



# Decreasing Length of Stay and Cost in Colorectal Surgery Using an Enhanced Recovery Program

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# Disclosures



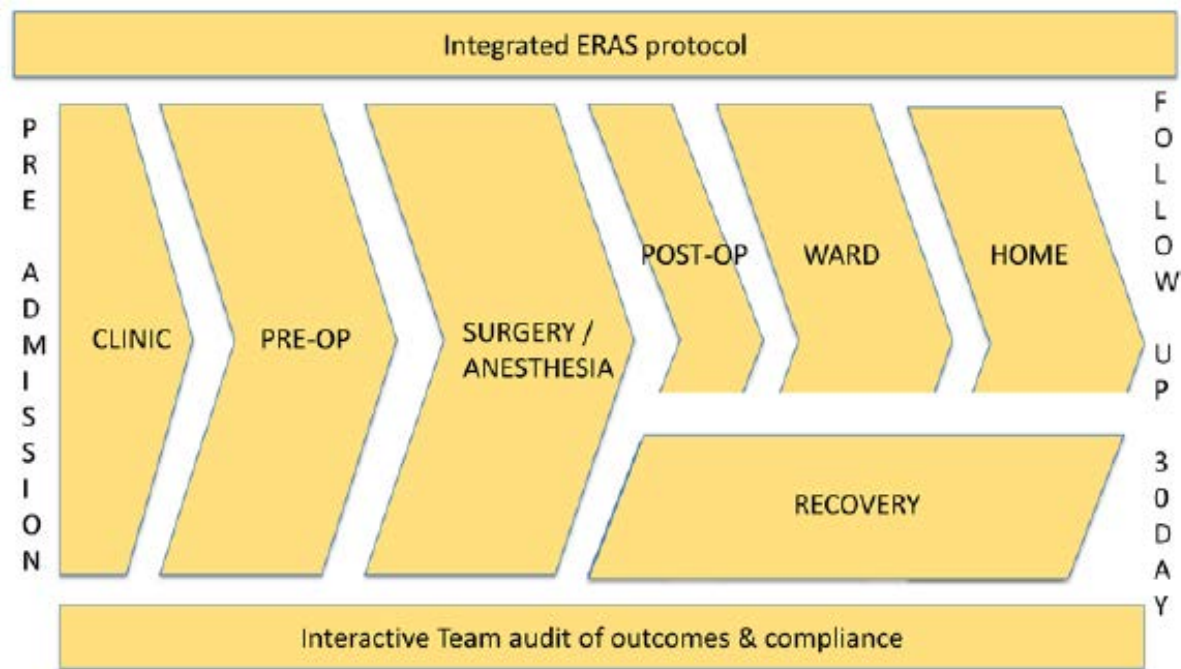
- No disclosures
- No funding



# Background



- Enhanced recovery after surgery (ERAS) pathways



- Evidence based best practice to reduce length of stay (LOS) and complications.
- No increases in readmission rates or mortality.



# Methods



- Four surgeons, patients undergoing bowel resection, starting Jan 1, 2015.
- 17 variables defined in The Enhanced Recovery Program in NSQIP (ERIN).
  - pre-operative, operative, and post-operative elements
- Aim: institute an ERAS program at EUH for colorectal surgery.
  - **Goals:**
    - **Decrease LOS by 1 day**
    - **Decrease complications by 20%.**



Surgeon	Anesthesia MD
Nurse	Scheduler/PCC

# ERAS orderset



POHA	OR
Colorectal "preoperative" ERAS orderset completed day before surgery	ERAS patient discussed during surgical time-out CTO
ERAS identification on patient chart	Bair Paws gown connected during induction
Sports drink early am	Upper body warmer used
PO Gabapentin, celecoxib, acetaminophen (if patient appropriate)	Temperature > 36.0 throughout case
SQ heparin 5000 units(if patient appropriate)	Fluid warmer used
PONV risk factor reviewed	OGT/NGT if used removed at the end of the case
Bair Paws gown applied	LR or Plasmalyte used
Chlorhexadine cleanse confirmed	Fluids less than or equal to 8 ml/kg/hr with blood loss replaced with colloid (5% Albumin)
PO antibiotics for mechanical bowel prep	Goal directed fluid monitor used(esophageal Doppler monitor or PPV with arterial line)
Stoma education provided (if appropriate)	Magnesium sulfate 2 gm IV after induction (> 10 min)
	Toradol 15mg or 30mg CrCl and age appropriate
	Narcotic sparing anesthetic
	Intraop TAP block per surgeon



# Emory ERAS Team



- **Colon and Rectal Surgery**
  - Drs. Shaffer, Srinivasan, Staley, and Sullivan
- **Anesthesiology**
  - Drs. Berry, Wolf
- **Emory Floor Nursing**
  - Melissa Gordon, Susan Tomlin
- **Anesthesiology Preoperative Nursing**
  - Rebecca Layson, Anne Bigelow, Angeline Butler
- **Operating Room Nursing**
  - Cheryl Castleberry, Kathy Galloway
- **Post Anesthesia Nursing**
  - Angeline Butler, Maquitha Mitchell
- **Clinic Nursing**
  - Nancy Findley, Shakira Johnson
- **Emory Administration**
  - Drs. John Sweeney, Greg Esper, Bill Bornstein
  - Tari Owi (Admin fellow)
  - Neha Sachdev
- **NSQIP**
  - Judy Lewis, Amy Newell
- **Medical Students**
  - Keon-Young Park, Martha Ingram, Lauren Perry, Liza Roger
- **Medical Illustrator**
  - Satyen Tripathi
- **Emory Office of Quality**
  - Sebastian Perez, William Knechtle



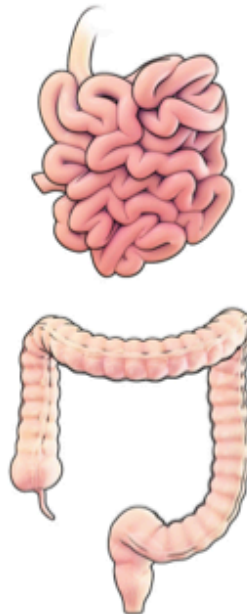
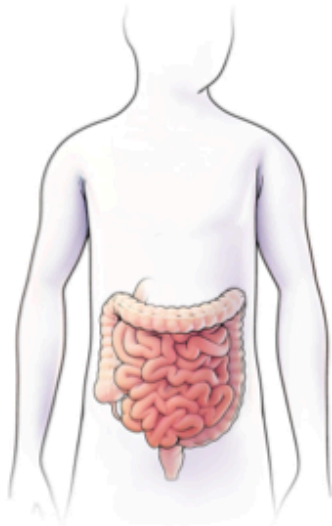
# Education



## The Purpose of Your Procedure

Your doctor will talk to you about having this procedure because you have a medical condition that is stopping a part of your bowel from working properly.

*Use the images below when discussing your procedure with your doctor.*



Small Bowel

Large Bowel  
(Colon)

Date of Surgery: \_\_\_\_\_  
Arrival Time at the Hospital: \_\_\_\_\_  
Scheduled Procedure Time: \_\_\_\_\_  
Anticipated Days in Hospital: \_\_\_\_\_

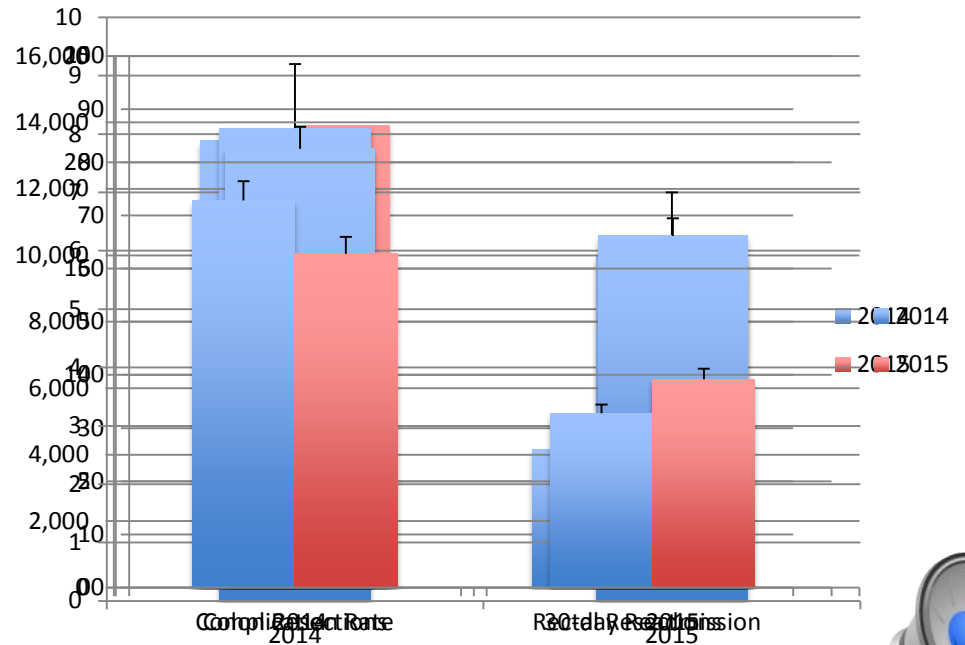



# Results



- Length of stay, complications, readmission, and direct variable cost were compared between years.
- A total of 102 patients undergoing elective colorectal surgery in the ERIN program were compared to 110 cases performed in 2014.

**Complication rate: 15.7% in 2015 compared to 18.2% in 2014** (colorectal resections (84 in 2014 and 87 in 2015) and rectal resections (26 in 2014 and 13 in 2015))  
**Direct variable cost per patient of stay was decreased by \$2,624 from 2014 to 2015**  
**Readmission rate, 5.81% in 2015 compared to 8.2% in 2014 (p= 0.68).**





# Conclusion



- A defined 17 variable Enhanced Recovery Program through NSQIP (ERIN) can decrease LOS and cost without increasing the re-admission rate.
- **Keys for success:**
  - ✓ Decrease complications
  - ✓ Team based care
  - ✓ Ongoing assessment of improving adherence to continuous measurement of outcomes
  - ✓ ERIN variables
  - ✓ Checklist based patient care
  - ✓ Communication



# Thank you!

- Patrick Sullivan, Virginia Oliva Shaffer, Jahnavi Srinivasan, Charles Staley, Seth A. Rosen
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- Anne Bigelow, Angeline Butler, Cheryl Castleberry, Nancy Findley, Kathy Galloway, Melissa Gordon, Shakirah Johnson, Rebecca Layson, Judy Lewis, Ray Magill, Maquitha Mitchell, Amy Newell, Tari Owi, Valesia Robinson, Neha Sachdev, A.L. Jackson Slappy, Susan Tomlin, Satyen Tripathi, Giacomo Waller, Doris Whitworth, Walter Ingram

