



It Takes a Team

Podiatry has proven to be an integral member in the treatment of DFUs.

BY BRIAN D. LEPOW, DPM

The number of people living with diabetes in the United States and Worldwide continues to increase exponentially. In 2020, Diabetes was the eighth leading cause of death in the US. (<https://www.cdc.gov/diabetes/library/reports/reportcard/national-state-diabetes-trends.html>). Research has shown this trend to be linked to multiple factors, including population growth, an aging population, modern urbanization, and the increased prevalence of obesity and lack of physical activity. Approximately 37.3 million people—or 11.3% of the US population—had diabetes (diagnosed or undiagnosed) in 2019. This included 37.1 million adults 18 or older, or 14.7% of all US adults. About 8.5 million of these adults had diabetes but were not aware that they had it. (Centers for Disease Control and Prevention. National Diabetes Statistics Report. Accessed February 5, 2022. <https://www.cdc.gov/diabetes/data/statistics-report/index.html>)

These findings indicate that the “diabetes epidemic” continues even

if the incidence of obesity were to remain constant.¹ These trends, like others above are only going to continue to increase unless more is done for prevention of the disease.

There is a direct correlation that can be made in those patients diagnosed with diabetes and those

Annually, published data and clinical experience have shown that diabetic foot ulcers (DFUs) are an epidemic that has not only become a physical burden on the medical community as a whole, but also has added to insurmountable costs due to inadequate care leading to unnec-

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plagued with peripheral neuropathy and peripheral arterial disease. Those factors, along with poor glycemic control and minor foot trauma, further increase the likelihood that patients with diabetes will develop an ulcer. 15% of those diagnosed diabetics in the United States will eventually develop a foot ulcer.³ Even more alarming is the recurrence rate of those ulcerations at two to five years, numbers exceeding 50%, with 15-24% of those leading to an amputation.

essary procedures, prolonged hospitalizations as well as increased rates of readmission due to lack of coordinated care. Reiber et al demonstrated with the AHRQ nationwide inpatient study that the length of hospital stay for a diabetic patient with an infected DFU surpasses that of myocardial infarctions and stroke patients.⁴

The Cost of Diabetes

In 2018, The American Diabetes Association (ADA) released new re-

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search estimating the total costs of diagnosed diabetes to have risen to \$327 billion in 2017 from \$245 billion in 2012, when the cost was last examined. This is a figure that represents a 26% increase over a five-year period (<https://diabetes.org/about-us/statistics/cost-diabetes>). \$237 billion of that cost was found to be due to direct medical costs and \$90 billion in reduced productivity.⁵ The largest components of medical expenditures were found to be hospital inpatient care at 30%, 30% for prescription medications to treat complications of diabetes, 15% for anti-diabetic agents and diabetic-related supplies, and physician office visits accounting for 13%.⁵ (<https://diabetes.org/about-us/statistics/cost-diabetes>)

People with diagnosed diabetes incur average medical expenditures of about \$16,752 per year, of which about \$9,601 is attributed to diabetes. People with diagnosed diabetes, on average, have medical expenditures approximately 2.3 times higher than what expenditures would be in

In the United States, the estimated average cost of treating a DFU ranges widely from \$4,595 per ulcer episode to nearly \$28,000 during the two years after diagnosis. This is a number that can easily surpass \$30,000 during the life cycle of the ulcer.

To further highlight the problem, let us look at the second most populous state in our nation, Texas. In 2018, an estimated 14.6 percent of

demonstrated that podiatric care not only reduces the risk of one having an amputation, but also dramatically impacts the decreased rate of hospitalization and subsequent rate of re-ulceration. Podiatric medical care in those with a history of DFUs can reduce high-level amputation rates by 65% to 80%.⁹ The role of a podiatrist has become increasingly important in implementing an algorithm of care

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Texans over the age of 18 reported that they had been diagnosed with diabetes.⁶ In addition, 37.2% of the adult population had prediabetes with blood glucose levels higher than normal but not yet high enough to be diagnosed as diabetes, with an estimated 187,000 people being diagnosed annually with the disease.

This prevalence significantly decreased with increasing education

in the pathway for early detection, rapid intervention and prevention of a DFU. In 2010, an independent study out of Duke University found that patients with severe lower extremity complications who only saw a podiatrist experienced a lower risk of amputation compared with those patients who did not seek podiatric care. The Duke study also concluded that a multidisciplinary team approach most effectively prevents complications from diabetes and reduces the risk of amputations.¹⁰

Studies have demonstrated that podiatric care not only reduces the risk of one having an amputation, but also dramatically impacts the decreased rate of hospitalization and subsequent rate of re-ulceration.

the absence of diabetes.⁵ For the cost categories analyzed, care for people with diagnosed diabetes accounts for more than one in four healthcare dollars in the U.S., and more than half of that expenditure is directly attributable to diabetes.⁵

The unpopular decision to amputate an extremity does not prove to be any less detrimental to the patient nor reduce the cost to the medical healthcare system. Numerous studies have demonstrated that a patient who undergoes an amputation of one limb carries a greater than 50% increased risk of amputation of the contralateral limb within two years, carrying a five-year mortality rate of 50 to 70%.

and annual household income levels, which is in accordance with the national trends. The total direct medical expenses of diabetic-related complications in the state exceeded 18.5 billion dollars in 2017, with an average of \$6.7 billion dollars spent on indirect cost from lost productivity. It is statistics such as these which should lead us to do more to help curb costs and ultimately educate the population on a healthier way of life.

We in the podiatric community have seen the importance of podiatric care among our diabetic patient population. For many, we are the gatekeepers for the diagnosis of PAD and associated foot trauma. Studies have

A Team Approach

The World Health Organization estimates that 85% of amputations are preventable through a team approach to care. A retrospective study from Sweden also showed a 78% decrease in major amputation rates after the implementation of a multidisciplinary program for the management of the diabetic foot.¹¹ Across the country, medical communities have begun to research and develop diabetic foot algorithms and put teams together with the main goal of healing and preventing DFUs, thus reducing the rate of higher-level amputations. These communities have enlisted the specialized talents of many highly trained individuals in the fields of podiatric surgery, vascular surgery, plastics, orthopedics, infectious diseases, endocrinology, and many others.

Support teams such as advanced practice providers (APP), wound care

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nurses, and medical assistants also play a vital role in the successful treatment of this patient population. By forming these teams, physicians and wound care centers have found by creating a clinical environment that incorporates a community of medical knowledge, one can get closer to achieving this goal.

One of the most important relationships that has developed over the years is the one between podiatry and vascular surgery, the “toe and flow model”. The Society for Vascular Surgery (SVS) and the American Podiatric Medical Association (APMA) have worked tirelessly to integrate care and implement protocols for the treatment and management of the diabetic foot. This relationship

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has proven to be a key part of achieving success with DFUs, amputation prevention and diabetic foot remission.

A prospective study of a United States population showed that podiatric and vascular surgery collaboration resulted in a decrease of 83% in higher-level amputations at five years.¹² The increased use of percutaneous endovascular revascularization techniques has further broadened the spectrum of revascularization options for diabetic patients with critical leg ischemia. Rapid intervention by the vascular surgery (flow) team with aggressive and effective revascularization techniques are crucial in a limb preservation team.

Early assessment, rapid aggressive treatments and extensive patient education by multidisciplinary care teams represent the best approach to manage this high-risk population of patients. A Marklov study out of the Netherlands concluded that if insulin glucose control and optimal foot care were provided to all diabetic patients in the Netherlands using these multi-specialist algorithms, the cost for managing diabetic ulcers and rate of amputations would decrease by 53% and 58%, respectively.¹³

For those practitioners already involved with limb preservation, it is easy to clearly see the benefits of this team approach. The multidisciplinary care team can help improve life expectancy, increase quality of life, reduce the incidence of foot complications, and reduce costs to the healthcare system. By being able to centralize all vital specialties and group them into one team, those caring for and treating these patients are now better able to fight diabetic foot disease together, seeing better outcomes with a reduced risk of morbidity and mortality and leading to more amputation-free survival days ahead. **PM**

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Dr. Brian Lepow completed his surgical residency training at The Mount Sinai Medical Center in New York, where he served as chief resident in Podiatric Medicine and Surgery. Following completion of his residency program he served as Fellow in Diabetic Limb Salvage and Reconstructive Surgery at the University of Arizona. In addition, Dr. Lepow held an academic appointment in the department of surgery at the University of Arizona College of Medicine.

It was during his fellowship that Dr. Lepow became acutely aware of the need for early diagnosis and formation of aggressive treatment plans in diabetics with lower extremity complications. Presently, Dr. Lepow is the Chief of Podiatry and Director of Clinical Operations at HOPE Vascular and Podiatry, a multidisciplinary clinic with a strong focus in limb preservation. He has lectured worldwide and has published numerous manuscripts on the subject and has become an expert in the field of limb preservation.