# Service development initiative to create an expert lower-limb group

KEY WORDS
- Cellulitis
- Deep-vein thrombosis
- Expert
- Leg ulceration
- Lower limb

Following on from the successful set-up of a Red Leg Service in 2012, a team of expert clinicians was asked to develop an expert lower-limb group. Work streams were developed for cellulitis, deep-vein thrombosis (DVT) and leg ulceration, with the aim to ensure a smooth patient journey for each condition using an integrated approach. Each work stream was discussed and developed by the stakeholders. Omissions in the patient pathway and problems were identified, and solutions suggested. The work streams for cellulitis and DVT have largely been agreed but will continually be monitored by group members and prospective audit. For leg ulceration, a mapping event was required and the development of a new model of care. The leg ulceration pathway is in the pilot stage, with steps being taken to underpin knowledge across the Trust before a full rollout. The development of an expert lower-limb group has been instrumental in improving patient experience. Gaps in service provision have been highlighted and solutions generated.

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In 2012, the University Hospitals of North Midlands NHS Trust (UHNM) set up a Red Leg Service. This was facilitated by the lymphoedema clinical nurse specialist. A number of stakeholders were brought together from various backgrounds (*Box 1*) to develop a pathway for those patients with red legs rather than acute cellulitis (*Table 1*). The model was commended for innovation and generated a significant amount of interest, culminating in January 2016 with a Red Leg Open Day in Stoke on Trent. At the open day, 12 Trusts from around the country learned more about the model, with a view to setting up similar services.

## Formation of the expert lower-limb group

The success of this integrated approach led the lymphoedema clinical nurse specialist to expand this successful model of working to form an expert lower-limb group (ELLG). The ELLG includes many different disciplines and stakeholders (*Box 2*), clinicians and non-clinicians who encounter patients with problems with lower limbs as part of their role.

The inaugural meeting brought together all of the stakeholders to discuss the care of lower limbs. Practice development techniques (Guba and Lincoln, 1989; McCormack et al, 2013) were used to identify the claims, concerns and issues of those present and three work streams were identified:

- Cellulitis
- Deep-vein thrombosis (DVT)
- Leg ulceration.

These work streams where chosen as they seemed to cause the largest number of representations and the greatest duplication of workloads, as there was no clear guidance as to who was responsible for various aspects of treatment. Many patients with cellulitis were being referred to dermatology, infectious diseases, acute medicine or the red leg clinic. Patients with leg ulceration were often referred to dermatology, tissue viability, lymphoedema, vascular surgery and podiatry.

## CONDITIONS REVIEWED BY THE EXPERT LOWER LIMB GROUP

A further meeting led to full agreement of the cellulitis pathway (*Figure 1*).

It proved easy to agree the cellulitis care pathway as a lot of information had already been discussed and imparted as part of the Red Leg Service development. This had included changing the medical cellulitis guidelines to reflect the

**Box 1. Stakeholders in the Red Leg Service**

- Accident and emergency team
- Infectious diseases team
- Vascular service
- Primary care (GPs)
- Haematology team
- Patient representatives
- Dermatology team
- Tissue viability team
- Podiatry team
- Matron
- Directorate manager
- Lymphoedema specialists
- Microbiologists.

differential diagnosis advice recommended by the Clinical Resource Efficiency Support Team (2005). A number of areas needing further attention were identified:

- Education for nursing staff in relation to skin care
- Improved treatment of underlying skin conditions
- Creation of a patient information leaflet, as there was no such resource in the Trust.

The lack of patient information and education may have accounted for the high incidence of recurrent cellulitis, as — if the underlying cause of cellulitis is not treated — patients may have further episodes. With the right information and advice, this risk can be significantly reduced.

**Table 1. The clinical features of cellulitis and red legs**

| Cellulitis | Red legs |
|---|---|
| • Bacterial infection of the skin and subcutaneous tissues, often caused by *Streptococcus* or *Staphylococcus aureus*<br>• Acute, painful unilateral redness, often of the lower limbs, but can be anywhere on the body<br>• Warmth and tenderness with demarcation may be present<br>• Skin blistering may occur<br>• Raised C-reactive protein and erythrocyte sedimentation rate<br>• A port of entry to the skin may be present<br>• Strong link with lymphoedema. | • Redness throughout both legs, usually below the knee<br>• Associated warmth and tenderness may occur<br>• No systemic upset or malaise<br>• Generally is the result of chronic inflammatory changes, e.g. dermatological and vascular, which will not respond to antibiotic therapy. |

## Deep-vein thrombosis

The care pathway for DVT was already in place and little needed to be done to improve this. There were, however, some issues identified during the stakeholder meeting.

Once again, there was no specific information leaflet for patients post DVT, and thus they were not being presented with information related to the prevention of further DVT. The patient information leaflet has now been written, peer reviewed and ratified following consultation with the patient council.

There was also an issue around compression hosiery post DVT. The 2015 National Institute for Health and Care Excellence (NICE) guidance suggests all patients be fitted with class 2 compression hosiery (25–33 mmHg) for approximately 2 weeks post DVT to prevent post thrombotic syndrome. During discussions between group members, it became apparent that the vascular departments had used surgical appliances previously, but now the surgical appliances department had been lost, they were providing patients with a prescription request form to take to their GP to request compression hosiery as needed. This can lead to poorly fitting garments, as patients are often not measured or garments are incorrectly prescribed and are rarely fitted.

It quickly became apparent that a compression hosiery dispensary and fitting service was needed and a business case for this service has since been submitted. The business case proposes that the dispensary be staffed by a band 4 associate practitioner, who will receive requisitions for compression hosiery and then measure and fit the patient with the appropriate garment. In the interim, meetings with outpatient management has led to the reinstatement of stock within outpatient areas, which can be topped up from NHS stores at a low cost (both British standard and European classes are stocked). Patients can now be fitted with compression hosiery at their vascular appointment by appropriately trained staff. The outcomes for patients are being evaluated by a questionnaire that is sent out after discharge.

In 2015, the NICE guidance for the diagnosis and management of venous thromboembolic diseases and thrombophilia testing changed, as studies had shown that the wearing of compression hosiery

was poorly adhered to by patients post DVT. It no longer recommends patients be fitted with stockings to prevent post thrombotic syndrome unless they are symptomatic. This guidance is ambiguous, as DVT patients generally have symptoms and if the stockings are well fitting and comfortable they may be of significant benefit to the patient by increasing venous return and preventing the accumulation of backflow into the legs. In light of this, the ELLG has agreed that patients will be assessed on an individual basis.

## Leg ulceration

There was no agreed pathway for the management of leg ulcers within the Trust and the tissue viability pages on the Trust's intranet did not cover this topic. This was largely due to turnover of staff and the inability to complete the task due to an over-complicated approach to integrated care pathway development.

A mapping event revealed there was no agreement on several issues and a number of areas needed to be addressed:

- There was disagreement about whether bandages and dressings should be removed in the Accident and Emergency (A&E) department on admission. Tissue viability and vascular specialists were adamant that this must be the case to allow for skin inspection, pressure area inspection, wound assessment, methicillin-resistant *Staphylococcus aureus* screening, swab-taking and to detect any problems such as infection. The infection prevention team were not in agreement, feeling that exposure to airborne anaerobes may put patients at risk.
- There was concern over who was responsible for dressing/rebandaging the wounds once the dressings/bandages had been removed.
- There was a lack of consumables available on the wards and the ward staff had a poor awareness of formulary product uses and safety.
- There was a lack of trained nurses able to apply compression bandaging. In addition to this, there were no agreed competencies and there were safety issues that needed to be addressed.
- There were an unknown number of patients with lower limb wounds.

**Box 2. Disciplines/stakeholders in the expert lower-limb group**

| | |
|---|---|
| Care champion bands 1–4 | Immunology and medical physics |
| Chief Nurse | Infection prevention |
| Clinical Director for Oncology | Learning and development (virtual college) |
| Deep-vein thrombosis and venous thromboembolism team members | Medical director |
| Diabetic foot pathway | Medicines optimisation |
| Director of County Hospital | Outpatient antibiotic therapy |
| Endocrinology | Patient advice and liaison service |
| Haematology | Pharmacy team |

- A significant number of complaints had been received by the patient advice and liaison service relating to the lack of dressing changes and knowledge of dressings/bandaging, especially among those seen regularly by community teams. Anecdotally, there were reports of ulcers worsening and legs in general deteriorating while patients were in hospital, which was clearly unacceptable.

It was agreed that a new approach was necessary. The VENous leg Ulcer Study (VENUS) IV trial

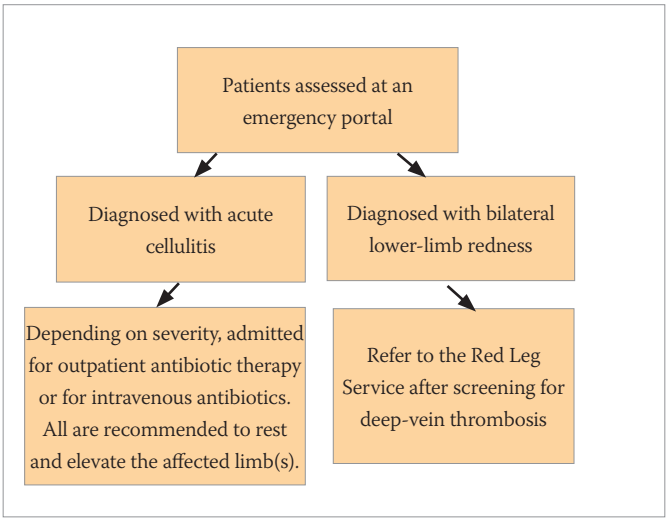


Figure 1. Cellulitis pathway

(Ashby et al, 2013) demonstrated the efficacy of a leg ulcer hosiery kit in comparison with multilayered compression bandaging. The time to healing was the same for each modality, but with the kit there was a significant reduction in nurse time and thus a considerable cost saving. It was thus decided to use this model as the management protocol, as there were no obvious infection prevention issues identified by stakeholders. On further exploration and discussion, it was found that the A&E department was already removing dressings and bandages in line with this paper.

A snapshot audit carried out by the tissue viability team in December 2015 revealed that 68 out of 1,200 patients in the Trust had a lower limb wound. For the audit, the team members walked around the Trust with a clipboard gathering data; thus the audit could easily be repeated in any other clinical area or Trust.

## THE CARE PATHWAY

A draft care pathway was developed and was to be piloted in two areas: in frail elderly care and on the infectious diseases ward. Leg ulcers (lower-limb wounds) would be swabbed if required and all patients referred to the tissue viability team. Patients would be seen by a tissue viability nurse for evaluation, including Doppler assessment to measure their ankle-brachial pressure index. If deemed suitable, patients would be measured and prescribed a leg ulcer hosiery kit.

The tissue viability nurse would fit the leg ulcer hosiery kit when the patient was admitted to the ward and on-going management would be handed over to the ward staff.

## EDUCATING STAFF, TACKLING ISSUES AND AUDITING THE PATHWAY

UHNM has a care champion for bands 1–4. Their role is to assist with the development of these posts and includes competency development for specific areas. A band 2 study day was held by the care champion in December 2015 to launch the use of the leg ulcer hosiery kits at UHNM and to familiarise band 2 staff with the kits so that when patients were being cared for on the wards they would be able to remove the leg ulcer hosiery kits effectively and assist the patient with skin care. The aim of the study day was that, once the trained nurse had inspected the wound as part of on-going assessment, the band 2 staff could apply a simple dressing (which is already part of their remit/competency) and reapply a clean leg ulcer hosiery kit, reducing the need for a registered nurse in wound management.

A number of difficulties in the implementation of the new care pathway were identified. One was the fact that the tissue viability team were not trained in Doppler assessment. This was largely due to the fact that their role had been steered towards the prevention of pressure ulcers, the treatment of acute wounds and vacuum therapy. There were also problems accessing the leg ulcer hosiery kits. The tissue viability team wanted the pharmacy to store the kits to ensure safety, as if the products were available via NHS stores they may be provided mistakenly or without the correct patient assessment. The pharmacy department initially stated there was not enough storage space, but the pharmacy representative members of the ELLG were able to address this issue.

Some patients are not suitable for legulcer hosiery kits and a small number require multilayered compression bandaging applied by the tissue viability team, e.g. due to poor limb shape, lymphorrhoea or extreme limb size. An alternative option being considered is compression wraps. These wraps allow effective, measurable and instantly adjustable compression that can lead to a reduction in limb volume and can help to reshape limbs. Although exudate levels may initially be increased, with the correct absorbent dressing under the wrap, over time the appropriate level of compression should lead to reduced exudate and ulcer healing. Wrap systems allow for self-management or application by healthcare assistants. Wraps, however, can only be utilised after thorough assessment and under the supervision of an appropriately trained healthcare professional. A prospective audit will allow for data collection on the number of patients unsuitable for a leg ulcer hosiery kit.

It is hoped that the new leg ulcer pathway will become embedded in nursing care, as it is simple and easy, making good use of the skill mix within an acute trust, and to ensure a seamless transition between primary and secondary care for patients coming into hospital with a leg ulcer.

## THE NEWSLETTER

The creation and distribution of a newsletter has been of paramount importance in communicating with ELLG stakeholders. Not all issues have been relevant to all group members, but the newsletter has kept everyone informed in a quick and easy way. Board-level representation has been useful in securing an audience with key player — e.g. the pharmacy team — and in moving ideas forward that may have otherwise have faltered. An example of this has been the involvement of healthcare assistants in the application of compression. Traditionally, compression has been the role of the registered nurse. The change may have rung alarm bells for some and caused resistance on the wards, but the involvement of the Trust care champion and the chief nurse meant that the pathway was accepted and embraced.

## AN EDUCATIONAL CONFERENCE

It is hoped that there will be an ELLG conference at UHNM that is free to all Trust staff; in order to improve the understanding of lower limb pathologies and their associated conditions. Stakeholders will all be asked to contribute to a session and it is hoped that the three work streams can be explained in terms of where the Trust was, what has been achieved in 12 months, and where staff can go from here, e.g. on-going data collection, evaluation and monitoring of the new care pathway for leg ulceration, and ensuring patients participate in the patient experience survey.

## CONCLUSION

The development of an ELLG has raised the profile of this often-forgotten part of the body that, when problematic, can cause distress to patients as well as their families. There is more to do, but the ELLG helps make sure to keep lower limb problems on the Trust's agenda and ensures that everyone takes responsibility for the prevention and management of largely very treatable conditions. Data collected on patient experiences and continual monitoring by the ELLG should result in helping to ensure that the provision of care for patients requiring admission with cellulitis, DVT or leg ulceration is clinically driven, timely and evidenced-based. WUK

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