Opioid-Sparing Perioperative Care

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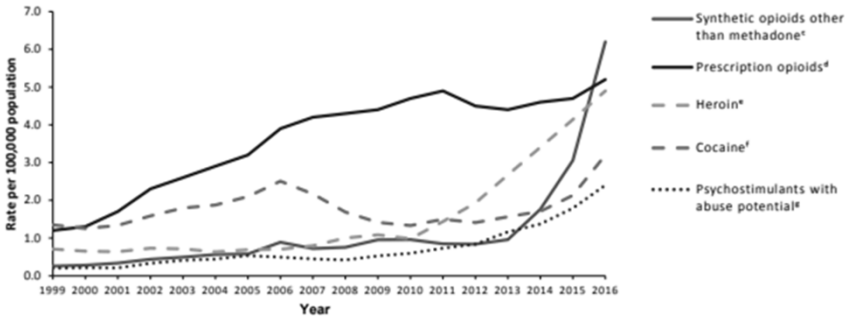
Learning goals

1. **Understand impact of surgery-related opioid use**
2. **Understand alternatives to opiate medication for surgical pain**
3. **Case Reports describing multimodal analgesia**
4. **Review resources to guide pain management and the patient- perioperative physician relationship**

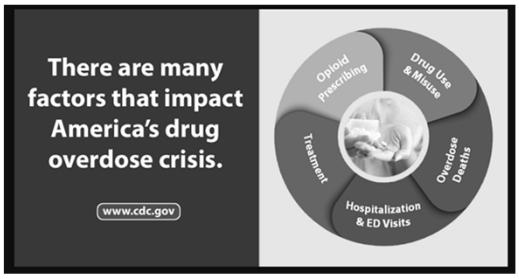
Impact of opioid abuse

Age-adjusted rates of drug overdose deaths by drug or drug class and year (USA 1999-2016)



CDC Annual Surveillance Report of Drug-related Risks and Outcomes (2018)
www.cdc.gov

Impact of opioid abuse



www.cdc.gov

Impact of surgery-related opioid use

Procedure	Average opiate pills prescribed for postop pain	Newly-persistent users (%, >6 months use)
Hysterectomy	45	7.5
Hernia	63	7.2
Colectomy	65	17.6
Rotator cuff	95	10.2
Hip replacement	119	9.9
Knee replacement	130	16.7
Sleeve gastrectomy	194	8.5

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*****Physician behavior (historical prescribing patterns) dictate post-op opiate prescriptions more than patient needs/behavior! Brandal et al. 2017**

Impact of surgery-related opioid use

Surgery-related overprescribing results in >3 billion un-used pills available for diversion and misuse

A 10% ↓ in post-surgery opiate prescribing:

could ↓ patients that become persistent users by 300K

save more than $800 million in drug costs alone

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Impact of surgery-related opioid use

Minimizing opiates in the perioperative period:

- ↓ sedation
- ↓ respiratory depression
- ↓ nausea/vomiting
- ↓ ileus/constipation
- ↓ pruritis
- ↓ urinary retention
- ↓ chronic pain syndromes
- ↓ risk for opiate misuse disorders

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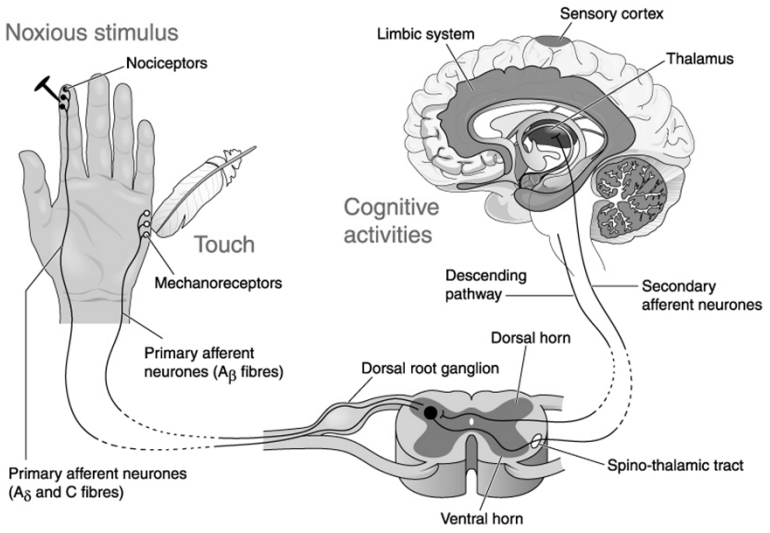
Alternatives to opiate medication for surgical pain



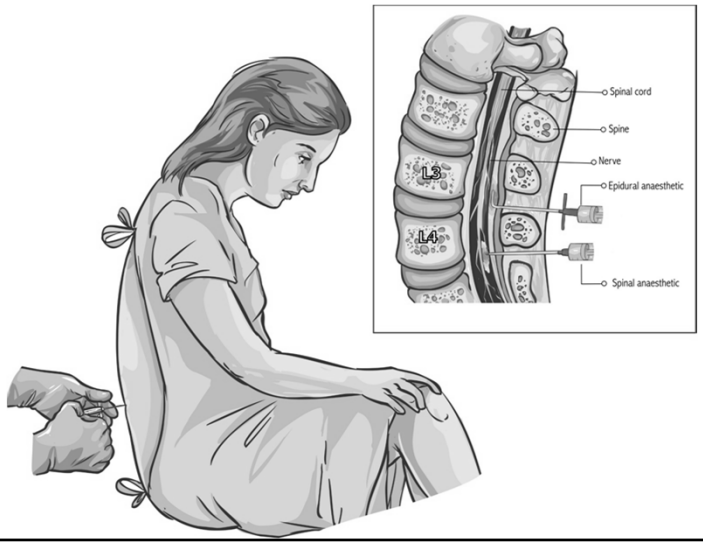
Alternatives to opiate medication for surgical pain

1. **Medications:**
   - **Local anesthetic (IV, infiltration)**
   - **NSAIDs, COX-2 ∅, Acetaminophen**
   - **Anti-convulsants**
   - **Anti-depressants**
   - **Anti-spasmotics**
   - **NMDA-receptor ∅**
   - **α-2 receptor +**
   - **Sympatholytics**

Alternatives to opiate medication for surgical pain

2. Regional anesthesia
   - Nerve blocks (single shot, continuous)
   - Neuraxial (continuous epidural, spinal)
   - Field block, Infiltration

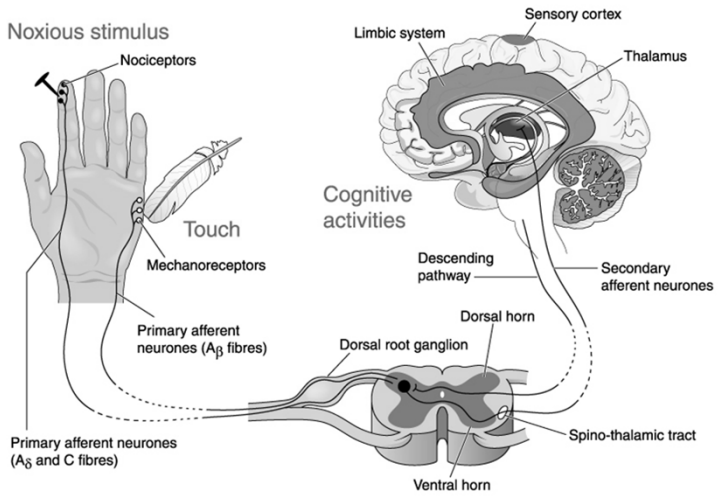
Alternatives to opiate medication for surgical pain



Alternatives to opiate medication for surgical pain

3. Complimentary
   - Heat/Ice
   - Meditation
   - Massage
   - Acupuncture
   - TENS

Alternatives to opiate medication for surgical pain



Alternatives to opiate medication for surgical pain

Enhanced Recovery After Surgery (ERAS)

Evidence-based multimodal perioperative pain management guidelines

AMERICAN SOCIETY FOR ENHANCED RECOVERY

aserhq.org

erassociety.org

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Case #1

45 year old female presents for bilateral mastectomy and flap reconstruction for breast cancer

She is otherwise healthy, and takes ibuprofen occasionally for headaches

Case #1

Pre-operative analgesia

- **Gabapentin (900 mg PO)**
- **Acetaminophen (975 mg PO)**

Case #1

Intra-operative/PACU multimodal analgesia

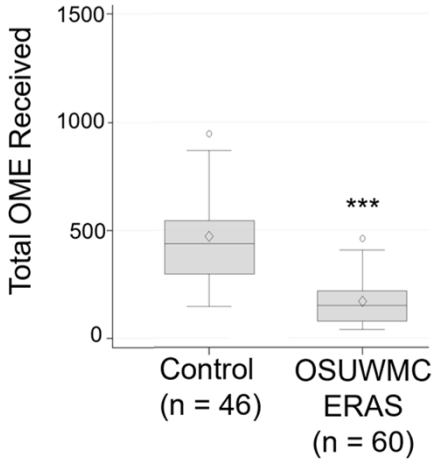
- Ketamine (0.25 mg/kg/hour IV)
- Avoid hydromorphone
- Give < 2-4 mcg/kg fentanyl IV for entire surgery
- On-Q catheter and pump with local anesthetic placed for incisional pain
- Ketoroloc (15 mg – 30 mg IV)

Case #1

Post-operative multimodal analgesia

- Scheduled ibuprofen (800 mg PO TID x 6 doses)
- Scheduled PO acetaminophen (650 mg PO TID x 6 doses)
- Scheduled gabapentin (100 mg TID for 2 weeks)
- Continued On-Q pump (24-48 hours)
- Oxycodone 5-10 mg Q4 hours PRN
- Meditation

Impact of multimodal analgesia on opiate use after breast reconstruction



	Average Total OME
Control	469
OSUWMC ERAS	168

THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

OSU IRB 2017C0017

Case #2

75 year old male presents for open total colectomy for diverticulitis

He has a history of HTN, afib, IDDM, 25 pack-years of smoking and OSA (compliant with CPAP)

He takes HCTZ, coumadin, insulin and a statin

Case #2

Pre-operative analgesia

- Gabapentin (300 mg PO)
- Acetaminophen (975 mg PO)
- Low-thoracic epidural (local anesthetic and opiate) placed pre-operatively
  (other options include intrathecal morphine, transversus abdominis plane block, or IV lidocaine infusion 2 mg/kg/hour)

Case #2

Intra-operative/PACU multimodal analgesia

- Ketamine (0.25 mg/kg/hour IV)
- Avoid hydromorphone
- Give < 2-4 mcg/kg fentanyl IV for entire surgery
- Continuous epidural infusion (LA + opiate)

Case #2

Post-operative multimodal analgesia

- **Scheduled ibuprofen (800 mg PO TID x 6 doses)**
- **Scheduled acetaminophen (650 mg PO TID x 6 doses)**
- **Scheduled gabapentin (100 mg TID until discharge)**
- **Continued epidural infusion (<72 hours)**
- **Oxycodone 5-10 mg Q4 hours PRN**
- **PCA with IV opiates if pain uncontrolled**

Case #3

60 year old female presents for TKA

She has a history of chronic pain and CAD (s/p stents x2 placed 5 years ago)

She takes oxycodone (60 daily oral morphine equivalents), and daily aspirin

Sample management strategy for arthroplasty patients on pre-operative opiates

(Adapted from Devin, CJ 2014)

Low OME (1-39 mg/d)	Medium OME (40-79 mg/d)	High OME (80 mg/d or above)
Referral to PCP Educate patient on implications of opiate intake and postoperative recovery Set goal of gradually eliminating opiate intake prior to surgery date Clearly delineate amount of postop opiates to be provided Reinforce weaning during preoperative visits **GOAL: OFF opioids prior to surgery**	**Referral to PCP** Educate patient on implications of opiate intake and postoperative recovery Set goal of 10-20% reduction per week prior to surgery. Discuss pain-related beliefs and provide non-opioid alternatives as appropriate Clearly delineate amount of postop opiates to be provided Reinforce target opioid intake goal **GOAL: < 40 OMEs prior to surgery**	**Referral to Anesthesiology Chronic Pain** Educate patient on implications of opiate intake and postoperative recovery Set goal of 10-20% reduction per week prior to surgery. Screen patients for depression and anxiety and refer for cognitive behavioral evaluation as needed Offer addiction counseling preop and ensure follow-up postoperatively. Encourage postoperative opiate independence **GOAL: < 80 OMEs prior to surgery**

Case #3

Pre-operative analgesia

- **Gabapentin (900 mg PO)**
- **Acetaminophen 1 g IV**
- **Celecoxib (400 mg PO)**
- **Oxycodone (10 mg PO)**
- **Femoral nerve or Adductor-canal block with catheter placed pre-operatively (local anesthetic)**

Case #3

Intra-operative/PACU multimodal analgesia

- **Continuous nerve block catheter infusion (local anesthetic)**
- **Ketorolac (15-30 mg IV)**
- **Hydromorphone boluses (0.75 mg = 10 mg oxycodone)**

Case #3

Post-operative multimodal analgesia

- **Scheduled ibuprofen (800 mg PO TID x 6 doses)**
- **Scheduled acetaminophen IV (1 g Q6 hours x 4 doses)**
- **Gabapentin (900 mg PO once 24 hours postop)**
- **Celecoxib (400 mg PO once 12 hours postop)**
- **Continue continuous nerve catheter (24-48 hours)**
- **Ice**
- **Hydromorphone and oxycodone PRN**

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Resources to guide pain management

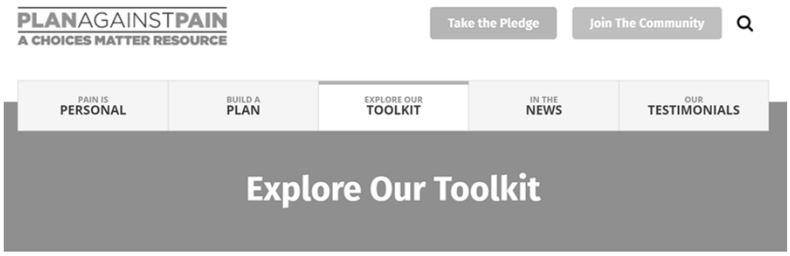
PROSPECT
(Procedure Specific Postoperative Pain Management Workgroup)

American Pain Society

American Society of Regional Anesthesia and Pain Medicine

American Society of Anesthesiologists'
Committee on Regional Anesthesia Recommendations

Resources to guide the patient-perioperative physician relationship



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