Enhanced Recovery After Surgery

SHARED BASELINE PROTOCOL IMPLEMENTATION

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Objectives

By the end of this presentation, participants will be able to:

1. Outline the key elements of an Enhanced Recovery After Surgery program

2. Explain the benefits of integrated decision support
A General Overview of

ERAS
The Enhanced Recovery After Surgery (ERAS) protocol was developed in 2001 by a group of academic surgeons in Europe. Emphasis is on the quality, not the speed, of recovery. It is a multimodal, multidisciplinary, evidence-based approach to the care of the surgical patient. Started with colorectal surgery, but has expanded and been shown to improve outcomes in most major surgical specialties.
» Contemporary colorectal surgery is often associated with:
   ~ Long length of stay (8 days for open surgery and 5 days for laparoscopic surgery)
   ~ High cost
   ~ Rates of surgical site infection approaching 20%

» During the hospital stay for elective colorectal surgery, the incidence of perioperative nausea and vomiting (PONV) may be as high as 80% in patients with certain risk factors

» After discharge from colorectal surgery, readmission rates have been noted as high as 35.4%
Changes in Practice

Minimize stress and improve the body’s response to stress

Minimize fluid shifts

Avoid traditional care elements that have been shown to be harmful
Targeted Outcomes

- Decreased variability in practice
- Reduced morbidity
- Shorter length of stay
- Improved pain control with decreased opioid use
- Improved post-op nausea
- Reduced readmissions
Continuity of Care

Getting the patient in best possible condition for surgery

- Optimize hemoglobin
- Manage pre-existing comorbidities (e.g., diabetes or hypertension)
- Health & risk assessment
- Quality patient information
- Informed decision making
- Manage patient expectations
- Optimize health condition
- Therapy advice
- Carbohydrate loading
- Optimize hydration
- Avoid mechanical bowel preparation

Pre-operative

- Admit on day of surgery
- Optimize fluid status
- Avoid routine use of sedative pre-medication
- Carbohydrate loading
- No or reduced oral bowel preparation

Admission

- Minimally invasive surgery, if possible
- Individualized goal-directed fluid therapy
- Avoid crystalloid overload
- Epidural management
- Use of regional spinal and local anesthetic with sedation
- Prevent hypothermia

Intra-operative

- No routine use of wound drains
- No routine use of nasogastric tubes
- Active, planned mobilization within 24 hours
- Early oral hydration
- Early oral nutrition
- IV therapy stopped early
- Catheters removed early
- Non-opioid oral analgesia (e.g., paracetamol, NSAIDS)
- Avoid systemic opiate-based analgesia

Post-operative

- Discharge on planned day, or when criteria met
- Therapy support
- 24 hour telephone follow-up, if appropriate

Follow-up

Patient experiences the best post-operative rehabilitation
Challenges

» Continuity of care across the outpatient clinic, pre-op unit, operating room, PACU, floor

» Health care professionals tend to overestimate their care, outcomes, and compliance

» Sustaining improvement
Loma Linda University Medical Center’s Implementation of an
ERAS SHARED BASELINE PROTOCOL
Surgeons were already using a process outlined on paper

Started process to automate decision support Jan 31, 2018

ERAS pathway live in EPIC Aug 6, 2018
Getting Started

» Identify opportunity
  ~ LOS
  ~ Complications (SSI, ileus)

» Identify project champions
  ~ Surgery
  ~ Anesthesia
  ~ Nursing
Considerations

» Automated decision-support may require looking at the process from a different perspective
» First time using the Pathway functionality in EPIC
» Inclusion and exclusion criteria
» What and how to measure
Pathway Initiation

BestPractice Advisories

Patient Safety (1)

⚠ ERAS Protocol: Patient meets criteria for colorectal surgery protocol to improve outcome. Please refer to the plan and expectations for more information.

Open ERAS Pathway

Acknowledge Reason

- co-morbid conditions
- multi-visceral operation

Accept
Pathway Management

Try the Widescreen View

There is a new, faster way for you to finish your visit documentation with fewer clicks.

Active Pathways

No active Pathways.

Order Sets

Search for new Order Set

Suggestions

Enhanced Recovery After Surgery (Pathway)
# Pathway Orders

## Enhanced Recovery After Surgery

### Surgical Consult Orders

- **Step started:** Today at 2137  
  **Expected end:** 07/07/18 at 2137  
  **Orders will become active upon signing.**

### Medications

- **Nutrition**
  - [ ] food supplement, lactose-reduced (FOOD SUPPLEMENT CLEAR) Liqd  
    This product is available at: Meridian Pharmacy: 25075 Barton Road, Suite B-108 909-558-3766 Faculty Medical Office (FMO) Pharmacy 11130 Anderson Street  
    Print, Disp-3 Bottle, R-1
  - [ ] nutrx.comp, immune systm,reg 0.1 gram=1.12 kcal/ml, Liqd  
    Take 1 Bottle by mouth 3 (three) times daily after meals and bedtime. This product is available only at: Meridian Pharmacy: 25075 Barton Road, Suite B-108 909-558-3766 Faculty Medical Office (FMO) Pharmacy 11130 Anderson Street  
    Print, Disp-15 Box, R-0

### Laboratory

- **Hematology/Chemistry**
  - [ ] CBC With Diff  
  - [ ] Comprehensive Metabolic Panel  

- **Blood Bank**
  - [ ] Type And Screen  

### Radiology

- **Xray**
  - [ ] XR Chest 2 Views  
    Reason for exam surgery

- **Cardiac Studies**
  - [ ] ECG 12 Lead  
    Reason for exam surgery
Pathway Overview

Enhanced Recovery After Surgery

<table>
<thead>
<tr>
<th>Group by</th>
<th>Order/Documentation Type</th>
<th>Pathway View</th>
</tr>
</thead>
</table>

**Surgical Consult Orders**

<table>
<thead>
<tr>
<th>PACE</th>
<th>Future</th>
<th>Day of Surgery Orders</th>
<th>POD 0</th>
<th>Future</th>
<th>POD 1</th>
<th>Future</th>
<th>POD 2.3</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>07/07/18 21:37</td>
<td>1 Day</td>
<td>07/06/18 21:37</td>
<td>6 Hours</td>
<td>07/06/18 01:37</td>
<td>1 Hour</td>
<td>07/06/18 04:37</td>
<td>5 Days</td>
</tr>
</tbody>
</table>

**Medications**

- **Food Supplement**: Lactose-reduced (FOOD SUPPLEMENT CLEAR) Lipt - This product is available at: Meridian Pharmacy, 25075 Barton Road, Suite B-108 909-555-3786 Faculty Medical Office (FMO) Pharmacy 11370 Anderson Street, Suite 1000 909-559-2804, Irvine, Starting Thu 7/5/2018, Until Tue 7/10/2018, Print

- **Blood Bank**: Type And Screen - Future: Expected: 8/5/2018, Expires: 7/5/2019, Resulting Agency: Loma Linda University Medical Center Clinical Laboratory (No result)


- **Lab**: CBC With Diff - Routine, Lab Ordered, Future: Expected: 8/5/2018, Expires: 7/5/2019, Resulting Agency: Loma Linda University Medical Center Clinical Laboratory (No result)

- **Comprehensive Metabolic Panel** - Routine, Lab Ordered, Future: Expected: 8/5/2018, Expires: 7/5/2019, Resulting Agency: Loma Linda University Medical Center Clinical Laboratory (No result)

Pathway Review

- Document Outcomes
- Manage Pathways
- Mark as Reviewed
- Complete Pathway
- Discontinue Pathway

Pathway View

Loma Linda University Medical Center
Analytics

Length of Stay

- Avg. LOS in Days
- LOS In Days vs LOS Benchmark

Readmissions

- Readmission %

Mortalities

- Mortality %

Discharge Dispositions

- Disposition %

Complications

- Complication %

LOMA LINDA UNIVERSITY MEDICAL CENTER
Analytics

**IV Narcotic Use**
- Days of Narcotic Use
- Avg. Narcotic Days vs. Median Narcotic Days

**Ketorolac Administration**
- Percentage of patients with Ketorolac Administration

**Narcan Administration**
- Patients with Narcan Administration

**IV Tylenol Administration**
- Percentage of patients with Tylenol Administration

**Ertapenem Administration**
- Percentage of patients with Ertapenem use

**IV Fluid**
- Average IV Fluid per Patient
Analytics
Analytics

Readmissions

Readmissions by Days

Readmission Trend

Readmissions by Discharge Disposition

Readmissions - Orderset vs Non-Orderset

Readmissions - Complications vs Non-Complications

LOMA LINDA UNIVERSITY MEDICAL CENTER
Analytics

Surgeon performance listed by name
Analytics

**Average Total IV Fluid In Room + 24HRS - Complications vs Non-Complications**

- **Avg IV Fluid Intake With Complications**
- **Avg IV Intake Without Complications**

**Average Days of Narcotics Use - Complications vs Non-Complications**

- **Avg IV Narcotics With Complications**
- **Avg IV Narcotics Without Complications**
Next Steps

» Cost Integration
» Optimize ERAS pathway for complex colorectal surgeries
» Expand ERAS pathways to include Gyn Onc, Ortho, Urology, and other surgical specialties
Direct Cost Integration Example

» Direct Cost and Utilization for Labs, Imaging and Pharmacy

![Graph showing Pharmacy Cost per patient day (observation and inpatient) - all services]
Direct Cost Integration Example

Direct Cost and Utilization for Labs, Imaging and Pharmacy
Other Shared Baseline Protocols

» In Production:
  ~ Heart Failure
  ~ Sickle Cell Anemia
  ~ Colorectal ERAS

» In Development
  ~ Acute Coronary Syndrome
  ~ Pediatric Asthma

» Coming Soon
  ~ Preeclampsia
  ~ Growth Velocity
  ~ Sepsis

Goal is 10-12 shared baseline protocols a year
Goals

» Improve patient care
» Decrease inappropriate variation
» Make it easier for providers to give patients evidence-based care
» Provide the data necessary to drive improvement
Questions?

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References

