



**National Wound Care  
Strategy Programme**



**Lower  
Limb  
Wounds**

**Leg Ulcer  
Recommendations  
Draft 05.12.22**

Working in partnership with

**TheAHSN**Network



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## Glossary:

**Acute Limb Ischaemia:** Rapid decrease in blood flow to lower limb due to acute occlusion. Symptoms are sudden-onset, acute pain, pallor, pulseless, perishingly cold paraesthesia / acute sensory change, paralysis/ acute motor dysfunction.

**Chronic Limb Threatening Ischaemia (CLTI):** CLTI is a clinical syndrome defined by the presence of peripheral arterial disease (PAD) in combination with rest pain, gangrene, or a lower limb ulceration greater than 2 weeks in duration.

**Chronic oedema:** Is defined as swelling that lasts for more than 3 months

**Erythema:** Inflammation of the skin, often referred to as 'redness' although it may present differently in a range of skin tones

**Hyperkeratosis:** Thickening/ scaling of the outer layer of the skin, common around a leg ulcer.

**Leg Ulcer:** An ulcer that originates on or above the malleolus but below the knee that remains unhealed for at least 2-4 weeks.

**Lymphoedema:** is defined as a gradual abnormal build-up of lymph fluid in the tissues resulting from a failure of the lymphatic system. Consequences are swelling, skin and tissue changes and predisposition to infection.

**Mild Graduated Compression:** Compression therapy that is intended to apply 20mmHg or less at the ankle. This is about half of the therapeutic dose of strong compression therapy,

**Peripheral Arterial Disease (PAD)** PAD is a common condition where a build-up of fatty deposits in the arteries restricts blood supply to the limbs.

**Strong Graduated Compression:** is either an elastic compression system applied to give at least 40mmHg of pressure at the ankle or an inelastic system applied at full stretch. Strong compression delivers the full therapeutic dose for treating venous leg ulcers.

**Venous insufficiency:** Venous insufficiency is a form of venous disease where problems with the venous system affects the return of blood from the lower limb to the heart. Venous insufficiency is commonly due to failure within the valves in the veins and can affect the deep or superficial venous system.

**Venous leg ulcer:** Ulcers on the leg(s) that are caused by venous insufficiency.



## Introduction

The National Wound Care Strategy Programme (NWCSP) has been commissioned by NHS England to improve the care of pressure ulcers, lower limb wounds and surgical wounds. This document is focusing on leg ulcers, which are a common form of lower limb wound.

In England, there is considerable variation in leg ulcer practice and outcomes<sup>1</sup> which increases care costs and extends healing times<sup>2</sup>. This unwarranted variation offers major opportunities to improve healing rates and reduce recurrence rates and thus reduce patient suffering, spend on inappropriate and ineffective treatments and the amount of clinical time spent on care.

Leg ulcers are ulcers on the lower leg (originating on or above the malleolus and below the knee) that are slow to heal. It is estimated that between 0.039 -0.48% of the population have a leg ulcer<sup>3</sup> placing significant burden on NHS services.

Most leg ulceration occurs due to venous insufficiency for which there is robust evidence to support the use of compression therapy<sup>4</sup> and endovenous surgery<sup>5</sup> as first-line therapies to promote healing and prevent recurrence. Other causes of leg ulceration include peripheral arterial disease with or without venous disorders<sup>3</sup>.

There is a strong argument that commissioning equitable and accessible services for leg ulceration would reduce unwarranted variation of care, increase the use of evidence-based care, and discourage the over-use of therapies for which there is insufficient evidence, resulting in higher healing rates and lower recurrence rates.

## The process for developing and updating these recommendations

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<sup>1</sup> Guest JF, Fuller GW, Vowden P. Cohort study evaluating the burden of wounds to the UK's National Health Service in 2017/2018: update from 2012/2013. *BMJ Open*. 2020 Dec 22;10(12):e045253. doi: 10.1136/bmjopen-2020-045253. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7757484/>

<sup>2</sup> Gray T.A., Rhodes S., Atkinson R.A., Rothwell K., Wilson P., Dumville J.C., et al. Opportunities for better value wound care: a multiservice, cross-sectional survey of complex wounds and their care in a UK community population. 2018 *BMJ Open* Available at: <https://bmjopen.bmj.com/content/8/3/e019440>

<sup>3</sup> Cullum N, Buckley H, Dumville J, Hall J, Lamb K, Madden M, et al. Wounds research for patient benefit: a 5-year programme of research. *Programme Grants Appl Res* 2016;4(13)

<sup>4</sup> Shi C, Dumville JC, Cullum N, Connaughton E, Norman G. Compression bandages or stockings versus no compression for treating venous leg ulcers. *Cochrane Database of Systematic Reviews* 2021, Issue 7. Art. No.: CD013397. DOI: 10.1002/14651858.CD013397.pub2. Available at: <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD013397.pub2/full> Accessed 17 November 2022.

<sup>5</sup> Gohel, M. S., Heatley, F., Liu, X., Bradbury R., Blubulia M.D et al 2018. A Randomized Trial of Early Endovenous Ablation in Venous Ulceration. *New England Journal of Medicine*,378, 2105- 2114. Available at: <https://www.nejm.org/doi/full/10.1056/NEJMoa1801214>

The original recommendations were developed using an evidence-informed approach, to include consideration of research evidence, health care resources, clinical settings, and patients'

preferences<sup>6</sup>. The recommendations were based on evidence retrieved using a systematic approach to searching which is outlined in Appendix 1 and then sense-checked with academics, health practitioners and patients and carers, before a wider consultation with NWCSP stakeholder forums registrants. This update has followed the same process but following feedback from stakeholders, it has been decided to publish the leg ulcer recommendations and foot ulcer recommendations as separate documents, which together will form the suite of lower limb wound recommendations.

## The purpose of these recommendations

The purpose of these recommendations is to provide clear advice to health and care practitioners, service managers and commissioners about the fundamentals of evidence-informed care for people with leg ulcers. Implementing these recommendations will achieve better patient outcomes and more effective use of health care resources.

The recommendations outline a pathway of care that promotes early assessment and diagnosis, enabling fast access to evidence informed therapeutic interventions, with escalation of treatment or service provision for patients requiring more complex care.

The recommendations thus offer a framework for the development of local delivery plans that include consideration of:

- Relevant research evidence (where it exists) to inform care.
- Configuration of services, and deployment of workforce.
- Appropriate education for that workforce; and
- Relevant metrics to measure quality improvement.

These recommendations signpost to relevant clinical guidelines or outline evidence-informed care that will improve healing and optimise the use of healthcare resources. They do not replace existing evidence-informed clinical guidelines or replace clinical judgement and decision making in relation to the needs of the individual patient. They are intended for use in all clinical care settings and aim to support implementation of evidence based clinical practice.

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<sup>6</sup> DiCenso, A, Cullum N and Ciliska D (2008) Chapter 2 Implementing evidence-based nursing: some misconceptions. In *Evidence-based Nursing*. Ed. Cullum N, Ciliska D, Haynes RB, Marks S. Blackwell Publishing, Oxford.



# Recommendations

## A. Identification and immediate and necessary care

1. Review for 'red flags' and if identified, immediately escalate in line with local pathways:
  - Acute infection (e.g., increasing unilateral erythema, swelling, pain, pus, heat).
  - Symptoms of sepsis<sup>7</sup>
  - Acute or chronic limb threatening ischaemia<sup>8, 9</sup>
  - Suspected acute deep vein thrombosis (DVT)
  - Suspected skin cancer



**People with leg wounds with red flag symptoms should not be treated with compression.**

2. Treat any leg wound infection in line with NICE Guideline (NG152) Leg Ulcer infection - antimicrobial prescribing<sup>10</sup>.
3. Clean wound, surrounding skin and apply emollient as required<sup>11</sup>.
4. Apply simple, low adherent dressing (with sufficient absorbency if required)<sup>11</sup>.
5. For those without red flag symptoms, apply first line mild graduated compression (20mmHg or less at the ankle).
6. Opportunities for supported self-management should be identified, discussed, and incorporated into treatment plans as agreed with the individual.
7. Arrange for a comprehensive assessment to be undertaken within 14 days. (For people in the last few weeks of life, seek input from their other clinicians to agree an appropriate care plan.)

<sup>7</sup> NHS England Sepsis Available at [NHS Symptoms of Sepsis](#) Accessed 17.11.22

<sup>8</sup> Conte M.S., Bradbury A.W., Kohl P et al (2019) Global vascular guidelines on the management of chronic limb-threatening ischemia Journal of Vascular Surgery 69, (6) Supp. 3S–125S.e40

<sup>9</sup> NICE (2018) Clinical Guideline [CG147] Peripheral Arterial Disease – diagnosis and management. Available at: <https://www.nice.org.uk/guidance/cg147> Accessed 17.11.22

<sup>10</sup> NICE (2020) Guideline [CG 152] Leg ulcer infection: antimicrobial prescribing. Available at: <https://www.nice.org.uk/guidance/ng152> Accessed 17.11.22

<sup>11</sup> SIGN. Management of chronic venous leg ulcers - a national clinical guideline.2010 Available at: <https://www.sign.ac.uk/our-guidelines/management-of-chronic-venous-leg-ulcers/> Accessed 17.11.22



## B. Assessment, Diagnosis and Treatment

### Assessment and diagnosis:

1. Undertake assessment within 14 days.
2. Assess and identify causes and risk factors for non-healing by undertaking a comprehensive assessment that includes:
  - a. Full history including any previous history of leg ulceration and underlying cause.
  - b. Review of medication,
  - c. Pain and analgesia needs
  - d. Psychosocial needs
  - e. Possible infection
  - f. Nutrition
  - g. Assess the ulcer in line with the wound minimum data set<sup>12</sup>
  - h. Record image of wound using digital imaging<sup>13</sup>
  - i. Undertake a lower limb assessment that includes:
    - Peripheral vascular assessment <sup>9</sup>
    - Lymphoedematous changes
    - Assessment for sensation
3. Diagnose causes of non-healing and formulate treatment plan.
4. Cleanse the wound bed, skin around the ulcer and the whole limb and apply emollient to surrounding skin, as required.
5. Apply a simple low-adherent dressing with sufficient absorbency.
6. Treat infection in line with NICE Guideline (NG152) Leg ulcer infection - antimicrobial prescribing<sup>10</sup> and local policy for infection and antimicrobial stewardship.
7. Offer advice on skin care, footwear, exercise and mobility, rest and limb elevation, nutrition, smoking cessation and weight loss.
8. Provide written information to patients and the health care providers who will be responsible for supporting ongoing care about:
  - The diagnosis of the ulcer
  - When to seek advice and specific information (including names and phone numbers) about who to contact from the previous clinical care provider. If an image of the ulcer has been captured, this image should be shared with the patient (if the patient wishes) and the health care provider responsible for ongoing care using NHS compliant digital technology<sup>13</sup>.
  - Provide, discuss, and agree with patients /carers written information that enables supported self-management, such as:
    - Signs of infection.

<sup>12</sup> Coleman, S., Nelson, E. A., Vowden, P. Vowden K., Adderley U. Sunderland L. et al. Development of A Generic Wound Care Assessment Minimum Data Set. 2017. Journal of Tissue Viability. 26 (4) 226-40. Available at: <https://www.sciencedirect.com/science/article/pii/S0965206X17300529?via%3Dihub>

<sup>13</sup> NWCSP (2021) Digital Images in Wound Care .Available at: <https://www.nationalwoundcarestrategy.net/wp-content/uploads/2021/09/Digital-Images-in-wound-care-17Sept21.pdf> Accessed 17.11.22

- Hygiene (including hand hygiene).
  - Advice on dressing changes and taking an image of their own ulcer to monitor healing.
- Prior to transfer to another healthcare provider, patients should be provided with enough dressings to care for their wound for one week.
- Following transfer to another healthcare provider, patients should be informed of the name of the clinician in that organisation, responsible for overseeing their care.





## Treatment:

### For leg ulcers due to suspected venous disease with adequate arterial supply

9. Refer to vascular services for diagnosis of venous disease and for possible vascular intervention in line with NICE Varicose Veins Diagnosis and Management Clinical Guideline<sup>14</sup> using the NWCSP Venous Disease Assessment and Referral Form template or equivalent<sup>15</sup>
10. Apply strong compression therapy<sup>4</sup> (an elastic compression system applied to give at least 40mmHg of pressure at the ankle or an inelastic system applied at full stretch).
  - a. Strong compression hosiery should be considered as first-line compression therapy choice for those suitable for hosiery. The need for application aids should be considered
  - b. Strong multi-component compression bandaging (in preference to compression hosiery), should be offered to those with
    - chronic ankle/leg oedema not reduced by elevation, or
    - abnormal limb shape; or
    - copious exudate, or
    - very fragile skinIf symptoms do not rapidly improve, escalate for advice in line with local care pathways. e.g., dedicated lower limb service, tissue viability service, vascular service, dermatology service, lymphoedema service.
  - c. Consideration should be given to sensation. People with impaired sensation may be unable to identify discomfort from inappropriately applied compression therapy so may require closer monitoring.
11. Provide written and verbal information to the patients about the benefits of compression using the NWCSP resource or equivalent<sup>16</sup>
12. For those with advanced, unstable cardiac failure, liaise with their cardiac clinician to agree how to offer compression to optimise healing while minimising additional cardiac burden

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<sup>14</sup> NICE (2013) Clinical Guideline [CG168] Varicose veins: diagnosis and management Available at: <https://www.nice.org.uk/guidance/cg168> Accessed 17.11.22

<sup>15</sup> NWCSP (2022) Vascular Referral Forms. Available at: <https://www.nationalwoundcarestrategy.net/lower-limb/> Accessed 17.11.22

<sup>16</sup> NWCSP (2022) Patient Resources. Available at: <https://www.nationalwoundcarestrategy.net/lower-limb/> Accessed 17.11.22



### **For leg ulcers with suspected venous disease and peripheral arterial disease ('mixed' aetiology)**

13. Refer to vascular services for possible vascular intervention as set out in the NICE Clinical Guideline for peripheral arterial disease<sup>9</sup> using NWCSP Peripheral Arterial Disease / Chronic Limb-Threatening Ischaemia Assessment and Referral Form template<sup>15</sup> or equivalent.
  - Refer urgently for acute or chronic limb threatening ischaemia.
14. Treatment should be offered in line with NICE Clinical Guideline for peripheral arterial disease<sup>9</sup>
15. Pending vascular opinion, if the limb is oedematous with no signs of acute or chronic limb threatening ischaemia, continue with mild graduated compression that delivers up to 20mmHg at the ankle.

### **For leg ulcers with suspected peripheral arterial disease**

16. Refer to vascular services for possible vascular intervention as set out in the NICE Clinical Guideline for peripheral arterial disease<sup>9</sup> using NWCSP Peripheral Arterial Disease / Chronic Limb-Threatening Ischaemia Assessment and Referral Form template<sup>15</sup> or equivalent.
  - Refer urgently for acute or chronic limb threatening ischaemia
17. Treatment should be offered in line with NICE Clinical Guideline for peripheral arterial disease<sup>9</sup>
18. Pending vascular opinion, if the limb is oedematous with no signs of acute or chronic limb threatening ischaemia, continue with mild graduated compression that delivers up to 20mmHg at the ankle.

### **For leg ulcers of other or uncertain aetiology**

19. Refer for a dermatology opinion (or other specialist depending on symptoms and service arrangements)
20. Pending dermatology opinion, if the limb is oedematous with no signs of acute or chronic limb threatening ischaemia, continue with mild graduated compression that delivers up to 20mmHg at the ankle.

### **For leg ulcers with lymphoedema**

21. Where possible patients with concurrent lymphoedema and leg ulceration should be referred to a Lymphoedema service.
  - It is however recognised that not all areas will have a lymphoedema service and that some services may be restricted to accepting those individuals with cancer related lymphoedema only or those without ulceration. In this instance care should be offered in line with local arrangements and care that includes
    - Application of emollients to the surrounding skin as required



- Advise on exercise to increase lymphatic uptake which may include walking or chair-based exercises
- Elevation of limb where exudate is significant
- When applying any compression therapy, consider protecting the forefoot and toes from increased oedema, ensuring that compression is started over the smallest circumference e.g the toes in the form of a toe glove. Any swelling above the knee bandaging extending into the knee or thigh should be managed with compression, which could be in the form of bandages, compression shorts or wraps.
- Offer advice on nutrition and weight loss where appropriate with referral to bariatric services if indicated

*More information can be found at [www.thebls.com](http://www.thebls.com) and there is a Best practice in the community for chronic oedema(2019). Wound Care People, Wixford. Available to download from: [www.jcn.co.uk](http://www.jcn.co.uk); [www.gpnursing.com](http://www.gpnursing.com)*



## C. Ongoing care of leg ulceration

At each dressing change:

1. Review for 'red flags' and immediately escalate if identified in line with local pathways:
  - Acute infection (e.g., increasing unilateral erythema, swelling, pain, pus, heat).
  - Symptoms of sepsis
  - Acute or chronic limb threatening ischaemia
  - Suspected acute deep vein thrombosis (DVT)
  - Suspected skin cancer
2. Cleanse the wound bed, the skin around the ulcer and the whole limb.
3. If needed, debride the wound bed, and remove hyperkeratosis.
4. Apply simple moisturiser to the limb avoiding the wound bed.
5. If being treated with compression therapy, review reduction in ankle circumference and consider whether compression therapy should be adapted.
6. Review opportunities for supported self-management and discuss and incorporate into treatment plans as agreed with the individual
7. Review effectiveness of treatment plan and if there is deterioration, escalate in line with local pathways.



## D. Review of healing

1. At 4 weekly intervals (or more frequently if concerned)
  - Complete ulcer assessment in line with the wound minimum data set<sup>18</sup>
  - Take digital wound image
  - Assess condition of skin to the lower limb
  - Assess pain and discomfort levels
  - Measure to assess for reduction in limb swelling
  - Review effectiveness of treatment plan
2. Review opportunities for supported self-management and discuss and incorporate into treatment plans as agreed with the individual
3. Leg ulcers that show no significant progress towards healing or are deteriorating should be escalated for advice in line with local care pathways e.g., dedicated lower limb service, tissue viability service, vascular service, dermatology service, lymphoedema service.
4. At 12 weeks:
  - Leg ulcers that remain unhealed should be escalated for advice in line with local care pathways e.g., dedicated lower limb service, tissue viability service, vascular service, dermatology service, lymphoedema service.



## E. Care following healing

### For all types of leg ulcers, offer care as follows:

1. Advice should be given on how to reduce the risk of re-ulceration. This should be tailored to the individual patient but should consider, skin care, footwear, healthy eating, and exercise, (and if appropriate smoking cessation)
2. Written information should be provided and discussed about the diagnosis and ongoing treatment plan, and where to contact if there are any issues
3. Opportunities for supported self-management should be identified, discussed, and incorporated into treatment plans as agreed with the individual

### For healed venous leg ulcers with adequate arterial supply

4. Encourage the use of ongoing compression therapy (usually in the form of compression hosiery) and provide advice on caring for hosiery
5. Arrange annual review but advise that any changes in lower limb symptoms, or skin problems or issues with hosiery should prompt the patient to seek an earlier review.
6. This review should be a lower limb assessment that includes:
  - Peripheral vascular assessment <sup>9</sup>
  - Lymphoedematous changes
  - Assessment for sensation

### For healed leg ulcers with venous disease and peripheral arterial disease ('mixed' aetiology)

7. If the level of peripheral arterial disease permits, in partnership with vascular services, encourage the use of an appropriate level of ongoing compression therapy (usually in the form of compression hosiery) and provide advice on caring for hosiery
8. Arrange six monthly review but advise that any changes in lower limb symptoms, or skin problems or issues with hosiery should prompt the patient to seek an earlier review.
9. This review should be a lower limb assessment that includes:
  - a. Peripheral vascular assessment <sup>9</sup>
  - b. Lymphoedematous changes
  - c. Assessment for sensation

### For healed leg ulcers with peripheral arterial disease

10. If there are no wounds on the lower limb, discharge from the service providing wound care but advise on how to access the service if there is recurrence of ulceration.



## For healed leg ulcers of other or uncertain aetiology

11. If there are no wounds on the lower limb, discharge from the service providing wound care but advise on how to access the service if there is recurrence of ulceration.
12. If there is concurrent chronic oedema and healed leg ulcer, on-going management should be provided by a Lymphoedema service or in line with local pathways.



## Explanatory Notes:

### Identification and immediate and necessary care

Prevention of injuries (which may be the start of lower limb ulceration) is outside the remit of the NWCSP, but early appropriate care can prevent leg and foot wounds that are non-healing, or at risk of non-healing, becoming ulcers.

It is good practice to cleanse the wound bed, peri-wound (around the wound) and the limb and apply emollient to moisturise the surrounding skin. The method of cleansing will depend on the situation in which care is being undertaken and the individual needs of the patient. While debridement may be required for leg wounds, in most cases, this will not form part of initial and necessary care.

No robust evidence has been identified to support the superiority of any dressing type over another for standard care of leg wounds. Therefore, simple low-adherent dressings with sufficient absorbency are recommended as first line care but this recommendation does not replace clinical judgement and decision making in relation to the needs of the individual patient.

The recommendation for wounds on the leg to be treated with mild compression is based on the British Lymphology Society view that, providing people with ‘red flag’ symptoms (such as the symptoms of arterial insufficiency) are excluded, the benefits of first line mild compression outweigh the risks, even for people without obvious signs of venous insufficiency. In most clinical situations, it is not possible to precisely measure the level of compression that is applied since this is dependent on several factors including ankle circumference, choice of compression system and clinician skill.

For this guidance, ‘mild graduated compression’ is defined as a compression system that is intended to apply 20mmHg or less at the ankle. This is based on the World Union of Wound Healing Societies definition of ‘mild graduated compression’ and is intended to illustrate what is meant as ‘mild graduated compression’ rather than being a precise level of compression required.

### Assessment, Diagnosis and Treatment

#### *Assessment and Diagnosis*

People with leg wounds usually only seek clinical advice when healing is delayed or there are risk factors for non-healing. People with non-healing leg wounds should receive assessment within 14 days of initial presentation as it is likely that such wounds will already have been present for some time before this and further delay increases healing times and suffering.

A multi-disciplinary team (MDT) approach to care is essential. The multidisciplinary team for diagnosis and treatment may include clinicians from podiatry, nursing, medicine, tissue viability, vascular, lymphoedema and dermatology services with the capabilities / competencies identified for advanced practitioners.

Accurate wound assessment is essential for monitoring wound healing as wound size and wound bed status form the baseline against which all subsequent treatment effectiveness will be measured. Wound imaging should be incorporated into wound assessment and regarded as part of standard practice.

Palpation of pulses is known to be an unreliable form of vascular assessment of arterial supply so, as a minimum, vascular assessment of arterial supply should be undertaken by either using Doppler to measure the ankle brachial pressure index (ABPI) or another evidence-informed method. A venous duplex scan is considered a gold standard form of assessment for patients with lower leg wounds so should also be part of assessment, where possible.





Assessment for sensation is recommended to reduce the risk of pressure damage from compression therapy. People with impaired sensation may be unable to identify discomfort from inappropriately applied compression therapy so may require closer monitoring.

Lymphoedematous changes include swelling that does not resolve on elevation / overnight, thickening of skin and subcutaneous tissues, shape distortion, hyperkeratosis and pre disposition to infection.

### **Treatment**

*Dressings:* No robust evidence has been identified to support the superiority of any dressing type over another for any type of non-healing leg wounds. Therefore, simple low-adherent dressings with sufficient absorbency are recommended as first line care but this recommendation does not replace clinical judgement and decision making in relation to the needs of the individual patient.

*Compression Therapy:* People with leg wounds with an adequate arterial supply and where no aetiology other than venous insufficiency is suspected, should be offered compression therapy. In most clinical situations, it is not possible to precisely measure the level of compression that is applied since this is dependent on several factors, including ankle circumference and clinician skill.

For these recommendations, strong compression is defined as an elastic compression system that is intended to apply at least 40mmHg at the ankle or a non-elastic (e.g., short stretch) system applied at full stretch.

The margins of uncertainty around the current evidence for compression therapy mean that it is not possible to recommend one type of compression bandaging system over another. Whilst there is currently stronger evidence for four-layer bandaging and short stretch bandaging over two layer graduated compression, all these systems are used in the UK.

There is evidence that for those willing to wear them, two-layer compression hosiery kits are an effective alternative to four-layer bandaging for healing venous leg ulcers. There is also evidence to suggest that they are more cost effective, may reduce recurrence rates and increase quality of life and are more likely to enable people to self-care. However, two-layer compression hosiery kits are not suitable for all people with venous leg ulcers so multi-component compression bandaging should be offered to patients with significant oedema, exudate, fragile skin and abnormal limb shape.

'Wrap' compression systems offer another form of compression therapy, and their clinical and cost effectiveness is currently being evaluated in an NHS funded randomised controlled trial (VENUS-6 31). Clinicians who wish to offer wrap compression systems are encouraged to do so within the trial to enable swift recruitment and completion of this study.

Mild compression is thought to have benefits for people with leg wounds, even without obvious signs of venous insufficiency by supporting the vein to improve venous return and by reducing oedema, reduce pressure on both veins and arteries. These benefits are thought to outweigh potential risks in people without 'red flag' symptoms.

Ultimately, the decision as to the type of compression therapy should be decided between the clinician and the person with the wound.

*Endovenous Ablation:* For those with venous insufficiency, there is also good evidence in favour of endovenous ablation for healing venous leg ulcers and preventing recurrence. However, such vascular interventions are not suitable for all those with venous insufficiency, so this recommendation does not replace clinical judgement and decision making in relation to the needs of the individual patient.

*Lymphoedema:* Chronic oedema / lymphoedema is common in people with lower limb ulceration. The clinician responsible for diagnosis and treatment planning should either have capabilities /



competencies for managing lymphoedema or be able to refer to specialist lymphoedema services for specialist input.

### **Review of Healing**

*Review and Escalation:* The healing rates for venous leg ulcer reported in the literature suggest that at least 75% of patients with venous leg ulceration uncomplicated by other conditions should heal within 24 weeks. Therefore, if after 4 weeks of treatment, there is no evidence of progress towards healing, such people should be escalated for advice in line with local care pathways e.g., dedicated lower limb service, tissue viability service, vascular service, dermatology service, lymphoedema service. Similarly, those who are unhealed at 12 weeks should also be escalated for advice.

### **Care following Healing**

Most leg ulcers are due to lower limb venous disease which is a chronic long-term condition characterised by episodes of remission (healing) and relapse (recurrence of ulceration). The frequency of recurrence of ulceration can be reduced by ongoing use of compression therapy and endovenous surgery, so most people with venous disease require lifelong ongoing review and treatment to manage their venous disease and reduce the episodes of recurrence of ulceration.

For ulceration due to an underlying cause other than venous disease, management of the underlying cause (e.g., peripheral arterial disease or lymphoedema) may be needed from the relevant specialist service.

Alternatively, if it is possible to completely resolve the underlying cause of ulceration and remove the need for ongoing care, such patients can be discharged.



## References

1. Guest JF, Fuller GW, Vowden P. Cohort study evaluating the burden of wounds to the UK's National Health Service in 2017/2018: update from 2012/2013. *BMJ Open*. 2020 Dec 22;10(12):e045253. doi: 10.1136/bmjopen-2020-045253. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7757484/> Accessed 17.11.22
2. Gray T.A., Rhodes S., Atkinson R.A., Rothwell K., Wilson P., Dumville J.C., et al. Opportunities for better value wound care: a multiservice, cross-sectional survey of complex wounds and their care in a UK community population. 2018 *BMJ Open*. Available at: <https://bmjopen.bmj.com/content/8/3/e019440> Accessed 17.11.22
3. Cullum N, Buckley H, Dumville J, Hall J, Lamb K, Madden M, et al. Wounds research for patient benefit: a 5-year programme of research. *Programme Grants Appl Res* 2016;4(13) Available at: <https://www.journalslibrary.nihr.ac.uk/pgfar/pgfar04130/#/full-report> Accessed 17.11.22
4. Shi C, Dumville JC, Cullum N, Connaughton E, Norman G. Compression bandages or stockings versus no compression for treating venous leg ulcers. *Cochrane Database of Systematic Reviews* 2021, Issue 7. Art. No.: CD013397. DOI: 10.1002/14651858.CD013397.pub2. Available at: <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD013397.pub2/full> Accessed 17.11.22.
5. Gohel, M. S., Heatley, F., Liu, X., Bradbury R., Blubulia M.D et al 2018. A Randomized Trial of Early Endovenous Ablation in Venous Ulceration. *New England Journal of Medicine*, 378, 2105- 2114. Available at: <https://www.nejm.org/doi/full/10.1056/NEJMoa1801214> Accessed 17.11.22
6. DiCenso, A, Cullum N and Ciliska D (2008) Chapter 2 Implementing evidence-based nursing: some misconceptions. In *Evidence-based Nursing*. Ed. Cullum N, Ciliska D, Haynes RB, Marks S. Blackwell Publishing, Oxford.
7. NHS England Sepsis Available at [NHS Symptoms of Sepsis](#) Accessed 17.11.22
8. Conte M.S., Bradbury A.W., Kohl P et al (2019) Global vascular guidelines on the management of chronic limb-threatening ischemia *Journal of Vascular Surgery* 69, (6) Supp. 3S–125S.e40
9. NICE (2018) Clinical Guideline [CG147] Peripheral Arterial Disease – diagnosis and management. Available at: <https://www.nice.org.uk/guidance/cg147> Accessed 17.11.22



10. NICE (2020) Guideline [CG 152] Leg ulcer infection: antimicrobial prescribing. Available at: <https://www.nice.org.uk/guidance/ng152> Accessed 17.11.22
11. SIGN. Management of chronic venous leg ulcers - a national clinical guideline.2010 Available at: <https://www.sign.ac.uk/our-guidelines/management-of-chronic-venous-leg-ulcers/> Accessed 17.11.22
12. Coleman, S., Nelson, E. A., Vowden, P. Vowden K., Adderley U. Sunderland L. et al. Development of A Generic Wound Care Assessment Minimum Data Set. 2017. Journal of Tissue Viability. 26 (4) 226-40. Available at: <https://www.sciencedirect.com/science/article/pii/S0965206X17300529?via%3Dihub> Accessed 17.11.22
13. NWCSP (2021) Digital Images in Wound Care .Available at: <https://www.nationalwoundcarestrategy.net/wp-content/uploads/2021/09/Digital-Images-in-wound-care-17Sept21.pdf> Accessed 17.11.22
14. NICE (2013) Clinical Guideline [CG168] Varicose veins: diagnosis and management Available at: <https://www.nice.org.uk/guidance/cg168> Accessed 17.11.22
15. <sup>1</sup>NWCSP (2022) Vascular Referral Forms. Available at: <https://www.nationalwoundcarestrategy.net/lower-limb/> Accessed 17.11.22
16. Lymphoedema Framework. Best Practice for the Management of Lymphoedema. International consensus. London. MEP Ltd. 2006.
17. NWCSP (2022) Patient Resources. Available at: <https://www.nationalwoundcarestrategy.net/lower-limb/> Accessed 17.11.22

