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EDITORIAL

**Diabetes-Related Amputations
*A Pandemic within a Pandemic***

Lee C. Rogers, DPM*
Robert J. Snyder, DPM†
Warren S. Joseph, DPM, FIDSA‡

*Associate Editor, JAPMA; Board of Directors, American Board of Podiatric Medicine, Los Angeles, CA.

†Associate Editor, JAPMA; Professor and Director of Clinical Research, Barry University School of Podiatric Medicine, Miami Shores, FL.

‡Editor, JAPMA; Adjunct Clinical Professor, Arizona College of Podiatric Medicine, Midwestern University, Glendale, AZ.

The COVID-19 pandemic has resulted in millions of infections and more than one million deaths worldwide, but the toll of indirect effects of the pandemic are now being discovered. There have been an estimated 100,000 excess deaths in the United States since February 1, 2020.¹ Excess deaths are those unrelated to COVID-19 but that are higher than the predicted number of deaths from all other causes. The World Health Organization surveyed 155 countries during May 2020 and found half of the countries had partially or completely disrupted services for diabetes and diabetes-related complications and warned of the pandemic's global impact on noncommunicable diseases.²

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In June 2020, an editorial in the *New England Journal of Medicine* (NEJM) spoke of the “Untold toll [of the] pandemic’s effects on patients **without** COVID-19.”³ Now 4 months later, that toll is no longer untold especially for patients with lower-extremity complications of diabetes.

Early in the pandemic, The Alliance of Wound Care Stakeholders advised hospitals, policymakers, and governments not to close wound centers or delay necessary care to wound patients because it would result in an increase in infections, hospital admissions, ER visits, and amputations.⁴

In “A Tale of Two Cities,” Shin et al⁵ described the approaches to the diabetic foot at centers of excellence in Los Angeles and Manchester, England. Both centers used telemedicine to reduce in-person contact with the health system, but the authors cautioned not to avoid necessary care. Appropriate triage was noted as a central necessity in the strategy to reduce amputation during epidemics (STRIDE).⁶ Rogers et al⁷ proposed the Pandemic Diabetic Foot Triage System, which helps determine the urgency and site needed for treatment. In “Wound Center Without Walls,” Rogers et al⁸ later described strategies to reduce the COVID-19 exposure risk to the patient while still providing the best practices in wound care in lower risk settings.

Accompanying this editorial in the *Journal*, [Casciato and coauthors⁹](#) report on the effect of the COVID-19 pandemic on those with diabetic foot problems in a Level One Trauma Center in Ohio. A comparison of patients admitted to the podiatric service before versus during the pandemic found that patients with diabetes were more likely to present

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with IDSA severe infections and more likely to present emergently. Patients with diabetes were 10.8 times more likely to undergo any level of amputation and 12.5 times more likely to receive a major amputation (transfemoral or transtibial) during the pandemic.

Three recent additional published reports found similar results in the United States and Europe. From Italy, Caruso et al¹⁰ found that patients admitted to the hospital in 2020 versus 2019 were more likely to be emergencies and have gangrene; the number of amputations doubled. From The Netherlands, Schuivens et al¹¹ compared pandemic-period data with that of 2018 and 2019. They found that in 2020, patients presented with more severe peripheral arterial disease (scored by the Rutherford Classification) and there were 3 times the number of amputations versus 2019. In fact, there have been more amputations performed in 2020 so far than in 2018 and 2019 combined.¹¹ This is especially notable since The Netherlands has a strategy for team-based care that previously reduced diabetes-related amputations by 34% nationwide.¹²

From the United States, Lancaster et al¹³ compared pre-pandemic limb salvage service data in a university vascular practice from several affiliated hospitals with that of the “shelter-in-place” time period. Using the Wifl Classification,¹⁴ they found a more severe presentation of patients during the pandemic, mostly due to increased severity of infections. The number of major amputations more than tripled during the pandemic and the high-low amputation ratio, a quality marker in limb salvage, more than doubled. All

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four reports note the pandemic's negative effect on best practices in diabetic foot ulcer care resulting in delayed diagnosis and treatment. It is likely that patients' reluctance and fear to seek medical care during this period created complications that resulted in these catastrophic results.

Amputations are not without their consequences either. Major limb loss affects quality of life and results in excessive costs to the health system. Major amputations are also associated with a 70% 5-year relative mortality rate.¹⁵ Best practices in diabetic foot care are both limb and life saving. We surmise that this increase in the rate of diabetes-related amputations will also contribute to the excess mortality resulting from the COVID-19 pandemic. The *NEJM* editorial cautioned us not to “make trade-offs [in care] we don't have to make.” From these reports, it is clear that delays in care for diabetic foot ulcers have catastrophic effects. Increased awareness, proper prioritization, and efficiencies of care in lower risk settings are the first steps in mitigating this parallel pandemic of diabetes-related amputations.

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