

# LESS PAIN... HUGE GAIN

Dr. Julie M. Lehn  
Clinical Pharmacy Specialist: Internal Medicine  
Banner Health  
[julie.lehn@bannerhealth.com](mailto:julie.lehn@bannerhealth.com)



## Disclosure slide

- Julie M. Lehn, PharmD, BCGP
  - No conflicts of interest to disclose
  - No financial conflicts to disclose
  - Presentation is educational in nature



## At the conclusion of this session participants should be able to

- Utilize information gained during the patient interview to select the most appropriate agent(s) to treat a patient's pain
- Identify appropriate adjuvant therapies for managing pain
- Determine the most appropriate mode of delivery for opioids (IV, PCA, ER, IR, SL)
- Safely and strategically titrate or wean a patient's opioids



# Patient Interview

- Details about the patient's pain syndrome (OOPQRST)
  - Opioid Naïve
  - Onset
  - Precipitating and palliating factors
  - Quality
  - Region and radiation
  - Severity
  - Temporal-constant or intermittent



Pain Source	Pain Character	Drug Class Therapy Examples
Somatic Pain	Constant and localized Often worse with movement Aching gnawing	Muscle relaxants APAP NSAIDs
Bone Pain (axial skeleton with thoracic and lumbar spine most common)	Deep, aching, throbbing Punctuated by sharper intense pain Often triggered by movement	NSAIDs Corticosteroids Bisphosphonates Radiation therapy
Visceral pain (injury to sympathetically innervated organs)	Pain is vague in quality Sharp and deep Aching, dull, squeezing, colicky and referred pain	Opioids
Neuropathic pain (injury to some element of the nervous system; plexus or spinal root)	Burning, stinging, tingling, weakness, radiation, numbness or altered sensation	Tricyclic antidepressants Opioids
Nerve damage dysesthesia (may not respond well to opioids)	Dysesthesia, burning, tingling, numbing, shooting electrical pain	Anticonvulsants



## Non-Pharmacologic Modalities

- Aroma Therapy
- Pet Therapy
- Psychology
- Music Therapy
- Art Therapy
- Spiritual Care
- Massage Therapy
- Heat/Ice
- Acupuncture
- Physical Therapy
- Meditation
- Sleep Hygiene



## Pharmacologic Adjuncts

- Muscle Relaxants
- Acetaminophen
- NSAIDS/corticosteroids
- Bisphosphonates
- Antidepressants
  - TCAs
  - SNRIs
- Gabapentinoids
- Local Anesthetics



## Muscle Relaxants

### ■ Acting at CNS

- Methocarbamol
- Caution with hepatic or renal impairment
- Cyclobenzaprine
  - Anticholinergic effects...caution in the elderly
- Benzodiazepines
  - Caution with diazepam

### ■ Acting at skeletal muscle

- Dantrolene
- Caution in impaired cardiac or pulmonary function
  - Monitor LFTs
  - May be beneficial in opioid-induced myoclonus





# Acetaminophen (Tylenol®)

- Indication
  - Mild to moderate pain of non-visceral origin
- Oral and IV
- Analgesic and antipyretic properties
- Typical dose
  - 650mg to 1000mg every 4-6 hours, daily  
max=4grams



# Acetaminophen (Tylenol®)

## ■ Side effects

- Mostly benign, well tolerated

## ■ Caution

- Hepatic and renal complications
  - Doses greater than 4 grams per day for more than a few days
  - Concurrent use of alcohol
  - Lower total daily doses may be more appropriate in certain populations



## Nonsteroidal Anti-inflammatory Agents

- Indication
  - Mild to moderate nociceptive pain
  - Bone pain
- Oral and IV
- Anti-inflammatory, antipyretic and analgesic properties
- Typical dose
  - Varies based on particular agent



# Nonsteroidal Anti-inflammatory Agents

## ■ Side effects

- GI
  - Less with selective COX-2 inhibitors
- Renal
- Increased thromboembolic cardiovascular events with selective COX-2 (absence of platelet inhibition)

## ■ Caution

- Variety of effects on cardiovascular disease
  - Interference with beneficial antiplatelet activity of aspirin
  - Modest exacerbation of heart failure
- Risk of non-union in acute neurosurgery fusion patients
- Renal impairment



# Corticosteroids

- Indication
  - Moderate to severe pain
  - Anti-inflammatory
  - Capsular stretch
  - Bone pain
- Oral and IV
- Anti-inflammatory properties (glucocorticoid versus mineralcorticoid)
- Typical dose
  - Dexamethasone: 2 to 4mg PO/IV two to three times daily
    - Higher doses, 16 mg daily and above, may be necessary for adequate pain control
- Side effects
  - Short term
    - Peri-anal burning with rapid IV administration, insomnia, increased appetite, serum glucose, fluid retention/hypertension, GI ulcers
  - Long-term
    - Adrenal suppression, Cushing's syndrome, immunosuppression, osteoporosis, thromboembolic disorder
- Caution with active infectious processes



# Bisphosphonates

## ■ Indication

- Metastatic disease to the bone to prevent skeletal-related events
- Bone pain

## ■ IV

## ■ Typical dose (caution in renal dysfunction)

- Pamidronate: 60-90 mg IV monthly
- Zoledronic acid: 4 mg IV monthly
- Consider supplementation of calcium/vitamin D

## ■ Side effects

- Hypocalcemia, flu-like symptoms, increased bone pain

## ■ Caution

- Previous administration as outpatient



## Antidepressants

### ■ Indication

- Neuropathic pain

### ■ Tricyclic (TCAs)

- First-line
- **Typical dosages**
  - Amitriptyline 25-150mg PO at bedtime
  - Imipramine 20-150mg PO at bedtime
  - Doxepin 25-150mg PO at bedtime
  - Desipramine 25-150mg PO at bedtime
  - Nortriptyline 25-150mg PO at bedtime



## Antidepressants

- Side effects
  - Sedation
  - Orthostatic hypotension
  - Urinary retention
  - Rare cardiac conduction problems
- Dose titration may take several weeks





## Antidepressants

### ■ Serotonin/Norepinephrine Reuptake Inhibitors (SNRIs)

- Duloxetine
  - Dosing: 60 mg daily
    - Can initiate at 30mg daily if tolerability is of concern or there is renal impairment
  - Side effects
    - nausea, dry mouth, constipation, insomnia, drowsiness/dizziness
- Venlafaxine
  - 37.5 - 75 mg daily (may titrate up to 225 mg/day)
  - Caution in cardiac disease (conduction abnormalities, hypertension)



## Gapapentinoids

- Indication
  - Neuropathic pain
- Oral
- Mechanism
- Typical doses
  - Gabapentin
    - 100 mg TID (may require titration over days to weeks to doses of 900 – 3600 mg/day)
  - Pregabalin
    - 75 mg QD-BID (may require doses up to 300 mg BID)
- Side effects
  - Sedation, dizziness, gait instability, hallucinations
- Caution
  - Gabapentin abuse and misuse
  - Potential for withdrawal
  - Renal dose adjustments required



## Local Anesthetics

- For use on intact skin
- Typical dosage
  - Lidocaine patch- Up to 3 patches daily (12 hours on, 12 hours off)
- Usually well tolerated without serious side effects



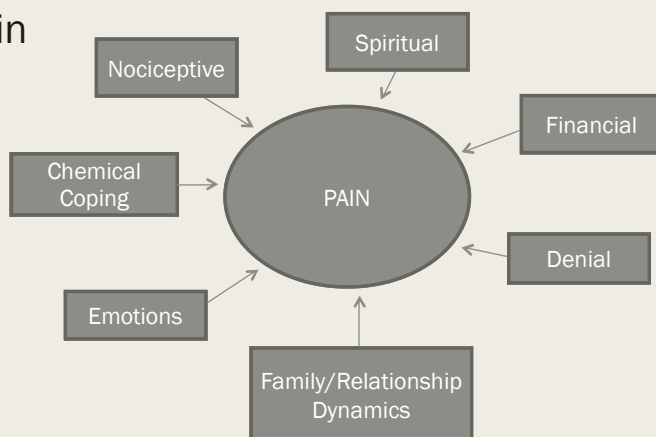
## Capsaicin

- Typical dosage
  - Start 0.025% and after one to two weeks, proceed to 0.075%
- Side effects
  - Substantial burning upon initiation
- Caution
  - Do not touch mucous membranes or eyes



## “Generalized” Body Pain

### ■ Total pain



### ■ Vitamin D and B deficiencies



## Equianalgesic Dosing

Opioid	IM/IV (mg)	PO (mg)	Duration (hrs)
Codeine	120	200	4 to 6
Morphine	10	30	3 to 6
Hydromorphone	1.5	7.5	4 to 6
Fentanyl	0.1 (100 mcg)	NA	1 to 2
Oxycodone	NA	20	4 to 6
Tramadol	100	120	9
Methadone	consult a provider with expertise in dosing		



## Initial Opioid Doses for an Opioid Naïve Patient

Opioid	Per Package Insert	Based on Clinical Experience
Morphine IV	0.1 to 0.2 mg/kg q 4hrs prn	2 to 4 mg
Morphine PO	15 to 30 mg q 4 hrs prn	7.5 to 15 mg
Fentanyl IV	Surgery- <u>low</u> dose 2mcg/kg prn	12.5 to 25 mcg
Hydromorphone IV	0.2 to 1mg q 2 to 3 hrs	0.2 to 0.5 mg
Hydromorphone PO	2 to 4 mg q 4 to 6 hrs	2 to 4 mg
Oxycodone PO	5 to 15 mg q 4 to 6 hrs	2.5 to 5 mg
Methadone PO	2.5 mg q 8 to 12 hrs	2.5 to 5 mg



## Oral Route of Opioid Administration

### ■ Immediate Release (IR) dosage forms

- Short duration anticipated (e.g. post-op)
- Opioid Naïve
- Mild to moderate pain
- As needed opioid requirements are minimal
- Impaired organ function

### ■ Extended Release (ER) dosage forms

- Extended duration expected (e.g. cancer pain)
- Poor control despite adequate prn
- Moderate to severe pain





## Oral Route of Opioid Administration

- Sublingual (SL)
  - Difficulty swallowing pills or liquid
  - Actively dying
  - GI issues that may be impacting absorption
  - Sporadic absorption



## IV Route of Opioid Administration

### ■ Intravenous (IV)

- If rapid onset is needed (nursing care, physical therapy)
- Patient is absolute NPO
- Need opioid with very short duration of action (e.g. fentanyl)

### ■ PCA

- RN to patient ratio impedes good pain management
- Patient is absolute NPO or NPO for indeterminant timeframe
- Anticipated time for high opioid requirement is short
- Multiple titrations of current pain medications with minimal improvement



## PCA Initial Doses

	<b>Morphine 1 mg/mL</b>	<b>Hydromorphone 0.2 mg/mL</b>	<b>Fentanyl 20 mcg/mL</b>
<b>Infusion (continuous):</b>	0 to 2 mg/hr	0 to 0.3 mg/hr	0 to 25 mcg/hr
<b>If opioid naïve:</b>	1 mg/hr	0.2 mg/hr	10 mcg/hr
<b>Loading Dose:</b>	4 to 8 mg	0.5 to 1 mg	50 mcg
<b>If opioid naïve:</b>	2 to 4 mg	0.5 mg	12.5 to 25 mcg
<b>PCA Demand Dose:</b>	1 to 2.5 mg	0.2 to 0.4 mg	10 to 25 mcg
<b>If opioid naïve:</b>	1 mg	0.2 mg	10 mcg
<b>Lockout Interval</b>	12 to 20 minutes	8 to 20 minutes	6 to 15 minutes
<b>If opioid naïve:</b>	12 to 20 minutes	8 to 20 minutes	6 to 15 minutes
<b>4-Hour Limit (Optional)</b>	Total of maximum demand doses in 4 hrs +/- basal dose for 4 hrs	Total of maximum demand doses in 4 hrs +/- basal dose for 4 hrs	Total of maximum demand doses in 4 hrs +/- basal dose for 4 hrs

## Patient Case: PCA

- 17 year old female s/p MVA with multiple fractures. s/p ORIF, and rod placement in femur. No opioid use prior to admission. Patient is complaining of spasms in the hip. The pain is located in the hip and leg. There is no radiation. Describes pain as a gnawing, deep, aching sometimes throbbing. Some pain is always present. Rates pain 7/10 when lying in bed and 12/10 when ambulating. A score of 3/10 would be acceptable. Current medications are helping but not enough to ambulate or participate in physical therapy. Patient has not tried any non-pharmacologic modalities. No bowel movement for 4 days. Goal is to transition patient to oral medications in preparation for discharge.
- SrCr 0.6, LFTs within normal limits
- NKA
- Morphine PCA for pain control changed to fentanyl PCA 4 days prior due to intolerable itching
- Current dosing of fentanyl PCA: 50 mcg/hr basal with 25 mcg Q15 minutes on demand. No 4-hour lockout.



## Patient Case: OOPQRST

- Opioid naïve-yes
- Onset-acute with MVA
- Precipitating/palliating factors-medications help, movement worsens pain
- Quality-gnawing, deep, aching, throbbing
- Region/radiation-leg/hip without radiation
- Severity 12/10 with movement, 7/10 with lying still, goal is 3/10
- Temporal-constant



## Patient Case: Assessment

- PCA requirements past 48 hours:
  - T-2=2200 mcg per 24 hrs
  - T-1=2150 mcg per 24 hrs
- Itching with morphine. Choose oxycodone for PO extended release alternative
- Conversion from IV fentanyl to IV morphine
  - *0.1 mg IV fentanyl = 10 mg IV morphine*
    - $0.1\text{mg}/10 = 2200/x = 220 \text{ mg IV morphine}$
- IV morphine to PO morphine
  - *1 mg IV morphine = 3 mg PO morphine*
    - $1/3 = 220/x = 660 \text{ mg PO morphine}$
- PO morphine to PO oxycodone
  - *2 mg PO morphine = 1 mg PO oxycodone*
    - $2/1 = 660/x = 330 \text{ mg PO oxycodone}/24 \text{ hours}$
- 330 mg PO oxycodone in 24 hours
- 25-50% dose reduction for incomplete cross tolerance
  - $330 \text{ mg} * 60\% = 215 \text{ mg oxycodone}$



## Patient Case: Assessment

- Based on pain descriptors likely dealing with somatic and bone pain
- Untreated spasms
- Evaluate for appropriate adjuncts
- Constipated
- Anticipate decreased pain and opioid requirements with adjuncts and increased PODs



## Patient Case: Plan

- Undercut requirement slightly and start 80 mg OxyContin PO q12 hours.
- 1<sup>st</sup> dose now and discontinue basal rate, continue with demand dose fentanyl for additional 24 hours

OR...

- Start OxyContin 80 mg PO q12 hours, 1<sup>st</sup> dose now and 4 hours later discontinue the PCA altogether and add prn oxycodone immediate release
  - Oxycontin 80mg x 2= 160 mg per day
  - 160 mg PO oxycodone x 10%= 16 mg PO oxycodone
  - So use 20 mg oxycodone PO q3 hours prn pain
- Add muscle relaxant for spasm and NSAID for bone pain
- Add laxative +/- stool softener for constipation





## Evaluation of Therapeutic Outcomes

- Consistently monitor effectiveness versus side effects
- Functional status versus numerical rating scale
- Titrate treatment as warranted by prn use
- If intubated or sedated, monitor agitation, vital signs and general appearance



## Patient Case: Follow-Up

- No signs of opioid toxicity
- Since 1<sup>st</sup> dose OxyContin pt used 3 doses of 20mg oxycodone prn
- Due to minimal prn use, decrease OxyContin to 60mg PO q12 hours
- 24 hours after reduction in OxyContin, patient required 2 doses of 20mg oxycodone prn warranting further decrease to OxyContin 40 PO q12 hours
- New goal: wean to oxycodone requirement of 60mg PO daily so patient could be discharged on oxycodone/acetaminophen 5/325mg only



## When to Taper

- Pain has improved significantly
- No clinically meaningful improvement in pain and function
  - Dosages are greater than or equal to 50 mg morphine equivalents (MME) per day without benefit
- If patient requests a dosage reduction
- Using opioids in conjunction with benzodiazepines
- Showing signs of substance use disorder
- Showing early warning signs for overdose risk
- Experiencing overdose or other serious adverse effects

Pocket Guide: Tapering Opioids For Chronic Pain. [https://www.cdc.gov/drugoverdose/pdf/clinical\\_pocket\\_guide\\_tapering-a.pdf](https://www.cdc.gov/drugoverdose/pdf/clinical_pocket_guide_tapering-a.pdf). Assessed June 6, 2020.



## How to Taper

- Assess for appropriateness of non-opioid adjuncts and non-pharmacologic adjuncts
- Individualize the plan according to patient's response
- Plan should avoid or minimize opioid withdrawal symptoms
- 10% decrease of the original dose **per week** if opioid use of weeks to months
- 10% decrease of the original dose **per month** if opioid use greater than 1 year
- Methadone may require a slower taper

Opioid Taper Decision Tool. Assessed June 2020 at [https://www.pbm.va.gov/AcademicDetailingService/Documents/Pain\\_Opioid\\_Taper\\_Tool\\_IB\\_10\\_939\\_P96820.pdf](https://www.pbm.va.gov/AcademicDetailingService/Documents/Pain_Opioid_Taper_Tool_IB_10_939_P96820.pdf).  
Opioid Taper Calculator. Assessed Aug 2020 at <http://www.agencymeddirectors.wa.gov/tapercalculator/taperdosecalculator.html>



# How to Taper

- Use lowest effective dose for shortest duration
- Monitor closely
- Provide psychosocial support

Opioid Taper Decision Tool. [https://www.pbm.va.gov/AcademicDetailingService/Documents/Pain\\_Opioid\\_Taper\\_Tool\\_IB\\_10\\_939\\_P96820.pdf](https://www.pbm.va.gov/AcademicDetailingService/Documents/Pain_Opioid_Taper_Tool_IB_10_939_P96820.pdf).  
Assessed June 19, 2020.



# Methadone

- Mechanism of Action
- Can help prevent development of tolerance
- No cross sensitivity with morphine
- Tissue binding predominates over plasma protein binding
- Duration of analgesia
- Plasma concentration
- Adverse drug reactions
- Drug-drug interactions



Morphine Dose (mg/day)	30-90	90-300	300+			
Morphine:methadone dose ratios	4:1	8:1	12:1			

Mercandante et al 2001

Morphine Dose (mg/day)	<100	101-300	301-600	601-800	801-1000	>1000
Morphine:methadone dose ratios	3:1	5:1	10:1	12:1	15:1	20:1

Ayonrinde 2000

Ayonrinde OT and Bridge DT. MJA.2000;173:536-40. Mercandante S, Casuccio A Fulfaro F et al. Switching from Morphine to Methadone to Improve Analgesia and Tolerability in Cancer Patients: A Prospective Study. 2001. Jour of Clin Onc:19(11):2898-2904.

## Patient Case: Methadone

- CT is a 59 yo admitted with LLE cellulitis and possible osteomyelitis. As an outpatient he is on methadone 40mg PO Q 8 hours with oxycodone 20 to 40mg PO Q 4 hours prn for chronic back pain. He describes the acute pain as aching, throbbing and hot. He rates his acute pain 7/10 and would find a 4/10 acceptable. His chronic pain averages 2-3/10 daily. Pt is scheduled to go to the OR tomorrow for debridement and bone biopsy. He will be NPO after midnight. CT is experiencing increased pain due to the infection that is not being controlled on his current regimen. He is on empiric antibiotics. CT is on scheduled bowel care continued from OP. +BM yesterday. No signs of opioid toxicity.
- Allergy: Morphine (severe pruritis)
- SrCr = 0.98 (baseline), K=2.9, LFTs wnl
- RR 18-20; O<sub>2</sub> Sats 99-100% (RA)
- PRN pain regimen includes oxycodone 20 to 40mg PO Q 4 hours and hydromorphone 0.5 mg IV Q 3 hours





## Patient Case: OOPQRST

- Opioid naïve-no
- Onset-acute pain has been present since the onset of the infection
- Precipitating/palliating-dressing changes intensify the pain. Lying in bed too much worsens back pain. Watching TV (distraction) and prn medications relieve pain
- Quality-aching, throbbing and hot
- Region/radiation-left lower extremity and back. No radiation
- Severity-7/10 and 4/10 is acceptable
- Temporal-constant



## Patient Case: Assessment

- Evaluate opioid options with NPO status
- Review IV prn requirements
- Assess for needed adjuncts
- Address abnormal electrolytes
- Check for drug-drug interactions



## Patient Case: Plan

- Discontinue prn oxycodone if absolute NPO and adjust hydromorphone dose
- Continue methadone (use IV if continued NPO)
- Add ketorolac 15mg IV q 6 hrs x 5 days, monitor renal function
- Replace electrolytes and monitor
- Monitor for new drug-drug interactions



# Opioid Dose Escalation

- Calculate total daily dose of current opioid(s)
- Consolidate/convert all opioids to one opioid dose per 24 hrs
- Calculate the additional amount of opioid needed per day based on the following:
  - Additional 25-50% increase for moderate pain (rating 4-7)
  - Additional 50-100% increase for severe pain (rating 8-10)
- Reduce by 25-50% to account for incomplete cross tolerance
- As needed dose of 10% to 20% of the total scheduled daily dose at a reasonable dosing interval prn (for the drug/route chosen)



## Fentanyl Transdermal

- Not recommended for use in acute pain or opioid naïve patient
- Serum concentrations plateau in 12 to 24 hours
- Average duration after removal is ~ 18 hours
- Absorption can vary in elderly or debilitated
- Caution with concomitant vasoconstrictive medications
- Dosing interval is every 72 hours
- Do NOT cut the patches



## Patient Case: Post-op Pain

- JF is a 47 yo female with necrotizing fasciitis of the forearm and hand post multiple surgeries and debridement is being prepared for discharge. POD 6 from last surgical procedure. Pain is controlled on current regimen but patient has been having pain in the shoulder of her injured limb for the past 2 days. Surgical team placed a 75mcg fentanyl patch preceding day ~noon and simultaneously discontinued the 0.5mcg/hr basal from the PCA. Patient's pain is worse this a.m. You were consulted to management pain. +BM yesterday on scheduled bowel care. Patient was opioid naïve prior to admission.
  - Currently hydromorphone PCA at 0.5 Q 20 minutes on demand
    - T-2 Basal (12mg/24 hrs) + 12 demand doses (30 mg/24 hrs total)
    - T-1 Basal (12mg/24hrs) + 6 demand doses (27 mg/24 hrs total)
    - Since patch placement (~18 hours) 24 demand doses (12mg total/18 hours)
- Allergies to morphine (hallucinations) and oxycodone (severe nausea)
- Normal renal and hepatic function
- RR 17-20; O<sub>2</sub> Sats 98-100% (RA)



## Patient Case: OOPQRST

- Opioid naïve-yes
- Onset-since the infection and surgeries
- Precipitating/palliating factors-dressing changes worsen the pain and hydromorphone relieves the pain but not as well today as previously
- Quality-in the hand and forearm pain is dull; shoulder pain is deep and aching
- Region/radiation-shoulder pain possibly radiating from the arm/hand versus a result of positioning in order to guard injury
- Severity-10/10 overnight; previously 6/10. 4/10 would be the goal for the patient
- Temporal-hand and forearm is constant; shoulder pain is intermittent



## Patient Case: Assessment

- Need pain management options in preparation for discharge
- Adjuncts for multimodal approach to therapy
- Fentanyl patch
  - 15mg/day hydromorphone = 315 mg PO morphine
    - 60% considering incomplete cross tolerance=189 mg PO morphine
  - 50 mcg/hour patch (per PI) or 75 or 100mcg/hr per hospice method





## Patient Case: Plan

- Fentanyl patch
  - 75 mcg/hour patch
    - Place patch and discontinue basal rate 8 hours after placement
    - Continue with demand dose of PCA for 12 to 24 additional hours
- Ketorolac 15mg IV q6hrs
- PO hydromorphone prn
  - Base dose on demand doses ~24 hours after patch placement



## Take Home Points

- Thorough patient interview and active listening are critical skills for successful pain management plans
- The most likely source of pain and the pain character are key in selecting the appropriate agent(s) to treat pain
- Be respectful of agents with the potential to depress the central nervous system
- Safest approach: start low and go slow



## Resources and References

- Management of postoperative pain: a clinical practice guideline from the American Pain Society, the American Society of Regional Anesthesia and Pain Medicine and the American Society of Anesthesiologists' Committee on Regional Anesthesia. Executive Committee, and Administrative Council. *J Pain* 2016;17(2):131-57 with correction appearing 2016;17(4):508-10.
- Demystifying Opioid Conversion Calculations by Mary Lynn McPherson
- Tarascon Palliative Medicine Pocketbook by Moses Bates
- Bema C et al. Tapering Long-term Opioid Therapy in Chronic Noncancer Pain: Evidence and Recommendations for Everyday Practice. *Mayo Clin Proc.* 2015;90(6); 828-42.
- Tauben D. *Nonopioid Medications for Pain. Phys Med Rehabil Clin N Am.* 2015;26:219-48.
- Finnerup NB. *Nonnarcotic Methods of Pain Management. NEJM.* 2019;380:2440-8.

## Resources and References

- *Bates D, Schultheis BC, Hanes MD et al. A Comprehensive Algorithm for Management of Neuropathic Pain. Pain Medicine. 2019;20:S2-12.*
- *Chou R, Cruiani RA, Fiellin DA et al. Methadone Safety: A Clinical Practice Guideline From the American Pain Society and College on Problems of Drug Dependence, in Collaboration With the Heart Rhythm Society. J Pain. 2014 Apr;15(4):321-37*
- CDC Guideline for Prescribing Opioids for Chronic Pain  
[www.cdc.gov/drugoverdose/prescribing/guideline.html](http://www.cdc.gov/drugoverdose/prescribing/guideline.html)
- *Ahmadi A, Bazargan-Hejazi S, Zadi AH et al. Pain Management in trauma: A review study. J Inj Violence Res. 2016;8(2):89-98.*
- *Malec M and Shega JW. Pain management in the Elderly. Med Clin of N Amer. 2015;99(2):337-50.*
- *Rajan J and Behrends Matthias. Acute Pain in Older Adults. Anesthesiology Clin. 2019;37:507-20.*