Effect of a Dedicated Orthopaedic Advanced Practice Provider in a Level I Trauma Center: Analysis of Length of Stay and Cost

Elise Hiza, MD; Michael Gottschalk, MD; Erica Umpierreze, BA; Patricia Bush, MS; William Reisman, MD; Emory University, Atlanta, Georgia, USA

Purpose: The objective of this study is to analyze the effect of an orthopaedic trauma advanced practice provider on length of stay and cost in a Level I trauma center. The hypothesis of this study is that the addition of a single full-time nurse practitioner (NP) to the orthopaedic trauma team at a Level I trauma center would decrease overall length of stay (LOS) and hospital cost.

Methods: A retrospective chart review of all patients discharged from the orthopaedic surgery service 1 year prior to the addition of an NP (Pre-NP) and 1 year after the hiring of a NP (Post-NP) were reviewed. Chart review included age, gender, LOS, discharge destination, intravenous antibiotic use, wound-vac vacuum-assisted closure therapy, admission location, and length of time to surgery. Statistical analysis was performed utilizing the Wilcoxon/Kruskal-Wallis test.

Results: The hiring of an NP yielded a statistically significant decrease in the LOS across the following patient subgroups: patients transferred from the trauma service (13.56 compared to 7.02 days; P <0.001), patients aged 60 years and older (7.34 compared to 5.04 days; P = 0.037), patients discharged to a rehab facility (10.84 compared to 8.31 days; P = 0.002), and patients discharged on antibiotics/wound-vac therapy (15.16 compared to 11.24 days; P = 0.017). Length of time to surgery was also decreased (1.26 compared to 1.01 days, P = 0.02). A cost analysis of the subgroup of patients transferred to orthopaedics from another service yielded a savings of $1,059,480 per year.

Conclusion: The addition of a dedicated orthopaedic trauma advanced practice provider at a county Level I trauma center resulted in a statistically significant decrease in LOS and hospital cost.
thus reduced indirect costs to the hospital. Given the substantial indirect cost savings from a reduction in LOS provided from hiring a dedicated orthopaedic NP, it can be concluded that they provide the hospital with a positive net present value. This supports the hiring and maintenance of an NP to an orthopaedic team at an academic Level I trauma county hospital and should serve as a model on which to base future orthopaedic practices.