulcer management.

Guidance			
ABPI	Consider	Actions	Bandage
≥1.5	Arterial Calcification NOT suitable for compression	Complete GP letter and inform link nurse; seek specialist advice	Simple dressing and/or wool/ crepe
0.8–1.5	Venous ulcer May be suitable for reduced compression bandaging if no other contraindications	Complete GP letter / Apply appropriate bandage selection	May be suitable for reduced compression system* 18–25 cm/26–30 cm dependant on ankle circumference
0.6–0.8	Mixed Aetiology NOT suitable for compression	Complete GP Letter and inform link nurse; seek specialist advice	Simple dressing and/or wool/ crepe
≤0.5	Arterial Disease NOT suitable for compression	Complete GP letter and inform link nurse; urgent specialist referral	Simple dressing and/or wool/ crepe

*Note: these are guidelines only. Each individual patient must be assessed holistically and an appropriate, safe care pathway selected accordingly

Table 4. Leg ulcer management general guidance.

ABPI	Consider	Actions	Bandage selection	Dressing selection
≥1.5	Arterial Calcification NOT suitable for compression without specialist consultation	Complete GP letter and inform link nurse; seek specialist advice if required	Simple dressing and/or wool/crepe	Use structured approach to prepare wound bed
0.8–1.5	Venous May be suitable for full compression bandaging if no other contraindications i.e. rheumatoid arthritis**	Complete GP letter/apply appropriate bandage selection	May be suitable for inelastic or two-layer elastic systems	<u>Low-moderate exudate:</u> Use simple non adherent dressing/wound pad
0.6–0.8	Mixed aetiology May be suitable for reduced compression if no other contraindications	Complete GP Letter and inform link nurse if any concerns; seek specialist advice if required	May be suitable for reduced compression system or Simple dressing and/or wool/crepe	<u>Moderate-high exudate:</u> Use super-absorbent dressing Any of the above can be used under any bandage system
≤0.5	Arterial Disease NOT suitable for compression	Complete GP letter and inform link nurse; urgent specialist referral	Simple dressing and/or wool/crepe	

*Note: these are guidelines only. Each individual patient must be assessed holistically and an appropriate, safe care pathway selected accordingly

**Rheumatoid arthritis patients may be able to commence either full or reduced compression depending on presence of coexisting risk factors and/or presence of pain. Refer to local guidelines

of clinical practice. Identified shortfalls in nursing knowledge specific to the management of leg ulcers include aetiology and appropriate treatment pathways, selection and application of compression bandages and stockings and Doppler ultrasound technique (White et al, 2013). To address this, the clinic team at CBHC, developed a comprehensive education/information package for all community nursing staff inclusive of the following:

- ▶ Introduction of interactive workshops for staff education including: bandaging workshops, hosiery selection, Doppler assessment and introduction to the new documentation framework and clinic administration protocols
- ▶ Intervention and product selection flow charts to support staff in making evidence based selections and where indicated, appropriate specialist referrals (Table 3 and Table 4)
- ▶ Streamlining product selection to a minimum to promote continuity, evidence based practice and cost-effective choice*.

*NHSGGC is currently devising a Compression Bandage and Hosiery Formulary that will be available at some point in 2014.

Development and maintenance of clinician skills are further challenges in leg ulcer management (White et al, 2013). To address this, the team at CBHC introduced a rota ensuring that all Band 5 and 6 community nursing staff members (around 56 in total) participated an average of three times a year in the Doppler assessment clinic. This helped ensure that knowledge and skills gained from education sessions and workshops were consolidated, and the achievement of leg ulcer management as a core community nurse competency. It also helped prevent designated leg ulcer link nurses from becoming burdened with a workload that would be more appropriately shared among the wider team.

Standardisation of documentation and communication with multidisciplines

In line with the Nursing and Midwifery Council (NMC) guidance on documentation (NMC, 2008), nurses are expected to maintain adequate record keeping skills. Although legal patient documentation in the leg ulcer clinic at CBHC adhered to NMC standards pre-audit, it was recognised that standardising documentation would

improve clinic outcomes. Good communication between members of the multidisciplinary team is recognised as a necessary requisite for patient-centred care, however, shortfalls and failures in this capacity in the healthcare professions have also been highlighted (White, 2012). Members of the clinic team at CBHC particularly found that communication surrounding patient outcomes with GPs required a consistent, standardised approach. Specific documentation that was developed for standardisation included: patient registers and records of treatment, a formal correspondence template to inform GPs of patient interventions, diagnosis, advised specialist referral pathway and instructions pertaining to prescriptions for bandaging, dressing and hosiery products — if applicable. A standard letter to inform GPs if patients failed to attend appointments was also devised.

A simple database of all patients admitted to the clinic was created allowing the team to source information about patient stage in pathway of care, maintain a register of current clinic caseload and highlight due dates for recall and check interventions. The database also allowed information for relevant audit to be accessed and reported to assist in shaping future service development. A second development was the delegation of responsibility for overseeing and booking appointments to treatment room administration staff. This freed up valuable clinician time and facilitated a more formalised, streamlined process for referral that reduced scope for booking error.

CONCLUSION

Leg ulcers have a significant impact on both health and social care services and individual patients and families. Standardised service provision is recommended in their effective management and SIGN (2010) advocates the nurse-led clinic model as the gold standard for achieving evidence-based outcomes. Nurses at CBHC found that clinical audit of activity at their clinic and referral to principles of lean methodology allowed them to implement standardised measures which directly improved outcomes, including patient waiting times, nurses' knowledge and skills in leg ulcer management, communication with multidisciplines and standardisation of documentation. This has enabled the team to provide a high standard of patient-centred leg ulcer care.



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