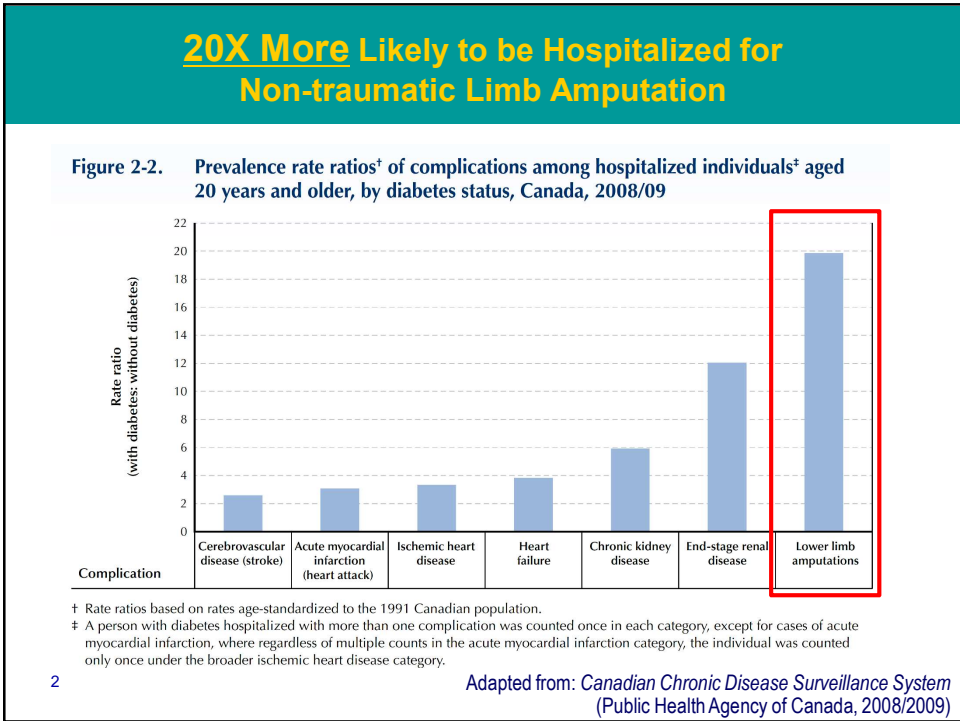


Lower Leg Assessment of the Diabetic Client

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Canada



Core Components of a Diabetic Foot Assessment

- 1) Skin & Nail Changes
- 2) Peripheral Neuropathy / Loss of Protective Sensation (LOPS)
- 3) Peripheral Arterial Disease
- 4) Bony Deformity and Footwear

3

HOW TO USE
Inlow's 60-second Diabetic Foot Screen 
 FOR THE ASSESSMENT AND MANAGEMENT OF THE DIABETIC FOOT

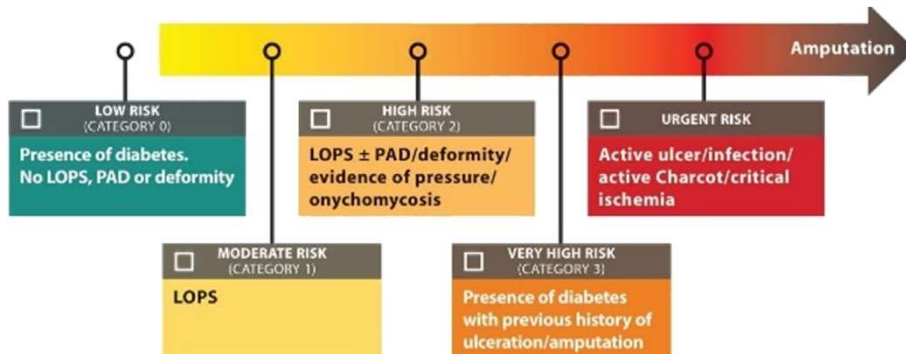
Patient Name: _____ Clinician Signature: _____
 ID number: _____ Date: _____

In order to use this tool efficiently and for best patient outcomes, complete the following three steps:
 ▶ Step 1: Complete an Assessment of the Left and Right Feet
 Instructions: Assess both feet using the four parameters identified within Inlow's 60-second Diabetic Foot Screen* to identify clinical indicators and/or care deficits. Once each parameter has been assessed move on to Steps 2 and 3.

Inlow's 60-second Diabetic Foot Screen	
LEFT FOOT	RIGHT FOOT
1. Assess for Skin and Nail Changes Skin <input type="checkbox"/> Intact and healthy <input type="checkbox"/> Dry with fungus or light callus <input type="checkbox"/> Heavy callus build up <input type="checkbox"/> Prior ulceration or amputation <input type="checkbox"/> Existing ulceration (+ warmth and erythema) Nails <input type="checkbox"/> Well-groomed and appropriate length <input type="checkbox"/> Unkempt and ragged <input type="checkbox"/> Thick, damaged or infected Recommendations and Referrals*	1. Assess for Skin and Nail Changes Skin <input type="checkbox"/> Intact and healthy <input type="checkbox"/> Dry with fungus or light callus <input type="checkbox"/> Heavy callus build up <input type="checkbox"/> Prior ulceration or amputation <input type="checkbox"/> Existing ulceration (+ warmth and erythema) Nails <input type="checkbox"/> Well-groomed and appropriate length <input type="checkbox"/> Unkempt and ragged <input type="checkbox"/> Thick, damaged or infected Recommendations and Referrals*
2. Assess for Peripheral Neuropathy/ Loss of Protective Sensation (LOPS) Sensation - monofilament testing: <input type="checkbox"/> No peripheral neuropathy was not detected (sensation was present at all sites) <input type="checkbox"/> Yes, peripheral neuropathy detected (sensation was missing at one or more sites) Sensation - ask 4 questions: + Are your feet ever numb? + Do they ever tingle? + Do they ever burn? + Do they ever feel like insects are crawling on them? <input type="checkbox"/> No to all 4 questions <input type="checkbox"/> Yes to any of the questions Recommendations and Referrals*	2. Assess for Peripheral Neuropathy/ Loss of Protective Sensation (LOPS) Sensation - monofilament testing: <input type="checkbox"/> No peripheral neuropathy was not detected (sensation was present at all sites) <input type="checkbox"/> Yes, peripheral neuropathy detected (sensation was missing at one or more sites) Sensation - ask 4 questions: + Are your feet ever numb? + Do they ever tingle? + Do they ever burn? + Do they ever feel like insects are crawling on them? <input type="checkbox"/> No to all 4 questions <input type="checkbox"/> Yes to any of the questions Recommendations and Referrals*
3. Assess for Peripheral Arterial Disease (PAD) Pedal Pulses: <input type="checkbox"/> Present <input type="checkbox"/> Absent Dependent rubor: <input type="checkbox"/> No <input type="checkbox"/> Yes Cool foot: <input type="checkbox"/> No <input type="checkbox"/> Yes Recommendations and Referrals*	3. Assess for Peripheral Arterial Disease (PAD) Pedal Pulses: <input type="checkbox"/> Present <input type="checkbox"/> Absent Dependent rubor: <input type="checkbox"/> No <input type="checkbox"/> Yes Cool foot: <input type="checkbox"/> No <input type="checkbox"/> Yes Recommendations and Referrals*
4. Assess for Bony Deformity (and Footwear) Deformity: <input type="checkbox"/> No deformity <input type="checkbox"/> Deformity (i.e. dropped MTH or bunion, chronic Charcot changes) <input type="checkbox"/> Amputation <input type="checkbox"/> Acute Charcot (+ warmth and erythema) Range of Motion: <input type="checkbox"/> Full range in hallux <input type="checkbox"/> Limited range of motion in hallux <input type="checkbox"/> Rigid hallux Footwear: <input type="checkbox"/> Appropriate <input type="checkbox"/> Inappropriate <input type="checkbox"/> Causing trauma Recommendations and Referrals*	4. Assess for Bony Deformity (and Footwear) Deformity: <input type="checkbox"/> No deformity <input type="checkbox"/> Deformity (i.e. dropped MTH or bunion, chronic Charcot changes) <input type="checkbox"/> Amputation <input type="checkbox"/> Acute Charcot (+ warmth and erythema) Range of Motion: <input type="checkbox"/> Full range in hallux <input type="checkbox"/> Limited range of motion in hallux <input type="checkbox"/> Rigid hallux Footwear: <input type="checkbox"/> Appropriate <input type="checkbox"/> Inappropriate <input type="checkbox"/> Causing trauma Recommendations and Referrals*

*Refer to Steps 2 and 3 before completing this area.

Stratifying Risk via Inlow's Diabetic Foot Screen



4

(Diabetes Canada, 2018)

Targeted Examination of the Lower Extremity in Diabetes

Focused Assessment Items

Inspection	<ul style="list-style-type: none">• Gait• Foot morphology – Charcot arthropathy, bony prominences• Toe morphology – clawtoe, hammertoe, number of toes• Skin – blisters, abrasions, calluses, bruising, hematomas or signs of injury, open wounds or pressure sores, absence of hair, peri-nail condition, edema, changes in color• Nail condition• Foot hygiene – cleanliness, tinea pedis
Palpation	<ul style="list-style-type: none">• Pedal pulses• Temperature – ↑ or ↓ warmth
Protective sensation	<ul style="list-style-type: none">• Sensation via 10 gram monofilament
Footwear	<ul style="list-style-type: none">• Exterior/tread – pattern of wear, penetrating objects• Interior of shoes – signs of wear, orthotics, foreign bodies



Photo Source:
Dr P. Marazzi/Science Photo Library

Signs of Peripheral Arterial Disease (PAD)

- Weak/absent pedal pulses
- Cold feet
- Pallor
- Dry, flaky, shiny skin
- Loss of hair on toes
- Punched out appearance of wounds

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Photo Source:
Dr P. Marazzi/Science Photo Library

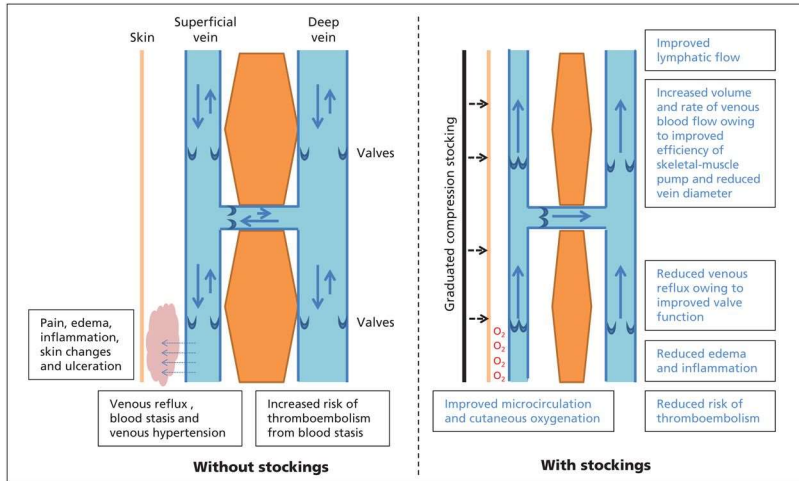
Signs of Venous Insufficiency

- Strong pedal pulses
- Warm feet
- Red appearance or hemosiderin staining
- Swollen, moist skin (edema)
- Beefy, edematous appearance of wounds



Photo Source:
Dr P. Marazzi/Science Photo Library

Venous Insufficiency & Compression Therapy



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Adapted from: Lim & Davies (2014)

Other Notable Changes



Photo Source:
Dr P. Marazzi/Science Photo Library

Bunion / Hallux valgus

Enlargement of the bone or inflammation at the base of the great toe.

Metatarsophalangeal (MTP) joint



11

Charcot Arthropathy

Inflammatory foot disease usually preceded by diabetic peripheral neuropathy.



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(Roskopf et al., 2019)

Peripheral Neuropathy (PN) and Diabetes

- **40 - 50%** of people living with Diabetes will develop detectable neuropathy within 10 years
- Can be sensorimotor **polyneuropathy** or **mononeuropathy**
- **↑ risk for...**
 - Foot ulceration and amputation
 - Neuropathic pain
 - Significant morbidity
 - Usage of healthcare resources

(Diabetes Canada, 2018)

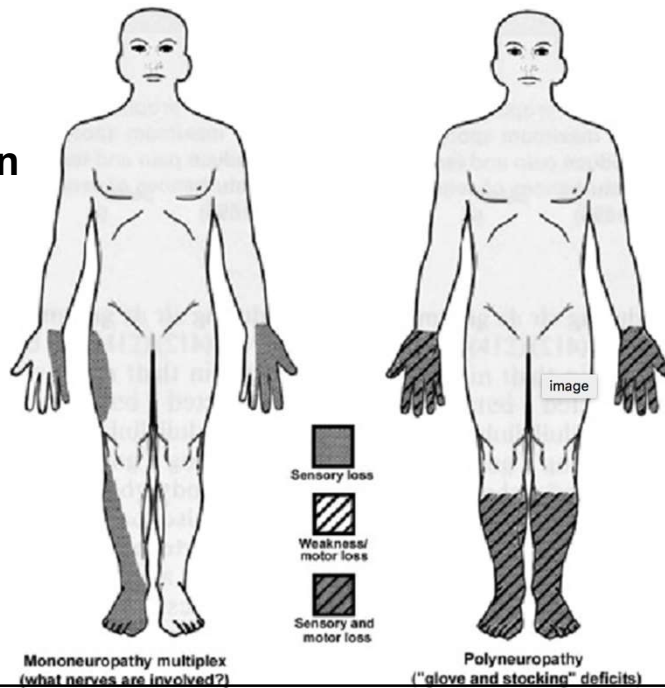
13

Risk Factors for Peripheral Neuropathy

- Elevated blood glucose
- Elevated triglycerides
- High BMI
- Smoking
- Hypertension

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‘Glove and Stocking’ Deficits are more common in Diabetes



Symptoms of PN

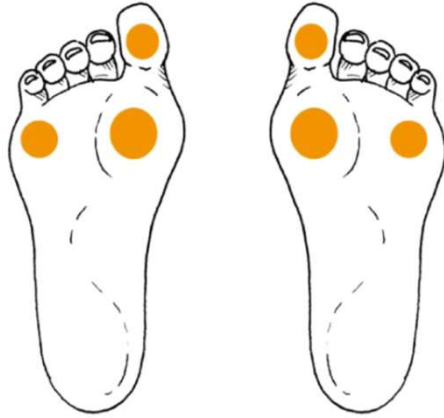
Positive Symptoms –
Spontaneous nerve activity
("static")

- **Burning/lancing pain**
- **Paresthesias** (e.g. buzzing or tingling)
- **Allodynia** (Discomfort from stimuli not normally painful)
- **Hyperalgesia** (↑ pain sensitivity)

Negative Symptoms –
Reduced nerve activity
("dead air")

- **Muscle asthenia/fatigue**
- **Hypoesthesia** (reduced sense of touch or sensation)
- **Gait abnormalities**
- **Difficulty determining hot from cold**
- **Worsening balance**

Screening for Protective Sensation Using The 10 gram Monofilament

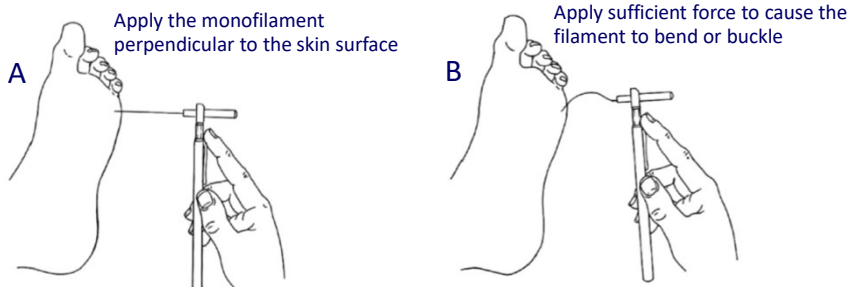


How to perform the sensory examination:

- Conduct in a quiet and relaxed setting.
- Begin by applying the monofilament to the hands, elbow or forehead so that patient what to expect.
- Ensure that the patient can not see whether or where the monofilament is being applied.
- Test the three sites on both feet shown in the figure.

Modified from: Schaper et al. (2016)

Screening for Protective Sensation Using The 10 gram Monofilament



How to Apply the monofilament:

- Repeat the application twice at the same site, but alternate the application with at least one 'mock' application in which no filament is applied (total three questions per site).
- Protective sensation is present at each site if the patient correctly answers two out of three applications. Incorrect answers – the patient is then considered to lack protective sensation and is at risk of foot ulceration.

Modified from: Schaper et al. (2016)

References

- Diabetes Canada CPG Expert Committee (2018). Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. *Canadian Journal of Diabetes*, 42 (Suppl 1), 1-325. <https://guidelines.diabetes.ca/docs/cpg-2018-full-en.pdf>
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- Roskopf, A.B., Loupatatzis, C.,..., Pfirrmann, C.W.A. (2019). The Charcot foot: a pictorial review. *Insights Imaging*, 10, 77. <https://doi.org/10.1186/s13244-019-0768-9>
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