Title | Procedure:  Interdisciplinary Diabetic/Neuropathic Foot Assessment Form
--- | ---

### Background
- The “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form” was developed by members of the SWRWCP, and is an interdisciplinary assessment tool to be used to assess individuals with diabetic and/or neuropathic foot ulcers. The form is intended:
  - To be completed at the point of entry to the health care system for individuals with a diabetic and/or neuropathic foot ulcer or when such an ulcer is identified on an individual already within the system;
  - To be completed by a generalist health care provider such as a Registered Nurse, Registered Practical Nurse, Occupational Therapist, Physiotherapist, etc. or by a Wound Care Specialist or Enterostomal Nurse if they are the first person to assess the wound;
  - To follow the individual as they move through the health care system, providing all subsequent health care providers access to the assessment information.

### Indications
This procedure is intended to be used by front line registered health care providers to assist with their assessment and management of individuals admitted with or presenting with a diabetic and/or neuropathic foot ulcer.

### Procedure
**NOTE:** The use of the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form” is but one part of the holistic assessment of an individual admitted with or presenting with a diabetic and/or neuropathic foot ulcer.

#### Assessment
1. Thoroughly review the person’s available medical records and add appropriate information to the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form” regarding the following:
   a. The person’s name and Ontario Health Insurance Plan (OHIP) number or other identifier, and the assessment date
   b. Medical history (for those diagnosed with diabetes):
      i. Year the person was diagnosed with diabetes
      ii. Characteristic of the onset of their diabetes
      iii. Eating and physical activity patterns (check all that apply)
      iv. History of any diabetes education (include information on when and where the education took
c. Current diabetes treatments and responses (for those diagnosed with diabetes):
   i. All oral and injectable hypoglycemics currently being used. Note the medication names and current dosages
   ii. Effectiveness of their current hypoglycemics (this may require a review of the person’s lab work and/or blood sugar monitoring records)

d. Frequency of self-blood glucose monitoring (for those diagnosed with diabetes):
   i. Based on the person’s current condition (condition choices are listed in the far left column of the provided table – choose the most appropriate description), determine whether the person is meeting their glucose monitoring frequency expectations, as suggested by the Canadian Diabetes Association (CDA)

e. Diabetes related complications (for those diagnosed with diabetes):
   i. Diagnosis of any micro or macro-vascular complications related to diabetes
   ii. Indicate whether the person is currently being followed by a dietician and/or endocrinologist, and note the contact information for that person (this data may also be found on the person’s “Initial Wound Assessment Form”)

f. Foot examination:
   i. Any previous monofilament testing results (note these on the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form” for reference)

g. Diabetic foot risk classification (for those with a diagnosis of diabetes):
   i. Information pertaining to a diagnosis of peripheral arterial disease, previous history of a diabetic foot ulcer, and/or history of amputation

h. Edema/Lymphedema/Lipedema:
   i. Diagnoses of edema and/or lymphedema
   ii. Previous limb circumference measurements (note these on the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form” for reference)
   iii. Current/historical use of compression stockings/systems, level of compliance, and age of the stockings/system, if such information is applicable/available

i. Circulation:
   i. Diagnostic imaging reports re ankle brachial index
(ABI) results, segmental compression study results, or toe pressure results. **NOTE: to be applicable, the testing must have taken place in the previous six months and there must have been no change in the presentation of the person’s limb since that time, otherwise re-testing is indicated**

j. Skin and anatomy:
   i. Any reference to a family history of venous or arterial disease
   ii. Any personal history of deep vein thrombosis, significant lower leg injury, vein surgery, leg ulceration, heart disease, stroke, heart attack, peripheral vascular disease and/or smoking
   iii. Look at recent pain assessments for any indications of ischemic rest pain or intermittent claudication pain

**Planning**
1. Expected outcomes:
   a. Information from the person’s chart, the person and/or their substitute decision maker (SDM)/power of attorney for personal care (POA C), and your assessment will allow for the thorough completion of the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form”
   b. The information obtained in the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form” will allow for:
      i. The identification of any underlying cause(s) of the foot wound(s)
      ii. The identification of any extrinsic, intrinsic, and iatrogenic factors affecting the person’s ability to heal (if healing is a realistic goal), or factors putting them at risk for foot ulcer development
      iii. The identification of pertinent person-centered concerns
   c. Registered nursing staff, in collaboration with other involved health care disciplines and the person with the wound and/or their SDM/POA C (if applicable), will be able to use the assessment information to initiate/modify and implement an appropriate, interdisciplinary, person-centered plan of care which contains clear directions to staff and others who are providing the person with direct care

2. Explain the procedure and purpose of the assessment to the person and/or their SDM/POA C, and obtain verbal or implied consent

**Implementation**
1. Provide for privacy and ensure the person is in a comfortable position to facilitate the assessment
2. Ensure the person’s SDM/POA C is present or available if the person
does not have a reliable memory or is unable to accurately answer any questions on the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form”

3. Following the order of the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form”, ask the person and/or their SDM/POA C questions to elicit responses to the identified items. Specific instructions:
   a. Before beginning the interview/assessment, ensure that the person’s name, OHIP or other identifying number and the current date are added to the top of every page (in the header space where indicated)
   b. Medical history - confirm or determine (for those with a diagnosis of diabetes):
      i. The year the person was diagnosed with diabetes.
         NOTE: if the person is unsure and medical records do not reveal this information, have the person estimate the year to the best of their ability
      ii. Eating habits and physical activity patterns, providing health teaching as indicated. NOTE: the CDA suggests that multiple small meals a day that conform to a standard diabetic diet are ideal, unless otherwise prescribed by the person’s physician/diabetes educator/dietician. The CDA also suggests 150 minutes of cardiovascular exercise and two sessions of resistance exercise per week
      iii. History of FORMAL diabetes education. Input the date and location of any diabetes education sessions.
         NOTE: as needed, teach the importance of formal diabetes education and connect them with a formal diabetes educator should you feel this is indicated (a physician referral is NOT required). For a list of diabetes education programs, visit thehealthline.ca
   c. Current diabetes treatment and responses – confirm or determine (for those with a diagnosis of diabetes):
      i. Any hypoglycemics they are taking, the medication names (if not already listed), and the current dosages.
         NOTE: if indicated, teach the importance of taking medications as prescribed
      ii. The person’s responses to the use of their current hypoglycemic. NOTE: if indicated, teach normal and abnormal blood glucose and HgbA1c ranges, and consider discussions with the person’s hypoglycemic prescriber should the person not have self-blood glucose results that are regularly within a normal range. As per the CDA, self-blood glucose levels should be between 4-7 ac meals and 5-10 pc meals. HgbA1c should be less than 7% to allow for wound
healing

d. Frequency of self-blood glucose monitoring (for those with a diagnosis of diabetes):
   i. Based on the person’s current condition (condition choices are listed in the far left column of the provided table – choose the most appropriate description), determine whether the person is meeting their glucose monitoring frequency expectation, as suggested by the CDA. If required, teach the person the importance of regular blood sugar monitoring

e. Diabetes related complications – confirm/determine (for those with a diagnosis of diabetes):
   i. Any diagnosis of micro or macro-vascular complications related to diabetes. Teach the importance of blood sugar control in preventing such complications (if required)
   ii. Whether the person is currently being followed by a dietitian and/or endocrinologist, and their contact information

f. Foot examination:
   i. Have the person position themselves in a comfortable position to facilitate the assessment of their feet, or assist them as required. Make sure that this position is ergonomically appropriate as to prevent self-injury
   ii. Ensure adequate lighting
   iii. Wash your hands
   iv. Don clean disposable gloves and expose the person’s feet (if have them do so if they are so able)
   v. Assess the person’s feet/toe nails and document any deformities as noted on the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form” (see the chart below for deformity definitions/examples):

<table>
<thead>
<tr>
<th>Foot/Toe Nail Deformity Descriptors</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hammer toes (Google Images)</td>
<td><img src="https://via.placeholder.com/150" alt="image" /></td>
</tr>
<tr>
<td>Claw toes (Google Images)</td>
<td><img src="https://via.placeholder.com/150" alt="image" /></td>
</tr>
<tr>
<td>Dropped metatarsal heads (Google Images)</td>
<td><img src="https://via.placeholder.com/150" alt="image" /></td>
</tr>
<tr>
<td>Hallux valgus (Google Images)</td>
<td><img src="https://via.placeholder.com/150" alt="image" /></td>
</tr>
</tbody>
</table>
Dropped arch (Google Images)

Callus – a.k.a. tyloma (dermnetnz.org)
- Area of hard thickened skin - usually painless
- Caused by friction/shear/repetitive injury

Corns – a.k.a. clavus, heloma (dermnetnz.org)
- Localized area of thickened – usually painful and inflamed
- Caused by friction/shear/repetitive injury over a localized area

Taylor bunion (Google Images)

Fixed ankle joint

Hallux rigidus

Fissures (dermnetnz.org)
- Cracks in the heel tissue due to dryness

Thick nails (dermnetnz.org)
- Onychogryphosis - Thick hard curved nail plate in the shape of a ram's horn due to aging (image), psoriasis or trauma
- Onychauxis - Thick nail due to psoriasis, trauma, or fungal nail infection

Brittle nails (dermnetnz.org):
- Typical of fungal infection or psoriasis

Fungal nails – a.k.a. onychomycosis (dermnetnz.org):
- Can be due to dermatophytes, yeasts, moulds
- Can involve one or many nails

Abnormal nails (dermnetnz.org):
- Abnormalities of the nail plate surface
- Nail discoloration
- Abnormalities of the cuticles and nail folds
- Abnormalities of nail shape
- Loss of nails
- Lesions around nails

Ingrown nails – a.k.a. onychocryptosis (dermnetnz.org):
- Side or corner of a nail digs into skin
- Caused by ill-fitting shoes, improper nail care, nail injury, and fungal nail infection

vi. Complete a 10-point monofilament test on both feet and document your results [see “Procedure:
Monofilament Testing for Loss of Protective Sensation of Diabetic/Neuropathic Feet (Adults and Children”). Compare to any previous results (has the person’s sensation deteriorated?)

vii. Ask the person if they have been experiencing any signs of sensory/autonomic/motor neuropathy, as listed on the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form”, and check the appropriate box(es)

viii. Based on your assessment and responses from the person and/or their SDM/POA C up to this point, determine which risk category the person falls under on the ‘Diabetic Foot Risk Classification: the International Working Group Original and Modified Criteria 2010’, and check the appropriate box. Refer to “International Working Group on the Diabetic Foot Risk Classification System with Associated Interventions”, found on the SWRWCP website (www.swrwoundcareprogram.ca), and discuss with the person the implications of their risk classification and interventions indicated

ix. Assess the persons shoes and document:
   a. If they have orthotics and/or custom shoes and their age
   b. Whether the footwear is inappropriate or not (see the chart below re shoe properties).
   NOTE: you may need to discuss appropriate footwear with the person
   c. Whether they are involved with a foot specialist, and if so the contact information for that person and the date of their last assessment. NOTE: you may need to consider a referral to an orthotist or pedorthist for appropriate footwear (see thehealthline.ca for a listing or orthotists/pedorthists in your area or the SWRWCP website for a list of ADP authorized professionals). You do not need a physician order to refer

<table>
<thead>
<tr>
<th>Shoe Part</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>• Should be at least ½” between end of longest toe and end of shoe when standing</td>
</tr>
<tr>
<td>Toe box depth</td>
<td>• Toes should be able to wiggle</td>
</tr>
<tr>
<td></td>
<td>• Should be no stitching inside toe box that can rub on foot</td>
</tr>
<tr>
<td>Width</td>
<td>• Should accommodate width of fore foot</td>
</tr>
<tr>
<td>Heel height</td>
<td>• ½-1” heel height recommended for walking shoes</td>
</tr>
<tr>
<td></td>
<td>• Max 2” heel height for evening or dress shoes</td>
</tr>
</tbody>
</table>

NOTE: this is a controlled document. A printed copy may not reflect the current electronic version on the SWRWCP’s website. This document is not a substitute for proper training, experience, and exercising of professional judgment. While every effort has been made to ensure the accuracy of the contents at the time of publication, neither the authors nor the SWRWCP give any guarantee as to the accuracy of the information contained in them nor accept any liability, with respect to loss, damage, injury or expense arising from any such errors or omission in the contents of this work.
g. Diabetic foot ulcer classification (for those with a diagnosis of diabetes):
   i. Assess the wound using the “NPUAP PUSH Tool 3.0” (see “Procedure: NPUAP PUSH Tool 3.0”)
   ii. Determine the grade and stage of the ulcer using the “University of Texas Staging System for Diabetic Foot Ulcers” (see “Procedure: University of Texas Staging System for Diabetic Foot Ulcers”), and indicate the grade and stage on the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form”

h. Edema/Lymphedema/Lipedema – confirm/determine (for those with leg swelling):
   i. Any diagnoses of edema, lymphedema, or lipedema or any history of swelling. Indicate the date of onset and whether or not the swelling is symmetrical
   ii. The location of the edema and description of the edema (see the chart below for swelling definitions):

<table>
<thead>
<tr>
<th>Type of Swelling</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitting edema:</td>
<td><img src="image" alt="Pitting Edema Example" /></td>
</tr>
<tr>
<td>• Apply pressure to swollen area by depressing skin x10-15 seconds. If the indentation persists when pressure is removed, it is pitting edema</td>
<td></td>
</tr>
<tr>
<td>• Score the severity of the edema based on the depth of the indentation:</td>
<td></td>
</tr>
<tr>
<td>o +1 = 0-1/4”</td>
<td></td>
</tr>
<tr>
<td>o +2 = ¼”–1/2”</td>
<td></td>
</tr>
<tr>
<td>o +3 = 1/2-1”</td>
<td></td>
</tr>
<tr>
<td>o +4 = takes several minutes to rebound</td>
<td></td>
</tr>
</tbody>
</table>
### Non-pitting edema:
- No persistent indentation when pressure applied to the skin
- Can be due to lymphedema

### Brawny induration:
- Hard/firm swelling of tissue, with margins
- Palpate where it starts/ends
- Cannot pinch this tissue

iii. Obtain limb circumference measurements using a disposable paper measuring tape. To take measurements:
   - Have the person stand (or provide them with the support they need to stand and remain standing for approximately five minutes)
   - Measure the circumference of the widest part of the person’s foot (in cm) and record
   - Measure up the person’s lower leg 10cm, and take a second circumference measurement
   - Measure 20cm up the person’s leg and take and document a third circumference measurement (this should be 10cm higher than your previous measurement)
   - Measure 30 cm up the person’s leg .... And so forth until you have measured the circumference of the entire lower leg (if the swelling is limited to the lower leg), or the entire leg (if the swelling is present in the person’s thighs as well). Compare these measurements to any previous measurements, and note any change

iv. Confirm with/determine if the person is currently using any compression systems or stockings or if they have done so in the past, and document accordingly. Document the age of any stockings currently in use.

NOTE: one pair of compression stockings is only ‘good’ for daily use for four to six months, after which they have to be replaced. If the person has swelling in their limbs and is not using compression therapy, consider a referral to a Wound Care Specialist (WCS) or Enterostomal (ET) Nurse for a thorough lower limb assessment and suggestions re compression therapy (see: “Criteria for Interdisciplinary Referrals”)

v. Ask if the person wears their compression system/stockings EVERY DAY, ideally putting them on before they get up in the AM and removing them
immediately before bed in the PM, and document accordingly. **NOTE:** if the person requires new compression stockings and has not had ankle-brachial pressure testing, segmental compression studies, or toe-pressure testing done in the previous six months, request a referral to a WCS or ET Nurse for a full lower limb assessment (see: “Criteria for Interdisciplinary Referrals”)

**vi.** If you suspect lymphedema or lipedema, utilize the definitions provided on the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form” to guide your choice of lymphedema stage and/or presence of lipedema. Discuss your findings with the person’s family physician or primary care nurse practitioner, and consider a referral to a WCS or ET nurse for a full lower limb assessment and consideration of compression therapy (see: “Criteria for Interdisciplinary Referrals”)

**i.** Circulation\(^7,8\):

i. Palpate for the person’s dorsalis pedis and posterior tibial pulses, and indicate with a checked box whether they were present, diminished or absent

ii. If the person has not had ABI testing or equivalent in the past six months, or if the presentation of their limb has changed and you have received training on how to assess a person’s ABI, and you feel you have the knowledge, skill and judgment to perform the procedure, do so (see “Procedure: Ankle Brachial Index Testing”). If you do not have the training, knowledge, skill or judgment, consider a referral to a WCS or ET nurse for ABI measurement and interpretation (see: “Criteria for Interdisciplinary Referrals”)

**j.** Skin and anatomy\(^2,5\) – confirm/determine:

i. Any family history of venous or arterial disease

ii. Any personal history of deep vein thrombosis, significant lower leg injury, vein surgery, leg ulceration, heart disease, stroke, heart attack, peripheral vascular disease and/or smoking

iii. The presence of ischemic rest pain or intermittent claudication pain

iv. Observe the person’s lower limb for the signs of venous and arterial disease listed on the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form”, and check the appropriate boxes as indicated. See the chart below for descriptions of the various terms:
### Term and Definition

<table>
<thead>
<tr>
<th>Term and Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varicosities:</td>
<td>![Varicosities Image]</td>
</tr>
<tr>
<td>• Enlargement or swelling of the veins</td>
<td></td>
</tr>
<tr>
<td>Hemosiderin staining:</td>
<td>![Hemosiderin Staining Image]</td>
</tr>
<tr>
<td>• Greyish-brownish discoloration of the skin caused by the degradation of red blood cells in the skin and deposition of the iron-containing pigment</td>
<td></td>
</tr>
<tr>
<td>Chronic lipodermatosclerosis:</td>
<td>![Chronic Lipodermatosclerosis Image]</td>
</tr>
<tr>
<td>• Lower 1/3 of leg becomes sclerotic and woody</td>
<td></td>
</tr>
<tr>
<td>• Leg becomes champagne bottle or bowling pin shaped</td>
<td></td>
</tr>
<tr>
<td>• Ulcers sometimes more difficult to heal</td>
<td></td>
</tr>
<tr>
<td>Acute lipodermatosclerosis:</td>
<td>![Acute Lipodermatosclerosis Image]</td>
</tr>
<tr>
<td>• Painful condition</td>
<td></td>
</tr>
<tr>
<td>• Represents as panniculitis associated with venous insufficiency</td>
<td></td>
</tr>
<tr>
<td>• Ulcers in the area become fibrotic over time</td>
<td></td>
</tr>
<tr>
<td>• Photo used with permission from Dr. V. Falanga</td>
<td></td>
</tr>
<tr>
<td>Stasis or venous dermatitis:</td>
<td>![Stasis or Venous Dermatitis Image]</td>
</tr>
<tr>
<td>• Erythema, scaling, pruritus and sometimes weeping of the skin of the lower legs secondary to poorly controlled edema</td>
<td></td>
</tr>
<tr>
<td>• May develop cellulitis</td>
<td></td>
</tr>
<tr>
<td>Atrophie blanche:</td>
<td>![Atrophie Blanche Image]</td>
</tr>
<tr>
<td>• Painful purpuric papules that evolve into ulcerations and finally angular scars (white lesions)</td>
<td></td>
</tr>
<tr>
<td>• Located on ankle/foot</td>
<td></td>
</tr>
<tr>
<td>Woody fibrosis:</td>
<td>![ Woody Fibrosis Image]</td>
</tr>
<tr>
<td>• Deposits of fibrin in the deep dermis and fat</td>
<td></td>
</tr>
<tr>
<td>• Results in a woody induration of the gaiter area of the leg</td>
<td></td>
</tr>
<tr>
<td>Ankle (submalleolar) flare:</td>
<td>![Ankle Flare Image]</td>
</tr>
<tr>
<td>• Dilation of venules at the ankle area</td>
<td></td>
</tr>
<tr>
<td>• Due to incompetence of perforating vein valves</td>
<td></td>
</tr>
<tr>
<td>Dependent rubor:</td>
<td>![Dependent Rubor Image]</td>
</tr>
<tr>
<td>• Redness or deep purple color of a foot when it is in a dependent position</td>
<td></td>
</tr>
<tr>
<td>• Sign of arterial compromise</td>
<td></td>
</tr>
<tr>
<td>• Don’t confuse with cellulitis</td>
<td></td>
</tr>
<tr>
<td>Blanching on elevation:</td>
<td>![Blanching on Elevation Image]</td>
</tr>
<tr>
<td>• Decrease in arterial flow without the gravitational effect of having the foot in a dependent position</td>
<td></td>
</tr>
<tr>
<td>• Occurs in the presence of arterial compromise</td>
<td></td>
</tr>
<tr>
<td>Gangrene:</td>
<td>![Gangrene Image]</td>
</tr>
<tr>
<td>• Arterial blood supply is compromised so much that the affected tissues die (necrose)</td>
<td></td>
</tr>
<tr>
<td>• May start out as red in color and cool to touch, then turn blue or brownish, and then black</td>
<td></td>
</tr>
<tr>
<td>• May be wet or dry</td>
<td></td>
</tr>
</tbody>
</table>

k. Based on your holistic assessment of the person and their wound, indicate your impression of the wound etiology, complicating factors, and healability status.
4. Upon completion of the form, sign the bottom of every page. Include your designation
5. Discuss the findings of the assessment with the person and/or their SDM/POA C and implement referrals and interventions indicated
6. Share the results of the foot assessment with the interdisciplinary members of the person’s wound care team
7. Complete/update and initiate the person’s interdisciplinary person-centered plan of care, based on your holistic assessment, as per your organization’s policy
8. Store the completed “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form” in the person’s medical record for future reference. Should the person be transferred to another facility/service, a copy of this document should accompany them to prevent duplication of assessment and to promote the continuity of care

Evaluation
1. Unexpected outcomes:
   a. Information from the person’s available medical records, the person and/or their SCM/POA C, and your assessment do not allow for the thorough completion of the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form”
   b. The information obtained does not allow you to:
      i. Accurately identify underlying cause(s) of the wound
      ii. Accurately identify extrinsic, intrinsic, and iatrogenic factors affecting the person’s ability to heal (if healing is the goal) or putting them at increased risk for foot ulcer development
      iii. Identify pertinent person-centered concerns
      iv. Identify healability of the ulcer
   c. Registered nursing staff, in collaboration with other involved health care disciplines and the person with the wound and/or their SDM/POA C, are unable to use the assessment information to initiate/update and implement an appropriate person-centered, interdisciplinary plan of care

References
|---|

**Related Tools**  
*(NOTE: these tools and their instructions can be found on the SWRWCP’s website: swrwoundcareprogram.ca)*

- Interdisciplinary Diabetic/Neuropathic Foot Ulcer Assessment Form
- Initial Wound Assessment Form
- Procedure: Monofilament Testing for Loss of Protective Sensation of Diabetic/Neuropathic Feet (Adults and Children)
- International Working Group on the Diabetic Foot Risk Classification System with Associated Interventions
- NPUAP PUSH Tool 3.0
- Procedure: NPUAP PUSH Tool 3.0
- University of Texas Staging System for Diabetic Foot Ulcers
- Procedure: University of Texas Staging System for Diabetic Foot Ulcers
- Procedure: Ankle Brachial Index Testing
- Criteria for Interdisciplinary Referrals