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Predictors of Prolonged Care Prior to Limb Loss: The Role of Demographics, Co-Morbidities, and Social Determinants of Health

Introduction: Non-traumatic lower limb amputations are a major health burden, most often linked to medical risk factors such as diabetes and peripheral artery disease. However, these clinical factors do not act in isolation. A growing body of evidence suggests that demographic characteristics and social determinants of health strongly influence the progression from chronic wounds to limb loss independent of comorbid conditions. Race and socioeconomic status are associated with disproportionately higher rates of amputation in the setting of comparable comorbidities. Together, these findings underscore the combined influence of demographics, social determinants of health, and comorbid disease on the duration of wound care and amputation incidence. This study aims to determine whether demographics, co-morbid disease, or social determinants of health are most predictive of prolonged wound care prior to limb loss.

Methods: A retrospective cohort study collected data by manual chart abstraction from patients treated at University Medical Center-New Orleans for lower extremity limb loss. Data abstracted included demographics (age, sex, race, ethnicity), co-morbid diseases (diabetes, peripheral vascular disease, chronic renal disease, body mass index), and Area Deprivation Index which is composite measure of social deprivation calculated by state decile and national percentile. Wound care frequency and duration were multiplied to generate a count of wound care episodes. Negative binomial regression was used to test for associations between wound care and either demographics, comorbidities, or ADI. Sequential model fit was compared using Akaike Information Criterion (AIC).

Results: Wound care utilization data were available for 26 patients. Considering the average frequency and duration of wound care, the average count of wound care episodes was 28 visits with a maximum number of 112 visits. Regression analysis with these preliminary data did not indicate associations between number of wound care visits and ADI, demographics, and comorbid disease. The lowest AIC indicating potential best fit model tested associations between care and ADI.

Conclusion: Determining the most predictive factors of a health care utilization or outcome is beneficial to understanding risks and potentially informing which modifiable risk factors are most influential. While our preliminary data were not adequate to draw conclusions from the planned statistical analysis, the importance of social deprivation is suggested.