A Workshop on the

Prevention and Management of Diabetic Foot Complications

By Sue Rosenthal, BA, MA

In the face of the staggering numbers of persons with diabetes in Canada, is there any way an individual can make a difference in the rates of foot ulcers and amputations? The answer is a resounding yes, as long as the individual has the knowledge and is part of a team, whether as a patient, caregiver or clinician. To bring this message home, Diabetic Foot Canada presented its first-ever Workshop on the Prevention and Management of Diabetic Foot Complications, on May 31, 2013, in Toronto, Ontario.

With disciplines representing nursing, chiropody, podiatry, family medicine, education, policy making and more, the 100-plus participants, some from as far away as Nova Scotia, spent the day-long session engaged in an interactive presentation that included expert commentary, small-group discussions and individual exchanges with industry representatives. The focus of the workshop was on supporting patient empowerment and the use of a team approach to prevent foot complications in persons with diabetes.

Over the course of the workshop, the topics ranged from a review of the risk factors that contribute to diabetic foot com-

plications to the design of effective prevention and treatment plans. A highlight of the day was the first-person account from a patient with diabetes on how he and his care team worked together to develop a plan that supports his self-management of diabetes and its potential complications.

The interprofessional team concept was reinforced by the make-up of the faculty: Mariam Botros (chiropodist), Robyn Evans (family physician), Bo Fusek (nurse educator), and Janet Kuhnke (ET nurse). Their interaction throughout the workshop clearly demonstrated that the collaboration of teams representing multiple disciplines, in both diabetes care and wound prevention and care, results in strong discussion and decision making, with each perspective adding valuable insight and different expertise.

Highlights

Throughout the workshop, faculty members outlined a substantial amount of specific information along with the role of the clinician in using the information and providing a context for it for the patient. Here are some highlights:

"Foot screens will be done with much more confidence and higher understanding of products."
— Toronto workshop participant

Diagnosis

The diagnosis of diabetes has changed. The preferred tool is now the A1C (glycated hemoglobin), which was not part of the previous diagnostic criteria. A result equal to or greater than 6.5 indicates diabetes.[3] (For more information on the A1C test, please see Goldenberg RM et al., 2011 Position Statement: Use of Glycated Hemoglobin (A1C) in the Diagnosis of Diabetes Mellitus in Adults.) The earlier a diagnosis can be made, the better the chances to have early treatment implemented. Early treat-

BY THE NUMBERS:

The Enormity of Diabetes

9 million The number of Canadians who have either diabetes or pre-diabetes[1]

25 Percentage of persons with diabetes who have a lifetime risk for developing a foot ulcer[1]

85 Percentage of diabetes-related limb amputations that are the result of a non-healing diabetic foot ulcer[1]

49–85 Percentage of amputations that are preventable[1]

With a 5-year mortality rate of amputees at 45%, prevention of foot complications in persons with diabetes is essential![2]

Diabetic Foot Complications

- neuropathy
- ischemia
- infections
- structural deformity
- ulceration
- amputation

Preventing Diabetic Foot Complications

The workshop content included detailed information on the following key elements, which clinicians must address with patients to prevent complications:

- optimizing glycemic control
- smoking cessation
- cholesterol management
- identification of a foot at risk: regular inspection and examination by both patient and clinician
- patient education: education for patients and family members, particularly on what they should be looking for; family members are the biggest supporters of a person with diabetes; they need them when they've lost sensation
- treatment of pathologies
- footwear: mechanics and offloading

ment can result in reduced rates of complications.

Supporting Patient Decisions

Diabetes is a complex disease that is challenging for patients to manage, and it is important for clinicians to imagine what it is like for their patients. Patients need to make many decisions every day in areas that either impact their condition or are impacted by their condition, including financial, logistical, dietary, social and work-related. Members of the team need to support patients in all areas. One way to do this is for clinicians to take what they know from clinical practice guidelines and other recent research and translate it into the real world language and situations that patients actually face.

Ongoing communication and education are important forms of support, and the use of the ABCDEs of Diabetes[4] can be a useful tool for guiding the clinician in interactions with patients when teaching them about chronic care and preventing problems:

A1C: Aim for less than 7%.

Blood pressure: Have a target of 130/80 or better.

Cholesterol: LDL-C<2.0 mmol/L is important for prevention; don't wait until problems arise.

Drugs: Look at ACE inhibitors, statins, ASA, whatever will reduce risk. Many patients measure their health by how many medications they take so a dialogue with patients to explain why medications can be good at reducing risk may be necessary.

Exercise: Create a plan with the patient for regular exercise, which reduces cholesterol, modifies blood sugar and can assist with depression.

Foot care: Examine patients' feet and model what they should be doing. Have regular dialogues about foot care.

Smoking cessation: One of the toughest areas for patients, smoking is often the last thing to change. Research indicates that regularly asking patients about it does help them quit.

Neuropathy

Clinicians must be aware of the types of neuropathy and the role that neuropathy plays in the development of foot complications. Since 40–50% of people with type 1 or 2 diabetes will develop detectable sensorimotor polyneuropathy within 10 years of onset, this is a significant issue.[4]

There are three types:

Sensory: Impaired ability to

"This course is a tremendous opportunity to explore the hands-on assessment of the diabetic foot, including the tools needed for implementation within the health-care system."
— Janet Kuhnke, workshop faculty

feel stimuli, numbness, tingling, burning

Autonomic: Dry, cracking skin that can create openings for bacteria

Motor: Structural, including turning up of toes, loss of flexors

While diabetes is a significant cause of neuropathy, there are other causes, including excessive alcohol consumption and B12 deficiency, so a metabolic screen may be necessary.

There is no cure for neuropathy so it must be managed through modifying the disease (glycemic control) and addressing risk factors (blood pressure, BMI, smoking, lipids). It is important to remember than 50% of people with neuropathy experience pain. Symptoms can be reduced (by 30–50%) through the use of anticonvulsants, antidepressants, opioids, and topical nitrate spray. As depression is prevalent in this population, antidepressants may be most appropriate with certain patients. Alternative therapies such as TENS and acupuncture should be considered to complement medical approaches.

Patient perspective: As a reminder to clinicians on the need for high-quality education, the guest patient, Adrian, described how unaware he was that he had lost sensation in his feet until he kicked a piece of furniture. He didn't realize his foot was damaged until he saw bone sticking out.

Inlow's 60-second Diabetic Foot Screen

During the workshop, participants were walked through Inlow's 60-second Diabetic Foot Screen tool, an easy-to-use guide that clinicians can use at each patient visit for identifying risks to the diabetic foot. The use of this validated, reliable tool helps clinicians predict and, therefore, prevent foot ulcers and, potentially, amputations. The Inlow tool can be downloaded from the CAWC website at http://cawc.net/en/index.php/resources/60-second-diabetic-foot-screen/.

The main message? A key strategy for amputation prevention is for clinicians to take off patients' shoes and socks and "look, touch, assess."

Focus on Footwear

Part of the Inlow tool relates to an inspection of patients' footwear. With

BY THE NUMBERS:

DFUs

75–80 Percentage of diabetic foot ulcers that occur in distal to metatarsal heads.[7]

28 Percentage of time that the majority of diabetic patients were found to use their offloading devices.[8]

50 Percentage of reduction in wound surface area at four weeks that is a good predictor of wound healing at 12 weeks.[9]

BY THE NUMBERS:

Cost-effectiveness of the Team Approach[10]

66% ↓ in hospital admissions

74% ↓ in hospital days

53% ↓ in nursing home admissions

altered sensation and boney deformity being common conditions in persons with diabetes, proper-fitting footwear becomes an important factor in the prevention and treatment of foot problems. (An Italian study found that 90% of amputations were caused by faulty footwear.)

Clinicians face several challenges in discussing footwear with patients:

1. Footwear is a very personal issue for most patients, and many are resistant to change in this area.
2. Patients often don't bring in all their footwear for evaluation. They should be encouraged to do so.
3. Finances may be a factor in resistance. It can be expensive to turn over all types of footwear.
4. Patients with diabetes often wear shoes that are slightly too tight to give them stability because of poor proprioception. They may be resistant to losing this support by wearing looser shoes. As well, lack of sensation can result in patients' purchasing footwear that is up to two sizes smaller than their actual shoe size.

Patient perspective: A fear of losing mobility and of not being able to enjoy the activities he loves was a major factor for guest patient Adrian in deciding to change his footwear to that recommended by his team. "My orthotics are my greatest friend. Because I can walk I can be physically active. Because I can be physically active I can control my feet. Good shoes, happy feet, happy Adrian!"

"Absolutely fantastic day! Very relevant presentations; clear communication. Interprofessional team collaboration critical to ensure delivery of DM care."
— Toronto workshop participant

A Tool for Home Use

Patients can use in-home scanning thermometers as part of their daily self-management activities. They can be trained to recognize that differences in temperature are an indicator that something is going on (e.g.,

infection, active Charcot, trauma) and their health-care team should be notified. A study indicated that for the group using the thermometers, only 2% had foot complications vs. 20% of a standard therapy group.[5]

Self-management: Prevention of DFU

"Self management is a philosophy of health wherein the individual has the knowledge, skills, judgment and ability and confidence to be an advocate and expert in the management of their own health and wellness."[6]

Because self-management of a chronic disease like diabetes is complex and difficult, the clinician has an essential role in supporting the patient and family.

Challenges to clinicians include:

- listening to the patient to determine how the research fits into their life (clinicians are experts on the research; patients are experts on their lives)
- providing education and support, including guiding them to workshops, resources and other clinicians
- determining how ready they are for change
- individualizing care plans for each patient
- recognizing the need in individual patients for different plans of action for different areas such as exercise, medications and monitoring blood sugar

Patient perspective: Guest patient Adrian was asked what helped the most in his self-management of diabetes and prevention of foot complications. He answered that it was having someone to go to if he needed information or noticed a change that concerned him. It gave him comfort to know there was someone "a mere phone call away, or via an appointment" if it was something more serious. Based on his experience, he now knows that it's better to act quickly rather than wait.

VIPS

Use "VIPS" as a memory aid to guide the assessment and management of diabetic foot ulcers once they occur:

- **V**ascular assessment
- **I**nfection
- **P**ressure offloading
- **S**urgical debridement

Change for Patient Empowerment

To support patient empowerment, workshop participants were exposed to the PIES concept. PIES relates to the need to ensure good practice happens on many levels within the realm of health care:

- **P**ractice
- **I**nstitution
- **E**ducation
- **S**ystem

All clinicians have some responsibility for identifying deficits and initiating improvements in each of the areas.

Practice issues were addressed in detail throughout the workshop and encompassed how individuals bring their knowledge, skills and attitudes to their clinical setting.

At the institutional level, participants were encouraged to consider identifying and correcting deficits in the following

New Resources from the CDA

The Canadian Diabetes Association has just launched clinical practice guidelines and a QRG. To access this new tool, go to guidelines.diabetes.ca, scroll to the bottom of the home page and on the footer click on the Order Resources button. When the list appears, go to Professional Resources and select the item you're looking for.

Reality Check

Participants in the workshop indicated that finances are a significant concern for many persons with diabetes when it comes to making decisions about managing their condition. While recognition of this reality and empathy on the part of the clinician with the patient are important, a national strategy that supports foot care would assist both patients and clinicians as they work together to prevent foot complications.

areas (based on recommendations by the IWGDF[11]):

- education for patients, family members and health-care staff
- a system to detect all people who are at risk, with annual foot examinations of all known patients
- measures to reduce risk, such as podiatry and appropriate footwear
- prompt and effective treatment
- auditing of all services to ensure that local practice meets accepted standards of care

Education for both patients and clinicians was a thread addressed throughout the day. Clinicians need to keep up to date on the latest information and effectively translate the information for patients, using cultural and linguistic sensitivity.

In terms of systemic improvement, each clinician has a role to play and can do something every day to bring about change, by raising awareness or connecting in some way with other decision makers. A goal for workshop participants was to have a national strategy that supports preventative foot care rather than a situation where reacting to problems after they have occurred is the norm.

The workshop was an important step in promoting change in all areas. (See "The Launch of Diabetic Foot Canada: An Initiative Aimed at Reducing the Burden of Diabetic Foot Complications" on page 14 for more on what is being done to move this agenda item forward at a national level for organizations, governments and, ultimately, patients.)

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Additional Resources

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