

Addressing Readmissions Associated with an Enhanced Recovery Pathway for Colorectal Surgery

Authors: Anne C. Fabrizio, MD; Michael C. Grant, MD; Deborah Hobson, RN; Jonathan Efron, MD; Susan Gearhart, MD; Bashar Safar, MD; Sandy Fang, MD; Christopher Wu, MD; Elizabeth Wick, MD

INTRODUCTION: Enhanced Recovery Pathways (ERPs) have gained favor in the United States as effective approaches to improve the quality and value of perioperative care. Most ERPs focus on pre-operative preparation, analgesia, fluid management and early mobility with a focus on improving performance on in-hospital metrics (length of stay and cost). Few ERPs include processes related to the hospital to home transfer and little has been reported regarding the rate and characteristic of patient readmission. We designed a study to determine the rate and reasons for readmissions in ERP vs. non-ERP patients and to identify areas to optimize ERP to prevent readmissions.

METHODS: Patients enrolled in an ERP for colorectal surgery between February and December 2014 (ERP) were compared to a similar cohort of patients who received surgery prior to protocol implementation (preERP). Outcomes of interest included 30-day readmission rates, composite LOS, and readmission diagnosis.

RESULTS: A total of 346 preERP and 330 ERP patients were included in the analysis. ERP was associated with a significant reduction in index hospitalization LOS (5.3 vs. 7.0 days; $p < 0.001$) and incidence of postoperative surgical site infection (SSI; 7.3 vs. 16.6%; $p = 0.013$) compared to preERP. Rate of readmission within 30 days (17.6 vs. 19.4%; $p = 0.55$) as well as mean time to readmission (9.0 vs. 8.7 days; $p = 0.83$) was similar between groups. As a result of similar readmission hospitalization LOS (5.7 vs. 5.2 days; $p = 0.64$), the composite hospital LOS was also similar between groups (12.0 vs. 13.5 days; $p = 0.298$). The table denotes the readmission diagnoses for each group, which a significant reduction in readmissions for SSI in the ERP group compared to preERP counterparts.

CONCLUSION: Although ERP did not lead to a reduction in hospital readmissions, patients received significant benefit through a reduction in index hospitalization length of stay and rates of postoperative SSI. To impact readmissions, teams should consider including care transition process measures into ERP. Common care transition process measures aimed at reducing readmission and improving patient outcomes such as the use of transition guides for high-risk patients, remote vital sign and symptom monitoring, early clinical follow up and post-discharge pharmacist follow up have not traditionally been part of ERP protocols. Incorporation of such measures into ERP has the potential to reduce rates of post-operative complication and readmissions particularly for high-risk patient populations.

Readmission Diagnosis	PreERP (n=67)	ERP (n=58)	P-value
SBO/ileus	13 (19.1%)	18 (31%)	0.133
High output stoma	6 (9.0%)	4 (6.9%)	0.672
All SSI	34 (50.7%)	17 (31%)	<i>0.015</i>
Superficial/Deep SSI	16 (23.9%)	6 (10.3%)	<i>0.048</i>
Organ Space SSI	18 (26.9%)	11 (19%)	0.297
Thromboembolic event	0 (0%)	3 (5.2%)	0.060
Bleeding	0 (0%)	2 (3.4%)	0.125
Other	14 (20.9%)	14 (24.1%)	0.665