



Accelerate

# Delivering great care for people with non-ischaemic lower leg ulcers and chronic oedema

A guide for community and practice nurses



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**Accelerate have a wealth of resources on their website including videos, leaflets and information [acceleratecic.com](https://www.acceleratecic.com)**

## Why guidelines?

This Best Practice guideline for assessment and management of non-ischaemic lower leg ulcers or wounds is provided so that current best practice in care can be implemented to change the outcomes and quality of life of the patient.

Critically, the use of compression therapy for this group needs to be optimised because “under-usage of compression therapy represents lost opportunities for healing wounds and improving patients’ quality of life” (Harding et al, 2015).

Guidelines need to identify what good practice looks like. This document describes best practice for those with non-ischaemic wounds, thereby identifying and excluding those with significant arterial ulceration. The risk for this group must be appropriately managed and the correct referral pathway utilised.

Good wound management guidelines allow the utilisation of check lists so that a process can be thought through and conclusions sought. Inconsistent care or where best practice and education is not used has consequences - it will mean that patient’s wounds will fail to heal, leading to a painful or distressing experience and resources are poorly used. Sadly this also simply means a greater nursing burden than is necessary.

Guidelines do not aim to replace a nurse or doctors clinical judgement but to guide and provide support.

Guidelines can help to provide standardised care for the majority of clients, but there will be some patients who do not fit into a standardised regime. Thus this non-standard group, or those who are not responding to standard care need to be identified early and specialist review sought.

## Delivering a vision for Tower Hamlets

It is simple.

Our mission is to prevent harm for people with lower leg wounds and lymphoedema. This means stopping all leg wounds becoming large and debilitating, ruining lives and creating a significant workload burden for nursing staff or admissions to acute services.

This document aims to support early intervention and to ensure patients receive

the right care, at the right time by the right professional. This will halt the development of chronic wounds and reduce the use of healthcare resources for these preventable conditions. The guidance and management tools will be an integral part of this process so that faster healing will be demonstrated and overall prevalence reduced.

## Providing excellent care for patients means that:

- ✔ Patients feel safe and confident when high quality care is delivered by trained and competent clinicians
- ✔ Patients are clear about how they fit into a system that is focused on them and monitors their recovery, delivering the treatment they need when they need it
- ✔ Patients understand the rationale for their management plan and their treatment options
- ✔ Patients feel listened to and they are clear that the compression therapy is therapeutic and has been tailored to their needs.
- ✔ Patients have identified goals and their role in self-management and ongoing prevention

## Venous ulcers - why we need to do better

- ✔ 0.1-0.3% of the population will have an active leg ulcer
- ✔ In the UK, VLU cost £168-198million per annum.
- ✔ Across the community, healing rates are around 47% at 52 weeks
- ✔ In the UK, 12 month recurrent rates are 26-29%

(Harding et al 2015, Guest et al 2017)

## How can we deliver excellent care?

Ensure patients are promptly assessed and triaged onto the correct Pathway.

If in doubt, ASK. Early intervention will reduce your workload and the impact of this condition on the person’s life.

### Pathways for care in Tower Hamlets.

1. Pathway for wounds on the lower leg and ankle - getting people into compression fast
2. Pathway for early intervention with compression - mild venous disease, pregnancy or mild swelling
3. Pathway for lymphorrhoea and chronic oedema related erosions - easy steps to manage wet legs FAST!

# The key to success - identifying complex patients early!

Fast tracking complex patients to specialist clinicians early can stop the deterioration to chronicity and move them on to a healing trajectory without delay. Why wait until they have serious problems and consequences?

We can identify features that make a patient immediately complex and increase their chances of non-healing and that will increase the use of resources. Where patients have 1 or more of these features, specialist referral is required.

## What features make healing LESS LIKELY?

- ✓ Significant oedema: the wound is very wet, causing maceration and requires dressing >2 weekly
- ✓ Pain cannot be controlled. Tolerance of any treatment is difficult
- ✓ Compression is poorly tolerated for a variety of reasons
- ✓ The patient sleeps in a chair at night
- ✓ Tall patients, obese patients
- ✓ Care is inconsistent and keeps changing
- ✓ Patient has had a DVT
- ✓ Difficult shaped legs and ankles
- ✓ Poor ankle mobility or deformed feet
- ✓ Bilateral leg ulcers
- ✓ Large and longstanding wounds or ulcers

# Leg ulcers, wounds and chronic oedema assessment

Top tips for completion and to get the most out of the patient's story and your assessment of clinical need

## 1. General medical history

This is to identify other factors that may be influencing either the cause of the ulcer or the cause of the non-healing.

## 2. Wound history and treatment so far

It is important to understand how the wound or ulcer came about, what the patient believes caused it and get the key facts and dates. It is important to listen to the patient's experience of treatment used, what makes sense to them and any areas where confidence has been lost. The rationale for the management plan needs to reflect this discussion

## 3. Traumatic or surgical wounds on the lower leg

These incidents will have been the trigger but are not now the reason for the non-healing. A wound on the lower leg will heal more slowly than any other site; thus it must be treated differently than a wound on the arm. A leg wound needs some form of compression to heal unless the cause is very poor arterial supply.

## 4. Impact of the ulceration on their life.

We know that ulceration affects people's lives. This section allows you to investigate what this means and to ensure the management plan is adapted to meet patient need.

## 5. Signs and symptoms

This is about identifying key features and changes in the limb that point to a possible aetiology.

## 6. Mobility and ankle range of movement

This is an important section because there is clear evidence that reduced ankle function reduces healing rates. Identifying this as a problem and a need for specialist referral is essential. Promoting ankle exercises will increase the efficacy of the treatment plan.

## 7. Identifying the complex patient

A simple check list that prompts early referral for specialist advice.

## 8. Identification of goals

This section provides focused attention on what you, your team and the patient want and thus need to do.

## 9. Providing targeted care to Get Management Right Fast! Designing an effective Treatment Plan

- a. Target the cause of non-healing. Legs need compression, but how much should this dose be?
- b. Start with standard compression that delivers at least 40mmHg
- c. If slow to heal, or the compression is not tolerated, Refer Fast for specialist review

# Treatment plan

Please use the simple Treatment Plan to identify:

- Step by step approach to each limb
- Rationale for choice of dressing and compression therapy
- Understand what you are trying to achieve; what is the Compression Dose required to deliver a therapeutic intervention for this patient?
- Frequency of dressing

## Keeping on track: review progress

Progress needs to be reviewed with the patient.

If the answer is **NO** to any of these, a successful outcome is unlikely. Identify the **ACTIONS** needed to be taken. If in doubt, refer on for specialist advice.

1. Is the wound healing? How long has the swelling been present? How many weeks so far?
2. Is the diagnosis or cause of non-healing clear? Is the diagnoses of swelling clear?
3. Has pain been addressed and managed? Is pain stopping adequate treatment?
4. Is optimal compression being used?
5. Is the patient tolerating treatment?
6. Is the application of compression therapy consistently good?
7. Are the factors that create oedema being addressed?
  - a. Are they going to bed?
  - b. Is immobility being addressed?
  - c. Is ankle mobility being addressed?
  - d. Do they have lymphoedema?
  - e. If using Amlodopine, has a request to the GP been made to provide alternative?
8. Is the skin condition optimal?
9. Is the patient being seen or managed by the right person?



# Leg ulcer assessment

<b>Name</b>	<b>Date of birth</b>	<b>NHS number</b>
<b>Date of referral</b>	<b>Date of assessment</b>	<b>Ethnicity</b>
<b>Gender</b>	<b>Involvement with specialists</b>	

General medical history - medical factors influencing duration and management		
Condition	Y/N	Comments
Cardiac or peripheral arterial disease		
Claudication		
Venous disease history		
Diabetes		
Obesity		
Smoker		
Rheumatoid		
Recurrent infection		
Pain, descriptors, SCORE		
Sleeps in bed		
Medication - key medication plus see medical summary from EPR		

Wound history		
Condition	Y/N	Comments
History of wound and any previous ulceration		
Compression used - include history of use and tolerance		
'Doppler' / Duplex - give previous results		
Status of ulcer - healing, static, deteriorating		
Frequency of dressings - daily, weekly, self-care etc and dressing history		
Known to TVN, Vascular or Dermatology		

Name	Date of birth	NHS number

Other key factors	
Impact of ulceration on daily life	
Social history - housing, occupation, hobbies, strenuous activities etc	
What the patient believes makes a difference to healing or deterioration?	
Photo taken with consent?	Yes / No

Presentation	Right	Left
Varicosities		
Atrophy blanche		
Ankle flare		
Lipodermatosclerosis		
Wet eczema		
Dry eczema		
Palpable pulse		
Inflammation		
Dependent rubor		
Cool temperature of limb or poor capillary refill		
Neuropathy and / or numbness		
Calf circumference		
Ankle circumference		
Forefoot circumference		

'Doppler'	Right	Sounds	Left	Sounds
Brachial				
Dorsalis pedis				
Posterior tibial				
ABPI				
Review date				

Name	Date of birth	NHS number

Ankle mobility assessment		
Issue	Y/N	Comments
Is ankle mobility a concern?		
Is the patient walking slowly?		
Does the patient have a stiff ankle?		
Is posture affected?		
Functional difficulties / aids used?		

Key issues, concerns and conclusions - are they complex? Refer early		
Issue	Y/N	Summary of assessment and diagnosis
Significant <b>oedema</b>		Can the aetiology of the ulcer be diagnosed? What is the cause of the non-healing?
<b>Pain</b> cannot be controlled		
Tolerance of treatment is difficult		
Compression is <b>poorly tolerated</b>		
<b>Sleeps in a chair</b> at night		
Care is <b>inconsistent</b>		
History of <b>DVT</b>		
<b>Tall</b> or <b>obese</b>		
<b>Difficult shaped</b> legs		
Poor <b>ankle mobility</b> or deformed feet		
<b>Bilateral</b> leg ulcers		
<b>Large</b> and <b>long-standing</b> ulcers		

Clinical goals planned with patient - agreed? Y / N
1
2
3

Reason for referral to Accelerate - what are the concerns?

Community Nursing action

# Leg ulcer treatment plan

<b>Name</b>	<b>Date</b>
<b>NHS No.</b>	<b>Date of birth</b>

Action	Right leg	Left leg	Rationale and/or action
Cleansing Name the products used			
Skin care Name the emollient or steroids used			
Dressings Name the products used			
Toe bandage or caps Name the products used			
Bandaging to limb Name the products used			
Strapping Clarify technique used			
Hosiery Name the products used			

At each change of dressing, check for progress					
Check 1	Check 2	Check 3	Check 4	Check 5	Check 6
Review pain & management: pain should be reducing	Is there guttering or a reduction in exudate?	Is the compression working? If not review ankle width and technique	Promote walking and ankle stretches. Have a target	Promote elevation as treatment. Set a 2 hour target	Does dressing frequency need to be changed?
Important extra information for and from the patient					

# Foundation for best practice

## 01. Assess for arterial disease

It is essential that patient's limbs are assessed for the presence of arterial disease so that they are seen promptly by the Vascular team for early intervention. Blockage of an artery leads to a loss of blood flow to the skin normally supplied by that artery. This results in skin breakdown or ulceration caused by a depletion of oxygen and nutrients.

Blockage may be due to:

1. Embolism in one of the smaller arteries causing sudden onset of ischaemia.
2. Peripheral arterial disease: constriction of the arterioles from atherosclerosis with a potential problem of complete occlusion.

### Previous medical history may include

- History of heart disease
- History of CVA
- Transient ischaemic attacks
- Chronic kidney disease stages 3 and 4, Dialysis
- Diabetes
- Rheumatoid arthritis
- Previous arterial surgery

### Signs and symptoms

- Site: Anywhere on the leg, but ulcers usually develop on the foot especially the toes, heel or close to the medial malleolus.
- Appearance: Size is variable but ulcers are usually smaller than those of venous origin. Deep and punched out, may reveal underlying tendons.
- Skin: Pale, shiny often hairless. Bluish toes or dusky pink feet which will turn pale on elevation. Trophic changes in nails.
- Pain: Rest pain that is worse at night and on elevation which may be relieved when leg is dependent. On exercise, intermittent claudication (pain in the calf) is experienced.

- Pedal pulses: Diminished or absent, monophasic or dampened biphasic tone.
- Confirm by 'Doppler' assessment with an ABPI of <0.8. However, this does not exclude the use of compression but requires specialist advice

### Treatment for arterial ulceration

The aim of the treatment plan will be:

- Referral to Vascular Team to ascertain if blood flow to the limb can be improved: if <0.5 Urgent referral is required
- Management of pain
- Management of exudate. NB if signs of venous disease or gross oedema also present refer to Accelerate Specialist Team because light compression may be appropriate and also increase blood flow in mixed disease

### The use of compression therapy in arterial ulceration

1. Use of all levels of compression therapy must be agreed with the Accelerate Specialist team.
2. Reduced compression is advised when an ABPI is between 0.5 and 0.8. But the compression level will be determined by the width of the limb, the site of the ulcer and the absolute arterial pressures in the limb. Use mild compression of <20mmHg and refer to the Accelerate Specialist Team.
3. There is increasing evidence that reduced compression therapy has a therapeutic value for ischaemic limbs by increasing the tissue perfusion. Thus a therapeutic intervention must not be excluded.

# Foundation for best practice

## 02. What you need to know about the 'Doppler'

### Measuring ABPI

Calculation of the ankle brachial pressure index is the method used most widely for assessing peripheral arterial circulation and determining whether it is safe to apply any compression therapy. However, this calculation must be placed within the context of the assessment, clinical signs and symptoms and other medical risks.

Healthy arteries have a strong, pulsatile, triphasic sound (although often biphasic can be heard). Diseased arteries sound dampened, monophasic and 'whooshy' whilst still pulsatile. Venous sounds modulate with the respiratory cycle and have a characteristic 'roaring' sound.

### Interpretation of the ABPI

The Ankle Brachial Pressure Index is simply a calculation that compares the brachial systolic with the ankle systolic and determines if there is any deficit.

### The big question: How often should you 'Doppler'?

3 months - high risk	6 months - medium risk	12 months - low risk
ABPI <0.81 or >1.3 with any one risk factor	ABPI within 0.81 - 1.3 with 2 or more risk factors	ABPI within 0.81 or >1.3 all factors below must be present
Immobile / limited mobility (Risk factor)	Smoker Age 70+ Cardiac disease CVA TIA (Scores 1 each)	Mobile Good cognitive ability Patient has knowledge of early symptoms of PAD
Diabetes Angioplasty PAD Unilateral amputee from PAD Intermittent claudication (Risk factors)	Co-morbidities e.g. cognitive impairment Drug or alcohol dependency Mental illness (Scores 2)	No complications from medium or high risk factors

Adapted from Furling 2015

### How to calculate the 'Doppler' or ABPI

#### The patient:

1. Explain the procedure and reassure the patient. It is important to explain that it might cause discomfort but that the reading is essential and will be obtained quickly.
2. The patient should rest lying down as flat as possible for 10-15 minutes.

#### To obtain the brachial systolic

1. Both brachial pressures must be recorded.
2. Place the cuff around the upper arm.

3. Locate the brachial pulse by palpation or with the 'Doppler' probe.
4. Apply ultrasound contact gel.
5. Angle the probe at 45-60 degrees and move to the best signal.
6. Inflate the cuff whilst ensuring the probe stays in position. (Having the assistance of a colleague is useful here). Inflate until the signal disappears; then deflate the cuff until the signal returns.

7. Deflate the cuff quickly once the systolic has returned to relieve any discomfort and then record the systolic pressure. NB: You will not hear the diastolic pressure.
8. Repeat with the other arm and use the higher reading when calculating the ABPI.

#### To obtain the ankle systolic

1. Place the cuff around the ankle just above the malleoli NB: If an ulcer is present in that area cover with cling film or similar.
2. Locate the Dorsalis Pedal pulse with the probe and ultrasound contact gel. [Need Pulses picture in appendices]
3. Continue as for the brachial.
4. Record this reading then repeat with the Posterior Tibial pulse.
5. Take the higher of the two pedal readings to form calculation.

#### Record the full calculation in the notes.

### Results - what do they mean?

ABPI > 1.0 - 1.3	No indicators or peripheral vascular disease	Apply high levels of compression therapy
ABPI = 0.81 - 1.0 with any one risk factor	Mild peripheral disease	May have high levels of compression therapy - monitor ABPI
ABPI = 0.51 - 0.8	Significant arterial disease	May have reduced compression - refer to specialist nurse / vascular
ABPI = < 0.5	Severe arterial disease	No compression - urgent referral to vascular
ABPI > 1.3*	Measure toe pressures or refer to specialist	May have compression therapy - liaise with specialist nurse / vascular

Adapted from Harding et al, 2015

\*Young patients may have high ABPI not indicative of PAD

### Oedematous limbs

If the clinician is not able to obtain an ABPI due to oedema, then guidance on using a vascular assessment tool combined with locating and listening to pedal pulses to rule out arterial disease should enable the clinician to start compression therapy (BLS 2018).

### Automated 'Doppler'

Dopplex Ability and Mesi are intended for the rapid measurement of ankle-brachial pressure index (ABPI) or ankle-brachial index (ABI) in adults and pulse volume recording (PVR) / volume plethysmography.

They are suitable for use in wound care assessment, for assessing symptomatic PAD, and as a screening device for PAD.

They may also be used on patients with leg ulcers to aid diagnosis within an holistic assessment prior to the application of compression therapy.

Dopplex Ability and MESI can be used on patients with unilateral lower limb amputation and come with cuffs suitable for regular and larger limbs. Please note the patient is still required to lay supine and as flat as possible but no rest period is required prior to the automated reading.

Refer to manufactures guidance on use of equipment.

If you cannot perform a vascular assessment due to extreme pain or swelling, or the reading is unclear and preventing you from commencing compression therapy please refer to the Accelerate Specialist team.



# Foundation for best practice

## 03. What you need to know about venous disease

Not all lower leg wounds have diagnosed venous insufficiency but because they are on the lower leg, they have functional venous insufficiency due to the effect of gravity. Thus, with the exception of the presence of critical ischaemia, it is anticipated that all lower leg wounds of any aetiology will benefit from compression therapy to aid healing.

Venous ulcers account for 70% of all leg ulceration and are secondary to long-standing deep or superficial vein disease or disrupted function which results in sustained ambulatory venous hypertension, commonly known as chronic venous hypertension. These wounds can often arise spontaneously. Traumatic or surgical wounds on the lower leg need to be treated as 'an ulcer' if they fail to heal in 2-3 weeks (see Early Intervention Pathway)

During walking the venous pressure in the leg reduces to nearly 0mmHg due to the effect of the foot and calf muscle pumps in emptying the veins. In patients with chronic venous hypertension this fall in pressure does not occur. The resulting changes to the micro-circulation leads to tissue inflammation and ulceration; there may also be abnormalities in the behaviour of the capillaries with increased leakage of red cells and proteins, increase sticking and activation of white cells and accumulation of inflammatory cells.

### Characteristics of venous ulceration (many or few may be present)

- ✔ **Varicose veins**
- ✔ **Ankle flare** – distended venules around the foot
- ✔ **Hyperpigmentation** – brown staining of skin in gaiter area from haemosiderin breakdown
- ✔ **Varicose eczema** – weeping or dry due to inflammation triggered by oedema
- ✔ **Palpable pulses** – if limb is oedematous, these may only be heard on 'Doppler'
- ✔ **Ankle oedema** due to increased capillary permeability

- ✔ **Atrophie blanche** – Absent pigment with visible capillary loops
- ✔ **Lipodermatosclerosis** – Champagne bottle shaped leg due to fibrin deposition, fat necrosis and inflammation
- ✔ **Shallow, sloughy**, well vascularised ulcer usually in the gaiter area
- ✔ **Pain relieved** on leg elevation
- ✔ **Causative factors** include obesity, congenital absence of valves or a history of DVT, phlebitis, pregnancy, leg injury

### Treatment of venous ulcers

Treatment of venous ulcers or those with functional venous insufficiency is primarily compression therapy that will reverse the venous hypertension. There is no evidence that the dressing used makes any significant difference.

### What heals venous ulcers?

1. Consistent compression therapy. Compression therapy has been shown to switch off the inflammation in the tissues.
2. A therapeutic level of compression: the right level to achieve healing for the individual
3. Increasing ankle mobility
4. Surgical management of the varicose veins. Thus referral for Venous Duplex essential.

Referral for duplex scanning to investigate the venous system of the limb and establish the competence of the valves and any venous obstruction.

### Tracking and monitoring Healing Rates

There is evidence that wounds on the lower leg with venous or functional venous disease will heal fast with compression therapy if they are managed early and effectively. Complexities that affect healing have been discussed (page 6). Whilst we will monitor all wound types, formal notification of healing rates as a Quality Measure will only concern venous disease. We acknowledge that there are a number

of factors that could significantly impact on our healing rates such as sleeping in a chair at night or inability to tolerate compression therapy; by not excluding this group from the performance target supports our position that early intervention will reduce this complex group to a minimum.

If we want great results we need to know what we are aiming for and establish whether we are on track. Thus the Accelerate Team monitor all patients with a non-diabetic lower leg wound and track their healing rate. See section 12.

## 04. What you need to know about pain and distress

Pain is a common feature of venous leg ulcers causing an unpleasant sensory and emotional experience for the patient. Patients describe a variety of pain from deep dull ache through to sharp stabbing pain and there is thought to be a significant neuropathic component in many patients: sleep is often disturbed.

Pain control requires regular analgesia and some patients need to be encouraged to take this regularly so that adequate compression can be achieved and ankle exercises can be undertaken. The usual approach is to follow

## 05. What you need to know about the importance of ankle mobility

Reduced ankle range of motion (AROM) results in poor venous ejection volume from the calf pump. This is because the calf muscles, when contracting to lift the heel in normal walking, "massage" the veins found between the layers of muscle. The ability of the foot to move up (dorsiflexion) and down (plantarflexion) are vital for normal safe walking and muscle contraction. If the ankle becomes stiff due to issues such as poor joint alignment, arthritis or soft tissue contractures then these muscles that run together into the Achilles are unable to contract adequately against the stiff ankle joint which it crosses. Severe pain will also make the patient restrict their movement at the

### Our assumptions

1. That 85% of patients with venous wounds will heal in 24 weeks with 65% healing at 12 weeks.
2. That we exclude the non-venous medical pathologies from this formal analysis:
  - a. Those with mixed or arterial disease
  - b. Pathologies that require complex medical management such as vasculitis, sickle cell, carcinoma
  - c. Intravenous drug history

the WHO analgesia ladder described for cancer pain using Paracetamol, opioids or opiates plus. Opioids should only be considered in carefully selected individuals for the short- to medium-term treatment of chronic non-malignant pain. Patients with neuropathic pain should consider Amitriptyline, Gabapentin or Pregabalin.

**Action:** Distress and the impact of this wound on their life needs to be understood. The use of the Accelerate Distress Thermometer may enable better conversation and more focused care.

ankle and create an abnormal walking pattern; this can also help the ankle to become 'fixed'. This stiffening or 'fixing' of the ankle adversely affects the venous circulation of the lower limb.

Ensuring a normal ankle range of motion works towards safer gait, pain reduction, patient empowerment, and faster healing. Increased mobility has been shown to improve the patient's quality of life.

**Action:** Each patient needs to be shown ankle stretching exercises to reduce this stiffness. Refer to Accelerate for assessment if concerned.

# Foundation for best practice

## 06. What you need to understand about compression therapy

“Compression is a potent therapy. Used correctly it can promote healing of VLU and change a patient’s quality of life; used incorrectly it can result in delayed healing, pain, trauma or even the loss of a limb. Clinicians involved in the treatment of patients with VLU should be competent in selecting and applying compression according to individual patient needs”<sup>4</sup>

Compression ‘works by squeezing the limb, thereby reducing oedema and aiding venous return’<sup>4</sup>; this has positive effects on the venous, lymphatic and arterial systems. Compression can switch off the inflammation and reduce inflammatory Cytokines and MMPs. The pressure the limb receives from this compression is called sub-bandage pressure and is measured in mmHg. A key factor that influences the amount of pressure the limb receives is the width of the limb:

### A wider limb REDUCES the sub-bandage pressure

This is very important when deciding on a management plan and when reviewing the efficacy of the treatment:

- ✔ A small limb is at risk of over compression and causing compression damage to the skin
- ✔ A wide, oedematous limb is at risk of low compression and thus wetness is not managed and treatment fails.

It is important that the regime chosen meets the patient’s need. Thus choice must be based on

- ✔ Site of wound. Is the wound bed actually being compressed?
- ✔ Height of the patient. If tall, they need higher compression levels.
- ✔ Site of oedema
- ✔ Shape of the limb
- ✔ Presence, site and type of oedema
- ✔ Progress of pain management and how an elastic or inelastic/stiffer regime is tolerated

There are a large number of variables to evaluate when patients are complex; please seek advice so that patients are not abandoned to wet or non-healing legs.

## Top Tips for increasing tolerance and impact of compression therapy

- ✔ Patients need to understand why compression therapy is the key to success
- ✔ Understanding their previous experience of compression
- ✔ Need to find the right healing regime for the person in front of you
- ✔ Make sure you are providing adequate analgesia and that this also targets any neuropathic pain
- ✔ Ensure compression is applied to the foot to create even and supportive compression to the limb
- ✔ Review need for toe compression
- ✔ Start with light compression and build up to build their confidence
- ✔ Discuss how the limb, skin and wound respond to the compression and what you are looking for, notably guttering
- ✔ Have a bandage tolerance chart so the patient and you can identify when it works well or when it doesn’t
- ✔ Do not bulk out with wadding, especially over the foot

## Compression solutions check list:

Problem	Assessment	Solution
Cannot tolerate bandage	<ul style="list-style-type: none"> <li>• Is there any ischaemia?</li> <li>• Is there adequate pain relief?</li> <li>• Are there problems with footwear?</li> <li>• Check application technique</li> </ul>	<ul style="list-style-type: none"> <li>• Recheck ABPI</li> <li>• Increase analgesia</li> <li>• Ensure neuropathy is managed</li> <li>• Refer to Accelerate</li> </ul>
The ulcer site is directly over the malleolus	<ul style="list-style-type: none"> <li>• The ulcer is not improving</li> </ul>	<ul style="list-style-type: none"> <li>• If directly on the malleolus, refer for specialist advice as off-loading might be required</li> </ul>
The ulcer site is behind the malleolus	<ul style="list-style-type: none"> <li>• The ulcer is not improving</li> </ul>	<ul style="list-style-type: none"> <li>• If behind the malleolus, the ulcer bed will not be receiving compression</li> <li>• Refer for specialist advice; a strapping technique is required</li> </ul>
Cannot get shoes on	<ul style="list-style-type: none"> <li>• Is this reducing their tolerance?</li> <li>• What is the real impact?</li> <li>• Is their forefoot swelling not being addressed?</li> </ul>	<ul style="list-style-type: none"> <li>• Reducing wadding by applying only over the bony prominences and Achilles</li> <li>• Consider compression regimes or hosiery kits that are less bulky</li> <li>• Ensure compression to the foot is being applied</li> </ul>
Thin leg	<ul style="list-style-type: none"> <li>• Ankle circumference &lt;24cm</li> <li>• Calf circumference &lt;30cm</li> </ul>	<ul style="list-style-type: none"> <li>• Apply extra layers of padding along tibial crest, dorsum of ankle and Achilles</li> <li>• Reduced compression</li> <li>• Refer to Accelerate</li> </ul>
Fat leg, ulcer not healing, no guttering present	<ul style="list-style-type: none"> <li>• Measure ankle circumference</li> <li>• Is there peripheral oedema?</li> </ul>	<ul style="list-style-type: none"> <li>• Apply compression as directed for wider limb</li> <li>• Refer for advice</li> </ul>
Redness over bony prominences	<ul style="list-style-type: none"> <li>• Is there any ischaemia?</li> <li>• Check application technique and bandager. Is the ankle correctly dorsi-flexed when bandages applied?</li> </ul>	<ul style="list-style-type: none"> <li>• Check ABPI</li> <li>• Check compression application techniques</li> <li>• State any requirements for a change in technique or whether this is a bandager or technique problem</li> </ul>
Bandage falls down	<ul style="list-style-type: none"> <li>• Is the leg unusual in shape?</li> <li>• Was the bandage applied too loosely?</li> <li>• Is the patient interfering with the bandages? ie is there eczema?</li> </ul>	<ul style="list-style-type: none"> <li>• Pad out leg to a more natural shape or change technique and document</li> <li>• Apply correct tension</li> <li>• Apply Tubigrip on top to help keep bandages in place</li> </ul>
Bandage feels tighter after a period	<ul style="list-style-type: none"> <li>• Is the patient getting greater peripheral oedema?</li> <li>• Is the patient going to bed?</li> </ul>	<ul style="list-style-type: none"> <li>• Consider diuretics and check for the tourniquet effect of the bandage</li> <li>• Ensure patient is getting into bed and if not, why?</li> </ul>

Any concerns? Refer to Accelerate [acceleratecic.com/referrals](https://acceleratecic.com/referrals)

# Foundation for best practice

## 07. What you need to understand about skin care

Skin changes are commonly seen around venous leg ulcers. In addition to the thickening of the subcutaneous tissue (lipodermatosclerosis) it is common to see redness, scaling, weeping and crusting around a wound; these are all features of dermatitis or eczema (interchangeable terms). In some patients the top layers of the skin become very thickened with scale or covered with stuck on layer of old keratin (hyperkeratosis). Wound fluid can be very irritant to the skin especially under some dressings so more frequent dressing changes can be helpful in treating very irritated skin.

Treatment requires regular cleaning (water

through shower most effective) and emollient. Bath oils such as Hydromol can be added to a bucket of water to soak the leg or emollients can be applied directly to the skin prior to soak. Gentle removal of hyperkeratosis is strongly advised. Simple emollients such as white soft paraffin / liquid paraffin, hydrous ointment or others can be used prior to application of compression bandaging. Potent topical corticosteroids such as betamethasone valerate 0.1% ointment may be used at dressing change to treat any dermatitis without risk of skin damage. Patients with persistent dermatitis not responding to topical corticosteroids should be referred for assessment by a dermatologist.

## 08. What you need to know about dressings

Dressings are useful in leg ulcer management for managing the symptoms of the ulceration. It is important patients understand that the real benefits for healing are derived from the compression bandaging and not the dressings that are used. Dressings are therefore selected to meet the needs of the wound but it is the compression regime that will heal the wound:

As leg ulcers are chronic wounds and would normally have bacteria present, we would not routinely wound swab. Guidance around the appropriate use of antibiotics and leg ulcers can be found at: [nice.org.uk/guidance/ng152](https://www.nice.org.uk/guidance/ng152)

**If local wound infection is suspected or biofilm which has resulted in non-progression of healing, then an appropriate anti-microbial can be used for 2 weeks and then reviewed.**

Wound condition	Dressing
Healthy, healing, non-excessive exudate	<ul style="list-style-type: none"> <li>Low adherent contact layer such as N-A or Adaptic</li> </ul>
Heavy exudate	<ul style="list-style-type: none"> <li>Low adherent with super absorbent dressing</li> </ul>
Sloughy wound bed	<ul style="list-style-type: none"> <li>This may debride autolytically with compression application</li> <li>Alginate or hydrofibre may help</li> <li>Mechanical debridement with CleanWnd</li> </ul>
Infection	<ul style="list-style-type: none"> <li>Antimicrobial dressing for a limited period</li> </ul>
Pain	<ul style="list-style-type: none"> <li>Non adherent silicone dressings</li> </ul>

## 09. What you need to know about other ulceration

Rarer causes of ulceration include vasculitis (inflammation of blood vessels), pyoderma gangrenosum (inflammatory cause of ulceration), malignancy (Basal Cell carcinoma or Squamous Cell Carcinoma), sickle cell disease or other Haemoglobinopathies and intravenous drug usage. The diagnosis can be suggested from the history and from the examination:

- Unusual site of ulceration (away from gaiter area)
- More than three ulcers per leg
- Deep purple edge to the ulcer

Management of these patients must include the Accelerate Specialist Team.

## 10. What you need to understand about lymphoedema

Lymphoedema is a chronic swelling resulting from failure of lymphatic drainage. **Two main types of lymphoedema are recognised:**

The distinction between primary and secondary lymphoedema is usually made on the basis of the pattern of onset and clinical history.

### a) Primary lymphoedema

This term describes lymphoedema where there is an intrinsic genetic abnormality of the lymphatic system. It may be inherited.

There are a number of types of primary lymphoedema, some of which are inherited. Some are present from birth (e.g. Milroy lymphoedema) whereas some develop around puberty (e.g. lymphoedema distichiasis) and others may develop later on in life. There is usually no identifiable cause of damage to the lymphatic system but occasionally overt lymphoedema can be precipitated by a relatively minor trauma, e.g. a sprained ankle may lead to persistent swelling in a patient with an underlying lymphatic dysplasia.

### b) Secondary lymphoedema /chronic oedema

In secondary lymphoedema, this is where lymphatic failure is a result of damage to an otherwise normal lymphatic system, e.g. due to surgery, radiotherapy, infection (such as cellulitis) or trauma, overload.

Given the common occurrence of this type of mixed clinical picture, the term “chronic oedema” has been used more recently to act as an “umbrella” description of persistent oedema of greater than 3 months duration, regardless of cause (Moffatt et al (2003)

The most common causes of chronic oedema are listed below

- Lymphoedema: Primary and secondary
- Venous oedema, e.g. post-thrombotic syndrome; severe varicose veins
- “Dependency” oedema; associated with immobility
- Oedema associated with obesity
- Oedema due to chronic heart failure
- Oedema related to advanced cancer

### Clinical features of lymphoedema/ chronic oedema

- ✓ Lymphoedema can affect any part of the body but most commonly involves the legs. When it initially develops, the swelling is usually soft and it is easy to cause pitting by applying pressure. However, over time, the subcutaneous tissues become firmer due to the deposition of fat and fibrosis and the swelling is less easy to “pit”.
- ✓ Stemmer’s sign describes the inability to pick up a fold of skin at the base of the second toe and is usually positive in lymphoedema of the legs when it has been present for some time.
- ✓ In chronic lymphoedema, skin changes such as hyperkeratosis, lymphangiectasia and papillomatosis are seen as the condition progresses. The skin becomes thickened and there can be deep skin folds and creases around the joints.

# Foundation for best practice

## Guidance on when to refer to the Lymphoedema Service

<ul style="list-style-type: none"> <li>Swelling has been present for 3 months or more</li> <li>Repeated cellulitis</li> </ul>	<ul style="list-style-type: none"> <li>Patient has at least one of the following:           <ul style="list-style-type: none"> <li>Chronic oedema/lymphoedema with lymphorrhoea</li> <li>History of repeated cellulitis related to oedema</li> <li>Lymphoedema secondary to cancer</li> <li>Primary lymphoedema</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Systemic causes of swelling have been ruled out</li> </ul>
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## Referrals NOT accepted

<ul style="list-style-type: none"> <li>Known ischaemia of the affected limb</li> <li>Varicose veins</li> </ul>	<ul style="list-style-type: none"> <li>Routine 'Doppler' in the absence of swelling</li> <li>Venous or other ulceration</li> </ul>	<ul style="list-style-type: none"> <li>Unstable cardiac/renal failure</li> <li>Absence of swelling</li> <li>Housebound patients NOT active to the community nursing team</li> </ul>
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## For further information:

[acceleratecic.com/coronavirus-covid-19/optimising-chronic-oedema-treatment-during-the-coronavirus/](https://acceleratecic.com/coronavirus-covid-19/optimising-chronic-oedema-treatment-during-the-coronavirus/)

[thebls.com/documents-library/assessing-vascular-status-in-the-presence-of-chronic-oedema-prior-to-the-application-of-compression-hosiery-position-document-to-guide-decision-making-a5](https://thebls.com/documents-library/assessing-vascular-status-in-the-presence-of-chronic-oedema-prior-to-the-application-of-compression-hosiery-position-document-to-guide-decision-making-a5)

## 11. How can we prevent ulcer recurrence and increase self-management?

Patient outcomes and healing rates will be improved when patients are engaged in their care and are encouraged to take some ownership. The aim is to provide care that is focused on patient goals and their individual needs. This requires skilled practitioners with a listening and collaborative approach.

Compression hosiery is an important therapy for both treatment and prevention of venous ulceration and oedema. There are now numerous products available and these differ according to fabric, tension/classification, stiffness, design and of course range of sizes.

Choice of tension needs to be weighed up between patient need and the severity of disease, against the patient ability to get the hosiery on.

Material is either stiff/ flat knit or circular knit/ elasticated. Elasticated is more cosmetically suitable and can be easier to put on; flat knit is smoother to a distorted limb and will not dig into skin folds and thus favoured within chronic oedema management. Using 'liner socks' or class 1 compression can be very useful additions.

## Hosiery has classifications

Compression Class	British Standard	European Classification
Class 1	14-17mmHg	18-21mmHg
Class 2	18-24mmHg	23-32mmHg
Class 3 or Hosiery Kit	25-35mmHg	34-46mmHg
Class 4	N/A	49-70mmHg (Specialist)
Class 4 Super	N/A	60-90mmHg (Specialist)

Thus one size, strength or make does not fit all. Clinicians need to be skillful in the use of hosiery as with any other therapy. The more you know, the more you are able to adapt the offering to the patient and increase their tolerance of life-long therapy.

## Each team needs to have access to:

- ✓ A range of sizing charts for both standard and Made to Measure hosiery
- ✓ A range of hosiery aids to demonstrate application
- ✓ Examples of different types of hosiery and socks

For greater detail, please see Wounds UK Best Practice Statement on Compression Hosiery

## Successful use of compression hosiery

- ✓ Make them aware of the high risk of recurrence and get them thinking positively about hosiery as soon as possible!
- ✓ Agree design of the hosiery (open or closed toe, length, colour, zip) and how to ensure the highest amount of compression
- ✓ Ensure removal and application is tested and realistic
- ✓ Skin care and expectations
- ✓ Get to know the variety of hosiery aids. They can be invaluable but need to be tried out
- ✓ Keep nails short
- ✓ Two Class 1 socks may be easier to apply than one Class 2
- ✓ Make use of Liner socks to increase compression
- ✓ Do not over pull the sock so much that there is excessive hosiery at the calf

# Foundation for best practice

## Listening to the patient and adapting care to meet need

- ✓ What is the patient's role in the management plan? Ankle Exercises? Monitoring of compression? Providing the compression?
- ✓ What are the patient's goals for this treatment? What do they want to achieve? [NB not just healing: are there any steps or targets before this?]
- ✓ What is their experience telling you about leg ulcer management, the need to adapt the treatment plan or the impact of the service on them?
- ✓ What do they really think will heal their ulcers?
- ✓ Make them aware of the high risk of recurrence and get them thinking positively about hosiery as soon as possible!
- ✓ Those at high risk of recurrence may need one week in 4 of high compression instead of hosiery

## 12. Tracking and monitoring our impact

There are a number of ways in which outcomes can be tracked. It is important to identify areas that can be monitored simply for the biggest impact.

Tracking of outcomes is also one of the most critical ways of improving care. We cannot simply rely on best practice delivery hoping or trusting that all clinicians will implement these guidelines correctly at all times. It is the systematic measurement of results across an economy that will push improvement, especially if these are centred on quality markers that matter to patients. (Ref Harvard Business Review)

1. Venous leg ulcers are the only wounds where best practice can demonstrate healing within a set timeline of 12, 24 and 52 weeks. There are significant variables, such as size or site of the ulcer that affect healing rates and thus must be tracked alongside healing rates. Venous ulcers are deemed any lower leg wound that does not have another aetiology or cause such as vasculitis or sickle cell. [Trauma is not an aetiology but an incident!]
2. Good healing rates will demonstrate that:
  - ✓ Good clinical skills and knowledge are developed and utilised
  - ✓ We have a system that assists prompt assessment and management
3. Not all lower leg wounds have diagnosed venous insufficiency but because they are on the lower leg, they have functional venous insufficiency. Thus, with the exception of the presence of ischaemia, it is anticipated that all lower legs wounds of any aetiology will benefit from compression therapy to aid healing.
4. Variations in outcomes across services are expected due to the variance in frailty; this needs to be reviewed and tracked.

- ✓ Patient views are sought, that care is adapted and goal are personalised
- ✓ That the system supports early vascular assessment and triage of complexities
- ✓ A high use of strong compression therapy is delivered and our focus and techniques support tolerance and effective management of oedema and exudate.
- ✓ Pain is managed effectively to enable good tolerance of treatment
- ✓ Swift identification and onward referral of patients that show early signs of complexity.
- ✓ Good quality of life and return to wellness
- ✓ Reduction of use of GP and acute services

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[For more resources, go to acceleratecic.com](https://www.acceleratecic.com)



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