Enhanced Recovery After Surgery: Comprehensive Care for the Perioperative Surgical Patient - A Community Hospital Experience

Desirée Chappell, CRNA
ERAS Team Lead
Louisville, KY
Disclosure

• Edwards Lifesciences, Speakers Bureau
• American Society for Enhanced Recovery, Board of Directors
"Why is the Patient still in the Hospital?"

- Henrick Kehlet, MD, PhD, Denmark Surgeon
Traditional Surgical Care
Surgical Dogma

Typical Abdominal Case

- Prolonged Fasting
- Mechanical Bowel Preps
- NGT
- NARCOTICS, NARCOTICS, More NARCOTICS
- Drains
- Prolonged Bedrest
- NPO until Bowel Sounds/Movement

Increased complications

Variation of providers within the healthcare system

Increased $$
Multimodal approach to control postoperative pathophysiology and rehabilitation.

H Kehlet


DOI: https://doi.org/10.1093/bja/78.5.606

Published: 01 May 1997
ENHANCED RECOVERY PARTNERSHIP PROGRAMME
DEPARTMENT OF HEALTH, ENGLAND

DH: Delivering enhanced recovery: Helping patients to get better after surgery, Department of Health, March 2010.

Monty Mythen, MD, FRCA FFICM
Enhanced Recovery After Surgery
Enhanced Recovery After Surgery

- Well Established Pathways
- Universally Accepted Protocols

EBP

Mechanism

- Attenuates Stress Response
- Reduces Variability
- Multidisciplinary approach

Improved Outcomes

- Improved Baseline
- Expedited Recovery DREAMing
- ↓ Complications
- ↓ LOS
- ↓ Costs

Improved Outcomes
Enhanced Recovery After Surgery

- Fast Tracking
- Standard in UK
- In US
  - ~ 5 years
- Evidenced Based Practice
- Mainstream & Future of Surgical Care
Resources for Evidence

American Society of Enhanced Recovery

ERAS society of Europe
What is it and how does it work?

Enhanced Recovery

(ERAS, ER, ESR, ERP)
Enhanced Recovery After Surgery

Multimodal Perioperative Care Pathway

Evidenced Based Practices

Attenuates Stress Response

Reduces variation of providers

Facilitates Return to Baseline for EARLY Recovery

ERAS

- Peri-op fluid management
- Neuraxial Anesthesia
- Short acting anesthetics
- DVT prophylaxis
- No - premed
- No bowel prep
- Early mobilisation
- CHO - loading/ no fasting
- Pre-op counselling
- Incisions
- No NG tubes
- Perioperative Nutrition
- Early removal of catheters/drains
- Body heating devices
- Prevention of ileus/ prokinetics
- Oral analgesics/ NSAID’s
ERAS
in
the
BLUEGRASS
<table>
<thead>
<tr>
<th>Procedure Type</th>
<th>Traditional Mean ± SD</th>
<th>ERAS Mean ± SD</th>
<th>Median (IQR)</th>
<th>Diff (95% CI)</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All procedures (d)</td>
<td>8.3 ± 8.1</td>
<td>6 ± 4.2</td>
<td>7 (5, 8)</td>
<td>2 (1-2)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Open procedures (d)</td>
<td>9.3 ± 6.6</td>
<td>7.1 ± 3.9</td>
<td>7 (6, 9)</td>
<td>1 (0-2)</td>
<td>0.0133</td>
</tr>
<tr>
<td>Laparoscopic procedures (d)</td>
<td>6.9 ± 5</td>
<td>5.2 ± 4.2</td>
<td>6 (4.5, 7.5)</td>
<td>2 (1-2)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

aDifference between medians, and estimated 95% confidence limits for the difference.

*P values in this table are from unadjusted t-tests comparing therapy groups.
Procedure Selection

Colon & Rectum Surgery

Orthopaedic Surgery

Urological Surgery

Cardiovascular Surgery

Removed segment of colon with cancer
### Baseline 2014

<table>
<thead>
<tr>
<th>Metric</th>
<th>Avg. Per Patient</th>
<th>Std dev</th>
<th># Discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Stay</td>
<td>11.13</td>
<td>7.69</td>
<td>159</td>
</tr>
<tr>
<td>Variable Direct Cost</td>
<td>$10,729</td>
<td>$8,590</td>
<td>159</td>
</tr>
</tbody>
</table>

### Improvement 2015

<table>
<thead>
<tr>
<th>Metric</th>
<th>Avg.</th>
<th>Std dev</th>
<th># Discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Stay</td>
<td>5.14</td>
<td>3.68</td>
<td>66</td>
</tr>
<tr>
<td>Variable Direct Cost</td>
<td>$6,261</td>
<td>$2,951</td>
<td>66</td>
</tr>
</tbody>
</table>

All Surgeons 2015/2016
## Colorectal 2016

<table>
<thead>
<tr>
<th></th>
<th>Baseline 2014</th>
<th>Improvement 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of Stay</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg. per patient</td>
<td>11.13</td>
<td>5.14</td>
</tr>
<tr>
<td>Std dev</td>
<td>7.69</td>
<td>3.68</td>
</tr>
<tr>
<td># Discharges</td>
<td>159</td>
<td>66</td>
</tr>
<tr>
<td><strong>Variable Direct Cost</strong></td>
<td>$10,729</td>
<td>$6,261</td>
</tr>
<tr>
<td>Avg. Per Patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std dev</td>
<td>$8,590</td>
<td></td>
</tr>
<tr>
<td># Discharges</td>
<td>159</td>
<td></td>
</tr>
<tr>
<td><strong>Direct Cost</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg. Per Patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std dev</td>
<td>$8,590</td>
<td></td>
</tr>
<tr>
<td># Discharges</td>
<td>159</td>
<td></td>
</tr>
</tbody>
</table>

ERAS for Colorectal surgery- All Surgeons 2015/2016
## ERAS Urology Surgery - 2015

### Baseline 2014

<table>
<thead>
<tr>
<th></th>
<th>Avg. per patient</th>
<th>Std dev</th>
<th># Discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Stay</td>
<td>6.37</td>
<td>4.37</td>
<td>47</td>
</tr>
<tr>
<td>Variable Direct Cost</td>
<td>$6,464</td>
<td>$3,038</td>
<td>47</td>
</tr>
</tbody>
</table>

### Improvement 2015

<table>
<thead>
<tr>
<th></th>
<th>AVG.</th>
<th>Std dev</th>
<th># Discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Stay</td>
<td>3</td>
<td>0.55</td>
<td>14</td>
</tr>
<tr>
<td>Variable Direct Cost</td>
<td>$4,850</td>
<td>$1,850</td>
<td>14</td>
</tr>
</tbody>
</table>
## Urosurgery 2016

### Baseline 2014

<table>
<thead>
<tr>
<th></th>
<th>Avg. per patient</th>
<th>Std dev</th>
<th># Discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of Stay</strong></td>
<td>6.37</td>
<td>4.37</td>
<td>47</td>
</tr>
<tr>
<td><strong>Variable Direct Cost</strong></td>
<td>$6,464</td>
<td>$3,038</td>
<td>47</td>
</tr>
</tbody>
</table>

### Improvement 2016

<table>
<thead>
<tr>
<th></th>
<th>AVG.</th>
<th>Std dev</th>
<th># Discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of Stay</strong></td>
<td>5.44</td>
<td>5.84</td>
<td>34</td>
</tr>
<tr>
<td><strong>Variable Direct Cost</strong></td>
<td>$6,656</td>
<td>$5,565</td>
<td>34</td>
</tr>
</tbody>
</table>

ERAS for Urosurgery 2015/2016
Principles and Elements

ERAS Guidelines
Pre-Operative

- Bowel Prep - MBP/Antibx
- Carbohydrate Loading
- Hydration
- NPO 2-4hrs
Bowel Prep

Evidence-Based Perioperative Medicine comes of age: the Perioperative Quality Initiative (POQI)

The 1st Consensus Conference of the Perioperative Quality Initiative Timothy E. Miller, Andrew D. Shaw, Michael G. Mythen, Tong J Gan and

- Current recommendation from POQI- for prevention and treatment of POGD...
- Mechanical + Oral Antibiotics
Intra-Operative

- Normothermia
- PONV Prophylaxis
- Goal Directed Fluid Therapy
The strongest predictor of corrected crystalloid infusion was the anesthesia providers regardless of patient factors.

Perioperative Fluid Utilization Variability and Association With Outcomes

Considerations for Enhanced Recovery Efforts in Sample US Surgical Populations

Julie K.M. Thacker, MD, William K. Mountford, PhD, Frank R. Ernst, PharmD, MS, Michelle R. Krukas, MA, and Michael (Monty) G. Mythen, MBBS, MD, FRCA, FFICM, FCAI (Hon)

Annals of Surgery 2015

Colon Surgery

- Significant Variability in DOS fluid admin
- Variability leads to poor outcomes
30+ positive RCTs  14+ meta-analyses

32-55% reduction in Post-Surgical Complications

Evidence:


Reduction by 1-2 (avg. days) in Length of Stay
Intra-Operative (Continued)

- Normothermia Management
- PONV Prophylaxis
- Goal Directed Fluid Therapy
Benefits of Multimodal Pain Mgmt

- Modulation of Autonomic Response
- Avoidance of narcotic related complications
- Reduction in amount of prescribed Opiods
- Improved pain control
- Improved Patient Satisfaction
Multi-modal Pain Management

**Preop**
- Acetaminophen
- Gabapentin
- Celecoxib
- PO adjuncts
- Min. Opioids
- Rescue PO/IV
- Rescue PCA

**Regional**
- Spinal
  - Local + Morphine
  - TAP Block

**Postop**
- IV Lidocaine
- Dexmedetomidine
- Ketamine
- Mag

**Intraop**
Multi-Modal Pain Management

- Nursing
- Surgeon Anesthesia
- Adjunct Meds
- Regional
- Narcotic Sparing
- Promotes Successful Recovery
- Reduce Narcotics
- Improved Outcomes
- Collaboration
PACU

- PO Clears/ Clear Nutritional Supplement 8oz
- KVO IVFs
- Gum Chewing
- Pain assessment /Control
- Dangle @ Bedside
CHEERS DREAM - EBPOM

C - Carb Loaded
H - Hydrated
E - Euvolemic
E - Eunatremic
R - Ready to
S - Start

DR - Drinking
E - Eating
A - and
M - Mobilizing

Postop Day 1 @ 24hrs
GOALS

ERAS Guidelines
Goals

↑ Patient Satisfaction
Equal/Better Outcomes
Costs savings/ ↑ Bed days
Hospital System Satisfaction
Our place at the table

CRNAs and Enhanced Recovery
Where does Anesthesia Fit?

<table>
<thead>
<tr>
<th>CRNAs’ Role in an ERP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leadership for Multidisciplinary Team</strong></td>
</tr>
<tr>
<td>- Hospital Program</td>
</tr>
<tr>
<td>- System Initiatives</td>
</tr>
<tr>
<td><strong>Recognize and Reinforce Nursing Role</strong></td>
</tr>
<tr>
<td>- Implementation</td>
</tr>
<tr>
<td>- Follow through</td>
</tr>
<tr>
<td><strong>Education/Implementation</strong></td>
</tr>
<tr>
<td>- MDs</td>
</tr>
<tr>
<td>- CRNAs</td>
</tr>
<tr>
<td><strong>Develop and Implement Audit Process</strong></td>
</tr>
<tr>
<td>- Group Specific</td>
</tr>
<tr>
<td>- Change Adoption</td>
</tr>
</tbody>
</table>
Win/Win for Multidisciplinary Team

<table>
<thead>
<tr>
<th>Patient</th>
<th>Hospital</th>
<th>Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improved</td>
<td>• Improved</td>
<td>• Improved</td>
</tr>
<tr>
<td>• Care</td>
<td>• Care</td>
<td>• Quality/ Consistency of Care</td>
</tr>
<tr>
<td>• Outcomes</td>
<td>• Employee Satisfaction</td>
<td>• Job Satisfaction</td>
</tr>
<tr>
<td>• Satisfaction</td>
<td>• Status</td>
<td>• Reduced</td>
</tr>
<tr>
<td></td>
<td>• Reduced</td>
<td>• Work Load</td>
</tr>
<tr>
<td></td>
<td>• Complications</td>
<td>• Variation</td>
</tr>
<tr>
<td></td>
<td>• Costs</td>
<td></td>
</tr>
</tbody>
</table>
Win/Win for Multidisciplinary Team

<table>
<thead>
<tr>
<th>Anesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improved</td>
</tr>
<tr>
<td>• Reimbursements</td>
</tr>
<tr>
<td>• Position for group as commodity</td>
</tr>
<tr>
<td>• Presence within Continuum of Patient Care</td>
</tr>
<tr>
<td>• Reduced</td>
</tr>
<tr>
<td>• Variation</td>
</tr>
</tbody>
</table>
Value Added Services → Bundled Payments

- Surgeon
- Anesthesia
- Hospital
2017 ANNUAL CONGRESS OF ENHANCED RECOVERY AND PERIOPERATIVE MEDICINE

APRIL 27TH-29TH, 2017
HYATT REGENCY
WASHINGTON ON CAPITOL HILL
400 NEW JERSEY AVE NW,
WASHINGTON, D.C. 20001

For more information please visit www.aserhq.org