What We Can Do With Our Anesthesia

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Disclosures

- I have funding unrelated to this topic from Merck

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Why Does it Matter What We Do?

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State of Current crisis

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- 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[1]

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1. Stone AB, Wick EC, Wu CL, Grant MC. The US opioid crisis: a role for enhanced recovery after surgery. *Anesth Analg*. 2017;125(5):1803-5.

2. Rudd RA, Aleshire N, Zibbell JE, Gladden RM. Increases in drug and opioid overdose deaths—United States, 2000-2014. *MMWR Morb Mortal Wkly Rep*. 2016;64:1378-82.

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Zeroing on the Source of Illicit Opioids

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- >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.

Bicket MC, Long JJ, Pronovost PJ, Alexander GC, Wu CL. Prescription opioid analgesics commonly unused after surgery: a systematic review. *JAMA Surg*. 2017;152(11):1066-71.

Jones CM. Heroin use and heroin use risk behaviors among nonmedical users of prescription opioid pain relievers - United States, 2002-2004 and 2008-2010. *Drug Alcohol Depend*. 2013;132(1-2):95-100.

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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%

Brummett CM, et al. *JAMA Surg.* 2017;152(6):e170504

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- new persistent opioid use after surgery is common and should be treated as a surgical or post-anesthesia **complication**

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Economics of Opioid Use

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- A direct comparison of opioid vs. opioid sparing techniques examined 24 published studies (3,000 operative cases)

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Economics of Opioid Use

- A direct comparison of opioid vs. opioid sparing techniques examined 24 published studies (3,000 operative cases)
- Cost savings due to a decrease in not only length of stay but also the number of hospital personnel needed to monitor a patient on a typical opioid treatment plan.

Philip BK at al. The economic impact of opioids on postoperative pain management. *J Clin Anesth.* 2002;14:354-64.

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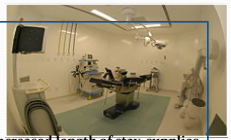
Economics of Opioid Use

Ec en

Side effects, perception of pain



Increased length of stay, supplies, staffing

Departure from best recognized practice

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Economics of Opioid Use

- A claims study with >37,000 patients from 26 hospitals

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Economics of Opioid Use

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Economics of Opioid Use

- A claims study with >37,000 patients from 26 hospitals
- 13.6% of patients had adverse drug event (ADE) related to opioid administration
- Accounted for a 47% higher hospital cost vs. those patients without an opioid related adverse event.

Kessler ER, Shah M. *Pharmacotherapy*. 2013;33(4):383-91.

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Opioid Use in Amb Surg

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Opioid Use in Amb Surg

- Data suggests that persistent opioid usage risk is the same in minor/outpatient procedures as it is in major procedures with about 6% of patients continuing to fill opioid prescriptions greater than 90 days after the surgery.

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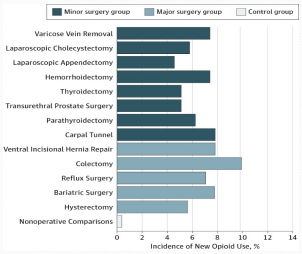
New Persistent Opioid Use After Minor and Major Surgical Procedures in US Adults

- The incidence of new persistent opioid use was similar between the 2 groups (minor surgery, 5.9% vs major surgery, 6.5%; odds ratio, 1.12; SE, 0.06; 95% CI, 1.01-1.24). By comparison, the incidence in the non-operative control group was only 0.4%.
- JAMA Surg. 2017 Jun 21;152(6)



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Why?

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- Possible reasons?

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  - 1. Too much intraoperative opioid use?

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  - 2. Lack of multimodal analgesia?

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Why?

- Possible reasons?
  - 1. Too much intraoperative opioid use?
  - 2. Lack of multimodal analgesia?
  - 3. Inadequate use of regional nerve blocks?

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Regional NB and Opioid Use

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Regional NB and Opioid Use

- Data consistently confirmed that a local anesthesia based regional technique will lower perioperative opioid consumption

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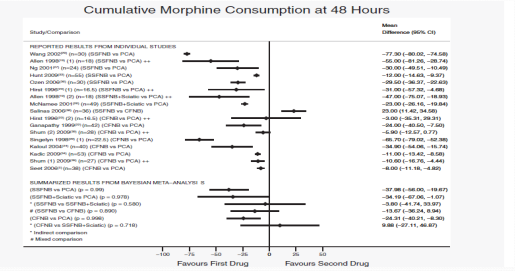
Femoral NB and Opioid Use



Anesthesiology 2010;113:1144-62

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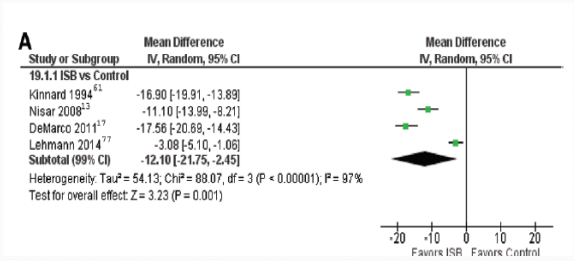
Interscalene NB and Opioid Use



Anesth Analg 2015;120:1114-29

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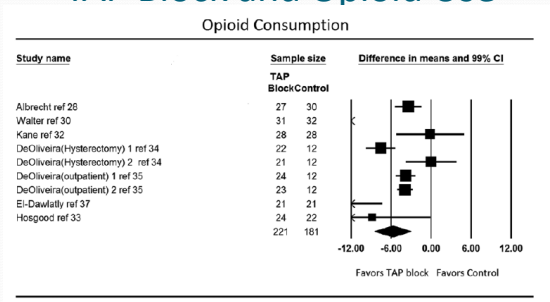
TAP Block and Opioid Use



Anesth Analg 2014;118:454-63

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Does ↓ intraoperative opioids ↓ cause ↓ addiction

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Does ↓ intraoperative opioids ↓ cause ↓ 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;125:1014-20

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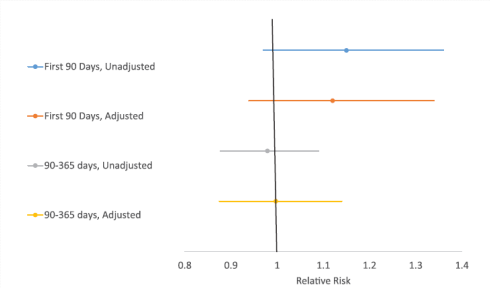
Study 1



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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 ≥10 RXs or ≥120 days' supply for an opioid in the 1st postsurgical yr)
- No association between nerve blockade and risk of postsurgical chronic opioid use

Anesth Analg 2017;125:999-1007

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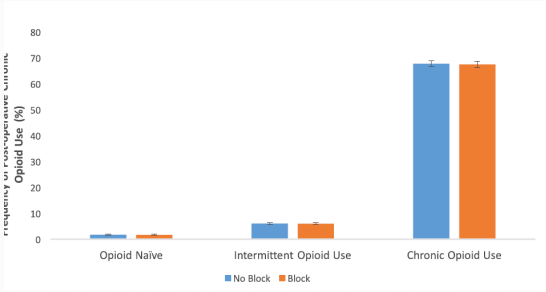
Study 2



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WHY does ↓ Intraoperative Opioid Usage NOT Cause ↓ Addiction

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WHY does ↓ Intraoperative Opioid Usage NOT Cause ↓ Addiction

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

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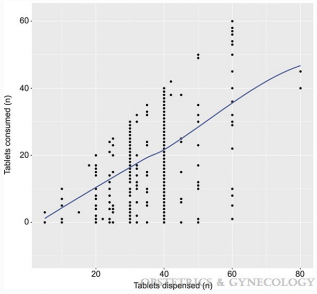
Patterns of Opioid Prescription and Use After C-Section Delivery

Plot of the relationship between the number of tablets of opioid analgesic dispensed after discharge from cesarean delivery and the number of tablets consumed



Obstetrics & Gynecology 130(1):29-35, July 2017.

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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 ↓ Addiction

Preoperative

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WHY does ↓ Intraoperative Opioid Usage NOT Cause ↓ Addiction

Preoperative → Operating Room

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WHY does ↓ Intraoperative Opioid Usage NOT Cause ↓ Addiction

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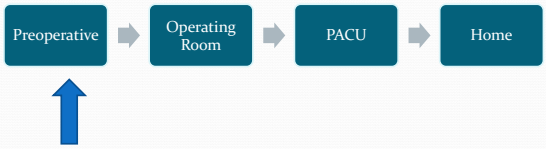

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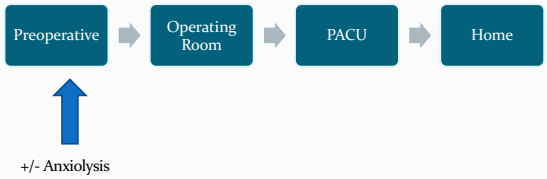

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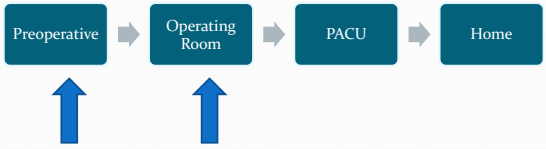

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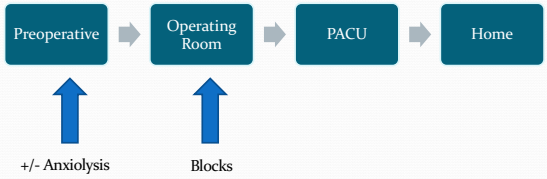

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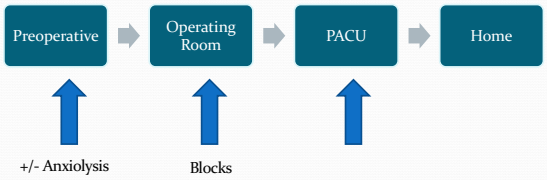

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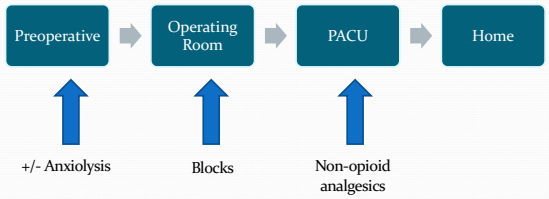

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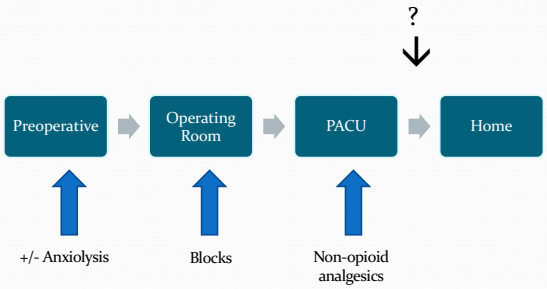

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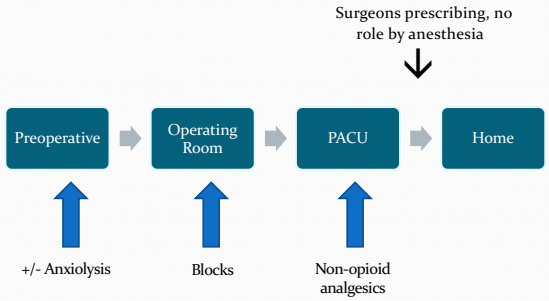

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Role of the Ambulatory Anesthesiologist

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What We Can Do With Our Anesthesia?

- Variability in opioid prescribing

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J Hand Surg Am. 2015;40:341–346

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

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- (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

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What We Can Do With Our Anesthesia?

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Signs of Potential Prescription Drug Misuse or Abuse
Obtaining prescriptions from multiple sources and locations
Use of illegal drugs or controlled substances not prescribed for the patient
Resistance to changing medications despite deterioration in function or significant side effects
Concurrent alcohol abuse / substance use disorder
Repeated episodes of: • requests for early refills of controlled substances • prescription loss or theft • increasing dose without prescriber instruction
Foraging prescriptions for opioids
Aggressive demands for opioids

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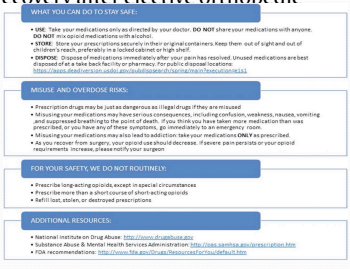
What We Can Do With Our Anesthesia?

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



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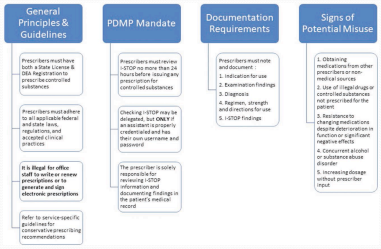
What We Can Do With Our Anesthesia?

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



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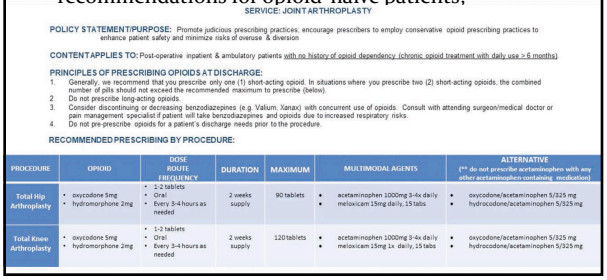
What We Can Do With Our Anesthesia?

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



SERVICE: JOINT ARTHROPLASTY

POLICY STATEMENT/PURPOSE: Promote judicious prescribing practices; encourage prescribers to employ conservative opioid prescribing practices to enhance patient safety and minimize risks of overuse & diversion

CONTENT APPLIES TO: Post-operative inpatient & ambulatory patients with no history of opioid dependency (chronic opioid treatment with daily use > 6 months)

PRINCIPLES OF PRESCRIBING OPIOIDS AT DISCHARGE:

1. Generally, we recommend that you prescribe only one (1) short-acting opioid. In situations where you prescribe two (2) short-acting opioids, the combined number of pills should not exceed the recommended maximum to prescribe (below).
2. Do not prescribe long-acting opioids.
3. Consider discontinuing or decreasing benzodiazepines (e.g. Valium ,Xanax) with concurrent use of opioids. Consult with attending surgeon/medical doctor or pain management specialist if patient will take benzodiazepines and opioids due to increased respiratory risks.
4. Do not pre-prescribe opioids for a patient's discharge needs prior to the procedure.

RECOMMENDED PRESCRIBING BY PROCEDURE:

PROCEDURE	OPIOID	DOSE ROUTE FREQUENCY	DURATION	MAXIMUM	MULTIMODAL AGENTS	ALTERNATIVE (** do not prescribe acetaminophen with any other acetaminophen-containing medication)
Total Hip Arthroplasty	• oxycodone 5mg • hydromorphone 2mg	• 1-2 tablets • Oral • Every 3-4 hours as needed	2 weeks supply	90 tablets	• acetaminophen 1000mg 3-4x daily • meloxicam 15mg daily, 15 tabs	• oxycodone/acetaminophen 5/325 mg • hydrocodone/acetaminophen 5/325 mg
Total Knee Arthroplasty	• oxycodone 5mg • hydromorphone 2mg	• 1-2 tablets • Oral • Every 3-4 hours as needed	2 weeks supply	120 tablets	• acetaminophen 1000mg 3-4x daily • meloxicam 15mg 1x daily, 15 tabs	• oxycodone/acetaminophen 5/325 mg • hydrocodone/acetaminophen 5/325 mg

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What We Can Do With Our Anesthesia?

Preoperative (Chronic Pain and/or Addiction Specialist)

Urine toxicology screening for compliance/concordance with prescribed medications
Risk factor assessment for opioid withdrawal and difficult-to-treat pain
Develop and communicate a coordinated treatment plan with entire care team
Careful opioid dose reduction prior to surgery
Patient education and expectation setting: including who will prescribe controlled substances after surgery and discharge from hospital

Day of Surgery & Intraoperative (Anesthesiologist, Pain Services)

Ensure sufficient pre- and intraoperative opioid to avoid acute withdrawal
Provide balanced multimodal analgesia, emphasizing adjuvant, opioid analgesics
Use regional analgesia and anesthesia techniques and local anesthetics wherever possible
Arrange post-operative follow-up with acute and/or chronic pain teams.

Postoperative (Pain Services, Transitional Care Teams)

Continue multimodal analgesic regimen, with scheduled opioid medications
Consider recovery in a monitored setting (patients at risk of sedation, respiratory depression or anticipated high opioid requirements or intravenous analgesic infusions, including ketamine).
Use oral opioids as soon as tolerated; Intravenous patient controlled analgesia (IVPCA) should be supervised by pain management specialists
Reinforce the postoperative pain management plan, established at the preoperative consultation: who will prescribe opioids and how to taper back to baseline doses after discharge

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Summary

- Regional decreases opioid usage perioperatively
- No reduction in opioid addiction and use
- Target now has to be the discharge meds
- Discharge meds need to be stratified by patient RF, and education of prescribers and patients must occur
- The ambulatory anesthesiologist must play central role in this process

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Thank you!

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