Colorectal Enhanced Recovery: Strategies and Tactics

January 23, 2019

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Core Elements of Colorectal Enhanced Recovery: Objectives

1. REVIEW CORE ELEMENTS OF A COLORECTAL SURGERY ENHANCED RECOVERY PROGRAM

2. DISCUSS THE DATA AUDIT ELEMENTS OF ENHANCED RECOVERY IN THE UT SYSTEM
Core Elements of Colorectal Enhanced Recovery

- Preadmission Counseling
- Preop optimization
- Prehabilitation
- Preop nutrition
- Anemia management
- PONV prophylaxis
- Premedication
- Antimicrobial prophylaxis
- DVT prophylaxis
- Postop analgesia
- Postop fluid mgmt
- Minimize drains
- Surgical access
- Avoid hypothermia
- Avoid bowel prep
- Standardized anesthetic protocol
- Preop fluid therapy
- Fasting and carb loading
Core Elements of Colorectal Enhanced Recovery: Pre-operative

Quality of Evidence and Recommendations

1. Information
2. Optimisation
3. Prehabilitation
4. Nutrition
5. Anaemia Screening

Low | Moderate | High

Weak | Strong
Core Elements of Colorectal Enhanced Recovery: Pre-operative

Core Elements of Colorectal Enhanced Recovery: Intra-operative

QUALITY OF EVIDENCE AND RECOMMENDATIONS

12. STANDARD ANAESTHETIC PROTOCOL

13. FLUID NORMOVOLAEMIA

14. NORMOTHERMIA

15. MINIMAL INVASIVE SURGERY

16. NO DRAINAGE

LOW MODERATE HIGH

https://doi.org/10.1007/s00268-018-4844-y
Core Elements of Colorectal Enhanced Recovery: Post-operative

17. NO GASTRIC DRAINAGE
18. MULTIMODAL ANALGESIA
19. TROMBOPROPHYLAXIS
20. FLUID NORMOVOLAEMIA
21. URINARY CATH 1-3 D
22. PREVENT HYPERGLYCAEMIA
23. POSTOPERATIVE NUTRITION
24. EARLY MOBILISATION

QUALITY OF EVIDENCE AND RECOMMENDATIONS

LOW   MODERATE   HIGH

https://doi.org/10.1007/s00268-018-4844-y
# ERUT Data Elements - Audit

<table>
<thead>
<tr>
<th>Phase of Care</th>
<th>Element</th>
<th>Measure</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preoperative</td>
<td>Patient Education</td>
<td>Yes/No</td>
<td>Survey Plus Audit</td>
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<td>Clear Liquids 2 Hours</td>
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<td>Carbohydrate Loading</td>
<td>Yes/No</td>
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<td>Antibiotic Bowel Prep</td>
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<td>Mechanical Bowel Prep</td>
<td>Yes/No</td>
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<td>Preoperative Outpatient Patient Reported Outcome (PRO)</td>
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<td>Survey Plus Audit</td>
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<td>Postoperative</td>
<td>Nasal Gastric Tube Placement</td>
<td>Yes/No</td>
<td>Survey</td>
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<td>Clear Liquids Ordered POD #0</td>
<td>Yes/No</td>
<td>Order Set</td>
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<td>Regular Diet Ordered POD #1</td>
<td>Yes/No</td>
<td>Order Set</td>
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<td>Mobilization Ordered POD #0, 1, 2</td>
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<td>Order Set</td>
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<td></td>
<td>Foley Removal Ordered On/Before POD #1</td>
<td>Yes/No</td>
<td>Order Set</td>
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<tr>
<td>Outcomes</td>
<td>Postoperative Outpatient Patient Reported Outcome (PRO)</td>
<td>Yes/No</td>
<td>Survey Plus Audit</td>
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# ERUT Data Elements - Per Patient

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<th>Element</th>
<th>Measure</th>
<th>Source</th>
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<tr>
<td>Demographic</td>
<td>Age</td>
<td>Number</td>
<td>EHR</td>
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<td>Sex</td>
<td>Male/Female</td>
<td>EHR</td>
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<tr>
<td>Medical Baseline</td>
<td>Primary Diagnosis</td>
<td>Name</td>
<td>EHR, Op Note</td>
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<td>Urgency (Emergency Case)</td>
<td>Emergent</td>
<td>Op Note, Anesth Record (ASA Classification)</td>
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<td>Elective Surgery</td>
<td>Elective</td>
<td>Op Note, Anesth Record (ASA Classification)</td>
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<td>Diabetes (Diabetes Mellitus)</td>
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<td>EHR, H&amp;P</td>
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<td>Surgical Baseline</td>
<td>Date of Surgery</td>
<td>Date</td>
<td>Op Note</td>
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<td>Approach</td>
<td>Name</td>
<td>Op Note</td>
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<td>Primary Procedure</td>
<td>Name</td>
<td>Op Note</td>
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<td>Ostomy</td>
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<td>Op Note</td>
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<td>Preoperative</td>
<td>Non-Narcotic Analgesia</td>
<td>Yes/No</td>
<td>MAR, Anesth Record</td>
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<td>Entereg (Alvimopan)</td>
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<td>MAR , Anesth Record</td>
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<tr>
<td>Intraoperative</td>
<td>Type of Anesthesia</td>
<td>TIVA/Volatile</td>
<td>Anesth Record</td>
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<td>Block</td>
<td>Yes/No</td>
<td>Op Note, Anesth Record</td>
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<td>Intraop Morphine Equivalent Daily Dose (MEDD)</td>
<td>mg</td>
<td>Anesth Record</td>
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<td>Total IVF Volume (Crystalloids &amp; Colloids)</td>
<td>CC</td>
<td>Op Note, Anesth Record</td>
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<td>Post-Op Nausea Vomiting Prophylaxis</td>
<td>Yes/No</td>
<td>Anesth Record</td>
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<td>Abdominal Drain</td>
<td>Yes/No</td>
<td>Op Note</td>
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<td>Non-Narcotic Analgesia</td>
<td>Yes/No</td>
<td>MAR, Anesth Record</td>
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<td></td>
<td>Total Inpatient Morphine Equivalent Dose (MEDD)</td>
<td>mg</td>
<td>MAR with Calculator</td>
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<tr>
<td>Outcomes</td>
<td>Length of Stay (LOS)</td>
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<td>Discharge Summary</td>
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<td>Readmission Within 30 Days (same hospital, any cause)</td>
<td>Yes/No</td>
<td>EHR</td>
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<tr>
<td></td>
<td>Wound Infection Requiring Bedside Interventions (superficial site infection) within 30 days</td>
<td>Yes/No</td>
<td>Discharge Summary, Postop Clinic Cote</td>
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<tr>
<td></td>
<td>IR Re-intervention for Abscess/Leak/Collection (NSQIP=OSI)</td>
<td>Yes/No</td>
<td>R Procedure Note</td>
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<tr>
<td></td>
<td>Reoperation</td>
<td>Yes/No</td>
<td>Op Note</td>
</tr>
<tr>
<td></td>
<td>Death within 30 Days (any cause)</td>
<td>Yes/No</td>
<td>Death/Discharge Summary</td>
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</table>
Core Elements of Colorectal Enhanced Recovery

Mechanical Bowel Preparation

NSAIDS
Core Elements of Colorectal Enhanced Recovery

Guidelines for Perioperative Care in Elective Colorectal Surgery:
Enhanced Recovery After Surgery (ERAS®) Society
Recommendations: 2018

U. O. Gustafsson¹ · M. J. Scott²,³ · M. Hubner⁴ · J. Ny
T. A. Rockall⁵ · T. M. Young-Fadok⁶ · A. G. Hill⁷ · M
G. J. Chang⁸ · A. Fichera⁹ · H. Kessler¹⁰ · F. Grass¹¹
F. Carli¹² · D. N. Lobo¹³ · K. E. Rollins¹⁴ · A. Balfour¹⁵

Clinical Practice Guidelines for Enhanced Recovery
After Colon and Rectal Surgery From the American
Society of Colon and Rectal Surgeons and Society
of American Gastrointestinal and Endoscopic
Surgeons

Joseph C. Carmichael, M.D.¹ · Deborah S. Keller, M.S., M.D.² · Gabriele Baldini, M.D.³
Liliana Bordeianou, M.D.⁴ · Eric Weiss, M.D.⁵ · Lawrence Lee, M.D., Ph.D.⁶
Marylise Boutros, M.D.⁶ · James McClane, M.D.⁷ · Liane S. Feldman, M.D.⁶
Scott R. Steele, M.D.⁸

Core Elements Colorectal Enhanced Recovery: Bowel Preparation

• Focus on impact of bowel preparation on SSI and anastomotic leak

• Question is on benefit versus patient experience, dehydration, etc.

• Pendulum has swung back and forth
Core Elements Colorectal Enhanced Recovery: Bowel Preparation

What to do?

- No Prep
- Oral Abx Prep
- Mechanical Prep
- Combination Oral Abx and Mechanical
Core Elements Colorectal Enhanced Recovery: Bowel Preparation

• Consensus –
  • MBP alone is not recommended
    • Data is very strong that it provides no benefit

  • Can be considered for rectal surgery with diverting stoma

Core Elements Colorectal Enhanced Recovery: Bowel Preparation

Oral Antibiotic Bowel Preparation Reduces Length of Stay and Readmissions after Colorectal Surgery

Galina D Toneva, BS, Rhiannon J Deierhoi, MPH, Melanie Morris, MD, Joshua Richman, MD, PhD, Jamie A Cannon, MD, Laura K Altom, MD, MSPH, Mary T Hawn, MD, MPH, FACS

The role of oral antibiotics prophylaxis in prevention of surgical site infection in colorectal surgery

Michalis Koulouros¹ - Nadir Khan¹ - Emad H. Aly¹,²

A Statewide Colectomy Experience

The Role of Full Bowel Preparation in Preventing Surgical Site Infection

Edward K. Kim, BS, Kyle H. Sheetz, BS, Julie Bonn, BS, Scott DeRoo, BA, Christopher Lee, Isaac Stein, BA, Arya Zarinsefat, BA, Shijie Cai, PhD, Darrell A. Campbell, Jr, MD, and Michael J. Englesbe, MD

Core Elements Colorectal Enhanced Recovery: Bowel Preparation

**ASCRS/SAGES**

Mechanical bowel preparation plus oral antibiotic bowel preparation before colorectal surgery is the preferred preparation and is associated with reduced complication rates.

- Grade of recommendation: weak recommendation based on moderate-quality evidence, 2B.

**ERAS Society**

- Mechanical bowel preparation alone with systemic antibiotic prophylaxis has no clinical advantage and can cause dehydration and discomfort and should not be used routinely in colonic surgery, but may be used for rectal surgery. There is some evidence from randomized controlled trials to support the use of a combination of MBP and oral antibiotics over MBP alone.
  - MBP Alone: Quality of evidence: High
  - Recommendation grade: Strong
  - Combined MBP and oral antibiotic preparation: Quality of evidence: Low
  - Recommendation grade: Weak

Core Elements Colorectal Enhanced Recovery: Bowel Preparation

Summary –

• MBP alone should not be used

• MBP + Oral Abx may be beneficial (absence of randomized data)
Core Elements Colorectal Enhanced Recovery: NSAIDS

- Data supports benefits in reduction of opioid usage as component of multimodal pain regimen

- Questions focused on impact on incidence of anastomotic leak
  - No randomized data
Core Elements Colorectal Enhanced Recovery: NSAIDS

Nonsteroidal anti-inflammatory drugs and the risk of anastomotic leakage after anterior resection for rectal cancer

D. Kverneng Hultberg a,*, E. Angenete b, M.-L. Lydrup c, J. Rutegård a, P. Matthiessen d, M. Rutegård a

- 1495 patients from 15 hospitals in Sweden from 2007-2013
- Examined NSAIDs and incidence of anastomotic leak (up to 90 days)
  - Had to receive NSAIDs for >2 days

Core Elements Colorectal Enhanced Recovery: NSAIDS

<table>
<thead>
<tr>
<th>NSAID exposure</th>
<th>Anastomotic leakage</th>
<th>Univariate</th>
<th>Multivariable (complete case)</th>
<th>Multivariable (imputed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>OR (95% CI)</td>
<td>OR (95% CI)</td>
<td>OR (95% CI)</td>
</tr>
<tr>
<td>No NSAID</td>
<td>156/1084 (14.4)</td>
<td>1.00 (reference)</td>
<td>1.00 (reference)</td>
<td>1.00 (reference)</td>
</tr>
<tr>
<td>Any NSAID</td>
<td>47/411 (11.4)</td>
<td>0.77 (0.53–1.12)</td>
<td>0.83 (0.63–1.05)</td>
<td>0.88 (0.65–1.20)</td>
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<tr>
<td>Non-selective</td>
<td>36/344 (10.5)</td>
<td>0.70 (0.43–1.11)</td>
<td>0.83 (0.58–1.18)</td>
<td>0.91 (0.62–1.35)</td>
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<tr>
<td>COX-2 selective</td>
<td>11/66 (16.7)</td>
<td>1.19 (0.82–1.72)</td>
<td>0.81 (0.64–1.02)</td>
<td>0.82 (0.63–1.06)</td>
</tr>
</tbody>
</table>

- No increased risk of leak with NSAID use
- No difference for selective or non-selective drugs

Core Elements Colorectal Enhanced Recovery: NSAIDS

**ASCRS/SAGES**
• “Evidence is inconclusive and does not support avoidance of NSAIDs”

**ERAS Society**
• “Literature shows inconclusive evidence to avoid NSAIDs in colorectal surgery patients”

Core Elements Colorectal Enhanced Recovery: NSAIDS
Webinar: Opioid Sparing Strategies- From Concepts to Implementation and Sustainability

Presenter: Vijaya Gottumukkala, MD

February 7, 2019
4:00pm-4:30pm (CT)
Questions?