Patient presents with an ulceration on the lower leg

**INVESTIGATIONS**
- Non-invasive diagnostic tests may be ordered:
  - Venous characteristics
  - Associated changes in the leg
  - Ulcer location and characteristics
  - Antecubital fossa (distal veins in foot or ankle region)
  - Leaking oedema may result in maceration, pruritis and scale
  - Limp may be warm – heat and/or itch
  - Ulcer location and characteristics
  - Venous characteristics

**HISTORY**
- Family history of leg ulceration
- Decreased calf muscle pump function
- Surgery or trauma of affected leg
- Chest pain or pulmonary embolism
- Prolonged standing or sitting

**EXAMINATION**
- Patient’s clinical history (page 20)
  - Venous disease
  - History of leg ulceration
  - Decreased calf muscle pump function
  - Surgery or trauma of affected leg
  - Chest pain or pulmonary embolism
  - Prolonged standing or sitting
- vena comitans phlebitis obesity number of pregnancies previous or current DVT
- Comprehensive assessment of the patient (page 20)
  - Medications
  - Psychosocial
  - Comorbidities
  - Quality of life
  - Nutrition
  - Pain
- Patient’s leg ulcer history (page 25)
  - Duration of the current ulcer
  - Previous ulcers and the time they have taken to heal
  - Time spent free of ulcers
  - Strategies used to manage previous ulcers

**DIAGNOSIS**
- Venous characteristics (page 22)
  - Associated changes in the leg
  - Ulcer characteristics
- Arterial characteristics
  - Associated changes in the leg
  - Ulcer characteristics

**CONSERVATIVE MANAGEMENT**
- Atypical ulcer characteristics
  - None or minimal venous and arterial ulcer characteristics
  - Pain is extreme
  - Oedema
  - Ulcer has an unusual appearance or atypical distribution
  - Suspect of malignancy
  - Deterioration in ulcer or necrotic tissue present
  - Ulcer that has not healed in three months

**FLOW CHART FOR ASSESSMENT OF VENOUS LEG ULCERS**
- Patient assessed as having a venous ulcer on the lower leg

**REFERENCE**
- Refer to other side for management of the venous ulcer

**PREVENTION**
- Prevention of recurrence
  - Measure and fit compression hosiery providing 18–40 mmHg (Grade B, page 62)
  - Ongoing encouragement should be given related to exercise, leg elevation and nutrition
  - Hosiery should be renewed at least annually

**FLOW CHART FOR MANAGEMENT OF VENOUS LEG ULCERS**
- Patient assessed as having a venous ulcer on the lower leg

**THE PATIENT**
- Provide appropriate PAIN MANAGEMENT (page 28)
  - Provide patient EDUCATION (Grade C, page 30)
    - Leg elevation
    - Nutrition
    - Compression therapy including use and care of hosiery
    - Exercise
- Provide access to appropriate PSYCHOSOCIAL support (page 31)

**THE ULCER**
- Recommend ELEVATION of the lower limb to reduce oedema (Grade C, page 32)

**THE WOUND**
- PROGRESSIVE RESISTANCE EXERCISE to improve calf muscle function (Grade C, page 33)

**MANAGEMENT**
- Encourage optimal NUTRITION AND HYDRATION to assist healing (page 34)

**PREPARE THE LEG AND WOUND**
- Prepare the surrounding skin:
  - CLEANSE the leg at dressing changes (page 35)
  - Consider DEBRIDEMENT of non-viable tissue (Grade C, page 37)
  - Consider treating CLINICAL INFECTION (page 38–47)
  - Select appropriate PRIMARY DRESSING (Grade B, page 47)

**COMPRESSION**
- Graduated compression therapy (Grade B, page 53)
  - In the absence of arterial disease or diabetes mellitus
  - Aim for > 30 mmHg (elastic) or high stiffness system (inelastic)
  - Caution: Compression should be applied by a trained health professional and according to manufacturer’s guidelines

**REVIEW**
- Patients receiving compression therapy should be MONITORED CLOSELY to ensure they are able to tolerate compression and to monitor signs of healing

- Review and consider referral (page 26)
  - Ulcers not reduced in size by 25% in four weeks or failing to heal in 12 weeks should be considered for specialist referral

**FLOW CHART FOR ASSESSMENT OF VENOUS LEG ULCERS**
- Australian and New Zealand clinical practice guideline for prevention and management of venous leg ulcers

**NEW ZEALAND WOUND CARE SOCIETY**
- Australian and New Zealand clinical practice guideline for prevention and management of venous leg ulcers

**FLOW CHART FOR MANAGEMENT OF VENOUS LEG ULCERS**
- Australian and New Zealand clinical practice guideline for prevention and management of venous leg ulcers
### Table 3.1: Recommendation grades

<table>
<thead>
<tr>
<th>Consensus-based recommendation (CBR)</th>
<th>Evidence-based gradings developed from critical appraisal of the research</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBR</td>
<td>Excellent evidence — body of evidence can be trusted to guide practice</td>
</tr>
<tr>
<td></td>
<td>Good evidence — body of evidence can be trusted to guide practice in most situations</td>
</tr>
<tr>
<td></td>
<td>Some evidence — body of evidence provides some support for recommendation(s) but care should be taken in its application</td>
</tr>
<tr>
<td></td>
<td>Weak evidence — body of evidence is weak and recommendation must be applied with caution</td>
</tr>
</tbody>
</table>

#### PREVENTING INITIAL OCCURRENCE OF VLUs

**Grade**
- Prevent and manage venous hypertension by:
  - providing deep vein thrombosis (DVT) prophylaxis
  - detecting and managing DVT early
  - promoting access to venous surgery and phlebology interventions.

When there are no contraindications, apply compression therapy to prevent the initial development of a VLU in those at risk. **CBR**

#### ASSESSMENT, DIAGNOSIS AND REFERRAL

A health professional trained in the assessment and management of VLUs should conduct a comprehensive assessment of all patients presenting with a leg ulcer. **CBR**

A comprehensive assessment should include:
- clinical, pain and leg ulcer history
- examination of the leg and ulcer
- investigations to support diagnosis.

A comprehensive assessment of the leg ulcer should be made on initial presentation and at regular intervals thereafter to guide ongoing management. **CBR**

Use CEAP classification to evaluate and classify venous disease. **CBR**

Refer patients with a non-healing or atypical leg ulcer for consideration of biopsy. **CBR**

Local guidelines should provide clear indication of appropriate criteria for referral to specialist health professionals. **CBR**

#### MANAGING PAIN ASSOCIATED WITH VLUs

**Grade**
- Provide adequate pain management to promote QOL and VLU healing. **CBR**
- When there are no contraindications, apply EMLA® cream to reduce pain associated with the debridement of VLUs. **A**
- Electrotherapy could be considered for reducing pain from VLUs. **C**

#### MANAGEMENT OF VLUs

**Managing the patient**
- Provide patients with appropriate education on their condition and its management. **C**
- Provide psychosocial assessment and support as an essential component in the patient’s management plan. **CBR**
- Devote the patient’s leg to promote changes in microcirculation and decrease lower limb oedema. **C**
- Progressive resistance exercise may improve calf muscle function. **C**
- Optimise the patient’s nutrition and hydration to promote healing in patients with VLUs. **CBR**

#### PREVENTING RECURRENCE OF VLUs

**Grade**
- Prepare the leg and ulcer when dressings and bandages are changed. **CBR**
- Treat venous eczema and impaired peri-ulcer skin promptly. **CBR**
- Consider using topical barrier preparations to reduce peri-ulcer erythematous maceration in patients with VLU. **CBR**
- Enzymatic debriding agents have no effect in promoting healing in VLUs. **C**
- Consider other debridement methods to prepare the ulcer bed for healing. **C**

#### TREATING CLINICAL INFECTION

Cadoxomer iodine could be used to promote healing in VLUs when there is known increased microbial burden. **B**

Silver products offer no benefit over standard care in reducing the healing time of VLUs. **C**

Honey offers no benefit over standard care in promoting healing in VLUs. **A**

Topical antimicrobial agents should not be used in the standard care of VLUs with no clinical signs of infection. **B**

There may be a role for judicious use of topical antimicrobials when there is known or suspected increased microbial burden. **CBR**

Use topical antibiotics judiciously in managing VLUs as there is a concern that their use is associated with antibiotic resistance and sensitivities. **CBR**

Systemic antibiotics should not be used in the standard care of VLUs that show no clinical signs of infection. **CBR**

#### SELECT A DRESSING AND TOPICAL TREATMENT

No specific dressing product is superior for reducing healing time in VLUs. Select dressings based on clinical assessment of the ulcer, cost, access and patient/health professional preferences. **B**

Consider using dressings or bandages impregnated with zinc oxide to provide comfort and promote epithelialisation of a healthy granulated, superficial VLU. **CBR**

Topical, pale, sulphonated shale oil could be used to promote healing in VLUs. **C**

#### APPLY COMPRESSION

When there are no contraindications, apply compression therapy to promote healing in VLUs. **B**

#### OTHER INTERVENTIONS

Consider bi-layered, bioengineered skin grafts to promote healing in persistent VLUs. **B**

Health professionals benefit from education on VLUs and their management. Patient outcomes may be superior when ulcer care is conducted by a trained health professional. **C**

When there are no contraindications, pentoxifylline could be used to promote healing in VLUs. **B**

When there are no contraindications, micronised, purified flavonoid fraction may be used to decrease the healing time for VLUs. **C**

#### RURAL AND REMOTE POPULATIONS

Where access to specialist services is limited, health professionals could contact a VLU specialist via telecommunications for advice and support in assessing and managing a patient with a VLU. **CBR**

#### MAINTAINING PRACTICES THAT PROMOTE THE HEALTH OF THE LEGS

Maintaining practices that promote the health of the legs may reduce the risk of VLU recurrence. **CBR**

Consider the continued use of compression therapy to reduce the risk of VLUs recurrence. **B**