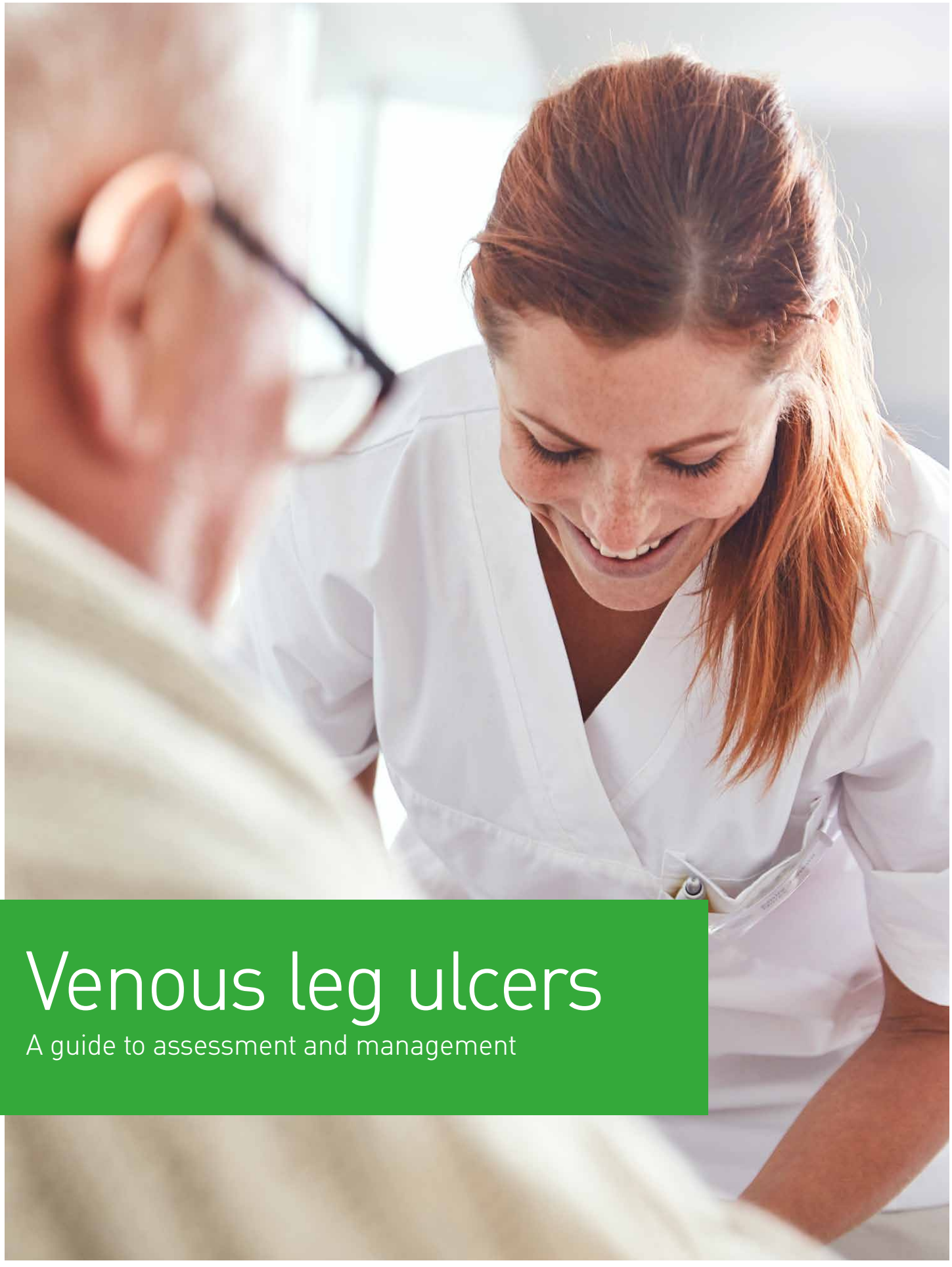


Venous leg ulcers

A guide to assessment and management

Mölnlycke®

Understanding venous leg ulcers

Venous leg ulcers (VLUs) are often hard-to-heal wounds that can develop after a minor injury and when blood doesn't flow properly through the veins. Leg ulcers are a major health and healthcare problem, affecting people throughout the world. VLUs could account for 50–60% of all leg ulcers[1,2], creating a significant financial burden on healthcare resources. The occurrence of leg ulcers may increase in the future, due to an ageing population, obesity, concurrent illness, intravenous drug misuse and social deprivation.

Quality of life issues for venous leg ulcer patients[3]

In addition to the significant time and financial burden to healthcare providers, venous leg ulcers may also contribute significant physical, psychological, emotional and financial costs to the patient.

Hofman et al (1997)[4] describes pain as the worst part of having a leg ulcer because it is frequently underestimated. This may result in poor pain management strategies and patient suffering.

The wound can affect the patient's work, even causing loss of employment. This may result in anxiety, depression and potential financial risk. Activities normally taken for granted – holidays, swimming, playing with children – may not be possible, due to one or more symptoms of the ulcer[5,6].

Quality of life issues may be worse for patients who do not follow their treatment plan, which could be due to failings at the point of assessment[5-6].

VLUs affect approximately

1% of

the population and 3% of people over 80 years of age[7] in westernised countries

Venous leg ulceration (VLU) is the most common type of leg ulceration, comprising

50–60%

of them[1,2]

Approximately

70% recur

within 3 months after wound closure[8,9,10]

Approximately

7% of

VLUs remain unhealed after 5 years[8,9,10]

It is most important that time is invested in staff training and education to ensure that correct assessment is performed, an accurate diagnosis is made and an appropriate treatment plan developed.

Aetiology of venous leg ulcers

The definition of venous leg ulcers[11]

Wounds International defines a venous leg ulcer as 'an open lesion that usually occurs on the medial (inner) side of the lower leg between the ankle and the knee as a result of chronic venous insufficiency (CVI) and ambulatory venous hypertension and that shows little progress towards healing with 4–6 weeks of initial occurrence'

Cause of venous leg ulcers[11,12]

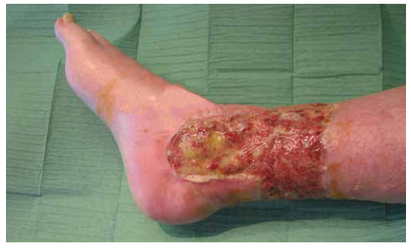
VLUs occur due to increased pressure within the veins of the lower limb caused by chronic venous insufficiency (CVI). This can be caused by reflux in any of the venous systems – whether superficial, perforator, or deep – when the valves of the veins have failed, or the vein has become obstructed.

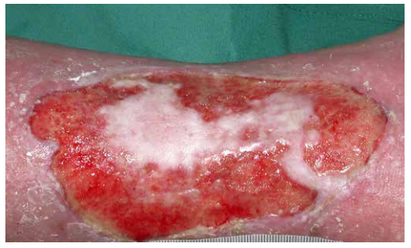
The venous circulation can be separated into the deep, superficial and communicating or perforating vessels. All the veins have one-way valves to prevent backflow of venous blood and the flow towards the heart is assisted by the muscles of the lower leg (the calf muscle pump). If the valves fail to close adequately, the backflow of venous blood dilates superficial veins and creates high pressure in the superficial venous system (venous hypertension). This high venous pressure affects the capillary dynamics in the tissues, leading to dilation of capillary vessels, restricting the transfer of nutrients and allowing larger molecules to leak into the tissues. It also affects the collection of waste products, which become trapped in the tissues. Venous hypertension leads to visible signs of brown staining from haemosiderin deposits, oedema and varicose eczema.

The appearance of a venous leg ulcer[11]

- The typical venous leg ulcer has irregular sloping margins, usually shallow wounds but **can vary in size** from small to encircling the leg.
- They are often **highly exuding with a fibrinous or/and granulating base**.
- They can also **be very painful**.
- Arterial circulation is not significantly compromised.

If the venous leg ulcer has a concomitant arterial occlusive disease these are known as 'mixed aetiology leg ulcers' (read more on page 4). However, this may also refer to venous leg ulcers with other contributory factors, e.g. diabetes, malignancy, and arthritis.





VLUs can start as venous eczema and tissue breakdown exacerbated by itching and scratching or it may be due to simple trauma to the skin.

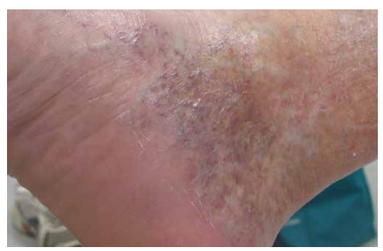
Classification of the VLU and venous disease

Basic CEAP classification system[3,5,13]

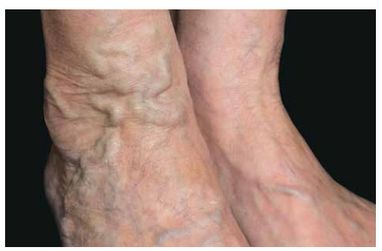
CEAP is a commonly used venous disease classification system.

CEAP stands for:

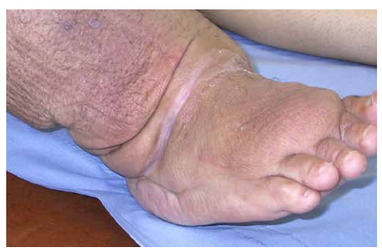
C: Clinical (see below), **E:** Etiology, **A:** Anatomy, **P:** Pathophysiology



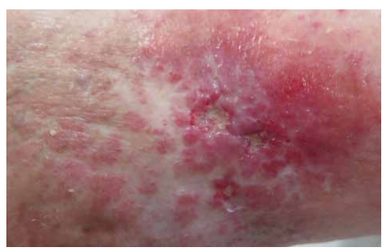
C1
Reticular veins



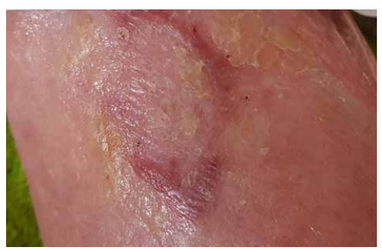
C2
Varicose veins



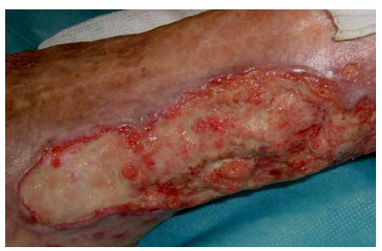
C3
Oedema



C4 a, C4 b
Eczema or pigmentation lipodermatosclerosis or atrophie blanche



C5
Healed VLU



C6
Active VLU

Categorising the VLU[11]

Once aetiology is established, categorisation of the ulcer can help to determine prognosis or requirement for specialist referral. Venous leg ulcers are categorised as **`simple´ VLU, `complex´ VLU** or a **mixed aetiology ulcer**[32]. In addition to guiding management, classification of the ulcer may be useful in determining treatment goals.

`Simple´ VLU

- ABPI 0.8–1.3
- Area <100cm^2
- Present for <6 months

`Complex´ VLU

- ABPI 0.8–1.3
- Area ≥ 100cm^2
- Present for ≥ 6 months
- Controlled cardiac failure
- Current infection and/or history of recurrent infections
- History of non-concordance
- Wound has failed to reduce in size by 20–30% at 4–6 weeks despite best practice

Mixed aetiology ulcer

- ABPI <0.8 or >1.3*
- Symptoms of arterial disease, e.g. intermittent claudication, rest pain, even if ABPI within normal range
- Diabetes/peripheral neuropathy
- Rheumatoid arthritis (vasculitic ulcer)
- Uncontrolled cardiac failure

*If ABPI <0.5 urgent referral for consideration for revascularisation should be made.

Holistic assessment of a patient with a venous leg ulcer

To ensure the correct treatment is provided, an accurate assessment must be performed to identify the underlying aetiology and aid in the diagnosis of the leg ulcer. This can be done with a combination of holistic assessment and investigations[3,6].

Tables 1–5 set out what to consider when assessing a venous leg ulcer. A full blood count should also be carried out to exclude diabetes, anaemia, and to rule out other aetiology and causes of oedema. If possible assess the venous system with a duplex scan.[11]

Referring for other conditions

Any patient presenting with significant arterial disease must be referred to the local vascular team. You should also discuss patients with concomitant diseases – such as diabetes mellitus or rheumatoid arthritis – with the appropriate medical team[3,6].

TABLE 1 **Assessing arterial blood flow and venous insufficiency[14]**

Use a hand-held Doppler or an automated ankle-brachial index measuring device to assess arterial blood flow with a reading on the Ankle-Brachial Pressure Index (ABPI). You should also listen for venous reflux in the valves. Using the Doppler and recording an ABPI is only part of the assessment.

Reading*	Interpretation
≤ 0.5	Severe peripheral arterial disease (PAD), critical limb ischaemia unsafe to use compression. Urgent vascular surgeon referral. Poor healing potential.
0.51–0.79	Moderate PAD – Use modified compression with caution. Absolute systolic ankle pressure should be >60mmHg. Routine vascular specialist referral. Limited healing potential.
0.8–0.9	Mild PAD. Healing potential.
> 0.91–0.99	Borderline PAD. Good healing potential.
> 1.0–1.4	Normal. Good healing potential.
> 1.4	Falsely elevated due to calcification of vessel wall. Common in diabetic population. Use Toe-brachial index (TBI) to confirm PAD and assess blood flow. Refer to vascular/diabetic specialist.

* This is a guide only and cannot replace clinical judgement. There might also be different guides locally, for example in Europe.

TABLE 2 **Past medical history in relation to venous disease[3,6]**

- Deep vein thrombosis
- Family history
- Varicose veins
- Previous surgery or treatment of varicose veins
- Episodes of immobility
- Previous surgery
- Joint disorders such as arthritis
- Obesity
- Ulcer history

TABLE 3 **Past medical history in relation to arterial disease[3,6]**

- Cardiovascular disease
- Angina
- Myocardial infarction
- Cerebral vascular accident
- Intermittent claudication
- Hypertension
- Diabetes mellitus
- Rheumatoid arthritis
- History of risk factors such as smoking, high cholesterol and it is also important to note medication

TABLE 4 **Limb and skin inspection[3,6,15]**

- Shape of limb
- Limb circumference (ankle and calf)
- Oedema and position/extent of oedema
- Visible varicose veins
- Eczema (wet/dry)
- Lipodermatosclerosis
- Infection, e.g. erysipelas
- Hyperkeratosis/dry skin
- Pigmentation/staining of the skin
- Atrophie blanche

TABLE 5 **Wound assessment[3,6,15]**

- Location, size and depth
- Wound bed: Red granulation, presence of fibrin and slough. Check for areas of the ulcer that appear different such as abnormal granulation which may indicate malignancy.
- Wound margin and surrounding skin, e.g. undermining, rolled edge, mixed blue red (could indicate vasculitis), macerated periwound, oedema
- Exudate: level, colour and viscosity
- Pain: Location, frequency, cause, type, intensity and duration
- Odour: Presence and nature
- Local signs of infection or/and biofilm

If ABPI <0.5 urgent referral for consideration for revascularisation should be made[11]

Arterial impairment occurs in 15–20% of venous ulcers; these are known as mixed aetiology ulcers[16]

Treatment of a venous leg ulcer

Compression therapy

Correctly applied compression therapy is the gold-standard treatment and has been demonstrated to improve healing rates in patients with existing venous leg ulcers and to reduce ulcer recurrence[17,18]. It should be used wherever possible as a first-line treatment[6,19]. This is essential to restore a normal return of venous blood back to the heart – achieved by applying an external force or support to the limb – which reverses the venous hypertension, allows damaged valves to close and directs blood flow in the right direction. It is recommended that a force – approximately 40–50mmHg pressure – at the ankle is required to treat venous ulcer[14].

This pressure should be applied so that pressure at the ankle is higher than that over the calf. In theory, if the compression bandage is applied at the same tension all the way up the lower leg, a gradual reduction in pressure from ankle to knee, called graduated compression, will occur automatically[15]. It is important to note that compression therapy does not cure the underlying condition. It aims to correct and control.

The pressure achieved when applying a bandage depends on a number of factors[15]:

- The number of layers of bandage
- The bandage tension
- The bandage width
- The limb circumference

Optimising the benefits of compression therapy involves the application of the right type of compression, for the right duration, and in a way that is acceptable to the patient. There are different options available when choosing compression therapy for the patient:

- Elastic/long-stretch compression system
- Inelastic/short-stretch compression system or multi-layer systems (two-and four-layer)
- Adjustable wrap-around compression system
- Intermittent Pneumatic Compression (IPC) devices
- Compression hosiery

The importance of padding

Compression bandages can cause tissue damage if applied incorrectly. Additional padding may be required beneath a compression therapy system to adjust shape and protect an area at risk of pressure damage or to manage excessive exudate. Application of padding around a bony prominence will change the shape of the prominence and therefore reduce the amount of pressure applied by the compression therapy system[20].

The tibial crest, the prominent anterior edge of the tibia that runs the length of the lower leg, is particularly vulnerable to pressure damage, but also the malleoli and abnormally limbs need additional padding[20].

Sometimes extra padding around the toes may be required for protection to reduce the risk of trauma for patients who have neuropathy[21].

Compression therapy and exudate

The most important factor in reducing exudate levels from the wound is appropriate sustained compression therapy. Dressings can be used to support exudate management; however, the principle agent for reducing oedema is the use of compression therapy. Exudate levels are often high at the beginning of the compression therapy but will reduce as venous return improves and limb oedema and inflammation decreases[11].

Compression hosiery

The fitting of compression hosiery is essential for the prevention of venous ulcers in someone with significant indicators of disease. And to prevent the recurrence of a venous leg ulcer once healed. Venous leg ulcers can also be treated with compression hosiery, which is available as leg ulcer hosiery kit.

As with compression bandaging, it is essential that the patient has had a full assessment – in particular to exclude arterial disease.

A wound size reduction of less than 20–30% in 4–6 weeks should trigger reassessment. Reconsider quality of compression (i.e. level of compression applied, type of compression therapy) and assess level of concordance. Refer to a specialist if considered appropriate[11].

Factors that affect choice of compression therapy system[11]

- Training, competency and experience of the healthcare practitioner applying compression
- Wound status, e.g. size of the ulcer and exudate levels
- Patient mobility: In patients who have restricted mobility, i.e. have low calf muscle pump activity, stiff compression therapy systems, e.g. multi-component systems are preferred. For patients who are completely immobile, intermittent pneumatic compression or hosiery may be more suitable.
- Patient dexterity and ability to self-apply compression therapy
- Previous experiences of the patient and likely concordance with treatment
- Pain levels
- Access to care, e.g. the possible frequency of clinic or home care visits
- Level of compression required, e.g. if adjustment is likely to be required to enhance tolerance, can this be undertaken with the proposed system?
- Availability of compression therapy systems: where restrictions occur, minimum provision should be multi-component compression bandaging and compression hosiery

S.T.R.I.D.E is a compression selection guide that can be used to find the right compression therapy for the individual and also what precautions and contraindications need to be considered[14].

‘Effective compression prescription requires matching the compression selection to the patient presentation, not to the diagnosis alone.’[14]

Wound management

Remember: the compression therapy is correcting the underlying venous disorder that allows the ulcer to heal. However, it is also important to ensure an accurate wound assessment and that an appropriate wound dressing is used, see pages 12–13.

The wound dressing is used to protect the wound and manage exudate effectively. Several properties of the dressing are important when used under compression therapy[11]:

- Maintains a moist wound environment while handling varying levels of exudation
- Absorbs and retains fluid when used under compression, i.e. prevents strikethrough
- Low profile, i.e. unlikely to leave an impression in the skin
- Conforms to the wound bed
- Does not adhere to the wound bed (non-adherent)
- Comfortable
- Atraumatic – does not damage the wound bed or periwound skin on removal
- Low allergy potential
- Remains intact on removal
- Cost-effective, i.e. offers optimal wear time

Improving skin condition

An important aspect of venous leg ulcer management is care of the skin. The skin loses its natural oils, becoming very dry and hyperkeratosis may develop in the presence of venous hypertension. Regular meticulous skin care is vital. Wash the skin with a soap substitute and debride all dead dry skin carefully. The skin should then be dried thoroughly.

The skin will also need to be moisturised with a moisturiser that is suitable for the patient. Moisturisers are available with different proportions of lipids to water, and include ointments, creams and lotions. The higher the proportion of lipids, the more effective the moisturiser, but the harder it is to use. Moisturisers may contain preservatives, and some of these can be irritants, especially in patients with venous disease.

Other conservative treatments

There are several conservative treatments and preventive measures. Regular exercise, weight management and diet all play their part in preventing venous leg ulcers. It is also a good idea to keep the affected leg elevated.

Surgical intervention for venous disorders

All patients with the clinical signs and symptoms of venous disease require an assessment (e.g. venous duplex scan) of the venous system to identify areas of venous insufficiency that may be suitable for endovenous intervention[22]. An RCT study from 2018[22] concluded that early endovenous ablation in patients with venous ulceration resulted in faster healing and more time free from ulceration than deferred intervention.

There is still no reliable corrective surgical intervention to treat deep veins[5]. As a result, surgical interventions are mainly on superficial vessels and include:

- Invasive surgery on superficial vessels – ligation and stripping
- Endovascular – foam sclerotherapy
- Endovenous radiofrequency ablation
- Endovenous laser therapy
- Subfascial endoscopic perforater surgery
- Venous stenting of deep iliocaval and/or infrainguinal veins

Education and training of the patient

Education and training of the patient, caregiver and family is essential in enhancing concordance. Education should promote understanding of the cause of the wound and the way compression therapy acts and the different compression options that are available. This may encourage the patient to be active and to allow the ulcer less control over their daily life. Concordance may be further encouraged by sharing progress with the patient, e.g. reductions in wound size, pain, exudate level or oedema[11].

Management of infection and biofilm

When the wound is infected[23]

The wound should be monitored for signs of infection as part of the ongoing wound assessment. There is no single test to definitively diagnose infection; wound infection is diagnosed by clinical assessment of the wound and the whole patient. This is usually supported by microbiological data. Some patients may be more at risk of infection than others – particularly those with co-existing medical conditions such as diabetes mellitus and those on medications such as immunosuppressants and steroids. Certain social and psychological factors may also have an impact.

Stages in wound infection continuum

Contamination[23]

All open wounds are contaminated with microbes. Wound contamination is the presence of non-proliferating microbes within a wound without any host reaction. No antimicrobials are indicated.

Colonisation[23]

Colonisation is characterised by the growth of microbial organisms in the wound but with no ill effect to the host. Microbial growth occurs at a non-critical level. Wound healing is not impeded or delayed. No antimicrobials are indicated.

Localised infection[23,24,25]

Microbial growth, multiplication and invasion into host tissue leads to cellular injury and overt host immunological reactions; wound healing is interrupted. In chronic wounds, local infection often presents as subtle signs. These can be considered covert signs of infection – such as delayed wound healing, increase of exudate, pain (tenderness), malodour, sometime hypergranulation, and bleeding of friable granulation tissue. Subtle signs may develop into classic, overt signs of infection – such as swelling, heat, redness and pain. Interventions with topical antimicrobials are indicated.

Spreading infection[23]

Indicators of infection can include cellulitis beyond a 2cm margin and spreading, increased pain heat and swelling, deterioration and extension of the wound and systemic symptoms. Spreading infection may involve deep tissue, muscle, fascia, organs or body cavities. Intervention with both systemic and topical antimicrobials is indicated.

Systemic infection[23]

Microorganisms spread throughout the body via the vascular or lymphatic systems. Signs of systemic infection affect the body as a whole and may include a systemic inflammatory response, sepsis, septic shock, organ dysfunction or failure – and sometimes death. Both systemic and topical antimicrobials are required.

Biofilm[23,26]

Biofilm is an aggregate of bacteria encapsulated in a self-produced extracellular matrix. Biofilm is tolerant to antimicrobial agents and the host defence. Biofilm is not visible to the naked eye, but studies using high-powered microscopes – alone or in combination with molecular techniques – have shown that 60–100% of chronic wounds contain biofilm, and that these somehow delay wound healing.

Management of infection should include[23,27]:

- Optimising the host response
- Pain control
- Management of co-existing medical conditions, e.g. glycaemic control
- Minimising or eliminating risk factors for infection, where feasible
- Optimising nutritional status and hydration
- Treating other sites of infection, e.g. urinary tract infection
- Optimising the wound bed and reducing the bacterial load
- Preventing further wound contamination or cross-contamination with good infection control
- Antimicrobial therapy – topical antiseptics/antimicrobials +/- systemic antibiotics, depending on stage of infection
- Wound cleansing and debridement to remove dead tissue, such as yellow slough

Debridement stimulates wound healing and it has been demonstrated that it provides a treatment window of opportunity in which the biofilm's defences are temporarily interrupted. This allows for increased efficacy of systemic and topical management strategies. The frequency of debridement has been discussed and requires more research but experts suggest that debridement should be performed at least weekly in combination with therapeutic cleansing with topical antiseptics and application of antimicrobial wound therapy dressings.

Some patients may be at greater risk of infection than others and include those with co-existing medical conditions such as diabetes mellitus

Holistic assessment and management of patients with venous leg ulcers

Assessment of patients and lower limb

1 Medical history

- Physical, physiological and psychosocial health

2 Lower limb assessment

Signs of venous disease, e.g.:

- Oedema
- Eczema
- Lipodermatosclerosis
- Altered shape – inverted 'champagne bottle'
- Varicose veins
- Ankle flare (distended veins in foot arch or ankle region)
- Haemosiderin pigmentation
- Atrophie blanche
- Other skin changes
- Evidence of healed ulcers

3 Vascular status and oxygenation levels

ABPI assessment with a Doppler. Referral to vascular specialist when ABPI: <0,8 or >1.4 or absolute systolic ankle pressure <60mmHg (or follow local protocols). When ABPI ≤0.5 urgent referral to vascular surgeon. A patient with an ulcer should be referred to vascular centre for consideration of venous interventions.

- Toe-brachial index (TBI) when ABPI: <0,8 or >1.4
- Consider oxygen assessment, e.g. with transcutaneous oximetry ($TcPO_2$)

4 Wound and periwound

Infection or/and biofilm:
Local signs of infection can be: increased exudate, non-healing, malodour, friable or discoloured granulation tissue, redness, pain, heat and swelling.

Wound bed, status/colour:
- Yellow slough
- Red granulation tissue, pink epithelialisation

Exudate
- Amount (none, low, moderate, high)
- Consistency/colour

- **Wound location**
- **Wound size (area/depth)**
- **Wound edge** (raised edge, undermining)
- **Surrounding skin** (maceration/excoriation, erythema, oedema)
- **Pain** (location, frequency, cause, type, intensity and duration)
- **Odour** (presence and nature)

5 Classification

Classification of chronic venous insufficiency (CVI) with CEAP clinical classification. And classification of the VLU as `simple´ or `complex´.

Goals of treatment, education and concordance with the patient

Mölnlycke® dressing selection guide

Infection

Wound bed

Requirement for antimicrobial	**No** requirement for antimicrobial
Red or Yellow 	Red or Yellow 


Appropriate debridement in combination with cleansing with Granudacyn®


Topical oxygen therapy with Granulox® If area reduction ≤40% after 4 weeks standard therapy[28]

Exudate level

Low exudate	 Mepilex® Ag	 Mepilex® Border Lite
Moderate exudate	 Mepilex® Ag	Mepilex® XT
High exudate	 Mepilex® Border Ag;  For yellow wounds: Exufiber® Ag+ Mepilex® Border Flex	 Mepilex® Border Flex;  For yellow wounds: Exufiber® Mepilex® Border Flex
Very high exudate	 Mepilex® Transfer Ag +  Mextra® Superabsorbent	 Mepilex® Transfer +  Mextra® Superabsorbent

Use an appropriate moisturiser

ABPI assessment and compression therapy**

Use an appropriate compression therapy (CT)[14], when needed use Tubifast® as an inner layer.

Doppler ABPI	0.51–0.79 Moderate PAD	0.8–0.90 Mild PAD	0.91–1.4 Borderline PAD between 0.91–0.99. Normal 1-1.4
CT in mmHg	15–30 mmHg*	15–40 mmHg*	15–50 mmHg

* Use modified CT with caution. Absolute systolic ankle pressure should be >60mmHg[14]
** This is a guide only and cannot replace clinical judgement. There might also be different guides locally, for example in Europe.

Management of VLU[5,11]

A VLU has a negative impact on all aspects of the patient's daily life and needs to be considered in the treatment plan. VLU may cause depression, anxiety and social isolation, but leaking exudate, pain, odour, restricted mobility and sleep disturbance may be also particularly challenging and distressing for these patients.

- A multidisciplinary team (MDT) can be a resource for planning and treating a patient with VLU, for example
- Recommend the best compression therapy for the individual
- Nutritional advice
- Infection control and treatment
- Full vascular assessment and treatment
- Assessment and treatment of different skin problems

Remember:[5,11,14]

- Assess and manage pain (local and systemic) before dressing changes.
- Be aware of mixed aetiology that includes venous disease. For example if other factors are present, e.g arterial disease, diabetes or rheumatoid arthritis (vasculitic ulcer).
- Wound biopsy may be indicated in patients who have delayed healing and a wound suspected of being malignant.
- Education and training of the patient, caregiver and family is essential in enhancing concordance.
- Reassess if wound area reduction is less than 20–30% after 4–6 weeks of optimal compression treatment.

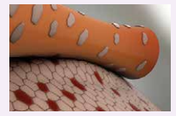
- Optimal wound management with provision of local treatment needs to be supported with appropriate management of systemic disease, compression therapy and debridement. Remember that surgical debridement is contraindicated in some circumstances, for example if ischaemia is present or pyoderma gangrenosum[29]
- Monitor at each dressing change and reassess regularly. Be sure that the dressing is compatible with the compression therapy
- If you need to cut the dressing, consider using non-bordered products
- The choice of dressings must be based on local protocols and clinical judgement

Proven choice for a better outcome

Safetac® is the original less-pain contact layer with silicone adhesion. We designed it to mould softly to skin without sticking to the moist wound[30] – so you can remove it easily without damaging the skin[31]. That means less pain for your patients[32].

Safetac also protects new tissue and intact skin – so wounds remain undisturbed to support faster natural healing[33-36]. And it seals the wound margins to protect skin from damaging leaks and maceration[37,38]. This combination of less pain[32] and less skin damage[31,34-37,39] – to support faster healing[33-36] – can also reduce the cost of treatment[34,35,39].

You can trust Mölnlycke® dressings with Safetac, for better patient and economic outcomes.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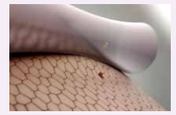
With Safetac[31]

Legs matter (legsmatter.org) provides patients with these 10 steps to keep the legs and feet healthy:[40]

1. **Moisturise your legs** with an unscented moisturiser every day.
2. **Check your skin** for breaks, cracks and swelling.
3. **If broken areas are not healing** or you notice **any changes in the colour or texture** of your skin, visit your local healthcare services for advice.
4. Try **to walk for about 30 minutes** at least **three times a week**.
5. If walking is difficult, just **move your feet around in circles**, then up and down – you can do this sitting down. **Move your legs and feet** regularly in any way that feels good for you – it's great for circulation and reducing swelling.
6. **Avoid standing** for a long time.
7. **Maintain a healthy weight** – carrying extra weight increases the chances of developing problems in your legs and feet and makes swelling worse. Aim to eat a well-balanced diet and get enough exercise.
8. **Stop smoking** – smoking decreases the blood flow to the legs and feet, and makes healing more difficult. Stopping will help to keep your legs healthy.
9. If you're prone to swelling in your legs and feet or you have problems with your veins, then compression may be helpful. **Compression socks or tights are usually worn daily** but your healthcare professional will advise you on what's best for you.
10. Compression socks or tights might feel a little tight or uncomfortable at first but **they shouldn't hurt**. If they do, ask your healthcare professional for a different compression option or just a different style.

Take charge of your own leg and foot health by: paying attention to your legs and feet, going to your health care services if things aren't looking right, demanding better or different care if your leg or foot isn't getting better.

Dressing information

Mepilex® Border Lite

With Safetac

- Thin foam dressing with soft silicone wound contact layer
- For non to low-exuding wounds; designed to maintain a moist wound environment
- Thin, soft, and highly conformable
- Minimises pain and damage at dressing change[32]

Mepilex® XT

With Safetac

- Foam dressing with soft silicone wound contact layer
- For low to moderately exuding wounds; designed to maintain a moist wound environment
- Soft and conformable foam dressing
- Can easily be cut to size
- Mepilex XT can handle both low and high viscosity fluid[41]
- Minimise skin damage and pain at dressing changes[42]

Mepilex® Border Flex

With Safetac

- All-in-one bordered foam dressing with Flex Technology and soft silicone wound contact layer
- For moderately to highly exuding wounds; designed to maintain a moist wound environment
- The Flex Technology allows Mepilex® Border Flex to to adapt to the shape and movement of the patient increasing comfort and minimising risk of detachment.[43,44]
- The 5-layer dressing absorbs and trap exudate containing bacteria and keep the exudate away from the wound bed, even under compression therapy (*in vitro*)[45]
- Showerproof[46]
- Minimise skin damage and pain at dressing changes[32]

Mepilex® Ag

With Safetac

- Antimicrobial foam dressing with soft silicone wound contact layer.
- For low to moderately exuding wounds, designed to maintain a moist wound environment
- Soft and conformable foam dressing
- Can easily be cut to size
- Mepilex Ag kills wound-related pathogens within 30 minutes; and carries on doing so for up to 7 days (*in vitro* studies)[47]
- Minimise skin damage and pain at dressing changes[32]

Mepilex® Border Ag

With Safetac

- Antimicrobial all-in-one bordered foam dressing
- For moderately to highly exuding wounds; designed to maintain a moist wound environment
- Combines excellent exudate management properties with antimicrobial action[48,49]
- Minimise skin damage and pain at dressing changes[32]

Exufiber® Exufiber® Ag+

- Gelling fibre dressing with silver (Exufiber Ag+) and without (Exufiber)
- For moderately to highly exuding wounds
- Transforms into a gel that provide moist wound environment[50-54] and softly conforms to the wound bed[50,52,53]
- The Hydrolock® Technology absorbs and locks in exudate, blood and bacteria[50,51,55]*
- Transfers exudate away from the wound bed to secondary dressing[56,57]
- The high structural integrity enables one-piece dressing removal[50-54,58,61]
- By reducing the number of microorganisms, Exufiber Ag+ can prevent the re-formation of biofilm (*in vivo*)*. Exufiber Ag+ provides sustained antimicrobial effect for up to seven days (*in vitro*)[62,64]
- Can easily be cut and used in cavities

Mepilex® Transfer Mepilex® Transfer Ag

With Safetac

- Exudate transfer dressings with silver (Mepilex Transfer Ag) and wothout (Mepilex Transfer)
- Effectively transfer exudate to a secondary layer
- Very thin and conformable foam for difficult-to-dress locations
- Can easily be cut to size
- Mepilex Transfer Ag inactivates a broad range of microorganisms (*in vitro* studies)[65]
- Mepilex Transfer Ag combines a rapid antimicrobial effect within 30 min and a sustained effect up to 14 days (*in vitro* studies)[65]
- Minimise skin damage and pain at dressing changes[32,66]

Mextra® Superabsorbent

- Superabsorbent dressing with breathable and non-strike-through backing material[67]
- For moderately to heavily exuding wounds
- Superabsorbent for high absorption and retention[67]
- Protease modulating activity[68]
- Can be used on venous leg ulcers under compression bandage[69,70]
- The wound pad traps the wound exudate containing bacteria and reduces the amount of bacteria re-entering[71]
- Conformable and easy to use[72]

Granulox®

- Granulox is a haemoglobin-based spray for topical use on chronic wounds
- The haemoglobin provides the wound with the required oxygen by means of diffusion
- Twice as many chronic wounds healed at 8–16 weeks compared to standard of care[73-75]
- Granulox is easy to handle and to apply

Granudacyn®

- Wound irrigation solution and gel for acute and chronic wounds such as venous leg ulcers
- Effective preservation with HOCl/NaOCl against gram+/- bacteria, viruses, fungi and spores[76]
- Reduce wound malodour[77]

Tubifast

- Tubular self-retention bandage
- Suitable for dressing retention and skin covering[78]
- Provides a low level of elasticity and stretch, which allows patients of complete freedom of movement[79]
- Available in a range of different sizes

* As part of a holistic biofilm management approach as per international guidelines (i.e. cleansing, debridement & reassessment)[26]

Proving it every day

At Mölnlycke®, we deliver innovative solutions for managing wounds, improving surgical safety and efficiency, and preventing pressure ulcers. Solutions that help achieve better outcomes and are backed by clinical and health-economics evidence.

In everything we do, we are guided by a single purpose: to help healthcare professionals perform at their best. And we're committed to proving it every day.

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