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### **Expansion of Hand Trauma Transfers at a Level-1 Trauma Center Following Integration with the ASSH Hand Trauma Center Network**

**Introduction:** Hand trauma remains among the most prevalent and expensive injury types within the United States. The National Hand Trauma Center Network (NHTCN) was established to improve coordination and regionalization of hand trauma services. In 2019, our institution joined the NHTCN with the aim of expanding access to hand surgery while maximizing efficiency, resource allocation, and optimization. This study sought to evaluate how joining the NHTCN affected the volume, demographics, and severity of hand trauma transfers to our institution.

**Methods:** Data for this study was collected retrospectively over a six-year period from 2016 to 2021 from our institutional trauma registry. Patients were selected based on the criteria of being transferred to our facility due to hand mono-trauma. Analysis of transfer rates, transfer distance, sending facilities, injury patterns, insurance type, path of care, and hospital charges prior to and after joining the NHTCN was performed using two-sample t-tests for averages or two-sample proportion tests for percentages.

**Results:** There was a total of 39 hand mono-trauma transfers over three years prior to joining the NHTCN, and 114 over three years after. The average number of hand transfers per year increased by 25 (95% CI: 24.21 to 25.79;  $P < 0.0001$ ), with a significant increase in transfers from both in-state and out-of-state sending facilities. This included an increase in transfers of significant injuries including complete amputations, partial amputations, and open fractures. The average distance traveled by transfers increased by 22.58 miles (95% CI: 3.17 to 42.00;  $P = 0.0229$ ). There were no significant changes in demographics or insurance coverage of transfers. There was significant variation, but the overall average charge per person increased from \$23,885.00 to \$33,663.38. After joining the network, admissions of transfers decreased by 27.26% (95% CI: -17.51 to -37.01;  $P = 0.0005$ ). The percentage of transfers undergoing surgery or receiving specialized hand care in the ER increased from 66.67% to 91.23 % (95% CI: 8.88 to 40.24;  $P = 0.0002$ ).

**Conclusions:** Integration into the NHTCN increased our institution's volume of hand trauma transfers, with patients transferred from additional and further referring facilities. These findings suggest that joining the NHTCN increased patient access to specialized hand surgical care at our institution. There was an overall increase in the quantity of severe injuries treated, although there were only modest shifts in the overall composition of transfers. Nevertheless, there remains further room to optimize and avoid unnecessary transfers.