Spend a Minute, Save a Life:
Inlow's 60-Second Diabetic Foot Screen

By Mariam Botros, DCh, IIWCC; Janet L. Kuhnke, RN, BA, BScN, MS, ET, Doctorate in Psychology(c) and Sue Rosenthal, BA, MA

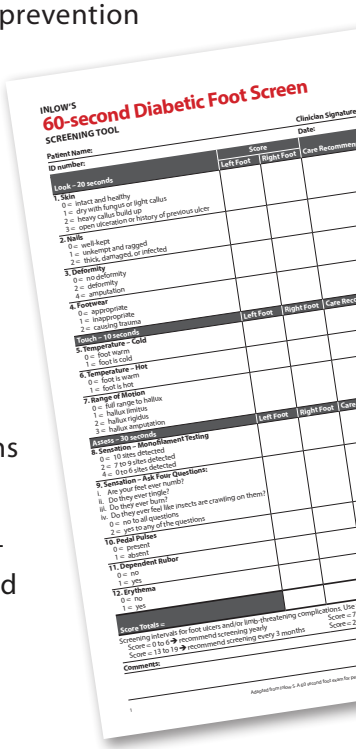
Boulton states that "throughout our medical training, we are taught how to manage patients who present with symptoms, which usually leads to a clinical examination, a diagnosis, and a treatment and management plan. However, virtually no time is spent on teaching how to manage patients who have no symptoms because they have lost the ability to feel pain; that is, they have peripheral neuropathy."[1]

Clinical experience and the literature[1] have shown us that the lack of symptoms Boulton referred to in those with or at risk for diabetic foot complications can have devastating effects on the person, their family and health systems. As clinicians, we have the opportunity, and the obligation, to step in and fill the gap left when peripheral neuropathy is present, or potentially present, in any of our patients. The key is a simple, quick procedure: foot screening.

Foot screening in patients with diabetes is one of the cornerstones of amputation prevention.[2] These five key elements underpin prevention of foot problems:[2]

- identification of the at-risk foot
- regular inspection and examination of the at-risk foot
- education of the patient, family and health-care providers
- routine wearing of appropriate footwear
- treatment of pre-ulcerative signs

By identifying key risk factors in those with diabetes, we can implement the appropriate care plan and prevent complications *before* they occur.


INLOW'S
60-second Diabetic Foot Screen
SCREENING TOOL

Clinician Signature
Date:

Patient Name:
ID number:

Look - 20 seconds	Left Foot	Right Foot	Care Recommended
1. Skin 0 = intact and healthy 1 = dry with fungus or tight callus 2 = heavy callus build up 3 = open ulceration or history of previous ulcer			
2. Nails 0 = well kept 1 = unkempt and ragged 2 = thick, damaged, or infected			
3. Deformity 0 = no deformity 2 = deformity 4 = amputation			
4. Footwear 0 = appropriate 1 = inappropriate 1 = causing trauma			
Touch – 10 seconds	**Left Foot**	**Right Foot**	**Care Recommended**
5. Temperature – Cold 0 = foot warm 1 = foot is cold			
6. Temperature – Hot 0 = foot is warm 1 = foot is hot			
7. Range of Motion 0 = full range to hallux 1 = hallux limitus 2 = hallux rigidus 3 = hallux amputation			
Assess – 30 seconds	**Left Foot**	**Right Foot**	**Care Recommended**
8. Sensation – Monofilament Testing 0 = 10 sites detected 2 = 7 to 9 sites detected 4 = 0 to 6 sites detected			
9. Sensation – Ask Four Questions: i. Are your feet ever numb? ii. Do they ever tingle? iii. Do they ever burn? iv. Do they ever feel like insects are crawling on them? 0 = no to all questions 2 = yes to any of the questions			
10. Pedal Pulses 0 = present 1 = absent			
11. Dependent Rubor 0 = no 1 = yes			
12. Erythema 0 = no 1 = yes			
Score Totals =			

Screening intervals for foot ulcers and/or limb-threatening complications. Use Score = 7
Score = 0 to 6 → recommend screening yearly Score = 2
Score = 13 to 19 → recommend screening every 3 months

Comments:

Appropriate Screening: Three Questions

1. Who should receive screening for diabetic foot complications?

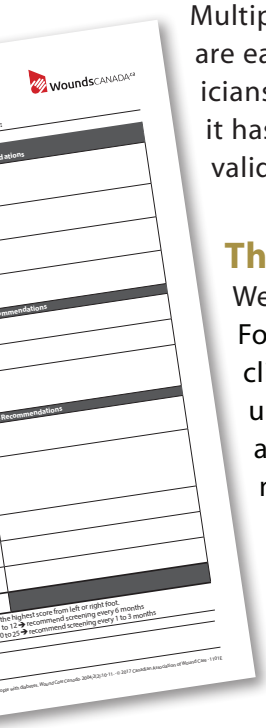
The answer is simple and without exception: anyone who has been diagnosed with diabetes. To prevent complications, it is essential that clinicians not wait until there *is* a problem. Early and regular screening also serves as a communications tool between patients and their health team, because it provides a foundation for self-management strategies that will help the patient navigate their condition.

2. What should clinicians be screening for?

In our travels across the country as educators and consultants, we have heard from many clinicians who claim they have performed the diabetic foot screen as a monofilament examination only. Unfortunately, when we look at the stairway to amputation (Figure 1), we recognize that multiple risk factors lead to ulcers and subsequent amputations. All these risk factors must be identified and addressed to prevent adverse outcomes for the patient.

3. What tool should be used?

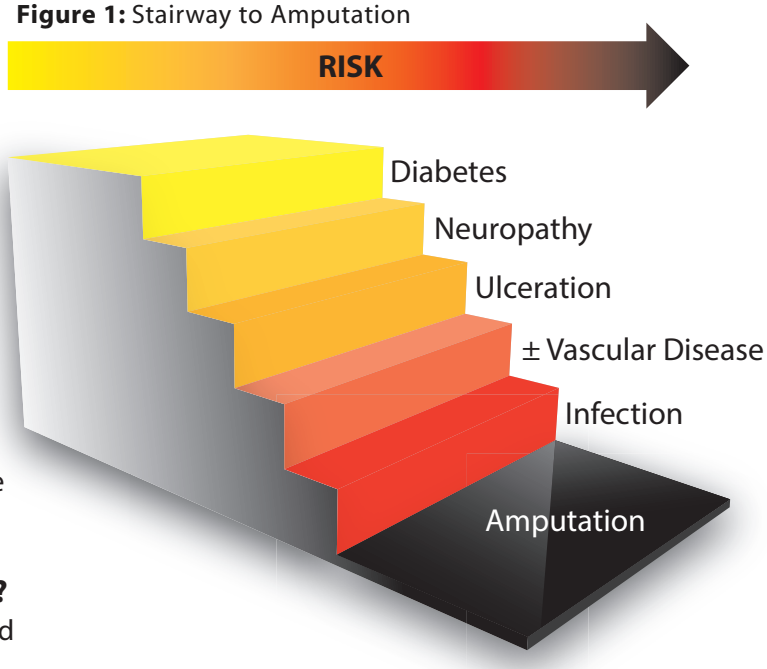
Multiple tools are available, and many of them are easy to use. It is recommended that clinicians use only a validated tool to ensure that it has inter-rater reliability and predictive validity.



The Inlow Tool

We recommend Inlow's 60-Second Diabetic Foot Screen[3] as an excellent tool to aid clinicians in identifying patients at risk for ulceration. This validated tool[4] is quick and easy to use and addresses much more than just basic sensation testing. The 12 elements of the tool require only a 10 g monofilament and good clinical knowledge and assessment skills. The foot screen allows the clinician to assign a value to each of the elements.

Figure 1: Stairway to Amputation



Elements for Assessment

Using hands, eyes, ears and a monofilament, clinicians can quickly move through the categories below. Once each element is assessed, a score is placed in the appropriate space on the patient's Inlow worksheet. Based on the value entered for each category, the clinician can provide care recommendations specific to each patient's needs. The sum of the scores for each foot will dictate the recommended follow-up.

Skin

Assess the skin on the foot: top, bottom and sides, including between the toes, to determine if portals of entry, existing skin infections, signs of trauma, heavy callus build-up or open-skin ulcerations are present.

Nails

Assess if the nails are well trimmed, have any ragged edges, or are thick, damaged or infected. It is important to note if they are creating secondary ulcerations or infections.

Deformity

Look at and palpate the foot for any deformity that puts the foot at increased risk of pressure or

Learn More

For more information and resources on diabetic foot complications, go to www.DHFY.ca.This website provides patients and clinicians with information about effective self-monitoring, prevention, early detection and treatment of diabetic foot ulcers.

subsequent ulcerations or prevents the wearing of off-the-shelf footwear.

Footwear

Assess shoes for fit, degree of support and ability to cause or prevent injury. When possible, have the patient bring all their shoes for assessment.

Temperature: Two Elements—Hot and Cold

Palpate the foot to see if it feels hotter or colder than the other foot, or is hotter or colder than it should be considering the environment, both of which can indicate arterial disease or inflammation.

Range of Motion

Check the hallux for range of motion. Move the first toe back and forth to determine where it sits on a range from easy movement to virtually no movement.

Sensation: Two Elements—Testing and Questions

Use a monofilament to test 10 sites on foot for neuropathy. (See Figure 2.)

Ask the following four questions to detect potential neuropathy:

i. Are your feet ever numb?
ii. Do they ever tingle?
iii. Do they ever burn?
iv. Do they ever feel like insects are crawling on them?

Pedal Pulses

Palpate the dorsalis pedis pulse located on the top of the foot. If you are unable to feel the pedal pulse, feel for the posterior tibial pulse beneath the medial malleolus. Lack of or weak pulse can indicate arterial disease.

Pallor on Elevation and Dependent Rubor

Look for pronounced redness of the feet when they are down (dependent) and pallor when they are elevated. This can indicate arterial disease.

Erythema

Look for redness of the skin that does not change when the foot is elevated.

Interpreting the Scores

The Inlow tool has been designed so the results from different parameters can be combined to identify for clinicians any pathologies or care deficits that threaten the integrity of the patient's feet—in other words, the patient's risk for developing complications that may lead to ulceration or amputation. For example:

- High scores in the areas of temperature (cold), lack of pedal pulse and dependent rubor can indicate peripheral arterial disease.
- High scores in the monofilament testing and sensory questions can indicate loss of protective sensation.
- High scores in the skin, nail and footwear categories may be a sign that there is a deficit in the area of self-care.
- High scores in the areas of skin, temperature and erythema may identify that an infected ulcer is present.
- High scores in the nail category, along with temperature and erythema, can be indicative of infected nails.

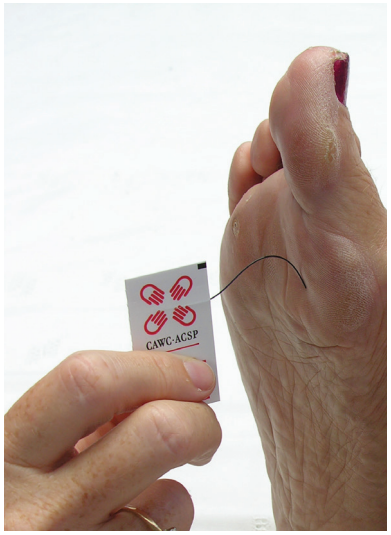


Figure 2: Monofilament Testing

AAWC PRESSURE ULCER SUMMIT 2018

EXAMINE • CONTRIBUTE • DISCOVER
AN INTERNATIONAL FORUM OF LEADERS IN WOUND CARE

*Hosted at the **Atlanta Airport Marriott Gateway***

February 9th—10th

*Register online at **PrUSummit.com***
or call 503-635-4761

AAWC PrU SUMMIT

Join this international forum of leaders in wound care

Examine what the most current research indicates are the causative factors of pressure ulcer formation.

Contribute to the future-thinking on pressure ulcer development, description, management and prevention through active participation in open discussion forums.

Discover how the latest biophysical devices are being used to recognize and detect pressure damage in clinical practice.

AAWC Pressure Ulcer Summit 2018

February 9-10, 2018 | Atlanta, Georgia
PrUSummit.com

Atlanta Airport Marriott Gateway
Call 404-763-1544 to book a room.

Please mention "AAWC Pressure Ulcer Summit" to receive the discounted room rate of $125. This rate is guaranteed until January 18, 2018.

CME credits/contact hours available for physicians, nurses and podiatrists. An application has been submitted for Physical Therapy CEUs.

AAWC
Association for the Advancement of Wound Care

- High scores in erythema and temperature (warm) without any portal of entry can indicate the presence of a Charcot deformity.

Risk to Action

Care planning requires the clinician to address and manage any factors that were identified by the Inlow tool and create a personalized and cost-effective care plan, in collaboration with the patient, according to their level of risk in each of the categories. But this is just the first step. It is also important to consider co-morbidities, existing health factors and patient needs as well as challenges related to the environment and the health-care system.

Once a patient's risk status is determined (Figure 3), it is essential that the clinician inform them, encouraging them to become active members of their care team. Discuss with them ways they can ensure their feet are well protected and cared for. Refer them to appropriate services for further investigations and care. Support their self-management efforts and schedule appropriate rescreening and other types of follow-up. Figure 4 shows how often follow-up rescreening

Low risk:	No risk factors are present.
Moderate risk:	One risk factor is present, e.g., loss of sensation or signs of peripheral arterial disease without callus or deformity.
High risk:	Previous ulceration or amputation or more than one risk factor is present.
Urgent:	There is presence of active ulceration/spreading infection/ critical ischemia/gangrene or unexplained hot/red/swollen foot with or without pain.

Figure 3: Levels of Risk

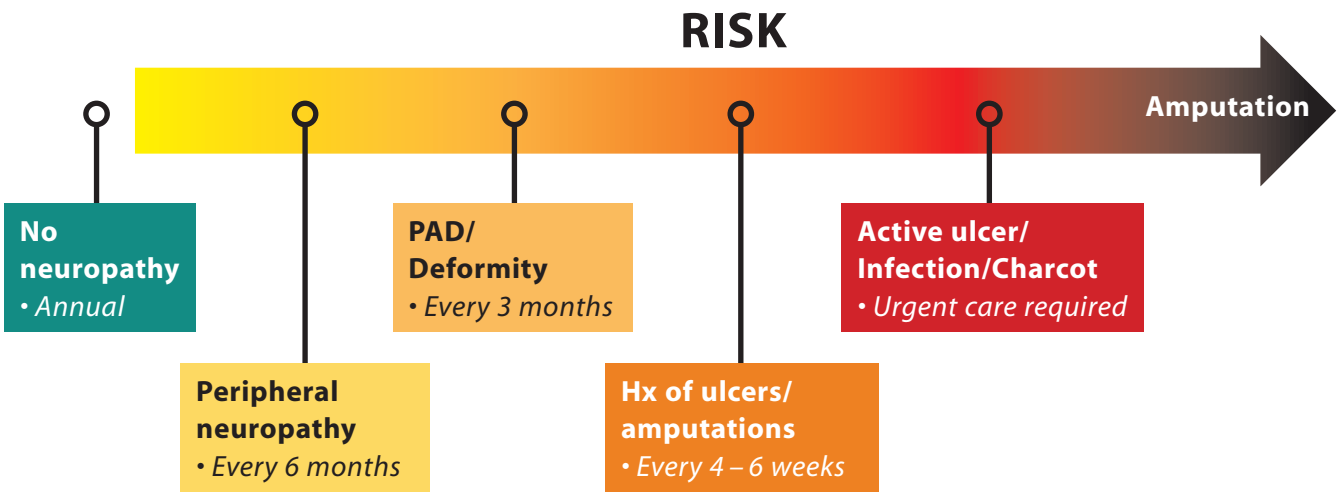


Figure 4: Recommended Rescreening Frequency Based on Assessment Findings

is recommended. Remember: All interventions should be based on the patient's risk level.

Screen Early, Screen Often

Diabetes is complex and multifaceted, and it can lead to complications such as foot ulcers, infections and amputations. It requires a co-ordinated, integrated approach to care, with the patient at the core. Everyone on the team should be primed to use prevention tools and techniques, acknowledge and act on recognition of risk, and assure timely access to care. Inlow's 60-Second Diabetic Foot Screen is an example of one important step in this process.

Can the Inlow tool really be used in 60 seconds to do a complete foot assessment? At first it may take a little longer, but with regular use clinicians will indeed be able to do a comprehensive exam in one minute and prevent foot complications from occurring or getting worse. Spend a minute, save a life.

References

1. Boulton AJM. What you can't feel can hurt you. J Vasc Surg. 2010;52(3 Suppl.):28S–30S.
2. International Working Group on the Diabetic Foot. Prevention and management of foot problems in diabetes: A summary guidance for daily practice 2015, based on the IWGDF guidance documents. 2015. Available from: www.iwgdf.org/files/2015/website_summary.pdf.
3. Inlow S. The 60-second foot exam for people with diabetes. Wound Care Canada. 2004;2(2):10–11.
4. Murphy CA, Laforet K, DaRosa P, Tabamo F, Woodbury MG. Reliability and predictive validity of Inlow's 60-Second Diabetic Foot Screen Tool. Adv Skin Wound Care. 2012;25(6):261–266.
5. Joseph WS, Lipsky BA. Medical therapy of diabetic foot infections. J Am Podiatr Med Assoc. 2010;100(5):395–400.