

Impact of an Enhanced Recovery after Surgery Pathway  
for Pediatric Cranial Vault Expansion Surgery

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NR.210.899 Project Evaluation

Spring 2021

Johns Hopkins School of Nursing

### Abstract

**Background and Purpose:** At pediatric hospitals with multiple craniofacial plastic surgeons, patients recovering from cranial vault expansion, the surgical treatment for craniosynostosis, may account for most of the plastic surgical division inpatient census. An Enhanced Recovery after Surgery (ERAS) pathway, uses evidence-based practices combined in a single framework to minimize variations in care, and can optimize hospital throughput and improve outcomes. The purpose of the quality improvement project was to study the impact of an ERAS pathway on hospital length of stay (LOS) and caregiver satisfaction.

**Methods:** This QI project had two samples: pediatric patients with non-syndromic single suture craniosynostosis (nsSSC) and their caregivers. This project utilized a pre-post intervention design comparing LOS and caregiver satisfaction scores at baseline and after implementation of an ERAS pathway. The intervention was an ERAS pathway implemented at each stage of the peri-operative course from initial consultation to post-discharge follow-up. Caregiver satisfaction was assessed using a standardized site survey.

**Results:** The project included 21 pediatric patients and their caregivers, 10 in the usual care cohort and 11 in the ERAS pathway cohort. There was no significant difference in the hospital LOS, usual care median 4.27 days and the ERAS cohort median 4.33 days  $p=0.60$ . The caregiver metric of satisfaction focusing on perceived preparation for surgery a statistically significant improvement following implementation of the ERAS pathway when compared to usual care. In the ERAS cohort 100% of caregivers either agreed or strongly agreed that they felt prepared for their child's surgery and hospitalization, in contrast to 30% of caregivers in the usual care cohort.

**Conclusions:** Findings demonstrate the feasibility of using an ERAS pathway for cranial vault expansion surgery, as well as a positive impact on the satisfaction of caregivers of pediatric patients undergoing cranial vault expansion surgery. The findings also highlight the role of nursing as key stakeholders in ERAS implementation and patient/caregiver satisfaction projects.

**Implications:** ERAS pathways may improve patient/caregiver satisfaction metrics, collection of this data with future ERAS pathways is needed.

*Keywords:* craniosynostosis, ERAS, QI, LOS, satisfaction