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"Using Opportunity and Deprivation Indexes as a predictor for pediatric loss to follow up after gunshot induced fracture"

Introduction: Gunshot-related traumas are a prevalent issue in the Greater New Orleans Area. Pediatric patients are an especially vulnerable population within this group due to the effects of ballistic injuries on their lifelong physical and mental development. This study aims to integrate social determinants of health with clinical care outcomes in pediatric orthopedics. We also investigate the use of the Area Deprivation Index (ADI) and Childhood Opportunity Index (COI) as predictors of loss to follow-up after a gunshot-related fracture.

Methods: This is a retrospective chart review of gunshot-related fracture patients identified by the CHNOLA Trauma Registry. Variables for patient demographics and background, injury and treatment, and outcomes were manually abstracted from the medical record. ADI as state decile and national percentile were identified using patient addresses from https://www.neighborhoodatlas.medicine.wisc.edu. COI as state and national percentiles were identified using census track from https://www.diversitydatakids.org/child-opportunity-index. Logistic regression analysis was used to test for associations with demographics, ADI, and COI with loss to follow up. Separate analyses for each ADI and COI were performed to avoid multicollinearity.

Results: In preliminary analysis of 32 abstracted records, subjects were mean age of 14.0 +/-4.8 years of age, 81% (26/32) male, and 84% (27/32) African American. 50% of patients were lost to follow up prior being formally discharged from clinical care. COI was available for 22 subjects where state and national percentile means, respectively, were 38.2+/-5.7 and 24.5+/-4.1indicating a lower than average composite measure of opportunity. State decile ADI mean was 5.25 +/-2.3 indicating mid-range level of disadvantage. National percentile ADI mean was 69.2+/-15.3 indicating a higher than average composite measure of disadvantage. Loss to follow up was not associated with measured demographics or COI. 50% greater odds of loss to follow up as associated with increasing levels of disadvantage as measured by state decile ADI (p=0.049) and trended similarly relative to national percentile ADI (p=0.052).

Conclusion: Preliminary analysis of these data indicate a 50% frequency of loss to follow up in pediatric patients with gunshot-relate fractures. Given the sequelae of trauma on physical and mental development, this loss to follow up is concerning that needed resources for long-term care are not being accessed. ADI may be predictive of loss to follow up.