POST-OPERATIVE OUTCOMES: DECREASED LENGTH OF STAY AND ICU UTILIZATION USING PRE-OPERATIVE MEDICATIONS AND INTRAOPERATIVE ENHANCED RECOVERY INTERVENTION PROTOCOLS – THE UNIVERSITY OF MISSOURI EXPERIENCE

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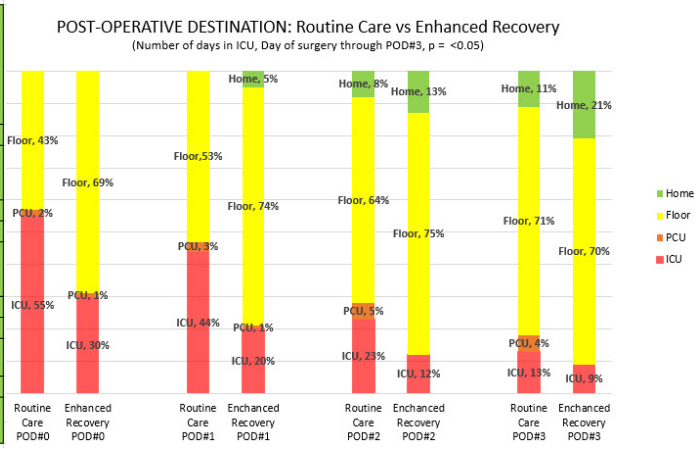
Background/Introduction: Enhanced Recovery After Surgery ("ERAS") is a multimodal, multidisciplinary approach to the care of the surgical patient, involving a multidisciplinary team working together around the patient (surgeons, anesthesia providers, and staff from units caring for the patients). ERAS protocols have resulted in 30-50% shorter length of hospital stay, a similar reductions in complications, and reduced readmissions and costs. (1)

Methods: After performing a retrospective literature review, we formulated and co-authored our enhanced recovery protocol, the TIGER (Team InteGrated Enhanced Recovery) Protocol. The intraoperative portion of this protocol was used with surgical oncology patients as a quality improvement project, targeting specifically total length of hospital stay and intensive care unit (ICU) admission rates. After completing one hundred cases utilizing the protocol, we compared our data with comparative data from a retrospective review of one hundred similar surgical procedures performed during the four year period immediately preceding implementation of the protocol.

Results: After review of data from protocol patients and retrospective review, data were analyzed using t-tests and chi square tests with $p < 0.05$ considered significant. We found that implementation of the intraoperative protocol reduced the average length of hospital stay from 8.9 days to 6.3 days, a 29% decrease; we also found that the day of surgery ICU admission rate decreased from 55% to 30%, a reduction of 45%.

Conclusion: Implementation of an ERAS protocol at our institution significantly reduced the total length of stay and ICU admission rates for patients who received the intra-operative ERAS protocol when compared to comparable cases in retrospective review. We noted a 29% shorter length of stay and a 45% decrease in ICU utilization on day of surgery. Additional study is needed to determine if a comparable decrease could be recognized in other case types.

TYPE OF SURGERY	NUMBER OF PATIENTS		AVERAGE LENGTH OF STAY - TRADITIONAL	*AVERAGE* LENGTH OF STAY - **ENHANCED RECOVERY INTRA-OP PROTOCOL**
Adrenalectomy (lap, open)	3		13.0	5.3
Gastrointestinal surgery (bowel resection, colostomy reversal, colectomy, ex lap)	11		8.8	7.2
CT surgery	3		2.3	1.3
Cystectomy (TIGER protocol)	13		14.2	9.1
Other Urologic Procedures (nephrectomy, nephroureterectomy, prostatectomy)	21		5.2	3.9
Esophagectomy	3		15.0	12.0
Gastrectomy (lap, open)	11		9.4	6.2
Hepatobiliary/Pancreas (hepatic resection, pancreatectomy, Whipple)	35		9.1	6.5
TOTALS	100		**8.9** (total days = 886)	**6.3** (total days 630; *p = <0.05*)



References:

1. Olle Ljungqvist, MD, et al. Enhanced Recovery After Surgery. A Review. JAMA Surgery. March 2017. Volume 152, Number 3