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Sweet Relief: Acute Pain Management for the Hospitalist

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Disclosure of Financial Relationships

- Theresa E Vettese, MD has no relationships with any entity producing, marketing, re-selling, or distributing healthcare goods or services consumed by, or used on, patients
- Jung Mi Park, MD has no relationships with any entity producing, marketing, re-selling, or distributing healthcare goods or services consumed by, or used on, patients

Objectives

- Learn to develop a multimodal analgesia plan for hospitalized patients, including safe use of opioid analgesics from admission to discharge
- Evidence-based use of non-opioid analgesics and non-pharmacologic treatments for acute pain
- Implement appropriate and safe use of opioid analgesics in hospitalized patients with acute pain who are opioid-dependent or have opioid use disorder
- Apply best practices in communication with patients who are experiencing acute pain

Outline

- Case 1: Discharge and the Acute Pain Patient
- Case 2: What’s in the Toolbox?
- Case 3: The Chronic Pain Patient with Acute Pain
- Case 4: Pain Management for Sickle Cell Patients with Acute Painful Episodes
- Case 5: Cancer Pain in the Hospital
- Case 6: Acute Pain in the Patient with Opioid Use Disorder

Case 1

Patient admitted for acute pancreatitis and it is hospital day 3. He has been using morphine IV 4 mg q 3 hours PRN and received 16 mg in the previous 24 hours. He is now able to tolerate oral intake. You discontinue the IV morphine and order oxycodone 5 mg po q 4 hours PRN in addition to scheduled APAP. The patient uses 4 doses oxycodone on day 3 and is stable for discharge on day 4. He describes his pain as moderate and feels that he may still need “a few more days” of “pain meds.”

What do you do?

Case 1 - Opioids for Acute Pain on the Medical Service: Communication

- Goal is to effectively treat acute pain and improve function and quality of life
- Non-opioid and non-drug treatment options should also be pursued
- Discuss risk vs. benefits of opioid pain medication
- Use oral OPM or change to oral medications as soon as possible
- Opioids will be tapered as acute pain improves with appropriate discharge planning

Prescription OPM and Hospitalists

- 14% of Medicare patients discharged from the hospital are discharged with new opioid prescriptions
- 42% of those patients are continuing to fill an opioid prescription >90 days after hospital discharge
- Hospitalists state they prescribe opioids at discharge in order to facilitate discharge and prevent readmissions

Jena A, et. al. Hospital Prescribing of Opioids to Medicare Beneficiaries. JAMA Intern Med. Online June 13, 2016

Calcaterra S, et. al. The Hospitalist Perspective on Opioid Prescribing: A Qualitative Analysis. Journal of Hospital Medicine. 2016; 11(8):536-542

Prescription OPM and Hospitalists

- Among opioid-naïve patients undergoing common surgical procedures, 6-10% continue filling opioid prescriptions 3-6 months after surgery.
- 72% of opioids prescribed by surgeons go unused by patients, leaving the available for diversion into communities and risky prescription drug use.

Hill M, McMahon ML, Stucke RS, Barth RJ Jr. Wide variation and excessive dosage of opioid prescriptions for common general surgical procedures. Ann Surg. 2017;265(4):709-714.

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):1066-1071.

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Prescribing Recommendations – Updated 2022

Procedure	Oxycodone* 5mg tablets
Dental Extraction	0
Anti-reflux (Nissen) - Lap	0 - 5
Enterolysis - Lap	0 - 5
Excision of Rectal Tumor - Transanal	0 - 5
Thyroidectomy	0 - 5
Appendectomy - Lap or Open	0 - 10
Cholecystectomy - Lap or Open	0 - 10
Colectomy - Lap or Open	0 - 10
Donor Nephrectomy - Lap	0 - 10
Enterostomy Closure - Lap	0 - 10
Gastrorrhaphy	0 - 10
Hernia Repair - Major or Minor	0 - 10
Ileostomy/Colostomy Creation, Re-siting, or Closure	0 - 10
Pancreatectomy	0 - 10
Sleeve Gastrectomy	0 - 10

Procedure	Oxycodone* 5mg tablets
Small Bowel Resection or Enterolysis - Open	0 - 10
Carotid Endarterectomy	0 - 5
Prostatectomy	0 - 10
Cardiac Surgery via Median Sternotomy	0 - 25
Hysterectomy - Vaginal or Lap/Robotic or Abdominal	0 - 10
Cesarean Section	0 - 20
Breast Biopsy or Lumpectomy	0 - 5
Lumpectomy + Sentinel Lymph Node Biopsy	0 - 5
Sentinel Lymph Node Biopsy Only	0 - 5
Wide Local Excision ± Sentinel Lymph Node Biopsy	0 - 20
Simple Mastectomy ± Sentinel Lymph Node Biopsy	0 - 20
Modified Radical Mastectomy or Axillary Lymph Node Dissection	0 - 30
Total Hip Arthroplasty	0 - 30
Total Knee Arthroplasty	0 - 50

If prescribing hydrocodone 5mg, the number of tablets remain the same as listed above

What to do with the OPM at discharge?

Discharging Patients on New OPM
Check PDMP
Contact PCP to discuss discharge pain management plan
Make sure follow-up appointment scheduled
Pain should be stable X 24 hours on discharge pain management program
Does insurance cover the OPM?
Does pharmacy have OPM?
Patient has your contact information for questions or problems
Discussion regarding discharge plan, including non-opioid and non-pharmacologic treatments for pain, OPM taper, who to call if increased pain, with “teach back.”

SECURE OPM

OPM for acute non-operative pain:

- **3-5 day taper**
- **No more than 10 day taper**

https://shm.hospitalmedicine.org/acton/media/25526/download-shms-pain-management-guide

Example Oral OPM Taper

Day prior to discharge	Oxycodone 5 mg/APAP 325 mg 1 every 4 hours – 4 doses	
Discharge day	Oxycodone 5 mg/APAP 325 mg 1 pill PRN q 6 hours up to 4 doses/day	4 pills
Post discharge day 1	Oxycodone 5 mg/APAP 325 mg 1 pill PRN q 8 hours up to 3 doses/day	3 pills
Post discharge day 2	Oxycodone 5 mg/APAP 325 mg 1 pill PRN q 12 hours up to 2 doses/day	2 pills

Case 2: What's in the Toolbox?

A 68 yo M on the orthopedics co-management service is going to undergo THRA in the morning. He has a history of alcohol use disorder in remission and is concerned about the addiction risk of opioid pain medications. He wants to know about effective non-opioid treatments for his perioperative pain.

Case 2: What's in the Pharmacologic Toolbox and Are They Effective and Safe?

- NSAIDs
- Gabapentinoids
- IV acetaminophen
- Topical Agents
- Ketamine

NSAIDS

- Effective analgesics for musculoskeletal, orthopedic, procedural, migraine headaches, cancer pain
- NNT for post-operative pain relief= 2.5 for ibuprofen and celecoxib

no difference with cox- 2 inhibitor in terms of pain relief

- **NNT when used *with* acetaminophen = 1.5**
- NNT for oxycodone 15 mg = 1.7

NSAIDs + tylenlog not that different from oxy 15mg

- Fast acting better than slow acting

Moore A, et. al. Single Dose Analgesics for Acute Post-operative Pain in Adults – An Overview of Cochrane Reviews. Cochrane Data Base of Systemic Reviews. 2015; Issue 9

NSAIDS – What dose is effective?

- Ibuprofen **200mg = NNT 2.1** (CI 1.5-1.8)
- Ibuprofen **400mg = NNT 2.5** (CI 2.4-2.6)
- Ibuprofen **200mg** + paracetamol **(acetaminophen) 500mg** = **NNT 1.6** (CI 1.9-2.3)
- Ibuprofen 200mg + caffeine 100mg = NNT 2.1 (CI 1.9-3.1)
- Diclofenac potassium 50mg = NNT 2.1 (CI 1.9-2.5)

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NSAIDS – Duration of action

Long duration of action (8+ hours) were found for:

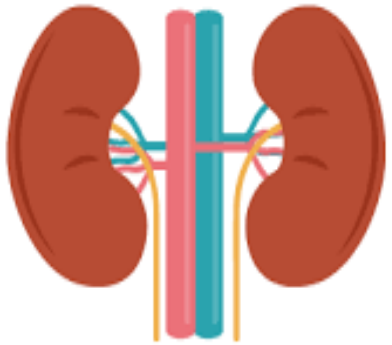
- Paracetamol 650mg + oxycodone 10mg
- Naproxen 500/550mg
- Celecoxib 400mg
- Ibuprofen 400mg + paracetamol 1000mg

No evidence of analgesic effect for aspirin 500mg and oxycodone 5mg (low quality evidence)

Fast acting formulations can produce good and long-lasting analgesia at low doses

NSAIDs: Risks

- Use with caution in patients with peptic ulcer disease, cardiovascular disease, or kidney dysfunction
- All NSAIDs have FDA box warning for risk of cardiovascular thrombotic events including MI and stroke
  - Risk may be higher in COX2 selective NSAIDs (celecoxib)



NSAIDS: GI Toxicity

- Risk factors:
  - History of an uncomplicated ulcer
  - Age >65 years
  - High dose NSAID therapy
  - Concurrent use of aspirin (including low dose), glucocorticoids, or anticoagulants

High risk = a history of complicated ulcer or ≥3 risk factors

Moderate risk: 1 or 2 risk factors

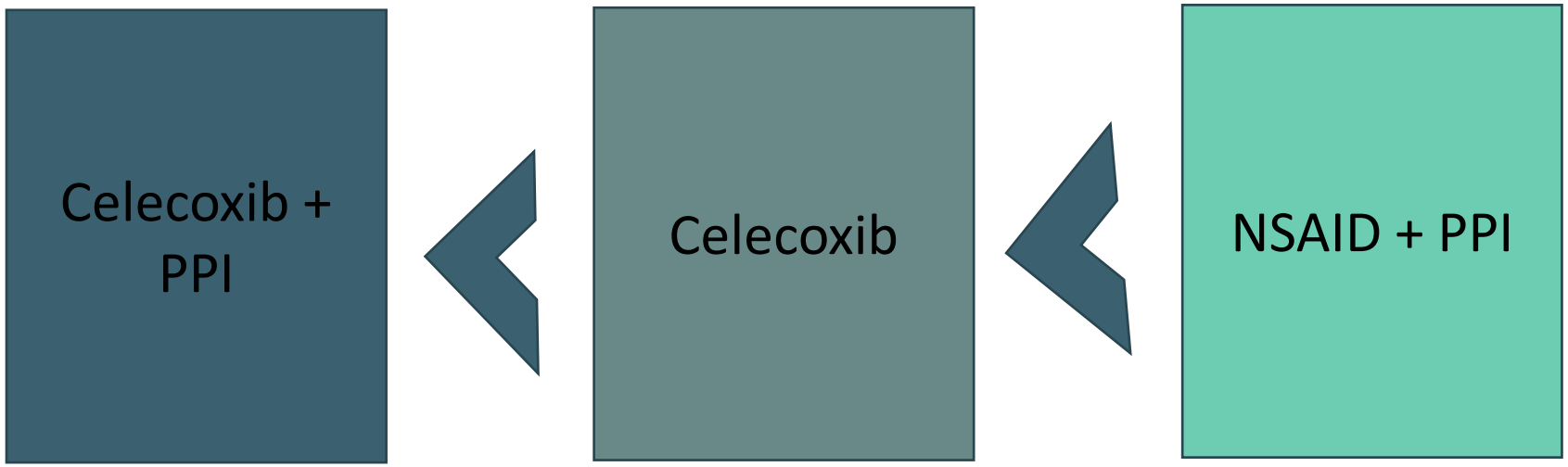
Low risk: none of the 4 risk factors

Lanza F et. al. Am J Gastroenterol. 2009;104(3):728

NSAIDS: GI Toxicity – the specific choice matters

NSAID	Relative Risk of Upper GI Complications
Celecoxib	<2
Ibuprofen	<2
Meloxicam	2-4
Naproxen	4-5
Indomethacin	4-5

NSAIDS: GI Toxicity



Scheiman JM, Yeomans ND, Talley NJ, et al. Prevention of ulcers by esomeprazole in at-risk patients using non-selective NSAIDs and COX-2 inhibitors. Am J Gastroenterol 2006; 101:701.

NSAIDS: Cardiovascular Toxicity

nal List • Ther Adv Drug Saf • v.8(6); 2017 Jun • PMC5455842

Therapeutic Advances in Drug Safety SAGE

Ther Adv Drug Saf. 2017 Jun; 8(6): 173–182.
Published online 2017 Feb 10. doi: 10.1177/2042098617690485

PMCID: PMC5455842

Cardiovascular and cerebrovascular risk with nonsteroidal anti-inflammatory drugs and cyclooxygenase 2 inhibitors: latest evid and clinical implications

Andrea Fanelli, Daniela Ghisi, Pierangelo Lora Aprile, and Francesco Lapi

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Table 1. FDA strengthens warning that non-aspirin NSAIDs can cause heart attacks or strokes (see also http://www.fda.gov/Drugs/DrugSafety/ucm451800.htm).

FDA strengthens warning that non-aspirin NSAIDs can cause heart attacks or strokes
The risk can occur as early as the first weeks of using an NSAID
The risk may increase with longer use of the NSAID
The risk appears greater at higher doses
Newer information is not sufficient for the FDA to determine that the risk of any particular NSAID is definitely higher or lower than that of any other particular NSAID
NSAIDs can increase the risk in patients with or without heart disease or risk factors for heart disease
Patients with heart disease or risk factors for it have a greater likelihood of heart attack or stroke following NSAID use than patients without these risk factors
There is an increased risk of heart failure with NSAID use

FDA, US Food and Drug Administration; NSAID, nonsteroidal anti-inflammatory drug.

Table 3. Prevention of NSAID-related GI and CV risk.[13]

Patient without CV risk **No GI risk factors:** coxib, diclofenac, ibuprofen or nimesulide (avoid ketorolac and ketoprofen) **One or more GI risk factors:** coxib or diclofenac – ibuprofen – nimesulide + PPI **History of ulcer bleeding:** coxib – diclofenac + (PPI)
Patient with CV risk + no GI risk factors **CV < 3%:** Avoid coxib, aceclofenac, diclofenac >100 mg/die and ibuprofen ≥2400 mg/die *If concomitant administration of low-dose aspirin:* Avoid ibuprofen; Administration of aspirin 2 h before naproxen + PPI **CV > 3%:** Administration of aspirin 2 h before naproxen + PPI
Patient with CV risk + one or more GI risk factors **CV < 3%:** Avoid coxib and aceclofenac, (diclofenac < 100 mg/die – ibuprofen <2400 mg/die – nimesulide) + PPI *If concomitant administration of low-dose aspirin:* Avoid ibuprofen; Administration of aspirin 2 h before naproxen + PPI **CV > 3%:** Administration of aspirin 2 h before naproxen + PPI
Patient with CV risk + history of ulcer bleeding If it is possible avoid NSAIDs and coxib If strictly necessary and CV < 3%: (celecoxib – diclofenac <100 mg/die – ibuprofen <2400 mg/die – nimesulide) + PPI

CV, cardiovascular; GI, gastrointestinal; PPI, proton pump inhibitor; NSAID, nonsteroidal anti-inflammatory drug.

NSAIDS: Renal Toxicity

- Renal syndromes associated with NSAID use:
  - AKI or ATN
  - AIN
  - Nephrotic syndrome
  - Hyponatremia
  - Hyperkalemia/type 4 RTN
- Avoid NSAIDs in these at-risk patients:
  - Volume depletion
  - Nephrotic syndrome
  - Heart failure
  - Cirrhosis
  - Hypercalcemia

Curr Opin Nephrol Hypertens. 2019 Mar;28(2):163-170. doi: 10.1097/MNH.0000000000000473.

The case for cautious consumption: NSAIDs in chronic kidney disease.

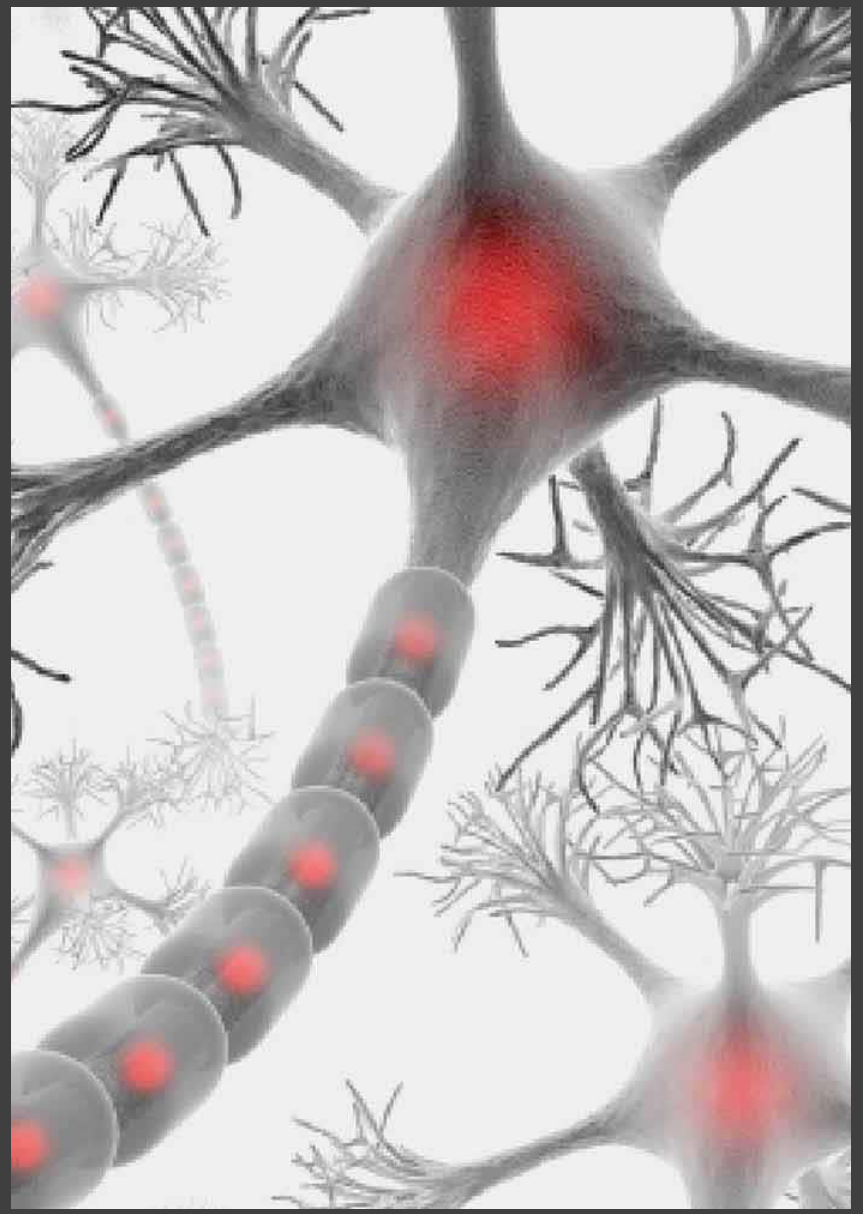
Sriperumbuduri S[1], Hiremath S.

Low dose safe to creatinine clearance of >= 30

CONCLUSION

NSAIDs are very effective analgesics in acute pain and there are very few reasons to withhold them!

Gabapentinoids ….the good, the bad, and the ugly



Retrospective cohort study **of the prevalence of off-label gabapentinoid prescriptions** in hospitalized medical patients. Gingras M. et. al. J Hosp Med 2019; 14:547-550

Gabapentinoids – perioperative?

"No clinically significant analgesic effect for the perioperative use of gabapentinoids was observed. There was also no effect on the prevention of postoperative chronic pain and a greater risk of adverse events. These results do not support the routine use of pregabalin or gabapentin for the management of postoperative pain in adult patients."

Verret M, Lauzier F, Zarychanski R, Perron C, Savard X, Pinard AM, Leblanc G, Cossi MJ, Neveu X, Turgeon AF; Canadian Perioperative Anesthesia Clinical Trials (PACT) Group. Perioperative Use of Gabapentinoids for the Management of Postoperative Acute Pain: A Systematic Review and Meta-analysis. Anesthesiology. 2020 Aug;133(2):265-279. "

CONCLUSION

Gabapentinoids are not effective for most etiologies of acute pain and have significant adverse effects. Use with caution – “low and slow”

Intravenous Acetaminophen

- Approved for management of moderate to severe acute pain in combination with opioid analgesics
- Improved bioavailability and earlier onset of action
- Minimal adverse effects
- Can be given as single dose post-operatively or repeated doses q 6 hours to max 4 g daily
- Cost: oral = 5 cents; IV = $10

NNT = 5

McNicol E, et. al. Single Dose Intravenous Paracetamol or Intravenous Propacetamol for Postoperative Pain. Cochrane Database of Systematic Reviews. 2016, Issue 5

Topical Agents

- Transdermal Lidocaine
  - 5% transdermal patch
  - Effective in improving pain control as an adjunct to opioids in rib fractures, post-gyn surgery
  - inexpensive

- Topical NSAIDs
  - Topical diclofenac
  - NNT=1.5 for acute musculoskeletal strains and sprains
  - Good safety profile

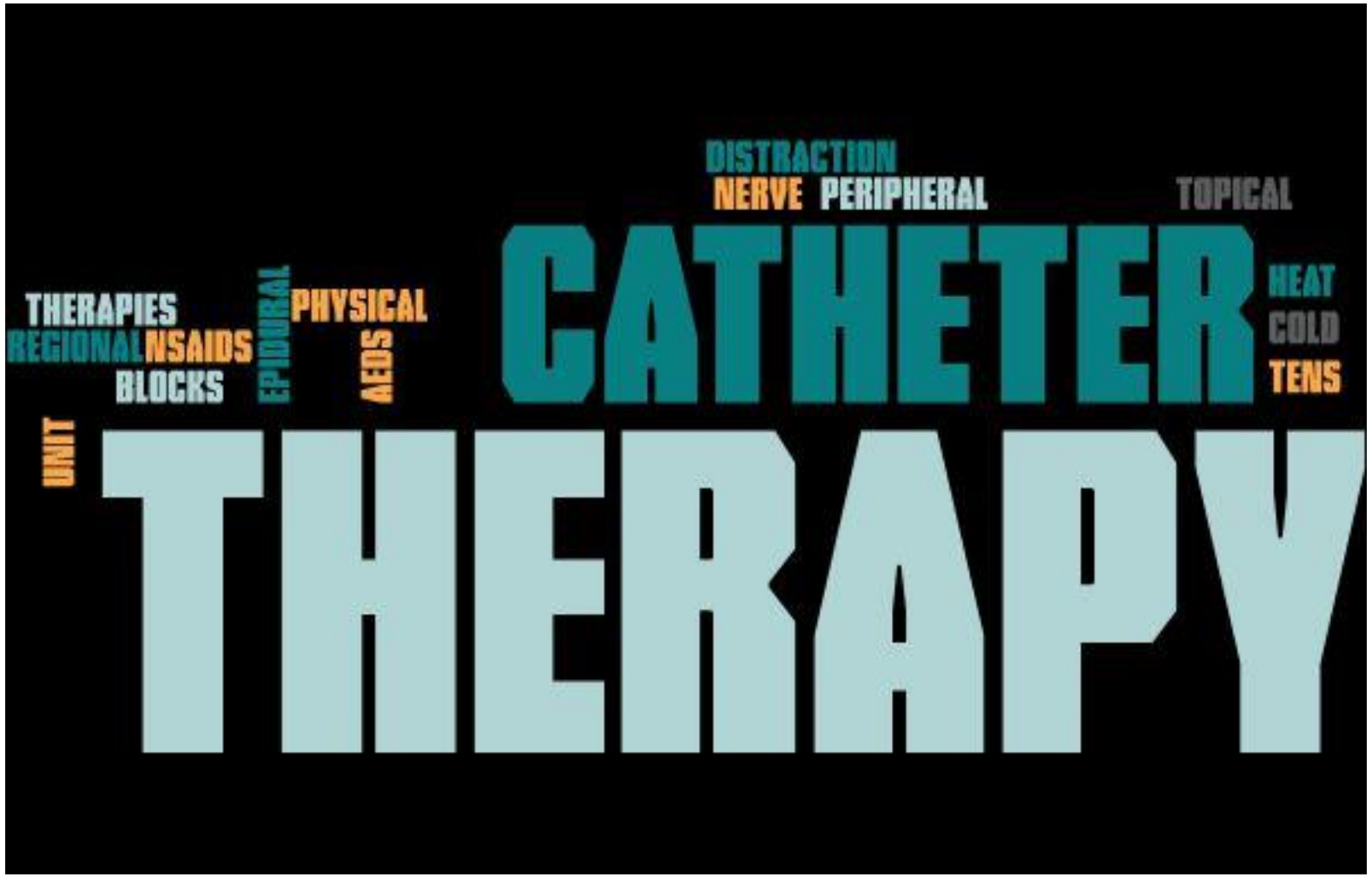
Oyler D, et. al. Nonopioid Management of Acute Pain Associated with Trauma: Focus on Pharmacologic Options. J Trauma Acute Care Surg. 2015; 79 (3): 475-483

Derry S, Moore RA, Gaskell H, McIntyre M, Wiffen PJ. Topical NSAIDs for acute musculoskeletal pain in adults. Cochrane Database of Systematic Reviews 2015, Issue 6. Art. No.: CD007402

IV Ketamine

- Reversible antagonist of NMDA receptor
- Powerful analgesic; opioid sparing
- Well tolerated in low dosage
- Patients: significant surgery, opioid tolerant or opioid dependent
- Hospital protocol or anesthesia consultation
- Low dose (subanesthetic) = (IV) 0.3- to 0.5-mg/kg bolus, with or without an infusion (usually started at 0.1–0.2 mg/kg per hour

What else is in our toolbox?



Case 3: The Chronic Pain Patient with Acute Pain

57 YOM with h/o chronic lower back pain. He presents with a 2-day h/o cough, fever, chills. On exam he is initially hypotensive, tachycardic, and has LLL infiltrate on CXR and is admitted for management of CAP and sepsis

The patient states that he takes hydrocodone 10 mg/APAP 325 mg four times daily for his chronic back pain

He tells the RN his chronic back pain is worse and is already asking about opioid pain medication

What is the best approach to pain management? How do we best communicate with the patient?

OPM: Risk to Benefit Framework

- RISKS:
  - Accidental overdose/death
  - Addiction/opioid-use disorder
  - Diversion
  - Sedation/fatigue
  - Constipation
  - Sexual dysfunction
  - Bone health
  - Immune system

Management of Chronic Pain in Hospitalized Patients on Long term Opioid Therapy

If patient states that s/he is on LTOT CHECK THE STATE PDMP and UDS

Upfront conversation ***at admission*** outlining the treatment plan during hospitalization and the plan for discharge

Continue opioids at current dose if no indication of misuse on PDMP and make it clear there will be no escalation or intravenous opioids due to RISKS>BENEFITS

Emphasize non-opioid management strategies

Make it clear that there will be no prescription for opioids at discharge

Case 4: Pain Management for Sickle Cell Patients with Acute Pain Episodes

27 YOF with sickle cell disease presents with third sickle cell acute pain episode in 3 months. She tells you that she is prescribed oxycodone SR 60 mg bid and oxycodone IR 30 mg q 4 hours PRN when she has more severe pain. Over the past few days, she has been taking the oxycodone 30 mg IR every 4 hours for a total of 6 doses in the past 24 hours without relief

NHLBI Evidence-Based Management of Sickle Cell Disease, Expert Panel Report, 2014
http://www.nhlbi.nih.gov/health-pro/guidelines/sickle-cell-disease-guidelines

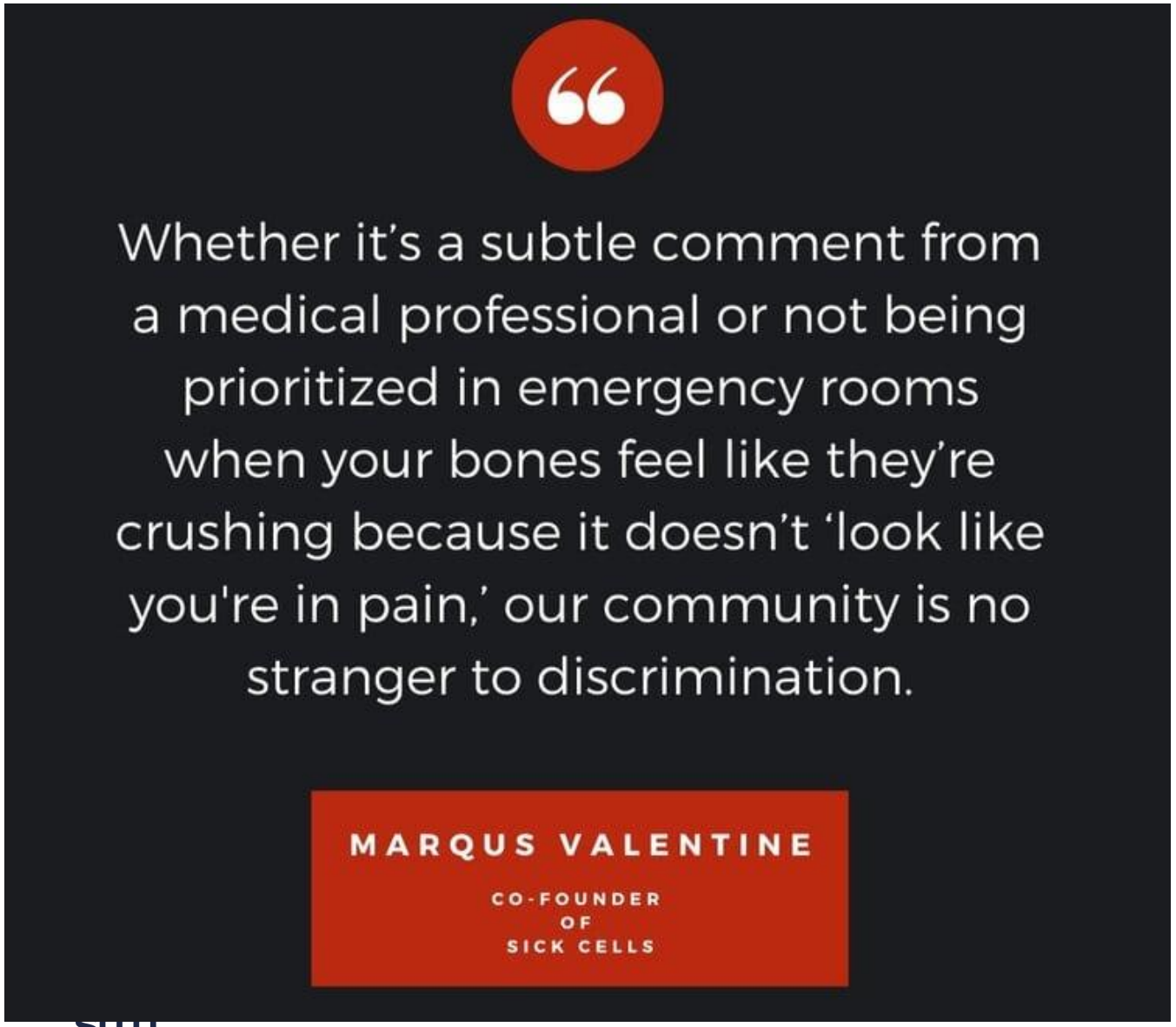
What is the best pain management strategy?

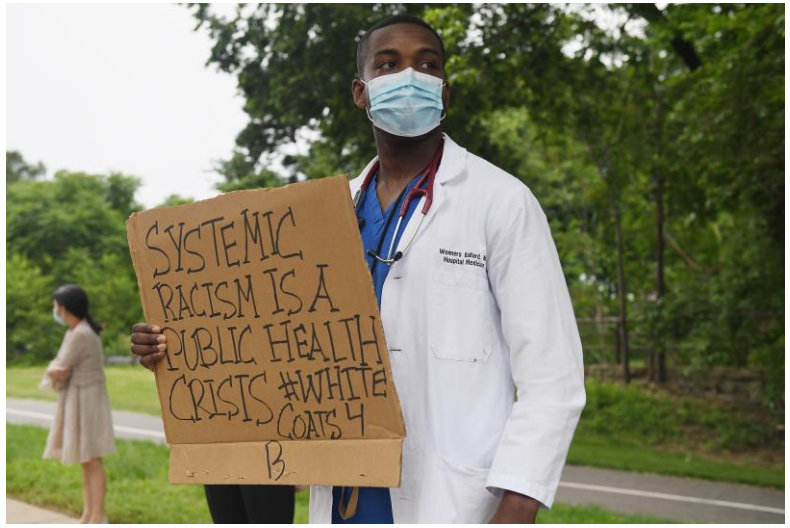
A) Continue basal SR morphine and use hydromorphone 2 mg IV q 3 hours PRN

B) Continue basal SR morphine and use PCA with bolus of morphine of 2 mg with 10 minute lockout

C) Continue basal SR morphine and use morphine 5 mg IV q 3 hours PRN

D) Continue basal SR morphine and use PCA with bolus of morphine .5 mg with 10 minute lockout


Whether it's a subtle comment from a medical professional or not being prioritized in emergency rooms when your bones feel like they're crushing because it doesn't 'look like you're in pain,' our community is no stranger to discrimination.
MARQUS VALENTINE
CO-FOUNDER OF SICK CELLS


SYSTEMIC RACISM IS A PUBLIC HEALTH CRISIS #WHITE COATS 4 B


ENOUGH IS ENOUGH

Year	Non-SCD Patients Who Died Due to OPR	SCD Patients Who Died Due to OPR
1999	4,022	8
2000	4,393	7
2001	5,521	7
2002	7,450	6
2003	8,513	4
2004	9,856	1
2005	10,922	6
2006	13,717	6
2007	14,401	7
2008	14,795	5
2009	15,594	3
2010	16,641	10
2011	16,907	10
2012	16,002	5
2013	16,225	10
Totals	**174,959**	**95**

OPR = Opioid Pain Reliever; SCD = Sickle Cell Disease.

Reference: Multiple Cause of Death Data, 1999-2013. CDC WONDER Online Database. 2015. Available at http://wonder.cdc.gov/mcd.html .

Opioid Utilization Patterns in United States Patients with Sickle Cell Disease

Samir K. Ballas, MD, Julie Kanter, MD, Irene Agodoa, MD, Robin Howard, Sally Wade, Virginia Noxon, PhD, Carlton Dampier, MD

Check for updates

Blood (2017) 130 (Supplement 1): 130.

https://doi.org/10.1182/blood.V130.Suppl_1.130.130

Case 4: SCD and Acute Pain

- Continue long-acting opioid for basal analgesia
- Initiate around-the-clock opioid administration preferably by patient-controlled analgesia (PCA) or, if absolutely necessary, frequently **scheduled** IV dosages (NOT PRN)
- Reassess pain, alertness, oxygenation, itching, nausea/vomiting, and readjust plan at appropriate intervals (minutes – hours)
- Dose escalation by 25% increments AT LEAST
- What agent for PCA and how do I dose it?

Oral and Parenteral Dose Equivalents of Opioid Analgesic Drugs

TABLE 2. ORAL AND PARENTERAL DOSE EQUIVALENTS OF OPIOID ANALGESIC DRUGS.

DRUG	DOSE*	
	ORAL	PARENTERAL
Recommended for routine use		
Step 2 opioids		
Codeine†	100 mg every 4 hr	50 mg every 4 hr
Dihydrocodeine	50–75 mg every 4 hr	NA
Hydrocodone	15 mg every 4 hr	NA
Oxycodone‡§	7.5–10 mg every 4 hr	NA
Step 3 opioids		
Morphine§	15 mg every 4 hr	5 mg every 4 hr
Oxycodone‡§	7.5–10 mg every 4 hr	NA
Hydromorphone¶	4 mg every 4 hr	0.75–1.5 mg every 4 hr
Fentanyl‖	NA	50 μg/hr every 72 hr
Not recommended for routine use		
Propoxyphene	180 mg every 4–6 hr	NA
Meperidine	150 mg every 2–3 hr	50 mg every 2 hr
Methadone	10 mg every 6–8 hr	5 mg every 6 hr
Levorphanol	2 mg every 6–8 hr	1 mg every 6–8 hr

*Values are dose equivalents for around-the-clock analgesic therapy for chronic pain. NA denotes not available.

†Doses above 1.5 mg per kilogram of body weight are not recommended because of increased toxicity.

‡Parenteral oxycodone is available in some countries. The equivalent parenteral dose is 50 percent of the oral dose.

§This drug is available in tablets and liquids taken every 4 hours and in controlled-release tablets taken every 12 hours. The 12-hour dose is three times the 4-hour dose.

¶The ratio of oral to parenteral doses has been reported to be as high as 2:1.

‖The microgram-per-hour dose of transdermal fentanyl is equal to one half of the milligram-per-day dose of oral morphine.

The NEW ENGLAND JOURNAL of MEDICINE

Case – Determine PCA Bolus Dose

- Determine agent/dose/schedule for all short acting opioid pain medication taken in the 24 hours before presentation = oxycodone IR 30 mg X 6 doses = 180 mg oral oxycodone/24 hours
- Oxycodone 180 mg po /24 hours= 130 mg morphine po/24 hours
- 130 mg morphine po/24 hours = 45 mg morphine IV/24 hours =
- 2 mg/hour morphine IV
- Use 50-100% of average one hour short acting opioid as demand dose (10 minute lockout) = 2 mg morphine demand dose with 10 minute lockout

Case 4: SCD and Acute Pain

- In absence of contraindications use NSAIDs as well
- Consider topical preparations
- Consider local heat/cold applications
- Consider behavioral strategies, eg distraction therapy
- **Oral** antihistamines q 4-6 hours PRN
- Bowel regimen
- Oxygen for SaO2< 95%
- Do not transfuse for pain

Case 4: SCD and Acute Pain

- Gradually titrate down parenteral opioids as VOC resolves
- Use oral short acting opioid around the clock and flexible PRN doses to titrate patient off PCA, e.g.
  - Oxycodone IR 30 mg po q 3 hours atc (patient may refuse)
  - Oxycodone IR 30 mg po q 3 hours PRN moderate pain (60 mg)
  - Oxycodone IR 60 mg po q 3 hours PRN severe pain (90 mg)

OUTPATIENT COORDINATION IS KEY!

Case 5: Cancer Pain in the Hospital

44 yo woman was diagnosed with stage 4 NSC lung cancer – adenocarcinoma with EGFR mutation. She was treated with erlotinib and 4 months later, repeat imaging showed decrease size of mass. However, 8 months after treatment, she presents to ED with pain in right shoulder and chest. Repeat imaging reveals increased size of RUL mass, increased pulmonary nodules, multiple lytic lesions in the thoracic spine, and liver metastasis.

Case 5: Cancer Pain in the Hospital

- Pain started 3-4 weeks ago and has been progressively getting worse
- Stabbing, gnawing deep pain in right anterior chest, radiating to right scapula and through to posterior chest
- Pleuritic
- Disabling
- Taking ibuprofen 600 mg qid, oxycodone 10 mg/APAP 325 mg 6 X/day with only minimal improvement
- “15/10”

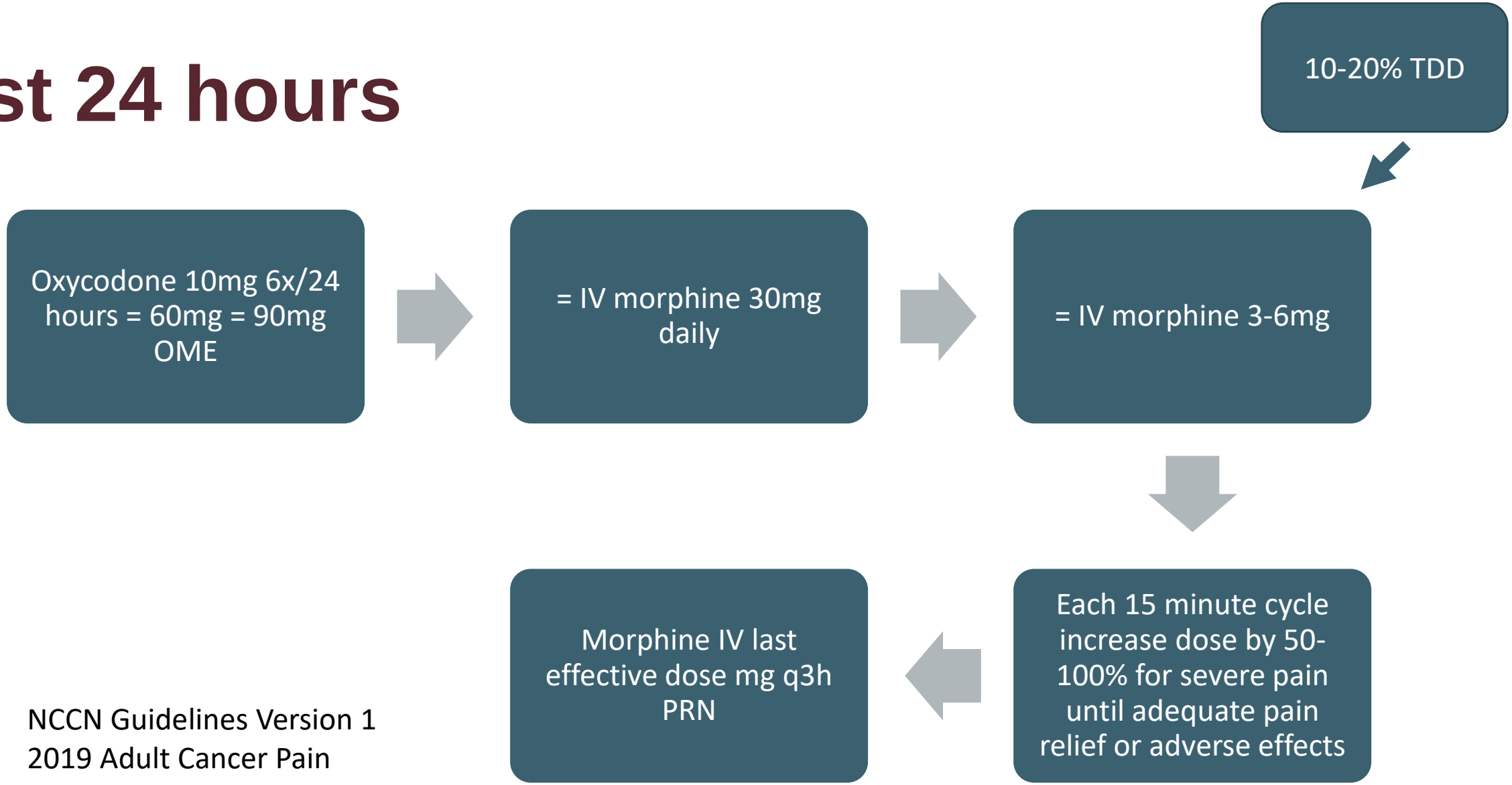
Case 5: Cancer Pain in the Hospital

Type of Pain	Cause	Characteristic	Examples
Nociceptive	Pressure on nerves from tumor	Deep, dull, aching, constant, progressively worse over time	Pancreatic cancer
Visceral	Distention of hollow viscus	Crampy, bloating, episodic	Malignant bowel obstruction
Neuropathic	Direct damage to nerves from cancer, treatment, or both	Localized, sharp, shooting, burning, allodynia, or hyperalgesia	Mastectomy scar, compression of peripheral nerve by tumor
	Chemotherapy induced	Numbness, tingling, and pain together. Long fibers affected most (stocking glove)	Common
Movement pain	Bone metastasis, pathologic fractures	Pain much worse with movement	Difficult to control

Case 5: Cancer Pain in the Hospital

Intravenous Opioid	Onset of Action	Duration
Morphine	15 minutes	2.5-4 hours (go with every 3 hours)
Hydromorphone	15 minutes	2.5-4 hours (go with every 3 hours)
Fentanyl	5-10 minutes	Initially 60 minutes but with repeated administration = 3 hours

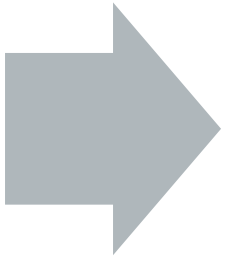
First 24 hours



NCCN Guidelines Version 1 2019 Adult Cancer Pain

First 24 hours

Morphine PCA 2mg demand dose with 10 minute lockout (90mg OME/24 hours = 30mg IV/24 hours = 1.5mg/hour



If pain not controlled and patient not using majority of available doses, assess why

- Assess pain control every few hours
- If pain is not controlled and patient is using the majority of available doses, titrate up by 50-100%
- Monitor and adjust dose for adverse effects

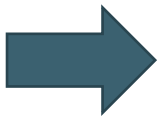
72 mg morphine PCA/24 hours

DAY 2

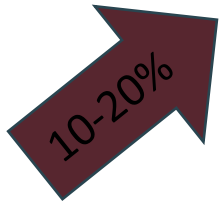
- = 210 mg OME
- 140 mg po oxycodone

=

- Oxycodone SR = 70 mg q 12 hours -> 60 mg po q 12 hours



Rescue:
Oxycodone IR 10-20 mg q 4 hours PRN



Case 5: Opioids for Cancer Pain

- Highly effective if tolerated
- All opioids have efficacy with no evidence of superiority*
- Component of multimodal pain management
- Use universal precautions
- Coordinate discharge plan for continued opioid prescribing/prescribe only necessary amount
- Naloxone prescription/education at discharge

Wiffen P, et. al. Opioids for cancer pain: An overview of Cochrane reviews. Cochrane Database of Systamatic Reviews. 2017; Issue 7

Case 5: Cancer Pain – What Else Works?

Effective	Maybe/Maybe Not	Not So Much

• Somatic/mixed/neuropathic
• Neuroleptics/AEDs
• Interventional procedures
• For bone metastases:
  • bisphosphonates
  • Radiation therapy
	• Somatic/mixed/bone metastasis
	• NSAIDs
	• Acupuncture
	• Massage
	• TENS
		• Corticosteroids
		• Topical agents
		• APAP
		• mindfulness meditation

Case 5: Cancer Pain

Nerve Blocks	Advanced locoregional pain techniques
• Celiac plexus - pancreas • Superior hypogastric plexus - pelvis • Splanchnic nerve - more abdomen • Stellate ganglion - UE pain • Ganglion impar - perineal • Brachial plexus • Lumbar sympathetic - lower extremity, pelvis, vertebral fracture	• intrathecal infusion

Case 6 – Acute Pain in the Patient with Opioid Use Disorder

47 YOM with history of opioid use disorder is coming to the ED with CC of fever, chills, lightheadedness and severe mid-upper back pain and bilateral upper/lower extremity paresthesias. The patient admits to using 5 "dime bags" of IV heroin daily.

He is admitted for sepsis, fluid resuscitated and started on broad spectrum antibiotics. Blood cultures quickly grow *Staphlococcus aureus*. MRI of the spine shows cervical spinal epidural abscess with concomitant vertebral osteomyelitis. On exam, patient is diaphoretic and has diffuse myalgias and diarrhea. The patient's back pain is so severe he cannot ambulate.

What is an appropriate initial analgesic dose and route?

A) Oral ibuprofen 800 mg q 8 hours and acetaminophen 1 gram q 8 hours; no opioid pain medication

B) Methadone 10 mg orally q 8 hours with short acting opioid analgesic PRN

C) Tramadol 50 mg orally q 6 hours PRN

E) Intravenous morphine 4 mg q 3 hours PRN

Case 6 – Acute Pain in the Patient with Opioid Use Disorder

- Managing acute pain with opioid pain medications in patients with opioid use disorder <u>will not worsen</u> addiction or put them at risk of relapse
- These patients have higher tolerance and require higher dosages and more frequent dosing of opioids to adequately treat their pain
- Unmanaged acute pain will put those patients at higher risk for bad outcomes.

Alford, D.P., Compton, P., Samet, J.H. Acute pain management for patients receiving maintenance methadone or buprenorphine therapy. Annals of internal medicine. , 2006, Vol.144(2), p.127-134

Case 6 - Acute Pain in the Patient with Opioid Use Disorder: Communication

- Goal is to effectively treat acute pain, improve function, prevent withdrawal symptoms and treat opioid use disorder
- Change to oral medications as soon as possible
- Discuss non-opioid and non-drug treatments
- Early discharge planning
- Assess readiness for treatment
- Discuss post-discharge treatment options = MOUD
- Does the patient desire long-term opioid agonist therapy?
- “Getting help for this is like getting help for any other chronic medical problem”
- “I want you to the best possible care and this difficult but productive conversation is a first step for us”

Case 6 – Acute Pain Management in Patients with Opioid Use Disorder

Use long-acting opioid agonist therapy to address **opioid use disorder** and pain, combined with short acting opioids to manage acute pain

Raub, J.N., Vettese, T.E. Acute pain management in hospitalized adult patients with opioid dependence: a narrative review and guide for clinicians. J Hosp Med 2017 May;12(5):375-379.

Case 6 – Acute Pain in the Patient with Opioid Use Disorder: Long-acting opioid agonist therapy

- Methadone:
  - Day 1: Methadone 10 mg q 8 hours with immediate release opioid analgesic PRN
  - Taper IR opioid
- Discharge options:
  - Immediate follow up at methadone OTP
- Methadone taper: 10-20% daily over 10-14 days; rapid taper 3-5 days
- Transition to buprenorphine inpatient or outpatient

Donroe J, et. al. Caring for patients with opioid use disorder in the hospital. CMAJ 2016; 188 (17-18): 1232-1239

Case 6 – Acute Pain in the Patient with Opioid Use Disorder

Big News for Hospitalists: Elimination of the X-Waiver

Case 6 – Acute Pain in the Patient with Opioid Use Disorder: Discharge Planning

- Linked to treatment ideal
- Harm-reduction strategies

Case 6 – Acute Pain in the Patient with Opioid-use Disorder MOUD

Buprenorphine/Naloxone

- Continue patient's outpatient dose – can split dose
- Use immediate release opioid with high mu opioid receptor activity PRN – hydromorphone, fentanyl
- Taper immediate acting opioid off as pain improves
- Multimodal care

Methadone

- Continue OTP dose – can split dose
- Use immediate release opioid PRN
- Taper immediate release opioid as pain improves
- Multimodal care

Conclusion

- It is important to address acute pain in the hospital
- Communication and expectations about pain with the patient is key

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