



# Podiatric Medicine: A Major Contributor to Mortality Reduction in Patients with DFUs

Here's an epidemiological analysis.

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Preventive medicine is the science and art of preventing disease, prolonging life, and promoting physical and mental health for groups, communities (i.e., public health), as well as for individuals and families. It is the beginning of the natural history of disease with the objective of preventing further evolution so that the disease or disorder does not move further in its course. It needs to be emphasized that podiatric medicine is not only the diagnosis and treatment of problems affecting the foot, but it also includes preventing foot problems from occurring and problems associated with the foot.

These include diseases and disorders intrinsic to the foot but also problems extrinsic to the foot and associated with the pedal extremity. For example, in diabetes this includes preventing foot ulcers and lower limb amputation. However, it also includes the occurrence of mortality, which is not widely realized to be among the functions of podiatric medicine by both its practitioners as well as other medical specialists.

In all fields of medicine, one needs to consider three levels of prevention... namely primary prevention, which consists of health pro-

motion and specific disease protection, secondary prevention, which includes early diagnosis, prompt treatment, as well as disability limitation, and tertiary prevention, which is rehabilitation.

States, have diabetes, with 90 to 95 percent of those cases being type 2.

The number of adults diagnosed with diabetes has more than doubled over the past 20 years, while only one in five people with diabetes

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## The Importance of Prevention in Patients with Diabetic Foot Ulcers

Podiatric physicians know that patients who have diabetes mellitus are an important component of podiatric medical practice. However, more recognition must be given to the fact that podiatric medical intervention can interrupt the natural history of diabetic conditions that affect the foot; as well as the sometimes-devastating conditions that may occur elsewhere in the body if the natural history of diabetic foot problems is not interrupted. More than 34 million people, including 13 percent of all adults in the United

States, remain unaware that they have it. About a third of the entire U.S. adult population (approximately 88 million people) have pre-diabetes, and 84 percent of pre-diabetics don't know about their own condition.<sup>1</sup> The greatest increase in type 2 diabetes is in Black or Hispanic youth, and the highest number of youths per 1,000 living with type 2 diabetes is in Black or Native American youth.<sup>2</sup>

A 2021 study of 223,459 people by Chamberlain, RC, et al. appearing in *Diabetes Care*, included those who were diagnosed with diabetes from

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## Mortality Reduction (from page 107)

January 1, 2012, through November 30, 2017. It was noted that 10.7% of those people had type 1 diabetes, had a foot ulcer (DFU), 2.1% of whom underwent amputation, while 9.3% died. In people with type 2 diabetes, 22.9% of that population had a foot ulcer, 1.1% underwent amputation, and 22.3% died. In people with diabetes without a history of foot ulcers, 20.1% developed them, 0.7% underwent amputation, and 19.6% died, while in the cohort with a history of a DFU, 49.5% developed additional ulcers, 9.4% underwent amputation, and 44.5% people died. This data demonstrates a strong association between a history of DFU, amputation, or death.<sup>3</sup>

patients with diabetes are a very significant cohort of the practitioner's population, little emphasis is given by the podiatric physician to an important component of the natural history of the disease, namely a major increase in mortality.

Primary preventive measures should include at an adult patient's initial visit for any reason (i.e., even a patient not yet diagnosed with diabetes), a determination that should be made if the patient had not been to their primary care physician within the past three months. If they had not had such a visit, a fasting, screening HbA1c should be performed even if they never have been diagnosed with diabetes (i.e., to determine whether they do have diabetes or pre-diabe-

ly, in patients with diabetes, any of these findings place the patient at risk for a DFU.

It needs to be emphasized that those who practice podiatric medicine are indeed physicians. Their specialty, like with other physicians, has responsibilities that affect not only a single part of the body but also has an important focus on mortality. What those who practice the profession do is certainly important in preventing, diagnosing, and treating foot problems, but the responsibility of saving lives is also an important component of the scope of practice. **PM**

## References

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- <sup>3</sup> Chamberlain RC, et al. Foot ulcer and risk of lower limb amputation or death in people with diabetes: a national population-based retrospective cohort study. *Diabetes Care*. 2021; doi:10.2337/dc21-1596.
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- <sup>5</sup> Moulik K. Amputation and mortality in new-onset diabetic foot ulcers stratified by etiology. *Diabetes Care*. 2003 Feb;26(2):491-4. doi: 10.2337/diacare.26.2.491
- <sup>6</sup> Dietrich I, et al. The Diabetic Foot as a Proxy for Cardiovascular Events and Mortality Review *Curr Atheroscler Rep*. 2017 Oct 2;19(11):44. doi: 10.1007/s11883-017-0680-z.

## Patients whose HbA1c is greater than 5.7% are likely to have pre-diabetes or diabetes and should be referred to their primary care physician.

A 2015 study by Margolis, DJ reported in *Diabetes Care* that individuals with diabetes who had a lower extremity amputation (LEA), are more likely to die at any given point in time than those who had diabetes but no LEA.<sup>4</sup> Another study by Moulik, PK, et al. of 185 patients revealed that five-year amputation rates in patients with diabetic foot ulcers was highest in those with ischemia (29%) and neuroischemia (25%) compared to neuropathy (11%). Five-year mortality was higher in ischemic ulcers (55%) compared to neuropathic ulcers (45%).<sup>5</sup>

Another study (Dietrich, I, et al.) estimated that the five-year mortality rate following amputation in patients with diabetes was 39-68%, a life expectancy comparable to aggressive types of cancer or advanced congestive heart failure.<sup>6</sup> Podiatric physicians need to be aware that death is a greater risk than is amputation in people with a history of DFU.

## Specific Podiatric Intervention

However, when looking at podiatric medical practice today, while

For those people without diabetes, the normal range for the HbA1c is between 4 and 5.6% while those patients with a range between 5.7 and 6.4% have pre-diabetes and a significant chance of getting diabetes.

Patients whose HbA1c is greater than 5.7% are likely to have pre-diabetes or diabetes and should be referred to their primary care physician. In addition, the podiatric physician should perform a lower extremity vascular and neurological examination to determine if ischemia and/or neuropathy is present. Patients with diabetes or pre-diabetes also need to have an assessment of the foot to determine their relative susceptibility to a DFU.

In addition to a vascular and neurological assessment, this assessment should also include a biomechanical examination to determine if there is excessive pressure on any part of the foot, a determination if the patient is wearing improperly fitting shoes that may cause irritation to areas of the foot, and assess if there is a foot deformity. Individually or collective-



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