

Developed in collaboration with the Wound Care Champions, Wound Care Specialists, Enterostomal Nurses, and South West Regional Wound Care Program (SWRWCP) members from Long Term Care Homes, Hospitals, and South West CCAC contracted Community Nursing Agencies in the South West Local Health Integration Network.



<b>Title</b>	<b>Guideline: The Assessment of People with Leg Ulcers</b>
<b>Background</b>	<ul style="list-style-type: none"> <li>• Venous insufficiency occurs as the result of venous valve dysfunction in the lower legs, narrowing or occlusion of the deep veins in the lower legs, or failure of the calf muscle pump. These failures result in poor venous return from the lower legs, which causes venous hypertension and the eventual development of leg ulcerations</li> <li>• Arterial insufficiency (ABI &lt;0.6) occurs as a result of either narrowed or blocked arteries, which reduces the amount of blood that flows to the lower legs, resulting in tissue ischemia and ulcerations. A history of smoking, diabetes, hyperlipidemia, hypertension, and coronary artery disease are contributing factors</li> <li>• Mixed disease leg ulcers (ABI 0.5 – 0.8) are the result of a combination of venous and arterial disease, and present as such symptom-wise</li> <li>• The prevalence rate of leg ulcers of all etiologies in Canada is approximately 1.8 leg ulcers per 1,000 people over the age of 25<sup>1</sup></li> <li>• The care of this population is compounded by the fact that the condition is highly associated with age, with a prevalence rate reported in the 2% range for those over age 65<sup>2</sup></li> <li>• 37-62% of leg ulcers are venous in nature<sup>3-4</sup></li> <li>• 21% of people with venous ulcers experience concomitant arterial disease<sup>5</sup></li> <li>• Venous leg ulcers have a longer duration and higher recurrence rate than non-venous wounds<sup>3-4</sup> <ul style="list-style-type: none"> <li>○ 75% recur in three months without compression</li> <li>○ 15-20% recur in one year with compression</li> </ul> </li> <li>• The negative impact on the leg ulcer sufferer’s quality of life is significant, as individuals may experience mobility loss, chronic pain, fear, anger, depression, and social isolation<sup>6</sup></li> <li>• Leg ulcer disease is cyclical and chronic, with periods of healing followed by recurrence</li> <li>• It is imperative that a thorough general health, wound, and lower limb assessment is carried out in order to determine the most likely wound etiology, i.e. venous, mixed, or arterial, in order to properly and safely guide treatment decisions</li> </ul>
<b>Indications</b>	This guideline is intended to be used by front line registered health care providers, to guide their assessment of individuals admitted with or presenting with a leg ulcer.
<b>Guideline</b>	<b>NOTE: The assessment of a person with a leg ulcer follows either “The SWRWCP’s Venous/Mixed Leg Ulcer Assessment and Management Algorithm” or “The SWRWCP’s Arterial Leg Ulcer Assessment and Management Algorithm”.</b>

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1. Upon discovery of a wound on the leg of a person or upon admission of a person with such a wound to your health care facility/service, conduct a history and focused physical assessment using the SWRWCP’s “Initial Wound Assessment Form” (see “Procedure: Initial Wound Assessment Form”), if not already done, to determine the persons:
  - a. Health/medical history (and the persons understanding of these)
  - b. Nutritional status
  - c. Wound history
  - d. Wound related pain and quality of life (pain can be an indicator of infection and a feature of both venous and arterial disease)
  - e. Extrinsic, intrinsic, and iatrogenic factors affecting wound healing
  - f. Concordance concerns

This form contains the “Nestle Mini Nutritional Assessment (MNA<sup>®</sup>) Tool”, used to evaluate whether the person is malnourished or at risk for malnourishment, which can negatively affect wound healing [see “Procedure: Nestle Mini Nutritional Assessment (MNA<sup>®</sup>) Tool”].

**NOTE: Individual permission must be obtained by each organization wishing to use the MNA<sup>®</sup>**

2. Complete the “Interdisciplinary Lower Leg Assessment Form” (see: Procedure: Interdisciplinary Lower Leg Assessment Form”), or review the form if one has been previously completed, to determine the person’s history of ulcers and pre-ulcerous conditions, and to systematically physically assess the persons lower legs for:
  - a. Edema, lymphedema, lipidema (if they so present with such issues)
  - b. Signs of venous/arterial/mixed leg disease/ulcers (see the chart below):

	Venous Disease	Arterial Disease	Mixed Ulcers
<b>History</b>	Deep vein thrombosis, leg injury, vein surgery, episodes of chest pain/hemoptysis/pulmonary embolism, family history of venous disease	Heart disease, stroke, transient ischemic attack, diabetes, peripheral vascular disease (PVD), rheumatoid arthritis, family history of non-venous etiology	Combination of venous and arterial
<b>Lifestyle</b>	Obesity, sedentary lifestyle	Smoking	Combination
<b>Leg/Skin Appearance</b>	Hemosiderin staining, atrophie blanche, varicosities, spider veins, ankle flare, lipodermatosclerosis, dermatitis, woody fibrosis, edema, scarring from previous ulcers	Pallor (on elevation), dependent rubor, distal gangrene of toes, hammer toes, shiny/thin skin, wasted leg muscles, leg hair loss, cool feet +/- poor capillary refill	Combination of venous and arterial

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	<b>Peripheral Pulses</b>	Present	Weak or absent	Present or weak
	<b>ABI</b>	> 0.8	< 0.6	0.5 – 0.8
	<b>Pain</b>	Tired, heavy feeling in legs, worse at end of day, better early in day and with limb elevation	Pain with elevation of lower limbs (ischemic rest pain), intermittent claudication. NOTE: pain may be masked in people with diabetes	Combination of venous and arterial
	<b>Typical Wound Location</b>	Gaiter region, superior to medial malleolus, circumferentially around the ankle	Below ankle, tip of toes, heels, sides of foot	Combination of venous and arterial
	<b>Wound Bed Appearance</b>	Moist, ruddy granulation +/- yellow slough/fibrin	Pale and dry +/- yellow/black fibrin	Yellow/black fibrous base, base may be dry or moist
	<b>Wound Shape, Depth</b>	Shallow, irregular shape with borders that are flat and slope into a shallow crater	Deep, round, punched out appearance	May have elements of both venous and arterial ulcers
	<b>Wound Exudate</b>	Minimal to copious	None to minimal	Minimal to copious
	<b>Peri-Wound Appearance</b>	Dry, scaly, irritated (stasis dermatitis), macerated		

c. The quality of the person’s lower limb circulation (pedal pulses and ABIs) – **NOTE: people with normal arterial circulation can have absent peripheral pulses due to edema or a fixed ankle joint. Palpable pulses in people with calcified vessels, i.e. those with diabetes, can be misleading and therefore the ability to palpate a pedal pulse does not necessarily indicate an absence of peripheral arterial disease.** Ankle brachial index (ABI) tests should be performed by a healthcare professional trained in such testing, i.e. an Enterostomal Therapy (ET) Nurse or Wound Care Specialist (WCS) – **NOTE: if a person has long-standing diabetes, hypertension or advanced age, the vessels may not be compressible and segmental compression studies or toe pressures may need to be ordered through a diagnostic imaging in order to accurately determine the status of the person’s lower limb circulation).** ABIs should be repeated when:

- i. A leg ulcer deteriorates
- ii. An ulcer is not fully closed within three months
- iii. The person has a leg ulcer recurrence
- iv. There is a sudden increase in pain
- v. The color and/or temperature of the foot changes

d. Signs of unusual ulcers, i.e. malignant ulcers. **NOTE:**

	<p><b>malignancy can cause and may be a sequel of leg ulceration.</b></p> <p><b>Look for wounds that:</b></p> <ul style="list-style-type: none"> <li><b>i. Have an irregular nodular appearance</b></li> <li><b>ii. Raised or rolled edges</b></li> <li><b>iii. Rapidly increase in size</b></li> <li><b>iv. Fail to respond to treatment</b></li> </ul> <p>e. Ulcer history, including:</p> <ul style="list-style-type: none"> <li>i. The date the ulcer first occurred</li> <li>ii. Site of current and any previous leg ulcers</li> <li>iii. Number of episodes of previous leg ulceration</li> <li>iv. Length of time required to close previous leg ulcers</li> <li>v. Length of time with no recurrence of leg ulcers</li> <li>vi. Past successful and unsuccessful treatments</li> <li>vii. Previous operations on the venous system</li> <li>viii. Previous and current use of compression therapy</li> </ul> <p>3. Conduct a psychosocial assessment to determine the:</p> <ul style="list-style-type: none"> <li>a. Person’s understanding of the wound and their risk factors</li> <li>b. Impact of the wound on the person and their body image</li> <li>c. Financial concerns and availability of support systems to address concerns</li> <li>d. Impact of the persons environment, physical/medical/psychosocial factors, and end-of-life goals on their care, as applicable</li> <li>e. Person’s preferences for treatment and motivation to comprehend and adhere to the plan of care</li> <li>f. The functional, cognitive, and emotional status of the person and their family to manage self-care</li> </ul> <p>4. Assess the wound using the “NPUAP PUSH Tool 3.0” (see “Procedure: NPUAP PUSH Tool 3.0”). A comprehensive reassessment using the same tool should be completed weekly at a minimum to determine the wounds progress and the effectiveness of the treatment plan.</p> <p><b>NOTE: Wound measurements (length and width) should be recorded on admission and at least weekly, with a calculation performed weekly to determine the percentage reduction in wound surface area, i.e. a 28.79% reduction in surface area at four weeks is predictive of complete venous leg ulcer closure by 24 weeks<sup>7</sup></b></p> <p>5. Assess the wound for signs/symptoms of increased bacterial burden using the “Bioburden Assessment Tool” (see “Procedure: Bioburden Assessment Tool”), as per the “Guideline: Assessment and Management of Bacterial Burden in Acute and Chronic Wounds”.</p> <p><b>NOTE: visible evidence of infection may be muted or non-existent due to compromised arterial blood flow in arterial leg ulcers. In addition, peri-ulcer inflammation in venous leg ulcers may be the result of dermatitis, which presents as erythema, scaling, erosions, and excoriations, and which should NOT be treated with antibiotics</b></p> <p>6. Assess for cellulitis with venous disease (see chart below):</p>
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	Symptoms	Signs	Investigations
	Fever, pain, intolerance of compression	Diffuse bright red, hot leg with tenderness. Large amounts of clear serous exudates. May have bullae unrelated to venous disease	High WBC, increased ESR and C-reactive protein. Blood cultures and C+S swabs are usually negative.
	<p>7. Assess for dermatitis with venous disease (stasis dermatitis): red, itchy rash on lower legs. Rash can be dry and scaly, or wet and crusty. The skin may turn brown or purplish and the lower leg edema will increase. May be associated with contact dermatitis from a topical product → itching, burning red areas on leg in area product was used</p> <p>8. Assess the wounds moisture balance and appropriateness of the current dressing using the “Guideline: The Assessment and management of Moisture in Acute and Chronic Wounds”</p> <p>9. Assess the wound to determine if debridement interventions are warranted. See “Guideline and Procedures: Wound Debridement (excluding conservative sharp debridement) and “Guideline: Conservative Sharp Wound Debridement”</p> <p>10. Based on your holistic assessment of the person and their wound (and with the assistance of your ET or WCS who did their own lower leg assessment including ABI testing), classify the leg ulcer as venous, mixed, arterial, or other, as this will help guide treatment</p> <p>11. Determine the healability of the persons leg ulcer based on your holistic assessment, the quality of the blood flow in the lower limb, the persons/caregivers willingness to participate in and adhere to the plan of care, and based on the results of use of the “Determining Healability Tool” (see “Procedure: Determining Healability Tool”). Choose the most appropriate wound healing goal:</p> <ol style="list-style-type: none"> <li>Healable</li> <li>Maintenance</li> <li>Non-healable/palliative</li> </ol> <p>12. Once you have completed a thorough assessment of the person and their leg ulceration and determined their ‘healability’, you may proceed to implement appropriate interventions, as outlined in “Guideline: The Management of People with Leg Ulcers”.</p>		
<b>References</b>	<ol style="list-style-type: none"> <li>Harrison MB, Graham ID, Friedberg E, Lorimer K, Vandervelde-Coke S. Assessing the population with leg and foot ulcers. Canadian Nurse. 2001;97(2):18-23.</li> <li>Callam MJ, Ruckley CV, Harper DR, Dale JJ. Chronic ulceration of the leg: Extent of the problem and provision of care. British Medical Journal. 1985;290(6485):1855-1857.</li> <li>Baker S, Stacy M, Jopp-McKay A, et al. Epidemiology of chronic venous ulcers. British Journal of Surgery. 1991;78(7):864-867.</li> <li>Nelzen O, Bergquist D, Lindhagen A. The prevalence of chronic lower-limb ulceration has been underestimated: Results of a validated population study. British Journal of Surgery. 1995;83:255-258.</li> <li>Zink M, Rousseau P, Holloway JA Jr. Lower extremity ulcers. In R.</li> </ol>		

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<p><b>Related Tools</b>  <b>(NOTE: these tools and their instructions can be found on the SWRWCP's website: <a href="http://swrwoundcareprogram.ca">swrwoundcareprogram.ca</a>)</b></p>	<ul style="list-style-type: none"> <li>• The SWRWCP's Venous/Mixed Leg Ulcer Assessment and Management Algorithm</li> <li>• The SWRWCP's Arterial Leg Ulcer Assessment and Management Algorithm</li> <li>• Initial Wound Assessment Form</li> <li>• Procedure: Initial Wound Assessment Form</li> <li>• Nestle Mini Nutritional Assessment (MNA<sup>®</sup>) Tool</li> <li>• Procedure: Nestle Mini Nutritional Assessment (MNA<sup>®</sup>) Tool</li> <li>• Interdisciplinary Lower Leg Assessment Form</li> <li>• Procedure: Interdisciplinary Lower Leg Assessment Form</li> <li>• NPUAP PUSH Tool 3.0</li> <li>• Procedure: NPUAP PUSH Tool 3.0</li> <li>• Bioburden Assessment Tool</li> <li>• Procedure: Bioburden Assessment Tool</li> <li>• Guideline: Assessment and Management of Bacterial Burden in Acute and Chronic Wounds</li> <li>• Guideline: Assessment and Management of Moisture Balance in Acute and Chronic Wounds</li> <li>• Guideline and Procedures: Wound Debridement (excluding conservative sharp debridement)</li> <li>• Guideline and Procedure: Conservative Sharp Wound Debridement</li> <li>• Determining Healability Tool</li> <li>• Procedure: Determining Healability Tool</li> <li>• Guideline: The Management of People with Leg Ulcers</li> </ul>