Promoting Foot Care and Footwear in the Community: A Case Study

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Abstract: The aim of this case study is to demonstrate the importance of an interdisciplinary and comprehensive approach in promoting appropriate foot care information and footwear for individuals living with diabetes mellitus in the community setting. The following case study details the journey of an adult who was diagnosed with Type 2 diabetes during the coronavirus pandemic. Patients living with diabetes face a high risk of developing foot complications, foot ulcers and amputation. This article presents a case study of a motivated client who engaged and who continued to be involved and advocate for her care needs.

Key words: *diabetes mellitus, education, prevention, foot care, footwear, self-management.*

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Diabetes mellitus (DM) is a major health-care concern and affects the more than 11.7 Canadians diagnosed with either pre-diabetes or diabetes[1]. Of concern are the risk of complications such as retinopathy, renal changes, cardiovascular disease, deformity, and lower extremity foot ulcers, amputations and early death[1]. Of the complications, this case study focuses on foot ulcers and amputation as feared by a person living with diabetes[2]. This case study is based on the recently released Wounds Canada (2022) *Foot Health Pathway for People Living with Diabetes: Integrating a Population Health Approach*[3]. This case is part of a larger ongoing community-based study exploring persons' experiences with foot care and footwear choices.

In this case study we discuss HH, an individual living in the community setting. We focus on her perception of risk and her preventative foot care and choice of footwear. We note deficiencies in the important information provided to HH that could help lower her risk of diabetes-related foot disease.

Client/Patient Characteristics

HH is a 62-year-old female who has been living with diagnosed Type 2 diabetes for 15 months. She was employed for 40 years in the food service industry, primarily as a food server, walking (often in high heels) and standing for long periods of time. She has been retired for approximately 24 months. She has no children and lives alone. During the interview, HH was alert and engaged. Her health care has been consistent, and she has a family physician in the community where she resides. She relies on her pharmacist for medication information as needed and from the diabetes educator for nutrition and activity education. She states she uses the internet to search for health information and does not have any preferred websites.

Data Collection

Data for this case study was collected with the permission of HH. She read and discussed an Informed Consent and a Letter of Information about the research study focused on foot care,

footwear and socks. Research ethics were approved by Cape Breton University, Nova Scotia, Canada.

Examination/History

HH has a history of spinal changes with no surgical interventions. She is a long-time tobacco user. She has smoked 15-20 cigarettes a day for 40 years and is slowly reducing her cigarette use. She states she has no medical history except for a four-year history of feeling unwell (2018 to 2021). She states during this time she focused on weight loss and was successful in reducing her weight to her present 165 lbs, primarily through walking in the community. She states that during this time she experienced nausea, dizziness and sometimes fainted. Her grandfather, mother, brother and sister have been diagnosed with diabetes, and she stated she often wondered if she too had the condition. HH stated that in 2020 she began to experience heavy legs and had difficulty walking. With the support of her physician, she was assessed for lower leg venous disease. She had vascular testing – ankle brachial pressure index (ABI) and was diagnosed with varicose veins. She was tested but not diagnosed with diabetes at this time. She was measured for compression stockings and purchased two pairs at the community pharmacy. As well, she was professionally fitted for running shoes and inserts by a podiatrist. She wears her venous leg socks and professionally-fitted shoes daily and has regular visits with the podiatrist (see figures 1, 2 and 3).

Receiving a Diagnosis

In August 2021, HH continued to feel unwell and visited her physician. She stated:

> "I thought I was dying of cancer, yet, you know, I also wondered if I had diabetes because of my long family history. You know my mother was admitted to the hospital with really high blood sugar, she had bad feet, toes, you know." (HH, Nov. 2022)

HH was diagnosed with Type 2 diabetes and upon receiving her diagnosis, she was referred to and attended diabetes education sessions. She describes being taught about nutrition and the importance of walking to stay active. She was referred for a re-assessment of her prescribed footwear, which she attended, and continued to wear compression stockings. She went on to describe recent difficulty donning the compression stockings and, in turn, started to purchase and wear diabetic socks (over-the-counter). She does not recall having any education about proper foot care or nail care, other than being told to, "watch your feet" (HH, Nov. 2022). She stated: "I am not sure what they meant – watch my feet" (HH, Nov. 2022).

As part of the study, we discussed the current diabetes foot care recommendations for daily foot

Figures 1, 2 & 3: New footwear and compression socks

Figures 4 & 5: Foot care equipment in the home setting

checks[4]; the use of a mirror to aid in foot checks, not soaking her feet, using foot cream and wearing her recommended footwear. We asked HH about her current foot care routines. She shared the following with the researchers: "I have a history of having my nails trimmed and filed every eight weeks by a pedicurist as I can afford this care." She then described in detail her foot care and foot soaking routine.

> "I soak my feet in a foot bowl at home when I want. I soak my feet as this is how the pedicurist does my feet when I get my nails done. I use my heel file and put lotion on my feet and wear my socks and shoes. I am a great walker and walk daily throughout the village." (see figures 4 and 5).

She further stated:

> "Since I was diagnosed with diabetes, I called a foot care nurse to do my nail care, but I cannot afford that type of care – you know, the price was too high, and they were not in my community. So I go to the pedicurist, this is cheaper for me, under $25.00. So, now that I know about not soaking my feet, why does the pedicurist still soak my feet when I go for my nail trimming? I told them I had been diagnosed with diabetes about a year ago." (*Field note*, Nov. 2022).

We asked HH what she thought she would do with her new knowledge about not soaking her feet. She responded: "Well, I am going to tell them next time I go for nail care…they should not be soaking my feet, I should not be soaking my feet either…" (HH, Nov. 2022).

HH also stated that she had recently learned from a friend with diabetes that she should, "… always wear shoes in the house, so now I wear these rubber shoes inside" (HH, Nov. 2022).

As part of the study, we shared the Diabetes Canada (2018) *Foot care: A step toward good health*[5] information and the Wounds Canada (2017) *Diabetes, Healthy Feet and Your Patients*[6] foot care client-centered health information. We read through the information with HH and discussed each point. HH wanted to know why no one gave her similar information about her diabetic foot care. She stated: "I think this is very different than my vein disease – why did a health-care person not give me diabetic foot information…I think I better give this to my pedicurist at the next visit?".

HH readily reviewed the information aloud and talked about potential changes to her routine. She stated she, "could easily change and wash, and not soak her feet". We asked her why she thought this change was possible. HH stated: "I do not want to have ulcers like my mother and family before me, everyone around me is losing their toes and legs – why? I do not want that to be me, I am young and have a lot of living yet to do."

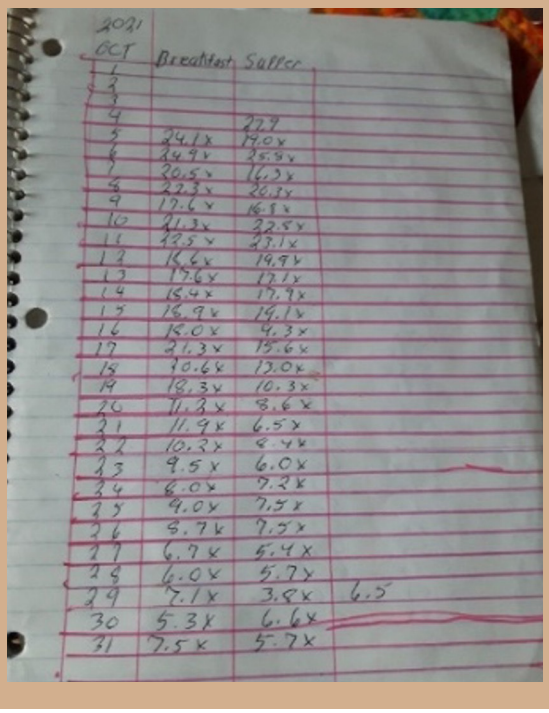
In relation to her blood glucose management, HH shared the following: "I keep track of my blood pressure and my blood sugar now, here let me show you my record keeping" (see figure 6). She stated she has shown her diary to the diabetic nurse educator who reviewed her progress

and encouraged her to continue. She stated: "I am really happy with my numbers since I take the diabetic medication. I know now why I felt unwell for so long". HH was detailed in her efforts to keep daily track of her blood glucose and could describe the relationship to her activity and glucose levels. In closing, HH described her knowledge in relation to cigarette smoking and diabetes. HH described the following:

> "Look, I know cigarettes are bad. I have smoked for so many years, I used to love weedless Wednesday to inspire me. I know if I have diabetes I should not smoke, lots of people have told me that. But look, everyone around me at work smoked, so I smoked. I am down to 10-12 cigarettes a day now. I know I must reduce my cigarettes, I am, well kind of, slowly. You know, it is hard work." (HH and *Field note*, Nov. 2022)

In February (2023) we followed up with HH by phone. She related the following about caring for her feet: "You know, changing my habits is hard work. I find it harder than I thought it would be…you know, not soaking my feet."

Figures 6: Daily log



Analysis

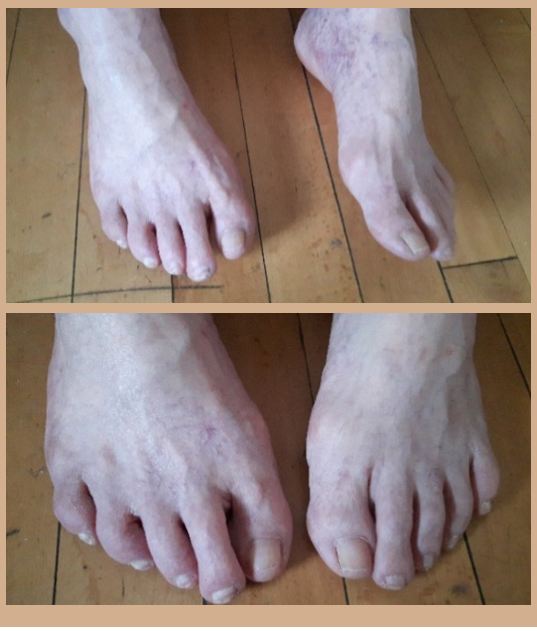
From our research visits, we learned that HH is a motivated person with strong family and peer support. She is comfortable asking questions of her health-care providers and utilizes her strengths and abilities to be responsible for her health care, including diabetes self-management.[7] She attends appointments with her family physician and knows her next appointment dates with the nurse at the diabetic clinic (nurses, registered dietitian). She is accurate in her calendar and health diary recording (figure 6) including a list of questions she wants to ask her family physician. HH readily sought funding for her compression socks and footwear when needed. Of note, is that HH did not seem to be aware of the role of diabetes socks versus compression socks.

HH was initially confident in her foot care routine. She stated: "I have good skin, soft, see no wounds…" (HH showed her feet to the researchers — see figures 7 and 8). She described in detail her routine to manage her foot care at home and was surprised that foot soaking was not recommended[4]. She wondered why foot care was not regularly discussed by her health-care providers, stating: "I am determined to keep going, I do not want to get sick like my Mom. My feet have always been a bother to me, so I soaked them, but why did no one tell me that this is not good?" (HH, Nov. 2022).

Discussion

In this case study, the descriptions of lack of foot care education provided are also well-described in the literature. Matricciani and colleagues (2015) in an integrative review of nine studies stated that persons most often engage in self foot care practices only after a foot complication occurs.[8] This was similar for health-care practitioners responsible for foot care education (diabetes nurse educators, podiatrists and general practitioners) indicating that foot care education is often only reviewed after a foot care complication arises.[8] Similarly, Gallman et al. (2017) describe barriers to appropriate foot care to include: lack of education and skills for health-care professionals

Figures 7 & 8: HH's feet



and daily time constraints. As well, they note that if patients do not complain, a foot screen or examination may not take place, and some patients may refuse.[9] Kuhnke and colleagues[10,11] in their pan-Canadian studies focused on barriers and solutions to implementation of best practice. They reported the need to support clinicians and to have the time to complete foot screening, and also emphasized the need for clinicians to develop the necessary attitude, knowledge, and skill to conduct foot screenings and risk stratification, and to have the time to practice foot screening. They also emphasize the need for funding for preventative nail care, foot care, and footwear supported by culturally relevant education for persons and their families.

From an organizational perspective, policy that supports prevention can be developed and led at the provincial level [in Canada]. For example, health leaders in Alberta[12,13] emphasized the need for organizational changes to be led through the implementation of a comprehensive foot care program.[10,11] In the province of Nova Scotia it was reported that, upon implementation of a diabetes-related foot pathway, screening increased significantly and follow up intervals improved.

Wounds Canada *Foot Health Pathway* has been released nationally.[3] Diabetes-related

Reference: 1. West, D. (written communication-letter) December 2013

foot complications, such as foot ulcers and amputations, are often leading causes of morbidity in patients with diabetes. This pathway focuses on prevention, as many of these diabetes-related complications are preventable and manageable through early identification of risk and intervention with an interdisciplinary team.[1,2,4,7] Many patients with diabetes lack the awareness and education to recognize the importance of daily foot care, what to look for and how to act when problems occur. Compounded with this challenge is the lack of timely, consistent and coordinated delivery of health services. Implementing the Wounds Canada *Foot Health Pathway* can assist clinicians, leaders, and policy makers to allocate resources that support a risk-based approach, including early risk assessment and plan-of-care, as well as re-screening, re-assessment and evaluation of the interventions typically involved in each aspect of care.[3]

Summary

This case study is part of a larger study. This particular case highlights the story of a motivated client in the community. She has a family history of diabetes and amputation, and her narrative is rich and personal. She is motivated to do foot care according to the recommendations. She described the fear of amputation and wondered why health-care professionals did not review proper foot care, especially the recommendation against soaking her feet. This case study emphasizes the need for interdisciplinary health-care professionals to work collaboratively to ensure that current and comprehensive information is provided to individuals to support their self management of diabetes mellitus and reduce the risk of diabetic foot complications. ■

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