Proposed framework for enhanced recovery protocols in inpatient ventral hernia repair

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Disclosures

- None

Background

1994

Engelman et al

Fast-track recovery of the coronary bypass patient

R M Engelman [1], J A Rousou, J E Flack 3rd, D W Deaton, C B Humphrey, L H Ellison, P D Allmendinger, S G Owen, P S Pekow

1995

Bardram et al

Recovery after laparoscopic colonic surgery with epidural analgesia, and early oral nutrition and mobilisation

L Bardram, P Funch-Jensen, P Jensen, M E Crawford, H Kehlet

1999

Kehlet et al

Hospital stay of 2 days after open sigmoidectomy with a multimodal rehabilitation programme

H. Kehlet and T. Mogensen

Department of Surgical Gastroenterology and Anaesthesiology, Hvidovre University Hospital, DK-2650 Hvidovre, Denmark
Correspondence to: Professor H. Kehlet

2001

ERAS Society founded

ERAS® Guidelines

- Anaesthesia
- Bariatric
- Breast
- Cardiac
- Colorectal
- Cytoreductive
- Emergency Laparotomy
- Gastrectomy
- Gastrointestinal
- Gynaecology
- Head & Neck
- Liver
- Liver Transplant
- LMIC
- Lumbar Spinal Fusion
- Neonatal
- Obstetrics
- Oesophagectomy
- Orthopaedic
- Pancreatic
- Thoracic
- Urology
- Vascular

What about hernia surgery?


RECOVER
FASTER!!!

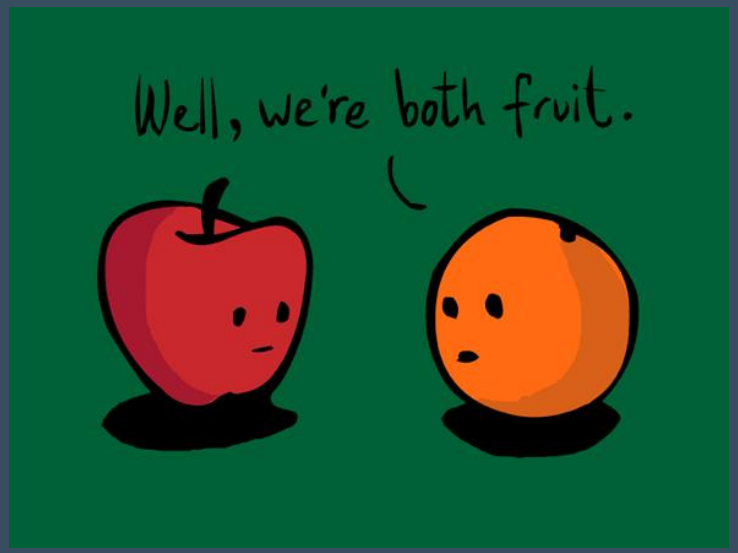
Outcomes of ERAS in hernia repair

	LOS	Toleration of Diet	ROBF	SSI	Readmissions
Majumder et al (2016)					
Jensen (2016)					
Stearns et al (2018)					
Colvin et al (2019)					
Harryman et al (2020)					
Ueland et al (2020)					

The Problem: Protocol Heterogeneity

Colvin et al.

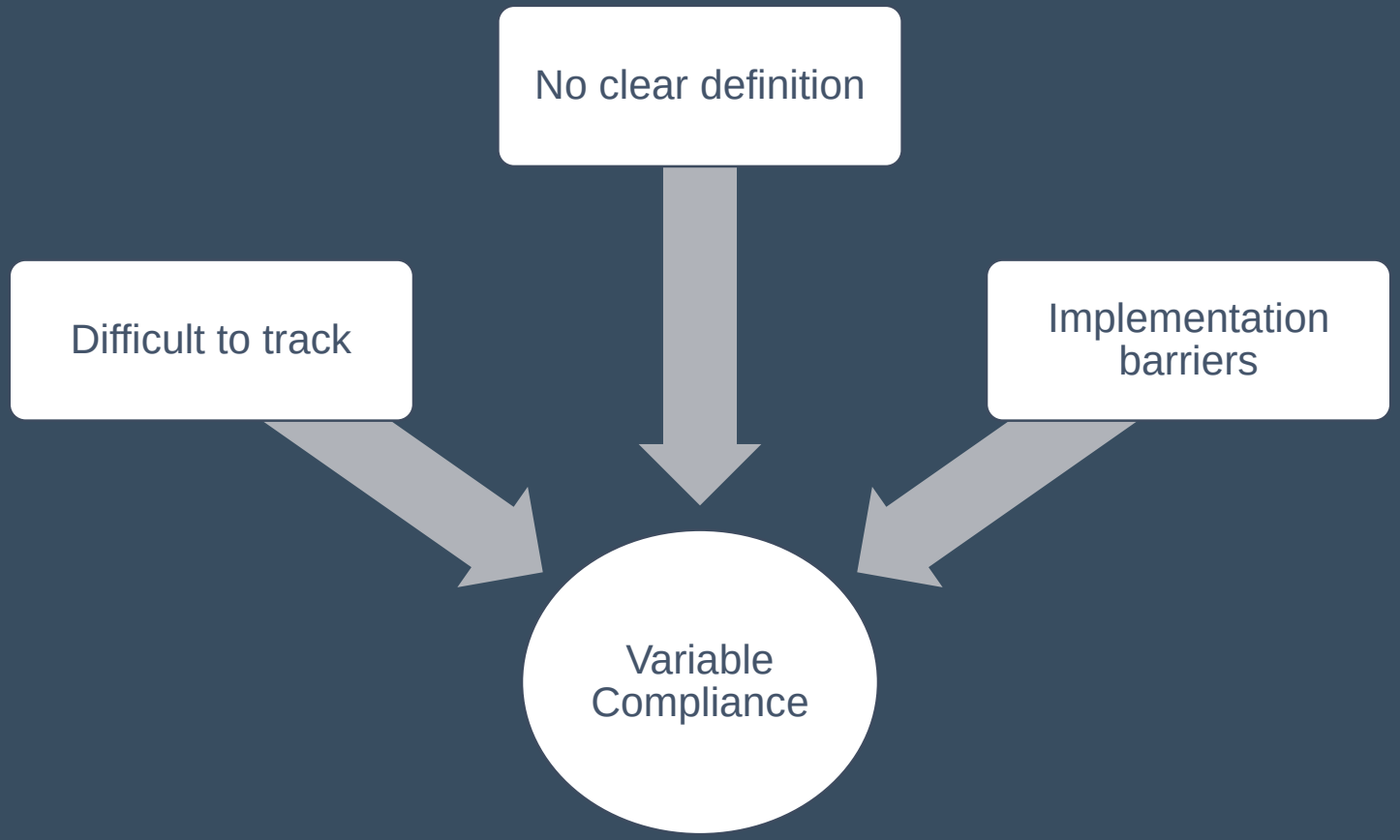
1. Pain control
2. Diet
3. Bowel regimen
4. IV fluids
5. Lines/Drains



Harryman et al.

1. Pre-operative risk stratification
2. Pre-operative bowel reparation
3. VTE prophylaxis
4. MRSA prophylaxis
5. Nutritional preparation
6. Preoperative fasting and carbohydrate treatment
7. Perioperative fluid management
8. PONV Prevention
9. NGT Use
10. Urinary Drainage
11. Prevention of intraoperative hypothermia
12. Multimodal pain management
13. Acceleration of intestinal recovery
14. Early mobilization
15. Post-operative glucose control

The Problem: Compliance



So how are we supposed to figure out if ERAS works?

The Solution?

- A comprehensive, standardized ERAS protocol for inpatient ventral hernia repairs for members of the QC

Step #1: Create a framework based on current practices

Methods

Solicit and compile ERAS protocols for ventral hernia repair

Extract **recommendations**

Compile recommendations into **themes**

Categorize by stage in patient care

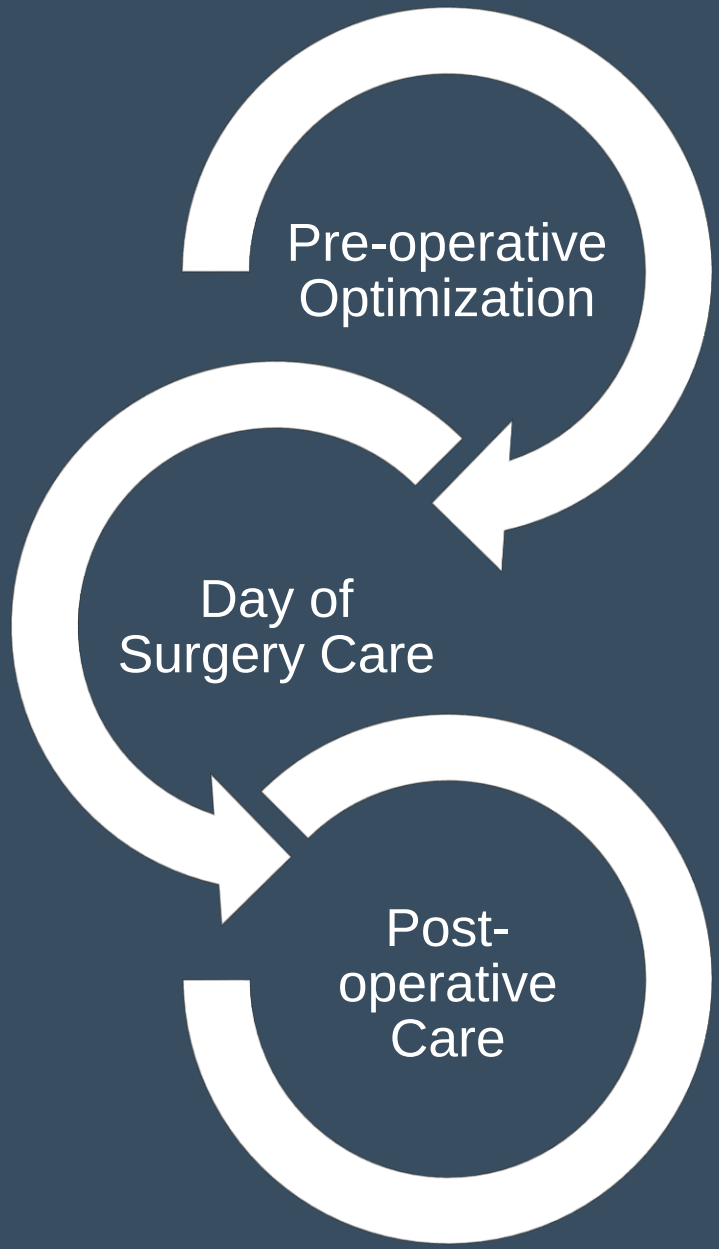
Results

6
institutions

295
recommendations

24
themes

3
stages of
patient care



- Nutrition Evaluation
- Weight Management
- Functional Status Assessment
- Smoking Cessation
- Obstructive Sleep Apnea Evaluation
- Diabetes Mellitus Evaluation/Management
- Alcohol Use Evaluation/Management
- MRSA Screen

- Pre-and Intra-Operative Pain Management
- Post-Operative Nausea & Vomiting Prevention
- Extubation Planning
- Intra-operative Fluid Management

- Post-Operative Pain Management
- Mobility
- Venous Thromboembolism Prophylaxis
- Post-Operative Antibiotics
- Diet
- Laxative Use
- Alvimopan Use
- Post-Operative Fluid Management
- Urinary Drainage
- Drain Care
- Abdominal Binder Use
- Disposition Planning

	1	2	3	4	5	6
PRE-OPERATIVE OPTIMIZATION						
Nutrition Evaluation	X	X		X	X	
Weight Management	X	X		X		
Functional Status Assessment	X	X		X		
Smoking Cessation	X	X		X		
Obstructive Sleep Apnea Evaluation	X	X				
Diabetes Mellitus Evaluation/Management		X		X		
Alcohol Use Evaluation/Management	X	X				
MRSA Screen	X	X		X		
DAY OF SURGERY CARE						
Pre-and Intra-Operative Pain Management	X	X	X	X	X	X
Post-Operative Nausea & Vomiting Prevention	X			X	X	
Extubation Planning	X	X	X	X		
Intra-operative Fluid Management	X	X		X	X	
POST-OPERATIVE CARE						
Post-Operative Pain Management	X	X	X	X	X	X
Mobility	X	X	X	X	X	X
Venous Thromboembolism Prophylaxis	X	X	X	X		X
Post-Operative Antibiotics		X	X			
Diet	X	X	X	X	X	X
Laxative Use	X	X	X	X		X
Alvimopan Use		X		X		
Post-Operative Fluid Management	X	X	X	X	X	X
Urinary Drainage	X	X	X			X
Drain Care	X	X	X		X	X
Abdominal Binder Use	X	X	X	X		
Disposition Planning				X	X	

Results

Pre-operative optimization

Weight Management

	1	2	3	4	5	6
Hard Stop		BMI >50				
Recommend Weight Loss First	BMI >40	BMI 30-49		BMI >35 (open) BMI >40 (MIS)		
Weight Loss Methods	Weight loss counseling	Medical weight loss program Surgical weight loss program if low risk strangulation or mild/mod sx		Weight loss counseling		

Results

Day of Surgery

Pain Management –Intra-op

	1	2	3	4	5	6
Determination	Discretion of surgeon	Discretion of surgeon	Discretion of anesthesia		Discretion of surgeon or by location of hernia	
Analgesia Options	Epidural Field block TAP block Toradol	Epidural Lidocaine gtt TAP block (TAR)	TAP block QL block	TAP block	Epidural Rectus block TAP block QL block	TAP block
Managed by	Acute Pain Service					

Results

Post-operative Care

Abdominal Binder Use

	1	2	3	4	5	6
Abdominal Binder Use	Order POD0	For comfort only	RTC except showering	Order POD0		

Create a framework based on current practices

Conduct a comprehensive literature search

Independent expert review

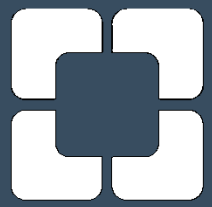
Analyze the quality of evidence

Consensus recommendations generation via modified Delphi process

Key Takeaways

- Current literature and ERAS practices for inpatient ventral hernia repairs is limited by protocol heterogeneity and under-reported compliance

- There is a current need to standardize ERAS to better measure outcomes to answer the question: does ERAS improve outcomes for these patients?



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Every life deserves world class care.