Consensus Recommendations: Simplifying Venous Leg Ulcer Management

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Disclosure Statement

Lynn Peterson is employed by 3M Health Care Critical & Chronic Care Solutions Division
Objectives

1. Describe key gaps in current venous leg ulcer (VLU) management
2. Explain the ABC model for leg ulcer management
3. Describe the difference between a ‘Simple’ and ‘Complex’ VLU
4. Identify 3 wound and skin management best practices
5. Describe the properties of a wound dressing for use under compression
6. Articulate the importance of compression therapy for VLU management
7. Identify 3 attributes of the ideal compression therapy system
Comprehensive, expert approach to treating Venous Leg Ulcer

• December 2014 – group of international experts in leg ulcers and venous disease met to discuss

• **Goal:** encourage broader use of compression therapy

• **Result:** Global document: Consensus Recommendations: Simplifying Venous Leg Ulcer Management

• Published Spring 2015 by *Wounds International*

• Objectives of document:
  – Simplified approach to VLU care – “ABC” model
  – Focus on active treatment
  – Assist clinicians to clearly understand why, when, and how compression should be used
Introduction

Facts about compression therapy:

• Considered the Gold Standard treatment of venous leg ulcer management
• Increases healing rates as compared to treatment without compression
• Reduces risk of recurrence
• Healing efforts are focused wound dressings and adjunctive therapies

Regardless of guidelines, compression therapy is underutilized

• Missed opportunities to healing wounds and improvement in patient’s quality of life

“We need to actively seek to enhance affected patients’ lives by improving healing rates through increased appropriate use of compression therapy.”

Keith Harding,
Chair of International Expert group
Why is compression underutilized?

Healthcare system
- Confusion regarding correct type to use
- Inconsistent and/or incorrect use of compression therapy
- Poor financial incentives for using compression therapy

Clinician
Need to increase awareness and training:
- Diagnosing and categorizing VLUs and other leg ulcers
- Understating that compression therapy is the corner stone of VLU management and improves healing and preventing reoccurrences
- Application techniques to avoid suboptimal compression

Patient
- Lack of understanding of purpose and need for compression therapy
- Financial impact – inability to afford
- Negative experience, discomfort, slippage, bunching
- Inability to follow through on appointments
An open skin lesion that usually occurs on the medial 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 within 4-6 weeks of initial occurrence.
The challenge with VLUs

80 to 90% of all leg ulcers are VLUs

- Approximately 1% of western population develop VLU
- Prevalence increases with age
- Average healing time is 5.9 months
- 12 month recurrence rate is 26-69%
- Approximately 1% of healthcare budget spent on VLU management

Time consuming to healthcare system!
Impact on patient quality of life

• Inability to manage ADLs
• Depression, decreased self-esteem
• Decreased mobility, functionality of affected limb
• Pain
• Leaking exudate, odor
• Difficulty finding appropriate clothing/shoes
• Inability to work, job loss, social isolation
Consensus recommendations:
ABC model for leg ulcer management

- **A** Assessment and diagnosis
- **B** Best practice wound and skin management
- **C** Compression therapy for active treatment and for prevention of recurrence
ABC model:

Assessment and diagnosis
Assessment and diagnosis

- Determine etiology of wound
- Collect indicators for appropriate management
- Referral to specialist as appropriate
- Categorize the wound
- Evaluate appropriateness for compression therapy

Differential etiologies – wound assessment

Venous Ulcer
Arterial Ulcer
Neuropathic Ulcer
Mixed ulcer
### Lower extremity wound characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Location</th>
<th>History</th>
<th>Ulcer characteristics</th>
<th>Other findings</th>
</tr>
</thead>
</table>
| **Venous leg ulcer**  | Gaiter region – ankle to knee, most common around medial malleolus | Varicose Veins  
DVT  
Other venous disease  
Trauma surgery | Irregular margins  
Usually shallow  
Fibrinous, granulating base  
Variable size  
High exudate levels  
May be painful | Edema  
Ankle flare  
Varicose veins  
Varicose eczema/dermatitis  
Lipodermatosclerosis  
Hyperpigmentation  
Atrophie blanche |

Adapted from Table 2, page 3, Harding K. et al. Simplifying venous leg ulcer management. Consensus recommendations. Wounds International 2015
# Lower extremity wound characteristics

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<tr>
<th>Type</th>
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<th>Ulcer characteristics</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Arterial Leg Ulcer</strong></td>
<td>Toes, feet, or lateral pretibial aspects of the lower leg</td>
<td>Intermittent claudication/rest pain Cardiac or cerebrovascular disease</td>
<td>Punched out, sharply demarcated edges Painful Small and deep Necrotic wound base Dry/low exudate levels Gangrene may be present</td>
<td>Surrounding skin is often dry and shiny with loss of hair Weak or absent foot pulses</td>
</tr>
<tr>
<td><strong>Diabetic foot ulcer</strong></td>
<td>Pressure bearing areas of the sole of the foot Margins of the foot, over first or fifth meta-tarso-phalangeal joints</td>
<td>Diabetes</td>
<td>Sensory loss when neuropathy is present Variable depth: may need deep +/- sinuses, may involved tendon and bones</td>
<td>Neuropathic: foot may be warm; ulcer often surrounded by callus Neuroischemic: foot may be cool and foot pulses may be absent</td>
</tr>
</tbody>
</table>
Venous leg ulcer assessment pathway

**FIGURE 4 | Venous leg ulcer assessment pathway**

- **Wound assessment**
  - See Table 2 (page 3) for characteristics of main wound types
  - Duration
  - Position
  - Area/depth
  - Use principles of TIME (see Box 3, page 7)
  - Level of exudation
  - Pain
  - Current dressing regimen

- **Periwound skin**
  - Maceration
  - Excoriation
  - Hyperkeratosis
  - Signs of venous disease, e.g. varicose eczema

- **Leg and foot**
  - Clinical evidence of CVI, e.g. ankle flare, varicose veins etc (see Table 3, page 7)
  - Oedema
  - Ankle mobility
  - Foot pulses
  - Doppler to assess arterial circulation, e.g. ABPI
  - Duplex scan to assess venous system (where available)
  - Leg shape
  - Sensation

- **Patient**
  - Previous history of leg ulcers/venous disease
  - Symptoms of CVI
  - Comorbidities, e.g. diabetes, cardiac or cerebrovascular disease, symptoms of peripheral arterial disease
  - Allergies
  - Mobility
  - Dexterity
  - Obesity/BMI
  - Psychological and social impact of wound
  - Understanding of condition, expectations and desired outcomes
  - Employment
  - Level of caregiver/family support
  - Previous experience of and likelihood of concordance with compression therapy
  - Transport/ability to attend clinic/willingness and ability to participate in telemedicine

- **Family/caregivers**
  - Understanding of condition
  - Willingness and ability to offer support, e.g. proximity to patient, transport
  - Willingness and ability to undertake dressing changes and compression therapy changes

Comprehensive patient assessment

Past medical history
Comorbidities – history of CVI/vascular disease
Wound assessment
Treatment/response to treatment regime
Medication
Pain status
Mobility status
Nutritional status
Psychosocial circumstances i.e. home and work
Understanding of disease
Caregiver family involvement
Wound assessment

Location
Size
Depth
Exudate level
Tissue type
Periwound skin
Pain
Duration or age of wound
Current treatment regime
Vascular assessment

**ABPI**

**Duplex imaging**

Use as guidance to determine level of compression therapy

<table>
<thead>
<tr>
<th>ABPI</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;1.3</td>
<td>Arterial calcification may be present</td>
</tr>
<tr>
<td>&gt;1.0-1.3</td>
<td>Probably no peripheral arterial disease</td>
</tr>
<tr>
<td>0.81-1.0</td>
<td>No significant or mild peripheral arterial occlusive disease</td>
</tr>
<tr>
<td>0.51-0.80</td>
<td>Moderate peripheral arterial occlusive disease</td>
</tr>
<tr>
<td>&lt;0.5</td>
<td>Severe peripheral arterial disease, ‘critical ischemia”</td>
</tr>
</tbody>
</table>
Venous leg ulcer categories

- Simple VLU
- Complex VLU
- Mixed etiology
Why categorize

To help determine:

• Likely prognosis
• Appropriate time frames for monitoring, reassessment, and referral
• Treatment goals
  • Heal the wound
  • Control CVI and related skin changes
  • Reduce edema
  • Control symptoms, e.g. pain
  • Address or reduce the impact or comorbidities
  • Prevent recurrence
Venous leg ulcer categories

- **‘Simple’ VLU**
  - ABPI 0.8-1.3
  - Area <100cm²
  - Present for <6 months
  - Manage in a primary care/community-based setting
  - If clinicians competent in compression therapy are not available, refer to a specialist service that manages VLUs

- **‘Complex’ VLU**
  - ABPI 0.8-1.3
  - Area ≥ 100cm²
  - 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
  - Refer to specialist service that manages VLUs
  - Depending on local service provision, this may be a specialist wound management clinic/service, a community-based service (e.g., Leg Club) or a dermatology, phlebology or vascular service. Further investigations may include duplex scans

- **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
  - Refer to appropriate specialist for further investigation and care, e.g., vascular/phlebology/diabetic/rheumatology/cardiology. Some patients may be managed in collaboration with a specialist service that manages VLUs. Further investigations may include duplex scans
  - N.B. If ABPI <0.5 urgent referral for consideration for revascularisation should be made

- **Standard or modified compression therapy as appropriate**
  - N.B. Patients with ABPI <0.5 should not receive compression therapy

- **‘Simple’ VLU targets**
  - 100% healing within 12 weeks
  - Minimum ≥70% healed within 18 weeks

- **‘Complex’ VLU targets**
  - 100% healed within 18 weeks
  - Minimum ≥70% healed within 24 weeks

Time to healing depends on underlying aetiology, comorbidities and lifestyle factors.
Patient referral

ABPI <0.5 have severe peripheral arterial disease
Refer to a vascular surgeon for possible revascularization

Other potential referrals:

- Wound clinics or specialist in VLU management
- Vascular medicine/surgery
- Phlebology
- Dermatology
- Rheumatology
- Cardiology
- Diabetes medicine
ABC model:

Best practice wound and skin management
Best practice wound and skin management

“The most important factor in reducing exudate levels is appropriate sustained compression therapy, not the dressing.”

Cleansing and skin preparation

Cleanse

- water or saline
- helps remove dry, loose tissue on lower leg
- If using skin cleanser – gentle, pH balanced, non-sensitizing

Rehydrate skin

- simple, non-sensitizing emollient

Dermatitis

- Topical steroid may be used
Debridement

Debride as necessary to remove slough and devitalized/necrotic tissue per facility protocol

Sharp debridement

- Reserve for “complex VLU”
- By trained healthcare providers in suitable facility i.e. wound clinic, hospital, physician office
Periwound and surrounding skin management

Protect periwound skin with barrier film e.g. acrylate terpolymer

Debridement pads may be helpful to remove hyperkeratonic skin plaques
Wound dressing

Protect the wound and manage exudate

• Select a simple non-adherent dressing to protect and absorb exudate
• If exudate levels are high, select an alginate, other gelling fiber, or a foam dressing
• Superabsorber dressings may be used if exudate levels are very high
• Antimicrobial dressings may be used short-term for treatment of wound infection
Ideal properties of a wound dressing used under compression (per consensus doc):

- Maintains a moist wound environment while able to handle varying levels of exudate
- Absorbs and retains fluid when used under compression
- Low profile
- Conforms to the wound bed
- Does not adhere to the wound bed (non-adherent)
- Comfortable
- Does not damage the wound bed (atraumatic)
- Low allergy potential
- Remains intact on removal
- Cost-effective, i.e. offers optimal wear time
ABC model:
Compression therapy for active treatment and for prevention of recurrence
Compression –
Standard of Care for VLU management

• Considered the Gold Standard treatment of venous leg ulcer management
• Increases healing rates as compared to treatment without compression
• Reduces risk of recurrence
• Effective compression:
  • Decreases exudate levels
  • Improves venous return
  • Reduces lower extremity edema and inflammation

“We need to actively seek to enhance affected patients’ lives by improving healing rates through increased appropriate use of compression therapy.”

Keith Harding, Chair of International Expert group
Implementing compression therapy

To optimize the benefits of compression:
• Apply the correct type of compression
• For the right duration
• In a way acceptable to the patient

Figure 5: Variations of the compression bandaging-hosiery continuum

Stiffness – the degree of elasticity of a compression system

• High stiffness (inelastic)
  • Produces greater fluctuations in lower leg pressure during walking compared to lower stiffness systems
  • Produce the greatest improvements in venous blood flow
• Low stiffness (elastic) – produce higher resting pressure
• Multi-component systems preferred – the higher the stiffness, the better the outcome
• Patients report higher stiffness systems are more comfortable
How to select compression therapy

All patients who are candidates for compression therapy should have ABPI measured and recorded.

- Compromised arterial need lower levels of compression (20-30 mmHG)
- Two component stiff compression systems have shown to be safe for patients with arterial disease (ABPI >0.5)
- Consult “Guide to using therapy in ‘simple’, ‘complex’ and mixed etiology leg ulcers” (Table 5, page 15)
Guide to using compression therapy with mixed arterial leg ulcers

<table>
<thead>
<tr>
<th>Mixed aetiology leg ulcers</th>
<th>Appropriate specialist service +/- collaboration with specialist service that manages VLU</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABPI &gt;1.3</td>
<td>▪ Refer to specialist for further investigation and care</td>
</tr>
<tr>
<td>ABPI 0.5-&lt;0.8</td>
<td>▪ Refer to specialist for further investigation and care</td>
</tr>
<tr>
<td></td>
<td>▪ Modified compression using a stiff system may be applied with frequent reassessment and monitoring for ischaemia and pressure damage</td>
</tr>
<tr>
<td>ABPI &lt;0.5</td>
<td>▪ Refer to vascular surgeon for possible revascularisation</td>
</tr>
<tr>
<td></td>
<td>▪ Consider IPC if revascularisation is not possible</td>
</tr>
</tbody>
</table>

Table 5, page 15
Factors to consider for selection

BOX 7 | Factors that affect choice of compression therapy system

- Training, competency and experience of the healthcare practitioner applying compression: in healthcare systems where there is a high turnover of staff it may be preferable to mainly use a compression therapy system that is relatively straightforward in application, e.g. two-component compression bandaging
- Wound status, e.g. size of the ulcer and exudate levels
- Patient mobility (see section on the importance of mobility, page 16)
- 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

Attributes of ideal compression therapy system

• Delivers therapeutic compression and has high stiffness
• Permits good anatomical fit
• Stays in place, i.e. does not slip
• Comfortable
• Allows patient to wear their own shoes and to maintain normal gait
• Easy to apply and remove
• Requires minimal training in fitting and application
• Non-allergenic
• Aesthetically acceptable
• Affordable and/or reimbursed
Encourage mobility

Improves the action of calf muscle pump

Optimizes therapeutic effect of compression system

Avoid padding under compression system

• May impair function of the system
• May lead to slippage

Restricted mobility (low calf muscle pump, able to stand, flex toes)

• Stiff compression, multi-component system preferred

Completely immobile

• IPC or hosiery may be more suitable
Assess patient and wound related outcomes

Change in wound area and depth
Change in tissue type
Change in exudate level
Changes in wound odor
Change in extent and severity of limb edema
Timing to heal
Change in mobility and ability to carry put self care activities of daily living
Changes in mood and anxiety levels
Ulcer-free duration
Assess clinical outcomes

Pressure levels are appropriate when:

• Foot perfusion is not compromised
• Pain levels are reducing and no new pain is occurring
• Exudate level is reducing
• Lower leg edema is decreasing

If wound size reduction of less than 20-30% in 4-6 weeks, reconsider:

• Level of compression
• Type of compression
• Level of concordance

Refer to a specialist as appropriate.
Recurrence

“Compression therapy ‘for life’ is essential to reduce the risk of ulcer recurrence”
Ensuring success with ABC Model

- Actively involve the patient
- Promote concordance
- Manage pain effectively
- Educate patient and family

**Box 10 | Methods for patient, caregiver and family education and training**

- Ongoing assessment and review with feedback on progress
- Continuity of care with consistent messages
- Verbal explanations: build up level of information and repeat as appropriate
- Information leaflets and resources
- Telemedicine, e.g. online video calling, apps and smart phone support
- Online videos and tutorials (webinars)
- Workshops and demonstrations with opportunities to practice application of compression therapy systems and dressings where appropriate
- Patient self-help and support groups
Adopting the ABC model into practice

Assessment and Diagnosis (see pages 5-9):

- Take patient history, assess wound, periwound skin, leg, foot and patient: see Figure 4, page 6 for categories of VLU and appropriate healthcare services for management of each and referral criteria.
- Conduct ABPI to assess arterial circulation: refer to specialist for further investigation and care if ABPI <0.8 or >1.3.
- Confirm presence of venous disease (duplex scan).
- Reassess if wound area reduction is less than 20-30% after 4-6 weeks of optimal compression treatment.
Adopting the ABC model into practice

Best practice wound and skin management (see pages 10-11):

- Cleanse, rehydrate and protect the periwound skin and the skin of the leg; manage eczema and hyperkeratosis if present
- Debride the wound as necessary and according to local protocol
- Select dressing type and decide frequency of dressing change based on anticipated frequency of compression system reapplication and exudate level (unless infection is suspected or present)
- Use antimicrobial dressings for local infection or for prevention of infection in wounds at high risk
- Ensure the compression regimen, wound therapy and concordance are optimised before considering advanced therapies

Adopting the ABC model into practice

Compression therapy (see pages 12-16):

- Select compression bandaging for active treatment (stiff, inelastic multi-component systems are preferable)
- Be aware that some patients may require modified compression (see Table 5, page 15)
- Consider compression hosiery for prevention of recurrence or active treatment once oedema has resolved
- Refer to specialist for further investigation and care if considering compression therapy for patients with a mixed aetiology ulcer with an ABPI <0.8 or >1.3
- Do not use compression therapy on patients with ABPI <0.5: refer to a vascular surgeon for possible revascularisation
- Encourage patients to be active and mobile
- Consider IPC for totally immobile patients
New in the Consensus Recommendations

- ABC Model for leg ulcer management
- Venous leg ulcer pathway
- Venous leg ulcer categorization
- Table to guide the level of compression therapy needed based on ABPI and need for referral to other services
- Tips to optimize compression therapy
- How to incorporate the ABC model into practice
- Checklist and tips for the use of compression therapy
Thank you

▸ Consensus document –

Free download available at: safety.3M.com/VLU

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