



## **EP13EO – Nurses participate in interprofessional groups that implement and evaluate coordinated patient education activities.**

Provide one example, with supporting evidence, of an interprofessional patient education activity that was associated with an improved patient outcome. Supporting evidence must be submitted in the form of a graph with a data table that clearly displays the data.

### **Example 1: Enhanced Recovery After Surgery (ERAS) Protocol**

#### **Background/Problem:**

Colorectal surgeries are a category of surgery associated with challenging postoperative recovery due to the potential for difficult pain control and ileus. This can lead to prolonged length of hospital stay. In spring 2013, an interprofessional team was formed to bring best practices established in Europe over the last ten years to UVA patients (see below for an annotated reference list).

- The concept of enhanced recovery after surgery was first proposed by Dr. Henrik Kehlet, gastrointestinal surgeon, Copenhagen, Denmark.<sup>1</sup> Major components of this approach include:
  - Not starving patients before surgery
  - Intraoperative goal-directed therapy (GDT) – using advanced hemodynamic monitors to only give IV fluids when they are needed
  - Adequate pain control with minimal opioid use
  - Early ambulation

The team developed an interdisciplinary guideline encompassing the entire continuum of a colorectal surgery patient's care, from clinic through the perioperative and operative phases to acute care and discharge to home. Integrated patient education provided by nursing, dietitians, surgeons and anesthesia providers through all phases of the patient's pre- and postoperative care was a key success factor. Nursing played a key role in partnership with the surgeons and anesthesia providers to develop a systematic pathway and the education materials. Standardized care elements and patient education in the surgery clinic, Preanesthesia and Testing Center (PETC), Surgical Admissions Suite (SAS), Operating Room, Post-Anesthesia Care Unit (PACU) and the Acute Care Unit were implemented.

A pilot of the ERAS protocol occurred in August of 2013. Anticipated improvement targeted reduced length of hospital stay.

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<sup>1</sup> Kehlet, H. (1997). Multimodal approach to control postoperative pathophysiology and rehabilitation. *Br. J. Anaesth.* 78(5):606-17.

**Goal Statement:**

Reduce length of stay of colorectal surgery patients using the ERAS protocol.

**Description of the Intervention/Initiative/Activity(ies):**

The first discussions among the colorectal surgeons and several of the anesthesiologists to consider adopting the ERAS protocol began in November 2012. As they decided to move forward, an interdisciplinary team was formed to establish the project in May 2013. The ERAS team recognized the critical importance of adequate, coordinated patient education to assure the success of the implementation. The success of the protocol rested on a well-prepared patient who could fully participate in the goals of therapy.

All members of the team worked to identify the appropriate teaching elements during each phase of care and specific education goals to ensure the patient understood his or her role in their care. To facilitate this comprehensive patient education, the ERAS team partnered with our internal marketing department in June of 2013 to develop a formal patient education notebook with detailed patient instructions. Patients are instructed to bring the notebook to all appointments and to the hospital on the day of surgery.

The ERAS protocol elements requiring patient education so that the patient and his or her family can anticipate planned elements of the care delivery pathway are:

- Novel approach to dietary preparation the day before surgery to minimize starvation and dehydration, which includes carbohydrate loading and electrolyte beverage consumption.
- Multimodal pain management pre-, intra- and postoperatively to reduce systemic narcotic use and risk for ileus.
- Judicious use of intravenous fluid (IVF) intraoperatively with advanced hemodynamic monitoring to refine volume management intraoperatively, reducing bowel edema. Continued judicious use of IVF postoperatively.
- Patient mobilization out of bed in PACU (standing) immediately after arrival to acute care unit and regularly thereafter to promote bowel motility, reduce deconditioning and thrombosis risk, and improve postoperative pulmonary hygiene.
- Early feeding postoperatively.
- Finely tuned VTE prophylaxis to reduce the risk of thrombotic complications.
- Use of patient progress checklists, contained in the patient's ERAS notebook: nurses and patients use checklists to follow each phase. The patient and his or her family have an active role in gauging progress.
- Discharge requirements: Return of bowel function, ambulation at patient's baseline, diet tolerance, pain under control.



- Follow-up phone calls post discharge to check on progress, determine satisfaction and address unmet needs.

Nurses along the patient's continuum of care deliver standardized patient and family education utilizing the ERAS materials. Key concepts and patient concerns are addressed in each setting as the patient progresses. All team members reinforce the critical importance of the patient's engagement in the steps of his or her care and overall plan of care, using the ERAS notebook and checklists to provide concrete evidence of the patient's progression.

### Participants:

**EP13EO Table 1: Participants, ERAS Protocol Development**

Name	Discipline	Title	Department
Traci Hedrick	Physician	Assistant Professor of Surgery	Colorectal Surgery
Charles Friel	Physician	Associate Professor of Surgery	Colorectal Surgery
Robert Thiele	Physician	Associate Professor of Anesthesiology	Anesthesia
Kathleen Rea	Nursing	Advanced Practice Nurse 2 – CNS	5 Central
Beth Turrentine	Nursing	Outcomes Manager	Department of Surgery
Rob Rowell	Nursing	Advanced Practice Nurse 1-Nurse Practitioner	Advanced Practice, Inpatient Colorectal Nurse Practitioner
Karen Thomas	Nursing	Nurse Manager	SAS, PETC
Clara Winfield	Nursing	RN Clinician IV	SAS
Angel Cyphert	Nursing	Nurse Manager	PACU
Anne Stadelmaier	Nursing	RN Clinician III	PACU
Susan Ketcham	Nursing	RN Clinician III	PACU
Kelly Lockwood	Nursing	RN Clinician II	Surgery Clinic
Kelly Wesson	Case Management	Case Manager	Case Management
John Ehrhart	Nursing	Nurse Manager	5 Central
Beth Quatrara	Nursing	Advanced Practice Nurse 3 – CNS	5 Central / 5 West
Steve Morton	Nursing	RN Clinician IV	Acute Pain Service



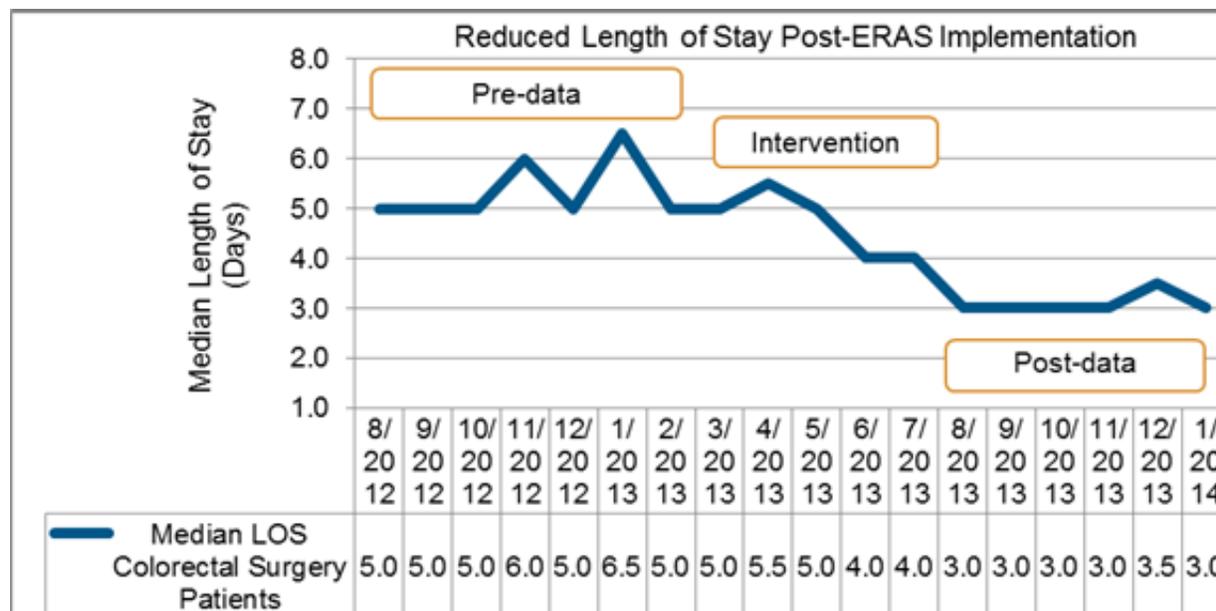
Marcel Durieux	Physician	Professor of Anesthesiology	Anesthesiology
David Bogdonoff	Physician	Associate Professor of Anesthesiology	Anesthesiology
James Ray	Pharmacist	Clinical Coordinator, Pain and Palliative Services	Pharmacy
Kate Willcutts	Nutrition	Manager, Digestive Health Clinical Support	Patient Care Services
Susanna Brent	Marketing	Manager, Internal Communications	Marketing and Communications
Jamie Hughes	Nursing	Administrator, Information Services	Electronic Medical Record
Dustin Walters	Physician	Surgical Chief Resident	Surgery
Matt Stone	Physician	Resident	Surgery
Kelly Gleason	Nursing	RN Clinician II	5 Central
Ken Fitzgerald	Nursing	RN Clinician III	Operating Room
Irene Castelino	Nursing	Quality Improvement Coordinator	Operating Room
Bonnie Lapierre	Clinical Support	Surgical Technologist Pool	Operating Room

### Outcome(s):

Implementation of an ERAS protocol and coordinated patient education led to significant reduction in length of stay for patients undergoing both open and laparoscopic colorectal surgery. These data demonstrate that effective partnerships with well-prepared patients and families can lead to significant improvements in length of stay through standardized care.



**EP13EO Figure 1: Reduced Length of Stay Post-ERAS Implementation (8/2012-1/2014)**



#### Reference list:

#### Enhanced Recovery After Surgery (ERAS) Selected Literature Review and Evidence Rating\*

\*The evidence-based practice rating scale used for this literature review is described in Table 2 at the end of the reference list.

Zhuang CL, Ye XZ, Zhang XD, Chen BC, & Yu Z. (2013). Enhanced recovery after surgery programs versus traditional care for colorectal surgery: a meta-analysis of randomized controlled trials. *Diseases of the Colon & Rectum*. 56(5):667-78. doi: 10.1097/DCR.0b013e3182812842.

- Level IA: Meta-analysis of 13 randomized controlled trials demonstrated ERAS programs in comparison to traditional care significantly decreased length of stay (LOS), postoperative complications. Typically all studies demonstrate a 50-60% reduction in LOS. There were similar readmission rates, surgical complications and mortality.

Maxson PM, Jacob AK, Cima RR, Horlocker TT, Hebl JR, Harmsen WS,...Larson DW. (2012). Case-matched series of enhanced versus standard recovery pathway in minimally invasive colorectal surgery. *British Journal of Surgery*. 99(1):120-6. doi: 10.1002/bjs.7692. Epub 2011 Sep 21.



- Level IIA: Before/after design demonstrated that minimally invasive colorectal surgery patients on an enhanced recovery pathway limiting fluids and opiates plus early enteral nutrition decreased length of stay compared to a previous fast-track pathway. Complication rates were similar. Hospital costs were reduced by an average of 1,039 per patient.

Lassen K, Soop M, Nygren J, Cox PB, Hendry PO, Spies C, Von Meyenfeldt MF, ...Dejong CHC. (2009). Consensus review of optimal perioperative care in colorectal surgery. *Archives of Surgery*. 144(10):961-969. doi: <http://dx.doi.org/10.1001/archsurg.2009.170>.

- Level IVA: Consensus review of optimal perioperative care in colorectal surgery. Comprehensive evidence based recommendations for each protocol item was determined after critical review of the literature.

Gustafsson UO, Hausel J, Thorell A, Ljungqvist O, Soop M, Nygren J, & Enhanced Recovery After Surgery Study Group. (2011). Adherence to the enhanced recovery after surgery protocol and outcomes after colorectal cancer surgery. *Archives of Surgery*, 146(5):571-7. doi: 10.1001/archsurg.2010.309. Epub 2011 Jan 17.

- Level IIA: Single center prospective cohort study before/after design evaluating the impact of adherence levels to ERAS protocol on clinical outcomes. Patients who experienced higher levels of ERAS adherence experienced a 25% lower risk of postoperative complications and significantly reduced 30-day morbidity. LOS was shorter for those with high ERAS protocol adherence. The major independent predictors of positive postoperative outcomes were IV fluid management and intake of preoperative carbohydrate drink.

Hui V, Hyman N, Viscomi C, & Osler T. (2013). Implementing a fast-track protocol for patients undergoing bowel resection: Not so fast. *American Journal of Surgery*. doi:10.1016/j.amjsurg.2012.11.019; 10.1016/j.amjsurg.2012.11.019

- Level IIB: Consecutive patients on the ERAS pathway were compared with similar patients prior to protocol initiation. Compliance with major elements of the protocol were measured, including non-opioid analgesia, perioperative lidocaine infusion, nasogastric tube removal, early enteral feeding, early mobilization and limited intravenous fluids. Major barriers with protocol adherence were identified. Fluid restriction was the primary challenge. Routine reporting of protocol compliance is recommended.

Aarts M, Okrainec A, Glicksman A, Pearsall E, Victor JC, & McLeod RS. (2012). Adoption of enhanced recovery after surgery (ERAS) strategies for colorectal surgery at



academic teaching hospitals and impact on total length of hospital stay. *Surgical Endoscopy*. 26(2): 441-450. doi: 10.1007/s00464-011-1897-5.

- Level IIB: A retrospective cohort study of consecutive patients at academic teaching hospitals was performed. A multiregression analysis was performed. With variable application of ERAS protocols, the factors independently associated with a total length of hospital stay of five days or less included preoperative patient education, fluid restriction, laparoscopic approach, postoperative early feeding and early removal of indwelling urinary catheters.

Feroci F, Lenzi E, Baraghini M, Garzi A, Vannucchi A, Cantafio S, & Scatizzi M. (2013). Fast-track surgery in real life: how patient factors influence outcomes and compliance with an enhanced recovery clinical pathway after colorectal surgery. *Surgical Laparoscopy & Endoscopy Percutaneous Techniques*. 23(3):259-65. doi: 10.1097/SLE.0b013e31828ba16f.

- Level IIA: A prospective cohort study of 606 patients analyzed the relationships between patient factors, outcome variable and the fast-track protocol for recovery from colorectal surgery. Age >75 was identified as an independent predictor of mortality. Compliance with the protocol was reduced in male patients who were >75 years old and had an ASA score of 3 and 4. The authors report the priority of a dedicated multidisciplinary team with a commitment to reviewing outcomes and compliance at regular intervals.

### EP13EO Table 2: Evidence Rating Scale Used By PNSO

Source: Newhouse R, Dearholt S, Poe S, Pugh LC, & White K. (2007). *The Johns Hopkins Nursing Evidence Based Practice Rating Scale*. Baltimore, MD: The Johns Hopkins Hospital, Johns Hopkins University School of Nursing. Appendix B.

#### Strength of Evidence

Level I	Experimental study/randomized controlled trial or meta-analysis of RCT
Level II	Quasi-experimental study
Level III	Nonexperimental study, qualitative study or meta-synthesis
Level IV	Opinion of nationally recognized experts based on research evidence or expert consensus panel (systematic review, clinical practice guidelines)



Level V	Opinion of individual expert based on nonresearch evidence (includes case studies, literature review, organizational experience – e.g., quality improvement and financial data – clinical expertise or personal experience)
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### Quality of Evidence

<b>A HIGH</b>	Research	Consistent results with sufficient sample size, adequate control and definitive conclusions; consistent recommendations based on extensive literature review that includes thoughtful reference to scientific evidence
	Summative Reviews	Well-defined, reproducible search strategies; consistent results with sufficient numbers of well-defined studies; criteria-based evaluation of overall scientific strength and quality of included studies; definitive conclusions
	Organizational	Well-defined methods using a rigorous approach; consistent results with sufficient sample size; use of reliable AND valid measures
	Expert Opinion	Expertise is clearly evident
<b>B GOOD</b>	Research	Reasonably consistent results, sufficient sample size, some control, with fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence
	Summative Reviews	Reasonably thorough and appropriate search; reasonably consistent results with sufficient numbers of well-defined studies; evaluation of strengths and limitations of included studies; fairly definitive conclusions



	Organizational	Well-defined methods; reasonably consistent results with sufficient numbers; use of reliable AND valid measures; reasonably consistent recommendations
	Expert Opinion	Expertise appears to be credible
<b>C LOW (MAJOR FLAWS)</b>	Research	Little evidence with inconsistent results; insufficient sample size; conclusions cannot be drawn
	Summative Reviews	Undefined, poorly defined or limited search strategies; insufficient evidence with inconsistent results; conclusions cannot be drawn
	Organizational	Undefined OR poorly defined methods; insufficient sample size; inconsistent results; undefined, poorly defined or measures that lack adequate reliability or validity
	Expert Opinion	Expertise is not discernable or is dubious