An Outcome Analysis of Nurse Practitioners in Acute Care Trauma Services

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What is the problem or challenge you identified?
The Department of Trauma sought to improve outcomes by enhancing the continuity of care for patients admitted to trauma services. Efforts focused on processes that would augment continuity for patients as they transitioned through various levels of care during their respective hospitalization. Departmental leadership explored opportunities to improve this aspect of patient care through expansion of existing Trauma Nurse Practitioner (NP) services.

Describe the intervention you developed/change you implemented to address the problem:
The restructured trauma NP service model was implemented in September 2013. Services were expanded to meet identified needs and address areas of weakness within the service. This task required the implementation of NP services in several new venues. The NPs became a daily participant in multidisciplinary rounds in the Intensive Care Unit (ICU), which served to provide a consistent team member presence as patients transitioned from the ICU to the floor. Our NP team began accepting and managing trauma patients in order to improve continuity and progression of care in stable, non-critical traumas. A NP clinic was also created in order to provide continuity and follow up for these patients following their acute phase of care.

A retrospective cohort study was conducted in our Level I trauma center between February 2012 and March 2015. Patients with at least a 24 hour hospital length of stay (LOS) were separated into two comparator groups. Patients were allocated to each study group based on whether they were admitted prior to, or post-implementation of the restructured NP service model. Patients were identified and data were obtained through the institution’s trauma registry. Data included patient characteristics and outcomes such as: 30-day readmission, days to rehabilitation consultation, unplanned ICU upgrade, rate of missed injuries, hospital and ICU LOS, rate of complications, and discharge destination.

A total of 3370 patients were included in the analysis (post-NP service=1573 and prior to NP service=1797). NP services lowered the rate of 30-day readmission (2.4% vs. 3.7%, p=0.022), the incidence of missed injury (0.3% vs. 1.1%, p=0.011), days to initiation of rehabilitation consultation (3.03 vs. 4.97, p=0.000), and ICU LOS (3.91 vs. 4.47, p=0.021). Significantly higher percentages of discharge orders were placed by the NPs before noon (55.5% vs. 45.3%, p=0.000). There were several other outcomes that did not reach the statistical significance level of 0.05 but trended favorably for the NP service model. These outcomes include mortality (3.1% vs. 3.5%), hospital LOS (6.70 vs. 6.72), and complications such as surgical site infection (0.8% vs. 1.2%), acute renal failure (3.9% vs. 4.5%), and deep vein thrombosis (3.1% vs. 3.5%). The implementation of the restructured NP model also resulted in a significant increase in patient discharges to skilled nursing/long term acute care facilities (8.6% vs. 6.8%, p=0.050).

How did you sustain the change?
The evolution of the NP service required expansion of our team from 2 to 5 full-time NPs. Originally, our service provided coverage from Monday – Friday. Currently, the trauma NPs provide in hospital service coverage 7 days a week. We hope to sustain our current service and expand our provider numbers in the future. To promote efficiency and continuity in patient care, the trauma attending as well as the resident service team supports our efforts.