CONSENSUSDOCUMENT

COMPRESSION THERAPY FOR **PHARMACY TEAMS**

Wounds UK

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108 Cannon Street
London EC4N 6EU,UK
Tel: +44 (0)20 3735 8244
www.wounds-uk.com

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Expert working group

Karen Ousey (chair), Professor of Skin Integrity, Director of the Institute of Skin Integrity and Infection Prevention, University of Huddersfield

Leanne Atkin, Vascular Nurse Consultant, Mid Yorkshire NHS Trust; Lecturer, University of Huddersfield; Chair, Legs Matter

Barbara Conway, Head of Pharmacy, University of Huddersfield

Hayley Gorton, Senior Lecturer in Pharmacy Practice, University of Huddersfield

Johnathan Laird, Community Pharmacist and Independent Prescriber, Scotland

Margaret Sneddon, Chair, British Lymphology

Review panel

Ade Williams, Community Pharmacist and GP Pharmacist, Bristol

Kayleigh Williams, Associate Director Contractor Engagement, Community Pharmacy, Wales

Denise Woodd, Nurse Specialist Practitioner/Educator in Assessment, Management and Prevention, Wound Care and Leg Ulceration

Introduction

Compression therapy is a key area of lower limb wound management that has been identified as an area of care requiring a unified approach between wound care professionals and pharmacy teams (Ousey et al, 2021).

Compression therapy is considered the gold-standard treatment for lower limb ulcers, which are a growing concern – with approximately 1.5% of the adult population in the UK affected by active leg and foot ulceration (NWCSP, 2020). The National Wound Care Strategy Programme (NWCSP, 2020) lower limb stream has stated that compression therapy is a vital consideration in all lower limb wounds unless specific red flags are present, and that all those presenting with a lower limb wound should receive compression therapy as soon as possible.

A multidisciplinary team (MDT) approach is needed to ensure that compression therapy is provided as soon as possible and that opportunities to provide care are optimised, to improve healing outcomes. Pharmacy teams are often ideally placed to play a key role in this approach, and to use their skills to make initial assessments in order to provide appropriate care or refer the individual on to a specialist where required.

In February 2021, Wounds UK published a consensus document providing guidelines to pharmacy teams dealing with wound care (Ousey et al, 2021). The expert group involved in the consensus meeting identified compression as an area that would benefit from specific guidance and information for pharmacy teams. Therefore, a similar group met again in August 2021 to develop guidance for pharmacy teams regarding lower limb wounds and compression, resulting in this consensus document.

This document aims to:

- Provide an overview of lower limb wounds and compression therapy
- Enable pharmacy teams to deal confidently with lower limb wounds
- Facilitate appropriate prescribing of compression treatments.

Karen Ousey, Chair

Glossary (adapted from Fletcher et al, 2021)

ABPI test: Ankle brachial pressure index (ABPI) test is widely used to diagnose peripheral arterial disease (PAD).

Compression therapy: A treatment that exerts pressure on the limb to aid blood flow and improve venous return to the heart. The beneficial effects of compression can be dramatic, improving lymph drainage, reducing oedema and pain while promoting healing of wounds/ulcers caused by venous insufficiency (Harding et al, 2015).

Compression bandages: A type of compression garment, bandaging is most often used to treat active venous ulceration and should be worn 24 hours a day. Bandaging can also be used for ongoing maintenance, for those unable to tolerate hosiery or those with complex conditions, especially when the legs are large and have skin folds (Anderson and Smith, 2004).

Compression hosiery: The most widely used form of compression in the long-term management of the lower limb. Compression hosiery options vary in stiffness, levels of compression delivered, fabric, knit (flat or circular), colour, size, length, and whether they are closed or open-toe. Compression hosiery can consist of either a single garment or a two-piece system. Compression hosiery can be selected off-the-shelf or made-to-measure for the individual.

Compression hosiery kits: A type of compression therapy most commonly used for the management and healing of venous leg ulceration. Kits consist of two compression garments designed to be worn one on top of the other. Hosiery kits are designed to be worn 24 hours a day but the outer layer can be removed at night, although this is not essential.

Compression classes: The pressure measured at the ankle is used to classify medical compression hosiery (not hosiery kits) into compression classes (e.g. 1, 2, 3). The stiffness of the compression hosiery material affects the compression class.

Compression standards: Standards for medical compression hosiery have been developed to ensure compression stockings and socks meet certain technical parameters (Lymphoedema Framework, 2006). The British Standard for compression hosiery has three classes that indicate the level of compression. BS40 measures the compression delivered by the compression garment at the ankle, knee and top of thigh and has a 3-month guarantee (Partsch, 2003). The RAL compression standard has four classes: mild, moderate, strong and extra-strong.

Compression wraps: A type of compression garment considered for disorders of the circulatory and lymph drainage system, available in a variety of forms, applied to affected limbs and held in place with hook and loop fastenings (Thomas, 2017).

Oedema: Swelling caused by the accumulation of fluid in the extra-vascular tissue. Oedema usually affects the feet, ankles and legs, although it can occur anywhere in the body and affects healing of wounds/ulcers. Chronic oedema indicates a failure of lymphatic drainage and may be referred to as lymphoedema.

Stiffness: A measure of flexibility and the ability of the bandage or hosiery to oppose the muscle expansion during contraction (Mosti, 2012). The yarn used and the technique employed to knit the fabric will impact the stiffness of the fabric. The less stiff the material, the lower the pressure peaks during exercise. Inelastic bandage and multi-layer bandage systems generally have a higher stiffness when compared to compression hosiery (Vowden et al, 2020).

Venous leg ulcer: A leg ulcer is a chronic sore/wound that fails to heal in 2 weeks. A venous leg ulcer (VLU) is the most common type of leg ulcer, accounting for over 90% of all cases (NHS Inform, 2020). VLUs can develop after a minor injury, where persistently high pressure in the veins of the legs has damaged the skin.

Overview of lower limb wounds

Lower limb ulcers are a significant issue in health care. A large-scale study based on patient records in England (Guest et al, 2020) found that, in total, there were 1 million ulcers of the lower limb, which equates to 2.0% of the adult population having a lower limb ulcer in the study year. Of these, the most common type of ulcer was venous in origin. The number of venous leg ulcers (VLUs) diagnosed indicates that 1.1% of all adults had a VLU in the study year. In addition, the number of diabetic foot ulcers (DFUs) equates to 9% of all adult diabetic patients having a foot ulcer in the study year (2016/2017).

In at-risk individuals, such as older people or those with comorbidities, a leg ulcer can develop from a minor injury and easily become hard-to-heal. Recurrence is also common, with repeated cycles of ulceration, healing, and recurrence (Fletcher et al, 2016). Such ulcers can take weeks or months to heal, and 12-month recurrence rates are estimated as between 18% and 28%, so ongoing management and prevention of recurrence should be treated as a priority (Ashby et al, 2014).

Lower limb ulcers can be defined as wounds on the lower leg (below the knee) and foot [Figure 1].

Figure 1: Location of leg and foot ulcers (from NWCSP, 2020)

HOW DOES NORMAL VENOUS FLOW IN THE LEG WORK?

The blood circulatory system (cardiovascular system) delivers nutrients and oxygen to all cells in the body. It consists of the heart and the blood vessels running through the entire body. The arteries carry blood away from the heart; the veins carry it back to the heart.

In the lower limb, veins drain deoxygenated blood and return it to the heart. The veins in the lower limb can be divided into two groups: the deep venous system and the superficial venous system. The deep venous system is located beneath the deep fascia of the lower limb; the superficial venous system runs in the subcutaneous tissue.

When standing, venous blood flow in the leg needs to overcome gravity to return blood from the legs to the heart. Blood in the lower limb veins is squeezed upwards by the contraction of the thigh, calf and foot muscles. In addition, there is a network of veins on the plantar surface (sole) of the foot that is compressed on standing to aid venous return.

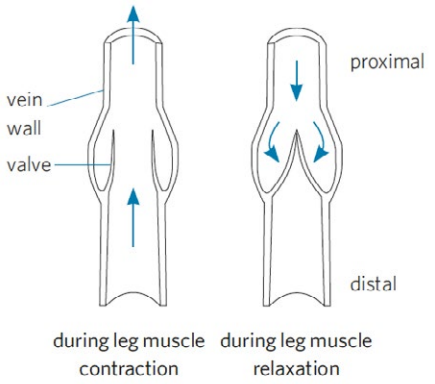
Valves in the veins prevent backward flow of blood when the muscles relax [Figure 2]. The valves ensure the blood moves in only one direction – up the leg – moving the blood from the superficial venous system into the deep venous system. About 90% of venous return from the legs is through the action of the muscle pumps; in addition, the negative pressure produced in the thorax during inhalation aids venous return to the heart. The calf muscle pump is the most important muscle pump in the leg and is active during walking and ankle movement. As a result, the effectiveness of the calf muscle pump depends on normal calf muscle activity. Calf muscle function decreases with increasing age, at least partly as a result of reduced muscle bulk (Fletcher et al, 2013).

WHAT CAUSES IMPAIRED VENOUS FLOW?

Venous insufficiency occurs when the valves of the veins do not function correctly and venous flow is impaired. Valve failure may occur due to a weakening of the valves as a result of venous dilation (varicose veins), or damage to the deep veins due to venous

Figure 2: Valves in the veins (from Fletcher et al 2013)

The valves in the veins comprise two thin flaps of tissue attached to the vein walls. When the leg muscles contract blood is pushed along the vein from distal to proximal - i.e. from the leg towards the heart, and the flow of blood pushes the flaps to the side and opens the valve. When the leg muscles relax, gravity causes the blood to flow backwards down the vein. This closes the valve and prevents the blood moving back into the next section of vein. When the leg muscles contract again, the pressure on the blood in the vein opens the valves to allow blood to flow towards the heart.



thrombosis, trauma or venous obstruction. In both cases, the failure of the valves allows the blood to flow back down (reflux) from the deep system into the superficial system [Figure 3]. This increases the venous pressure, which in turn increases the pressure within the capillary bed, which results in blood leaking into the subcutaneous tissues (venous disease). In addition, poor function or failure of the calf muscle pump due to inactivity, immobility or abnormal gait may contribute to venous hypertension (Fletcher et al, 2013).

WHAT ARE THE EFFECTS OF VENOUS DISEASE?

Chronic venous disease causes abnormalities in the capillaries of the leg tissues that make them more permeable. This allows fluid, proteins and blood cells to leak into the tissues. Venous hypertension may also be associated with an increased inflammatory response and reduced oxygenation to the skin and deeper tissue (Fletcher et al, 2013). Overall, these effects cause oedema and changes in the skin and deeper tissues, such as changes in the apperance of the skin (such as haemosidering staining, varicose eczema or erythema), and contribute to increased skin fragility, risk of spontaneous leg ulceration or delayed healing (Coleridge Smith, 2006). It is important to remember that even minor trauma or injury to the skin (e.g. a skin tear) can result in a VLU if the patient has underlying venous disease (Fletcher et al, 2016). Chronic oedema leads to failure of lymph drainage, a predisposition to cellulitis and further tissue and skin changes.

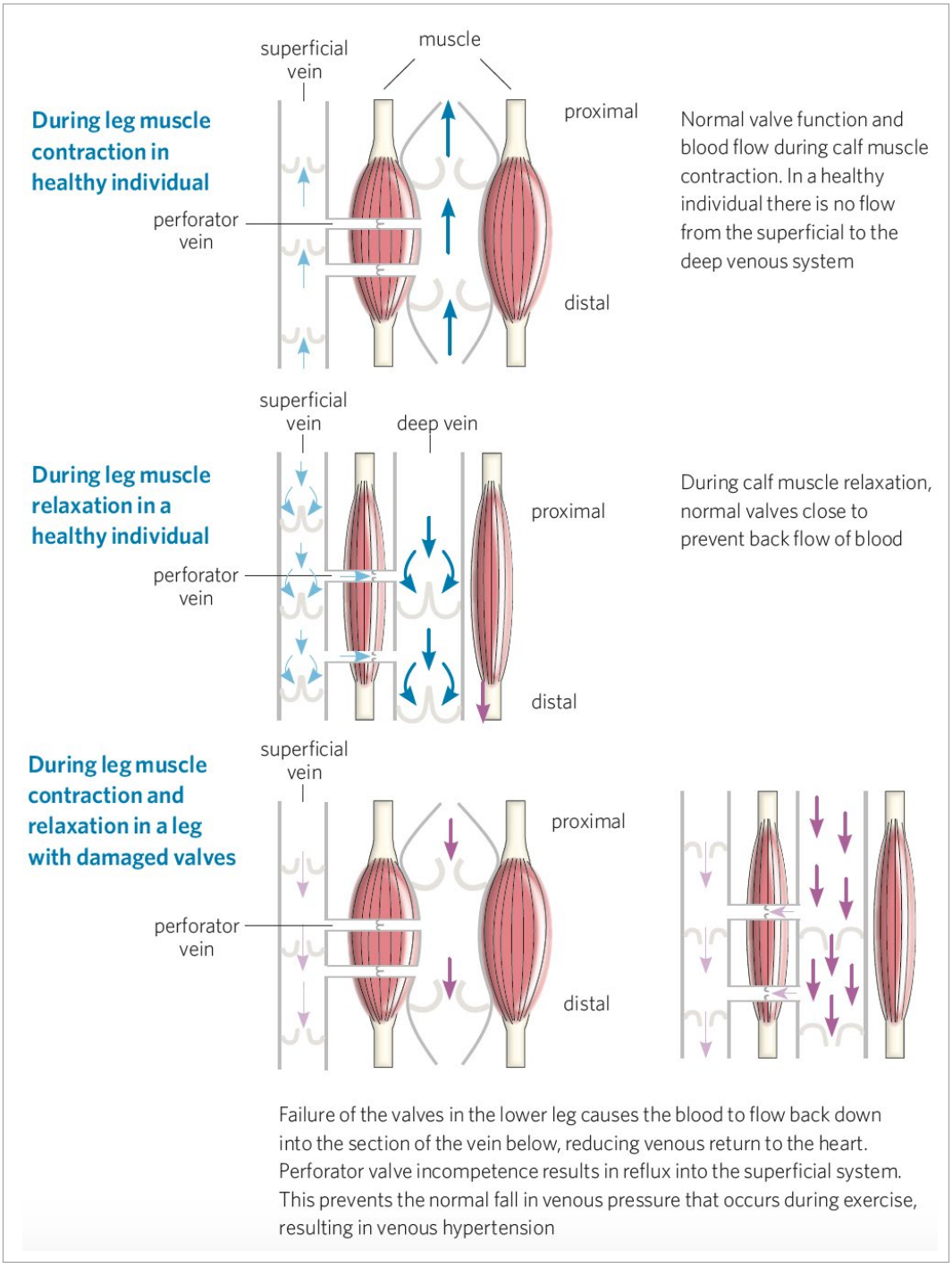
RISK OF ULCERATION

There are other factors that may contribute to an individual's risk of developing a VLU. See Box 1 for a checklist of potential factors.

Box 1. Checklist for patient risk factors that may contribute to developing a venous leg ulcer (NHS, 2016)

- Obesity or being overweight – this increases the hydrostatic pressure in the veins of the lower limb and abdomen
- Issues with mobility and/or walking – this compromises the activation of the calf muscle pump, which aids venous return
- Previous deep vein thrombosis (DVT) – blood clots in the deep venous system can result in damage to the valves in the veins, which will affect venous return
- Varicose veins – swollen and enlarged veins caused by malfunctioning valves
- Previous injury to the leg, such as a broken or fractured bone, which may cause DVT or impair walking
- Previous surgery to the leg, such as fractures or flap surgery, which can cause damage to the veins, lymphatics, ankle mobility and gait
- Increasing age – people find it harder to move around as they get older, particularly if they suffer from arthritis
- Chronic oedema – associated with inflammatory processes, compromises skin and tissue condition, and increases infection risk
- Familial history of VLUs
- History of intravenous drug use.

Figure 3: Venous insufficiency (from Fletcher et al 2013)



Additionally, although the majority of lower limb ulcers are VLUs (caused by venous hypertension), there are other diseases that can cause leg ulceration, such as arterial disease and lymphatic insufficiency (oedema). However, guidance is now clear that all people presenting with a leg ulcer

should be put in mild compression as soon as possible (NWCSP, 2020); see lower limb pathway on page 13 for more information and guidance.

OEDEMA

Prevalence of oedema (or swelling) is rising in the UK and globally, due to the ageing population, rising levels of obesity and people being more sedentary (Moffatt et al, 2017). Oedema can occur anywhere in the body, but is likely to be observed in the legs.

Oedema indicates a deficiency of lymph drainage causing accumulation of fluid in the tissue spaces. Compression therapy and active muscle movement can reduce this.

Bilateral oedema (swelling in both legs) may be due to many reasons: standing or sitting in the same position for too long; eating a large amount of salty foods; being overweight; being pregnant; malignancy or taking certain medicines (e.g. ACE inhibitors); or systemic conditions such as cardiac failure, protein reduction, venous insufficiency and lymphatic disease.

Unilateral oedema (swelling in one leg) is a cause for greater concern and is more often due to local causes, such as deep vein thrombosis (DVT), lymphatic obstruction or failure, or cellulitis.

Chronic oedema (oedema lasting more than 3 months) is indicative of a local failure of lymphatic drainage to remove fluid and potentially harmful particles such as bacteria. Untreated, it leads to complications, such as delayed wound healing, cellulities, fluid leakage (lymphorrhoea) and ulceration (Rositto et al, 2019). Chronic oedema has an ongoing effect on the viability of the skin, leading to complications, such as infection, cellulitis, fluid leakage and ulceration (Bianchi et al, 2012; Harding et al, 2015).

Again, this is due to underlying issues (problems with the lymphatic system) that need to be addressed (Mortimer and Rockson, 2014), and pharmacy teams are ideally placed to recognise oedema, signpost patients to appropriate services and – where indicated – provide compression therapy to ease patients' symptoms. Oedema can be induced by medication (e.g. calcium channel blockers), which it may be possible to review.

Severe or persistent swelling that is present for 5 days or more and is not associated with a reaction such as an insect bite, or if the individual is in acute pain, are signs that referral is needed. If an individual presents with oedema and feels unwell (with or without 'flu-like symptoms), this can be a sign of cellulitis, sepsis, or DVT, and the patient should be referred on urgently.

How compression works

Compression therapy uses controlled pressure to decrease venous pressure in the legs and improve blood return to the heart. At the same time, it helps to prevent the congestion of blood and fluid within the capillary bed, therefore reducing internal inflammation and decreasing the level of swelling.

Compression therapy aims to reverse the effects of venous hypertension by (Wound Essentials, 2012):

- Decreasing the capacity of and pressure within the superficial veins. This aids venous return by increasing the blood flow velocity in the deep veins
- Reducing oedema by decreasing the pressure difference between capillaries and the surrounding tissues, and so limiting the outflow of fluid from the blood vessels, increasing the uptake of fluid by the lymph vessels and enhancing venous return
- Minimising or reversing skin changes, to aid the healing of venous ulceration.

Compression hosiery uses graduated pressure, generating a pressure that is highest at the ankle. This must be sufficient to overcome the pressure in the lower limb veins when the patient is standing and sustained in order to deliver the necessary benefits over time. In addition, it must be tolerable to the patient (Wound Essentials, 2012). Conversely, compression bandaging creates a rigid (but flexible) cast or cylinder when applied to the lower limb. This acts like a closed system whereby external pressure applied to the leg is transmitted equally in all directions within the contained area. This principle is known as Pascal's Law [Figure 4]. The pressure - due to the fabric's tension, number of layers, and the limb's radius of curvature - is governed by Laplace's law.

There is strong evidence to support the use of compression therapy as a first-line therapy to promote healing of VLUs (O'Meara et al, 2012). NICE guidance states that compression therapy is useful for treating conditions associated with chronic venous insufficiency, including venous ulcers, varicose veins, venous eczema, post-thrombotic syndrome, and lipodermatosclerosis (NICE, 2018).

Pascal's Law states that pressure applied to an enclosed system of an incompressible fluid is distributed evenly. This can be demonstrated using a capped tube of toothpaste in which several equally sized holes have been punched. When pressure is applied to the tube at one point, toothpaste will extrude from all of the holes at the same rate no matter how far they are from the point of applied pressure.

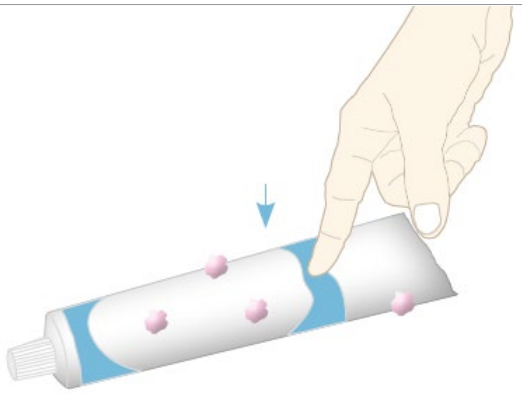


Figure 4: Pascal's Law (from Fletcher et al 2013)

Understanding compression therapy

Compression treatments usually consist of:

- Compression hosiery
- Compression hosiery kits
- Compression bandaging
- Compression wraps.

Compression bandaging, applied by a healthcare professional, was traditionally used when a patient required compression therapy, and is still suitable for active ulceration (particularly in patients who cannot tolerate compression garments) but is labour-intensive for long-term management.

Compression hosiery is now the most widely used form of compression in the long-term management of the lower limb, and can be supplied to patients who can be supported to manage their own care.

Compression hosiery options vary in stiffness, levels of compression delivered, fabric, colour, size, length, and whether they are closed or open-toe (Fletcher et al, 2021). Compression hosiery consists of either a single or two-piece garment and can be selected off-the-shelf or made-to-measure for the individual.

HOSIERY FABRIC AND KNIT

In the UK, both circular and flat-knit hosiery are available as either ready-to-wear or made-to-measure garments. Flat-knit describes the process of producing a garment as a flat piece of fabric, which is then stitched together, whereas circular-knit garments are produced as a tube (Lay-Flurrie, 2011). Made-to-measure garments are generally flat-knit, so that any distortion of limb shape (e.g. in patients with severe chronic oedema), can be accommodated during the stitching process. Flat-knit garments are made from a thicker yarn than circular-knit, resulting in a stiff fabric that is better for distorted limbs as it is less likely to cut into the skin during wear. The finer, seamless finish of circular-knit hosiery may make it more cosmetically acceptable and comfortable, but some wearers may experience problems such as rolling or digging in (Lay-Flurrie, 2011). Depending on patient preference and clinical need, open and closed toe garments are also available.

COMPRESSION BANDAGING

A compression system may contain elastic or inelastic materials or a combination of both (Fletcher et al, 2013):

- Elastic materials (also known as long-stretch) contain elastic or elastomeric fibres that can be stretched to increase the overall length of the material by over 100%. When the tension is released, the elastic fibres return almost to their original length.
- Inelastic materials (also known as short-stretch) contain few or no elastic fibres and increase in length by often considerably less than 100% when stretched, so have higher stiffness levels compared to an elastic compression garment.

Selection of appropriate compression materials depends on the individual. Multi-layer systems (two-and four-layer) are also available, which function as an inelastic (increased stiffness) system even if they contain mainly elastic components (Fletcher et al, 2013). Compression wraps may also be selected, which use short-stretch materials and provide an alternative to bandaging. See Table 1 for more information about the differing qualities of compression hosiery and compression bandaging.

MEASURING PRESSURE

Compression therapy systems may be categorised according to the level of pressure exerted on the limb. The unit of measurement used is 'millimetres of mercury' (mmHg), which is a measurement of pressure, also used in blood pressure. See Table 2 for information about compression levels and their ranges.

For individuals presenting with a wound or swelling, in the first instance, in the absence of red flags or specialist assessment for higher compression, they should be prescribed mild compression (20mmHg or less). With a wide range of compression products available, compression therapy should be tailored to the individual as far as possible and guidance to supplying compression products should simplify the process as much as possible for busy pharmacy teams. See page 13 for the lower limb pathway for compression selection.

Table 1. Compression hosiery and bandaging			
Compression hosiery	**Compression hosiery kits**	**Compression bandaging**	**Compression wraps**
Can be supplied to all patients in the absence of red flags (see page 13)	Can be supplied directly to suitable patients	Most often used to treat active ulceration or complex conditions, or for patients who are unable to tolerate compression hosiery	Adjustable compression device that provides an alternative to bandaging
Suitable for self/family care	Suitable for self/family care	Needs to be applied by a person deemed competent	Suitable for self/family care
Suitable for ongoing treatment of oedema, risk of lower limb issues and to control symptoms of venous hypertension	Can be used to treat active ulceration where higher compression is required		Suitable for ongoing treatment of oedema and risk of lower limb issues

Table 2. Recommended categorisation of compression bandage system (from Fletcher et al, 2013)	
Category	**Pressure**
Mild	<20mmHg
Moderate	≥20-40mmHg
Strong	≥40-60mmHg
Very strong	≥60mmHg

MEASURING THE LIMB

If measuring is required to check fit for a compression garment, the limb should be measured at:

- The narrowest part of the ankle (above the ankle bone if visible)
- The widest part of the calf.

Length is also a consideration in particularly tall or short patients.

MYTHS AND TRUTHS ABOUT COMPRESSION

MYTH: People should not have compression therapy applied in case they have a condition such as arterial disease or diabetes

TRUTH: The guidance is now that all people presenting with a leg wound should be put into mild compression, as long as red flags are not present (NWCSP, 2020; see p13 for more information about red flags)

MYTH: Patients need to undergo a vascular assessment (ABPI) before the individual is put into compression

TRUTH: Early intervention is key, so mild compression should be applied as soon as possible. Vascular assessment should be made within 14 days to step up to strong levels of compression

MYTH: Compression therapy is required only directly over the wound/VLU

TRUTH: The issue is the underlying pathology (high pressure in the venous system), so the treatment is needed more widely over the lower leg to aid venous return

MYTH: Compression therapy is no longer needed once the wound has healed

TRUTH: Even when a VLU has healed, the underlying problem that caused the wound (high pressure in the venous system) remains. Ongoing compression therapy to reduce venous pressure is therefore advised to prevent recurrence of the VLU and development of further wounds or oedema

MYTH: Compression therapy is just used to prevent DVT

TRUTH: Compression therapy can reduce risk of DVT but is also used to treat and prevent other conditions, such as symptomatic varicose veins, oedema and ulceration

MYTH: There is a risk of doing more harm than good with compression

TRUTH: It has been proven that the benefits outweigh any risk of harm as long as mild compression is used (NWCSP, 2020)

SUMMARY

In the absence of red flags, mild compression should be applied as soon as possible. Early intervention is key, so the guidance is that all people presenting with a leg wound should be put into mild compression, as long as red flags are not present (NWCSP, 2020).

The role of pharmacy teams in compression

A leg ulcer is defined as any wound on the lower limb (below the knee and above the foot) that fails to progress to healing within 2 weeks. Leg ulcers are common, estimated to affect approximately 1.5% of the adult population (NWCSP, 2020).

In response to this issue, the NWCSP lower limb stream have created recommendations to optimise care of lower limb ulcers, which state that (NWCSP, 2020):

- All people with leg wounds should be treated with mild compression
- Compression should be applied as early as possible
- Unless specified 'red flags' are present, the benefits of first-line mild compression outweigh the risks.

Pharmacy teams are ideally placed to provide compression therapy to anyone presenting with a lower limb wound. The 'red flags' that contraindicate mild compression can be assessed by the pharmacy team, meaning that no further initial assessment is required to supply compression to individuals with lower limb wounds. Therefore, supplying compression therapy as a first-line treatment should be supported by pharmacy teams.

There is currently an awareness-raising campaign for the NWCSP guidelines and recommendations, with pharmacists being targeted as point of contact for this wherever possible, and a drive for funding to facilitate this. In the future, there is scope for pharmacy teams to be increasingly involved with compression – e.g. pharmacists performing ABPI testing, measuring for hosiery, applying mild compression bandaging or referring – aiming to optimise care and create a less siloed approach (Ousey et al, 2021).

The Legs Matter coalition lead a public-facing campaign and give out free pharmacy education packs to increase awareness around lower limb issues. They also provide online advice and support for all healthcare professionals to help recognise the signs and symptoms of lower leg and foot problems (Legs Matter, 2020), including:

- Leg ulcers, knocks and sores
- Cellulitis – hot inflamed skin
- Swollen legs and feet
- Foot ulcers, knocks and sores
- Varicose veins
- Other common problems associated with the lower limb.

LOWER LIMB PATHWAY

The NWCSP lower limb pathway [Figure 5] should be followed for all lower limb wounds. This provides guidance to red flags that contraindicate compression therapy, and how to proceed with mild compression if red flags are not present.

APPLICATION OF COMPRESSION GARMENTS

When providing an individual with compression garments, it is important to make sure that they will be able to use them in practice. Make sure that they understand how to apply the garment themselves, taking into account dexterity, mobility or cognition issues. If necessary, they may be signposted to application aids. See Box 2 for tips that may help patients using compression for the first time.

Box 2. Tips for applying compression

Compression hosiery

- It is easier to put compression garments on in the morning, when your legs are likely to be less swollen
- If it is difficult to put compression garments on, try elevating your legs for 10 minutes
- Try sitting down on a chair or edge of the bed, especially if you have trouble reaching your feet
- Try using a donning aid or a medical dressing stick
- Try wearing gloves to make it easier to grip onto the stockings and pull them up

Hosiery kits

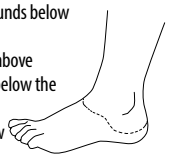
- Hosiery kits may consist of a two-layer system, making it comfortable to maintain compression with one stocking at night and two during the day when you are most active
- The 'liner' stocking can be applied as above, and this then makes it easier to put the second stocking over the top of it

Compression bandaging

- Bandaging should be applied by a person deemed competent (compression wrap kits are also available as an alternative)

Immediate and necessary care

For people with one or more wounds below the knee.
Leg wound - originating on or above the malleolus (ankle bone) but below the knee
Foot wound - originating below the malleolus



RED FLAGS
- ➤ Acute infection of the leg or foot (e.g. increasing unilateral redness, swelling, pain, pus, heat)
- ➤ Symptoms of sepsis
- ➤ Acute or chronic limb-threatening ischaemia
- ➤ Suspected acute deep vein thrombosis (DVT)
- ➤ Suspected skin cancer
- Treat infection
- Immediately escalate
- For people in the last few weeks of life, seek input from their other clinicians

Immediate care
- Cleaning and emollient
- Simple low-adherent dressing
- Leg wounds, first-line mild graduated compression
- Supported self-care (when appropriate)

Assesment time for diagnosis and treatment
- In hospital with diabetic foot wound - refer to MDT **within 24 hours**
- Any other type of foot wound - refer to MDT **within 1 working day**
- Leg wound - assess **within 14 days**

Wounds on the foot
One or more wounds below the malleolus

Diagnosis and treatment

1 Assess and identify contributing causes for non-healing

2 Diagnose cause of non-healing and formulate treatment plan

People with confirmed or suspected diabetic foot ulceration
- Refer to diabetic foot team
- Provide care in line with NICE Guidelines for Diabetic Foot Problems

People with confirmed or suspected peripheral arterial disease

Ongoing care and review

Review at each dressing change and at weekly intervals
- Monitor healing at **4-week intervals** (or more frequently if concerned); if unhealed at 12 weeks, reassess

Wounds on the leg
One or more wounds below the malleolus

Diagnosis and treatment

1 Assess and identify contributing causes for non-healing

2 Diagnose cause of non-healing and formulate treatment plan

Leg wounds with an adequate arterial supply and no aetiology other than venous insufficiency
- Refer for venous surgical/endovenous interventions
- Strong compression therapy

Leg wounds with signs of arterial disease
- Refer for venous surgical/endovenous interventions and advice on compression
- Pending vascular opinion, if no symptoms of arterial insufficiency, continue with mild graduated compression

Leg wounds of other or uncertain aetiology
- Refer for dermatology opinion (or other specialist depending on symptoms and service arrangements)
  - Pending specialist opinion if no symptoms of arterial insufficiency, continue with mild graduated compression

Lymphoedema
- Refer for expert diagnosis and advice about lymphoedema

Ongoing care and review

Review at each dressing change and weekly intervals
Monitor healing at 4-week intervals (or more frequently if concerned)
- If deteriorating or no significant progress towards healing, escalate

If unhealed at 12 weeks, reassess
- If progressing to healing but still unhealed, undertake comprehensive re-assessment
- If deteriorating or no significant progress towards healing, escalate

Following healing

Venous leg ulceration
- Compression hosiery
- 6-monthly review for replacement of compression garments and ongoing advice
- If changes in lower limb symptoms or skin problems relating to hosiery, undertake comprehensive re-assessment

Figure 5: Lower limb care pathway (NWCSP, 2020)

Individuals using compression garments should also be informed about care instructions for their garment. In the longer term, people using compression will need new garments every 3–6 months (and to be remeasured if necessary). They will ideally need 2–3 garments per leg (at least one for washing and one for wearing) and will need more if one gets damaged or if there are changes to their leg size.

DRESSING SELECTION

In addition to compression, individuals presenting with a lower limb wound may require application of a wound dressing to manage the wound. This means that other factors – such as exudate (fluid) management – need to be considered. Individuals should be given the appropriate dressing for their wound and provided with information for self-care and changing their own dressings (Ousey et al, 2021).

For full information on prescribing dressings appropriate to lower limb wounds, see the previous document 'Wound care and dressing selection for pharmacy teams' (Ousey et al, 2021).

HOLISTIC APPROACH AND REFERRING

Pharmacy teams are ideally placed to make brief interventions to improve the patient's overall health, wellbeing and quality of life. As well as providing compression and wound management, pharmacy teams can signpost individuals with VLUs or oedema to advice on optimising their health through nutrition, mobility exercises or lifestyle changes.

The role of pharmacy teams in compression *(Continued)*

Pharmacists may be particularly well placed to assess the individual's medications and any polypharmacy issues and may be able to advise the patient on further care and referral. It should be noted that medications can be a common contributory factor to oedema and often be easily rectified with simple modifications.

SKIN INTEGRITY

Individuals with lower limb issues are at increased risk of skin damage (or further skin damage if they already have a wound), and should be informed about skin care and preserving skin integrity.

Emollient therapy should be seen as a vital part of skincare in patients with at-risk, aged or fragile skin (Le Blanc et al, 2018). Use of emollients promotes general skin health and twice-daily application has been proven to reduce incidence of skin tears by 50% (Carville et al, 2014).

Emollient products are available as moisturisers (creams, ointments and lotions), bath oils, gels and soap substitutes (NICE, 2015), and can be selected according to individual preference and clinical need.

In individuals with at-risk skin, it is very important to protect the surrounding (periwound) skin and preserve overall skin integrity, to prevent wounds from occurring, as well as managing existing wounds (Fletcher et al, 2020). Use of an acrylate terpolymer barrier film has been found to facilitate the healing of larger wounds without increasing costs; hence, use of an acyrlate terpolymer barrier film for periwound skin protection in patients with exuding venous leg ulcers (VLUs) is the preferred treatment strategy (Guest et al, 2012).

MOVEMENT, ACTIVITY AND POSITIONING

Lack of movement or sitting with the legs down may have contributed to a wound or swelling. Movement is essential for lymph drainage and to enhance the effectiveness of any compression. Increasing movement and activity can be the simplest way to make a difference that the patient can do themselves. Asking them about positioning and if they sleep in a chair could be beneficial, advising the patient to elevate their legs where possible.

Checklist for compression

- ☐ In the absence of red flags, has the individual with a lower limb wound or oedema been supplied with mild compression as soon as possible?
- ☐ If there are red flags present, have you considered where you will refer the individual on to?
- ☐ Have you checked that they understand the manufacturer's instructions and how to apply the compression garment at home?
- ☐ Have they been shown application aids if needed?
- ☐ If they have a wound, has this been managed with an appropriate dressing?
- ☐ Have you recommended that they use an emollient or skin protectant to protect their skin?
- ☐ Have you talked about holistic interventions (e.g. nutrition, mobility, smoking cessation, weight management, elevation at rest) if relevant?

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