Enhancing Recovery for Patients Undergoing Colectomy and Hysterectomy procedures: Multidisciplinary-led Protocol Implementation

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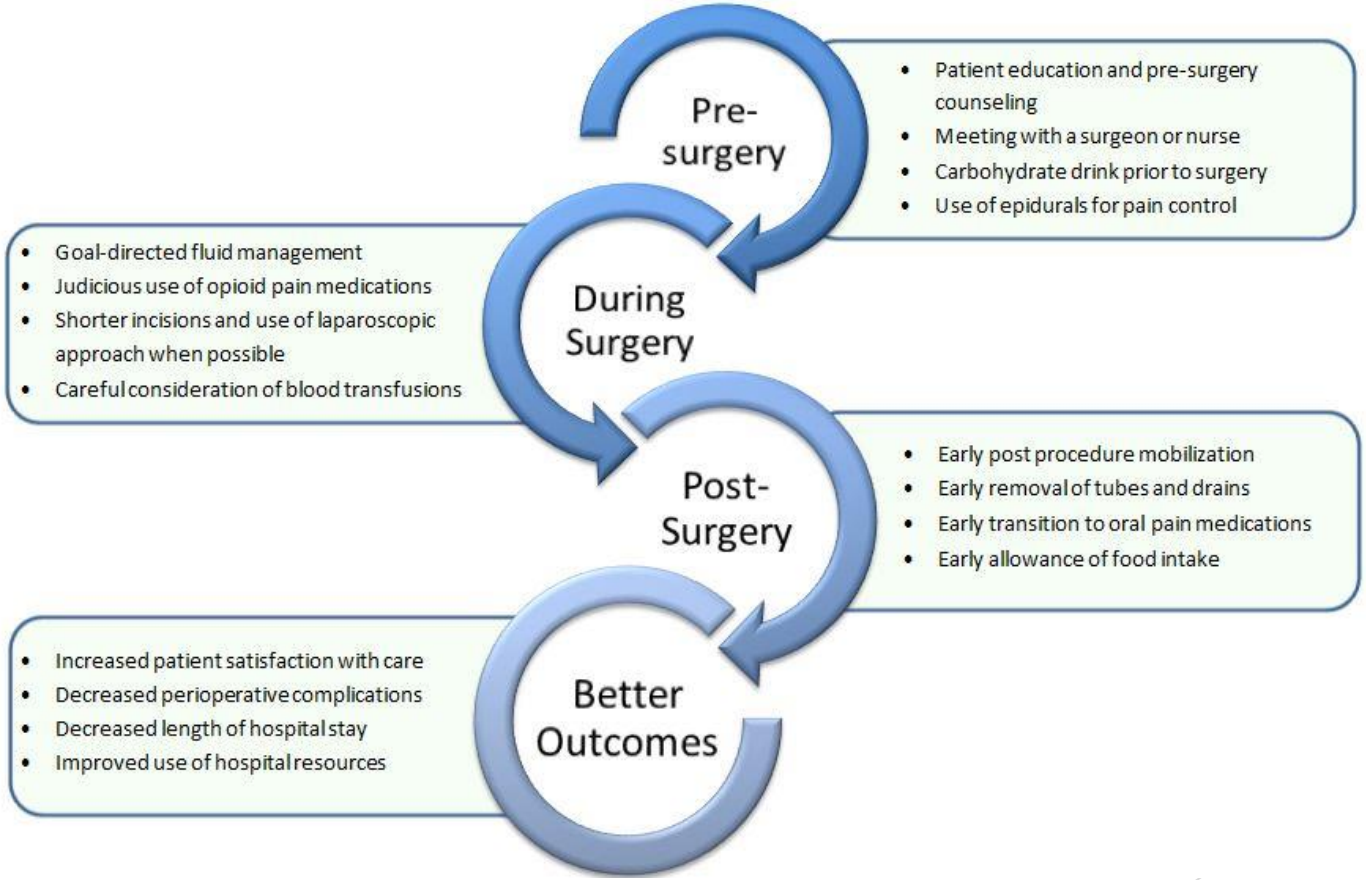
Components of Enhanced Recovery



Source: Components of Enhanced Recover. UNC School of Medicine

Project Charter

Problem Statement

Average length of stay for colectomy and hysterectomy patients at CHA is greater than the national average. Narcotic usage for this patient population is high and results in increased post-op complications.

Goal or Aim Statement

1. Reduce opioid usage
2. **Decrease length of stay in PACU and on inpatient units**
3. Improve patient satisfaction and equivalent pain control
4. Reduce cost of care (LOS)

Success Measures

1. Length of stay data (recovery room and inpatients units)
2. Opioid usage post procedures
3. Patient satisfaction with pain control

Interventions

1.Incorporating multimodal analgesia protocols (IV Tylenol; PO Tylenol; TAP block with Exparel; Toradol) in the order sets
2.Early Ambulation in PACU and inpatient units
3.Enhancing patient education at pre-op, post-op phases
4.Chewing gum
5.Limit fasting
6.Pre-op carbohydrate drink

Timeline

Implement the first intervention and start the 1st PDSA cycle by May 31, 2021

Scope

- Colectomy(Laparoscopic & Open); Hysterectomy(Laparoscopic & Open)
- Inpatient surgery (requires admission)

Core Team

Steering Committee:
Anne Lane, Smith, Christina, David Becker Joe Mackey, Laurie Bausk, Lillian Yadgood, Mary Regan, Merielle Stephens, Nancy Mccune, Paul Ciolino, Roger Conant, Robin Grace, Xia Thai, Kathleen Harney, Melissa Ethier,Jennifer Ann Thiesen,Kareen Eka, Donna Griffith, Lizete Barbosa, Patricia Poirier, Sam Doppelt, Yige Cao

Work Group: (Data collection, Clinical Protocols review, Implementation)
Anne Lane, Smith, Christina, David Becker, Joe Mackey, Laurie Bausk, Lillian Yadgood, Mary Regan, Merielle Stephens, Nancy Mccune, Paul Ciolino, Roger Conant, Robin Grace, Xia Thai, Jane Hildebrandt, Claudia Andrade, Yige Cao

Data Collection

Qualitative data

1. Post-op Pain assessment/survey;

Pain scale 1-10 and discripters for patients describe pain.

Quantitative Data

1. PACU minutes for patient in phase 1 recovery to out of phase 1 recovery
2. Opioids administered in PACU by procedure. (formula of morphine equivalents)
3. Pain score (POD 0, POD1, POD2)
4. Length of stay on Med/Surg/ ICU by procedure. (from admission to discharge, in hours)

Baseline Time frame: 2019/7/1-2020/11/30

LOS & Readmission Assessment (Sarin et al., 2016)

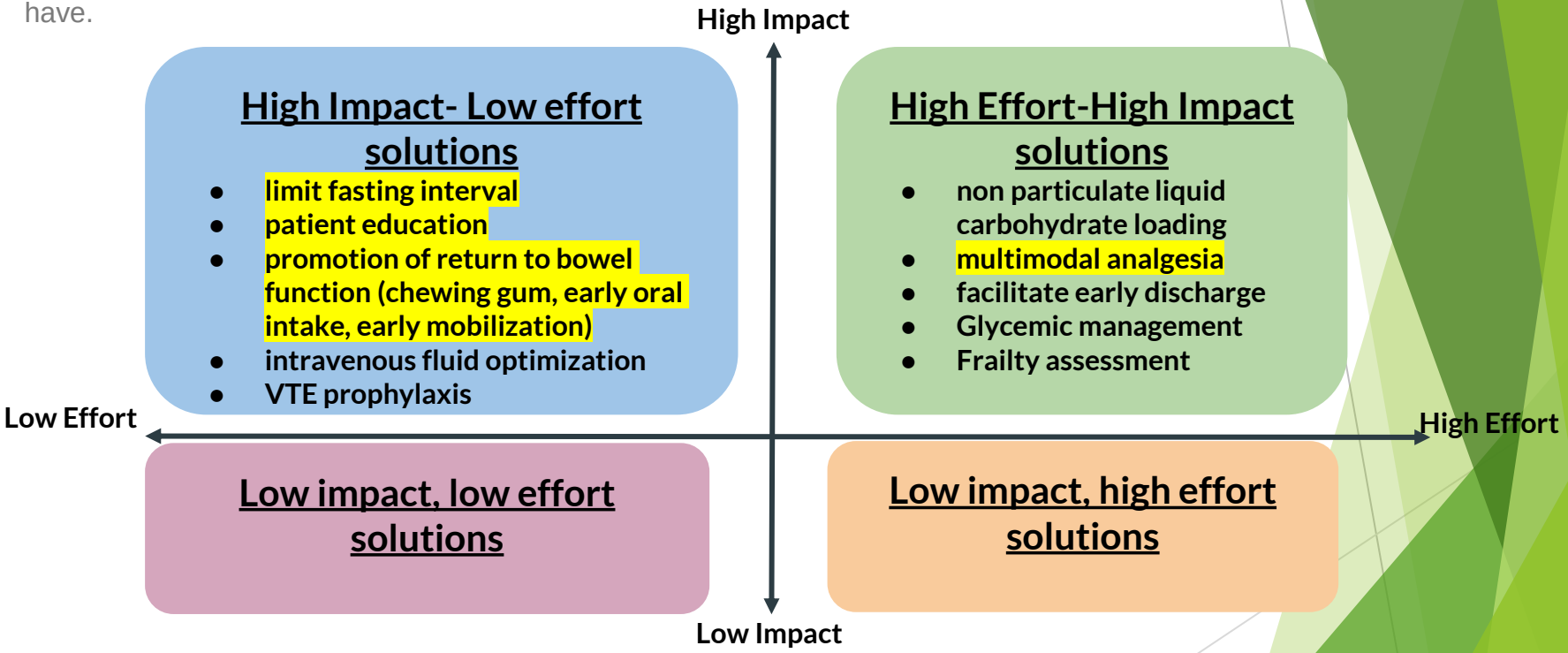
Primary Outcome Measures

Parameter	Pre- ERAS group (Jun-12 to Aug-13)	ERAS Group (Dec-13 to Nov-14)	*p*
Median total hospital length of stay from admission to discharge, days (range)	6.4 (0.2–197.7)	4.4 (1.0–80.4)	<0.001
Median post procedure length of stay from end of procedure to discharge, days (range)	6.0 (0.1–161.5)	4.1 (0.8–47.0)	<0.001
Readmission rate 30 day all cause readmission rate, *n* (%)	64 (21 %)	29 (9.4 %)	<0.001
Reoperation rate reoperation for any indication within 30 days, *n* (%)	5 (2 %)	6 (2.1 %)	1

Source: Sarin A.,et al. (2016). Successful implementation of an Enhanced Recovery After Surgery program shortens length of stay and improves postoperative pain, and bowel and bladder function after colorectal surgery.

Impact-Effort Matrix (CHA, 2021)

An impact effort matrix is a decision-making tool that assists people to manage their time more efficiently. An organization, team, or individual assesses activities based on the level of effort required and the potential impact or benefits they will have.



When ***evaluating efforts level*** to implement a solution, we are considering personnel, time and financial investment as well as leadership and key stakeholder engagement.

When ***evaluating impact level***, we are looking at the impact on patient care outcomes, patient experience, workflow efficiencies, and whether it has a long -term and sustainable impact or short-term effect.

Limit Fasting

Patients undergoing elective colorectal surgery are allowed to **eat up until 6 hours and take clear fluids up until 2 hours before initiation of anesthesia.** Patients with **delayed gastric emptying and emergency patients** should remain fasted overnight or 6 > h before surgery.

Patients are encouraged to drink clear fluids < 2 hours before the induction of anesthesia.

Multiple randomized controlled trials support the ingestion of clear liquids < 2 hours before elective surgery; noting that ingestion of clear liquids within 2-4 hours of surgery versus >4 hours correlates with smaller gastric volume and higher gastric pH at surgery. The 2020 practice guidelines of the ASA and European Society of Anaesthesiology also support this recommendation.

Source: Gustafsson, U. O., *et al.* (2019). Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018.

Multimodal Analgesia - Colorectal & Gynaecology surgery

Table 1. Evidence-based alternatives to epidural analgesia in the setting of ERAS.

Type of Surgery	Preoperative Analgesia	Intraoperative Analgesia	Postoperative Analgesia
Open colorectal cancer surgery Bertoglio et al., 2012 [25]	None	Fentanyl 2–5 mcg/kg/h	Ropivacaine 0.2% 10 mL/h through preperitoneal catheter (above the peritoneum within the musculofascial layer) Ketolorac 30 mg × 3 IV Acetaminophen 1 g × 4 PO
Open gynaecology/oncology surgery Kalogera et al., 2013 [26]	Celecoxib 400 mg × 1 PO Acetaminophen 1 g × 1 PO Gabapentin 600 mg × 1 PO	Opioids IV at discretion of anesthesiologist supplemented with ketamine, ketorolac, or both. After incision closure: injection of bupivacaine at incision site	Oxycodone 5–10 mg as required PO, max 6 doses/day Acetaminophen 1 g × 4 PO Ketorolac 15 mg × 4 IV on Day 1, then Ibuprofen 800 mg × 4 PO Hydromorphone for rescue analgesia
Primary total knee arthroplasty McDonald et al., 2011 [27]	2 h before surgery: Temazepam 10–20 mg × 1 Dexamethasone 10 mg × 1 Gabapentin 300 mg × 1 Acetaminophen 1 g × 1	Spinal anesthesia with 2.75–3.2 mL 0.5% Bupivacaine. 200 mL intra-articular 0.2% Ropivacaine (at the end of surgery).	Gabapentin 300 mg × 2 Acetaminophen 1 g × 4 Ibuprofen 400 mg × 3 Oxycodone 5–10 mg 2–4 hourly as required Three bolus doses of 40 mL Ropivacaine (0.2%), each via intra-articular catheter at 4 h post-surgery, 2300 h, and 0800 h the following morning. Intra-articular catheter then removed.
Hip hemiarthoplasty for fractured neck of femur Talboys et al., 2015 [28]	Preoperatively, patients are prescribed a dose of acetaminophen of 1 gram (g) PO and tramadol M/R 50–100 mg × 2. A fascia iliaca compartment block (FICB) comprising of 30 mL of levobupivacaine 0.25% is given in the emergency department.	A single shot of spinal bupivacaine (2.5–3.0 mL); no intrathecal opiates are used.IV dexamethasone 8 mg and diclofenac 75 mg. Perioperatively, the surgeon infiltrates the joint with 150–200 mL of ropivicaine 0.2%. A periarticular catheter is then set up to deliver an infusion of the LA: an initial 20 mL bolus followed by an infusion rate of 8 mL/h (with 5 mL bolus every 20 min).	Gabapentin 300 mg twice daily for 5 days Acetaminophen 1 g × 4 Ibuprofen 400 mg × 3 for 1 week When required, tramadol M/R 50–100 mg × 2 Severe breakthrough pain is managed with Oramorph liquid 5–10 mg every 2 hours.
Open abdominal aortic surgery Renghi et al., 2013 [29]	Proparacetamol 2 g × 1 Fentanyl 100 mcg × 1	Fascia of the parietal peritoneum was infiltrated subcutaneously with 20 mL of levobupivacaine (0.5%)	At the end of surgery, subfascial and subcutaneous placement of a double-multiperforated catheter was performed, and an infusion of levobupivacaine, 0.25% at 4 mL/h, was started. Ibuprofen 600 mg × 3 PO Ketorolac 30 mg IV for rescue analgesia
Laparoscopic colorectal surgery Hubner et al., 2015 [20]	None	Fentanyl at discretion of anesthesiologist	Morphine PCA Paracetamol 1 g × 4 PO Metamizole 500 mg × 4 PO

Abbreviations: IV—intravenous; PO—per oral; LA—local anaesthetic; M/R—modified release; PCA—patient controlled analgesia.

Source: Gelman, D., et al. (2018). Role of Multimodal Analgesia in the Evolving Enhanced Recovery after Surgery Pathways.

Multimodal Analgesia IV TYLENOL PROTOCOL:

Developed CHA by Team March 11, 2021 for Physician Review after discussions with Pharmacy and Therapeutics (P & T)

Pre-op:
IV: only for pt can't take PO,

PO: 1-2 hrs before the procedure - give as soon as pt comes in
IV: 15 mins (infusion)
Will be loaded in the pyxis

Intra-op:
If procedure>6hrs, need another dose of Acetaminophen?

Post-op:
2nd dose in PACU

What to do with pt who's allergic?
Skip the medications they are allergic to and follow the rest of the protocols

Multimodal medications to be added to CHA order sets

	Decision to include in the order set	Pre-op	Intra-op	Post-op	Notes
PO/IV Acetaminophen	Yes	PO preferred. IV only for patient who can't take PO PO: 1-2 hours before the procedure - give as soon as patient comes in, 1-gram Q6 IV: 15 mins (infusion)	A total of 4, 1-gram doses will be given in 6-hour intervals. PO given as tolerated		
Toradol	Yes		1 dose		
Gabapentin	Yes	yes		BID x 2 days post=op	Pending Decision from Dr. Stephens
Breakthrough Narcotics: oxycodone	Yes	Yes. 10mg Oxycodone PO	Fentanyl (defer to anesthesia on dosing)	Yes. Fentanyl or Dilaudid give IV during Phase 1 recovery. 10mg Oxycodone PO give bid for 2 days..	
TAP-block	Yes			Exparel Tap block done in OR or PACU post procedure	

Early Ambulation: CHA Nurse-Driven Protocol

Strategies:

1. Pre-op: Pt education and manage pt expectation: (engage surgeons/PA, reinforce during PAT, booking sheet)
2. Use patient-friendly education materials for instructions
3. Establish ambulation guidelines and incorporate them in the Epic order sets
4. Keep patient diary to track progress
5. Document and monitor patient progress & ERAS protocol compliance rate

EPIC: Using flowsheet and copy the flowsheet rows into the notes

Draft Guidelines: Ambulation Goals

After surgery (PACU):

1. Start ankle exercise
2. Have patient in recliner chair
3. During transfer use stretcher rather than bed
4. Try to get patient up walking to the bathroom (difficult because of the PACU setup)

Inpatient unit:

1. Get patient up to sit in chair for 2 hours /per day
2. Ambulation 3 times/per day (>10 feet)
3. Chewing gum for 30 minutes

Early Ambulation: CHA Nurse driven Protocols (Draft)

Mobility protocols (grading and scoring):

- Nursing will mobilize the patient and use the Get-up-and-go Scale to record the highest mobility level at each shift (2pm, 10pm). Patient has right to refuse. Nurse action: will notify provider, and provider may have a conversation with patient to educate them on the importance of early ambulation.

  Get-up-and-go Scale (4-8):
  Level 1-3: Turn patient every 2 hours and out of bed to chair with assistance.
  Level 4: Out of bed 2 times a day.
  Level 5: Out of bed 2 times a day Ambulate 25 ft 1 time a day.
  Level 6: Out of bed 2 times a day. Ambulate 50 ft 1 time a day.
  Level 7: Ambulate 50 ft, 2 times a day, out of bed for all meals.
  Level 8: Ambulate 50 ft, 3 times a day, out of bed for all meals.
  *No need for specific order, nursing drives protocol

- Patient needing the ICU will be excluded from scope of project.
- Mobilize the patient in PACU and transfer patient to unit in wheelchairs instead of stretchers or beds. **Note:** This CHA Nurse-led protocol can be applied to other patients (not limited to colectomy and hysterectomy patents).

Patient Education and Resources over the Continuum of Care

Pre-op Instructions

- Instruction material patient can eat and drink before surgery.
- Medication instruction on what to take and not to take before surgery
- Nutrient drink instructions
- Pre-op bathing instructions

Post-op resources and education material

- Patient Diary
- Instruction material patient can use as reference. Includes instruction on breathing, walking, exercise, drinking, eating, chewing gum and medications.
- Improve patient outcomes and experience

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References and Resources

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