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FINAL ID: S26

SESSION SYMPOSIUM NAME:

TITLE: Cost Analysis of the Enhanced Recovery After Surgery Program in Elective Colorectal Surgery: A Philippine Tertiary Hospital Experience

ABSTRACT BODY:

Purpose/Background: The Philippine General Hospital (PGH) performs hundreds of surgeries on both benign and malignant colorectal conditions yearly. An Enhanced Recovery After Surgery program (ERAS) program was implemented by the Division of Colorectal Surgery in 2019 with the goal of improving patient outcomes. However, there has been no attempt to investigate its impact on hospital costs.

This study aimed to determine the effect of an ERAS program on healthcare costs of elective colorectal surgery cases in PGH in 2021.

Methods/Interventions: A retrospective observational study was conducted on adult patients undergoing elective colorectal surgery, who were enrolled to ERAS, in PGH in 2021. The medical and billing records were retrieved using the hospital's digital records system. Cases were classified based on the type of surgery (stoma closure, colonic or rectal resection, reversal of Hartmann's, or cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (CRS-HIPEC)) and approach (open, laparoscopic, or robotic). The list of itemized resources utilized by each case was reviewed and categorized according to the following: diagnostics, facility, medications, surgery, and hospital supplies costs. The ERAS compliance rate of each case was retrieved from the online ERAS Interactive Audit System (EIAS) and linear regression was used for data analysis.

Results/Outcomes: A total of 114 elective colorectal surgeries were done under ERAS and complete records were retrieved for 90 of these. Surgery cost was noted to have the highest mean cost among hospital expenses across all surgery types. An inverse correlation was noted between ERAS compliance rates and total costs for all open surgeries and was statistically significant in closure of ostomies ($p=0.0213$) and open colonic resections ($p=0.0134$). Minimally-invasive surgery (MIS), however, failed to show cost reduction despite increasing compliance rates. Linear regression between compliance rates and mean total hospital costs showed that an increase in compliance rate results in decreased costs in a majority of cases (Figure 1).

Conclusions/Discussion: Systematic reviews showed that standardization of care through ERAS was associated with cost savings compared to traditional perioperative management. This study showed that with increasing adherence to ERAS, healthcare costs may be reduced. The significantly higher cost observed in colorectal MIS cases was due to more expensive equipment and instrument cost. Such higher cost may have offset the potential cost-reduction expected with ERAS.

The results of the study showed that good compliance to ERAS may reduce the cost of hospitalization. However, further studies are needed to investigate its impact on MIS cases.

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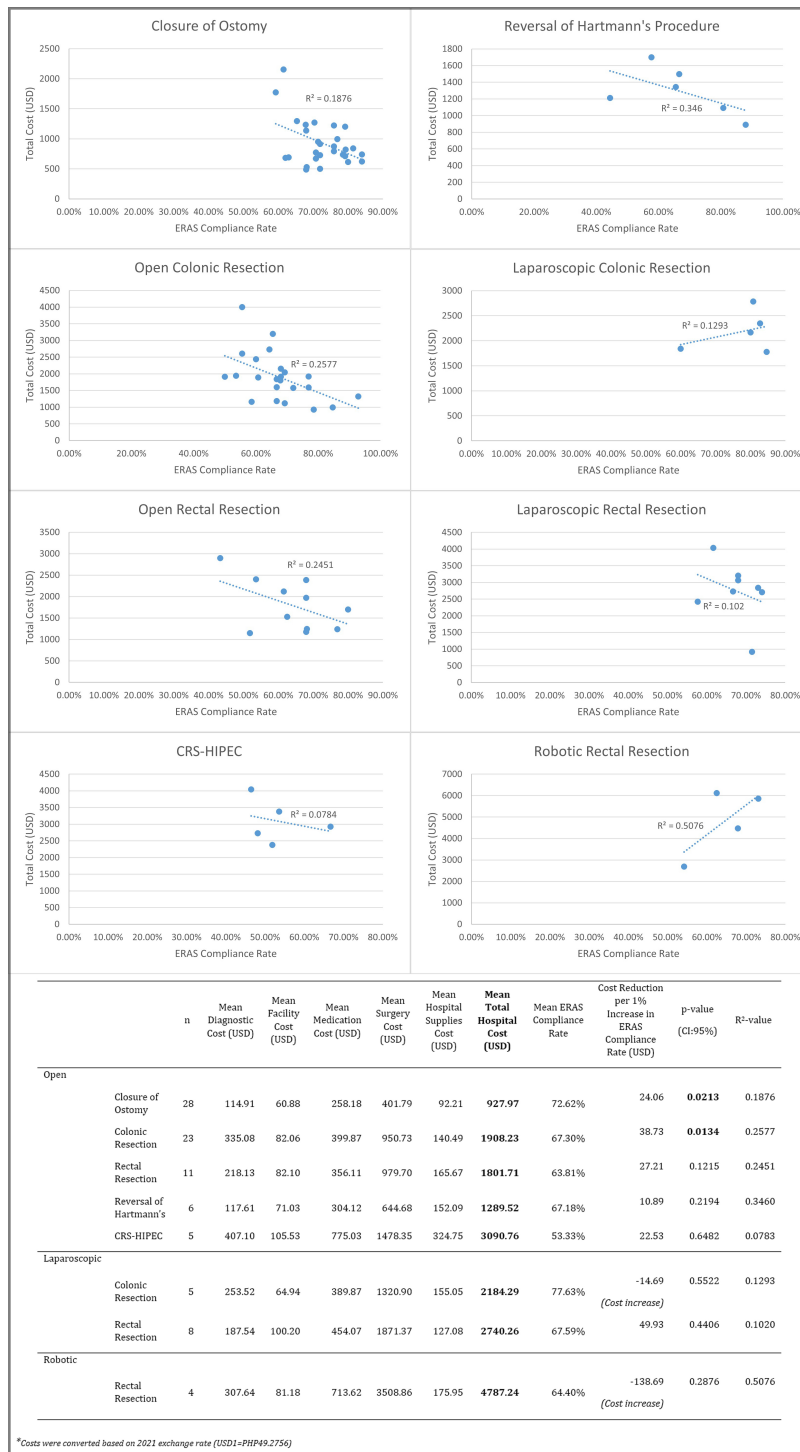


Figure 1. Linear regression analysis of ERAS compliance rates and hospital costs of elective colorectal surgeries under the Enhanced Recovery after Surgery (ERAS) program in Philippine General Hospital (PGH) in 2021.

IMAGE CAPTION: Figure 1. Linear regression analysis of ERAS compliance rates and hospital costs of elective colorectal surgeries under the Enhanced Recovery after Surgery (ERAS) program in Philippine General Hospital (PGH) in 2021.

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FINAL ID: S27

SESSION SYMPOSIUM NAME:

TITLE: The Role of Social Vulnerability in Outcomes Following Colorectal Surgery Under Enhanced Recovery Programs.

ABSTRACT BODY:

Purpose/Background: Increasing County level social vulnerability (as measured by the CDC social vulnerability index, SVI) has been associated with worse surgical outcomes. However, less is known about the relationship of SVI at the more granular census tract level and surgical outcomes among patients undergoing colorectal surgery under enhanced recovery programs (ERPs). Given the known association of ERPs with reductions in surgical disparities, we hypothesized that increasing SVI is associated with worse surgical outcomes among those undergoing surgery prior to ERP implementation, and that following ERP implementation, differences in outcomes by SVI status would be reduced.

Methods/Interventions: Using a single institutional ACS-NSQIP database, we identified patients who underwent colorectal surgery between 2006-2021. ERPs were implemented at the authors' institution in 2015. Pre- and post-operative characteristics included patient-level demographic and clinical factors, procedure-level factors, and area-level sociodemographic factors (SVI). The primary outcomes were length of stay (LOS) and complications. Patients were compared by SVI tertile at the census tract level (highest vs. lowest only) and ERP status. Multivariable logistic regression was used to identify associations of SVI and ERP with postoperative LOS and complications.

Results/Outcomes: Of the eligible 1,266 patients undergoing colorectal surgery during this period, 886 (70%) were under ERP. Overall, 768 (61%) patients were in the lowest SVI tertile, with the remaining 498 (39%) in the highest tertile. Mean LOS was 5.5 days (SD 4.9) with 15% of patients experiencing at least 1 complication. There was no difference in SVI distribution between pre and post-ERP groups. Univariate analysis revealed significant differences in LOS by SVI status in the pre-ERP group (mean difference of +1.5 days for high vs. low SVI patients, $p=0.02$) that were not seen in the ERP group (mean difference of +0.9 days for high vs. low SVI patients, $p=0.11$). Conversely, no differences in complication rates by SVI status were observed in either the pre-ERP or ERP group. On multivariable modeling, after adjusting for clinical and demographic factors, SVI was not associated with increased LOS in either the pre-ERP (high SVI IRR 1.04, $p=0.6$) or the ERP groups (high SVI IRR 1.0, $p=0.9$). Additionally, no relationship between SVI status and complication rates were seen in the pre-ERP (OR 1.04, $p=0.91$), or ERP group (OR 0.98, $p=0.94$).

Conclusions/Discussion: High social vulnerability at the census tract level was not associated with increased LOS or complication rates among both pre-ERP and ERP colorectal surgical patients. However, disparities in care and outcomes remain and further work is needed to better understand the underlying mechanisms driving these disparities at an individual patient level.

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FINAL ID: S28

SESSION SYMPOSIUM NAME:

TITLE: Colonoscopy Access and Quality Measurement in Rural Wisconsin

ABSTRACT BODY:

Purpose/Background: Despite the critical role of colonoscopy in reducing the burden of colorectal cancer, people living in rural areas have reduced access in their communities due to provider shortages. The Surgical Collaborative of Wisconsin's (SCW) Rural Task Force, which is comprised of surgeons practicing in rural settings, identified colonoscopy as a high priority area of focus because it is a high-volume procedure and currently there is a lack of access to quality measures, which are necessary for assessing performance and driving improvement. Colonoscopy is known to be a cornerstone of many rural surgical practices, representing the second most performed procedure among rural general surgeons. Improving access to high quality colonoscopy may reduce the burden of colorectal cancer in rural areas that currently face higher incidence and lower screening rates. Our objective was to assess the infrastructure and capacity for colonoscopy quality measurement and improvement in rural hospitals across Wisconsin.

Methods/Interventions: In 2019-2020, SCW, the Rural Wisconsin Health Cooperative (RWHC) and the Wisconsin Collaborative for Healthcare Quality (WCHQ) collaborated to create and distribute a survey of RWHC hospitals (n=26) to understand colonoscopy provider availability, procedural volume and capacity, and informatics and quality measurement infrastructure. A web-based survey was sent to RWHC hospital administrative contacts and reminder emails were sent over the course of four weeks, resulting in a 60% response rate. Survey items were summarized with descriptive statistics.

Results/Outcomes: The majority of colonoscopy providers in RWHC hospitals were general surgeons (66%) followed by family/internal medicine (20%) and gastroenterologists (14%). The average hospital volume/month was 80 colonoscopies (SD=53) and hospitals reported operating at 80% capacity for these procedures. Most selected 'seldom,' 'never,' or 'unknown' regarding the frequency of measuring evidence-based quality measures, including adenoma detection rate (58%), cecal intubation (69%), withdrawal time (53%) and prep quality (58%). About a third of hospitals (36%) utilized procedure reporting software. Most hospitals (72%) did not have access to onsite pathology.

Conclusions/Discussion: Approximately two thirds of rural colonoscopy providers are general surgeons, a finding unique to rural hospitals. Further, hospitals report operating at 80% capacity, suggesting there may be opportunities to increase access to colorectal cancer screening for patients living in these areas. The lack of access to colonoscopy quality measures suggests the opportunity to develop a flexible measurement approach that takes into consideration availability of reporting software and electronic medical record differences. Improving access to quality measures along with access to education and training opportunities that do not require travel has the potential to improve access to colonoscopy for patients in rural Wisconsin.

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FINAL ID: S29

SESSION SYMPOSIUM NAME:

TITLE: Short Stay Rectopexy: Results of Early (<24 hours) Hospital Discharge Following Minimally Invasive Rectopexy for Rectal Prolapse

ABSTRACT BODY:

Purpose/Background: Rectal prolapse most often affects elderly female patients with multiple comorbidities. Although minimally invasive rectopexy has a low overall complication rate, by convention these patients are generally admitted for close monitoring postoperatively. Recent studies have shown that early or same day discharge in patients undergoing minimally invasive colorectal surgery may be safe and feasible. There are varying practice patterns among our division for post operative observation, with some routinely discharging patients the same day of surgery. This study aimed to evaluate the short-term outcomes of early (<24 hours) discharge in patients who underwent minimally invasive rectal prolapse repair.

Methods/Interventions: This was a single-center retrospective study involving consecutive patients undergoing minimally invasive (laparoscopic and robotic) rectal prolapse repair, including suture rectopexy and ventral mesh rectopexy, between January 2018 and April 2022. Patients were stratified into the following groups: early discharge following <24 hours observation (group A), including those discharged on the same day of surgery, and those with postoperative admission of ≥ 24 hours (group B). The primary outcome was 30-day postoperative readmission rate. The secondary outcomes were 30-day postoperative morbidity, including urinary retention, surgical site infection, emergency department (ED) visits, re-admission, and unplanned return to the operating room.

Results/Outcomes: Seventy-six patients were identified to have undergone minimally invasive rectopexy for rectal prolapse, with 29 patients in group A and 47 in group B. The two groups had similar baseline characteristics, including patient comorbidities (38% of Group A and 32% of Group B in ASA Class III/IV), total operative time and estimated blood loss. Both Group A and B underwent laparoscopic rectopexy more frequently and at similar rates (74% vs 79%, respectively, $p=0.99$) than robotic approach. Group A had a significantly younger average age compared to group B (59 years vs 68 years, $p=0.03$). Fourteen patients (48%) in group A were discharged on the same date of surgery. These surgeries were performed as first-case procedures so patients could be observed in the recovery room prior to discharge. The average length of stay in group B was 2.3 days (SD ± 0.8). As shown in Table 1, there were no differences in 30-day readmission rates, 30-day morbidity, urinary retention, 30-day ED visits, and unplanned reoperation between the two groups.

Conclusions/Discussion: Patients undergoing minimally invasive surgery for rectal prolapse can be safely discharged within 24 hours without differences in postoperative complications, ED visits, or readmissions rates when compared to patients who were admitted for greater than 24 hours. These results suggest the feasibility and safety of utilizing a brief observation period in properly selected patients.

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Table 1. Post operative outcomes within 30 days of index surgery				
Outcome Variables	All Patients (n = 76)	Inpatient Rectopexy Patients (n = 47)	Short Stay Rectopexy Patients (n = 29)	p value
Urinary Retention	5 (6.6%)	4 (8.5%)	1 (3.5%)	0.64
VTE	0			
Intraabdominal Abscess	0			
Surgical Site Infection	0			
Return to Operating Room	2 (2.6%)	0 (0%)	2 (6.9%)	0.14
Hospital Readmission	3 (4.0%)	1 (2.1%)	2 (6.9%)	0.55
ED Visit	6 (7.9%)	4 (8.5%)	2 (6.9%)	0.99
Post op Morbidity	12 (16%)	8 (17%)	4 (14%)	0.99
Post op Mortality	0			

IMAGE CAPTION:

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FINAL ID: S30

SESSION SYMPOSIUM NAME:

TITLE: THINK TWICE: Reducing Unnecessary Laboratory Testing after Colorectal Surgery

ABSTRACT BODY:

Purpose/Background: There is limited literature on the reduction of unnecessary laboratory testing after surgery. While reducing waste increases the value of surgical care, eliminating routine testing can be challenging. Here, we assess the impact of a quality improvement (QI) intervention on reducing post-operative laboratory testing on a colorectal surgery (CRS) service.

Methods/Interventions: This project was performed on a CRS service at an academic medical center with a robust ERAS program that included 5 daily labs until discharge. Baseline data was collected from patients who underwent surgery between November 2019 - January 2020. After stakeholder discussion, the intervention was set at 3 postoperative day one labs (BMP, CBC and Mg) with subsequent labs only if clinically indicated. Trainees received educational material and monthly email reminders. A pilot was conducted from November 2021 - January 2022 with 5 surgeons who followed the intervention guidelines in patients undergoing only elective surgery and was then extended to include all CRS (elective/non-elective) over 12 months. Laboratory tests were measured as lab tests per patient day. Appropriate non-parametric statistical tests were used to evaluate differences in lab tests/day, length of stay (LOS) and 30-day readmission rates at baseline, 3, and 12 months.

Results/Outcomes: The baseline cohort included 70 patients and the 3-month pilot included 65 patients. About 40% of pilot patients did not require any additional blood work beyond intervention guidelines, with a reduction to a median of 2 lab tests/day compared to a baseline median of 5 lab tests/day ($p < 0.0001$). When the intervention was extended for 12 months and also included nonelective CRS, there was a sustained median 2 labs/day ($p < 0.0001$). Overall, there was a 60% reduction in median lab tests over the 12 months. The median length of stay stayed constant over time from a baseline 5 days to 4 days after 3 months ($p = 0.308$) and 12 months ($p = 0.927$). Additionally, there was no change from a baseline 30-day readmission rate of 15.7% after 3 months (9.2%, $p = 0.257$) and 12 months (11.8%, $p = 0.374$).

Conclusions/Discussion: We significantly reduced laboratory testing on a colorectal surgery service for elective and non-elective surgeries over a short- and long-term period, without an increase in LOS or 30-day readmission rates. Interventions to reduce unnecessary postoperative laboratory testing of surgical patients are vital to high-value healthcare. Efforts are ongoing to further reduce unnecessary testing across other surgical divisions.

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