



Role of All Practice Providers Involved in Pain Management in the Acute-Care Setting

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Disclosures

- **Consultant/Independent Contractor:** Novartis
- **Honoraria:** Amgen, Lilly
- Any unlabeled/unapproved uses of drugs or products referenced will be disclosed



Learning Objectives

- Discuss importance of managing acute pain
- Identify the treatment options unique to the acute care setting
- Evaluate the use of pharmaceuticals & multimodal analgesia



Pain Classification

Acute	<ul style="list-style-type: none"> ▪ Short duration ▪ Recent onset ▪ Transient ▪ Protective ▪ Known causality
Chronic/Persistent	<ul style="list-style-type: none"> ▪ Duration > 3 months ▪ Persistent or recurrent ▪ Outlasts protective benefit ▪ Unknown causality ▪ Associated with comorbidities
Breakthrough/Flare	<ul style="list-style-type: none"> ▪ Unpredictable ▪ Fear association ▪ Multicausality

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TYPES OF PAIN

NOICEPTIVE /
INFLAMMATORY

NOCIPLASTIC

NEUROPATHI
C

MIXED TYPES
(NOICEPTIVE /
NEUROPATHIC)

Nociplastic:

- A new category established in 2018, International Association for Study of Pain (IASP).
- Pain that arises from altered nociception despite no clear evidence of actual or threatened tissue damage or evidence of disease.
- Examples: Fibromyalgia, Complex regional pain disorder, non-specific low back pain, Irritable Bowel Syndrome.

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Pain Characteristics

Nociceptive Pain	<ul style="list-style-type: none"> ▪ Normal processing of stimuli that damages normal tissues ▪ Responds to opioids
➢ Somatic	<ul style="list-style-type: none"> ▪ Pain arises from bone, joint, muscle, skin, or connective tissue ▪ Aching, throbbing ▪ Localized
➢ Visceral	<ul style="list-style-type: none"> ▪ Organs ▪ Deep ▪ Not well localized

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Pain Characteristics

Neuropathic Pain	<ul style="list-style-type: none"> Abnormal processing of sensory input by PNS or CNS Less responsive to opioids
➤ Centrally generated	<ul style="list-style-type: none"> Deafferent pain: injury to PNS or CNS (phantom limb) Sympathetically maintained pain: dysregulation of autonomic nervous system (CRPS)
➤ Peripherally generated	<ul style="list-style-type: none"> Polyneuropathies (diabetic neuropathy) Mononeuropathies (nerve root compression)

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JCAHO Pain Standards 2001

- Pain is considered the "fifth" vital sign
- Awareness: the right of patients to appropriate assessment and management of their pain
- Assess pain in all patients
- Facilitates regular reassessment and follow up
- Educate providers in pain assessment and management
- Determine competency in pain assessment and management during the orientation of all new clinical staff
- Establish policies and procedures that support appropriate prescription or ordering pain medications

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Hospital Consumer Assessment of Healthcare Providers & Systems (HCAHPS)

- **First:** Comparable data on the patient's perspective on care that allows objective and meaningful comparisons between hospitals.
- **Second:** Designed to create incentives for hospitals to improve their quality of care.
- **Third:** Enhance public accountability in health care by increasing the transparency of the quality of hospital care provided.

http://www.americangovernance.com/americangovernance/webinar/policy/bd/final_rule_vbo_regulatory_advisory.pdf

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APS Patient Outcomes Questionnaire (APS-POQ-R)

- American Pain Society Quality of Care Task Force
- Multidimension patient-related-outcomes instrument
 - Pain intensity
 - Pain interference
 - Anxiety, depression
 - Sleep
 - Patient impression of change
- Facilitates data collection
- Measure the quality of pain care

Arch Intern Med 2005; 135(14): 1574-80.

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JCAHO Pain Standards: January 1, 2018

- Identify pain assessment and pain management, including safe opioid prescribing, as an organizational priority .
- Actively involve the organized medical staff in leadership roles in organization performance improvement activities to improve quality of care, treatment, services & patient safety.
- Assess and manage the patient's pain and minimize the risks associated with treatment.
- Education of staff and providers.

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JCAHO Pain Standards: January 1, 2018

Highlights:

- Nonpharmacologic pain treatment modalities.
- Provides staff and educational resources.
- Identifies opioid treatment programs that can be used for patient referrals.
- Facilitates practitioner and pharmacist access to the Prescription Drug Monitoring Program databases.
- Pain management strategies reflect a patient-centered approach.



JCAHO Pain Standards: January 1, 2018

Educates the patient & family on discharge plans related to pain management including the following:

- ✓ Pain management plan of care
- ✓ Side effects of pain management treatment
- ✓ Pain management plan of care, post-discharge
- ✓ Safe use, storage, & disposal of opioids when prescribed

https://www.jointcommission.org/standards_information/r3_report.aspx



Surgical Pain



- > 48 million inpatient surgeries
- > 48.3 million outpatient surgeries
- > >80% report postoperative pain, fewer than half of reported adequate pain relief
- > After effects of the opioid crisis

(National Center for Health Statistics, 2009)
(<https://www.cdc.gov/nchs/data/nhsr/nhsr102.pdf>, 2010)
(Apfelbaum, 2003)

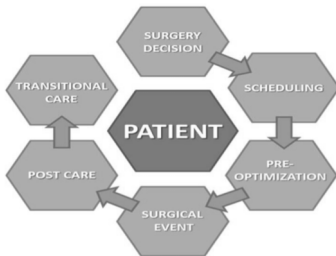


Perioperative Surgical Home (PSH)

- Care model applying a standardized multidisciplinary approach to patient care using evidence-based medicine to modify & improve protocols
- Spans the entire experience from decision of the need for any invasive procedure—acute care period—to discharge from the acute-care facility and beyond
- Aim is to provide greater integration and alignment of care, to deliver an enhanced surgical experience, recovery, and outcomes
- Improve outcomes and reduce cost



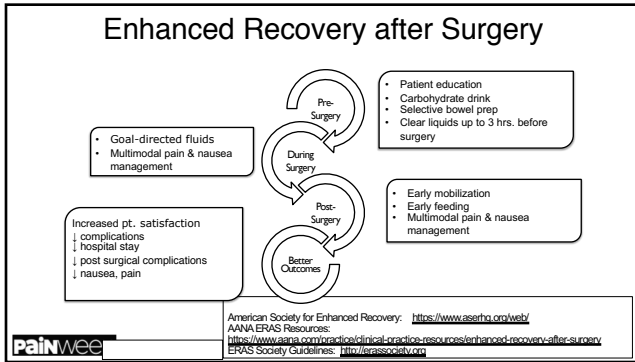
Perioperative Surgical Home (PSH)



Enhanced Recovery after Surgery (ERAS)

- ERAS → patient-centered, evidence-based, interdisciplinary team developed pathways for a surgical specialty & facility culture to reduce the patient's surgical stress response → optimize their physiologic function → facilitate recovery.
 - Originally developed for colorectal surgery in Denmark in the late 1990s, ERAS pathways have been implemented successfully in many other specialties, including pancreatic, gynecologic, cardiovascular, thoracic, pediatric, orthopedic, and urologic surgery.
 - ERAS pathways contribute to positive patient outcomes
 - reduced postoperative complications
 - accelerated recovery
 - early discharge
- without increasing costs





Postoperative Opioid Use Using ERAS Guidelines for Benign Gynecologic Procedures (Movilla, et al., 2019)

N = 241 procedures → opioids prescribed 77.2%

Telephone survey completed by 144 pts, 7 days after surgery → 64.7% of all opioids prescribed were unused.

Physician adherence to the ERAS post-op opioid prescribing occurred only 62.2% of the time.

- ERAS-nonadherent group prescribed statistically significantly more opioids per patient than the ERAS-adherent.
- ERAS-nonadherent group contributed 63.5% of the total unused opioids by the end of the study period despite only making up 39.6% of the completed patient surveys.

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Postoperative Opioid Use Using ERAS Guidelines for Benign Gynecologic Procedures (Movilla, et al., 2019)

Conclusions:

- Patients require significantly less opioids after benign gynecologic surgery than they are being prescribed.
- Physician adherence to the ERAS postoperative opioid recommendations is suboptimal and contributes significantly to the quantity of unused opioids after surgery for benign gynecologic indications.
- Almost two thirds of all opioids prescribed are not used by 1 week after benign gynecologic surgery.

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Consequences of the opioid crisis on post-op pain management

*Opioid-Prescribing Guidelines for Common Surgical Procedures: An Expert Panel Consensus
J Am Coll Surg. 2018 October ; 227(4): 411–418.*

- One in 16 surgical patients prescribed opioids becomes a long-term user.
- Overprescribing opioids after surgery is common, and the lack of multidisciplinary procedure specific guidelines contributes to the wide variation in opioid prescribing practices.
- Multidisciplinary expert panel of 6 relevant stakeholder groups (surgeons, pain specialists, outpatient surgical nurse practitioners, surgical residents, patients, and pharmacists) to develop consensus ranges for outpatient opioid prescribing at the time of discharge after 20 common procedures in 8 surgical specialties.
- Overall, patients who had the procedures voted for lower opioid amounts than surgeons who performed them.



Johns Hopkins Expert Panel → Ideal Range of Oxycodone 5mg Tablets to → Opioid-Naive Patients on Discharge after Undergoing Select Procedures

Procedure	Range (minimum-maximum)
General surgery	
Laparoscopic cholecystectomy (procedure 1)*	0–10
Laparoscopic inguinal hernia repair, unilateral (procedure 2)*	0–15
Open inguinal hernia repair, unilateral (procedure 3)*	0–10
Open umbilical hernia repair	0–15
Breast surgery	
Partial mastectomy without sentinel lymph node biopsy (procedure 4)*	0–10
Partial mastectomy with sentinel lymph node biopsy (procedure 5)*	0–15
Thoracic surgery	
Video-assisted thoracoscopic wedge resection	0–20
Orthopaedic surgery	
Arthroscopic partial meniscectomy	0–10
Arthroscopic ACL/PCL repair	0–20
Arthroscopic rotator cuff repair	0–20
ORIF of the ankle	0–20
Gynecologic surgery and obstetric delivery	
Open hysterectomy	0–20
Minimally invasive hysterectomy	0–10
Uncomplicated cesarean delivery	0–10
Uncomplicated vaginal delivery	0
Urologic surgery	
Robotic retroperic prostatectomy	0–10
Otolaryngology	
Thyroidectomy, partial or total	0–15
Cochlear implant	0
Cardiac surgery	
Coronary artery bypass grafting	0–20
Cardiac catheterization	0

Other Acute Hospital Pain

- 40% of over 100 million ED visits annually for acute pain. (Pletcher et al. 2008)
- Pain was the most commonly reported reason for unanticipated admission or readmission. (Coley et al. 2002)
- Pain continues to be a prevalent problem for medical inpatients. (Helfand et al. 2009)
- Critical Care Units. (Azzam et al. 2013; Kohler et al. 2016)
- Oncology, Transplant, Psychiatry, Infusion Centers ...



Deleterious Effects...

- **Cardio:** HR, PVR, MAP \geq MI, arrhythmia
- **Pulmonary:** Splinting, cough, shallow breathing \rightarrow pneumonia
- **GI:** reduced motility \geq ileus, nausea/vomiting
- **Renal:** oliguria, urinary retention
- **Coagulation:** PLT aggregation, venostasis \geq DVT/PE
- **Immune:** impaired \geq infection
- **Muscle:** weakness, atrophy, fatigue
- **Psychological:** anxiety, fear, depression, satisfaction
- **IMPARED SLEEP**
- **Overall:** delayed recovery, slower return of function, reduced QOL, delayed discharge, increased cost, possible development of persistent pain

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Goals of Pain Management in Acute Care Setting

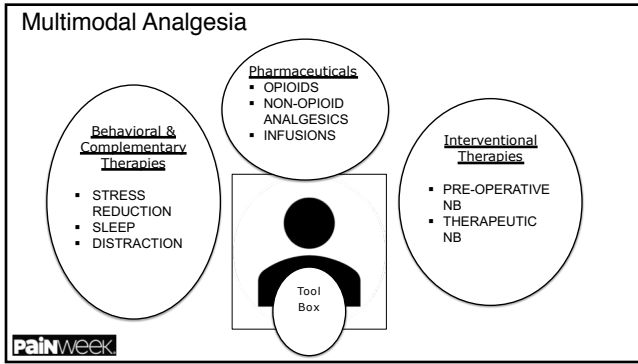
- Identify and address the cause of pain
- Treat acute pain aggressively; reduce incidence of chronic pain
- Maintain alertness and function; minimize SE
- Expedite discharge
- Excellent communication
- Improve outcomes
- Cost effective therapy
- Facilitate recovery/rehabilitation
- Eliminate subjective discomfort
 - Sensory and affective components of pain

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PRE-EMPTIVE ANALGESIA

- Effective pre-emptive analgesic
 - \downarrow nociceptor activation
 - \downarrow activity of pain neurotransmitters
 - \downarrow stress response
- Examples
 - local wound infiltration
 - regional anesthesia
 - pharmacotherapy & psychological preparation
- Studies show, patients receiving pre-emptive analgesia report lower pain scores and utilize less opioids.

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Multimodal Analgesia

Opioid basics:

- Partial mu agonists (buprenorphine; mcg versus mg)
- Opioids w/mixed mechanisms of action (weak mu agonist w/SNRI)
- Sustained release opioids (8, 10, 12, 24hr.)
- Immediate release opioids
- Oral, transdermal, IM, IV, epidural, intrathecal

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Multimodal Analgesia: PCA Basics

Why, what drug, what dose, how often, loading dose +/- basal?

- Morphine 0.5 mg q10 minutes
- Hydromorphone 0.2-0.4 mg q10 minutes; 0.4-0.6 mg
- Fentanyl 12.5-25 mcg q10 minutes

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Multimodal Analgesia

Non-opioid analgesics:

- Acetaminophen PO IV
- NSAIDs: celecoxib, ketorolac, ibuprofen
- Anticonvulsants: gabapentin, pregabalin, topiramate, oxcarbazepine
- Antidepressants (SNRI, TCA): duloxetine, desipramine, nortriptyline

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Multimodal Analgesia: Infusions

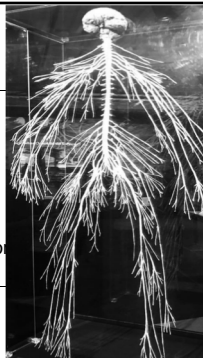
- IV lidocaine
 - Anti-inflammatory
 - Anti-hyperalgesic
 - Gastrointestinal pro-peristaltic
 - Sodium channel modulator (Eipe et al. 2016)
- IV ketamine (oral/IV)
- IV magnesium
- IV dihydroergotamine (DHE)

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Multimodal Analgesia

Regional Analgesia:

- Neuraxial anesthesia (epidural/intra-spinal)
- Peripheral neural blockade (upper extremity, lower extremity, trunk, abdo



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Inadequate pain relief occurs secondary to multiple factors

- > Insufficient knowledge of the care providers
- > In adequate patient preparation
- > Fear of medication side effects

Optimal management of postoperative pain requires an understanding of:

- > Pathophysiology of pain
- > Methods used for assessment of pain
- > Awareness of the various options available for pain control



General Principles: Pre-operatively

- History of poorly managed surgical pain
- On chronic opioid therapy
- High risk of surgical nerve damage/compromise (thoracotomy/amputation)
- History chronic pain
- Significant anxiety over postsurgical pain
- Other risk factors...



Risk Factors for Postoperative Pain

- Pain, moderate to severe, lasting more than 1 month
- Repeat surgery
- Catastrophizing, anxiety, depression
- Female gender, younger age (adults)
- Workers compensation
- Genetic predisposition
- Radiation therapy, neurotoxic chemotherapy

Adapted from Macintyre PE, Scott DA, Schug SA, et al. Acute pain management: scientific evidence (Systematic reviews and meta-analyses). 3rd edition. 2010



Incidence of and Risk Factors for Chronic Opioid Use Among Opioid-Naive Patients in the Postoperative Period

JAMA Intern Med. 2016;176(9):1286-1293. Eric Sun, MD, et al.

Retrospective analysis of administrative health claims → association between chronic opioid use & surgery → January 2001 thru December 2013.

Surgeries associated with increased risk of chronic opioid use:

- Total knee arthroplasty
- Total hip arthroplasty
- Laparoscopic (open) cholecystectomy
- Open appendectomy
- Cesarean delivery
- Simple mastectomy
- Male sex
- Age older than 50 years
- Preoperative history of drug abuse, alcohol abuse, depression, benzodiazepine or antidepressant use



General Principles: Pre-operatively

- Consider preemptive analgesia
 - Medications, multimodal
 - Regional anesthesia techniques
- Setting expectations
- Detailed history of all non-opioid analgesics used, anxiolytics, cannabinoids, illicit substances, alcohol, muscle relaxants, etc.
- Treat aggressively during hospital course
- Discharge planning



Surgery Pain Management



For patients undergoing surgery, we provide **comprehensive pain management** that treats the whole patient, with distinct strategies before, during, and after surgery.

Before

The Surgical Team and the Pre-op Clinic optimize your physical & psychological conditions. The Pain Clinic helps reduce opioid medications to improve pain control after surgery.

- Patient education and preparation** for the surgical experience
- Pre-surgery nerve treatment** targets nerves that will be injured by surgery to reduce nerve stress response
- Coping and behavioral skills** prepare patients for the stress of surgery and, in turn, lower the stress response
- Medication optimization** that lowers opioid medications and adds nerve pain medications prevents surgical pain from becoming chronic pain
- Smoking cessation** reduces inflammation after surgery

During

The surgeon and the anesthesiologist work together to reduce the body's inflammatory responses to the stress of surgery

- Minimize blood loss** reduces the body's stress response to surgery
- Local anesthetics infiltration** reduces nerve injury and inflammation
- IV fentanyl & ketamine** work on nerves and brain cells to reduce need for medications
- Peripheral nerve catheter** continuously numb nerves for pain relief
- Epidural catheter** provides pain relief directly to the spine
- Intrathecal single-shot** provides pain relief directly to the spinal cord



General Principles: SHC Existing Chronic Pain

Give a gabapentinoid:

- Gabapentin 1200 mg 2 hours pre-incision.
400-600 mg 3 times a day for 14 days postoperatively
- Pregabalin (Lyrica) 300 mg 2 hours pre-incision.
150 mg twice a day for 14 days following surgery



General Principles: SHC Existing Chronic Pain

Non-opioid analgesics:

- Acetaminophen 1000 mg by mouth the AM of surgery, and every 8 hours after surgery
- Vitamin C 500-1000 mg for 40 days starting the AM of surgery
- Venlafaxine 37.5 mg of extended release starting the day before surgery and continuing for 10 to 14 days following surgery
- Alternative - TCA



General Principles: SHC Existing Chronic Pain

Opioids:

- Continue current long acting opioids unchanged including the morning of surgery to prevent peri-operative withdrawal.
- May need to increase these 25-50% and supplement with a short acting such as oxycodone 5-10 mg every 2 hours as needed after surgery



General Principles: SHC Existing Chronic Pain

Methadone:

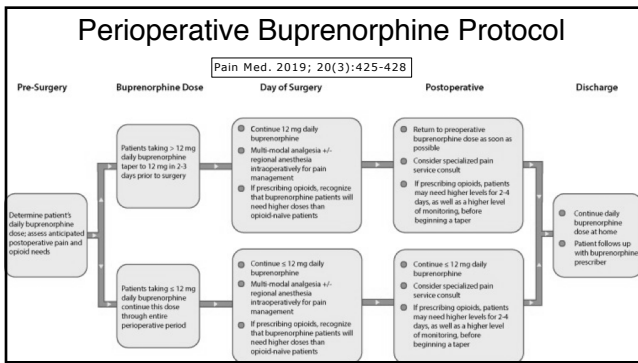
- Make sure they continue to get their daily dose but don't increase their daily methadone dose without expert consultation. These patients have up to a 40% chance of developing significant postoperative sedation or respiratory depression so monitor appropriately and consider an inpatient pain consult

Buprenorphine (suboxone/buprenorphine):
continues to be an ongoing debate



Perioperative Buprenorphine Protocol

Pain Med. 2019; 20(3):425-428



General Principles: SHC Existing Chronic Pain

Infusions:

IV ketamine: pre-incision intravenous bolus 0.5 mg/kg followed by intravenous infusion 0.25 mg/kg/hour

IV lidocaine: pre-incision intravenous bolus 1.5 mg/kg followed by intravenous infusion 1-1.5 mg/kg/hour

Wound infiltration: COMMUNICATION IMPERATIVE WITH ALL CARE PROVIDERS TO REDUCE INCIDENCE OF LOCAL ANESTHETIC TOXICITY

- Infiltrate ropivacaine 0.75% 20 mL in the wound
- Liposomal bupivacaine



General Principles: Peri-operatively

Preoperatively

Cyclooxygenase-2-selective (400 mg)
 Oral lorazepam or clonidine for anxiety (Blaudszun et al. 2012)

Intraoperatively

IV magnesium 40-50mg/kg, single dose (Albrecht et al. 2013)
 IV dexamethasone at induction, 8mg single dose (Waldron et al. 2013)

Dexmedetomidine: IV, IT
 IV 0.2-1.4 mcg/kg/hr, titrating to effect (Li, et al. 2016; Mohamed, et al. 2016)



Clinical Pathways (Extension PSH)

- Coordination of care
- Expedites care
- Reduces decision making
- Requires input from all parties involved
 - Surgeons
 - Anesthesia
 - Regional proceduralist
 - Medicine/nursing



Best Practice & Research Clinical Anaesthesiology 28 (2014) 59–79			
Colorectal Surgery		Thoracic epidural (intrathecal morphine/lidocaine infusion/TAP block), dexamethasone, ketamine magnesium, acetaminophen & NSAIDs/COX-2 selective	Epidural Acetaminophen NSAIDs IV-PCA
Hernia Surgery	Gabapentinoids	PVB, wound infiltration, acetaminophen & NSAIDs/COX-2 selective	Acetaminophen NSAIDs/COX-2 selective IV-PCA or PO opioid
Total Knee Arthroplasty	Gabapentinoids	Epidural (intrathecal morphine/lidocaine infusion/ACC/Femoral block), ketamine, acetaminophen & NSAIDs/COX-2 selective	Epidural (adductor canal catheters) Acetaminophen NSAIDs/COX-2 selective Ketamine Gabapentinoids IV-PCA or PO opioids
Spine Surgery	Gabapentinoids	Epidural (intrathecal morphine), lidocaine infusion, ketamine, acetaminophen & NSAIDs/COX-2 selective	Epidural Acetaminophen NSAIDs/COX-2 selective Ketamine Gabapentinoids IV-PCA or PO opioids
Consider for all other Surgeries	Gabapentinoids	Lidocaine infusion, dexamethasone, ketamine magnesium, incisional infiltration, μ_2 agonists, acetaminophen & NSAIDs/COX-2 selective	Acetaminophen NSAIDs/COX-2 selective Gabapentinoids IV-PCA or PO opioids

Modification to the Pre-operative Process:
Total Joint and Knee Replacement Program



Existing Preoperative Process

- Tests performed on all patients (e.g. -Chest X-rays and EKGs ordered for all patients)
- No standard protocol for pre-op evaluation
- Anesthesiologist performs evaluation day of surgery
- Education of patient once a month at "Joint Camp"
- No standardized protocol for medication
- Home evaluation limited

New Joint Pre-op Clinic

- Tests in accordance with protocol
- Pre-op evaluation and exam performed two weeks prior to surgery
- PT/OT evaluation & education two weeks prior to surgery
- Bactroban ointment intranasal, ASA therapy, Tranexamic acid, celecoxib, Gabapentin, Hydrocodone/Acetaminophen, Acetaminophen and antibiotic based on weight
- Standardized home visits with questionnaire

Example Total Hip Arthroplasty 2014

Pre-operative Holding Area

Acetaminophen 1000 mg oral
Oxycodone SR 10-20 mg oral
Gabapentin 300-600 mg oral
Celecoxib 200-400 mg oral (alt etodolac 500 mg)

Intra-operative Area

Spinal anesthetic: 1.4-1.6 mg 0.75% bupivacaine + fentanyl 25 mcg
Per-articular injection: epinephrine 1 mg/ml (0.5 ml), ketorolac 30 mg/ml (1 ml), clonidine 100 mcg/ml (0.8 ml), ropivacaine 5 mg/ml (49.35 ml), sodium chloride 0.9% (48.45 ml)
Ketorolac 15 mg IV – **at the end of the case**

PACU

Oxycodone 5-10 mg q4hr PRN



Example Total Hip Arthroplasty 2014

Postoperative

- Acetaminophen 1000 mg orally q8hr
- Oxycodone SR 10-20 mg orally q12hr
- Gabapentin 300 mg qhs
- Tramadol 50 mg orally q6hr PRN
- Ketorolac 7.5 mg IV q6hr X2 doses, starting 6hr after surgery
- Oxycodone 5-10-15 mg PRN (mild-moderate-severe pain)
- Hydromorphone 0.2-0.4 mg IV q2hr PRN breakthrough pain



Other Potential Target Populations?

- Major abdominal surgery
 - Epidural, multimodal medications, early mobility
- Breast surgery
 - Paravertebral, multimodal medications, emotional support
- Major trauma
 - Multimodal medications, emotional support, regional catheter
- Pathway for patients at high risk (high-intensity post-surgical pain, existing chronic pain, opioid tolerant/addiction history)
- In the ED

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Multimodal Analgesia: Carmichael et al. 2013

A prospective randomized controlled trial: perioperative regimen of pregabalin & celecoxib reduces pain scores & improve physical function after total hip arthroplasty.

80 patients

All pregabalin & celecoxib 2h before surgery

Pregabalin 75 mg BID & celecoxib 100 mg BID for 14 days before surgery & 3 weeks after	Standard care (placebo)
--	-------------------------

- Lower pain scores prior to surgery
- More manageable pain in the hospital
- Quicker return of functioning at discharge

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Multimodal Analgesia: Mathiesen et al. 2013

Complex multilevel spine fusion:

85 patients

- Less opioids
- Earlier mobilization & ambulation
- Less nausea, sedation, dizziness
- Less PACU LOS (270 vs 345 min)
- Discharge (7 vs 9 days)

Acetaminophen NSAIDs Gabapentin S-ketamine Dexamethasone Ondansetron Epidural infusion (local anesthetic)	PCA w/ morphine
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Regional Anesthesia Techniques for Acute Pain

Neuraxial Blockade – Single vs. Continuous

- Epidural
- Subarachnoid/Spinal
- Location is key
(Lumbar epidurals limit walking)

Peripheral Nerve Block – Single vs. Continuous

- No hypotension
- Weakness can be variable depending on local anesthetic

Local Infiltration/Intra-articular



Epidural Local Anesthetic & Orthopedic Surgery

- ↓ DVT incidence (31%) in patients receiving epidural vs. general anesthetic.
- Reduction in intraoperative blood loss (29%).
- Better pain relief at rest & with mobilization following total knee replacement.
- Suppression of surgical stress response.
- Decrease length of hospitalization.



(Scott & Kehlet 1988; Sorenson & Pace 1992; Moiniche et al. 1994)

Procedure	ASRA	COAGS	Regional	Pain
General Anesthesia	4-6 hrs	4-6 hrs	4-6 hrs	4-6 hrs
Spinal Anesthesia	4-6 hrs	4-6 hrs	4-6 hrs	4-6 hrs
Epidural Anesthesia	4-6 hrs	4-6 hrs	4-6 hrs	4-6 hrs
Peripheral Nerve Block	4-6 hrs	4-6 hrs	4-6 hrs	4-6 hrs
Local Infiltration	4-6 hrs	4-6 hrs	4-6 hrs	4-6 hrs
Other	4-6 hrs	4-6 hrs	4-6 hrs	4-6 hrs

http://ether.stanford.edu/policies/Anticoagulation_Guidelines_Neuraxial_Procedures.html

<https://www.asra.com/page/150/asra-apps>



General Principles: Acute Hospitalization

Why is it important?

↓ cost, ↓ suffering, ↓ morbidity, ↑ patient satisfaction

- How best is pain managed?
- Identifying patients at risk for prolonged hospital course (comorbid medical history, poor coping skills, catastrophizing, etc)
- Incorporating behavioral management/setting expectations
- Interdisciplinary care/coordinated care among disciplines
- Family/team meetings
- Multimodal analgesia



General Principles: Acute Hospitalization

Discharge planning

- At time of pre-surgical planning
- Pre-anesthesia visit
- Social work involved early
- Try discharge during week day

- Communication at discharge
 - Expected course
 - Follow up
 - Medications going home with (particularly new medications & opioids)





Final Thoughts

- Renewed emphasis of pain management/opioid use in the acute care setting.
- Options unique to the acute care/hospital setting: regional & multimodal analgesia.
- Identifying patients at risk for poor outcomes & modifications in management.
- Setting patient expectations & early discharge planning.
- Engage all stakeholders in creating protocols for enhanced care coordination.
- Education, education, education!



THANK YOU

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