HIGH-NEED HIGH-COST TRAUMA PATIENTS: A NATIONAL ASSESSMENT OF INJURED PATIENTS EXPERIENCING HIGH FINANCIAL BURDEN

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Introduction: A small proportion of patients account for a majority of healthcare costs. This observation has never been applied to the trauma population. We hypothesized that a small proportion of trauma patients comprised the bulk of national expenses on trauma. We further hypothesized that this heavy financial burden was borne by those least likely to be able to pay.

Methods: We used the 2014 National Readmissions Database (NRD) from the Healthcare Cost and Utilization Project (HCUP). The NRD is a nationally representative database that includes longitudinal data for inpatient hospitalizations. Patients younger than 18 years were excluded, as were patients with missing cost data. We included all admissions with a primary diagnosis of trauma based upon ICD-9 codes. Patients admitted between April-June 2014 were analyzed over a 6-month follow-up period. “High-need, high cost” (HNHC) was defined as patients with 6-month inpatient costs in the top 5%. Patient demographic, injury and hospital characteristics of HNHC patients were evaluated. Univariate and multivariate analyses were performed. Weighted data are presented to provide national estimates.

Results: Of the 35.3 million patients represented in the 2014 NRD database, a total of 299,465 (0.8%) trauma patients met all inclusion and exclusion criteria. The 6-month costs for all trauma patients totaled $3.1 billion. Fewer than 1% of trauma patients (N=1,109) met HNHC criteria. The average 6-month costs were more than 10-fold higher for the HNHC group vs. the non-HNHC trauma group ($287,000 vs. $21,000, p<0.001). HNHC trauma patients vs. non HNHC were predominately male (67.6% vs. 32.4%), younger (51.3 vs. 63.6 years), and had a higher injury severity score (ISS>15: 92.1% vs. 51.8%). They were also more likely to have multiple injuries (62% vs. 29%). HNHC trauma patients had a greater mean number of hospitalizations (2.5 vs. 1.4, p<0.001), and higher 6-month readmission rates (34.2% vs. 23.4%, p<0.001). Factors associated with HNHC status in logistic regression modeling were male gender (odds ratio (OR): 1.26, p=0.003), injury severity score of 15 or more (OR 2.1, p<0.001), and Medicaid payer status (2.9, p<0.001). HNHC status patients were also less likely to be hospitalized in private hospitals (vs. government, OR: 0.6, p<0.001).

Conclusion: The US HNHC trauma population consists of only 1% of patients, but cost and resource burden is significant. HNHC characteristics suggest vulnerability surrounding demographic factors including Medicaid status. In addition, HNHC patients are more often associated with care at government hospitals. This suggests that the highest cost burden rests with those least likely to pay. Policy efforts should focus on streamlining services within these centers, and dentifying targeted interventions to improve care and reduce costs.