

Dartmouth Atlas Report Series: How Diabetes & PAD Are Putting Patients at High Risk for Amputations

A 2014 Dartmouth Atlas report outlines the scope of diabetes and peripheral arterial disease (PAD) in the U.S., with a focus on geographic variations in both preventative services and interventional treatment. The report, which uses 2007-2011 Medicare data, specifically looks at these data while recognizing the ultimate goal of avoiding amputation and preserving the ability to walk for patients.

“Given the poor ability of patients with diabetes to heal, the poor blood supply caused by arterial insufficiency known to occur in PAD, and the inability of antibiotic therapy to be delivered effectively through narrowed blood vessels, a “perfect storm” for uncontrolled infection results.”

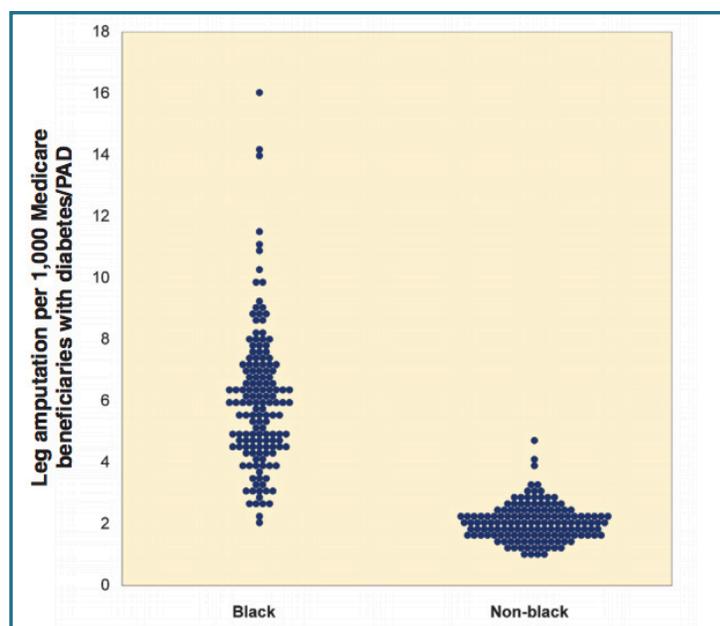
- Dartmouth Atlas Report

According to the report, nearly 100,000 Medicare patients annually undergo a major leg amputation, more than half the result of diabetes. The connection between diabetes and PAD, results in a negative synergistic effect, putting patients living with both conditions at greater risk for amputation than patients living with just one of the diseases. The considerable risks diabetic and PAD patients face coupled with the challenges of managing both conditions simultaneously and effectively, make strategies for prevention and revascularization critically important.

Racial & Regional Disparities in Amputation

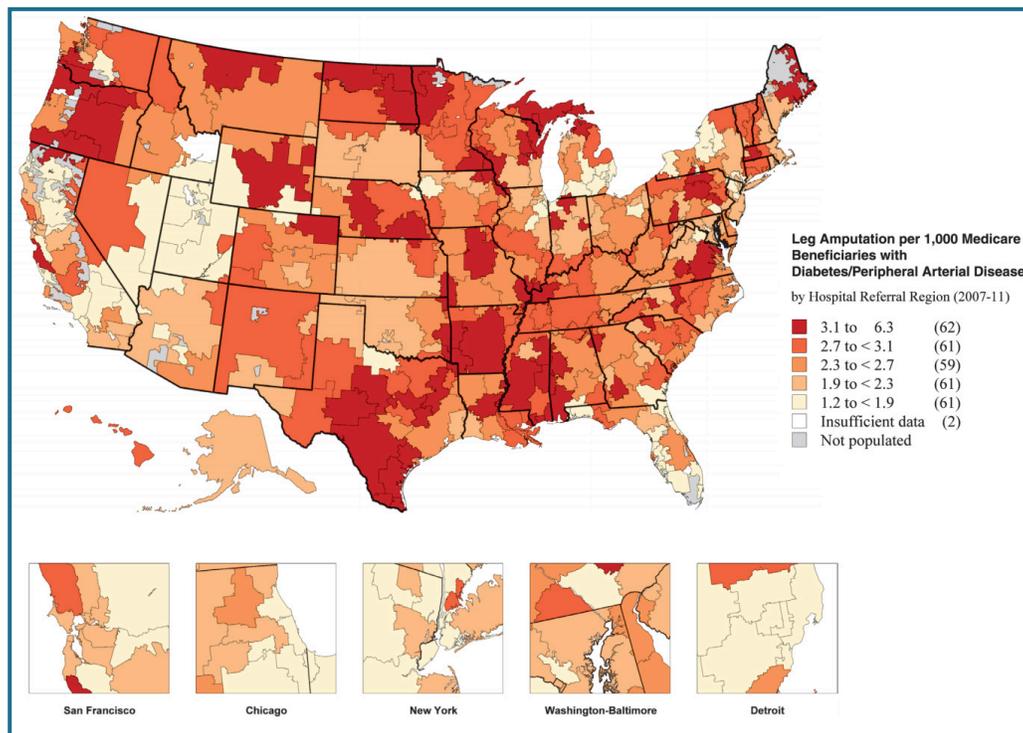
The Dartmouth Atlas report looks closely at amputation rates across the country, noting that amputation rates tend to be low in areas of the U.S. where diabetes rates are low and patients are unlikely to be poor or African American. In other areas, where more African Americans are living with diabetes, amputation rates are measurably higher.

- In regions with larger populations of African Americans living with diabetes, the amputation risks are **as much as three to four times higher** than the national average.
- Nationally, the amputation rate among African American Medicare patients was **nearly three times higher** than the rate among other beneficiaries (5.6 per 1,000 vs. 2.0 per 1,000).
- Nationwide, between 2 and 3 per 1,000 patients with diabetes and PAD are at risk for amputation. Among black communities, this rate can be **up to eight times higher** in some geographic areas.
- When comparing black and non-black patients, **even the low-risk black patients are at greater risk for amputation than nearly all non-black patients.**



Leg amputation per 1,000 Medicare beneficiaries with diabetes and PAD by race among hospital referral regions (2007-11)

Each blue dot represents the rate of leg amputation among patients with diabetes and PAD in one of 306 hospital referral regions in the U.S. Rates are adjusted for age and sex.



Leg amputation per 1,000 Medicare beneficiaries with diabetes and PAD (2007-11)

Rates are adjusted for age, sex, and race.

The Role of Preventative Measures & Interventional Treatment

The report suggests that among diabetes and PAD patients, both preventative measures and interventional treatments, specifically revascularization, are underutilized, especially among African American patients. Black patients also experience poorer outcomes even when interventional treatments take place.

- While the rates of revascularization were higher among black patients in many regions, variation for both endovascular procedures and open bypass surgery was much more dramatic among black patients, indicative of a poorer understanding of what works best to limit amputation risk for these high-risk populations.
- Four out of five patients will still be alive and avoid amputation two years after their initial treatment to avoid limb loss, however the results are worse for black patients when compared to non-black patients.

SOURCE: *Variation in the Care of Surgical Conditions: Diabetes and Peripheral Arterial Disease*. A Dartmouth Atlas of Health Care Series. http://www.dartmouthatlas.org/downloads/reports/Diabetes_report_10_14_14.pdf