University of Virginia Health System
Clinical Pathway: Colorectal Enhanced Recovery After Surgery (ERAS)
Diagnosis: Any Elective Colorectal Procedure
LOS: 2-3
Date of Origin/Revision: January 12, 2016/September 17, 2018

	SURGICAL CLINIC	PETC	Day Prior to Surgery	Day of Surgery: SAS	Day of Surgery: Operating Room	Day of Surgery: PACU	Day of Surgery: Acute Care – 5C	POD1	POD2	POD 3/ Day of Discharge
Assessments	- Identify pt as **ERAS Colorectal** – create episode in EPIC -Vital signs, baseline height/wt -Screen for OSA, VTE and diabetes -Assess for chronic narcotic use, tobacco and alcohol use -Screen for malnutrition -Verify home medications	- Link PETC visit to **ERAS episode** -Stratify cardiac risk -Screen for OSA -Screen for aspiration -Screen for malnutrition -Screen for tobacco use, diabetes -Identify patient with positive antibody screen -Review home medications	-Phone screening and readiness assessment by ERAS nurses	- Link SAS visit to **ERAS episode** -Vital signs -Med weight		-Vital signs and monitoring per PACU standards -Assess for aspiration risk (cognitive dysfunction, prior stroke, age >80)	-VS (with MAP) q2h x 2 and then q4h -Document ETCO2 Q4 with VS -UOP q4h -Continuous pulse oximetry with capnography	-VS q4 -Daily weights -Strict I/O -Monitor wound / ostomy	-VS q4 -Daily weights -Monitor wound /ostomy	-VS q 8h -If ileostomy patient: perform orthostatic B/P as prep for discharge
Consults & Referrals	-Cardiology if necessary -WOCN nurses for marking -Urology to evaluate for stents	-Cardiology if necessary		-Notify cardiology for pacemaker patients -WOCN nurses for marking (if not done) -Urology if stents			-Consult WOCN if new stoma -Consult endocrine if IDDM or poorly controlled DM	-Assess for inter-disciplinary consult needs: RT, SW, Nutrition, Chaplain, PT/OT		-Finalize plan for community or home health needs with Case Manager

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Tests & Orders	-Use "COLORECTAL ERAS SURGERY GENERAL" under the ordersets tab -EKG (M>50, F>60) -Labs: CBC, CMP, Mg, Phos, Pt/PTT, T&H (0 units) -CEA if cancer -HgB A1c if diabetic -CT chest/ab/pelvis for staging of cancer -Post case with "ERAS Spinal" indication in case request	Complete: -EKG (M>50, F>60) -Labs: CBC, CMP, Mg, Phos, Pt/PTT, T&H (0 units) -CEA if cancer -HgB A1c if diabetic -CT chest/ab/pelvis for staging of cancer		-Type and hold (0 units) if not done		- Use designated orderset "ERAS PACU Focused" with specific section for Colorectal	-Use "SURG COLORECTAL SURGERY POST OP UVA" for postop orders	Labs: CBC, BMP, Mg, Phos	No additional labs unless indicated (hct drop by more than 5% points day prior, history of atrial fibrillation, clinical signs of bleeding/ distress)	-No additional labs unless indicated (fallen off pathway, ileostomy pt) -Use "Surg Colorectal Discharge" for discharge orders
Add'l Actions	-Give CHG information for shower night before and morning of surgery	-Reinforce CHG shower night before and morning of surgery	-Reinforce CHG shower night before	-CHG shower the morning of surgery			-Incentive spirometry Q1 hour	-DC foley unless pelvic dissection or poor UOP -Incentive spirometry Q1 hour	-DC all foleys -Incentive spirometry Q1 hour	
Activities		-Encourage preoperative walking program					-Walk on night of surgery within 6hrs of arrival to unit -Head of bed at 30 degrees at all times -No sitting in chair for patients with perineal wound	-Pt stands for am weight -OOB to chair at least 6 hours -Ambulate in hall X2	-Pt stands for am weight -OOB to chair at least 6 hours -Ambulate in hall X3	-Pt stands for am weight -OOB to chair at least 6 hours -Ambulate in hall X3

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Fluid management		-Instruct pt on oral fluids prior to surgery – clear fluids/Gatorade up until 2hrs before scheduled surgery	Regular diet until 6pm when Golytely starts (for those doing a bowel prep) and then clear liquids	-Carbohydrate drink 2 hours before surgery (Gatorade 20 ounces (50 grams of carbohydrate)) -Insert PIV and saline lock	-Fluid management is Goal-directed intravenous fluid guided by Pleth Variability Index	-LR at 40 cc/hr (or 75 cc/hr if at risk for aspiration)	-LR at 40 cc/hr or 75 cc/hr if at risk for aspiration -If MAP <60 give 500 cc bolus and call chief (change order set to call for MAP less than 60) -If HR >120 call chief -UOP<120 cc over 4 hours (and the patient is otherwise ok) 500 cc bolus -Call chief/attending for bolus over 1L		-Saline lock IV	-Ensure proper hydration instruction for ileostomy patients. (Give ileostomy worksheet)

Medications	-Chlor-hexidine shower -Hold Coumadin for 5 days and check with PCP re: bridge -Hold methotrexate/ Remicade / Humira if possible -Continue home meds including aspirin -Diabetics – follow PETC orders (hold Metformin 24 hours preop, take ½ dose insulin in AM) -Hold NSAIDs and plavix for 7 days -Bowel Prep - Golytely 4L, erythromycin 1gm x 3, neomycin 1gm x3, Reglan 10mg x 3 Place SAS orders for: -Entereg 12 mg PO in SAS (No Entereg for patients with ileostomy or patients on narcotics for more than 7 days prior to surgery) -Place intraop phase of care order for Exparel to be administered by surgeon Place intraop phase of care orders for VTE	-Preop instructions for diabetic and anticoagulation patients	-For those doing a bowel prep: Regular diet until 6pm; Erythromycin 1gm and Neomycin 1 gm at 13:00, 14:00, 22:00; Reglan 10 mg 12:00, 18:00, 22:00; Begin Golytely at pm, clears after 6pm -Follow orders re: Diabetic and anticoagulation medications	-Hypertension meds with sip of water -Entereg 12mg PO in SAS (No Entereg for patients with ileostomy or patients on narcotics for more than 7 days prior to surgery) -SAS nurse to release preop to intraop phase of care meds for OR – VTE and ABX -SAS nurse to release preop to intraop phase of care meds for OR – Liposomal bupivacaine (Exparel)	-Ancef injection 2g 0-60 minutes before incision; start flagyl upon entry into room or cipro/clinda if PCN allergic upon entry into the room -DVT prophylaxis with 5000U heparin immediately after spinal -Induction: Propofol, ketamine 0.5 mg/kg, magnesium 30 mg/ kg bolus		-No postop prophylactic antibiotics -Steroid taper if indicated -Entereg 12 mg BID for 7 days* (No Entereg for patients with ileostomy or patients on narcotics for more than 7 days prior to surgery) -Restart home medications (particularly antihypertensives) with exception of hypoglycemic -Magnesium oxide 400 mg PO BID -No stool softeners -Flomax 0.4mg daily for men >50 or pelvic dissection	-Restart additional home medications -Enoxaparin 30mg once daily dose (dependent on VTE risk)	-Restart anticoagulation if appropriate	-Imodium 1 tablet BID if ostomy output 1500-2000cc in 24hr (refer to ileostomy protocol) -Imodium prescription for ileostomy patients, titrate according to ileostomy worksheet

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	and ABX: -Flagyl 500 mg IV (If PCN allergic: Cipro 400 mg and Clindamycin 900 mg) -Ancef 2g IV -Heparin - 5000U SQ immediately after spinal									
Pain Management	Place SAS orders: -Celecoxib 200 mg PO (not given to patient with Coronary artery disease) -Gabapentin 600 mg PO -Acetamin-ophen 975mg PO		-Chronic pain patients should continue home pain medications until surgery	-Multimodal analgesia: 1.Celecoxib 200 mg PO (not given to patient with CAD) 2.Gabapentin 600 mg PO 3. Acetamin-ophen 975mg PO	-250mcg Intrathecal morphine prior to induction (no epidural) -No intraoperative opioids without attending approval -IV analgesia: ketamine 10 ucg/kg/min -Injection of Liposomal bupivacaine (Exparel) by surgeon –NO LIDOCAINE INFUSION TO FOLLOW	-Ketamine 20mg/40mg IV bolus with midazolam 0.5mg/1.0mg IV PRN for pain as first line treatment (VAS 4-6/VAS 7-10)	- Acetaminophen 975mg PO Q6 hours -Celecoxib 100 mg PO BID in patients without coronary artery disease -Oxycodone 5mg PO Q4 PRN moderate pain; 10 mg PO Q4 PRN severe pain **__No additional opioids, no PCA, no epidurals__ (without attending's approval)	-Continue scheduled non-narcotic meds: Acetaminophen 975mg PO Q6 hours -Celecoxib 100 mg PO BID in patients without coronary artery disease -Oxycodone 5mg PO Q4 PRN moderate pain; 10 mg PO Q4 PRN severe pain	-Continue all other meds -Maintain oral medications only	Meds for Discharge: Acetaminophen 975mg q8 for one week -Ibuprofen 800mg q8 for one week -Oxycodone 5mg x30 Q4 prn
Nutrition	Screen for malnutrition (if weight loss > 10% body weight or albumin <3.5)		-Regular diet until 6pm when Golytely starts and then clear liquids	-Clears until 2 hours prior to surgery -Carbohydrate drink for morning of surgery (20oz Gatorade)		-Clear liquids as tolerated	-Clear liquids as tolerated	-Clear liquids as tolerated -Transitional diet by lunchtime	-Transitional diet to regular diet as tolerated	-Regular diet

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Education	-Provide patient with ERAS notebook -Reinforce expectations around surgery and recovery	-Reinforce diet/NPO for ERAS patients -Smoking cessation information	-Reinforce ERAS expectations -Remind to bring ERAS notebook and (if used) CPAP machine to hospital	-Ask patient if they have their notebook and review ERAS pathway			-Postoperative activity and incentive spirometry	-Postop activity and nutrition goals and progress -Ostomy teaching	-Postop activity and nutrition goals and progress -Ostomy teaching	-Postop activity and nutrition goals and progress -Ostomy teaching -Ostomy discharge sheet -Assure patient has ostomy supplies
Discharge Planning	-Assess for discharge needs, social work needs and advanced directives	-Assess d/c needs including insurance needs						-Case Manager assesses for discharge needs	-DC planning finalized	Consider DC if: *Pain well controlled *No abd distention, belching or hiccupping or emesis *Passing flatus *Ileostomy output between 500 – 1500 cc/day *Ambulating and hydrating DC before noon
Outcomes	Preop assessment initiated	Preop-assessment complete	Patient achieves bowel preparation Patient demonstrates readiness for surgery	Fluid and electrolyte balance maintained Pain management is effective Patient demonstrated hemodynamic stability	Fluid and electrolyte balance maintained Pain management is effective Patient demonstrated hemodynamic stability	Fluid and electrolyte balance maintained Pain management is effective Hemodynamic stability	Fluid balance maintained (< 1 kg wt gain) Pain management is effective Patient demonstrated hemodynamic stability OOB	Tolerates clear liquids and fluids discontinued Foley out for patients without pelvic dissection Fluid balance maintained Adequate pain control OOB > 6 hours	Tolerates transitional diet All foleys removed Fluid balance maintained Ambulates Passing gas	Tolerating diet Hydrating Ambulating Bowel functioning Ileostomy output 500-1500 cc/day < 15% readmission rate

ALTERNATIVE PATHWAY OR PLAN OF CARE INITIATED FOR THIS PATIENT ON: DATE _____ **INITIALS** _____