

Function First, Opioids

Last:

Minimizing Opioids in the Perioperative
Period While
Targeting Optimal Analgesia After Surgery

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Health, Education, and Research)

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Disclosures

- GE Foundation – educational capacity building research in East Africa
- Edwards Lifesciences – GDFT research within ERAS
- Cheetah Medical – GDHT research within ERAS



GE Foundation



Edwards



**cheetah
medical™**

Goals and Objectives

By the end of this session the learner should be able to:

- Discuss **optimal analgesia as the goal** of perioperative pain control and **why it is important.**
- Describe **maximodal analgesia** as an approach for **opioid minimization** while achieving optimal analgesia
- Discuss a **structured approach for rescue analgesia** consistent with ERP principles
- Describe gaps in the literature and areas for **future research**

POQI I: Perioperative Analgesia

operative Medicine (2017) 6:8
DOI 10.1186/s13741-017-0064-5

CONSENSUS

Open Access



American Society for Enhanced Recovery (ASER) and Perioperative Quality Initiative (POQI) joint consensus statement on optimal analgesia within an enhanced recovery pathway for colorectal surgery: part 1—from the preoperative period to PACU

Matthew D. McEvoy^{1†}, Michael J. Scott^{2,3,4†}, Debra B. Gordon⁵, Stuart A. Grant⁶, Christopher L. Wu⁸, Tong J. Gan⁹, Monty G. Mythen¹⁰, Andrew D. Shaw¹¹, and For the Perioperative Quality Initiative (POQI) I Workgroup

3741-017-0063-6

CONSENSUS

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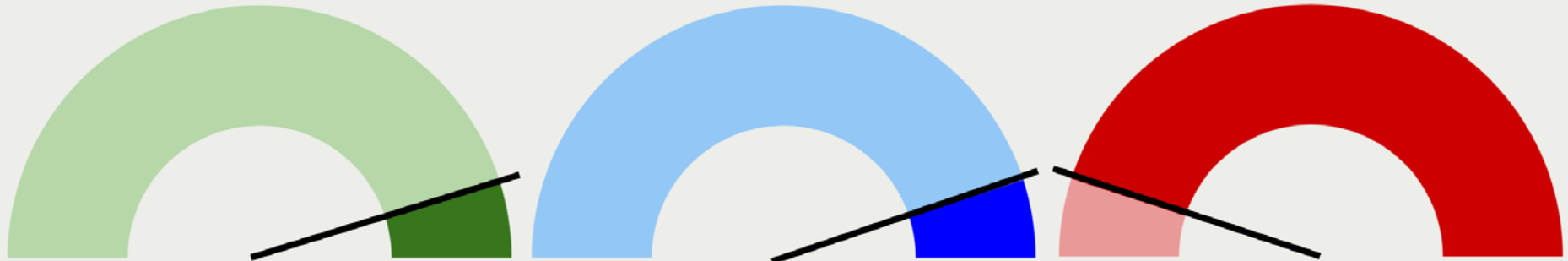
American Society for Enhanced Recovery (ASER) and Perioperative Quality Initiative (POQI) Joint Consensus Statement on Optimal Analgesia within an Enhanced Recovery Pathway for Colorectal Surgery: Part 2—From PACU to the Transition Home

Michael J. Scott^{1,2†}, Matthew D. McEvoy^{3,4†}, Debra B. Gordon⁵, Stuart A. Grant⁶, Julie K. M. Thacker⁷, Christopher L. Wu⁸, Tong J. Gan⁹, Monty G. Mythen¹⁰, Andrew D. Shaw¹¹, Timothy E. Miller^{12*} and For the Perioperative Quality Initiative (POQI) I Workgroup

Q1: What is the definition of optimal analgesia after surgery?

- Statement: Optimal analgesia can be defined as a technique that optimizes patient comfort and facilitates recovery of physical function including the bowel, mobilization, cough and normal sleep, while minimizing adverse effects of analgesics.
- Proviso:
 - this may not correspond with the lowest pain perception possible.
 - the ***combination*** of analgesic techniques employed

Optimal Analgesia After Surgery



Optimized Patient Comfort

- Optimal Pain Rating
 - At Rest
 - With Movement
- ↓ Impact of Pain on Emotions
- ↓ Impact of Pain on Function
- ↓ Sleep disruption
- Improve Patient Experience



Fastest Functional Recovery

- Drinking Liquids
- Eating Solid Foods
- Activities of Daily Living
- Mobilizing
- Bladder function
- Bowel function



Fewest Side Effects

- Delirium
- Respiratory Depression
- Sedation
- Ileus/Nausea
- Dizziness
- Itching

Encourages Postoperative DREAMS

[DRinking, Eating, Analgesia, Mobilizing, and Sleeping]

Q2: Why should opioid use be minimized for surgical patients?

Statement: Minimizing opioid analgesia for surgical patients reduces the adverse effects of opioid use.



Fentanyl

Citrate Injection
(100 mcg per 2 mL)

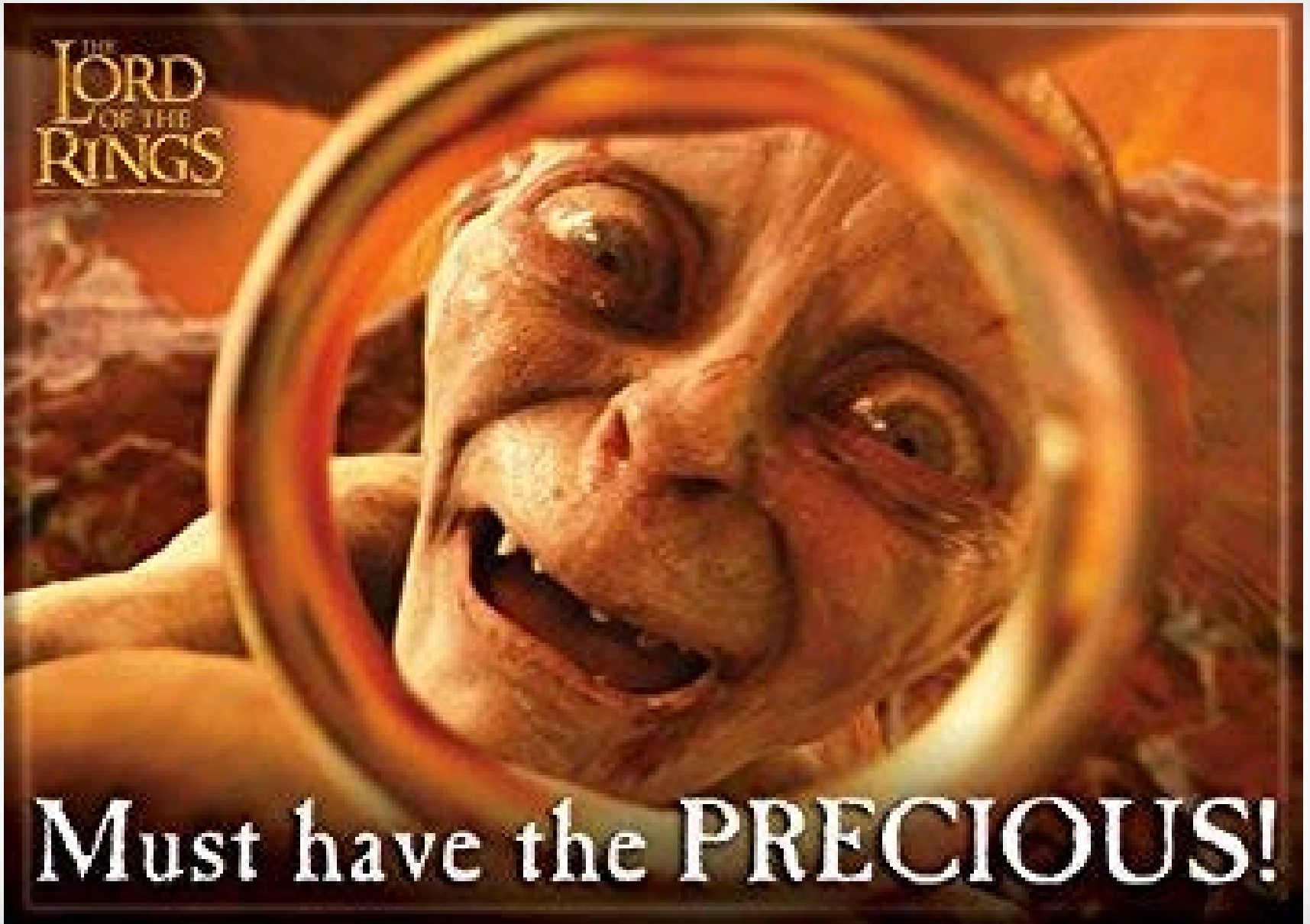
2R3303
CII

50 mcg per mL
2 mL Total Volume
For IV Use

RT STORAGE
PROTECT FROM LIGHT

Fentanyl
Fentanyl



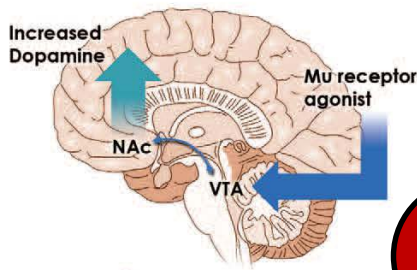


Must have the **PRECIOUS!**

Opioid-Related Side Effects

Opioids and Adverse Effects: More Than Just Opium Dreams

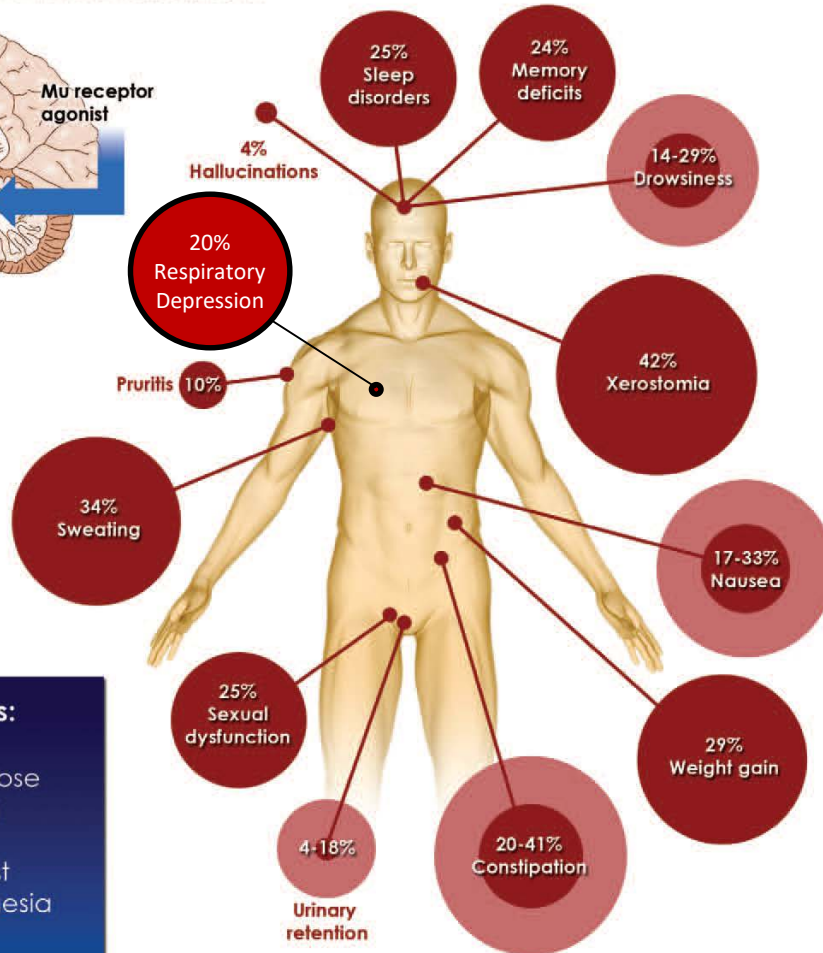
Opioid hallucinations have been most strongly associated with morphine and tramadol, and are one of many potential adverse effects.¹



80%
of patients prescribed opioids experience at least one adverse side effect.¹

Treatment Options:

Decrease opiate dose
Rotate opiate class
Add:
Opiate antagonist
Multimodal analgesia
Physostigmine
Haloperidol
Diazepam



 There were 16,235 opioid-related deaths in 2013 (71% of all pharmaceutical deaths).¹

Wanderer JP, Nathan N.
Anesth & Analg,
2016;123:805
Weingarten T.
Curr Opin Anesth,
2017;30:156-62

A Comprehensive Review of Evidence-Based Strategies to Prevent and Treat Postoperative Ileus

Sara K. Story^a Ronald S. Chamberlain^b

“Perioperative strategies employed to prevent or limit the duration of POI include avoidance of preoperative fasting, mechanical bowel preparation, use of epidural-local anesthetics, implementation of minimally-invasive surgical techniques, and **modification of pain management strategies to limit opioid administration.**”

Langenbecks Arch Surg (2017) 402:149–158
DOI 10.1007/s00423-016-1485-1



ORIGINAL ARTICLE

Postoperative ileus: in search of an international consensus on definition, diagnosis, and treatment

“The experts’ opinion was in concordance with the recent guidelines and systematic reviews: **the use of non-steroidal anti-inflammatory drugs and narcotic-sparing analgesia** (for example, epidural analgesia for open procedures) **proved to reduce the time of bowel function recovery.**”

Long-Term Adverse

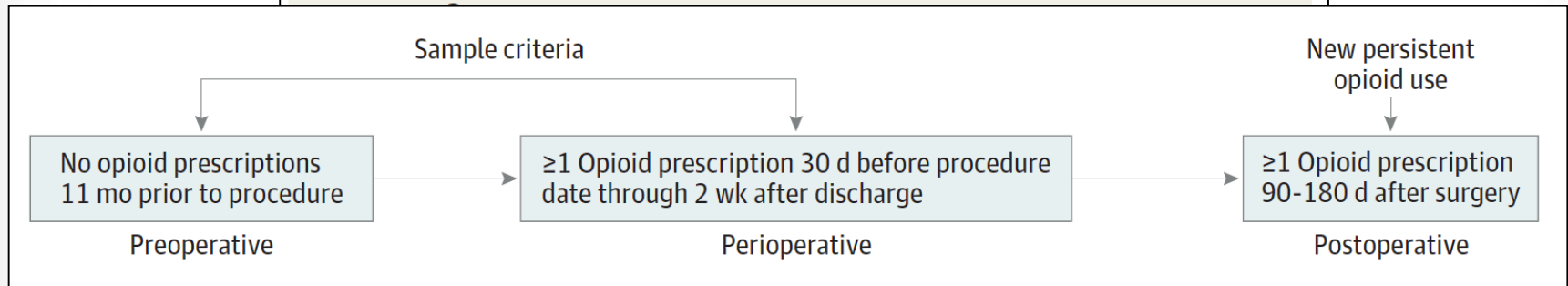
Consequences

New Persistent Opioid Use After Minor and Major Surgical Procedures in US Adults

Chad M. Brummett, MD; Jennifer F. Waljee, MD, MPH, MS; Jenna Goesling, PhD; Stephanie Moser, PhD; Paul Lin, MS; Michael J. Englesbe, MD; Amy S. B. Bohnert, PhD, MHS; Sachin Kheterpal, MD, MBA; Brahmajee K. Nallamotheu, MD, MPH

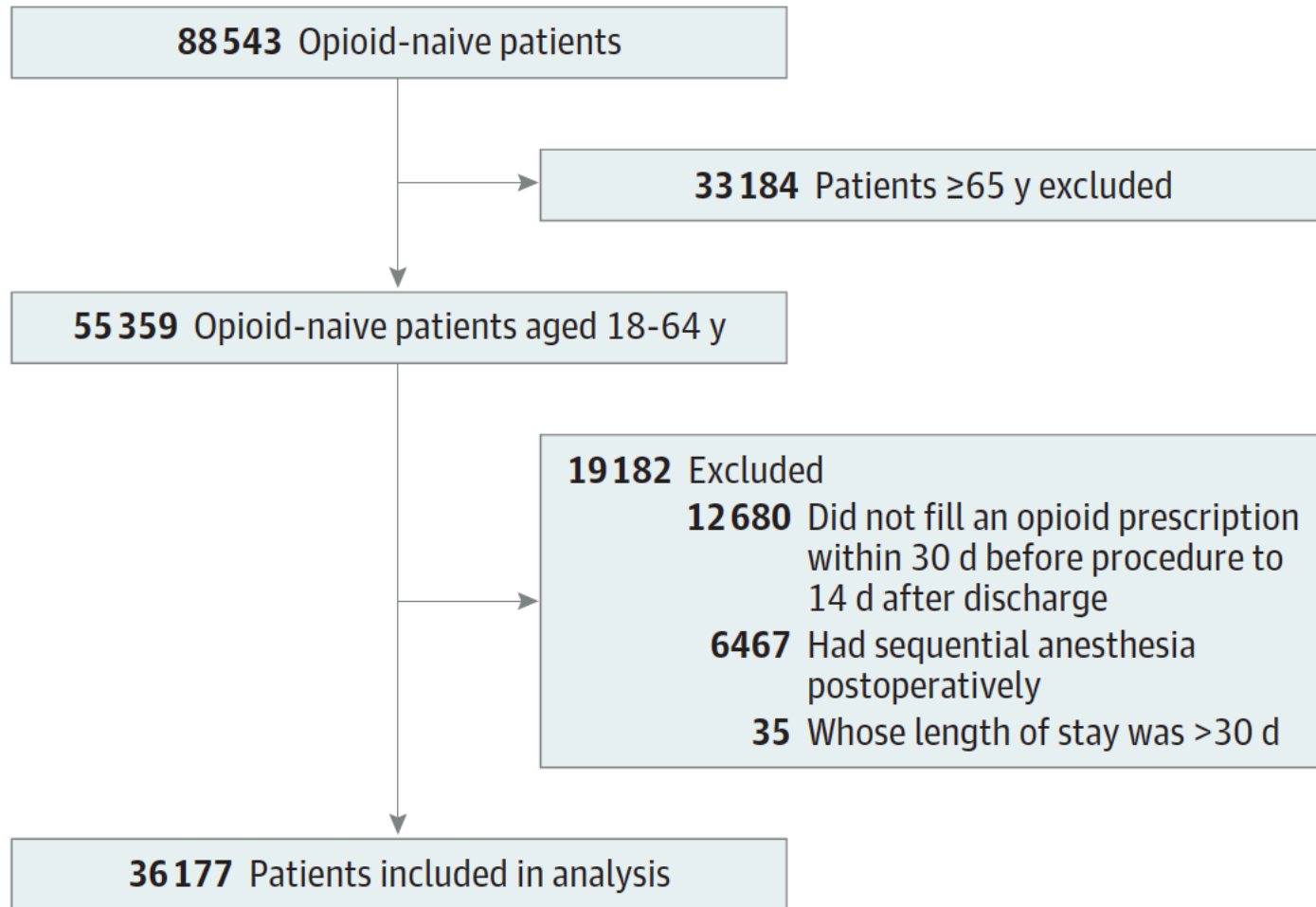
Key Points

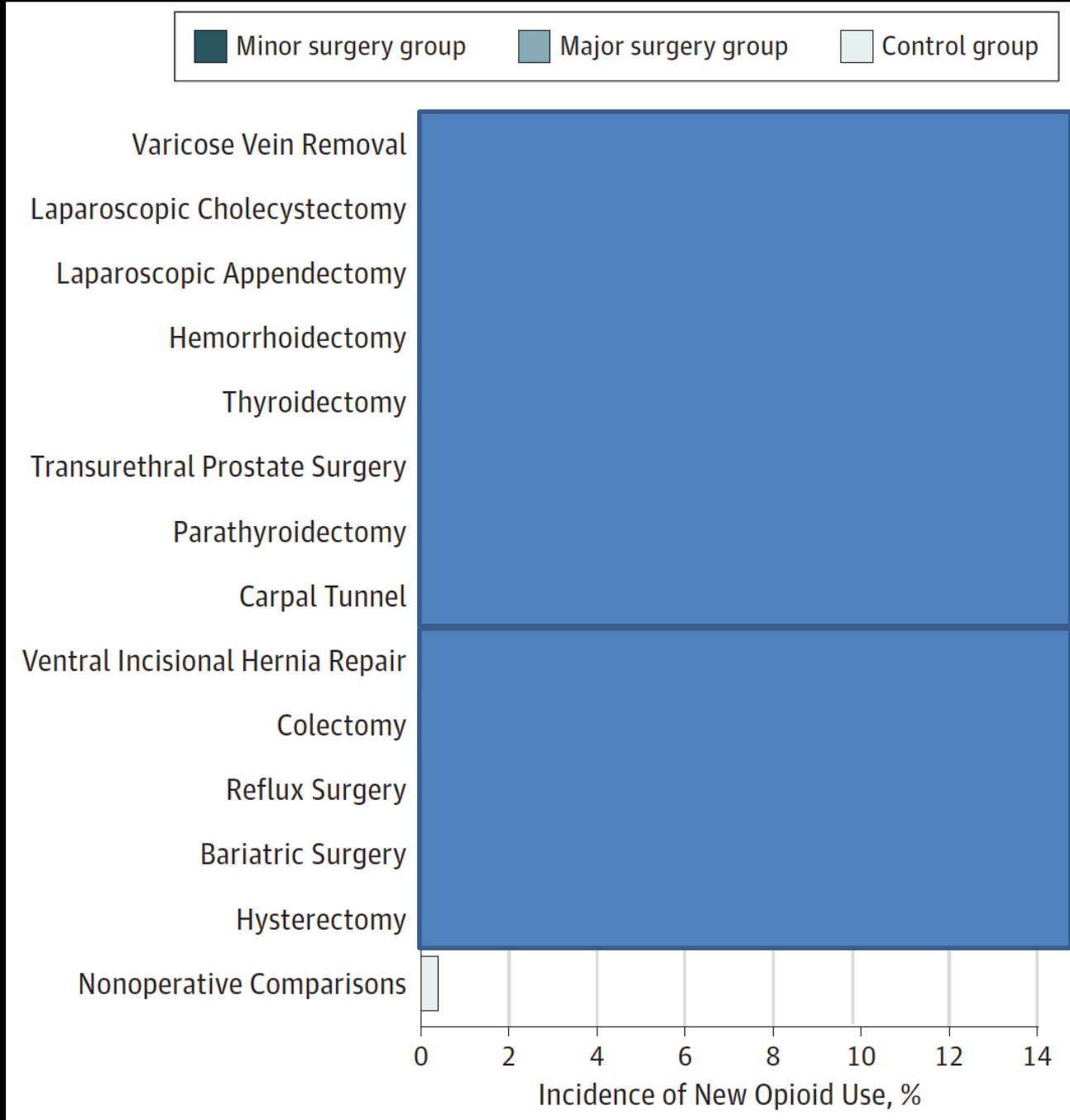
Question What is the incidence of new persistent opioid use after



Meaning New persistent opioid use is more common than previously reported and can be considered one of the most common complications after elective surgery.

Figure 2. Flow Diagram

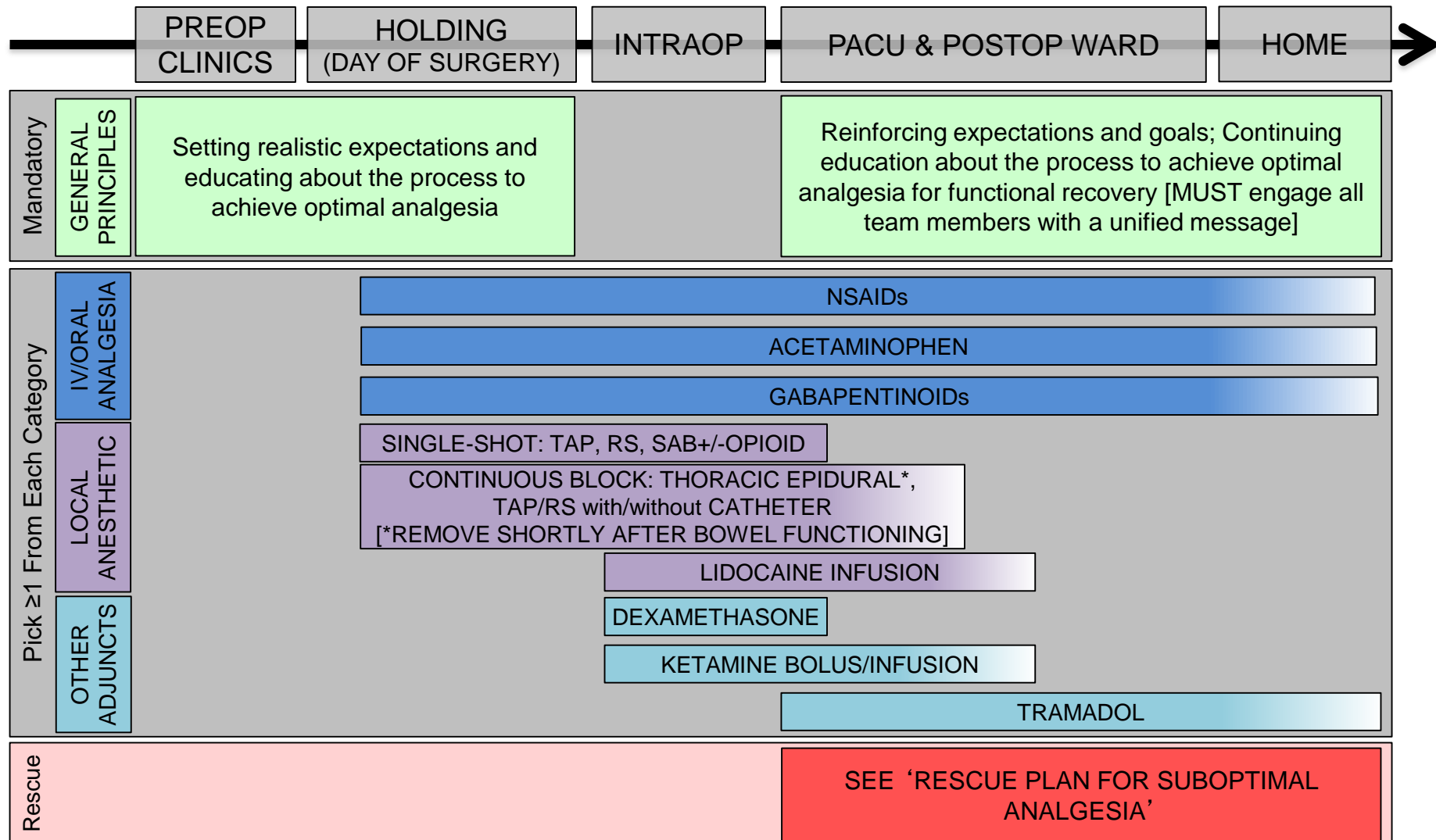




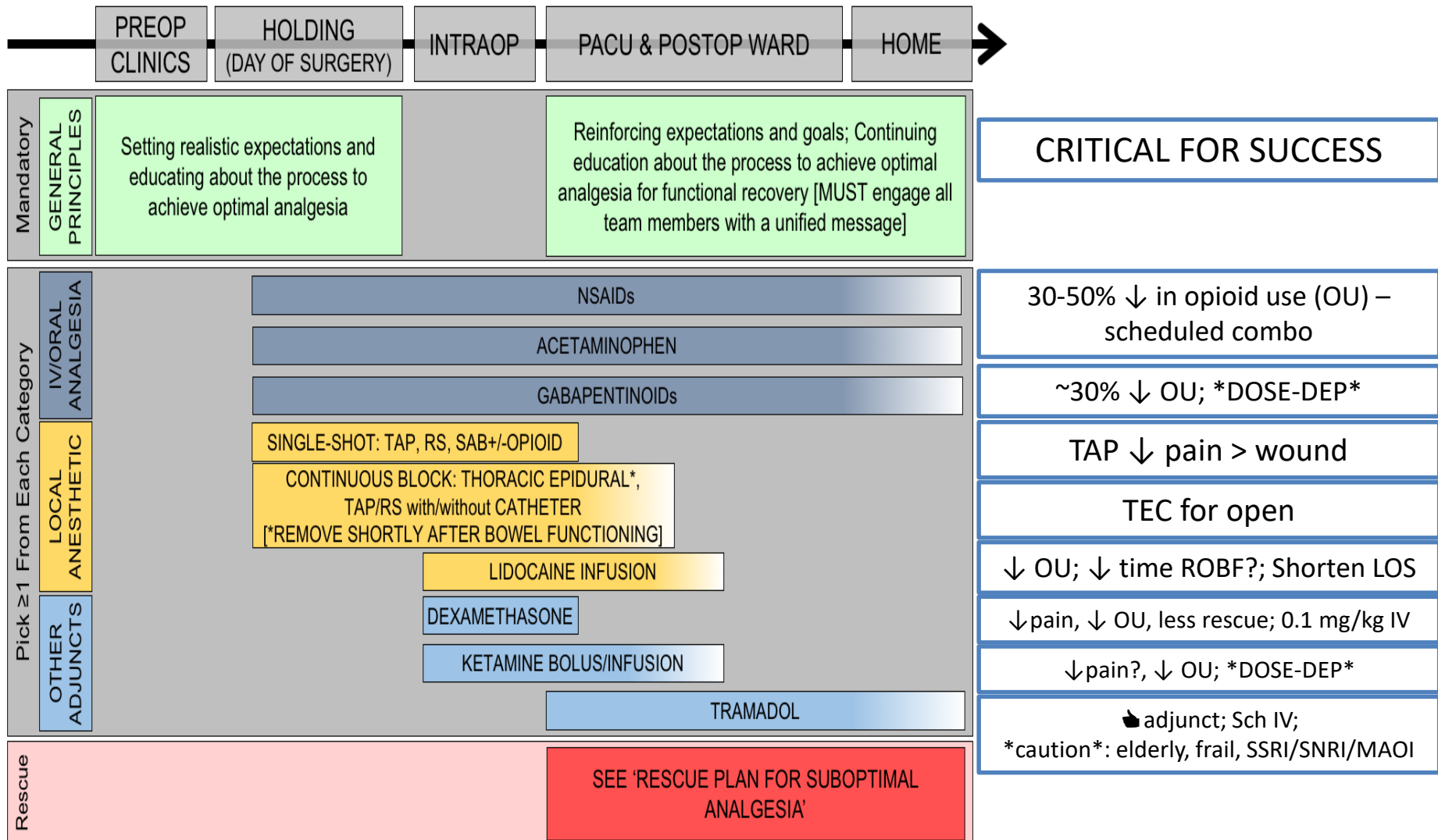
Q3: How can optimal analgesia be achieved while minimizing opioid use in the perioperative period?

Statement: Optimal analgesia after surgery is achieved through a ***planned multimodal analgesia approach*** minimizing opioid use during ***all phases*** of perioperative care

TREATMENT ALGORITHM FOR ACHIEVING OPTIMAL ANALGESIA AFTER SURGERY



TREATMENT ALGORITHM FOR ACHIEVING OPTIMAL ANALGESIA AFTER SURGERY



TREATMENT

ALGESIA



KEEP CALM AND MAKE A PLAN

PRE-CL

Mandatory

GENERAL PRINCIPLES

Se

Pick ≥1 From Each Category

IV/ORAL ANALGESIA

LOCAL ANESTHETIC

OTHER ADJUNCTS

Rescue

HOME



s; Continuing
achieve optimal
JUST engage all
message]

OPTIMAL

Rescue Plan for Suboptimal Analgesia

STEP
1

Perform
Focused
H&P

- Preoperative analgesia use
- Preoperative pain baseline
- Postoperative exam
 - Determine location & etiology of pain



STEP
2

Assess
Pain
SEVERITY

- Assess location, severity, duration, & aggravating factors
- Limitations due to pain? [i.e. drinking, eating, mobilizing, sleeping]
- Any adverse drug events due to current pain regimen?



STEP
3

Determine
Pain
TYPE

- Determine the pain type: neuropathic, inflammatory, visceral, or somatic in nature?
- Consider the combination of multiple pain generators [EXCLUDE surgical/medical complications prior to treating]



STEP
4

Administer
Rescue
TREATMENT

- Confirm use of all appropriate non-opioid options from Treatment Algorithm, including tramadol.*
- Add opioid. PO if tolerated, IV if needed [e.g. hydrocodone, oxycodone, morphine, hydromorphone]

Q4: How does pain vary based upon the *surgical approach in colorectal surgery*?

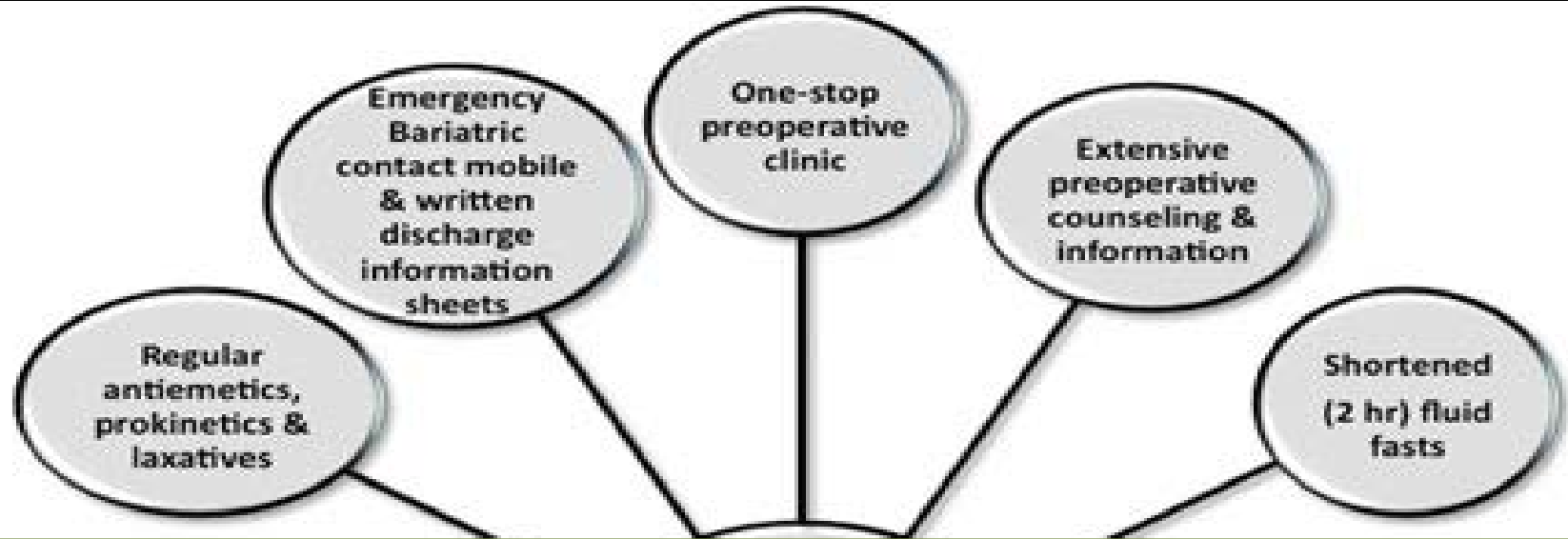
Statement: The degree of pain after CRS will *vary based upon the surgical approach* and planned analgesic solutions will take this into account.

Precision Medicine Versus Procrustean Beds

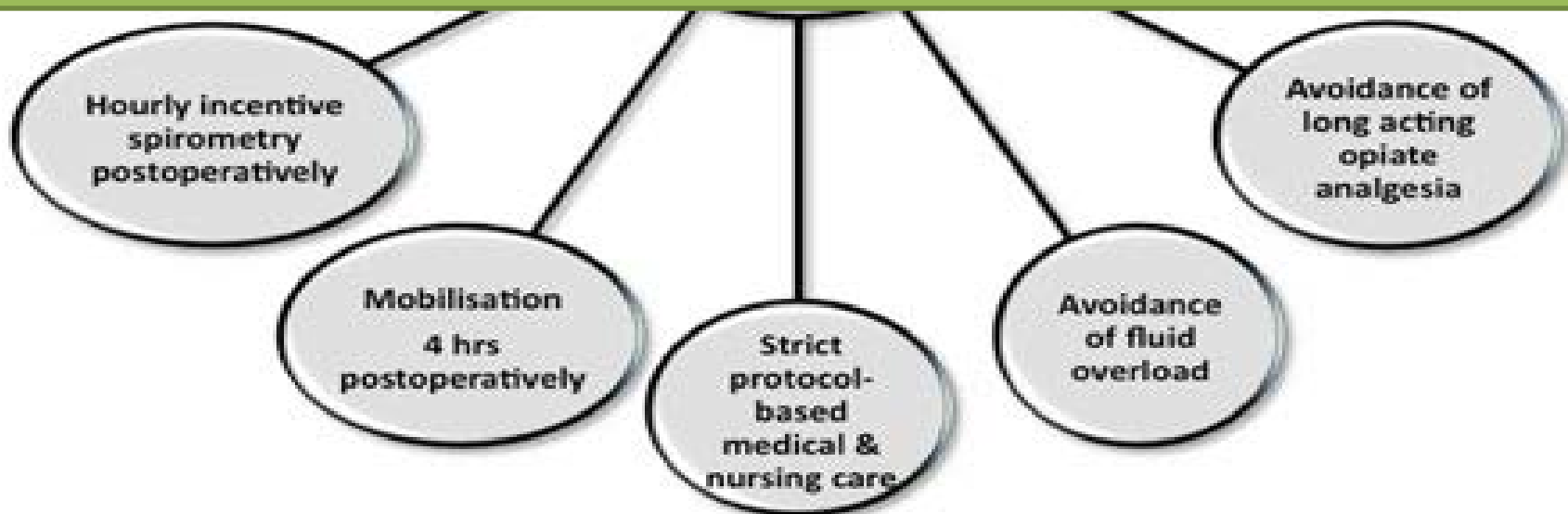
Darin Correll, MD,*† and Angela Bader, MD, MPH*†‡

Anesthesia & Analgesia, April 2017





One Practical Approach



DANGER



THIS OBJECT DOES
NOT HAVE A BRAIN
WE SUGGEST YOU
USE YOUR OWN

Figure 3

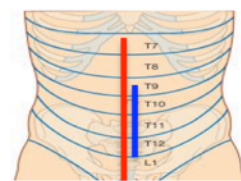
Colorectal ERAS Perioperative Components

Preoperative Timeline

GABA

APAP

Take on
ride to
hospital



TEC or **TAP**
depending
on incision

Intraoperative Components

Non-opioid Maximodal Analgesia



- Lidocaine infusion
- Ketamine infusion
- Ketorolac IV
- Run TEC if present

Postoperative Components

24h Lido
infusion



Non-opioid Maximodal Analgesia

Scheduled

GABA

APAP

NSAID



**Rescue PRN
Opioids**
#1 PO; #2 IV



McEvoy et al. *Perioperative Medicine* (2016) 5:3
DOI 10.1186/s13741-016-0028-1


Perioperative Medicine

RESEARCH

Open Access

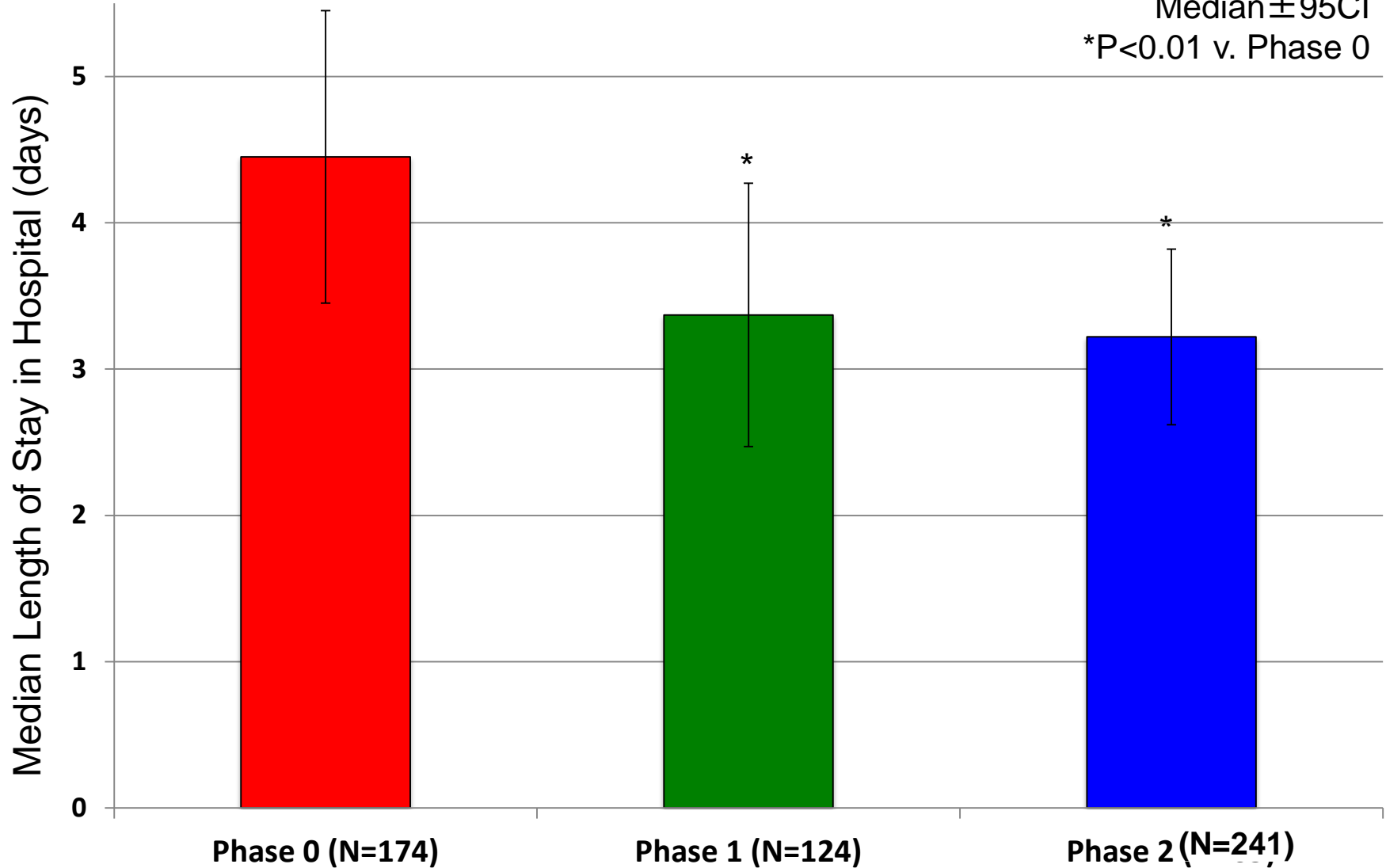


A perioperative consult service results in reduction in cost and length of stay for colorectal surgical patients: evidence from a healthcare redesign project

Matthew D. McEvoy^{1*} , Jonathan P. Wanderer^{1,2}, Adam B. King¹, Timothy M. Geiger³, Vikram Tiwari^{1,2}, Maxim Terekhov¹, Jesse M. Ehrenfeld^{1,2,4,5}, William R. Furman^{1,4}, Lorri A. Lee^{1,6} and Warren S. Sandberg^{1,2,4}

Effect of Implementing ERAS Pathway and Perioperative Consult Team on Length of Stay

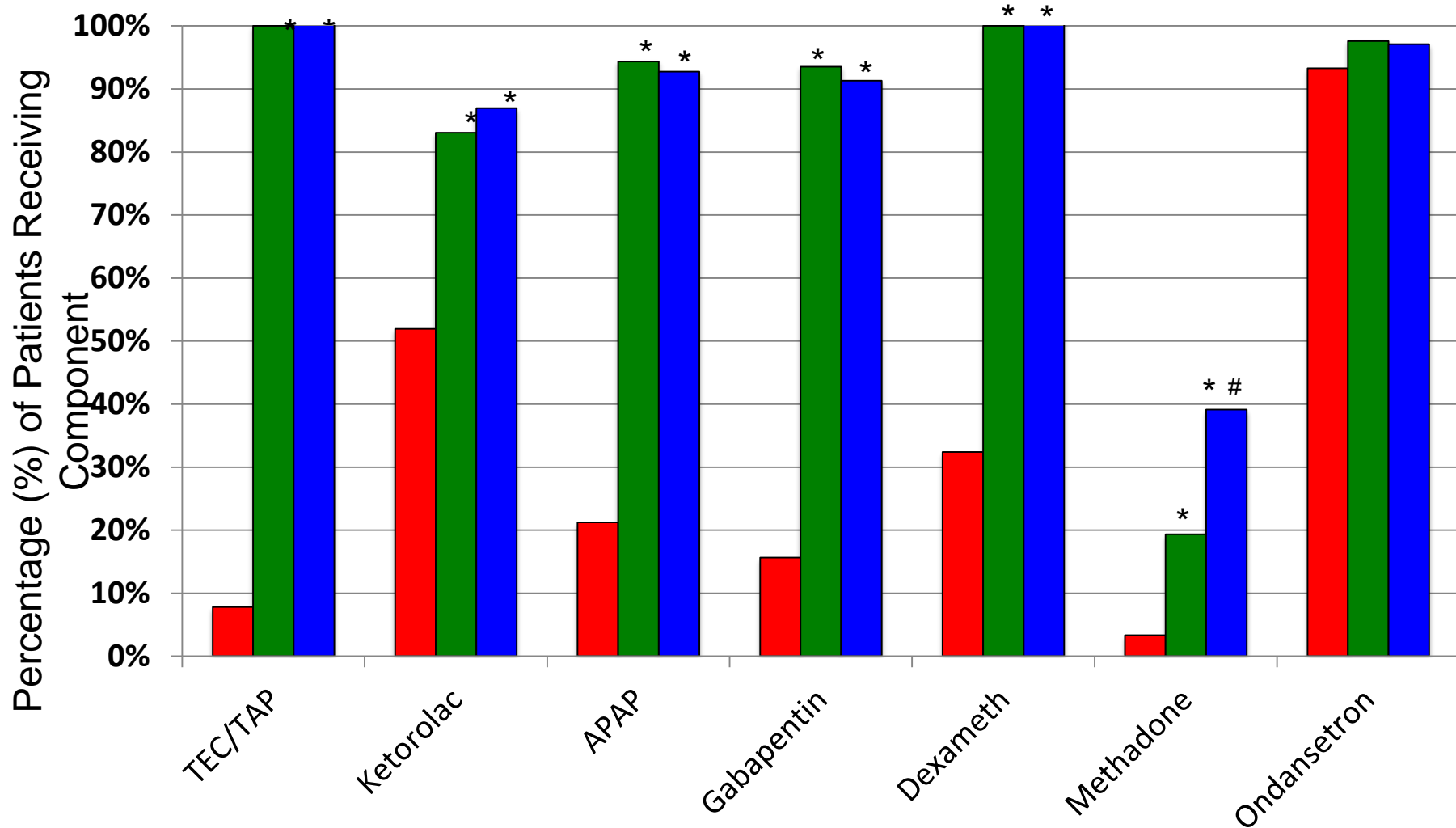
Data as
Median \pm 95CI
*P<0.01 v. Phase 0



Preop and Intraop ERAS Bundle Components for Multimodal Analgesia Before and After Implementation of the ERAS Pathway for Colorectal Patients

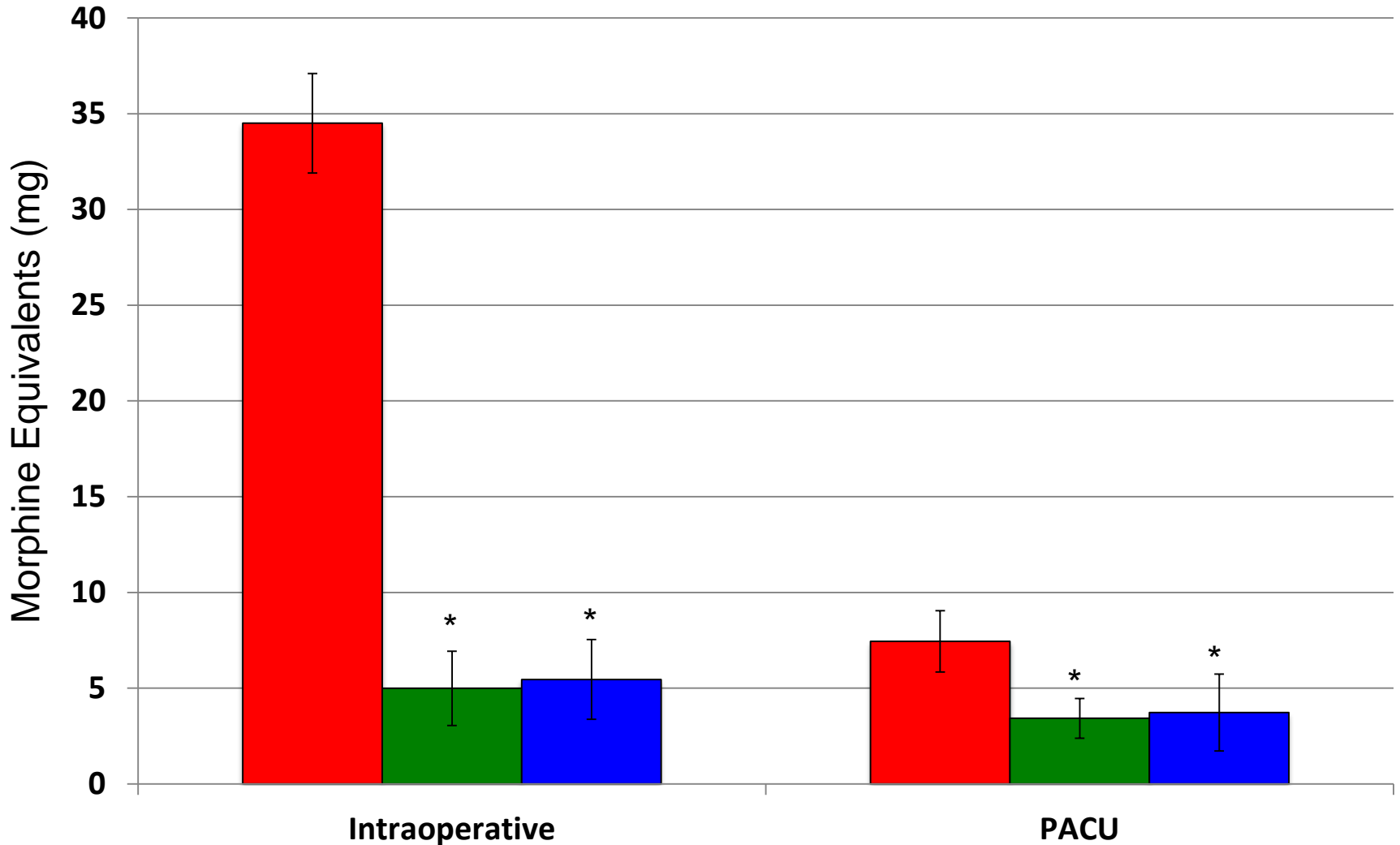
■ Phase 0 (N=179)
 ■ Phase 1 Post (N=24)
 ■ Phase 2 Post (N=241)

Data as % of group receiving bundle component; *P<0.01 v. Baseline, #P<0.01 v. Phase 1

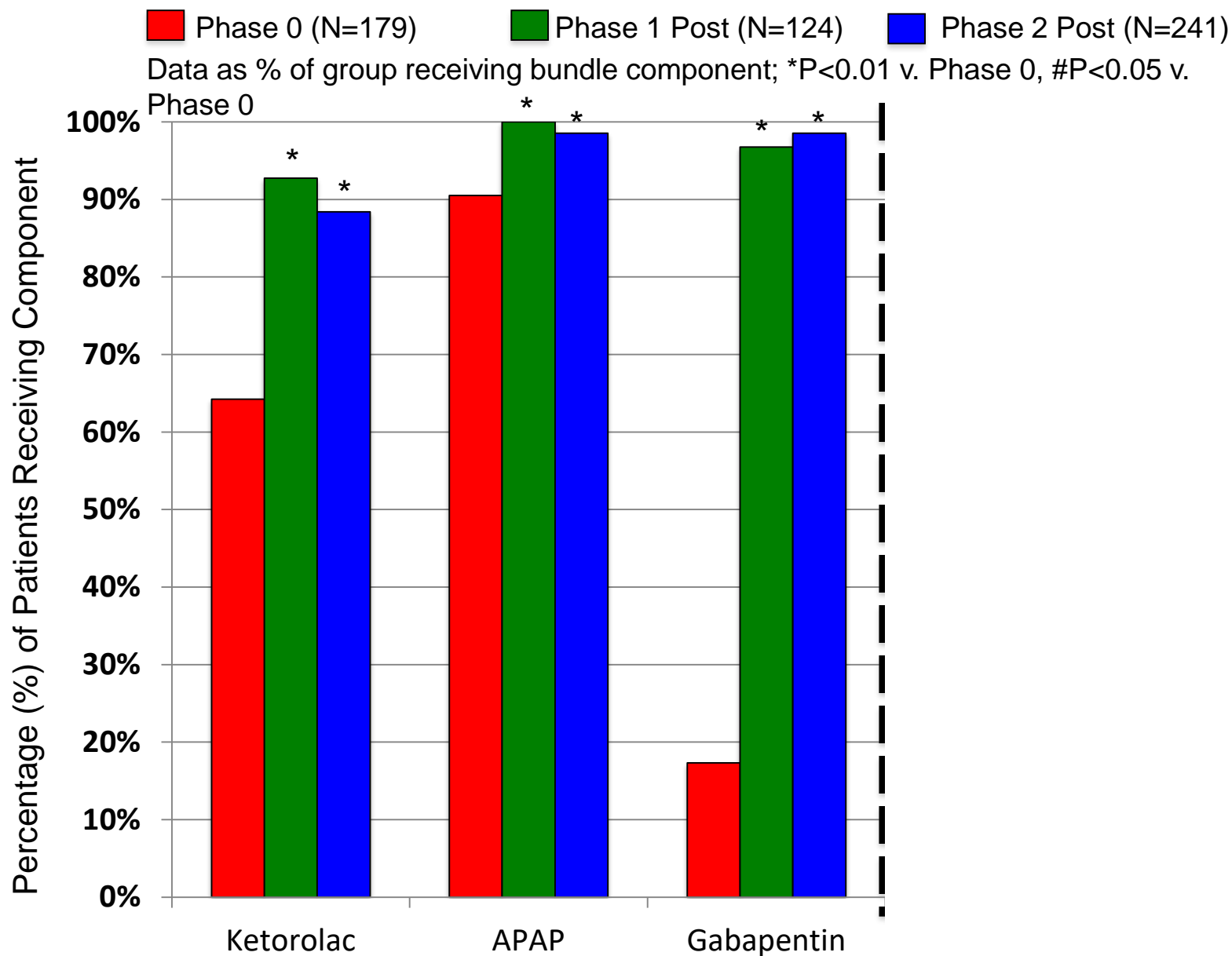


Intraoperative and PACU Opioid Use by Phase

Phase 0 (N=179) Phase 1 Post (N=179) Phase 2 Post (N=241)
Data as Mean \pm 95CI *P<0.0001 v. Phase 0



Use of Postoperative ERAS Bundle Components for Multimodal Analgesia Before and After Implementation of the ERAS Pathway for Colorectal Patients

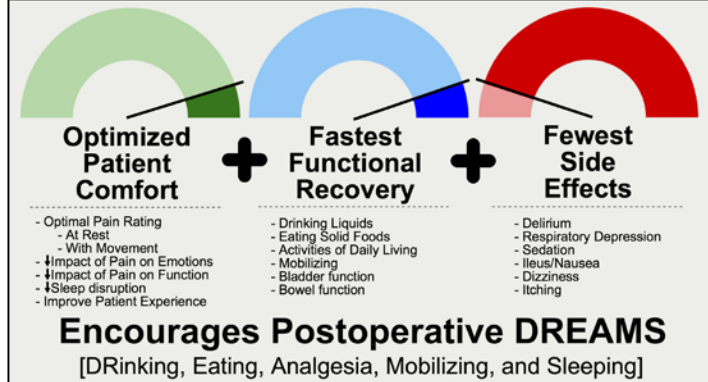


Perioperative Period	Components	Adjustments/Notes
Preoperative	Gabapentin: 300-600 mg PO >1 hour before OR time	<ul style="list-style-type: none"> - Reduce to 300 mg PO in patients >65y - Consider not giving or reducing to 100 mg PO in patients >75y - Consider dose reduction in patients with OSA
	Acetaminophen: 1000 mg PO >1 hour before OR time	<ul style="list-style-type: none"> - Reduce to 650 mg PO if <70kg - Don't use if h/o significant liver disease
	Bilateral TAP Blocks ± rectus sheath blocks OR thoracic epidural catheter	<ul style="list-style-type: none"> - TAP - ropiv 0.25% + dex 4mg (25-30mL/side) - Rectus sheath - ropiv 0.25% + dex 2 mg (10-12mL/side) [add rectus sheath blocks for if any portion of incision [e.g. periumbilical handport] or large ports above umbilicus] - Thoracic epidural used for midline incision extending from above T8 to below umbilicus [use during
Gabapentin: 300-600 mg PO >1 hour before OR time	<ul style="list-style-type: none"> - Reduce to 300 mg PO in patients >65y - Consider not giving or reducing to 100 mg PO in patients >75y - Consider dose reduction in OSA patients 	
	Ketorolac: 30 mg IV at fascia closure	<ul style="list-style-type: none"> - Reduce to 15 mg IV if >65y, CrCl<30, or patient weight <50kg. - Consider avoiding for h/o renal dysfunction or GI bleed
	Methadone: Consider methadone 10-20 mg IV	<ul style="list-style-type: none"> - If opioids required, consider methadone on emergence or in PACU (5 mg IV boluses) q5-10 min prior to using other opioids.
Ketorolac: 30mg IV q6h x 3 days	<ul style="list-style-type: none"> - Reduce to 15 mg IV Q6h in patients >65y, CrCl<30, or weight <50kg - Hold if evidence of acute kidney injury 	
Postoperative	Acetaminophen: 1000 mg PO Q8hr starting DOS until discharge	<ul style="list-style-type: none"> - Post-discharge: 500-1000mg PO Q8h x 3 days and then PRN
	Lidocaine	Continued from PACU or after thoracic epidural catheter removed Order for PACU to continue 24h: 1 mg/min IV if <70 kg; 1.5 mg/min IV if 70-100 kg; 2 mg/min IV >100 kg. Contraindications as above
	Ketorolac: 30mg IV q6h x 3 days	<ul style="list-style-type: none"> - Reduce to 15 mg IV Q6h in patients >65y, CrCl<30, or weight <50kg - Hold if evidence of acute kidney injury
	Opioids: as needed (PRN)	Example: Oxycodone 5mg PO Q4 PRN pain >4/10; consider opioid PCA or PRN bolus for breakthrough pain, but not a standard order. - Post-discharge: short course of short-acting opioid (e.g. oxycodone 5mg q6h PRN x 3days) unless chronic pain/opioid use concerns to address.
	Thoracic Epidural	If used, continue with local anesthetic (e.g. bupivacaine 0.1%) +/- opioid if needed for denser quality block (e.g. hydromorphone 10mcg/mL)

Take Home Points

- Analgesia is a key component in ERPs.
- Optimal analgesia addresses patient pain while restoring function and minimizing side effects.
- Minimizing opioid use is a cornerstone of practice within ERPs.
- Different surgical approaches need different strategies.
- Many different combinations are efficacious.
- Hospitals should adopt at least 2 or 3 analgesic strategies for ERPs to allow for individual patient variation, as well as a structured rescue plan.
- Audit of compliance of analgesia and restoration of function can lead to improvement of patient experience.

Optimal Analgesia After Surgery



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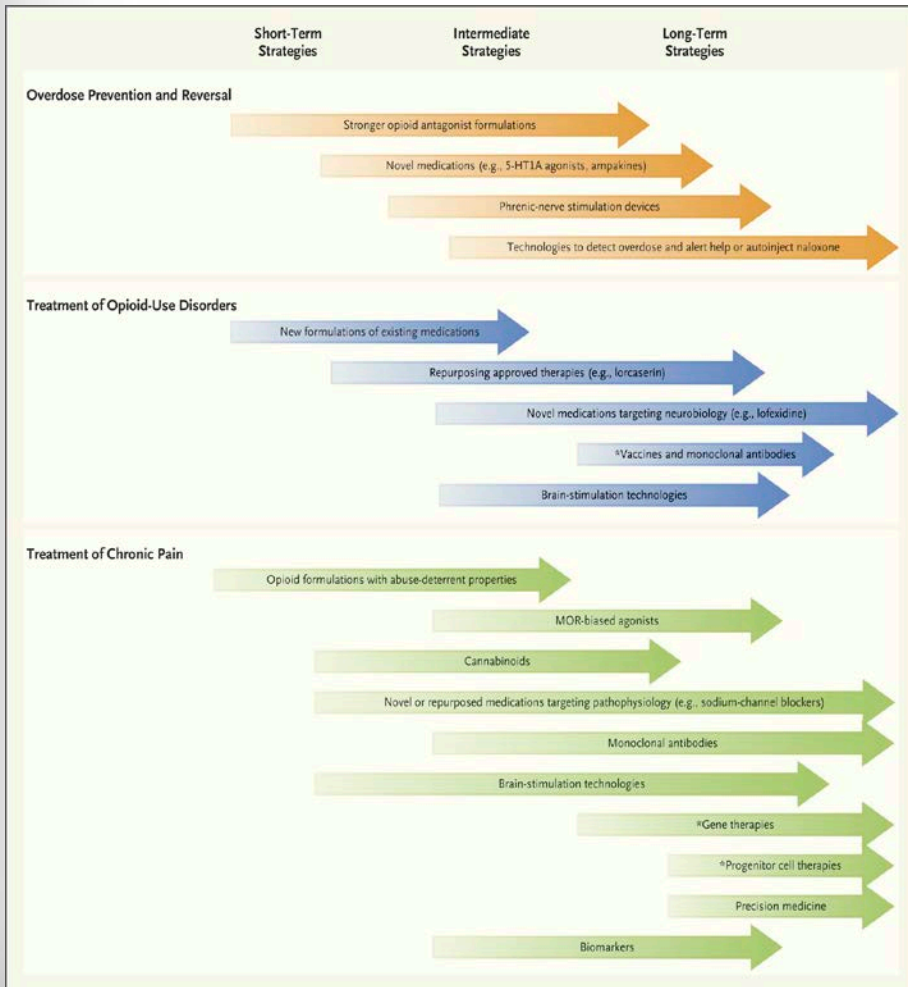
Leading Change in Perioperative Care



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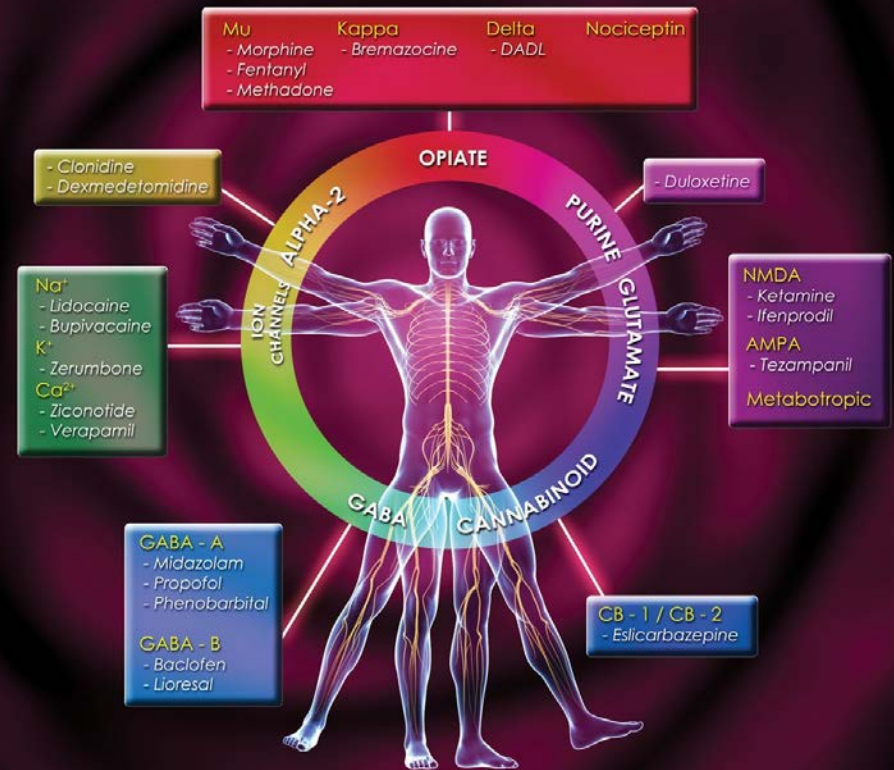
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The Latest Literature



Molecular Targets for Pain Management: More than Just Mu

While alternatives exist to mu opioid monotherapy, the quest to develop ideal alternatives and adjuvants continues. In this issue, Knezevic et al¹ review targeted pain therapeutics.

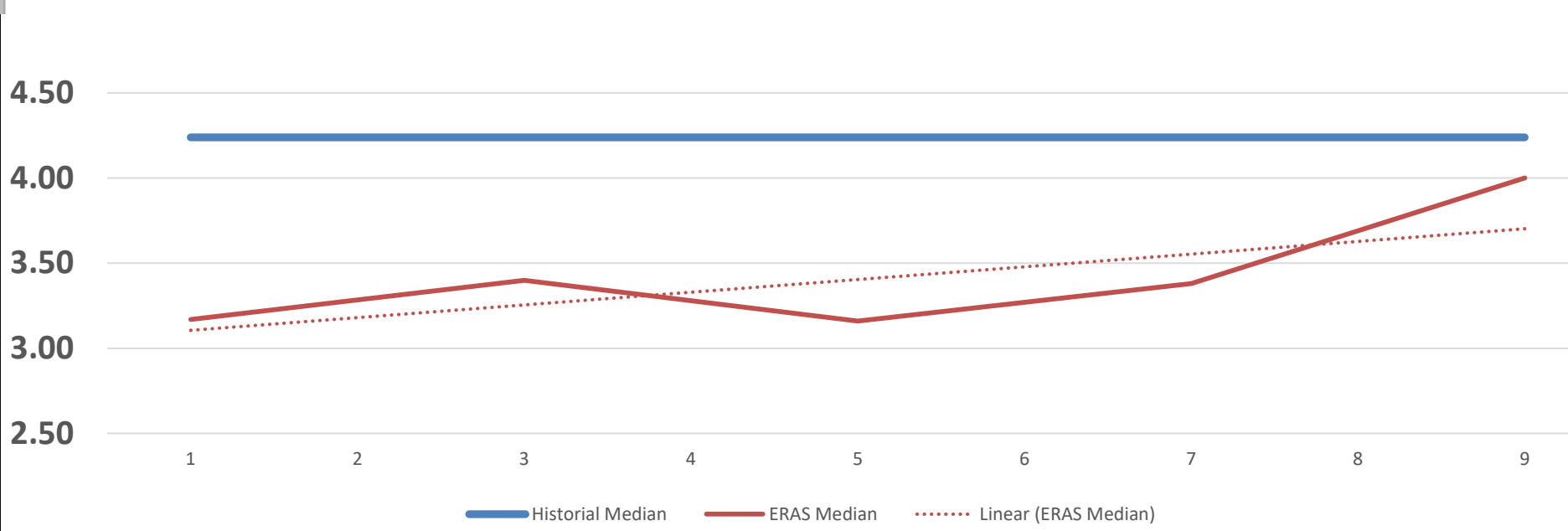
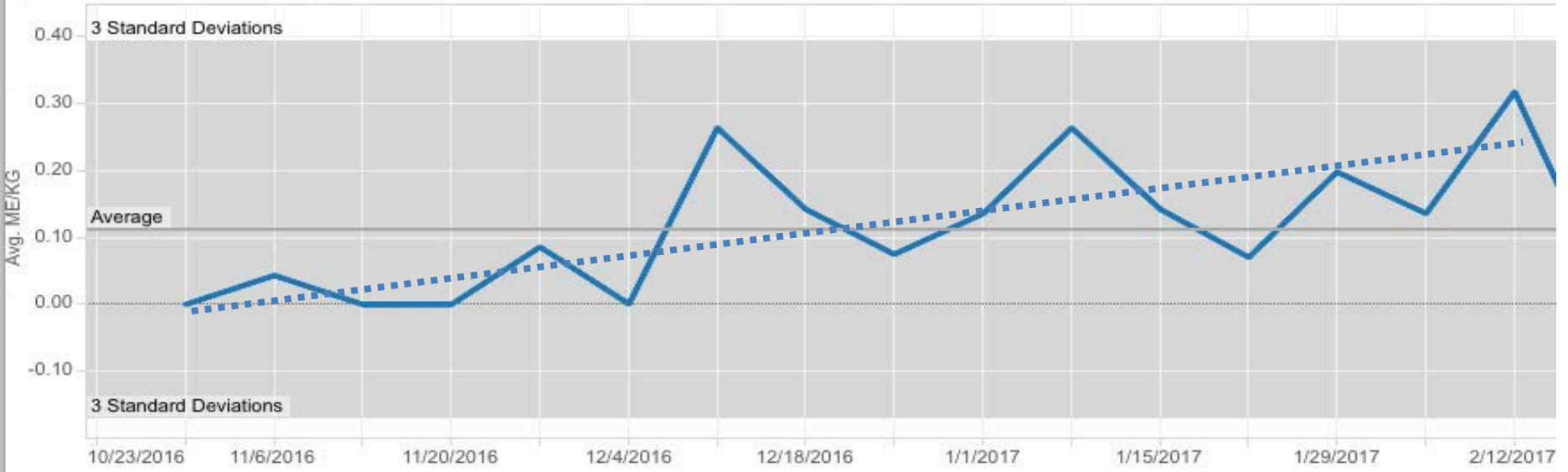


VUMC Opioid Use Over Time



Our Data: LOS and Intraop Opioid Use

Opioid Utilization - morphine



Reducing the Burden of Postoperative ileus: Evaluating and Implementing an Evidence-based Strategy

Jeffrey F. Barletta · Anthony J. Senagore

Influence of Intravenous Opioid Dose on Postoperative Ileus

Jeffrey F Barletta, Theodor Asgeirsson, and Anthony J Senagore

“It was discovered that a maximum daily dose that exceeds 2mg of IV hydromorphone equivalents was most predictive of POI ”