

## NZWCS Lower Limb Assessment

Developed in conjunction with the 2024 Pan-Pacific Clinical Practice Guideline for People with or at Risk of Venous Leg Ulcers: Assessment. The form is for competent healthcare professionals (HCPs) trained in leg ulcer assessment and does not replace the HCPs clinical judgement in each individual case. The NZWCS does not take any responsibility for any outcomes through using this information.

A lower limb assessment should include a thorough patient history, examination and investigations to support diagnosis so a holistic and appropriate treatment plan, acceptable to the patient and/or family-whānau can be implemented, and relevant referrals completed.

### PATIENT HISTORY

- Patient demographics
- ACC details or activate this if not completed
- History of presenting complaint
- Patient and/or family-whānau expectations

#### Pertinent History:

- **Social History:** current living situation, employment history, support networks, family-whānau support/involvement
- **Health Related Quality of Life & Wellbeing:** Consider using an assessment tool e.g. Cardiff Wound Impact Schedule. Document how the wound and/or symptoms affects daily activities and quality of life. Use culturally appropriate models of care to underpin holistic assessment and to promote culturally safe and person-centred care.
- **Relevant bloods tests:** e.g.: iron studies, HbA1c, urea and electrolytes, serum albumin, lipids, liver and thyroid function, CRP, B-type natriuretic peptide (BNP)
- **Medications (drugs / topical creams):** List current prescribed, over the counter medications and alternative therapies.
- **Alcohol / Recreational Drugs / Smoking / Vaping**
- **Allergies/sensitivities:** e.g. wound products, food, medications, topical creams
- **Medical / Surgical History:** e.g. skin disorders, skin or wound malignancies, autoimmune or inflammatory disorders, lymphoedema, self-harm, depression.

Venous History	Arterial History
Confirmed venous disease diagnosis	Confirmed arterial disease diagnosis
Familial history of varicose veins, venous insufficiency and/or venous ulcers	Familial history of peripheral arterial disease (PAD), heart disease, blood vessel disease or stroke or TIAs
Pulmonary embolism, deep vein thrombosis (DVT), varicose veins and/or phlebitis	Coronary artery disease, stroke-TIAs, hypertension
Surgical intervention for vascular conditions (e.g. varicose vein surgery)	Surgical intervention (e.g. angioplasty, CABG)
Obesity	Abdominal obesity
Multiple pregnancies	Diabetes mellitus Preeclampsia or gestational diabetes

	Chronic kidney disease
Fracture/trauma or surgery to the leg (e.g. hip or knee replacements)	Vasculitis Rheumatoid arthritis
Lifestyle factors (prolonged standing or sitting, injection drug use on lower limb)	Lifestyle factors (e.g., smoking, sedentary)

- **Lower Leg Wound History:** Document when and how wound(s) developed, recurrent ulcer, past and current wound/skin treatments, including compression, and the result of these.
- **Previous leg ulcer/s or slow to heal wounds:** Document history of previous leg wounds or other skin conditions, time to heal.
- **Pain assessment:** Current management of pain (pharmacological and non-Pharmacological). Use a standardised pain scale to assess and record pain levels. e.g. PQRST: Provokes: what causes or improves pain, Quality: description of pain (shooting, nagging, aching) consider neuropathic, nociceptive or mixed pain descriptors, Radiates: localised or moves, Severity: scale 1-10, Time: when it starts / how long it lasts.
- Wound pain: assess pre, during and post procedure.
- **Venous pain:** oedema legs may feel heavy, tired or achy at the end of the day or after standing/sitting for long periods. Pain improved with limb elevation.
- **Arterial pain:** intermittent claudication, rest or night foot pain relieved when leg is dependant or standing.
- **Nutrition: use a validated tool e.g.** Mini Nutrition Assessment (MNA), consider BMI, assess any altered bowel habits, non-planned weight loss, daily food and fluid intake.

## EXAMINATION

**Note: Do not base diagnosis on the presence of any signs or symptoms in isolation.**

- **Mobility and Gait:** Assess mobility, gait, mobility aids used. Assess calf muscle pump function, foot/ankle range of motion.
- **Oedema:** Note any swelling (toes, pedal, ankle, lower or upper leg) and its extent.
- **Pulse Assessment:** Assess the presence, intensity, rate and rhythm of the dorsalis pedis and posterior tibial pulses in the lower limbs (If pedal pulses non palpable assess popliteal and femoral pulses). Note: Pulses may be weaker or non-palpable in individuals with significant oedema or obesity. Oedema can be palpated from the pulse site to aid palpation or auscultation using a doppler.
- **Capillary Refill Time:** Measure capillary refill time (in a warm environment) to assess perfusion. Arterial sign delayed capillary refill (> 2 seconds).
- **Loss of Protective Sensation (LOPS):** Consider assessing for LOPS to the feet (safety for compression / risk of injury) using a monofilament or the Ipswich Touch Test.

Leg Examination	
Venous	Arterial
Firm oedema, often with rapid onset.	Lower limb muscle atrophy
Reddish brown hyperpigmentation (haemosiderin deposit). May present as darker brown or black in people with dark skin tones.	Pale, bluish or dark reddish skin. In dark skin-toned individuals' skin is pale, dark blue or brownish.
Venous eczema/dermatitis (wet or dry)	Dry lower limb skin
Dilated and/or torturous superficial veins. Standing position aids identification/palpation of varicose veins. Reticular veins and/or telangiectasias which may not be visible in dark skin tones.	Elevation pallor and dependent rubor of the foot (assessed using Buerger's test). May appear as an ashen hue in dark skin toned individuals.
Atrophie blanche. May present as pale pink/ivory or loss of pigmentation in dark skin tones.	Lower limb coolness to touch
Corona phlebectatica (ankle flare) dilated veins in the medial or latera foot arch or ankle region	Loss of hair on the feet and legs
Skin induration and fibrosis (lipodermatosclerosis)	Callused feet
Altered leg shape (inverted "champagne bottle")	Impaired ambulation
Decreased calf muscle pump function or limited foot/ankle range of motion	Dystrophic toenails
Evidence of healed ulcers	

- **Wound Characteristics:**

- **Location:** Document the location of the wound(s).
- **Size:** Measure and record the dimensions (LxWxD), undermining, or surface area of the wound(s). Consider wound photography and/or electronic documentation if available.
- **Tissue Type(s):** Assess and document % of tissue types in wound bed.
- **Edge:** Describe e.g level, raised, rolled, undermined.
- **Exudate:** Describe the amount / type of exudate: serous, haemoserous, serosanguineous, sanguineous, seropurulent, purulent and viscosity: thick or thin.
- **Odour:** Note any odour pre and post cleansing.
- **Signs and symptoms of infection** (subtle signs local infection: e.g. hypergranulation, friable granulation, increase in exudate, delayed wound healing, or classic signs: e.g. erythema, local warmth, swelling, increasing wound pain or malodour, wound breakdown).
- For spreading and/or systemic infection symptoms (e.g. spreading erythema >2cm from wound edge, lymphangitis, fever, new malaise or lethargy) perform a wound swab using the Levine technique to provide guidance on antibiotic therapy.

- **Surrounding Skin**

- Consider: skin colour (e.g. erythema, pallor), temperature, oedema, induration, maceration and/or excoriation, desiccation, eczema, callus and hyperkeratosis.

<b>Wound and Skin Examination</b>	
<b>Venous</b>	<b>Arterial</b>
Lower third of leg (gaiter region) Pretibial to medial malleolus area	Lower leg or foot (check for inter-digit wounds)
Peri-wound maceration, pruritus and skin scale, hyperkeratosis	Pale, poorly perfused wound and peri-wound area
Irregular shaped edges, often shallow	Regular wound edges or punched out appearance
Often heavy exudate	Often full thickness wounds that may show bone and/or tendon
Ruddy granulation tissue or fibrinous tissue in ulcers of longer duration. Often slough is present with other signs of local wound infection	Necrotic tissue, slough or gangrene may be present

## **INVESTIGATION**

Perform ankle brachial index [ABI] on both limbs. Note doppler signal quality at each pulse location: monophasic, biphasic or triphasic. If outside of normal range, or weaker, or non-palpable pulses conduct a toe brachial index [TBI] and/or absolute systolic toe pressure [ASTP]). Compare the results to the contralateral limb. If you do not have equipment to assess TBI/ASTP refer onto relevant vascular services for further investigations.

*Note toe vessels are less susceptible to calcification.*

## **DIAGNOSIS**

A clear diagnosis of the wound aetiology should be provided. If a diagnosis is not clear, differentials should be documented, and further assessment/investigations or referrals made to determine aetiology.

ABI, TBI and ASTP measurements results should not be considered in isolation when either diagnosing PAD or evaluating the person's suitability for compression therapy.

If there is a wide variation between the dorsalis pedis or posterior tibial systolic readings provide the ABI reading for both artery sites. In addition, if there is a wide variation between left or right brachial systolic readings specialist advice should be sought.

### **ABI Interpretation:**

- Normal reading: 0.9-1.4 (1.3 in people with diabetes mellitus or kidney disease)
- Some arterial disease <0.9
- Urgent review in presence of clinical signs and symptoms <0.6
- Calcified arteries >1.4 (>1.3 in people with diabetes mellitus or kidney disease)

### **TBI Interpretation:**

- Normal value: > 0.7
- Borderline value: 0.6—0.7
- Abnormal value: <0.6
- Mild arterial disease: 0.4—0.59

- Moderate arterial disease: 0.2—0.39
- Severe arterial disease: < 0.2

#### ASTP results

- Normal value: > 95 mmHg
- Higher risk of arterial disease: < 70 mmHg
- High risk of non-healing wound: < 30 mmHg

### IMPLEMENTATION

Lower levels of compression can be used with caution for people with an ABI from 0.5 to 0.8 in the absence of arterial signs and symptoms. Higher levels of compression can be used for ABI readings 0.8-1.4. Note lower levels of compression can be used for ABI readings of 0.8-1.4 then increased to higher levels of compression if tolerated.

- Consider patients' health literacy and cognition. Assess support systems and the patient's, family-whānau knowledge and adherence to the treatment plan, consider increased supports or package of care if identified.
- **Identify goals of care with patient, family/whānau:** e.g. healable wound, maintenance, relevant referrals. Consider individual health needs.
- **Education:** Offer education and resources as identified e.g. treating and/or preventing venous leg ulcers, when to remove compression bandage (safety), exercise, skin care, smoking cessation, nutrition, pain management.

### EVALUATION

- **Follow-Up Schedule:** Establish and record a follow-up schedule to monitor progress and adjust treatment as needed. Include a clear plan and timeline if wound/s are not progressing as expected and refer early if identified.
- **Documentation:** Note any ulcer/skin changes at each visit. Evaluate pain pre, during and post procedures ensuring adequate pharmacological (consider topical analgesia) and/or non-pharmacological options are explored with the person and their authorised prescriber.
- **Prevention:** Document education and recommendations given for prevention of recurring leg wounds. If prescribed preventative compression garments or skin care recommendations, document plan for patient access to this once discharged.