

Composite Markers of Economic Distress Predict Complications and Loss to Follow-up in Orthopaedic Trauma

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Purpose: As US health care transitions to value-based models, social determinants of health play a key role in both risk-adjustment models and in supporting interdisciplinary posttrauma care. To examine socioeconomic distress or well-being, the Economic Innovations Group has produced a Distressed Communities Index (DCI) from the US Census Bureau's data set that incorporates 7 metrics into a single measure of economic well-being. The purpose of this study was to examine the relationship between DCI, health-care utilization, and complications in an orthopaedic trauma population.

Methods: 139 patients aged 18-89 years presenting for a new operative orthopaedic injury to a large, Level-I urban trauma center were enrolled. Socioeconomic status, environment/housing, and health-care access/utilization were assessed as part of a large social determinants survey on initial inpatient admission. DCI score is divided into quintiles: prosperous, comfortable, mid-tier, at-risk, and distressed. The specific 7 metrics were also looked at individually. Follow-up surveys were performed at routine trauma intervals, and medical records were reviewed retrospectively for any complication following initial hospitalization. Loss to follow-up was defined as never contacting the orthopaedic department after discharge. Using SPSS, t-tests were performed to compare DCI variables and patient outcomes.

Results: 139 patients were enrolled in a 3-month period. 54.8% of patients live in a ZIP code categorized as distressed by DCI (compared to 30.7% of Atlanta population). The average community in this population reported: 86% high school graduation rate, 20% living under the poverty line, and 31% unemployment. Only 55% of patients treated lived in the 2 counties immediately adjacent to the hospital. Loss to follow-up was associated with living in a community with low rates of high school graduation ($P = 0.004$) and Hispanic populations ($P = 0.04$). The likelihood of posthospitalization complication was inversely associated with total population of the ZIP code of residence ($P = 0.04$). In our catchment area from 2011 to 2016, the percent of people in distressed ZIP codes within Atlanta city limits reduced from 46.4% to 30.7%, but the adjacent ZIP codes have experienced greater economic hardship.

Conclusion: In the orthopaedic trauma population, composite measures of economic distress or well-being, based on residence, are predictive of loss to follow-up and complications. Interdisciplinary postoperative care after orthopaedic trauma may allow for targeted interventions based on social determinants. Our data imply that more rural communities with limited access to public transportation and health care may contribute to complications. Further, areas with poor educational status and language barriers had a worse rate of postoperative return for routine follow up, which may be due to communication limitations.