ELECTIVE COLON SURGERY

Target Audience:

The target audience for this Care Guideline is all MultiCare employed Clinicians (physicians and nurses) who will be impacted by the change in protocol. An additional audience includes providers and staff associated with our Clinically Integrated Network.

Scope/Patient Population:

Adult patients undergoing an elective colon surgery at MultiCare.

Rationale:

Following a standardized, evidence-based pathway (1) for patients undergoing elective colon surgery would lead to improvement in patient outcomes. Recent studies highlighted below have demonstrated that Enhanced Recovery After Surgery (ERAS) protocols have successfully reduced patient length of stay (2) (LOS) without increasing complications or readmissions (3).

- A Meta-analysis demonstrates a 2.28-day LOS reduction without increasing complications or readmission rates (2)
- A recent study showed a 2-day LOS reduction without increasing complications or readmissions rates in rectal cancer patients (3)

Objective

1. *Optimize elective colon surgery practices based on the latest evidence*
2. *Improve patient outcomes including reduced length of stay, reduced readmissions and fewer surgical site infections*

Decrease costs through improved outcomes and eliminating unnecessary costs

Recommendations:

Disclaimer: The below Care Guideline serves as a reference for health care professionals and patients within the MultiCare Connected Care affiliated network. The guideline provides an evidence-based framework for evaluating, treating or preventing various health conditions. The guideline is not meant to replace clinical judgment of individual providers and is not meant for all circumstances.*

** The process of determining evidence based criteria involves the review of peer-reviewed literature and nationally published guidelines in the open literature where there is evidence supporting these recommendations. When possible, along with the reference, the original literature or links are provided to provide accurate assignment of original authorship.*

Highlighted areas in yellow involve the patient's role.

Item	Recommendation	Evidence level (with associated link)	Recommendation grade
Preoperative information, education and counseling Preoperative optimization	Patients should routinely receive dedicated preoperative counseling. Preoperative general medical optimization is necessary before surgery	Low	Strong
	Smoking and alcohol consumption (alcohol abusers) should be stopped four weeks before surgery	Alcohol: Low Smoking: High	Strong
Preoperative bowel preparation	Mechanical Bowel Prep and oral antibiotics should be given although surgeons may use their discretion for right colon surgeries. Oral antibiotic choices include: • Neomycin • Flagyl • Erythromycin	High	Strong
Item	**Recommendation**	**Evidence level (with associated link)**	**Recommendation grade**

Preoperative fasting and carbohydrate treatment	Reference MultiCare Pre-Operative Fasting Clinical Guidelines	National Consensus Based	
Preanaesthetic medication	Minimize oral anxiolytics and narcotics pre-op.	High	Strong
Prophylaxis against thromboembolism	Patients should wear well-fitting compression stockings, have intermittent pneumatic compression, and receive pharmacological prophylaxis with low molecular weight heparin (LMWH) unless epidural or spinal analgesia is contemplated. Use unfractionated BID (twice-daily) Heparin if neuraxial techniques are anticipated. Chemical DVT prophylaxis should be administered within 24 hours of surgery.	High	Strong
Antimicrobial prophylaxis and skin preparation	Routine prophylaxis using intravenous antibiotics should be given within 60 min before surgery start time	High	Strong
	Additional doses should be given during prolonged operations according to half-life of the drug used		
	Preparation with chlorhexidine-alcohol should be used		
Anesthetic considerations	When planning the anesthetic, facilitation of rapid awakening and early ambulation is desirable.	Rapid awakening: Low	Strong
	The anesthesiologist should control fluid therapy, analgesia and hemodynamic changes to reduce the	Reduce stress response: Moderate	

	metabolic stress response and postoperative fluid load		
	Open surgery: consider mid-thoracic epidural or intrathecal analgesia techniques using local anesthetics and/or low dose opioids	Open surgery: High	
Post-Operative Nausea and Vomiting (PONV)	A multimodal approach to PONV prophylaxis should be adopted in al patients with ≥2 risk factors undergoing major colorectal surgery	Low	Strong
Laparoscopy and modifications of surgical access	Laparoscopic surgery for colonic resections is recommended if the expertise is available	Oncology: High Morbidity: Low Recovery/Length of Stay in Hospital: Moderate	Strong
Item	**Recommendation**	**Evidence level (with associated link)**	**Recommendation grade**
Preventing intraoperative hypothermia	Intraoperative maintenance of normothermia with a suitable warming device and warmed intravenous fluids should be used routinely to keep body temperature >36 °C	High	Strong
Perioperative fluid management	Anesthetic fluid management should be minimized utilizing colloids and crystalloids as deemed safe.	Balanced crystalloids: High	Strong
	Vasopressors should be considered for intra- and postoperative management of epidural-induced hypotension provided the patient is normovolemic	Vasopressors: High	

	The enteral route for fluid postoperatively should be used as early as possible, and intravenous fluids should be discontinued as soon as is practical	Early enteral route: High	
Drain placement within peritoneal cavity	Routine drainage is discouraged because it is an unsupported intervention	High	Strong
Urinary drainage	Routine transurethral bladder drainage for less than 48 hours	Low	Routine bladder drainage: Strong
	The bladder catheter can be removed regardless of the usage or duration of thoracic epidural analgesia		Early removal if epidural used: Weak
Prevention of postoperative ileus	Mid-thoracic epidural analgesia or laparoscopic surgery should be utilized in colonic surgery if possible	Thoracic epidural or laparoscopy: High	Thoracic epidural, fluid overload, nasogastric decompression, chewing gum, alvimopan: Strong
	Fluid overload and nasogastric decompression should be avoided	Chewing gum: Moderate	
	Chewing gum can be recommended, whereas oral magnesium and alvimopan may be included.	Oral magnesium, alvimopan: Low	Oral magnesium: Weak
Item	**Recommendation**	**Evidence level (with associated link)**	**Recommendation grade**
Postoperative analgesia	Open surgery: Thoracic Epidural Analgesia (TEA) using low-dose	TEA, open surgery: High	Strong

	local anesthetic and opioids.	Local anesthetic and opioid: Moderate	
	Laparoscopic surgery colon multimodal analgesia. Avoid patient controlled analgesia (PCA) and minimize narcotics.	Moderate See section titled Postoperative multimodal analgesia	
Perioperative nutritional care	Patients should be screened for nutritional status and if at risk of under nutrition given active nutritional support	Postoperative early enteral feeding, safety: High Improved recovery and reduction of morbidity: Low	Postoperative early feeding and perioperative oral nutritional supplement(ONS): Strong
	Perioperative fasting should be minimized. Postoperatively patients should be encouraged to take normal food as soon as lucid after surgery	Perioperative ONS (well-fed patient): Low Perioperative ONS (malnourished patient): Low	Immunonutrition (IN) could be considered in open colonic resections: Weak
	Oral nutritional supplement may be used to supplement total intake.	IN: Low	
Postoperative glucose control	Hyperglycemia is a risk factor for complications and should therefore be avoided	Using stress reducing elements of ERAS to minimize hyperglycemia: Low	Using stress reducing elements of ERAS to minimize hyperglycemia: Strong
	Several interventions in the ERAS protocol affect insulin action/resistance, thereby improving glycemic control with no risk of causing hypoglycemia	Insulin treatment in the Intensive Care Unit (ICU): Moderate	Insulin treatment in the ICU (severe hyperglycemia): Strong Insulin treatment in ICU (mild hyperglycemia): Weak
	For hospital-based patients, insulin should be used	Glycemic control in the hospital setting: Low	Insulin treatment in the hospital setting: Weak

	judiciously to maintain blood glucose as low as feasible		
Early mobilization	Prolonged immobilization increases the risk of pneumonia, insulin resistance and muscle weakness. Patients should therefore be mobilized	Low	Strong

Algorithm: See Appendix A

Evidence: The Enhanced Recovery After Surgery Society has published comprehensive guidelines for protocols that improve outcomes following colon surgery.

1. Guidelines for Perioperative Care in Elective Colon Surgery: Enhanced Recovery After Surgery Society Recommendations. October 6, 2012.
2. Greco M, Capretti G, Beretta L, Gemma M, Pecorelli N, Braga M. Enhanced Recovery program in colorectal surgery: a meta-analysis of randomized controlled trials. W J. Surgery. 2014 Jun; 38(6)): 1531-41.
3. Khreiss W, Huebner M, Cima RR, Dozois ER, Chua HK, Pemberton JH, Harmsen WS, Larson DW. Improving conventional recovery with enhanced recovery in minimally invasive surgery for rectal cancer. Dis Colon Rectum. 2014 May; 57(5): 557-63.

List of Implementation Items and Patient Education:

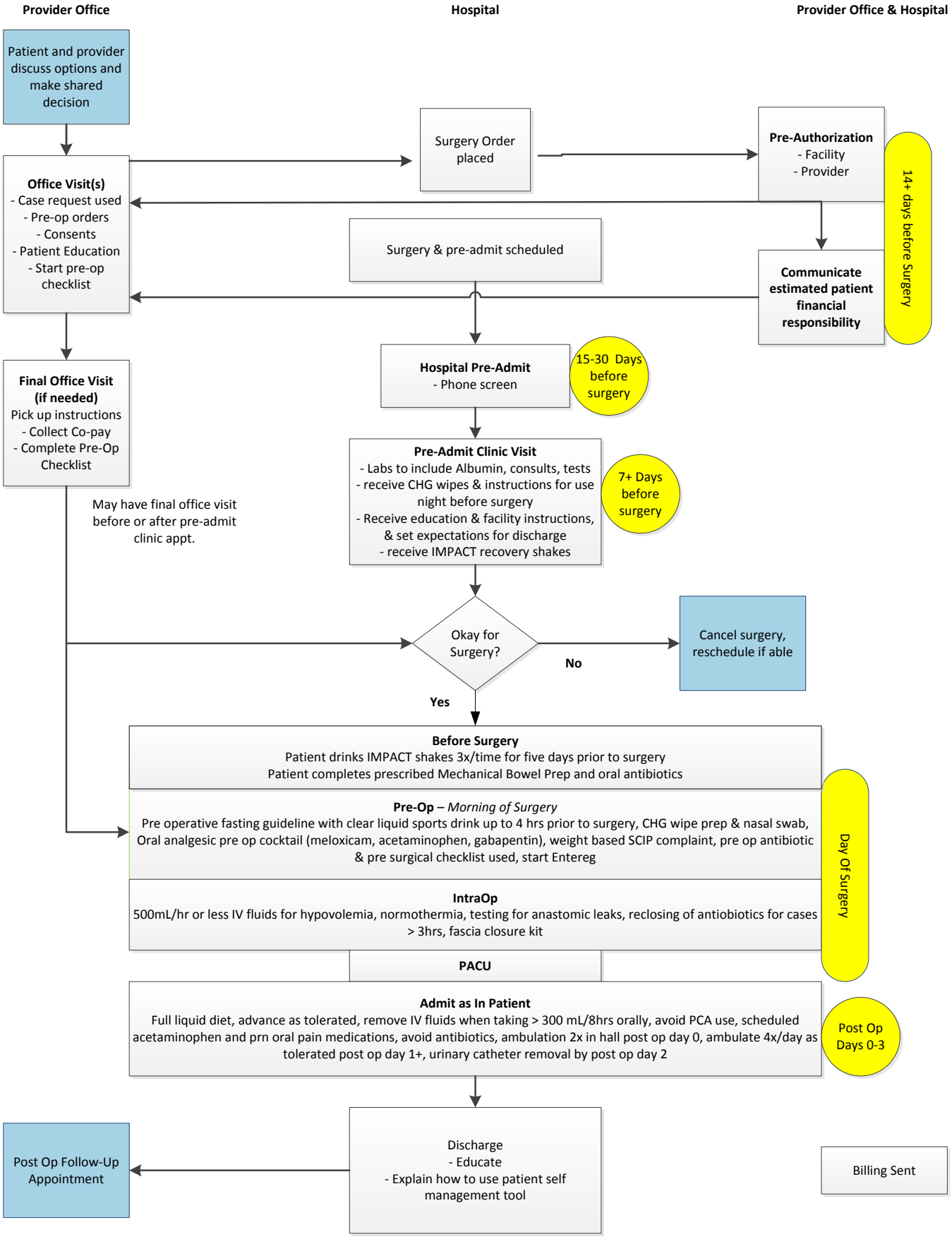
- Clinical Pathway (Appendix A)
- Pre-Surgery Patient Education Hand-out (Appendix B)
- Patient Education Materials Regarding Surgical Bowel Removal Online (Patient Education Download at Website)
- Patient Self-Screening Tool (Appendix C)
- QlikView application with a metrics dashboard

	Metrics Plan: • Maintain utilization of standard elective colon order sets of 90. • Continued reduction in readmissions rate. • Maintain average LOS to 4.5 days. • Maintain a rate of surgical site infections below SIR of 1.0.
	PDCA Plan: Review biannually by the Elective Colon Work Group until the process is stable and then annually.
	Point of Contact: Surgical Administrator

Approval By:	***Date of Approval:***
Collaborative (Surgery) Medical Staff Committees System Wide Anesthesia Committee MCC/Collaborative Leadership	*02/2015;05/2016* *04/2015; 05/2015* *01/2015* *04/2015*
Original Date: Revision Dates: Reviewed with no Changes Dates:	*05/2015* *04/2016; 12/2018*

Distribution: MultiCare Connected Care + MultiCare Health System

Appendix A



Elective Colon

Appendix B – Patient Education Materials

<table>
<tr><td><u>Pre-Admit Visit</u>
7+ days before Surgery</td><td colspan="2">Day of Surgery</td></tr>
<tr><td>☐ Go to pre-admit clinic visit, labs if needed

☐ Pick up IMPACT Advanced Recovery shakes at Pre-Admit

☐ Pick up CHG wipes and instructions to use the night before surgery

☐ Receive instructions for eating, drinking & medications to take/stop prior to surgery</td><td><u>Day of Surgery</u>
Before you leave home:</td><td><u>Day of Surgery</u>
When you wake up from surgery:</td></tr>
<tr><td><u>At Home</u>
6 days before Surgery</td><td>☐ Stay well hydrated by continuing to drink clear liquids until 4 hours prior to surgery.

☐ 2 hours prior to check-in drink the 2nd bottle of ClearFast.

☐ Remember to bring an Identification card & Insurance card

☐ Have a family member or friend hold onto expensive or important valuables for safe keeping</td><td rowspan="3">Things to know:

☐ You will wake up in the recovery room.

☐ You will have an IV in your arm to give you fluids during your stay, until you can hold down around 300+mL of liquids/8 hrs

☐ You may have compression devices (SCDs) on your legs to reduce your risk for blood clots

☐ A Nurse will give you scheduled oral medicines to reduce pain once you can hold things down.

☐ You will have a catheter (tube) in your bladder to remove urine. We will get this out as soon as appropriate.

☐ You will be moved to a bed in a hospital unit where your loved ones can visit you.

Your nurse will help you:

☐ Get out of bed and begin to walk, this will help you to heal faster.

☐ Do not get out of bed on your own. Having surgery puts you at higher risk for falling.

☐ The nurse will teach you to use your incentive spirometer and remind you to use it 10 times each hour. This will reduce your risk for lung illnesses after surgery.</td></tr>
<tr><td>☐ Drink your Impact Advanced Recovery drink 3 times a day for 5 days
(5th day is the day before Surgery)</td><td><u>Day of Surgery</u>
When you arrive at the hospital:</td></tr>
<tr><td><u>At Home</u>
The Day before Surgery</td><td>☐ Check in at Surgery Registration at your assigned arrival time

☐ A nurse will call you to come to the Pre-Op area to be prepped

☐ A nurse will help you to perform another CHG wipe application prior to surgery

☐ An IV will be placed in your arm to give you fluids and antibiotics

☐ You will be given a heating gown to keep you warm during & after surgery

☐ The OR Team will take you to the operating room when you are ready</td></tr>
<tr><td>☐ Take any Pre-surgery medications you received, as instructed
☐ Take a shower with regular soap and water
☐ Apply the CHG wipes and allow the areas to dry completely. Do not wash off.
Video instructions at
http://www.multicare.org/prepare-for-surgery/
☐ Follow the fasting guidelines given to you at the pre-admit clinic visit
☐ At 8pm the night before surgery drink the 1st bottle of ClearFast</td><td colspan="2"></td></tr>
</table>

MultiCare Elective Colon Post-Surgical Care Map

	Day of Surgery Goal	Goals during your Stay	After Discharge
Nutrition	☐ Begin with a full liquid diet.	☐ Your diet will advance based on your ability to tolerate foods. ☐ Eat many small meals rather than large ones.	☐ Eat healthy, small meals multiple times per day. ☐ Avoid soda pop as it will cause gas and bloating. ☐ DO NOT smoke or drink alcoholic beverages as these can slow your healing.
Activity	☐ Walk in the Hall with the Nurse 2 times. *Movement is the key to faster healer- sooner is better.*	☐ Walk in the Hall with the Nurse/staff member 4 times each day as tolerated. ☐ Sit up in a chair for meals and between walks. Rest as needed. ☐ Keep your lungs moving as well. Use your Incentive spirometer 10 times each hour.	☐ Continue to move and walk. ☐ Rest often and as needed. ☐ Avoid lifting.
Pain Control	☐ IV pain medications will be used reduce your initial pain.	☐ You will switch to oral pain medications for longer relief.	☐ Your provider will continue you on oral pain medications for relief at home as needed. ☐ You may need to use over the counter medications like Gas X or simethicone for mild gas pains and bloating issues.
Risk Reduction	Your provider may order medications and/or devices that reduce your risk for blood clots based on your risk/needs. ☐ Injectable medication (shot) _____ ☐ Device to squeeze legs (SCDs)		☐ Wash your hands often. ☐ Shower daily. ☐ You may be sent home needing to continue medications to reduce risks. Check your after Visit Summary as well. ☐ _____ ☐ _____
Planning for After Care	☐ Meet with Care Management or Social Work if you have after care needs like a skilled nursing facility or home health.	☐ You will receive education about your condition ☐ You will receive education on how to use the Red, Yellow, Green patient self management tool to review your symptoms. • Green zone- Your symptoms are normal/expected • Yellow zone- Call the office for additional support • Red zone- Need help now	☐ Make sure you have transportation to your follow up visit at the surgeon's office. _____(date) _____(time) _____(phone) *It is important to your recovery, for the team to check on your progress and look at your incision site.*

Appendix C – Patient Self-Assessment Tool

MultiCare
BetterConnected

Follow up - Appointment within 48 to 72 hours after leaving the hospital. Date:_____

Colon Surgery 30 Day
PATIENT ACTION PLAN

GREEN ZONE: ALL CLEAR

Your symptoms are under control

- My tempreature is less than 101.5 degrees
- There is only mild redness or bruising around my incision.
- I am eating and drinking at least small amounts
- I am having some diarrhea or constipation
- I have pain, but it has not increased.

GO
Keep up the good work!

GREEN ZONE MEANS:

- Do not worry, it is normal for your bowel habits to not be regular after bowel surgery.
- Take stool softeners if constipated
- Rest often and as needed and continue to walk.
- DO NOT smoke or drink alcoholic beverages as these can slow your healing.
- Eat healthy, small meals multiple times per day.
- Avoid soda pop as it will cause gas and bloating.
- Use Gax X or simethicone over the counter for mild gas pains and bloating issues.

YELLOW ZONE: CAUTION

- I am short of breath
- I have a fever 101.5 degrees, have chills, or night sweats.
- I have redness or swelling around my wound or discharge
- I have excessive diarrhea or can't have a bowel movement
- I have persistent nausea or vomiting
- My pain is not controlled
- My surgical wound is pulling apart.
- I am feeling confused or cannot think clearly.

CAUTION
Step up treatment!

YELLOW ZONE MEANS:

- You need to speak with a medical professional about your symptoms.
- Please call your care provider first if the office is open. If the office is closed, call the Consulting Nurse line.

Care Provider _____
Phone Number _____
Office hours _____

- **MultiCare Consulting Nurse: 253.792.6300**

RED ZONE: MEDICAL ALERT

- I can't catch my breath.
- I am having chest pain
- I am bleeding a lot and/or heavy clots with my stools.
- I am extremely light-headed or have passed out.

STOP
Get help now!

RED ZONE MEANS:

You need to call

911 NOW !

88-0481-3 (Rev. 9/13)