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Diabetic Foot Wound Care

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Diabetic Foot Wounds: Educational Pamphlet

Richard Q. Vuong

Brookfield Primary Care, Brookfield, CT

R2 (5/25/2023-6/30/2023)

Drs. Laurie Schedgick-Davis & Julia Auerbach

Problem Identification

- Social Determinants of Health: Patient Education
- In my time at Brookfield primary care in Brookfield, CT, annual diabetic foot examinations were a common occurrence
- Each patient with diabetes underwent a comprehensive foot exam performed by both the medical assistant and physician
- However, many patients did not realize that they should be taking care of their feet everyday or did not know how to while at home
- Goal: **provide educational materials for patients with diabetes on how to adequately care for foot wounds**

Public Health Cost

- Diabetes-related foot ulcers and amputations cost US health care payers **\$11 billion** with \$10 billion attributed to Type 2 Diabetes Mellitus (2011).¹
- In fact, up to 27% of the direct medical cost of diabetes can be attributed to diabetic peripheral neuropathy.¹
- Thus, education on early recognition of diabetic foot wounds before ulceration progression and potential amputation can save substantial healthcare costs while preventing further morbidity.

Community Perspective

- 2 interviews: 1 medical assistant (Karen); 1 primary care physician (Julia Auerbach, MD)
- When asked what is the most common mistake patients/caretakers make when caring for diabetic feet:
 - **Patients are not “being serious about the potential consequences of diabetes” often saying “this would not happen to me”** – Karen
 - **Patients are not able to check, nor can they reach their own feet because of their body habitus** – Julia Auerbach
- Both individuals and a third healthcare provider (Laura Schedgick-Davis, DO) supported educational pamphlets for diabetic wound prevention

Intervention & Methodology

- A diabetic foot wound pamphlet was created to provide quick and high-yield information on how to properly care for feet in patients with diabetes.
- Goals of intervention:
 - Emphasize daily preventative measures
 - Dissuade behaviors that exacerbate or increase the risk of diabetic foot wounds
 - Underscore potential consequences of untreated diabetic foot wounds
 - Highlight alarm features that need to be seen by a healthcare provider urgently

Results – Pamphlet

- Information on the pamphlet includes:
 - Visual inspection of skin
 - Trimming toenails straight across lines to prevent ingrown toenails²
 - Wash feet daily and dry carefully especially between toes
 - Wear properly fitting shoes²
 - Avoid walking barefoot
 - Avoid open-toed shoes
 - Notify your doctor if:
 - Foot temperature has increased significantly or color has changed
 - Blisters, cuts, scratches, skin abrasion, or ulcers have developed
 - Potential consequences of not caring for diabetic feet (i.e. ulceration, pain, infection, amputation)

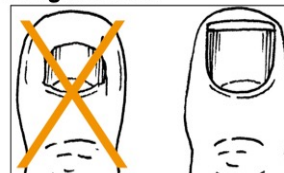
Taking care of my feet – Diabetes

Things to do every day:

- **Inspect your feet.**
 - Check the bottom, top, sides, and back for any cuts, bruises, bug bites, or skin changes.
 - Use a mirror if it's hard to see the bottom of your feet!
 - Look for moisture, blisters, cracks, calluses, open sores, dry skin, changes in skin color, and swelling.
- **Clean your feet.**
 - Wash your feet with warm tap water and mild soap.
 - Rinse your feet then dry (make sure to dry between your toes!)
- **Feel your feet.**
 - Feel your feet for changes in skin temperature.
- **Wear properly fitting shoes.**
 - Inside length of the shoe should be 1-2 cm longer than your foot.
 - Shoe should not be too tight or loose.



- **Cut toenails straight across.**



Things to avoid:

- Walking barefoot
- Open-toed shoes
- Tight-fitting socks
- Narrow-pointed shoes

Call your doctor if:

- You notice a significant change in foot skin temperature.
- You notice a significant change in foot skin color (i.e. red).
- You notice a new blister, cut, scratch, or ulcer on your foot.
- Swelling or pain develops around a cut or ulcer on your foot.

Potential consequences of untreated diabetic foot wounds:

- Deep ulcers
- Severe pain
- Infection
- Amputation of toe, foot, or leg



Theoretical Evaluation of Intervention

- 4-point questionnaire with quantification as necessary (Never, Once a month, Once a week, Every day) to be administered at regular Diabetic follow-ups
 - Can be filled while in waiting room or with MA
 - Asks:
 - How often do you inspect the skin of your feet?
 - How often do you wash your feet?
 - How often do you wear open-toes shoes?
 - Have you noticed any cuts, bruises, scratches, blisters, or any other skin abrasions on your feet in the past month?
- Calculate # of patients who received pamphlets
- Compare incidence of foot ulcers in diabetic patients who took the pamphlet vs. those who did not take the pamphlet.
- Limitations:
 - Development of foot ulcers is multifactorial (i.e. A1C control, disease course, etc.)
 - Thus, a single educational pamphlet may or may not be attributed to the eventual development of chronic foot wounds
 - Not all patients who receive pamphlets will implement the pamphlet's recommendation
 - Patients lost to follow up will not be able to evaluate implementation of preventative behaviors

Future Directions

- Providing the diabetic foot care pamphlet to local podiatrists and their offices for further community dissemination.
- Calculate attributed relative risk (ARR) of development of foot ulcers/wounds in diabetic patients who received the pamphlet vs those who did not
- Calculate number needed to treat to prevent diabetic foot ulcers/wounds based off of ARR.
- QR code on the pamphlet that redirects to online educational resources on living with Diabetes Mellitus.
- Collaborate with diabetic footwear companies to provide discount codes that can be placed onto the pamphlet for further encouragement of its use.
- Caretaker pamphlet tailored to those who are family members or primary caretakers of patients with diabetes on how to help their loved ones manage this chronic illness and its complications.

References

1. Gordois A, Scuffham P, Shearer A, Oglesby A, Tobian JA. The health care costs of diabetic peripheral neuropathy in the U.S. *Diabetes Care*. 2003;26:1790–1795.
2. Schaper, NC, Netten, JJ, Apelqvist, J, Bus, SA, Hinchliffe, RJ, Lipsky, BA. Practical Guidelines on the prevention and management of diabetic foot disease (IWGDF 2019 update). *Diabetes/Metabolism Research and Reviews*. 2020;36(S1). <https://doi.org/10.1002/dmrr.3266>. Figures of Pamphlet