
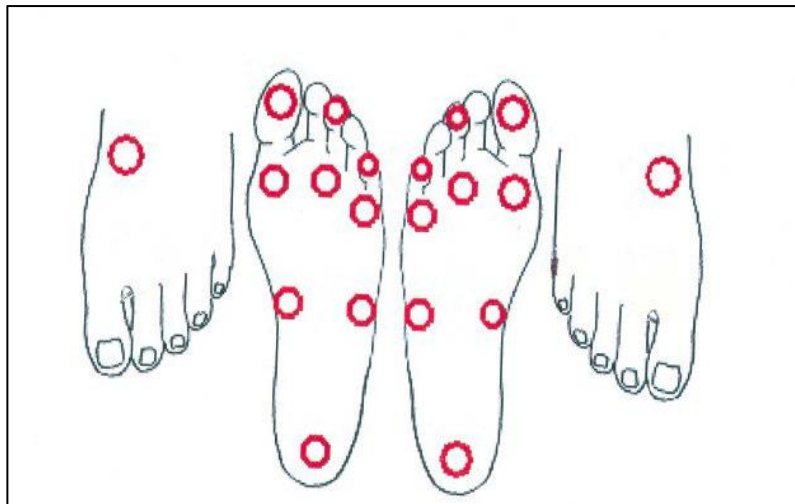


<p>Developed in collaboration with the Wound Care Champions, Wound Care Specialists, Enterostomal Nurses, and South West Regional Wound Care Program (SWRWCP) members from Long Term Care Homes, Hospitals, and South West Community Care Access Centre contracted Community Nursing Agencies in the South West Local Health Integration Network.</p>	
<p><b>Title</b></p>	<p><b>Procedure: Monofilament Testing for Loss of Protective Sensation of Diabetic/Neuropathic Feet (Adults and Children)</b></p>
<p><b>Background<sup>1</sup></b></p>	<ul style="list-style-type: none"> <li>• The neuropathic foot is affected by a tri-neuropathy, which consists of three phases that occur simultaneously (<b>S.A.M</b>): <ul style="list-style-type: none"> <li>○ Sensory neuropathy – loss of sensation</li> <li>○ Autonomic neuropathy – loss of autonomic system functioning</li> <li>○ Motor neuropathy – loss of intrinsic muscles</li> </ul> </li> <li>• Peripheral neuropathy can be broken down into two major groups: <ul style="list-style-type: none"> <li>○ Gradual onset – develops slowly over time. Usually painless. Symptoms may include numbness, tingling, burning, and/or a pins and needles sensation</li> <li>○ Sudden onset – develops suddenly and is usually painful, followed by the absence of pain/sensation</li> </ul> </li> <li>• Diabetes, spina bifida, Hansen’s disease, lupus, AIDS/HIV, cancer, vitamin B deficiency, MS, uremia, vascular disease, Charcot-Marie – Tooth disease, and toxins and toxic syndromes are some of the conditions that can result in peripheral neuropathy</li> <li>• Monofilament testing is a single-point perception test, which helps to determine whether or not a person has loss protective sensation (LOPS), i.e. the ability to sense trauma to the foot. Monofilament testing is not to be confused with the testing for sharp/dull sensation</li> <li>• The 5.07 Semmes-Weinstein monofilament is composed of nylon and mounted on a holder, and is designed to deliver a 10-g force when properly applied. Those with intact protective sensation, i.e. those who do not have LOPS, should be able to feel the application of the monofilament on their skin</li> <li>• To avoid errors in testing, the monofilament is never used over areas of scarring, calluses, wounds, or necrotic tissue</li> <li>• Bilateral testing for sensation is especially important for amputees to determine areas of insensitivity and progression of neuropathy</li> <li>• Monofilaments can be re-used, but are for single person use. Label the Monofilament with the person’s name, and re-use the Monofilament for subsequent testing</li> <li>• Monofilaments can be purchased from the Canadian Association of Wound Care (<a href="http://www.cawc.net">www.cawc.net</a>)</li> </ul>
<p><b>Indications</b></p>	<p>This procedure is intended to be used by front line registered health care providers to assist with their assessment and management of individuals with a diabetic and/or a neuropathic foot/foot ulcer.</p>

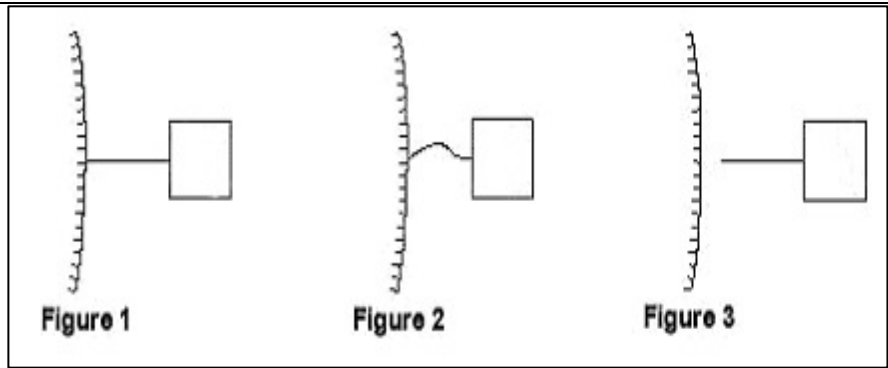
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<p><b>Procedure</b></p>	<p><b>NOTE: The use of the “Procedure: Monofilament Testing for Loss of Protective Sensation of Diabetic/Neuropathic Feet (Adults and Children)” is but one part of the holistic assessment of an individual with a diabetic/neuropathic foot/foot ulcer.</b></p> <p><b>Assessment</b></p> <ol style="list-style-type: none"> <li>1. Determine whether the performance of this procedure is appropriate for the person presenting to you, i.e. any person with a diagnosis of diabetes with or without a foot ulcer (and who hasn’t had at least one monofilament test in the past year), and/or any person complaining of numbness, tingling, burning, or crawling sensations in their feet or who has a diagnosis of peripheral neuropathy and who hasn’t had at least one monofilament test in the past year</li> <li>2. This procedure should be used in conjunction with the “Guideline: The Assessment of People with Diabetic/Neuropathic Foot Ulcers”. Check the person’s chart to determine if this assessment tool has been completed, and review its contents. If the tool has not been completed, consider conducting the assessment</li> <li>3. Look through the person’s chart for any prior Monofilament testing results, for comparison purposes</li> </ol> <p><b>Planning</b></p> <ol style="list-style-type: none"> <li>1. Expected outcomes: <ol style="list-style-type: none"> <li>a. Information from your Monofilament assessment will contribute to the completion of the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form”, and will help identify if sensory neuropathy is an underlying cause of the foot wound(s), i.e. LOPS</li> <li>b. Registered nursing staff, in collaboration with other involved health care disciplines and the person with the wound/peripheral neuropathy and/or their SDM/POA C (if applicable), will be able to use the Monofilament assessment information (along with the holistic foot/lower leg 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</li> </ol> </li> <li>2. Explain the procedure and purpose of the Monofilament assessment to the person and/or their SDM/POA C, and obtain verbal or implied consent</li> </ol> <p><b>Implementation</b></p> <ol style="list-style-type: none"> <li>1. Provide for privacy and ensure the person is in a comfortable position to facilitate the assessment (ideally a supine position). Make sure that this position is ergonomically appropriate for you, as to prevent self-injury</li> <li>2. Ensure adequate lighting</li> </ol>
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3. Wash your hands
4. Don clean disposable gloves and expose the persons feet (of have them do so if they are so able)
5. Assess the person's feet for areas of scarring, calluses, wounds, or necrotic tissue – AVOID testing with the Monofilament over such areas
6. Show the person the Monofilament and touch the Monofilament to the skin on the back of the person's hand, so that they may appreciate what the touch of the Monofilament on their skin should feel like. Reassure the person that use of the Monofilament will not cause a break in their skin
7. Instruct the person to tell you when/where on their feet they feel the Monofilament touch, when you are doing the testing. Ensure that the person has understood the instructions BEFORE beginning the test
8. Instruct the person to close their eyes, and then randomly test the 10 test sites on each foot, as per the diagram below:



9. To test sites using the Monofilament:
  - a. Hold the monofilament perpendicular to the foot
  - b. Touch the skin with the Monofilament, using a steady motion, and apply force until the Monofilament bends approximately 1cm (see the diagram below):



- c. Hold the Monofilament in that bent position for approximately two seconds, and then remove from the skin
  - d. Continue to test the remaining nine test spots, and repeat testing on any areas the person does not indicate they have felt, up to three times to confirm absence of sensation
10. Document any locations where the person did not feel the Monofilament, i.e. in the designated area on the “Interdisciplinary Diabetic/Neuropathic Foot Assessment Form”
  11. Assist the person to a comfortable position and with any clothing removed for the purpose of the testing, as needed
  12. If the person is to remain in bed, lower the person’s bed to an appropriate height (if applicable), and ensure the person’s safety, i.e. apply side rails, personal alarms, restraints, etc. as per the person’s care plan/medical orders
  13. Clean reusable equipment/surfaces touched during the procedure with warm soapy water or detergent wipes and dry thoroughly to prevent cross infection, returning reusable equipment to the appropriate places
  14. Remove and dispose of your gloves in the appropriate receptacle and wash your hands
  15. Discuss the findings of the assessment with the person and/or their SDM/POA C and implement referrals and interventions indicated
  16. Share the results of the Monofilament testing with the interdisciplinary members of the person’s wound care team
  17. Complete/update and initiate the person’s interdisciplinary person-centered plan of care, based on your Monofilament testing and overall holistic foot/lower leg assessment, as per your organization’s policy

**Evaluation**

1. Unexpected outcomes:
  - a. Monofilament testing is not done according to this Procedure, and appropriate interventions are not initiated based on your holistic foot/lower leg assessment
2. Reassess for LOPS using the Monofilament at a minimum of yearly for

	<p>those with diabetes or diagnosed peripheral neuropathy, or more frequently if indicated, as per the person’s score on the “International Working Group on the Diabetic Foot Diabetic Foot Risk Classification System and Associated Interventions” document, found on the SWRWCP website (<a href="http://www.swrwoundcareprogram.ca">www.swrwoundcareprogram.ca</a>)</p> <p>3. Compare Monofilament results with previous results, to determine if the person’s peripheral neuropathy is progressing, and to guide further interventions</p>
<b>References</b>	<p>1. Elftman N, Conlan JE. Management of the Neuropathic Foot. In: Sussman C, Bates-Jensen B., Eds. Wound Care: A collaborative practice manual for health professionals. Third Ed. Baltimore: Lippincott Williams &amp; Wilkins, 1997:421-462.</p>
<b>Related Tools</b> <b>(NOTE: these tools and their instructions can be found on the SWRWCP’s website: <a href="http://www.swrwoundcareprogram.ca">www.swrwoundcareprogram.ca</a>)</b>	<ul style="list-style-type: none"> <li>• Guideline: The Assessment of People with Diabetic/Neuropathic Foot Ulcers</li> <li>• Interdisciplinary Diabetic/Neuropathic Foot Assessment Form</li> <li>• International Working Group on the Diabetic Foot Diabetic Foot Risk Classification System and Associated Interventions</li> </ul>