

## The Enhanced Recovery After Surgery (ERAS) Pathway and Role of the Acute Pain Team

By:

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## Conflicts of Interest

- The presenter has no conflicts of interest to disclose

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## Objectives

- Upon completion of this session participants will be able to
  - Share with healthcare teams the preoperative, intraoperative, and postoperative ERAS elements
  - Verbalize the stakeholders / key roles needed to create a team for ERAS implementation
  - State patient outcome measures, specifically pain management outcomes, improved by consistent compliance with the ERAS elements

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### Dogma: Back to the Past....

Senior surgeons had strong principles and they were assumed as a dogma.

- Preoperative prolonged fasting, Mechanical bowel preparation and nasogastric tubes were thought to be necessary to
  - ✓ empty the bowel
  - ✓ to prevent intraoperative contamination
  - ✓ and to prevent early passage of bowel content through an anastomotic suture line while it is healing.
- Drain tube was believed essential in any GIT surgery
- Prolonged bed rest were recommended to facilitate abdominal wall healing.

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### Evolution of surgical principles brought about the concept of

# ERAS

This concept was first described in 1990s by Henrik Kehlet, MD, PhD, Surgical Gastroenterologist.

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### ERAS Goals

- Reduction of stress response after surgery
- Acceleration of Recovery
- Return to pre admission function or better...
- A happy patient at discharge who has felt well informed and involved in their care

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### ERAS Elements

- Fluid Management
- Nutrition/Ileus Prevention
- Multimodal Analgesia
- Early Ambulation

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### Enhanced Recovery Phases / Elements

Phase	Key Elements
<b>Preoperative</b>	Patient education Patient optimization Carb loading & elimination of NPO
<b>Intraoperative</b>	Nausea / vomiting prophylaxis Opioid sparing, multimodal analgesia Intentional fluid use
<b>Postoperative</b>	Early food & exercise Multi modal analgesia Judicious IV fluid use Defined discharge criteria Patient teaching through progress audits

(Marosky-Thacker, 2016)

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### Fluid Management

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### Fluid Management

- Goal Directed Fluid Therapy (GDFT)
  - Noninvasive CO monitor

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### Fluid Management

- Goal Directed Fluid Therapy (GDFT)
  - Noninvasive CO monitor
- Postoperative

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### Fluid Management

- Goal Directed Fluid Therapy (GDFT)
  - Noninvasive CO monitor
- Postoperative
  - keep vein open

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**ERAS Elements**

- Fluid Management
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**Nutrition/Ileus Prevention**

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**Nutrition/Ileus Prevention**

- Preoperative

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**Nutrition/Ileus Prevention**

- Preoperative
  
- Postoperative

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**Nutrition/Ileus Prevention**

- Preoperative
  - Carbohydrate Beverage
    - Smoking Cessation, etoh cessation, SGA Score and METs level
  
- Postoperative

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**Nutrition/Ileus Prevention**

- Preoperative
  - Carbohydrate Beverage
    - Smoking Cessation, etoh cessation, SGA Score and METs level
  
- Postoperative
  - For lap or open procedures - clear liquids the day of surgery. On POD "0", begin PO drinking and sitting on edge of the bed.

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### ERAS Elements

- Fluid Management
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### Multimodal Analgesia

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### Multimodal Analgesia

- Preoperative

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### Multimodal Analgesia

- Preoperative
- Intraoperative

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### Multimodal Analgesia

- Preoperative
- Intraoperative
- Postoperative

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### Multimodal Analgesia

- Preoperative
  - IV acetaminophen 1000 mg, PO celecoxib 400 mg followed by 200 mg BID, Gabapentin 400mg
- Intraoperative
- Postoperative

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### Multimodal Analgesia

- Preoperative
  - IV acetaminophen 1000 mg, PO celecoxib 400 mg followed by 200 mg BID, Gabapentin 1200mg (reduce to 600mg if >70 or renal dysfs, hold if mental impairment)
- Intraoperative
  - Routine mid-thoracic epidural for all cases
  - If no epidural (contraindicated, etc) then TAPs, Ketorolac, acetaminophen
- Postoperative

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- Intraoperative
  - Routine mid-thoracic epidural for all cases
  - if no epidural (contraindicated, etc) then TAPs, Ketorolac, acetaminophen
- Postoperative
  - Acetaminophen QID x 48hr (non PRN, IV for first dose), Gabapentin 200mg TID

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### ERAS Elements

- Fluid Management
- SSI Prevention
- Nutrition/Ileus Prevention
- Multimodal Analgesia
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Early Ambulation

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Early Ambulation

- Ambulating a minimum of 25 ft at least three times on POD 1. POD 1 is defined as beginning at midnight (12:00 p.m.) on the night of the operation and ending 24 hr later on the calendar day after the operation.

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Early Ambulation

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- On POD 0, sit on the edge of the bed.

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### Early Ambulation

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- On POD 0, sit on the edge of the bed.
- Epidural DC once pain controlled via PO pain meds.

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### Program Planning Steps

- Define the population
- Identify the existing care processes / surgical care pathways / order sets
- Create process maps with the multi-disciplinary team
  - Nurses, physicians, pharmacists, nutritionists, etc
- Design or update the surgical care pathways / order sets

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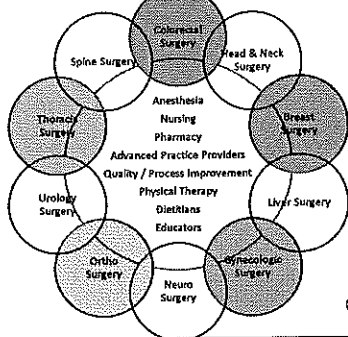
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### Define the Population / Create the Team



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(Gottumukkala, 2016)

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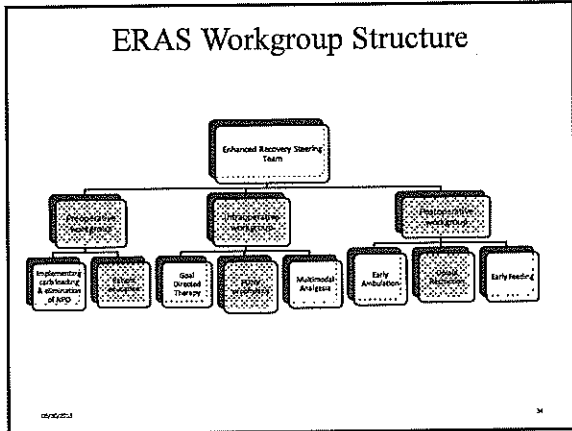
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### Role of the Acute Pain Service in ERAS

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### Role of the Acute Pain Service in ERAS

- Variability in opioid prescribing

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**Role of the Acute Pain Service in ERAS**

- Variability in opioid prescribing
- Total amount prescribed

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**Role of the Acute Pain Service in ERAS**

- Variability in opioid prescribing
- Total amount prescribed
- Number of prescription refills can be reduced by standardizing prescribing after orthopedic surgery

J Hand Surg Am. 2015;40:341-346

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**Role of the Acute Pain Service in ERAS**

- Variability in opioid prescribing
- Total amount prescribed
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Role of the Acute Pain Service in ERAS

Anesth Analg. 2017 Nov;125(5):1704-1713

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Role of the Acute Pain Service in ERAS

- (1) Guidelines for managing patients who are opioid tolerant and/or have a substance abuse disorder;

Anesth Analg. 2017 Nov;125(5):1704-1713

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Role of the Acute Pain Service in ERAS

- (1) Guidelines for managing patients who are opioid tolerant and/or have a substance abuse disorder;
- (2) Education programs for patients, emphasizing the role of opioids in recovery after elective orthopedic surgery;

Anesth Analg. 2017 Nov;125(5):1704-1713

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**Role of the Acute Pain Service in ERAS**

- (1) Guidelines for managing patients who are opioid tolerant and/or have a substance abuse disorder;
- (2) Education programs for patients, emphasizing the role of opioids in recovery after elective orthopedic surgery;
- (3) Education programs for prescribers of controlled substances, including clinical and regulatory aspects;

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**Role of the Acute Pain Service in ERAS**

- (1) Guidelines for managing patients who are opioid tolerant and/or have a substance abuse disorder;
- (2) Education programs for patients, emphasizing the role of opioids in recovery after elective orthopedic surgery;
- (3) Education programs for prescribers of controlled substances, including clinical and regulatory aspects;
- (4) The development of surgery-specific prescribing recommendations for opioid-naive patients;

Anesth Analg. 2017 Nov;125(5):1704-1713

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**Role of the Acute Pain Service in ERAS**

- (1) Guidelines for managing patients who are opioid tolerant and/or have a substance abuse disorder;
- (2) Education programs for patients, emphasizing the role of opioids in recovery after elective orthopedic surgery;
- (3) Education programs for prescribers of controlled substances, including clinical and regulatory aspects;
- (4) The development of surgery-specific prescribing recommendations for opioid-naive patients;
- (5) Mechanisms to modify prescribing habits to limit unnecessary prescribing of controlled substances

Anesth Analg. 2017 Nov;125(5):1704-1713

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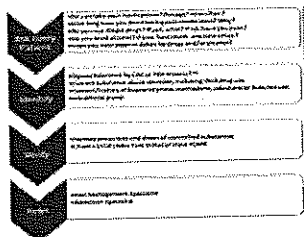
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### Role of the Acute Pain Service in ERAS

- (1) Guidelines for managing patients who are opioid tolerant and/or have a substance abuse disorder;




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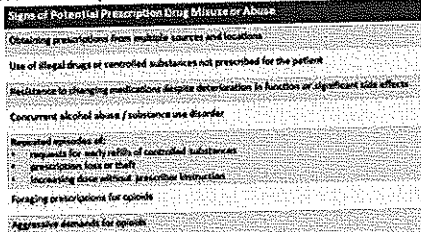
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### Role of the Acute Pain Service in ERAS

- (1) Guidelines for managing patients who are opioid tolerant and/or have a substance abuse disorder;




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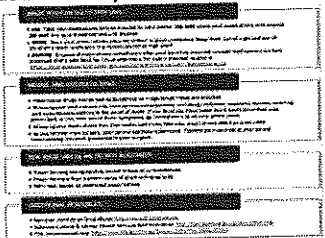
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### Role of the Acute Pain Service in ERAS

- (2) Education programs for patients, emphasizing the role of opioids in recovery after elective orthopedic surgery;




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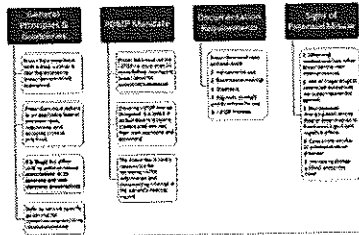
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### Role of the Acute Pain Service in ERAS

- (3) Education programs for prescribers of controlled substances, including clinical and regulatory aspects;




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### Role of the Acute Pain Service in ERAS

- (4) The development of surgery-specific prescribing recommendations for opioid-naïve patients;

**POLICY STATEMENT PURPOSE:** Promote evidence-based prescribing practices and encourage prescribers to employ conservative opioid prescribing practices to reduce opioid safety and minimize costs of care.

**CONTENT APPLIES TO:** Post-operative patients & ambulatory patients who are treated at Level II facilities (Level II facilities are defined as those that do not have a Level I facility).

**PRINCIPLES OF PRESCRIBING OPIOIDS BY SURGEON:**

1. Avoidable: All prescriptions for pain medications should be based on the patient's pain level, not on the patient's history of pain or on the patient's history of opioid use.
2. Do not prescribe opioid analgesics.
3. Consider alternatives to opioid analgesics (e.g., ibuprofen, acetaminophen) with controlled use of opioids. Consider using non-opioid analgesics first if non-opioid analgesics are not sufficient to control pain and if the patient is not at high risk for respiratory depression.
4. Do not use a patient's history of pain or history of opioid use as a justification for prescribing opioids.

**RECOMMENDED PRESCRIBING BY PROCEDURE:**

PROCEDURE	OPPIOID	ROUTE	DOSE	INTERVAL	MAXIMUM DOSE	MAXIMUM NUMBER OF PRESCRIPTIONS
Abdominal Surgery	Hydrocodone/Acetaminophen	Oral	5/325 mg	4 hours	10 tablets	1
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Anesth Analg. 2017 Nov;125(5):1704-1713

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### The Opioid Crisis

- The United States (US) makes up approximately 4% of the world's population but consumes about 80% of the world's supply of opioids with the number of opioid prescriptions quadrupling between 1999 and 2014<sup>1</sup>

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### State of Current Crisis

- The United States (US) makes up approximately 4% of the world's population but consumes about 80% of the world's supply of opioids with the number of opioid prescriptions quadrupling between 1999 and 2014<sup>1</sup>
- During this time period, the number of drug-related deaths has surpassed motor vehicle collisions to become the leading cause of accidental death<sup>2</sup>

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### Zeroing on the Source of Illicit Opioids

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### Zeroing on the Source of Illicit Opioids

- Unconsumed prescription opioids are a major source

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**Zeroing on the Source of Illicit Opioids**

- Unconsumed prescription opioids are a major source
- >80% of heroin users reported the nonmedical use of opioid pain relievers prior to heroin initiation

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**Zeroing on the Source of Illicit Opioids**

- Unconsumed prescription opioids are a major source
- >80% of heroin users reported the nonmedical use of opioid pain relievers prior to heroin initiation
- with 42% to 71% of all the opioid tablets obtained by surgical patients being unused.

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**Zeroing on the Source of Illicit Opioids**

- analysis of a nationwide dataset of US adults aged 18 to 64 years without opioid use in the year prior to surgery (n = 36,177 patients) found rates of new persistent opioid use ranging from 5.9% to 6.5%

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### Zeroing on the Source of Illicit Opioids

- analysis of a nationwide dataset of US adults aged 18 to 64 years without opioid use in the year prior to surgery (n = 36,177 patients) found rates of new persistent opioid use ranging from 5.9% to 6.5%
- new persistent opioid use after surgery is common and should be treated as a surgical or post-anesthesia complication

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Does ↓ intraoperative opioids cause in  
↓ addiction

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Does ↓ intraoperative opioids cause in  
↓ addiction

- 2 studies suggest a lack of association between usage of NB and risk of persistent opioid use

- Anesth Analg 2017;125:999-1007
- Anesth Analg 2017;125:1014-20

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### Study 1

- Looked at 6695 patients undergoing shoulder arthroplasty
- Billing data to identify the use of nerve blockade
- Regression to estimate association between nerve blockade and 2 measures of opioid use
  - Having filled at least 1 RX for opioid between POD 0-90 and between POD 91-365
- **Result:** No association between nerve blockade and persistent opioid use at POD 0-90 or POD 91-365

Anesth Analg 2017;126:1014-20

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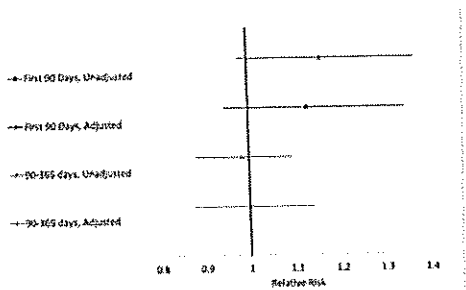
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### Study 1



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### Study 2

- 120,080 patients undergoing TKA
- Billing data to identify the use of nerve blockade
- Analyzed effect of nerve blockade and risk of chronic opioid use (filled  $\geq 10$  RXs or  $\geq 120$  days' supply for an opioid in the 1<sup>st</sup> postsurgical yr)
- No association between nerve blockade and risk of postsurgical chronic opioid use

Anesth Analg 2017;126:999-1007

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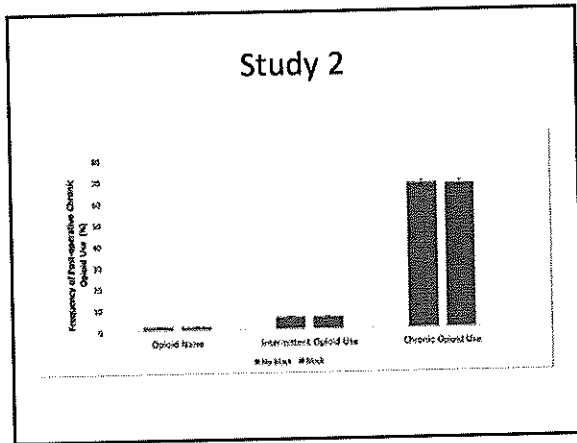
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WHY does ↓ Intraoperative Opioid Usage NOT Cause in ↓ Addiction

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WHY does ↓ Intraoperative Opioid Usage NOT Cause in ↓ Addiction

- Opioid addiction related to prescribing practices, not perioperative opioid use

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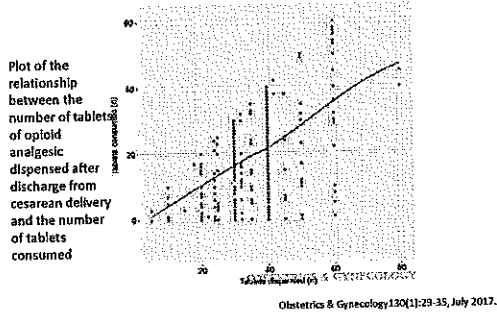
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### Patterns of Opioid Prescription and Use After C-Section Delivery



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### Patients at Risk: Large Opioid Prescriptions After Total Knee Arthroplasty

- 105 patients reviewed retrospectively with at least 1 year follow up
- Quantity of opioids prescribed after TKA varied widely, ranging from a total MED of 273- 3250 mg
- Refill rate did not differ between large prescriptions (1400 mg) and smaller prescriptions
- Excessive opioid prescriptions should be avoided as they did not decrease the number of refills and pose the risk of divergence and subsequent abuse

The Journal of Arthroplasty 32 (2017) 2395-2398

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### WHY does ↓ Intraoperative Opioid Usage NOT Cause in ↓ Addiction

Preoperative

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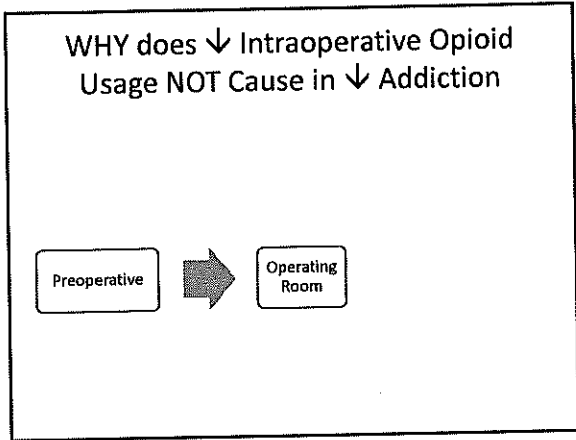
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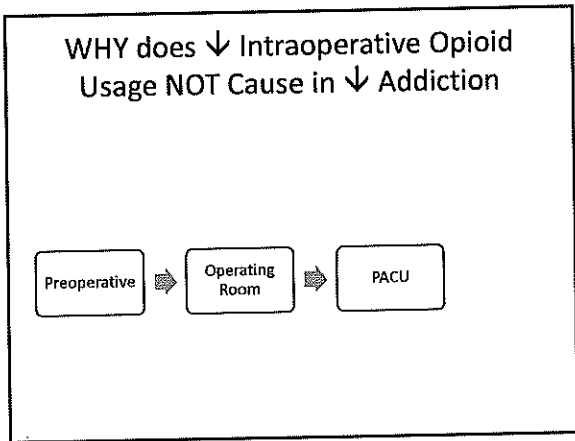
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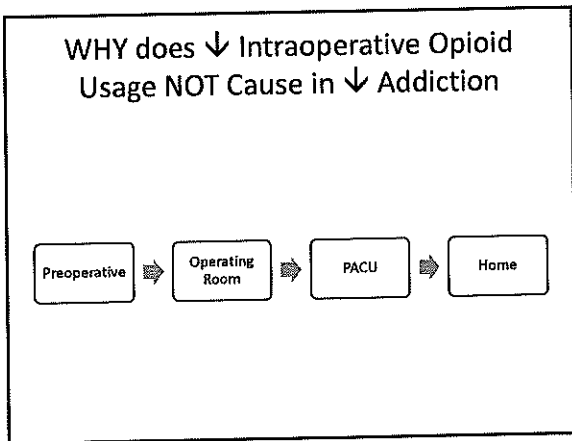
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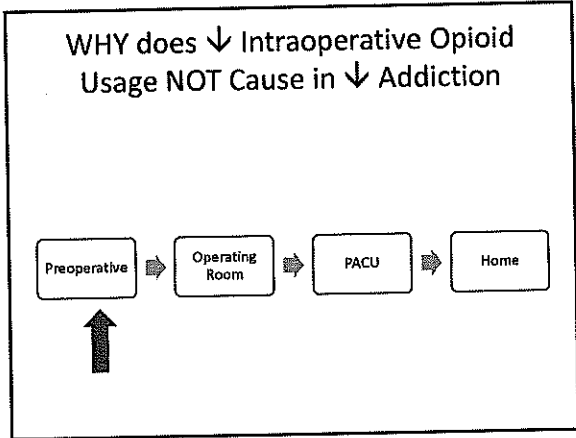
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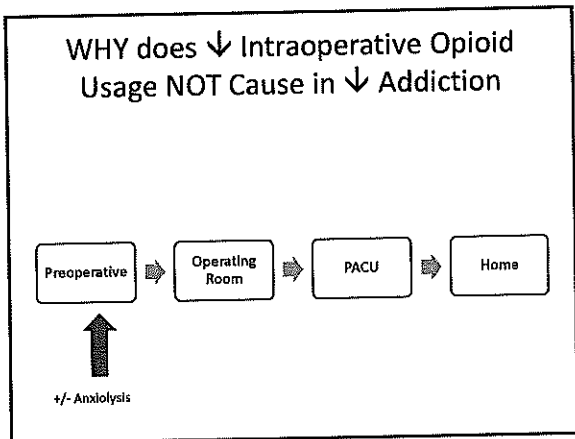
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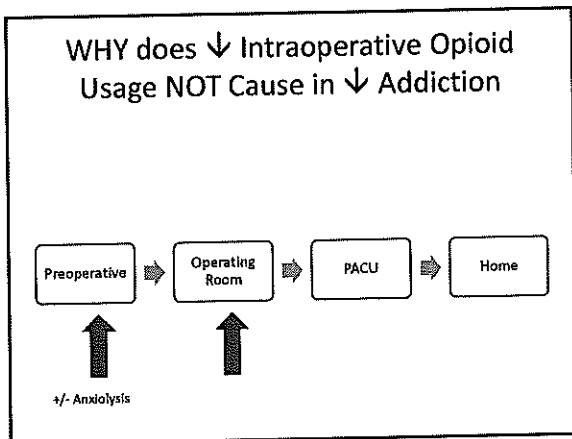
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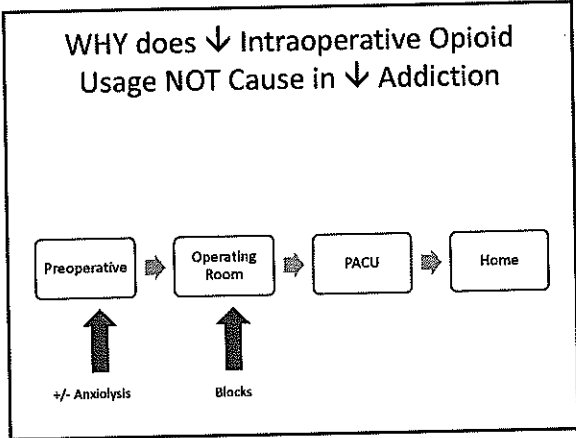
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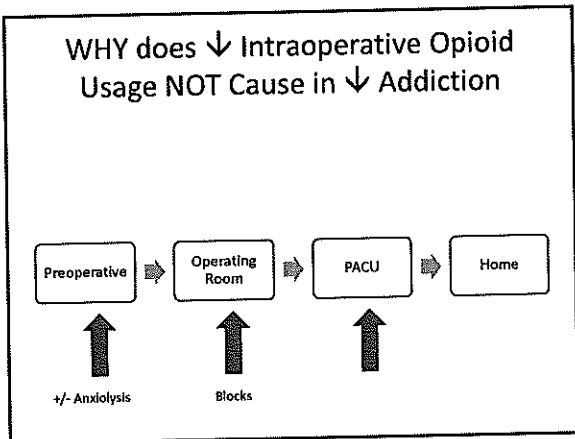
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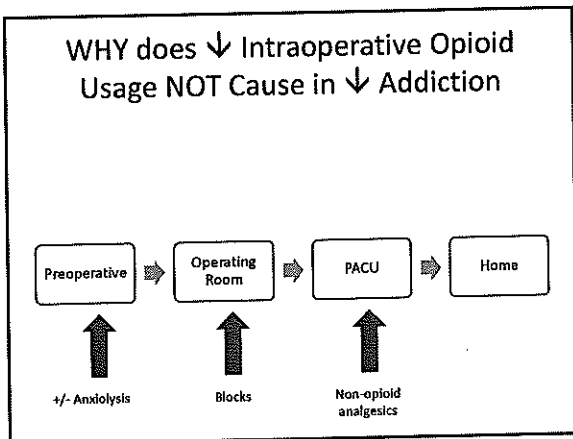
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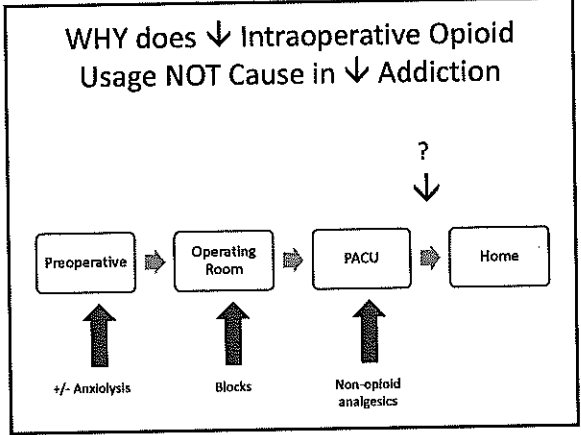
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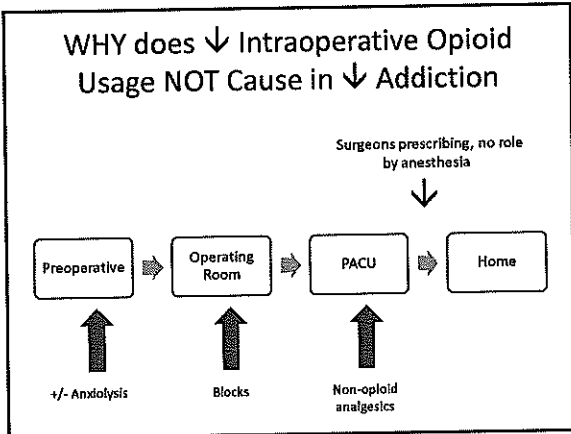
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- ERAS and Opioids**
- ERAS can serve as a vehicle for influencing prescribing practices
  - ERAS can serve as a platform for creating guidelines regarding discharge medication
  - Preoperative education of patients/prescribers can be delivered via existing ERAS

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### Summary

- ERAS Pathways are the future
- Multidisciplinary teams allow better communication and more comprehensive care
- Acute Pain Service plays pivotal role in ERAS cases
- Has potential for addressing opioid crisis

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### Questions?

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