Pain Management for Serious Illness: Improving Provider and Patient Comfort

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Disclosures

Non-Declaration Statement: I have no relevant relationships with ineligible companies to disclose within the past 24 months.

Educational Objectives

At the conclusion of this session, participants should be able to:

1. Describe a pain management approach for the patient with serious illness
2. Outline the basic principles of opioid management
3. Determine how and when to use patient-controlled analgesia (PCA)

Journal of Hospital Medicine (JHM) Consensus Statement to Address Opioid Prescribing in the Inpatient Setting

> "Guidelines, based largely on expert opinion, recommend judicious opioid prescribing for severe, acute pain. Future work should assess the implications of these recommendations on hospital-based pain management."

Herzig: J Hosp Med 2018

Know Your Population

- Hospitalized patients with serious illness and pain (i.e., cancer or end stage organ failure)
    - National Comprehensive Cancer Network (NCCN) guidelines are robust
    - End organ specific guidelines are available
- Hospitalized patients with acute, non-cancer pain
    - Four guidelines on opioid prescribing, mostly based on expert opinion, and none of which focus on hospitalization outside of peri-operative period
    - There is a need for evidence-based recommendations

Herzig: J Hosp Med 2018

Case Study: Joy

- 56-year-old female HS football coach with metastatic bladder cancer
- Recent scan shows progression of disease
- 8/10 abdominal pain, radiating to back, intermittent
- Home regimen
  - Morphine ER 30mg PO BID
  - Oxycodone IR 5-10mg PO Q4H PRN
  - Duloxetine 30mg PO daily
  - Gabapentin 300mg PO TID
- How do you address Joy’s pain?

Multimodal Approach To Pain Management

Workup of underlying cause

Treatment of underlying cause

Non-pharmacologic interventions

Non-opioid medications

Opioid medications

Know Your State's Opioid Guidelines

Familiarize yourself with state guidelines, policies, laws

Get in the habit of checking your state's prescription drug monitoring program (PDMP)

https://www.pdmpassist.org/State

The goal of opioid therapy for seriously ill hospitalized patients is:

A. To be pain free
B. To provide a last resort to treating pain
C. To maximize function and minimize side effects
D. To provide enough pain relief to avoid addiction/dependence

Basic Opioid Principles

Basic Opioid Principles

Set realistic goals/expectations

- Expectation should not be pain free
- Goal: lowest dose to maximize function and minimize side effects

Simplify the regimen

- Avoid mixing opioids
- Preference for oral route (though many other routes exist)
- When higher doses are used, switch from combined medicines (like aspirin or acetaminophen) to pure opioid to allow better titration

NCCN: Adult Cancer Pain v2.2023

www.core-rems.org 2013 v1

Basic Opioid Principles

Calculate new opioid dose based on previous 24-hour use

- *Long-acting opioid = 50-100% of previous 24-hour use
- Short acting opioid = 10-20% of previous 24-hour use

Same drug when possible

When rotating opioids, account for:

- Equianalgesic dosing
- Incomplete cross tolerance

*Do not use in opioid naïve

Opioid tolerant = 60mg OME for a week or longer

NCCN: Adult Cancer Pain v2.2023

www.core-rems.org 2013 v1

Opioid Titration

Mild Pain	• Increase dose up to 25%
Moderate Pain	• Increase dose up to 50%
Severe Pain	• Increase dose up to 100%

NCCN: Adult Cancer Pain v2.2023

What if my patient is opioid naïve?

Starting Doses in the Opioid-Naïve Patient
START LOW AND TITRATE BASED ON RESPONSE

Drug Name	Oral Dose	Intravenous Dose
Morphine	7.5 mg (15 mg pill cut in half)	2 mg
Hydromorphone	1 mg (2 mg pill cut in half)	0.2 mg
Oxycodone	2.5 mg (5 mg pill cut in half)	—
Hydrocodone	5 mg	—

CAUTION: Prescribers should always consult the individual drug monographs for comprehensive information. Transdermal fentanyl should not be used in the opioid-naïve patient.

CAPC, 2023

Relative Potency / Equianalgesic Dosing

Opioid Agonists	Parenteral Dose	Oral Dose
Morphine[a,b]	10 mg	30 mg
Hydromorphone[a]	1.5 mg	7.5 mg
Fentanyl[c]	0.1 mg	–
Methadone[d,e]	–	–
Oxycodone	–	15–20 mg
Hydrocodone[a,f]	–	30–45 mg

Does NOT follow opioid principles

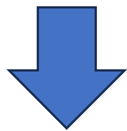
Transdermal (TD) fentanyl patch: only for opioid tolerant
OME / 2 = mcg/hr

Round down for incomplete cross tolerance

NCCN: Adult Cancer Pain v2.2023

Incomplete Cross Tolerance

The need to DECREASE the calculated equianalgesic dose by 25-50%



40% decrease is generally a good rule of thumb

Rationale: Opioids are generally mu selective. Because of polymorphism (multiple mu-opioid peptide receptors), people may respond differently to different opioids. If someone develops a tolerance to one opioid, they may have enhanced analgesia and potential for toxicity with another opioid that binds to different mu-receptors.

Joy's Total Daily Dose (TDD)

Morphine ER 30mg BID = **morphine 60mg po**

Oxycodone IR 5-10 Q4H PRN (50mg total) =
Xmg morphine PO

$$\frac{\text{oxycodone 50mg po}}{\text{oxycodone 20mg po}} = \frac{\text{morphine Xmg po}}{\text{morphine 30mg po}}$$

X = **morphine 75mg PO**
(no cross tolerance since Joy is already taking morphine)

60mg + **75mg** = 135mg

Calculated TDD = morphine 135mg PO

Reminder:

Mild Pain	• Increase dose up to 25%
Moderate Pain	• Increase dose up to 50%
Severe Pain	• Increase dose up to 100%

New Opioid Regimen

Morphine ER 60mg PO BID

+

Morphine IR 15mg PO Q4 H PRN

What opioid side effect tends to persist beyond the others?

A. Sedation
B. Constipation
C. Xerostomia
D. Nausea

Bowel Regimen is a Must Do

- Expect that a patient taking opioids will develop constipation
- Prescribe a bowel regimen for patients on opioids
    - Senna 2 tabs daily is a good starting place
- If there is an exception, state why

Non-Opioid Pharmacologic Interventions

Non-opioid Analgesia

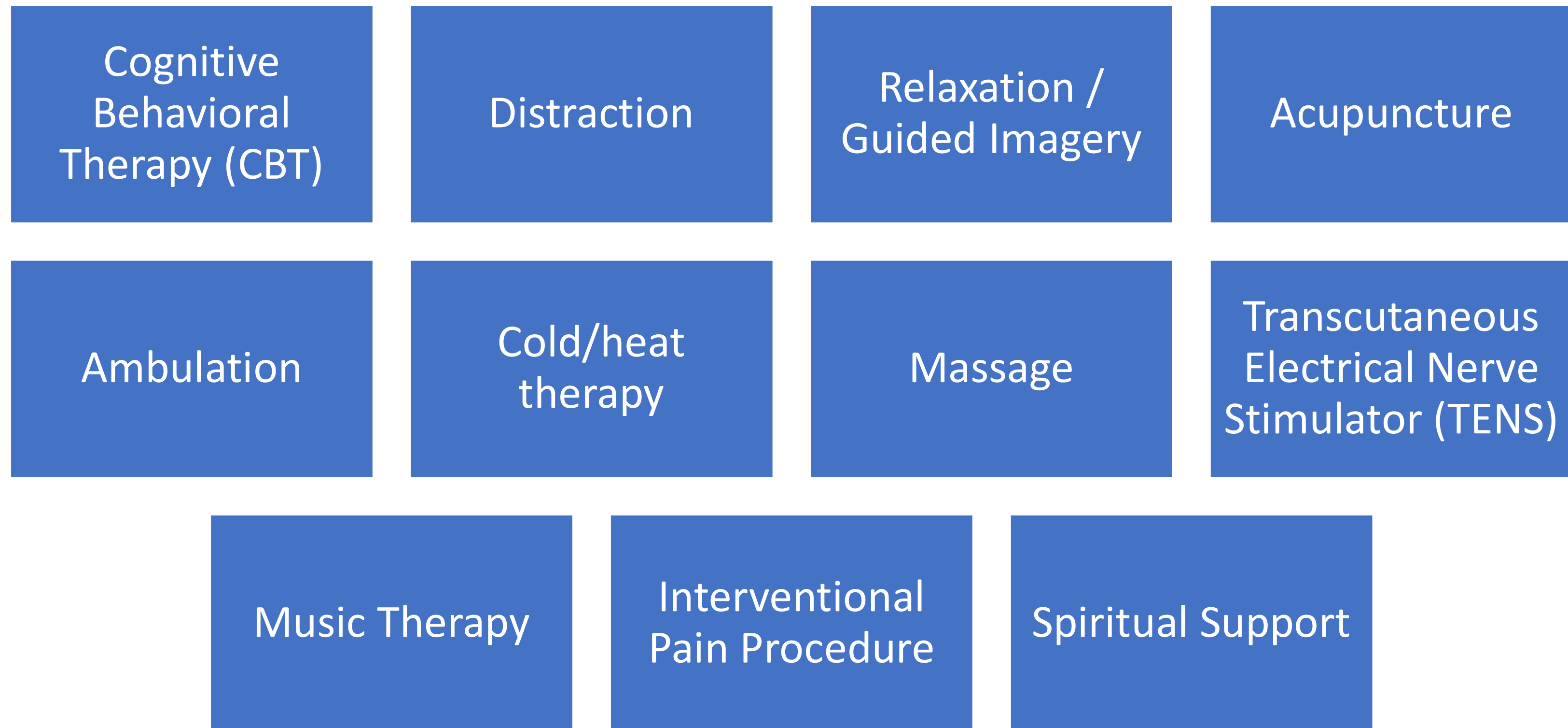
- Acetaminophen
- NSAIDs

Adjuvant Analgesia (neuropathic pain)

- Antidepressants
  - SNRIs/TCAs
- Anticonvulsants
  - Gabapentin
  - Pregabalin
- Topical Agents
  - Lidocaine patches
  - Topical NSAIDs
- Corticosteroids

NCCN: Adult Cancer Pain v2.2023

Non-Pharmacologic Interventions



SHM Pain Management Implementation Guide

Joy's Multimodal Pain Approach

Morphine ER 60mg PO BID

Morphine IR 15mg PO Q4 PRN

Acetaminophen 1000g PO TID

Gabapentin 300mg TID

Duloxetine 60mg Daily

Abdominal Heating Pad

Interventional Pain Consultation

Distraction

Spiritual Care Consultation

Case Study: Joy

- Develops fever, nausea, vomiting
- Creatinine 0.9 → 1.7
  Cr clearance 64ml/min
- You are treating her for pyelonephritis
- Pain level is mild-moderate

<u>Current Opioid Regimen</u>

Morphine ER 60mg PO BID

+

Morphine IR 15mg PO Q4 H PRN

How do you treat Joy’s pain now?

A. Increase morphine ER based on 24-hour total
B. Rotate to a morphine PCA
C. Rotate to a hydromorphone PCA
D. Rotate to a fentanyl patch

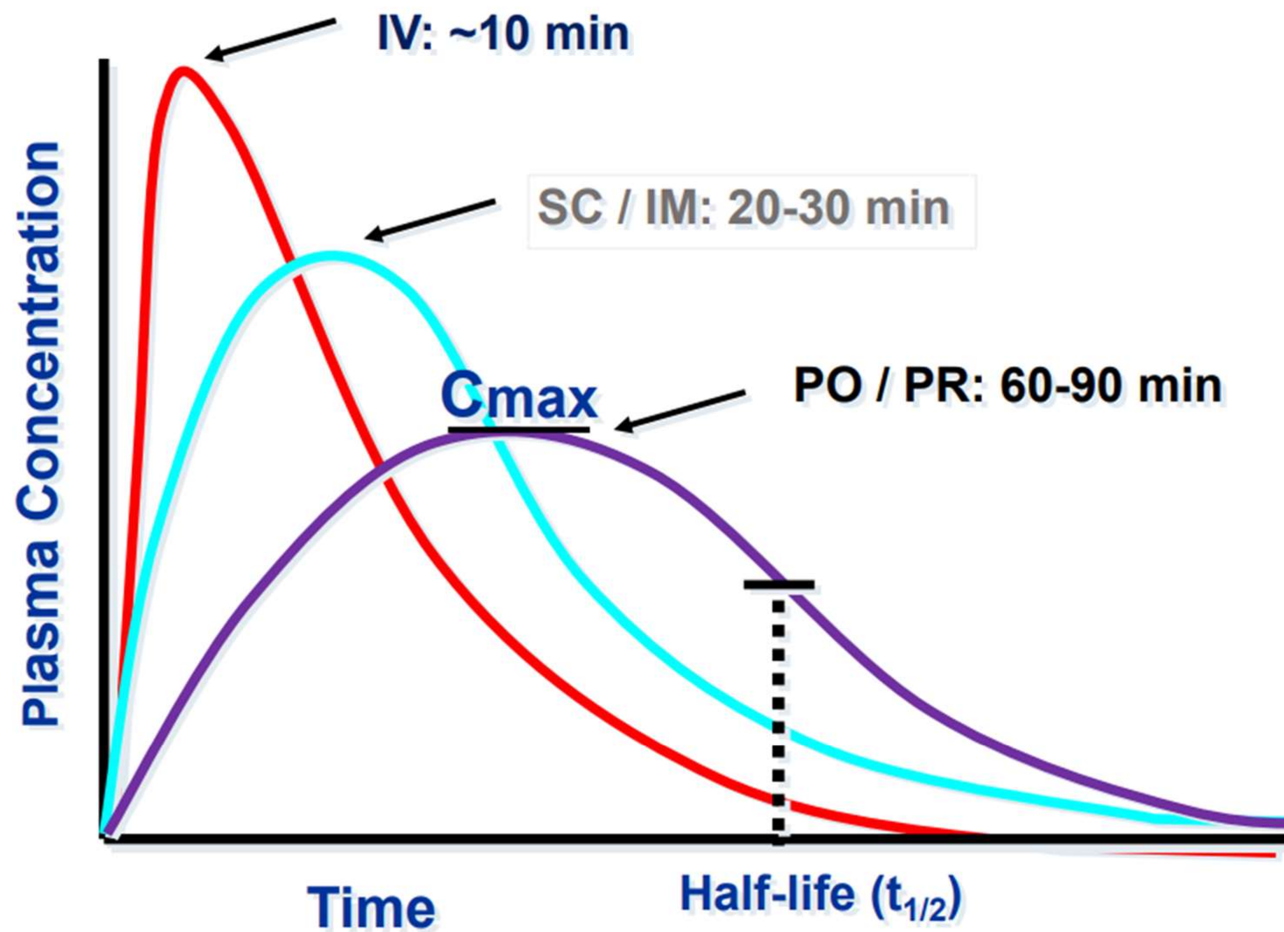
CAUTION

Morphine: avoid in kidney and liver failure

Any opioid: caution in elderly - start at lowest dose possible and go slow

NSAIDs: Avoid in patients with increased bleeding risk

Guerriero: World J Clin Cases 2017



EPEC, 2022

Patient Controlled Analgesia (PCA)

Rules of Thumb

- Patient has confirmed cognitive function and physical capability
- Discontinue all other opioids
- Basal dose is calculated based on previous 24h opioid use
- Demand dose is 50-100% of basal rate
- RN bolus is 100-200% of demand dose
- Double check calculations with another provider

Patient Controlled Analgesia (PCA)

Joy's 24h use: morphine 165mg PO

Calculating Basal Rate

Morphine 165mg po hydromorphone X mg IV
Morphine 30mg po = hydromorphone 1.5mg IV

X = hydromorphone 8.25mg IV

⬇ 40% for incomplete cross tolerance

Hydromorphone 8.25mg IV x 0.6 = 4.95mg IV

Hydromorphone 4.95mg IV / 24h = **0.2mg/hr**

Calculating Demand Dose

50-100% of basal rate
0.2mg / 2 = 0.1mg
Demand dose = 0.1mg

Hydromorphone PCA Order (0.2/0.1/10)
Basal Rate: 0.2mg/hr
Demand Dose: 0.1mg
Lockout interval: 10 min (Cmax)

Titrating a PCA

Joy's pain is well controlled (mild). Together you decided to continue the current settings.

Mild Pain	• Increase dose up to 25%
Moderate Pain	• Increase dose up to 50%
Severe Pain	• Increase dose up to 100%

What would you do with PCA settings if Joy had moderate pain?

- Calculate 24-hour total use
- Use this as a guide for your new basal
- Adjust bolus settings based on new basal
- Double check that the increase does not exceed above guideline for moderate pain

NCCN: Adult Cancer Pain v2.2023

Case Study: Joy

- Fever resolved, tolerating PO
- AKI improving (creatinine 1.4)
- Pain is well controlled on PCA settings (hydromorphone 0.2mg/0.1mg/10min)
- Joy is anxious to discharge to attend a football game this weekend
- You rotate her back to an oral opioid

IV → Oral Opioid Conversion

24h use: hydromorphone 5mg IV

$$\frac{\text{Hydromorphone 5mg IV}}{\text{Hydromorphone 1.5mg IV}} = \frac{\text{oxycodone Xmg PO}}{\text{oxycodone 20mg PO}}$$

X = 66.6mg oxycodone PO

⬇ 40% for cross tolerance

66.6 x 0.6 = 39.96

~ 40mg oxycodone PO

New Calculated Opioid Regimen

Oxycodone ER 20mg PO BID

+

Oxycodone IR 5mg PO Q4H PRN

Joy’s Discharge Pain Plan

Oxycodone ER 20mg BID

Oxycodone IR 5mg Q4H PRN

Gabapentin 300mg TID

Duloxetine 60mg Daily

Close follow up with PCP!

Less Commonly Used Pain Medications

- Methadone
- Lidocaine
- Ketamine
- Buprenorphine

Always phone a friend!

Pain Service

Palliative Care Service

Experienced Clinician

Recommended Resources

CO*RE REMS

www.core-rems.org

iALTO

https://cha.com/wp-content/uploads/2019/09/CHA.149-CO-Cure_Pain-Pathways_8-19_rev.pdf

NCCN Adult Cancer Pain Guideline

http://www.nccn.org/professionals/physician_gls/f_guidelines.asp

PDMP

https://www.pdmpassist.org/State

SHM Pain Management Implementation Guide

https://www.hospitalmedicine.org/clinical-topics/pain-management/

Take Home Points

- Avoid mixing opioids
- Always provide a bowel regimen
- Rapid titration dosing intervals = Cmax
- Opioid dosing may increase up to:
  - 25% (mild pain)
  - 50% (moderate pain)
  - 100% (severe pain)
- Avoid morphine in kidney and liver failure
- Caution in elderly

References

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Questions?

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