


<p>Developed by the BC Provincial Nursing Skin &amp; Wound Care Committee in collaboration with Wound Clinicians from:</p> 	
<b>TITLE</b>	<b>Documentation Guideline: Lower Limb Assessment (Basic &amp; Advanced) (paper version)</b>
<b>Practice Level</b>	Health Care Professionals in accordance with health authority / agency policy.
<b>Background</b>	All parameters of a basic and advanced lower limb assessment are documented using the Lower Limb Assessment Flow Sheet (LLAFS) while adhering to Health Authority specific documentation standards.
<b>Indications</b>	This guideline is to be used in conjunction with the paper Lower Limb Assessment Flow Sheet (LLAFS).
<b>Definitions</b>	<p><b>Ankle Brachial Pressure Index (ABI)</b> – A numerical figure that indicates the amount of arterial blood flow to the extremity; determined using doppler ultrasound by comparing the ankle systolic pressure and the brachial systolic pressure with the ABI being a ratio of the two.</p> <p><b>Ankle Flare</b> – A crown of dilated blood vessels around the medial ankle; present in venous insufficiency.</p> <p><b>Atrophie Blanche</b> – White areas of extremely thin, fragile skin dotted with tiny blood vessels; seen in clients with venous insufficiency; may be painful; these areas are at greater risk for breakdown.</p> <p><b>Biphasic</b> – Having two phases, parts, aspects, or stages.</p> <p><b>Blanching on Elevation</b> – Skin becomes pale or lighter in colour when the leg is elevated.</p> <p><b>Blister</b> – Elevation or separation of the epidermis containing fluid.</p> <p><b>Bunions (hallux valgus)</b> – A bump that forms when the great toe turns inward toward the second toe; the joint at the base of the great toe is pushed to the side or in severe cases moves under the second toe.</p> <p><b>Callus</b> – Horny layer of skin caused by pressure or friction; located on the ball of the foot or along the edge of the heel or great toe; may develop a central core or plug of tissue where the pressure is greatest.</p> <p><b>Capillary Refill</b> - Length of time taken for skin colour to return to normal after pressure applied to a limb causes the area to blanch; normal refill time is less than or equal to 3 seconds but may be longer in limb affected by PVD.</p> <p><b>Champagne bottle deformity</b> – Chronic venous insufficiency and recurring edema cause a woody fibrosis that prevents expansion of the tissue in the ankle giving the leg the appearance of an inverted champagne bottle.</p> <p><b>Charcot Foot (Acute)</b> – Progressive, degenerative disease of the foot joints characterized by edema, pain, hemorrhage, heat, bony deformities, bone fragmentation &amp; joint instability; requires immediate treatment.</p> <p><b>Charcot Foot (Chronic)</b> – Reconstruction &amp; healing of foot joints and bones after acute Charcot foot is treated. Remodelling &amp; fusion of damaged structures decreases joint mobility and rounds the large bone fragments.</p> <p><b>Corns</b> – Conical, horny induration &amp; thickening of the skin caused by friction or pressure; develops on the tops or tips of the toes; soft corns may develop between the toes.</p> <p><b>Contact Dermatitis / Pruritis</b> – Inflammation of the epidermis and dermis that may be associated with itching, weeping, erosion, and erythema.</p> <p><b>Crossed Toes</b> – Toe or toes that cross each other.</p> <p><b>Dependent Rubor</b> – The lower limb turns red or blue in the dependent position as blood rushes into ischemic tissue. This occurs when peripheral vessels are severely damaged and remain dilated as they are no longer able to constrict; common in advanced arterial disease.</p> <p><b>Doppler Ultrasonography</b> – The use of very high frequency sound in the detection and measurement of blood flow.</p> <p><b>Dorsalis Pedis Pulse</b> – The pulse of the dorsalis pedis artery, palpable between the first and second metatarsal bones on the top of the foot.</p> <p><b>Dorsum</b> – The back of the body or the posterior or upper surface of a body part.</p> <p><b>Dropped Metatarsal Head</b> – Planter foot deformity often seen with peripheral neuropathy and associated with atrophied fat pads, calluses, and high-risk areas for ulcer and infection.</p> <p><b>Dry / Flakey</b> – Skin on the legs appears dry and flakey to the touch.</p> <p><b>Edema</b> – Accumulation of fluid in the extra vascular tissue. It occurs as a result of complex interactions involving the capillary walls and the hydrostatic and osmotic pressure gradients which exist between the blood pressure in the vessels and the surrounding tissue.</p> <p><b>Fissures</b> – Narrow openings or slits in the skin, often found on the plantar surface of the foot or between the toes.</p> <p><b>Fragile</b> – Skin on the leg has a fragile appearance.</p> <p><b>Hairless</b> – Skin on the leg has an absence of hair not associated to purposeful removal (e.g., shaving).</p> <p><b>Healed Wound or Scar</b> – Area(s) on the skin show evidence of previously healed wounds or scar tissue is present.</p> <p><b>Hammer toe</b> – Contraction of a toe joint from tightened ligaments and tendons that causes the joint and toe to curl downward.</p> <p><b>Hemosiderin Staining</b> - Leakage of red blood cells in surrounding tissue due to venous hypertension in the lower leg; over time presents as grey or brown skin hyperpigmentation.</p> <p><b>Hyperkeratosis</b> – Thickening of the outer layer of the epidermis.</p>

	<p><b>Intermittent Claudication</b> – Characterized by pain, cramping, burning and aching in the calf or upper thigh during exercise caused by insufficient arterial blood flow to the extremity. May occur when the ABI is less than 0.8 but may not be evident if client has peripheral neuropathy or walks slowly; it is relieved by rest in 2 to 10 minutes.</p> <p><b>Involved toe nails</b> – Presents as a higher curvature of the nail than is usual. In some cases the curvature of the nail is so severe that the tip of the nail curls around in a circle and pinches the skin causing pain, discomfort and possibly infection.</p> <p><b>LLAFS</b> – Lower Limb Assessment Flow Sheet</p> <p><b>Metatarsal Head</b> – The “metatarsal region” of the foot is the area on the bottom of the foot just before the toes; is more commonly referred to as the ball-of-the-foot.</p> <p><b>Moist / Waxy</b> – Skin on legs is moist to the touch and has a waxy texture.</p> <p><b>Monofilament Testing</b> – a procedure which uses a Semmes – Weinstein 5.07 monofilament which is calibrated to take 10 grams of force to bend it when touched on the skin of the foot. An inability to detect this degree of force indicates that the client has a loss of protective sensation in the foot.</p> <p><b>Monophasic</b> – Having one phase, part, aspect, or stage.</p> <p><b>Mottled</b> – Skin on the legs has an irregular surface (mottled) with areas of discoloration.</p> <p><b>Normal / Healthy</b> – Skin on legs has a normal and healthy appearance.</p> <p><b>Papillomatosis</b> – A condition where many papillomas (benign nipple-like growths) grow on an area of the skin.</p> <p><b>Pitting edema</b> – Peripheral edema in which external pressure leaves a persistent depression in the tissues; pitting occurs when the pressure against the skin pushes the excess fluid out of the interstitial tissues.</p> <p><b>Planter’s Wart</b> – Small circular lesion caused by a virus that presents as a small black dot surrounded by a callus, located on the planter surface of the foot.</p> <p><b>Posterior Tibial Pulse</b> – The pulse of the posterior tibialis artery palpated on the medial aspect of the ankle just posterior to the prominence of the ankle bone.</p> <p><b>Ram’s Horn Formation</b> – A general thickening of the nail or nails. In addition to increased thickness and curvature of the nail, it may also become discolored with a brown tinge and may grow more quickly on one side than on the other.</p> <p><b>Stasis Dermatitis</b> – Increased permeability of dermal capillaries that causes an inflammatory reaction (eczema and edema) on the lower legs. Common with venous insufficiency.</p> <p><b>Stemmer’s Sign</b> – An inability to lift the edematous or thickened skin fold on the dorsal surface at the base of the second toe when pinched. A positive Stemmer’s sign suggests lymphedema but the absence does not rule this out.</p> <p><b>Toe Brachial Pressure Index (TBI)</b> – Measures the amount of arterial blood flowing to the toes and is used for those with diabetes because the arteries in the toes are smaller and considered to be less affected by calcification; TBI compares the toe systolic pressure and the brachial systolic pressure with the TBI being a ratio of the two.</p> <p><b>Toe Pressures</b> - Are measured with a fitted occluding cuff placed around the base of the first toe; is a more accurate measure of arterial circulation when arteries are calcified as a result of diabetes; although a toe pressure of greater than 45 mmHg is necessary for optimal healing, evidence suggests a cut-off of 30 mmHg of pressure as a predictor of wound healing.</p> <p><b>Triphasic</b> – Having three phases or stages.</p> <p><b>Varicosities</b> -- Dilated and distended veins in the leg which become progressively larger and more painful.</p> <p><b>Venous Dermatitis</b> - Inflammatory reaction (eczema and edema) of the lower legs; caused by increased permeability of dermal capillaries; occurs with venous insufficiency.</p> <p><b>Weepy</b> – Skin on the client's leg appears weepy or wet.</p> <p><b>Woody Fibrosis</b> – ( lipodermatosclerosis) Deposits of fibrin and fat in the deep dermis caused by chronic edema; leads to woody induration and a loss of tissue compliance in the gaiter area which reduces skin perfusion and may cause ulceration.</p> <p><b>Wound</b> – An injury that interrupts the integrity of the skin.</p>
<p><b>Related Documents</b></p>	<p>Lower Limb Assessment Flow Sheet  Guideline: Assessment and Treatment of Lower Limb Ulcers (Arterial, Venous &amp; Mixed) in Adults  Guideline: Assessment &amp; Treatment of Diabetic and Neuropathic Ulcers in Adults  Procedure: Monofilament Testing for Loss of Protective Sensation of Diabetic/Neuropathic Feet for Adults &amp; Children  Procedure: Ankle Brachial Index (ABI) in Adults Using a Handheld Doppler  Procedure: Ankle Brachial Index (ABI) in Adults Using an Automatic ABI System (Dopplex Ability)</p>

**General Considerations**

- a. A lower limb assessment is done as part of the overall client assessment.
- b. A basic lower limb assessment is part of the initial assessment for clients with lower leg wounds or incisions.
- c. An advanced lower limb assessment is required when there are untoward findings in the basic lower limb assessment and prior to the initiation of compression therapy.
- d. An advanced lower limb assessment includes a basic lower limb assessment.
- e. All parameters of the lower limb assessment (basic or advanced) are completed on both limbs (not just the limb with the wound or incision).

- f. Documentation
- i. Documentation in the Comments section is required when the assessment findings are not adequately described by using the assessment parameters provided.
  - ii. The individual completing the lower limb assessment must be the person documenting the findings.
  - iii. The plan of care based on the outcome of the lower limb assessment will be documented according to Health Authority documentation standards.
  - iv. Page 1 is filled out each time a basic lower limb assessment is completed. Page 2 is filled out each time an advanced lower limb assessment is completed.
  - v. All notations will be made in black or blue ink using a ballpoint pen.
  - vi. A new assessment form is completed following each assessment.
  - vii. When a parameter descriptor is applicable, the corresponding box is marked/clicked with a “√”.
  - viii. When a parameter descriptor is not applicable or not assessed, the corresponding box is left blank.
  - ix. If additional documentation is made in the progress notes, the box beside “See progress notes” is marked with a “√”.
  - x. Must be dated and signed when completed
  - xi. Is filed in the chronological date order in the flow sheet section of the chart according to the Health Authority’s documentation standard.

**Documentation Guidelines**

Parameter	Directions
<b>Client Name, Date of Birth, PHN</b>	If available apply a label or use an addressograph in the upper right hand corner on both sides of the form. If addressograph or label is not available then hand-write client name, date of birth and PHN
<b>Right Lower Limb or Left Lower Limb</b>	All parameters are assessed on both limbs regardless of the wound location and findings are noted in the appropriate column.
<b>Basic Lower Limb Assessment</b>	
<b>Missing Limbs or Digits</b>	Observe each limb and note missing limbs or digits and choose one or more of the following: <ul style="list-style-type: none"> <li>• Leg above knee</li> <li>• Leg below knee</li> <li>• Foot partial</li> <li>• Foot all</li> <li>• Great toe</li> <li>• Second toe</li> <li>• Third toe</li> <li>• Fourth toe</li> <li>• Fifth toe</li> <li>• No amputations</li> </ul>
<b>Skin Colour</b>	Observe the skin color of the lower leg (knee to ankle), foot (ankle to metatarsal heads) and toes of each limb in both dependant and elevated positions; choose one of the following to describe the skin color of each area: <ul style="list-style-type: none"> <li>• Pale</li> <li>• Flesh tone</li> <li>• Red</li> <li>• Bluish/Purple</li> <li>• Black</li> </ul> <p>If the color of the limb is different in dependant and elevated positions note this in Comments.</p>
<b>Skin Warmth</b>	Touch the lower leg (knee to ankle), foot (ankle to metatarsal heads) and toes of each limb and choose one of the following to describe the skin temperature of each area: <ul style="list-style-type: none"> <li>• Hot</li> <li>• Warm</li> <li>• Cool</li> <li>• Cold</li> </ul>

Lower Limb Assessment (Basic & Advanced) Documentation Guideline

Parameter	Directions
<b>Circulation: Pulses by Palpation</b>	<p>Palpate the dorsalis pedis and posterior tibial pulses for each limb and choose one of the following to describe each of the pulses in each foot:</p> <ul style="list-style-type: none"> <li>• Present</li> <li>• Diminished</li> <li>• Not palpable</li> </ul>
<b>Capillary Refill 3 seconds or less</b>	<p>For each limb assess the capillary refill on the dorsum of the foot and toes. If capillary refill is 3 seconds or less, choose “yes”, if greater than 3 seconds choose “no”. If the capillary refill of the foot and toes of one limb are different, note this finding in the comments.</p>
<b>Range of Motion</b>	<p>Assess the active and passive range of motion of the knee, ankle and great toe of each limb and choose either “normal” or “decreased”.</p>
<b>Edema: Location and Severity</b>	<p>Assess lower limbs for edema. Note the absence of / level of edema by choosing one of the following:</p> <ul style="list-style-type: none"> <li>• Foot</li> <li>• Up to ankle</li> <li>• Up to mid-calf</li> <li>• Up to knee</li> <li>• Up to groin</li> <li>• No visible edema</li> </ul> <p>Assess for pitting edema by pressing the area firmly with the thumb for 5 seconds, then releasing. Determine depth of indentation to determine severity; note severity by choosing one of the following:</p> <ul style="list-style-type: none"> <li>• +1 Trace(2 mm pitting)</li> <li>• +2 Moderate(4 mm pitting)</li> <li>• +3 Deep(6 mm pitting)</li> <li>• +4 Very deep(8 mm pitting)</li> <li>• Non-pitting edema</li> <li>• No edema noted</li> </ul>
<b>Sleep Position</b>	<p>Record where the client usually sleeps eg bed or chair, and in what position is the client most comfortable sleeping when in bed eg head elevated, foot over the side of the bed.</p>
<b>Circumference Measurements</b>	<p>Measure and record in centimetres the circumference of both lower legs 10 cm (ankle) and 30 cm (calf) up from the heel.</p>
<b>Skin Assessment</b>	<p>Assess the appearance of both lower limbs and choose one or more of the following to describe the appearance of the skin:</p> <ul style="list-style-type: none"> <li>• Dry / flaky</li> <li>• Itchy</li> <li>• Rash present</li> <li>• Fragile</li> <li>• Weepy</li> <li>• Shiny</li> <li>• Hairless</li> <li>• Mottled</li> <li>• Moist / waxy</li> <li>• Inflammation</li> <li>• Healed wound / scar</li> <li>• Blister(s) present</li> <li>• Wound(s) present</li> <li>• None of the above</li> </ul>
<b>Sensation Assessment</b>	<p>Ask the client if they have experienced numbness, burning, tingling or crawling sensations in one or both lower limbs. If yes, determine if the sensation is intermittent or continuous. For each limb choose one or more of the following:</p> <ul style="list-style-type: none"> <li>• Numbness</li> <li>• Burning</li> <li>• Tingling</li> </ul>

Parameter	Directions
<b>Sensation Assessment con't</b>	<ul style="list-style-type: none"> <li>• Crawling</li> <li>• Intermittent</li> <li>• Continuous</li> <li>• None of the above</li> </ul>
<b>Pain Assessment</b>	<p>Ask the client to describe any pain they have in their lower legs. For each limb choose one or more of the following:</p> <ul style="list-style-type: none"> <li>• Ache</li> <li>• Knife-like</li> <li>• Intermittent</li> <li>• Continuous</li> <li>• Non-verbal response</li> <li>• No pain</li> </ul> <p>If the above parameters are not adequate to describe the client's pain, document in Comments.</p>
<b>Comments</b>	Document any additional findings.
<b>See Progress Notes</b>	Tick this box if you have documented in the progress notes.
<b>Date, Time, Signature</b>	Record the date (dd/ mm / yyyy) and time (24 hour clock) of the assessment. Sign your name and legibly print your full name and professional designation.

<b>Advanced Lower Limb Assessment</b>	
<b>Doppler: Dorsal Pedis</b>	<p>Assess the dorsal pedis pulse of both feet using doppler. Choose one or more of the following to describe the pulse for each limb:</p> <ul style="list-style-type: none"> <li>• Present</li> <li>• Diminished</li> <li>• Not audible</li> <li>• Triphasic</li> <li>• Biphasic</li> <li>• Monophasic</li> </ul>
<b>Doppler: Posterior Tibial</b>	<p>Assess the posterior tibial pulse of both feet using doppler. Choose one or more of the following to describe the pulse for each limb:</p> <ul style="list-style-type: none"> <li>• Present</li> <li>• Diminished</li> <li>• Not audible</li> <li>• Triphasic</li> <li>• Biphasic</li> <li>• Monophasic</li> </ul>
<b>Ankle Brachial Index</b>	<p>Refer to <u>Procedure: Ankle Brachial Index (ABI) in Adults Using a Handheld Doppler</u> or <u>Procedure: Ankle Brachial Index (ABI) in Adults Using an Automatic ABI System (Dopplex Ability)</u>. For both limbs, record the highest brachial pressure, the pressures of the dorsal pedis and posterior tibial pulses of both feet and the calculated ABI score. The pressure of the peroneal pulse is only taken if the dorsal pedis and/or posterior tibial pulses are unavailable.</p>
<b>Toe Brachial Pressure Index</b>	<p>Refer to <u>Procedure: Toe Brachial Pressure Index (TBI)</u>. For both limbs, record the great toe pressure, the highest brachial pressure and the calculated TBI score.</p>
<b>Monofilament Testing</b>	<p>Refer to <u>Procedure: Monofilament Testing for Loss of Protective Sensation for Adults &amp; Children</u>. If sensation is present at the following sites, choose the appropriate box:</p> <ul style="list-style-type: none"> <li>• 1st Digit</li> <li>• 3rd Digit</li> <li>• 5th Digit</li> <li>• 1st Metatarsal Head (MTH)</li> <li>• 3rd MTH</li> </ul>

<p><b>Monofilament Testing con't</b></p>	<ul style="list-style-type: none"> <li>• 5<sup>th</sup> MTH</li> <li>• Medial</li> <li>• Lateral</li> <li>• Heel</li> <li>• Dorsum</li> </ul> <p>If there is no sensation the appropriate box is left blank. Record the number of sites where sensation is present and the number of sites tested (maximum 10).</p>
<p><b>Positive Stemmer's Sign</b></p>	<p>Note the presence of a positive Stemmer's sign for each foot by choosing "Yes" or "No".</p>
<p><b>Limb Shape</b></p>	<p>Note the shape of each lower limb and choose one of the following:</p> <ul style="list-style-type: none"> <li>• Champagne bottle shaped leg</li> <li>• Wasted calf muscle</li> <li>• None of the above</li> </ul>
<p><b>Foot Assessment</b></p>	<p>Assess both feet and choose one or more of the following:</p> <ul style="list-style-type: none"> <li>• Bunion(s)</li> <li>• Callus(s)</li> <li>• Corn(s)</li> <li>• Planter's wart(s)</li> <li>• Dropped metatarsal head(s)</li> <li>• Hammertoe(s)</li> <li>• Crossed toes</li> <li>• Fissures</li> <li>• Cracks between toes</li> <li>• Abnormal skin dryness</li> <li>• Acute Charcot presentation</li> <li>• Chronic Charcot presentation</li> <li>• None of the above</li> </ul> <p>Note any findings not captured above in Comments.</p>
<p><b>Toe Nail Assessment</b></p>	<p>Assess the toe nails of both feet and choose one or more of the following to describe the toes nails of each foot:</p> <ul style="list-style-type: none"> <li>• Incorrect length–short</li> <li>• Incorrect length–long</li> <li>• Ingrown</li> <li>• Involuted</li> <li>• Thickened</li> <li>• Ram's Horn formation</li> <li>• Discoloured</li> <li>• Thin</li> <li>• Ridged</li> <li>• Brittle</li> <li>• Fungal infection</li> <li>• None of the above</li> </ul> <p>Note any findings not captured above in the Comments.</p>
<p><b>Skin Assessment – Advanced</b></p>	<p>Assess the skin of both lower limbs and choose one or more of the following to describe the skin of each lower limb:</p> <ul style="list-style-type: none"> <li>• Blanching on elevation</li> <li>• Dependent rubor</li> <li>• Hemosiderin staining</li> <li>• Woody fibrosis</li> <li>• Venous dermatitis</li> <li>• Atrophie blanche</li> </ul>

<b>Skin Assessment – Advanced con't</b>	<ul style="list-style-type: none"> <li>• Contact dermatitis/pruritis</li> <li>• Ankle flare</li> <li>• Varicosities</li> <li>• Hyperkeratosis</li> <li>• Papillomatosis</li> <li>• None of the above</li> </ul>
<b>Pain Assessment -- Advanced</b>	<p>Ask the client about the following lower limb pain parameters and choose one or more of the following:</p> <ul style="list-style-type: none"> <li>• With deep palpation</li> <li>• Relieved with elevation</li> <li>• Relieved with rest</li> <li>• Relieved with dependent position</li> <li>• Intermittent claudication</li> <li>• Pain at night</li> <li>• No pain</li> </ul>
<b>Comments</b>	Document any additional findings.
<b>See Progress Notes</b>	Tick this box if you have documented in the progress notes.
<b>Date, Time, Signature</b>	Record the date (dd / mm / yyyy) and time (24 hour clock) of the assessment. Sign your name and legibly print your full name and professional designation.

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