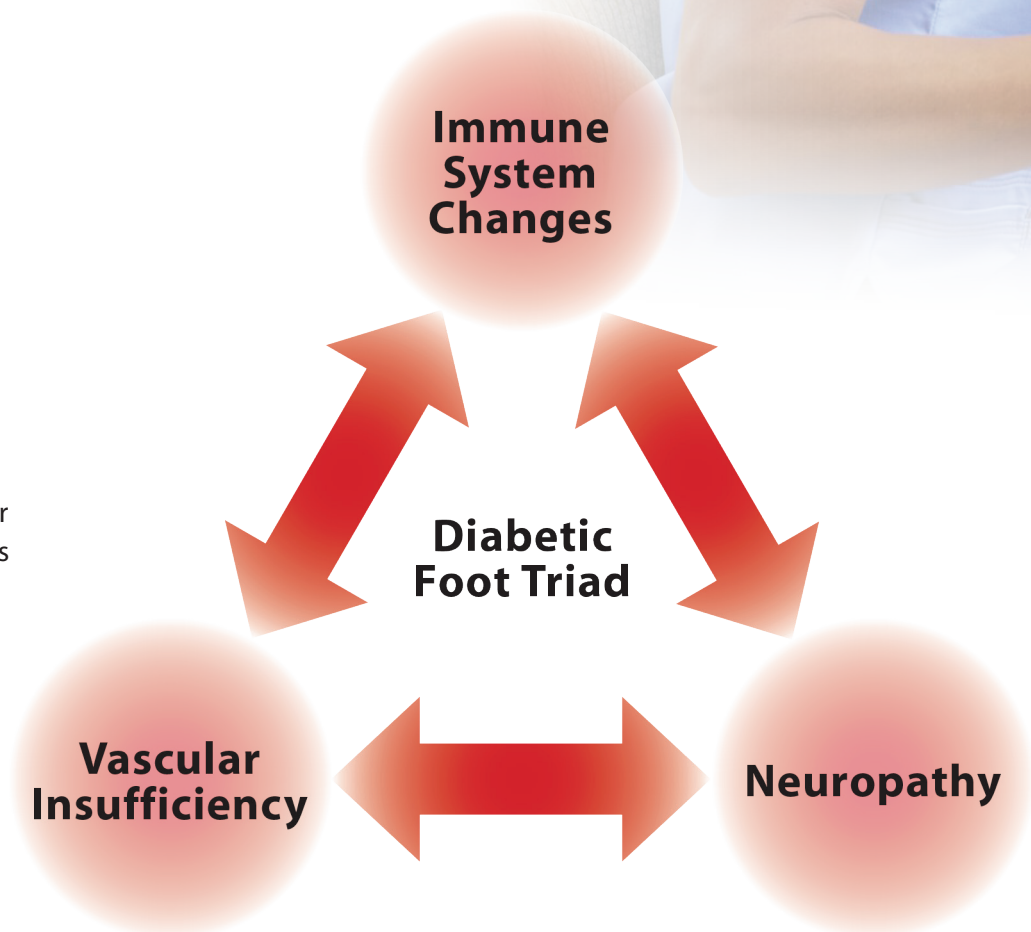


# The Diabetic Foot Triad as a Catalyst for Behaviour Change

By Mariam Botros, DCh, IIWCC; Janet L. Kuhnke, RN, BA, BScN, MSc, ET Nurse  
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**D**iabetic foot is characterized by a triad of key risk factors: neuropathy, immunopathy and vascular insufficiency. Each can cause problems for the patient, but together they can lead to a cascade of serious complications, sometimes progressing to amputation.<sup>1</sup>

Every day patients come to clinical practices to seek help for their diabetes-related foot ulcers and for complications such as Charcot foot. As clinicians, part of our job is to help them recognize key risk factors and outline strategies for reducing the impact of these. A simple and effective strategy for guiding discussions is the Diabetic Foot Triad.





The three key elements of the triad are as follows:

- Immune System Changes
- Vascular Insufficiency
- Neuropathy

This last element is especially important, because many patients ask, “How can this be serious, when I cannot feel the injury?” The triad concept, once understood, becomes a necessary bridge between patients’ lack of sensation and the reality of treating their diabetic foot-related complications.

## **Education and Discussion**

In clinical settings, it is always worth examining the patient information tools we have available to initiate and reinforce discussions about the Diabetic Foot Triad. Patients and their families need and expect information from credible sources, and it is our job to screen all information we pass along to ensure it is current and evidence-informed. Any information discussed with patients and family members verbally should be reinforced with appropriate written or

online materials patients can refer to once they have left the clinical setting.

An important consideration for clinicians is that not all patients are willing or able to receive clinical information. For some it can be overwhelming and lead to frustration and even feelings of shame. Despite this, the importance of repeatedly exposing patients to the Diabetic Foot Triad cannot be overstated. We know that, in reality, it takes consistent dialogue with patients to help them fully understand the risk of foot and lower leg compli-



cations with diabetes mellitus. When patients are aware of the risk factors, they are better able to work with the rest of their team to prevent or minimize the complications.

It is common for patients to receive multiple individual messages from clinicians about their condition, risks and potential outcomes. As a tool, however, the Diabetic Foot Triad pulls together the top three risk factors, allowing patients and clinicians to develop a more complete picture of what is happening, why it is happening and what can be done about it.

As always, clinicians are advised to customize their approach to meet each patient's need and, as well, to identify and explain the corresponding risk classification category according to the International Working Group on the Diabetic Foot (IWGDF).<sup>2</sup>

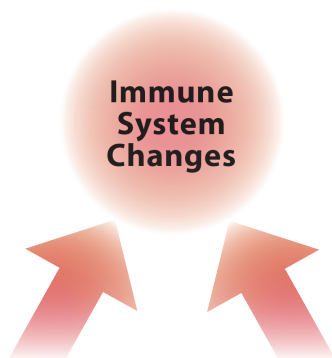
## How to Communicate with Patients using the Diabetic Foot Triad

Below are the key points, using plain language, to be communicated to the patient when discussing the Diabetic Foot Triad, along with preventative behaviours that can help patients avoid complications that may arise when elements in the triad are ignored. Before beginning your discussions, it may be helpful to review the OARS micro-skills outlined in Table 1.

## Immune System Changes

### WHAT HAPPENS?

High blood glucose levels can affect the immune system. White blood cells may become compromised, which may mean the patient has less ability to fight infection. When this happens, even a small break in the skin,



such as a minor cut or scrape, is at risk for infection, which can lead to devastating complications in a person with diabetes.

### WHAT CAN BE DONE?

#### Clinician

- Discuss with the patient the relationship between the immune system and diabetes-related foot complications.
- Connect your patient with local community resources that support blood glucose management, such as diabetes clinics and support groups.
- Since adherence to medication regimens can be challenging for patients, make time to discuss with them how well they are managing to take their meds (oral and injectable), and have them identify challenges they may be facing in this area. Work with them to find solutions to overcome any barriers.

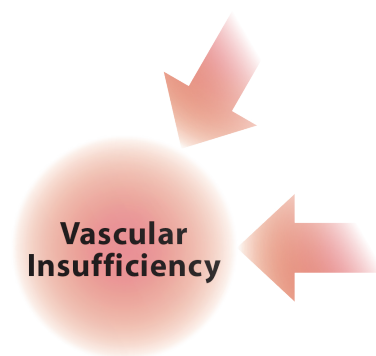
## Patient

- Keep your blood sugar levels under control to allow your immune system to attack any infection and improve your white blood cells' ability to engulf bacteria more effectively.
- Practise basic hygiene skills, such as daily foot washing and wearing clean socks, which are important in reducing the chances of infections. Often people forget that what they do or don't do in terms of hygiene affects the largest organ in the immune system—their skin.

## Vascular Insufficiency

### WHAT HAPPENS?

Blood is pumped through the body to provide tissues with the oxygen and nutrients they need to survive. Arteries are the vessels that move blood from the heart through the body. In people with diabetes, the ability to pump blood effectively is often reduced because of a weakened heart or narrowing of the arteries. This can lead to poor blood circulation to their feet, which can result in an increased risk for skin breakdown or, when the skin





is already broken open, poor wound healing.

While not technically part of the vascular system, the lymphatic system also has a role to play in the circulation process. A healthy lymphatic system removes waste products of metabolism and all excess tissue fluid, making it critical in the modulation of the inflammatory response.

#### **WHAT CAN BE DONE?**

##### **Clinician**

- Assess the patient's vascular status by screening for coronary artery disease, dyslipidemia, and support improvement through management of blood pressure and referrals as necessary.<sup>3</sup>
- Ensure vascular assessment and referral for potential revascularization
- Work with the patient and your interdisciplinary team to help the patient accomplish the following:
  - Manage blood pressure.
  - Manage cholesterol through beneficial nutritional choices.

- If they are not already active, help them find an activity type and level of exercise appropriate to their risk status and capability.
- Manage weight.
- Ensure mental wellness through self-care strategies and diabetes distress help resources.<sup>4</sup>

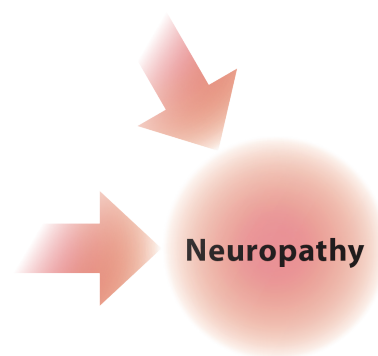
##### **Patient**

- Keep active. Physical activity is one of the key elements to support vascular health.<sup>3</sup>
- Watch what you eat. Work with a registered dietitian so you make healthy food choices.<sup>4</sup>
- Make daily choices that will support healthy weight and blood glucose (sugar) levels.<sup>3</sup>
- Quit smoking. It's a risk factor for poor circulation, which increases your chances for getting a wound and for poor healing.
- Don't hesitate to get help from a mental health professional if you need to, or take advantage of online resources such as the Canadian Psychology Association's "Psychology Works" Fact Sheet: Diabetes.<sup>5</sup>

#### **Neuropathy**

##### **WHAT HAPPENS?**

A common result of diabetes is a gradual loss of sensation, usually in the legs and feet and sometimes the arms, hands and fingers. This is called neuropathy, or nerve damage. Neuropathy in people with diabetes is usually the result of long-term uncontrolled blood glucose levels.<sup>5</sup>



Because feet are in constant contact with outside forces, they can easily be structurally altered or damaged. Trauma from ill-fitting shoes, callus build-up and physical injury can cause skin to break down or the foot to be damaged structurally. A person with neuropathy may not feel

the pain that would signal a problem. As a result, the person may not notice anything has happened and therefore won't seek the support of a health-care professional.

Foot deformity is a change in the normal shape of the foot. Because of changes in foot sensation (neuropathy), patients with diabetes may have wasting of the muscles, stiffening of the joints or collapse of the joints (Charcot). Surgery, amputations, bone infections and improper shoe fit can also contribute to foot deformity.<sup>6</sup>

#### WHAT CAN BE DONE?

##### **Clinician**

###### **Assess the Feet**

- Test for loss of protective sensation (LOPS) using a 10-gram Semmes–Weinstein Monofilament.<sup>7</sup> The monofilament test should be part of a comprehensive foot assessment. (See the [Wounds Canada website](#) for foot screening tools, of which the monofilament test is part.)
- Discuss the importance and the score of the LOPS test with the patient and outline the dangers they should be aware of and how to counteract them (e.g., daily foot inspection, shoe quality and fit, activities).
- If possible, have the patient or caregiver learn to self-assess their LOPS by practising on themselves with their eyes open, so they can perform the test regularly at home.
- Arrange follow-up appoint-

ments with appropriate foot specialists as indicated by the patient's foot assessment.

###### **Ensure Proper Choice and Use of Footwear**

- Demonstrate the features of a proper-fitting shoe to guide the patient in making future purchases.

Dry well, especially between your toes. Apply a moisturizer to your feet but not between your toes.

- Do not soak your feet.
- If you are unable to reach your toes or do not have feeling in your feet, have a health-care professional trim your toenails for you.

*“Skillful reflection  
with a patient builds  
trust and rapport and  
demonstrates empathy.”*

- Have the patient bring in all their footwear to fully assess what they are wearing (e.g., workboots, steel-toed shoes, sandals, running shoes). This is an opportunity to show the patient how to make good choices about footwear and open up the door to other discussions that will build mutual trust.

##### **Patient**

###### **Assess the Feet**

- Each day, look for signs of redness or blisters on your feet. Any changes in the skin condition could be an indication that your shoes are not fitting properly and are causing trauma to your feet.
- Wash your feet daily.

###### **Ensure Proper Choice and Use of Footwear**

- Have your shoes professionally fitted by a footwear specialist.
- Buy shoes late in the day, as feet tend to swell as the day goes on.
- Buy shoes with closed toes,

###### **Key Message**

Using the **Diabetic Foot Triad** to communicate to patients in a clear, concise and timely fashion is **one of the best ways** to engage them in discussions about their health and motivate positive behavioural choices.



as they protect your feet from injury.

- Wear shoes at all times, both indoors and out.
- Shake out your shoes before you put them on to make sure there are no unwanted objects inside them. Wear light-coloured or white socks (to allow you to observe any bleeding).
- Change your socks daily.

## Conclusion

Education remains an essential cornerstone that supports the prevention of diabetic complications. The Diabetic Foot Triad provides clinicians with a focused framework to initiate and guide discussions with patients about the three most important factors—neuropathy,

immune system changes and vascular insufficiency—to consider in the prevention of diabetic foot complications. 🩹

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## Clinician Communication Review

As clinicians, it is our role to provide information to our patients in a clear, explicit manner that will help them make the best decisions to support their health. We must be prepared to use different approaches as required. Keep in mind that the patient's perspective is the foundation of any future self-management activities. If patients cannot recognize risk factors and ways to address them *from their own point of view*, they will be less likely to take ownership of their diabetic foot disease and practise appropriate self-care.

A great deal of research has been done on effective methods of clinician–patient communication. One is the OARS Model, which has a heavy focus on patient engagement. The OARS Model is a skill-based approach that guides clinicians while using motivational interviewing techniques.<sup>8</sup> “OARS” stands for four microskills that can facilitate effective communication: **O**pen-ended Questions, **A**ffirmations, **R**eflecting and **S**ummarizing. The table below outlines how a clinician working with patients living with diabetes and diabetes-related complications might use the OARS Model.<sup>9</sup>

**Table 1:** The OARS Model<sup>8,9</sup>

OARS Microskill	Rationale	Examples
<b>Open-ended Questions</b> An open-ended question cannot be answered with a simple “yes” or “no” but will instead elicit a more detailed response.	Use open-ended questions to assess what the patient already knows about their diabetes and how it affects their feet and what their concerns are.  Ask them what they already know about the Diabetic Foot Triad because of its importance in the prevention of foot complications.  Often patients may know a lot about one area of the triad and very little about another. Having this conversation will allow you to identify priority areas for information exchange.	<ul style="list-style-type: none"> <li>• What brings you to the clinic today?</li> <li>• What has been the biggest challenge managing your new footwear?</li> <li>• What is the biggest challenge for you in managing your medications and insulin?</li> </ul>
<b>Affirmations</b> Affirmations provide confirmation and positive commentary to the patient.	Affirming and commenting on the positive aspects of the patient's qualities, strengths and efforts to manage their disease and its complications are crucial to the patient–clinician relationship. Affirmations encourage the patient to continue to make positive choices and reinforce optimism and hope when it may be needed most.	<ul style="list-style-type: none"> <li>• Walking three times a week is very good. Well done!</li> <li>• Your wound is smaller in size. What have you been doing?</li> <li>• I am glad you are taking your medication. How is that going for you?</li> <li>• You are really taking care of yourself when you ...</li> </ul>
<b>Reflecting</b> Reflective, or active, listening involves truly listening to what the other person has to say, taking it in and responding meaningfully to the discussion.	Reflecting is a gift and skill, and it is often the most challenging part of OARS for clinicians.  Skillful reflection with a patient builds trust and rapport and demonstrates empathy. <sup>9</sup>  Reflective listening and responding back to the patient is essential when building meaningful, affirming statements.	
<b>Summarizing</b> An effective summary provides the patient with key information.	Summarizing allows the clinician to pull together all the key points discussed in the conversation and rephrase them in a way that is clear, concise and patient-centred (that is, reflects the patient's point of view).  The summary must be an accurate reflection of what the patient said, not what the clinician wants to think they said.	

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