Developing a nurse led integrated ‘red legs’ service - caring for people with a complex diagnosis/condition with causes other than acute cellulitis

**Keywords:** Red legs, cellulitis, nurse-led, facilitation

**Duration of the project:** December 2011 – February 2013

**Final report submitted for publication:** December 2013

**Project team:** Rebecca Elwell, Macmillan Lymphoedema Clinical Nurse Specialist (Project Leader) and Claire Sharp, Physiotherapist

**Contact details:** Rebecca.elwell@uhns.nhs.uk

**Summary**

For some time the clinicians from the lymphoedema and dermatology services within the University Hospital of North Staffordshire (UHNS) have had concerns that a significant number of patients are admitted to the acute trust with an apparent diagnosis of cellulitis, when they may have been misdiagnosed due to the complexity of their condition. Wingfield (2012) describes that the simple clinical criteria for the diagnosis of the condition cellulitis are a well demarcated area of redness (erythema); with associated tenderness and warmth and swelling. If there is no increased warmth over the skin it is unlikely to be cellulitis. The leg is the most common presenting site and as Chronic Resource Efficiency Support Team (CREST, 2005) describe that bilateral leg cellulitis is extremely rare and therefore if there are bilateral symptoms a diagnosis other than cellulitis should be excluded.

The diagnosis of cellulitis has been confused with a condition which is commonly called ‘red legs’ amongst specialist clinicians and drawing on their clinical experience is described as: ‘uniform redness throughout both legs, usually below the knee only. There can be associated warmth and tenderness but no systemic upset or malaise.’ This condition is often chronic in nature and causes significant distress to patients with the symptoms of ‘red legs’ who are admitted to hospital and are treated for cellulitis, which includes intravenous antibiotic therapy (IV) and unnecessary investigations and is associated with an average hospital admission of two weeks. In many cases the symptoms of ‘red legs’ may be attributed to gravitational eczema, dermatitis or other chronic conditions, which will not respond to intravenous antibiotics (IV) and are dermatological in nature (Chronic Resource Efficiency Support Team (CREST), 2005).

This project was developed to set up a new nurse-led service based on the needs of patients diagnosed with ‘red legs’. Upon gaining patients’ experiences of their condition, it became clear to the project leader that a number of different clinical specialties were involved in caring for this group of patients. Representatives from these specialties and patients were invited to create a stakeholder group whose purpose was to develop integrated care pathways, focus on referral criteria, diagnostics and treatment to inform a new nurse-led service. There was a commitment to utilise a number of facilitation approaches and practice development methods in the progression of the project with the support of the Foundation of Nursing Studies (FoNS).

As well as clinical representatives, the directorate matron and the service manager were involved to assist with the development of the commissioning documents and the work force planning. The trust board were also kept informed with the involvement of the chief nurse at the outset of the project, and the use and distribution of a project newsletter to show the progress of the project. Following a three month pilot of the nurse-led service and positive feedback from patients the nurse-led service has now been fully commissioned and a secondment opportunity has been
developed to lead the new service. It is anticipated that significant financial savings will be achieved and regular revision of the integrated care pathways with all groups, including the patients will take place.

The approaches learned by the project leader, as part of the year-long FoNS programme have been transferrable to other aspects of work life. The project leader has utilised the approaches learned at a patient focus group, in other trust areas at the request of the directorate matron and developed further art based projects for use at a team away day.

**Background**

For some time the clinicians from the lymphoedema and dermatology services within University Hospital of North Staffordshire (UHNS) have had concerns that a significant number of patients admitted to the acute trust with an apparent diagnosis of cellulitis, may have been misdiagnosed due to the complexity of their condition. Wingfield (2012) suggests that simple clinical criteria for diagnosis of the condition cellulitis are a well demarcated area of redness (erythema); with associated tenderness and warmth and swelling. If there is no increased warmth over the skin it is unlikely to be cellulitis. Sometimes blisters are present or superficial haemorrhage and necrosis. Lymph glands may be enlarged and palpable. The leg is the most common presenting site and in most cases unilateral.

The condition that may be confused with cellulitis is commonly called ‘red legs’ amongst specialist clinicians and drawing on their clinical experience is described as:

> *uniform redness throughout both legs usually below the knee only. There can be associated warmth and tenderness but no systemic upset or malaise*

Levell et al. (2011) identified this confusion within their own hospital and this resulted in the development of a new dermatology consultant-led cellulitis clinic. In many cases the symptoms of ‘red legs’ may be attributed to gravitational eczema, dermatitis or other chronic conditions, which will not respond to intravenous antibiotics (IV) and are dermatological in nature (Chronic Resource Efficiency Support Team (CREST), 2005). A recent audit undertaken at UHNS has shown that patients on admission are often put on a standard cellulitis pathway without a process of differential diagnosis to establish the most likely cause of the ‘red legs’. As a result, there are a number of patients who will not respond to the standard cellulitis treatment plan and who will therefore have an extended stay in hospital and a less positive patient experience.

The overall result of this misdiagnosis is the cost to the health service of repeated admissions as well as a poor experience for the patient with an unsatisfactory treatment for their condition. Levell et al. (2011) and Todd et al. (2010) estimate that the average length of stay for patients with a diagnosis of cellulitis is approximately ten days at a very conservative cost estimate of £2300. It is also acknowledged by clinicians that those with chronic oedema are indeed at a high risk of developing cellulitis and vice versa. Many of those admitted to acute beds for treatment with IV antibiotics are discharged with little or no follow up or advice in terms of chronic oedema management, in order to prevent subsequent recurrent episodes (Wingfield, 2009). The patient journey for those with ‘red legs’ is often fragmented; with many patients seen by a large number of clinical specialists within the acute trust and community without obtaining a satisfactory outcome (Wingfield, 2012). Fillingham (2010) describes the enormous waste, duplication, errors and anguish experienced by patients and suggests that co-ordinated care can mean a significant improvement in patient satisfaction and thus experience. Most patients with this condition require a multi-disciplinary approach (CREST, 2005) which can promote excellent self-care measures.
The project leader works as a Clinical Nurse Specialist in a busy lymphoedema clinic in a large acute trust. The clinic is nurse-led, treating patients of all ages with lymphoedema, lipoedema and chronic oedema. Driven by a desire to improve the outcome for patients with the symptoms of ‘red legs’, the project leader applied to the Foundation of Nursing Studies’ (FoNS) Patients First Programme to develop a nurse-led service to improve outcomes for patients. The Patients First Programme aims to support nurse-led project teams to use practice development principles to focus on people and practices, encouraging stakeholder participation to enable the achievement of a sustainable improvement in healthcare service. The application was successful and as a result, a small bursary, the support of an external facilitator and five development days for the project team were secured.

**Aims**

To implement a new commissioned and fully-funded nurse-led integrated service for patients with ‘red legs’ which would:

- Facilitate individual patient consultations utilising imaging and technology to enable multidisciplinary consultations
- Raise awareness among healthcare professionals of appropriate treatment for patients with ‘red legs’
- Improve patient experience and quality of life for people with a diagnosis of ‘red legs’

**Objectives**

A number of objectives were identified:

- To engage all relevant stakeholders in the project to promote ownership and to facilitate an agreed mission statement with the patient at the centre of the process
- To study current practice and understand the size of the problem by undertaking an audit of the medical notes of patients who have been admitted to the acute trust with an apparent diagnosis of cellulitis
- To develop and present a commissioning paper to secure appropriate funding for the new service
- To utilise technology and imaging advances in healthcare to support the new service
- To develop and implement the new service
- To ensure promotion of the new service through all healthcare disciplines and areas in both primary and secondary care

**Methods and approaches**

Practice development is defined as ‘a continuous process of developing person-centred cultures. It is enabled by facilitators who authentically engage with individuals and teams to blend personal qualities and creative imagination with practice skills and practice wisdom. The learning that occurs brings about transformations of individual and team practices. This is sustained by embedding both processes and outcomes in corporate strategy’ (Manley et al., 2008, p 9).

A number of methods and approaches were used by the project team to facilitate and implement the project and are summarised in Table 1 below.
Table 1: Summary of methods and approaches used within the project

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Methods and approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2012</td>
<td>1(^{st}) stakeholder group meeting</td>
<td>A patient representative on the group shared their experience of treatment for ‘red legs’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Values clarification exercise to create a shared mission</td>
</tr>
<tr>
<td>Ongoing</td>
<td>Communication with other stakeholders</td>
<td>• Development of a project newsletter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updates at the patient support group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• General communication via phone, email and face to face with key stakeholders</td>
</tr>
<tr>
<td>April 2012</td>
<td>Study of current practice</td>
<td>• Audit of medical notes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Literature review</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Adaption of microbiology audit</td>
</tr>
<tr>
<td>May 2012</td>
<td>2(^{nd}) stakeholder group meeting</td>
<td>Claims, concerns and issues exercise to develop an action plan</td>
</tr>
<tr>
<td>June - Sept 2012</td>
<td>Developing a commissioning paper</td>
<td>Collaboration between project team, service manager and directorate matron to write the paper</td>
</tr>
<tr>
<td>Sept 2012</td>
<td>Utilising technology and imaging</td>
<td>The use of this was piloted with a patient attending the lymphoedema clinic</td>
</tr>
<tr>
<td>July 2012 – March 2013</td>
<td>Developing and implementing the new nurse-led service</td>
<td>• Development of algorithms for diagnosis and treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Working with key referrers in Accident and Emergency so they are aware of the service and how to refer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Piloting the service for six months</td>
</tr>
</tbody>
</table>

Engagement of stakeholders
The stakeholders were identified by the project team as those clinicians who would traditionally be responsible for treating patients with ‘red legs’, namely the specialities services of dermatology, tissue viability, podiatry, infectious diseases/microbiology and vascular services. The clinicians representing these services were invited by email and sent a brief résumé with the aims and objectives of the proposed new service. Along with the clinicians, the project team identified that patient representation was also essential in the formation of the group. The Staffordshire Lymphoedema, Information, Management, Buddying and Support Group (SLIMBS) was approached by the project team to invite interested patients to take part in the stakeholder group. One person, who had previous experience of patient representation, volunteered and an invitation was sent to them by post to attend the inaugural meeting. In total two stakeholder group face-to-face meetings were held involving ten members at the first meeting and twelve members at the second.

First meeting of the stakeholder group
At this meeting an ice breaker was facilitated by the project team to break down barriers and to help to form working relationships in a non-threatening and fun way. All members were asked to share “something about yourself that we don’t know!” Icebreakers are structured activities that are
designed to relax individuals, introduce them to each other, and energise individuals in what is
normally an unduly formal atmosphere or situation (Forbess-Green, 1983). This was very much the
case in this instance as the meeting was held in a room in the acute trust which had a board room
set up and no decoration. The patient was then invited to share their story. This proved to be
extremely powerful in breaking down barriers and allowing the group to really focus on the task in
hand. A quote from the directorate manager was particularly pertinent:

“this is very novel because the trust thinks it’s good at involving patients but this is the first
meeting I’ve been to with consultants, management, specialist nurses and patient
representation!”

A values clarification exercise (Manley, 2000) was facilitated by the project team to enable the
development of a common and shared purpose amongst the stakeholders. It was the project team’s
belief that this exercise would:

- Establish clarity of the project
- Help to establish ground-rules for the group
- Help to create a mission statement for the project
- Help to engage stakeholders

Manley (2000) also suggests that a correlation between what we say we believe and what we do is
one of the hallmarks of effective individuals, teams and organisations. The project team believed
that using this exercise would enable participation and facilitation throughout the process. Initially,
ground rules were established which included respecting each other’s time to express his/her own
views and turning off mobile phones. All members present were then provided with post it notes
and asked to write down their view on the questions shown in Table 2 below:

**Table 2: Values clarification exercise questions**

| 1. I believe the purpose of caring for patients with ‘red legs’ is ... |
| 2. This purpose can be achieved by ... |
| 3. Factors that can help ... |
| 4. Factors that can hinder ... |
| 5. Other beliefs/values of importance ... |

The responses from the stakeholder group were recorded by the project team and are summarised
in Table 3 below.
Table 3: Results from the values and beliefs clarification exercise

1. I believe the purpose of caring for patients with ‘red legs’ is …
   - Minimising long term morbidity
   - Reducing current rates of admission
   - Promote continuity of care
   - Streamlining care
   - Ensuring correct diagnosis

2. This purpose can be achieved by …
   - Good management
   - Team work
   - Good communication
   - Acceptance of care pathways/guidelines
   - Willingness

3. Factors that can help …
   - Commissioning
   - Continuity
   - Sharing expertise
   - Time is right, momentum for change
   - Identification of at risk groups
   - Patient education
   - Raising awareness
   - Multi-disciplinary approach

4. Factors that can hinder …
   - Lack of communication
   - New partnership trust
   - Incorrect diagnosis
   - Different access points/place of care
   - Disjointed working
   - Ritualistic – old ways of working

5. Other beliefs/values of importance …
   - Education of health care professionals
   - Breaking down barriers
   - What do patients want?

Through a process of discussion and negotiation, the stakeholder group then used these responses to create a project mission statement. The agreement of one unified mission statement appeared to lead to unification of the members. The mission statement for the integrated ‘red legs’ service was:

“The purpose of caring for patients with ‘red legs’ is to provide an early and correct diagnosis, enabling their care pathway to be streamlined and provided by one integrated, multidisciplinary team.”

The project team thought it important to have strategic representation on the stakeholder group and this was achieved by involving the directorate matron and service manager. This level of support was necessary to assist in the development of a commissioning paper to enable the new service to be fully funded. On the day, all those who were invited were able to attend, which was extremely positive and unexpected, largely due to the incorrect assumption by the project team, that clinicians would be too busy to attend. The project team observed that the invitees seemed relaxed and
participated with enthusiasm throughout the meeting. Verbal evaluation feedback was sought at the end of the meeting and was recorded by the project team (see Appendix 1). This was largely positive.

Second stakeholder group meeting
Once the stakeholder group had been established, the project team decided to use a number of methods to ensure the meetings would be productive and that the aims and objectives would be achieved. At the second meeting a claims, concerns and issues exercise (CCI) (Guba and Lincoln, 1989) was facilitated by the project team. CCI aims to collect the views of those individuals involved as claims, or positive assertions to support further progress and recognise achievement but more importantly to identify any concerns that members may have regarding the project. These concerns are then turned into questions (or issues) to answer. The mission statement that was created at the first meeting was revisited to ensure the aim and purpose of the group was still shared; this then became the focus for the CCI exercise. Everyone present was provided with post it notes to write down their claims and concerns. The concerns were then re-phrased as questions or issues by the group members.

The views of the group members are shown in Table 4.
Table 4: Views collected during claims, concerns and issues exercise

<table>
<thead>
<tr>
<th>Claims</th>
<th>Concerns</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Multi disciplinary team</td>
<td>• Response time</td>
<td>• What if further investigations are needed?</td>
</tr>
<tr>
<td>• Achievable</td>
<td>• What if further investigations needed?</td>
<td>• How to define current need?</td>
</tr>
<tr>
<td>• Improving patient experience</td>
<td>• Inappropriate referrals</td>
<td>• How to ensure the sustainability of service and workforce?</td>
</tr>
<tr>
<td>• Streamlining service</td>
<td>• Agreement for funding</td>
<td>• How to stop inappropriate referrals?</td>
</tr>
<tr>
<td>• Timely, correct diagnosis and treatment</td>
<td>• Sustainability of service and workforce</td>
<td>• How to get agreement for funding?</td>
</tr>
<tr>
<td>• Central point of contact</td>
<td></td>
<td>• What the response time will be?</td>
</tr>
<tr>
<td>• Robust referral pathways</td>
<td></td>
<td>• How robust screening tools will be developed?</td>
</tr>
<tr>
<td>• Commissioned service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Educating healthcare professionals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All group members participated and described the techniques as ‘different and fun’. The project team felt that the CCI exercise was viewed positively and was successful in affirming the importance of the views and perspectives of each group member. Once the exercise was completed, the claims were discussed; this proved a very positive experience and reaffirmed the group’s purpose. Any concerns were quickly turned into questions (or issues) by the group, facilitated by the project team. Answers to these questions were generated within the group (see Appendix 2) with some topics requiring more time to answer than others. These questions and answers helped to inform the action plan. McCormack and Titchen (2006) suggest that CCI highlights the need to reflect the complexity and multiple realities of the key stakeholders and they suggest CCI generates and values evidence from those involved. The discussion also enabled each stakeholder to clarify their role and contribution to the project.
The stakeholder group did evolve over time, and new members were invited as the group and project evolved. After the first two meetings, the group became a virtual group and communication was via email. Once it had been agreed that the Accident and Emergency (A&E) department would be referring patients to the new nurse-led service, the A&E lead consultant and nurse educator were invited to join the group. An unexpected but positive effect of working with other staff members from different clinical areas was the shared learning from each other’s expertise.

Communication with extended group of stakeholders

There were many stakeholders involved, at different levels within the project, but all were keen to help, support and develop parts of the project. Interdisciplinary communication is paramount in practice development (Page, 2002). A number of techniques were employed to facilitate communication of the project and these are summarised in Table 5.

**Table 5: Techniques used to facilitate communication throughout the project**

| Newsletter           | The project leader developed a newsletter to keep stakeholders (both members of the group but also the extended group of stakeholders outside the stakeholder group) fully informed with the progress of the project. The newsletter was kept to one side of A4 paper to ensure it would be focused and was not too onerous. It was distributed by email, ensuring costs were kept to a minimum. This newsletter included images of the project team and the stakeholder group as well as colourful sections with regular headings. A secondary aim was to publicise the project and its development to a wider audience, namely the Director of Nursing and the Finance Department who were responsible for the appropriate use of the bursary for the project.
| Patient support group | The lymphoedema support group meets once a month with the aim of bringing together patients and families affected by the condition of lymphoedema, to offer support and generate increased awareness of the condition. A member of the project team attends each meeting to provide support and share information. At this group regular discussion took place regarding the project; this was done to keep a wider group of patients informed about the project’s progress but also served to include the views of as many patients as possible. The main aim was information giving but informal feedback from the members on the newsletter content and direction of the project was filtered through to the stakeholders. The members of the group gave verbal consent for their informal feedback to be used to inform the project. Keeping patients at the heart of this project was key and was innovative and novel in the project team’s place of work.
| General communication | Many different ways of communicating for example phone, email, face-to-face, were used in this project as a means of raising awareness and promoting the new service. The project team were contacted by staff members not directly involved in the project but working in areas linked with the project for more information; for example, a lymphoedema nurse working in the North of England had read about the project on the FoNS website and emailed for more information and ideas on how to move forward in their locality.

The verbal feedback received by the project leader, regarding the newsletter was extremely positive, comments included: “easy to read”, “reminds me what I should be doing” and “many thanks” (see Appendix 3 for an example). Comments received from the support group included: “Wish the service had been in place when I was sent to A and E!” and “Really good to be a part of something developing”.

8
Study of current practice
This included:

- An audit of medical notes to populate numbers and figures in the commissioning paper
- A literature review
- The adaptation of the microbiology audit as background to the project

A random sample of 50 sets of medical notes was reviewed by the project team in April 2012. The (CREST) (2005) guidelines were used as a template to establish if the patient had been suffering from a true cellulitis or another condition. The results are show in Table 6 below.

<table>
<thead>
<tr>
<th>Number of sets of notes audited</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases with true, unilateral cellulitis</td>
<td>28</td>
</tr>
<tr>
<td>Number of cases with bilateral symptoms</td>
<td>12</td>
</tr>
<tr>
<td>Number of cases with episode of care missing</td>
<td>10</td>
</tr>
</tbody>
</table>

The review of the notes showed that 56% of patients were correctly diagnosed with cellulitis but that in many instances, the standard criteria for cellulitis that is in the CREST guidelines, were not applied. Those patients with ‘bilateral symptoms’ are the patients who would be more suited to treatment through an integrated nurse-led ‘red legs’ service. If patients have bilateral swelling but do not have associated fever and malaise along with red, painful, hot and swollen affected area(s) with rapid and progressive onset, a diagnosis other than cellulitis should be considered (Wingfield, 2012). Further support for this theory can be found in an audit carried out by the microbiology department at UHNS in 2012, which showed that many patients with atypical cellulitis were not given differential diagnosis but were entered onto a standard cellulitis treatment plan. Many patients are actually suffering from varicose eczema or acute liposclerosis. Differential diagnosis must include: varicose eczema, deep vein thrombosis, acute liposclerosis, thrombophlebitis, contact dermatitis, insect stings, drug reactions, eosinophilic cellulitis, gouty arthritis, carcinoma erysipelatoides, familial mediterranean fever or foreign body reaction.

Fifteen sets of notes for patients with recurrent cellulitis were also reviewed, of these seven had unilateral cellulitis of the leg (true cellulitis – only one was correctly documented as recurrent cellulitis), and eight had bilateral symptoms (and therefore not cellulitis according to the CREST guidelines). Of the eight, three were listed as bilateral infected leg ulcers, three were listed as lymphoedema and two as bilateral redness. This meant that it is likely that 8/15 (53%) of these patients were wrongly treated on more than one occasion and with an average length of stay of 14 days, the costs to both the patient and the organisation are high and potentially avoidable.

A literature search was also carried out using the key search words: lymphoedema, lymphedema, cellulitis and ‘red legs’. There is a plethora of information relating to the risk of cellulitis in patients with lymphoedema and the recurrent nature of these infections but there were few papers found that recognise that redness can be caused by conditions other than cellulitis. The papers by Levell et al. (2011) and Todd et al. (2010) were the most relevant and were therefore used to inform the project’s development.
Development and presentation of a commissioning paper
The project leader and the directorate manager developed and wrote the commissioning paper together. This proved to be a challenge, as it was difficult to merge two people’s different perspectives and priorities. The project leader, as a clinician, was focused on improving the patient journey, being able to see as many patients as possible and providing high quality clinical care. The directorate manager was focused on finances and the sustainability of the service. It was evident that the planning that had gone into the project with the identification of the key stakeholders to include senior management roles meant that there was a real shared aim and many times it was necessary to return to the mission statement to reiterate the reason for the commissioning paper. This definitely helped both sides to stay focused.

The project leader and directorate manager contacted a local commissioner for advice regarding the submission of bids for the forthcoming financial year and were informed that the integrated ‘red legs’ service had already been added to the list of bids by interested parties based in the primary care setting. This was a real indication of how far reaching the cascading of information from the project team had been. The newsletter had been sent out to two interested General Practitioners (GP) who had signed up to be a part of the extended group of stakeholders outside the initial stakeholder group. One of the GPs reported verbally to the project leader, that ‘red legs’ was a difficult problem to manage and that the new service had the potential to improve the patient pathway.

The commissioning paper was developed and written in a collaborative way, the project leader wrote the background and clinical information and the directorate manager compiled the figures and costings along with the business plan itself. When calculating how many patients might be looked after with the new service, the audit of the notes and previous studies such as Levell et al. (2011), which showed 33% of 635 patients had a diagnosis other than cellulitis, were considered. A report from UHNS showed 522 patients were admitted with cellulitis during a 12 month period (March 2011 - March 2012). The information was used to calculate and populate the commissioning document. Based on the notes audit a figure of 24% of 522 was used to estimate that approximately 125 patients could be expected to attend the new ‘red legs’ service in a 12 month period.

Initially the ‘red legs’ service was approved as a six month pilot (October 2012 - March 2013) by the acute trust to implement a new care pathway for patients currently being misdiagnosed and treated for cellulitis. The aim of the pilot was to test out the figures that had been estimated from the audit of the medical notes and also to assess how many staff would be required to manage the new service.

Utilising technology and imaging advances
UNHS has existing technology in the form of an online photographic library where it is possible to upload clinical photography to be viewed by other healthcare professionals. Teledermatology is becoming more common as many dermatological conditions can be diagnosed by photograph and then a treatment regimen prescribed by the appropriate clinician. This model was agreed by the stakeholder group as the easiest and most accurate way to ensure that those patients presenting at the new service would have virtual and quick access to the required specialist. This was paramount in ensuring high levels of patient satisfaction but also in supporting the nursing staff running the new service.

To pilot this, a patient attending the lymphoedema clinic was asked if they would be prepared to be involved in the pilot. They were asked to sign a consent form which clearly stated that the photographs would only be used for their care and not for educational purposes. Clinical photography visited the patient in the outpatient department, recorded photographs and these were then uploaded onto the online system. An email was sent to the clinician representing the
dermatology department, who then reviewed the photographs and developed a diagnosis and a treatment plan that could then be implemented.

All participants found the system easy to use and the image of satisfactory quality to aid the diagnostic process. The patient reported feeling well looked after and pleased that an immediate referral was made direct from the clinic.

**Development and implementation of the new service**

**Developing the algorithms for diagnosis and treatment**

To develop the algorithms for the diagnosis and treatment of people with ‘red legs’, the project team met with each of the speciality teams of dermatology, tissue viability, podiatry and vascular services individually. A process mapping exercise was used to develop flow diagrams, to ease diagnosis and then to decide what treatment plans could be employed. During these meetings, the discussions led on to the difficulties surrounding the diagnosis of cellulitis as opposed to ‘red legs’, and this also led on to create a number of clinical solutions for the algorithms. To pilot the algorithms (see Appendix 4), the project team assessed a small number of patients using them, to ensure that the differential diagnosis and decided treatment plans were correct, within the algorithms.

**Education around the new service**

From the start of the project, the team were aware that there would be an educational component to the development of the new service both for the staff running the service and for the referrers into the service. Initially the lymphoedema nurse specialist and the lymphoedema physiotherapist (who would initially be running the new service) studied the algorithms and used clinical scenarios to test them. It was identified from the commissioning paper that initially only referrals into the new service would be taken from the Accident and Emergency department (A&E), as it had been highlighted by the audit that a large number of patients attending the A&E department with redness in the legs were being automatically diagnosed as having a cellulitis. A number of educational opportunities were offered to the project team to enable them to talk to doctors and nurses within the A&E department and these were taken and used to launch and promote the new service. There was a consultant meeting each week and the project leader was able to attend and gave a presentation on both the new service and the process which should be followed in diagnosing patients with ‘red legs’. Approximately fifteen consultants were present. The comments were extremely positive and favourable. It was agreed that it was very unlikely that patients attending with bilateral redness would have true cellulitis and therefore one of the A&E consultants requested that the project leader apply to the team responsible for updating/amending the hospital medical guidelines to change the cellulitis guidelines to reflect the CREST guidelines (2005). All of the other A&E consultants were in agreement. This process proved to be challenging as there were a number of people involved in the guideline development throughout the organisation and changes were only possible on a set timetable. The changes were submitted ahead of the date for consideration. It was however possible to update the paper copies of the medical guidelines and this was done immediately. This meant that the project would be informing and educating many trust wide.

The project leader was also able to attend the journal club held in A&E once a month to give a presentation, which was attended by approximately 25 people, mainly medics, working within emergency medicine but also a number of A&E advanced nurse practitioners. The nurse educator within the A&E department (who had also become part of the stakeholder group) was instrumental in giving time in her pre-arranged training schedule for nurses around ‘red legs’ and the new service. This protected training time was made available to the project team to provide training on the new service and the referral criteria. There were over 300 nursing staff in A&E so this was a large scale project but once again the comments received were very favourable.
**Piloting the ‘red legs’ service**
The ‘red legs’ service at UHNS opened on the 1st October 2012 as a fully funded service to run initially as a six month pilot with the costs being paid by the acute trust. A further commissioning paper, based on the first three months of the pilot (October 2012 to December 2012), was developed and presented to the commissioners, for uptake in 2013 and was immediately accepted. The service was commissioned one day a week (7.5 hours) with a band 7 lymphoedema practitioner 0.2 whole time equivalent (WTE) and administrative support, band 2 0.2 WTE.

The service opened earlier than anticipated because it was highlighted by the trust to be a high priority to help the organisation meet the requirements of the unscheduled care improvement plan (UCIP). The aim of UCIP was to reduce inappropriate admissions, reduce length of stay and help A & E departments reach their targets. As the project had initial sign up from the Director of Nursing it was recognised to be a high priority and this high level support enabled the early start date and contributed to the successful set up.

The pilot gave an opportunity to collect evidence to support the commissioning paper and to ensure that the aims and objectives of the service were being met. It was agreed by the stakeholder group that data would be kept on the number of referrals received, the primary source of the referral and whether the referrals met the criteria for the new service. An excel spreadsheet was developed along with a patient satisfaction questionnaire to be given to all patients on discharge from the service. This questionnaire would offer patients the opportunity to share their experience of the ‘red legs’ service and also their previous experience. This information was to be used as part of a formal evaluation of the new service.

A further development within the second commissioning paper was the inclusion of a 0.2 WTE Band 4 member of staff to support the band 7 staff member, following the diagnosis and treatment plan initiation.

**Evaluation of new service and problems encountered**

**Lack of referrals**
As with any new service there was a very real fear that demand would outstrip provision. With so many positive responses in the development of the project and comments by the A&E consultants like: “How many slots have you got? “We could fill those today”! The last thing that was expected was a lack of referrals. Initially the flow of referrals was very slow and in the first three and a half months, just eight referrals were received. These were all appropriate and met the criteria fully.

There has been a steady increase since January 2013 with approximately four to five referrals being received each week. Of the eight patients, October 2012 to January 2013, six patients were safely discharged at initial assessment with a treatment plan and two have required follow up within the ‘red legs’ service.

**Patient Experience**
Each patient was given a patient satisfaction questionnaire (see Appendix 5) on discharge and the responses to date have been excellent.

Some of the comments received have included:

- “Brilliant service, knowledgeable staff and nothing was too much trouble”
- “I’ve learned more here than I have in the last 5 years going backwards and forwards to different folk”
- “She answered all my questions fully”
Due to the relatively small number of patients using the service initially, to further demonstrate the contribution of the new service to improving patient outcomes, one patient was approached and asked to give a more detailed description of their experience of using the ‘red legs’ service. Box 1 provides a moving account of what the ‘red legs’ service has meant to one patient.

**Box 1: One patient’s account of using the new red leg service**

Mrs. X is a 76 year old lady, with fibromyalgia, hypertension, osteoarthritis, hyperlipidaemia, asthma and a previous history of breast cancer, who lives with her husband and their two year old west highland terrier. She had a two year history of bilateral red, swollen legs and had undergone numerous interventions by the district nurses as the legs would leak intermittently. Over the last 18 months she had received three courses of oral antibiotics for cellulitis, with little effect. The last time she had apparent cellulitis, she was referred to A&E by her GP for intravenous antibiotics and whilst in A&E, cellulitis was ruled out and she was referred to the ‘red legs’ service. A diagnosis of varicose eczema with chronic oedema was established and a treatment plan was initiated, no follow up was necessary. The patient stated she was very happy with the information and consultation and was surprised that the district nurses and GP had not been aware of the difference between cellulitis and varicose eczema. More importantly Mrs. X filled in her patient satisfaction questionnaire and it was apparent that she felt “she could not have taken being admitted to hospital as it would have meant leaving her dog” which she found to be an abhorrent thought and when previously in hospital she had not had her feet washed and had experienced sickness and diarrhoea with the intravenous antibiotics, stating “she felt worse when she came home that when she went in”.

**Lack of patient information**

The lymphoedema nurse specialist noticed, as the first patient was leaving the ‘red legs’ service that there was nothing to give the patient to take away with them to reinforce the information that they had been given verbally. A patient information leaflet was developed, reviewed by the lymphoedema patient support group and is awaiting ratification (see Appendix 6).

**Action planning**

The project team have undertaken action planning throughout the project. Identifying each step in the process and a realistic timeframe for achievement has served as both constant evaluation of progress but also given clarity and transparency to the process. Action planning involves developing a system for the way in which each goal will be accomplished. These plans may need to be very detailed but help to keep goals and plans on track and on target (Heathfield, 2011).

The use of action planning was extremely beneficial to the project team as it kept the team motivated to achieve actions in a logical step by step way. This meant that there was continual movement towards the end result. Using the framework for reflection in action adapted from Gibbs (1988) the project team have reflected on each event as the project has developed and these discussions have resulted in evaluation and analysis which have in turn driven the action planning (see Appendix 7).

**Expected annual savings**

The retrospective audit of the notes was used to calculate the potential financial savings for the commissioning paper. It was anticipated that the new service will provide improved clinical outcomes, a better patient experience as well as annual financial savings.

**A fully commissioned service**

Perhaps the best evaluation of the service has been the success with the commissioning of the service. From May 2013 it was confirmed that the ‘red legs’ service has been fully commissioned with the full complement of staff and service provision. From 1st May 2013 the ‘red legs’ service has
been able to accept referrals from any agency within primary or secondary care and in order to further develop and run the service, a secondment opportunity was developed. The aim of the secondment was to have a rotational post in which a nurse could learn the skills of caring for patients with ‘red legs’ and then take them back to their substantive post thus increasing awareness and timely treatment of patients. On 25th June 2013, the first Band 5 secondment nurse started work at the ‘red legs’ service for a planned period of 12 months, her substantive post is in A&E and it is hoped that this will maintain the visibility of the ‘red legs’ service and facilitate appropriate and prompt referral for patients with ‘red legs’.

**Ensure promotion of the new service**
The promotion of the new service in UHNS has been largely through the newsletters, posters, emails and by word of mouth. The referral form is emailed to a new email address: redlegs@uhns.nhs.uk which again acts as a promotional tool in itself.

On the opening day (October 2012) and during the first month, the project team dressed up in red jeans with posters on their fronts and backs as walking adverts, this resulted in some very funny looks but good publicity within the trust and an increased awareness amongst staff of the ‘red legs’ service and what this could offer for patients.

An abstract was accepted for a poster presentation at the International Lymphoedema Framework Conference in Montpellier (June, 2012). Reflection on the process of application via abstract was challenging as it was tempting to focus on the clinical aspect of the service development rather than the practice development techniques which helped to shape the project and the setting up of the service. Unfortunately as the author was unable to attend the conference, the poster was not presented as attendance was mandatory.

Health Service Journal and Nursing Times awards applications have been submitted and the outcome is awaited. The project was highlighted by FoNS at an opportunity to showcase practice improvement, innovation and learning from locally focused, patient oriented initiatives at the Innovation Expo Conference on 13 and 14th March 2013, in London. This enabled the project to be visible to a wider audience and could potentially influence other areas to adopt the model for the development of a ‘red legs’ service.

In June 2013 the project leader was the runner up in the national Welch Allyn Pioneers of Nursing award, acute nurse category for the ‘red legs’ service.

**Discussion**
There has been a constant strategy for evaluation with a framework designed to answer questions about the project. This evaluation has enabled the outcomes of the project to be documented in a systematic and logical way. This was influenced by the development of the project team as facilitators.

On reflection the project leader had initial concerns regarding the applicability of the practice development approaches within the acute trust setting and made assumptions regarding anticipated responses. That is, that members of the stakeholder group may be too busy to participate or to be receptive to working in a different way but quite the opposite was demonstrated. With the support from the practice development facilitator at FoNS and with a chance to practise methods and approaches before meetings, the project leader became braver and more proficient in introducing these approaches without fear or apprehension.
The approaches learned as part of the year-long FoNS programme have been transferrable to other aspects of work life. The project leader has utilised the approaches learned at a patient focus group, in other trust areas at the request of the directorate matron and developed further art based projects for use at a team away day. The project team observed that enabling groups to use different ways of thinking and working has been extremely valuable and led to increased communication and sharing of ideas and thoughts which may not have been otherwise captured.

Throughout the process, the positivity and feedback have been astounding and there has been a willingness to change based around the patient-centeredness of the project and the way it has fitted into the larger strategic picture.

Practice development aims to improve patient or service user experiences and patient satisfaction questionnaires to date (see Appendix 5) support the existence of this improvement in care. The Health and Social Care Act (Department of Health, 2012) announced that commissioning of healthcare from 1st April 2013 will be undertaken by Community Commissioning Groups (CCG). With the implementation of these groups, financial incentives will be offered to those who demonstrate innovative and preventative services (Field, 2011). It is the project leader’s opinion that an integrated ‘red legs’ service is an innovative approach to caring for patients with bilateral redness of legs with the use of education at the initial assessment providing the patient with preventative strategies for future care. The main anticipated benefits to the patient of being seen at a ‘red legs’ service include avoidance of hospital admission, reduction in unnecessary investigations, reduction in unnecessary antibiotic therapy and optimisation of patient care with enhanced quality of service and patient experience. Graves et al. (2005) showed that reducing the number of emergency admissions and reducing length of stay reduces the risk of hospital acquired infection.

The model of a nurse-led, integrated service which uses pre-defined and agreed algorithms along with new technologies is one that can be replicated in other areas and the project leader has already been contacted on two occasions via the FoNS website for more information. One quote from an A&E consultant at the consultant meeting prior to launch was “Excellent, much needed and long overdue service which will win awards and shape other services nationally”. The conference presentation at the Expo Conference in London was an incredible opportunity to present the findings of the project and the experiences of the team to date, and to share and celebrate the achievements of the project.

**Conclusion**

In conclusion, the nurse-led ‘red legs’ service has been developed and implemented using a commissioning process. The project has involved a significant amount of coordination with multiple stakeholders across a diverse range of clinical specialities. There has been a commitment to utilising a number of facilitation techniques and practice development methods in the progression of the project with the patient always at the centre. The project team recognised that they have developed new skills as a result of leading the project, which have been transferable to other areas of their role. The ‘red legs’ service is starting to provide real improvements in patient experience and satisfaction, ensuring accurate diagnosis and prompt, timely treatment. The service will be evaluated at regular intervals to demonstrate improvements in care and patient experience.
References


Appendix 1

Evaluation 1

The following evaluation was performed after the inaugural meeting of IRLS.

What aspects went well?

- Circulation of attendees & attendance at the meeting.
- Enthusiasm & positivity of all attendees (point noted by patient representative).
- Facilitation of the meeting (point noted by management).
- Icebreaker & vision exercise, good participation by all.
- Mission statement reflecting our shared vision.
- Large number of action points reflecting productivity of meeting.

What aspects could be improved?

- Fragmented, some clinicians had to leave early.
- Separate conversations taking place outside of the main topic.

Action Plan for next meeting.

- Distribute work to be completed by TVN, MBiol, Dermatology, Vascular & Podiatory to incorporate for each area referral criteria & pathways and algorithms for best practice.
- All work to be e mailed to RHE by March 2\textsuperscript{nd} 2012.
Appendix 2

Questions from CCI

1. What if further investigations are needed?

Thorough assessment will identify any investigations that are necessary and referral on will then be made. Photography can be used to highlight if unsure of what investigation to request.

2. How to define current need?

The audits have identified the figures to populate the commissioning document and this will give best guess scenarios. However until the doors are open it is difficult to define the true need.

3. How to ensure the sustainability of the service and workforce?

Involvement of managers and trust board (chief nurse) as KSH has helped, also the fact that the service is to be fully commissioned. There is also the secondment possibility to disseminate information to the wider workforce.

4. How to stop inappropriate referrals?

Clear concise referral criteria, policing of referrals when received, return inappropriate referrals with an explanation of reasons why as education and service promotion.

5 How to get agreement for funding?

Service meets the UCIP trust directive so is attractive to the board, chief nurse involved and will promote, commissioning document will also ensure correct funding long term.

6. What will the response time be?

Seven days initially and then this may increase to 14 days when service is opened to primary care.

7. How will robust screening tools be developed?

Working with each KSH to develop algorithms to ensure correct diagnosis and treatment plan, atypical cases photography and onward referral.
IRLS Newsletter

Appendix 3

July 2012

Developments to date

24.5.12 Six month report submitted to FONS.
15.5.12 Field visit FONS, technique for individual site discussions was the ‘hot topic’.
20.6.12 Staff awards application submitted.
5.7.12 Virtual questions and answers event with the Norwich site.
13.7.12 HSJ Award application submitted—thank you Sue Malbon!

Meetings planned

17.7.12 Meeting with Dr Craven re: treatment algorithms
17-19 July—Trial patient using WABA system.
24.7.12 Meet with tissue viability team to establish robust screening tools and differential diagnosis.

To Do

1. Meet with vascular and podiatry individually.
2. Establish referral pathways from emergency portals and primary care.
3. Involve primary care and submit abstract to U.K. conference
4. Continue liaison with OPAT.
5. Finalise Commissioning paper.

Commissioning Paper

The paper is nearing completion, there has been a lot of further data required to correctly predict the capacity of the new service and the actual running costs. Many thanks to Clare Boffey for all her ongoing help and support with this.

UHNS Interest:

With all the current work around Unscheduled Care Improvement Programme (UCIP) within the Trust there has been recognition of the IRLS as it has the potential to reduce admissions, reduce length of stay and improve patient care!!!!

Contact:
Rebecca Elwell
Lymphoedema Clinic
UHNS
Email: Rebecca.elwell@uhns.nhs.uk
Phone: 01762 553072

The project mission statement is: The purpose of caring for patients with red legs is to provide an early and correct diagnosis, enabling their care pathway to be streamlined and provided by ONE integrated, multidisciplinary team.
Appendix 4

Dermatology algorithm

Ensure the patient systemically well and aperistaltic?

If no, refer to GP/A and E

If yes, (and DVT excluded) consider:

Tinea Pedis, interdigital

Contact dermatitis, itchy, erosion, blisters

Fungal infection, erythematous annular plaque, with raised scaly border, round shape, curved or horseshoe.

Stasis/Gravitational Dermatitis, rash, no pain, itchy, erythematous brown, hyperpigmented plaque, fine fissuring and scale, vascular insufficiency, weeping, scale, haemosiderin staining, lipodermatosclerosis, pebbly skin, cobblestoning, pappillomatosis, hyperkeratosis, rough skin.

Stasis dermatitis, no lymphadenopathy, pruritus

Move on to treatment protocol

Tinea Cororis, scaly, defined border, erythematous
University Hospital of North Staffordshire NHS Trust

Thank you for taking the time to complete this questionnaire. The Red Leg Service at UHNS is a new service. We would value your comments and any information you provide will be imperative to the future of the service.

1  How long have you been suffering from red legs?

2  Have you ever been to hospital before with red legs?

   Yes  Please go to Q3  No  Please go to Q4

3  If yes, what happened?

4  What did you think when you were informed of the Red Leg Service?

5  How satisfied were you with the level of care that you received from the Red Leg Service?

   Extremely dissatisfied  Very dissatisfied  Dissatisfied  Satisfied  Very satisfied  Extremely satisfied

6  Was the waiting time for the Red Leg Service (*Please circle one of the below*) :

   Acceptable  Excellent  Too long

7  Did you feel concerned about your red legs after you were seen?

Any other comments:
Appendix 6

- The stockings should normally arrive at your pharmacy within 2-3 weeks.

When wearing hosiery we advise:

- Stockings be applied first thing in the morning
- Stockings are removed at night before going to bed.
- If required stockings can be worn for short periods increasing the time worn each day.

Usually you will not require a further appointment at the Red Legs Service. If symptoms persist or “flare up” then see your GP.

It is important that “Red Legs” are not confused with cellulitis.

Signs of Cellulitis:
- Typically only affects one limb
- Accompanied by signs of fever eg:
  - Pain
  - High Temperature
  - Nausea/vomiting
  - Hot Sweats
  - Rigors (shaking)
  - Loss of appetite
  - Redness/heat travelling up the limb usually in a block of colour.

Usually with “Red Legs” you do not normally suffer with any signs of fever and therefore antibiotic therapy is ineffective.

If any doubt please see your GP.

The Red Legs Service

Telephone: 01782 676688
Email: redlegs@uhns.nhs.uk

University Hospital of North Staffordshire NHS Trust

Updated 190613
You have been seen today at the Red Legs Service, below is some general advice to help you manage your legs.

**Skin Care**
- The legs should be washed and dried daily paying particular attention to the areas between the toes
- It is recommended that the legs be moisturised at night

We would usually recommend that your GP prescribe:
Epaderm Ointment, to wash the legs
Epaderm Cream, to moisturise the legs

In cases where fungal infection develops either between the toes or affecting the nail it is important to see your GP for Treatment as soon as possible.

**Exercise**
It is important to keep as active as possible:
- If not overly active walk little and often, either around the home or garden, if safe to do so.
- For the more active add 150-300 feet onto your normal walking distance each day.
- If mobility is severely limited below are some exercises which may be done in sitting
  1. Roll ankle/foot in a circular movement x10 each foot
  2. Rock backwards/forwards each foot in a heel-toe, toe-heel motion x10 each foot.
  3. In sitting straighten out left leg in front of you, straightening the knee, hold for 3 seconds then return to resting position x5, repeat for right leg.
  4. Keeping the knee bent, lift left thigh off the chair, hold for 3 seconds and relax x5. Repeat for right leg. To make this exercise harder when knee is straight lift thigh off chair for 2-3 secs, repeat for right leg.
  5. Marching action with legs in sitting, lift knees up/down as quickly as is comfortable, stamping feet on the floor x10.

**Hosiery**
You may be prescribed stockings to wear. If the stockings are from your GP you will need to do the following:
- Collect prescription from your GP 48 hours after your appointment at the red leg service.
- Take the prescription to your chosen pharmacy.
Appendix 7

Action plan for what is to be achieved by March 2013

<table>
<thead>
<tr>
<th>Objective</th>
<th>What action is required</th>
<th>Who</th>
<th>By when</th>
<th>Resources/support needed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>