ERAS in a Small Volume Hospital

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Enhanced Recovery after Surgery (ERAS)

- Where we started: Cottage Hospital before ERAS
- The Role of Healthcare in the Opioid Epidemic and our Transition to Opioid Sparing / Opioid Free Anesthesia
- Turning Point – From a Department Focus to a Hospital Initiative
- What is ERAS?
- Our ERAS Project
- Lessons Learned
- Where We are Now

Cottage Hospital, Woodsville NH

- Critical Access Hospital in Northern NH
- Level 4 Trauma Center
- Includes an Emergency Department, Lab & Radiology Department, 25 Bed Inpatient Unit with a 3 bed ICU, Day Surgery and 2 OR Surgical Suite
- Surgical Specialties include extensive General Surgery including colorectal and outpatient procedures, Orthopedics including Total Joint Replacements, Podiatry and Gastroenterology

Anesthesia Department at Cottage Hospital

- Joined the Staff as one of 3 CRNAs in 2015, chief in 2016
- Strong history and interest in pain management among all three providers
- Healthcare and its role in the Opioid Epidemic
- Began to incorporate Opioid Sparing / Opioid Free techniques into our Anesthesia Care

Why avoid opioids?

Opioids have been linked to: [1,2]

- Respiratory Depression
- Post-operative nausea and vomiting
- Hallucinations
- Cognitive dysfunction
- Sleep Disturbance
- Increased hospital stays or recovery from surgery
- Impaired wound healing
- Cancer reoccurrence
- Opioid induced hyperalgesia – increased sensitivity to pain after administration of opioids.
- Addiction

The Opioid Epidemic – The CDC[3]

- Since the 1990s, the amount of opioids prescribed increased and the number of overdoses and deaths from prescription opioids also increased.

- However, even as the amount of opioids prescribed and sold for pain increased, the amount of pain that Americans reported did not significantly change.

We are fueling addiction, but not significantly addressing pain.

Covid – Pain prescription for chronic pain have increased as alternative pain management options decreased[4]

How much of a role does Surgery and Anesthesia play in Risk of Addiction?

How do we define Risk of Addiction?

- Risk of Addiction is considered **high** when patients have **persistent use of opioids 3 months after surgery**, at which time experts agree that, except in cases of cancer or trauma, pain from surgery is unlikely to be a factor.[6]
- This refers to the risk to **opioid naïve patients**, meaning those who were not on opioids chronically prior to surgery.[6]

How high is the risk of persistent opioid use after surgery?

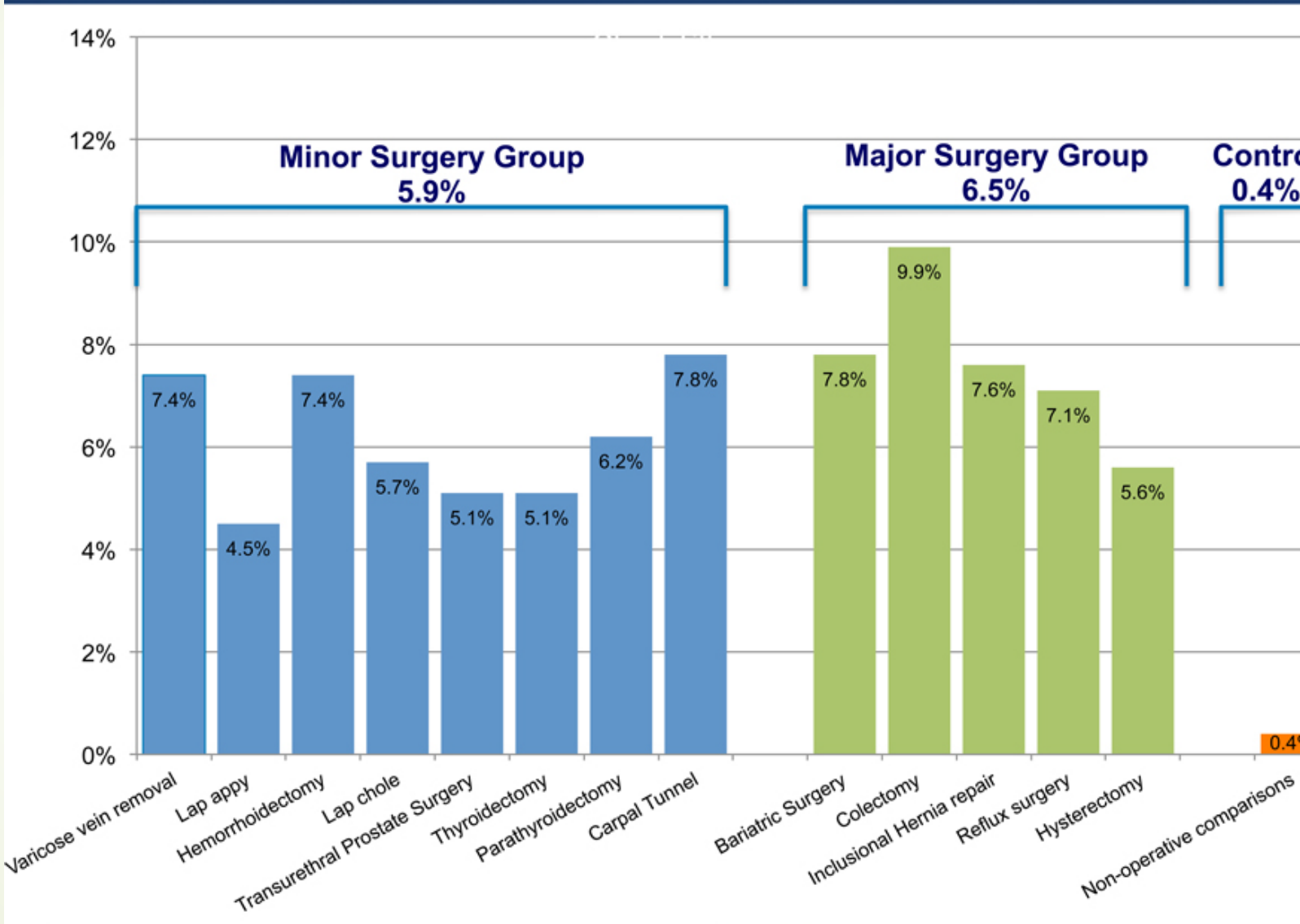
- A subject of much debate.
- Historically, competing studies reported rates between 5 and 10%.
- However, on October 21, 2021, the American Society of Anesthesiologists (ASA) released a statement addressing this risk:

SAN DIEGO – New research suggests more than one in five "opioid-naïve" patients continue to use the pain medication three months after having a procedure, underscoring the often-overlooked role surgery plays in the opioid epidemic.

https://www.asahq.org/about-asa/newsroom/news-releases/2021/10/more-than-one-in-five-opioid-naive-patients-still-use-opioids-three-months-after-surgery

This is only a risk with major procedures, right?

- **No**, the risk of persistent opioid use (and therefore the risk of addiction) is comparable in major and minor procedures.[5]



If type of surgery isn't predictive, are there patient factors[7,8,9] that increase risk?

- Tobacco use disorder
- Alcohol and substance abuse disorders
- Mood disorders
- Bipolar disorder
- Depression
- Anxiety
- Pre-existing pain disorders including back pain, neck pain, arthritis, and centralized pain syndromes
- Pulmonary Hypertension
- Younger age (although middle age is more associated with mortality)
- Social or family environments that encourage misuse

..also **exposure to opioids** in the immediate perioperative period is an **independent risk factor** for persistent use.

- Research by Ung et al reports[10]:

"Exposure to opioids in the perioperative period is associated with new persistent use in patients who were previously opioid-naive. This suggests that exposure to opioids is an independent risk factor for persistent use in patients undergoing incisional ophthalmic surgery."

Opioid Sparing / Opioid Free Anesthesia[11]

- Aggressive and comprehensive plan to prevent pain to reduce the need for opioids and their unwanted side effects
- Regional Anesthesia
- Multimodal non opioid pain medications
- Does not restrict opioids from patients who need them, rather aims to prevent need by preventing pain
- More labor intensive than traditional opioid based anesthetics
- Less complications and better pain scores than traditional anesthetics
- Focus on prevention of pain, not just rescue.
- Initial cost is somewhat higher, but decreased complications and faster recovery results in cost savings overall.

Turning Point: Healthy Patient, Difficult Recovery

- My patient – Male, mid 50s, mild hypertension, recent hx of smoking, very active, normal BMI
- Total Knee Replacement
- Opioid sparing anesthetic, spinal, "low dose" opioids in intra-op and immediate post-operative period, no nausea, pain controlled, no complications – the anesthesia silo
- 3 days later – patient still in hospital, walking in hall, c/o persistent nausea
- Recurrent ileus – discharged on POD 10

Opioid Sparing Anesthesia was not enough to change outcomes – needed to be part of a more comprehensive plan of care

Literature Search – Discovered Enhanced Recovery – Conference at Mayo Clinic

ERAS – A Paradigm Shift in 2 Ways

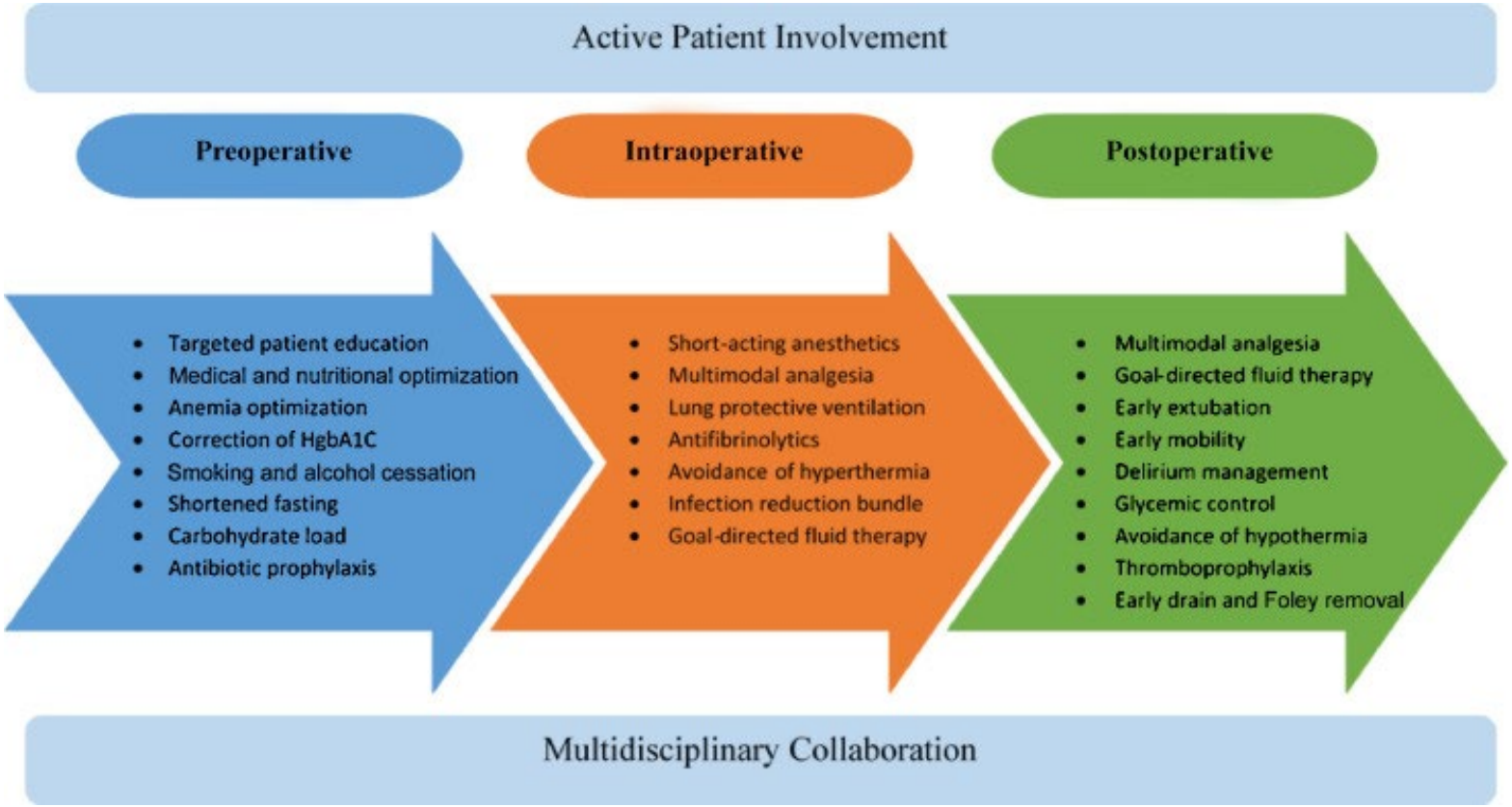
- First it re-examines traditional practices, replacing them with evidence based best practices when necessary
  - "Nothing by Mouth after Midnight"
  - Prolonged fasting has been shown to increase rates of post-operative nausea and vomiting, provoke metabolic stress and insulin resistance (which contributes to post-operative hyperglycemia and its risk of complications)
- Second it is comprehensive in scope, covering all areas of a patients journey through the surgical process – no more silos, rather a continuum of care

History of Enhanced Recovery

- History: 1997, group of colorectal surgeons in Northern Europe formed a research group to create the ultimate care pathway to primarily decrease the incidence of post-operative ileus, and ultimately decrease length of stay and cost.
  - Focused on reducing the body's reaction to surgical stress by optimizing perioperative nutrition, promoting analgesia without opioids and early post-operative nutrition
- Today: Embraced by large academic medical centers in the US to optimize specific service lines.
- Enhanced Recovery after surgery is a multimodal perioperative care pathway designed to achieve early recovery for patients undergoing surgery. https:/erassociety.org/
- Patient centered, Evidence based, Multidisciplinary – silos do not work

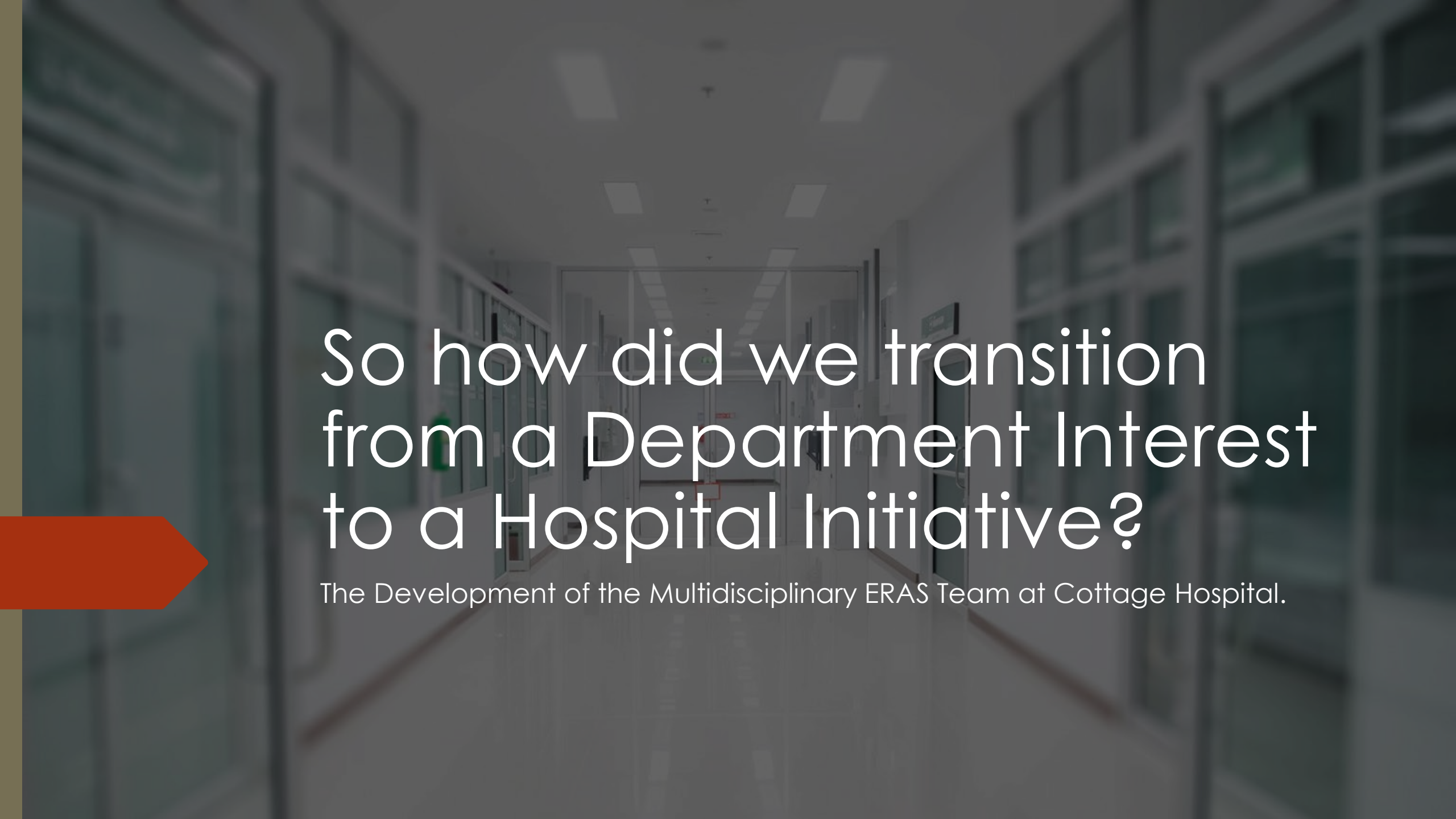
What are the Goals of an ERAS Project?

- Develop care pathways applicable to the surgical specialty
- Reduce patients surgical stress response
- Optimize physiologic function
- Empower patients to take an active role in their own progress
- Facilitate Recovery
- Change Culture: Facility, staff and patients



The Enhanced Recovery Pathway

- Culture change at all levels



So how did we transition from a Department Interest to a Hospital Initiative?

The Development of the Multidisciplinary ERAS Team at Cottage Hospital.

Kelly Hussey, Director of Quality and Risk, Cottage Hospital

Agency for Healthcare Research and Quality

AHRQ Safety Program for Improving Surgical Care and Recovery

Project Partners

- Johns Hopkins Medicine Armstrong Institute for Patient Safety and Quality
- American College of Surgeons

AHRQ Safety Program for Improving Surgical Care and Recovery – Orthopedic Cohort

Formation of the Multidisciplinary Team, Registering with AHRQ

- Key Stakeholders
  - Program Leads – Kelly Hussey, Kathryn Walsh
  - Surgeon Champion – Dr. Delphine Sullivan
  - Anesthesia Champion – Kathryn Walsh
  - Senior Leadership – Holly McCormack, CNO
- Multidisciplinary Team – Everyone at the Table*
  - Orthopedic Team – Physicians Assistant, Nurse Manager, Medical Assistant
  - Surgical Services Team – Director, ERAS Nurse, Day Surgery RN
  - Inpatient Team – Director, Nurse Champion, Nurse Supervisor
  - Pharmacy, IT, Registration and Patient Services, Physical Therapy, Social Services, Occupational Therapy, Food and Nutrition, Laboratory, Radiology, Billing

* A complete multidisciplinary team is essential to create a program that will work at your facility. ERAS will not be successful if all groups who impact patient care are not at the table and able to give feedback. If a group does not participate in the process, this is where the breakdown will occur.

Cottage ERAS Project: Our Initial Workflow

- The group met biweekly, occasionally weekly
- Coaching calls and program materials from AHRQ
- Creation of an ERAS pathway for Total Joint Arthroplasty
  - Covered the entire pathway of care from the day the surgery is scheduled to post-discharge care
- Creation of Materials to Support the Pathway
  - Patient Education
    - Comprehensive Total Joint Patient Education Binder
    - Comfort Menu
    - Community Brochures
  - Process documents
    - Order sets
    - Booking sheets
    - Audit Documents

Cottage ERAS Project: Progress

- Approximately 7 months after our first ERAS meeting → first patient cared for using the pathway.
- The following year → General Surgery, started working on a Colorectal Pathway
- Ongoing → Application of ERAS as appropriate to all surgical patients at Cottage Hospital, Culture Change, Staff Education
- Interruption by Covid
  - Meetings stopped, Lean Hospital Environment, Resources (people) pulled to other priorities.
  - Pathway continued, patients continue to be cared for according to ERAS principles… multidisciplinary team continued to support the work.

Cottage ERAS Project: Lessons Learned

- Barriers
  - Culture Change is essential and ongoing, as staffing changes.
    - Staff Education
  - Perceived Cost vs. Actual Cost
    - Morphine PCA vs. IV acetaminophen
    - Importance of reaching out to pharmacy, materials management and billing departments
  - Process is Labor Intensive
    - Support by Senior Leadership is essential to provide assistance with the work
    - Easy to get bogged down with the time required to deliver meeting minutes, create patient education and other materials
    - Can take the energy out of the project

Cottage ERAS Project: Patient Impact

Comparison of the Typical Care for a patient having a Laparoscopic Cholecystectomy in 2016 (prior to ERAS), and Today

Pre-operative Period – Pre-op Education

- 2016
  - Basic pre-op instructions including time to arrive
  - Reminder to take nothing by mouth after midnight
- Today
  - Basic pre-op instructions including time to arrive
  - Discussion of importance of pre-operative nutrition, including instruction to drink 8 ounces of a clear liquid with carbohydrates such as apple juice or regular Gatorade 2 hours prior to arrival
  - Discussion may also include importance of activity, blood sugar control and pain management

Morning of Surgery

- 2016
  - Fasted prior to surgery for at least 8 hours.
    - Decreased bowel function, increased metabolic stress, increased insulin resistance.
    - Likely hungry and possibly slightly nauseous.
    - At a higher risk for post-operative nausea and vomiting as well as hyperglycemia
- Today
  - Drank fluids all through the evening and had 8 ounces of carbohydrate loaded drink prior to leaving for the hospital
  - Less complaints of nausea, head ache and hunger
  - Less risk for PONV, and complications related to insulin resistance

Day Surgery Unit: Pre-operative Phase

- 2016
  - IV placed
  - Discussion of care with surgeon and Anesthesia
  - Consents Signed
- Today
  - IV placed
  - Discussion of care with surgeon and Anesthesia
  - Consents Signed
  - Comprehensive plan for prevention of nausea and post-operative pain begins. Typically given Celebrex and Gabapentin for pain and Emend for nausea if risk factors are present.

Intraoperative Phase

- 2016
  - Traditional balanced anesthetic
  - 100-200 mcg of Fentanyl +/- 2mg of Dilaudid for Pain
  - Zofran 4 mg for PONV
- Today
  - Multimodal Opioid Free Anesthetic
  - Transverse Abdominus Plane Block using Exparel, done under ultrasound – abdomen is numb prior to surgery start
  - Medications to decrease surgical stress as well as pain. (IV acetaminophen, Precedex, Magnesium, Lidocaine, etc.)
  - Decadron and Zofran given for prevention of PONV

PACU: Immediate Post-operative Phase

- 2016
  - Pain scores typically over 5, requiring intervention, too uncomfortable for ice bag to incision site
  - Fentanyl 100-200 mcg or Dilaudid 2-4mg in divided doses
  - Nausea and vomiting carefully monitored, rescue medications not uncommon, can lead to increased sedation
  - Both interventions lead to longer PACU stays after patient has recovered from anesthesia. Long periods in PACU may result in overnight admission depending on patient factors.
- Today
  - Pain scores typically 0-4, ice to incision sites
  - Majority of patients not requiring pain or nausea rescue medications
  - Those who do opt for pain medications typically managed with 25 mcg of Fentanyl or PO Tramadol
  - Able to transfer back to Day Surgery when alert, not requiring additional long periods of intervention. Admission extremely rare.

Day Surgery Unit: Post-operative Phase

- 2016
  - Continuing management of pain or nausea as necessary
  - Offered Muffin and fluids once able.
  - Occasional urinary retention r/t opioids, fluids increased, patient held until able to void.
  - Discharge home
- Muffin, Fluids, Discharge home.
- Delays d/t nausea, pain or urinary retention decreased.

Post-operative Pain Management

- Script for 15-20 pills of either Percocet or Hydrocodone

- No opioids sent home.
- Patients have a clear plan for multimodal pain management at home – Ice, Tylenol and Motrin.

Post-operative Day 1

- 2016
  - Managing pain with prescription medications.
  - Occasional concerns with nausea.
- Today
  - Managing pain with over-the-counter medications and ice.
  - Rare concerns with nausea.

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Questions?