

**Definitive Surgery? Risk Factors for Reoperation Within 1 Year After Below-Knee Amputation**

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**Purpose:** Below-knee amputations (BKAs) are a relatively common procedure in orthopaedic patients with advanced pathology of the lower extremities due to infection, trauma, and neoplastic disease. Prior studies of outcomes following BKA have largely relied on the National Surgical Quality Improvement Program (NSQIP) database, whose 30-day postoperative window does not cover the entire at-risk period. The purpose of this study was to elucidate reoperation rates along a more clinically meaningful 1-year timeline and identify risk factors for reoperation.

**Methods:** We conducted a retrospective review of all BKAs performed by the orthopaedic surgery service at our Level-I trauma center from 2008 to 2018. Patients were identified by CPT codes. Collected data included age, indication, body mass index, diabetes, hemoglobin A1c, closure method, and substance use. Risk factors for reoperation were determined using multivariate logistic regression modeling. Survival data from time of surgery was plotted using Kaplan-Meier curves.

**Results:** Of 139 eligible patients, 52 (37%) underwent reoperation. The average time between surgery and reoperation was 93 days. Hemoglobin A1c was the only predictor variable identified after multiple logistic regression modeling (odds ratio 1.07 per point,  $P = 0.046$ ). Survival analysis showed that patients above a calculated hemoglobin A1c cutpoint of 8.1 had a statistically significant greater probability of undergoing reoperation within 1 year, with fewer than 25% remaining.

**Conclusion:** BKA carries a high risk of reoperation within 1 year. Uncontrolled diabetes (hemoglobin A1c >8.1) is a major risk factor for reoperation within 1 year. This information will be useful in counseling patients and setting expectations about outcomes following surgery.