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Learner Objectives

- ✓ Review Updates and Changes on the MassPI Pain Pocket Tool
- ✓ Describe pharmacological updates in detail
 - Using some case examples

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Disclosures

- Nothing to disclose

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Principles of Pain Management

1. Ask the patient about the presence of pain
2. Assess the patient's report of pain
3. Perform a comprehensive pain assessment, including:
 - Character, location, and duration
 - Quality
 - Intensity, pain descriptors (scale)
 - Effect on function and quality of life
 - Response to prior treatment
 - History/physical exam
 - Risk Assessment for abuse/misuse
4. Do not use J.M. codes. Avoid concurrent use of

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Check PMP

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i.e. reiki, ice/heat, acupuncture

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Commonly Used Non-Opioid Analgesics

Section

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Commonly Used Non-Opioid Analgesics

Drug	Average Dose	Dosing	Maximum Dose	Side Effects	Comments
Acetaminophen (Tylenol)	325-1000 mg	q 4-6h PRN	4 g per 24h	Hepatotoxicity, hypotension, rash	Reduce maximum dose 50-75% with renal insufficiency or history of alcohol use. If acetaminophen is avoided.
Ibuprofen (Advil)	200-400 mg	q 6-8h PRN	3200 mg	Gastrointestinal, renal, cardiovascular	Caution with renal disease.
Naproxen (Aleve)	250-500 mg	q 12h PRN	1000 mg	Gastrointestinal, renal, cardiovascular	Caution with renal disease.
Celecoxib (Celebrex)	100-200 mg	q 12h PRN	400 mg	Gastrointestinal, renal, cardiovascular	Caution with renal disease.

Guidelines of Pain Management

1. Assess the patient's level of pain.
2. Assess the patient's level of function.
3. Assess the patient's level of distress.
4. Assess the patient's level of anxiety.
5. Assess the patient's level of depression.
6. Assess the patient's level of fatigue.
7. Assess the patient's level of nausea.
8. Assess the patient's level of constipation.
9. Assess the patient's level of urinary retention.
10. Assess the patient's level of respiratory depression.
11. Assess the patient's level of hypotension.
12. Assess the patient's level of tachycardia.
13. Assess the patient's level of hypoxia.
14. Assess the patient's level of hypercapnia.
15. Assess the patient's level of hyperventilation.
16. Assess the patient's level of diaphoresis.
17. Assess the patient's level of miosis.
18. Assess the patient's level of pinpoint pupils.
19. Assess the patient's level of respiratory arrest.
20. Assess the patient's level of death.

Management of Opioid Side Effects

Respiratory Depression: Assess respiratory rate, depth, and effort. Administer naloxone if respiratory rate is less than 8 breaths per minute or if there is no chest rise. Monitor vital signs and level of consciousness. Provide supportive care as needed.

Constipation: Assess bowel sounds, abdominal distention, and stool output. Administer stool softeners and laxatives as needed. Encourage fluid intake and physical activity.

Urinary Retention: Assess bladder distention and voiding. Administer catheter if urinary retention is present. Monitor vital signs and level of consciousness.

Nausea and Vomiting: Assess nausea and vomiting. Administer antiemetics as needed. Monitor vital signs and level of consciousness.

Hypotension: Assess blood pressure and heart rate. Administer fluids and vasopressors as needed. Monitor vital signs and level of consciousness.

Tachycardia: Assess heart rate and rhythm. Administer beta-blockers as needed. Monitor vital signs and level of consciousness.

Hypoxia: Assess oxygen saturation and respiratory rate. Administer oxygen and respiratory support as needed. Monitor vital signs and level of consciousness.

Hypercapnia: Assess respiratory rate, depth, and effort. Administer respiratory support as needed. Monitor vital signs and level of consciousness.

Hyperventilation: Assess respiratory rate, depth, and effort. Administer respiratory support as needed. Monitor vital signs and level of consciousness.

Diaphoresis: Assess skin temperature and moisture. Administer antipyretics and cooling measures as needed. Monitor vital signs and level of consciousness.

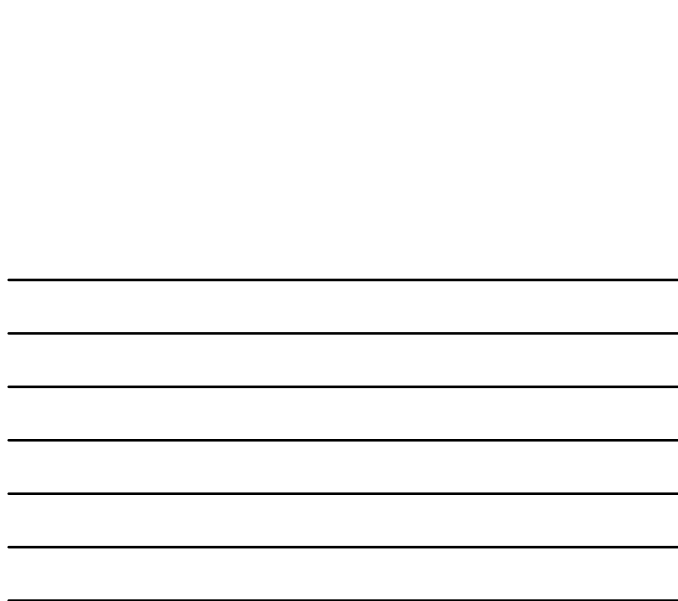
Miosis: Assess pupil size and reactivity. Administer respiratory support as needed. Monitor vital signs and level of consciousness.

Pinpoint Pupils: Assess pupil size and reactivity. Administer respiratory support as needed. Monitor vital signs and level of consciousness.

Respiratory Arrest: Assess respiratory rate, depth, and effort. Administer respiratory support as needed. Monitor vital signs and level of consciousness.

Death: Assess vital signs and level of consciousness. Administer resuscitative measures as needed. Monitor vital signs and level of consciousness.

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Tachycardia: Assess heart rate and rhythm. Administer beta-blockers as needed. Monitor vital signs and level of consciousness.

Hypoxia: Assess oxygen saturation and respiratory rate. Administer oxygen and respiratory support as needed. Monitor vital signs and level of consciousness.

Hypercapnia: Assess respiratory rate, depth, and effort. Administer respiratory support as needed. Monitor vital signs and level of consciousness.

Hyperventilation: Assess respiratory rate, depth, and effort. Administer respiratory support as needed. Monitor vital signs and level of consciousness.

Diaphoresis: Assess skin temperature and moisture. Administer antipyretics and cooling measures as needed. Monitor vital signs and level of consciousness.

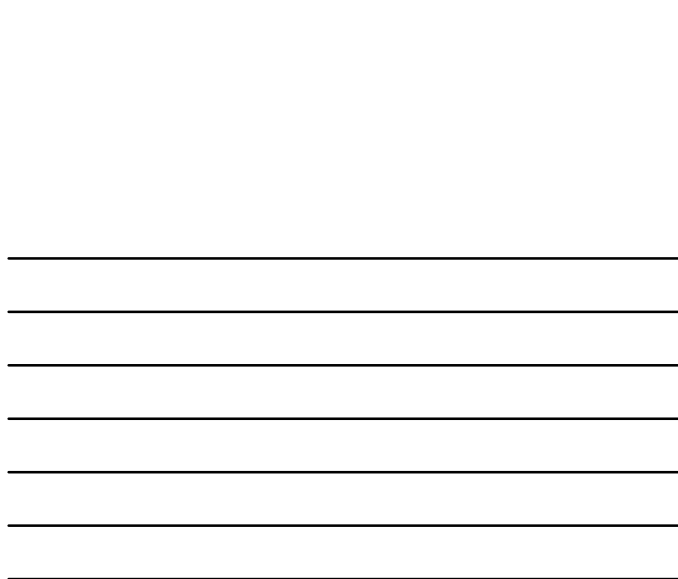
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Respiratory Arrest: Assess respiratory rate, depth, and effort. Administer respiratory support as needed. Monitor vital signs and level of consciousness.

Death: Assess vital signs and level of consciousness. Administer resuscitative measures as needed. Monitor vital signs and level of consciousness.

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Drug	Average Dose	Timing	Indications (Class)	Side Effects	Comments
Commonly Used Non-Opioid Analgesics					
Acetaminophen (Tylenol)	325-1000 mg	q4-6	4-6 q4-6 in patients with liver dysfunction and in the elderly	Hepatic dysfunction	Reduce acetaminophen dose 50-75% with hepatic insufficiency or history of alcohol abuse. Do not exceed 4000 mg daily.
Non-Opioid Multimodal Analgesic (NSAIDs)					
Ibuprofen (Advil)	200-800 mg	q4-6	200-800 mg	GI bleeding, renal and cardiac toxicity	Caution with renal disease.
Naproxen (Aleve)	250-500 mg	q4-6	250-500 mg	See below	Caution with renal disease.
Naproxen (Anaprox)	250-500 mg	q4-6	500-1000 mg	See below	Caution with renal disease.
Indometacin (Indocin)	50-150 mg	q4-6	50-150 mg	See below	Caution with renal disease.
Celecoxib (Celebrex)	100-200 mg	q4-6	100-200 mg	See below	Caution with renal disease. Contraindicated in patients with severe renal impairment. Risk of cardiovascular events. Use lowest dose possible.
Colchicine (Colcortem)	1.2 mg	q4-6	1.2 mg	See below	In adults: 1.2 mg (single dose, 1st day); 0.6 mg (single dose, 2nd day); 0.6 mg (single dose, 3rd day). Contraindicated in patients with severe renal impairment. Risk of cardiovascular events. Use lowest dose possible.
Dual Mechanism Analgesics					
tramadol (Ultram) tramadol ER (Ultram ER)	25-100 mg 25-100 mg	q4-6 q4-6	25-100 mg 25-100 mg	See below	Caution with renal disease. Contraindicated in patients with severe renal impairment. Risk of cardiovascular events. Use lowest dose possible.
tramadol (Ultram) tramadol ER (Ultram ER)	25-100 mg 25-100 mg	q4-6 q4-6	25-100 mg 25-100 mg	See below	Caution with renal disease. Contraindicated in patients with severe renal impairment. Risk of cardiovascular events. Use lowest dose possible.

Commonly Used Non-Opioid Analgesics

Choline Magnesium Trisalicylate (Trilisate)

Nabumetone (Relafen)



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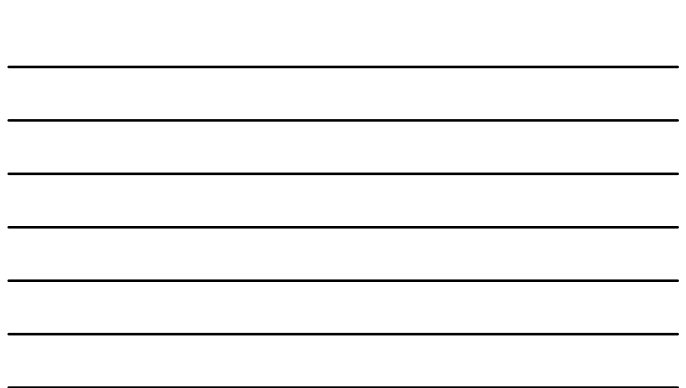



Adverse Effect	Management Considerations
Constipation	Begin bowel regimen when opioid therapy is initiated. Include a mild stimulant (senna or St. Seno, Cascara) or stool softener (e.g., Colace) at the start of opioid therapy. Consider non-opioid anticholinergics if available.
Nausea/Vomiting	Dose reduction, opioid rotation, consider antiemetics (metoclopramide, ondansetron, scopolamine patch, 5HT ₃ antagonists).
Pruritus	Dose reduction, opioid rotation, consider antihistamines such as diphenhydramine.
Hallucinations	Dose reduction, opioid rotation, consider neuroleptics (haloperidol or risperidone).
Confusion/Delirium	Dose reduction, opioid rotation, neuroleptic therapy (haloperidol, risperidone).
Myoclonus	Dose reduction, opioid rotation, increase fluid intake, consider clonazepam, baclofen.
Respiratory Depression	Substitue prescribes respiratory depression. Hold opioid. Give low dose naloxone if < 100 mg in 90 min normal saline for final concentration of 0.04 mg/ml. Nasal rubes.

NEW PCA Section

Drug	PKC Dose	Contraindications	Maximum Concentration Dose
Codeine	15-30 mg q4-6	Respiratory depression, hypotension, hypoxia, hypoxemia, hypoxemia	15 mg q4-6 to 30 mg q4-6
Hydrocodone	5-10 mg q4-6	Respiratory depression, hypotension, hypoxia, hypoxemia, hypoxemia	5 mg q4-6 to 10 mg q4-6
Tramadol	25-50 mg q4-6	Respiratory depression, hypotension, hypoxia, hypoxemia, hypoxemia	25 mg q4-6 to 50 mg q4-6

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Management of Opioid Side Effects

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Switching from One Opioid to Another (Example)

- Calculate the total daily dose of the original opioid (Example: Oxycodone 10 mg q 4h = 100 mg/24h)
- Convert the total daily dose to morphine equivalents (Example: Oxycodone 100 mg = 20 mg morphine/24h)
- Calculate the new opioid dose (Example: Oxycodone 10 mg q 4h = 100 mg/24h)
- Check the total daily dose of the new opioid for the number of doses given per day (Example: Oxycodone 10 mg q 4h = 100 mg/24h)
- Reduce the calculated dose of the new opioid by 25% (Oxycodone 75 mg/24h)
- Re-evaluate the patient's pain and side effects

Conversion Opioid Drugs (Dose Setting Guide)

Opioid	Equivalent Chart	Starting Dose for Oxycodone
Morphine	10 mg	10 mg
Hydrocodone	5 mg	5 mg
Codeine	30 mg	30 mg
Buprenorphine	0.2 mg	0.2 mg
Fentanyl	0.1 mg	0.1 mg
Morphine	10 mg	10 mg
Hydrocodone	5 mg	5 mg
Codeine	30 mg	30 mg
Buprenorphine	0.2 mg	0.2 mg
Fentanyl	0.1 mg	0.1 mg

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Codeine	30 mg	30 mg
Buprenorphine	0.2 mg	0.2 mg
Fentanyl	0.1 mg	0.1 mg

Adjuvant Analgesic Drugs

Drug	Class	Comments
Acetaminophen	Nonopioid analgesic	Safe for most patients. Do not exceed 4g/day.
NSAIDs	Nonopioid analgesic	Effective for pain and inflammation. Risk of GI and renal side effects.
Anticholinergics	Anticholinergic	Used for musculoskeletal pain. Risk of dry mouth and urinary retention.
Antidepressants	Antidepressant	Used for chronic pain. Risk of sedation and weight gain.
Anticonvulsants	Anticonvulsant	Used for neuropathic pain. Risk of dizziness and weight gain.

Adjuvant Opioid Drugs (Dose Setting Guide)

Opioid	Equivalent Chart	Starting Dose for Oxycodone
Morphine	10 mg	10 mg
Hydrocodone	5 mg	5 mg
Codeine	30 mg	30 mg
Buprenorphine	0.2 mg	0.2 mg
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Codeine	30 mg	30 mg
Buprenorphine	0.2 mg	0.2 mg
Fentanyl	0.1 mg	0.1 mg

Patient Case 1

- JS is a 75 year old, 67 kg female who is admitted to the hospital post-op total right knee replacement. Labs consist of Normal bmp including Cr 0.65, Lfts are WNL. She has no know allergies. Her medications consist of metformin 1000 mg twice daily, loratidine 10 mg daily, hydrochlorothiazide 25 mg daily and citalopram 10 mg daily. You check the PDMP and find out that she hasn't filled any opioids since a 5 day supply of oxycodone in February 2023. She denies alcohol and illegal drug use. As you assess her pain she reports a 7/10 pain in her right knee. Which multimodal pain regimen would you recommend for JS?

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Opioid	Equivalent Chart	Starting Dose for Oxycodone
Morphine	10 mg	10 mg
Hydrocodone	5 mg	5 mg
Codeine	30 mg	30 mg
Buprenorphine	0.2 mg	0.2 mg
Fentanyl	0.1 mg	0.1 mg

Patient Case 1

- 1) Acetaminophen IV 1gm q8h, oxycodone 10 mg q6h, gabapentin 300 mg tid prn for mild pain
- 2) Acetaminophen 1 gram po q8h, ketorolac 15 mg q6h prn mild pain, oxycodone 5-10 mg q6h prn moderate pain, gabapentin 100 mg tid, hydromorphone 0.2-0.4 mg q3h prn severe pain.
- 3) Acetaminophen 1 gram po q8h prn mild pain, ketorolac 30 mg q6h prn moderate pain, Hydromorphone 0.2-0.4 mg q3h prn severe pain.
- 4) Oxycontin 10 mg Bid, oxycodone 5 mg QID. Acetaminophen 1000 mg po q8h, gabapentin 600 tid and ibuprofen 600 mg q6h.

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Patient Case 1

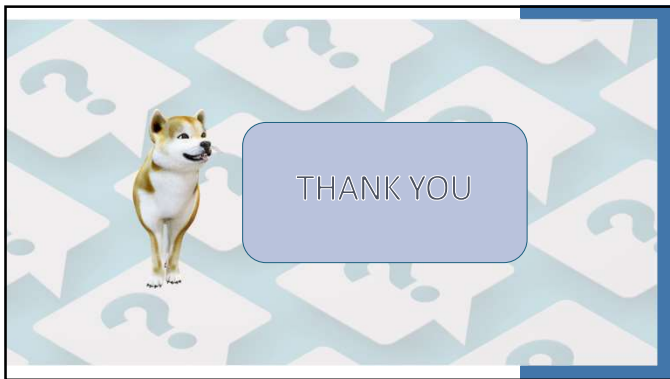
- JS continues to be in severe pain on your assessment the next day. She reports 10/10 pain and has been requiring hydromorphone 0.4 mg q3h scheduled and at times asks for hydromorphone after 2 hours. You reach out to the covering clinician who orders a PCA (patient controlled analgesia). Which of the following is an appropriate order for a PCA?
- 1) Hydromorphone 0.2 mg bolus lock out interval 15 minutes, continuous basal of 0.1 mg with hourly limit of 1.5 mg
 - 2) Hydromorphone 0.2 mg bolus, lock out interval 6 minutes, continuous basal of 0 with hourly limit of 0.5 mg
 - 3) Hydromorphone 0.2 mg bolus, lockout interval 10 minutes, continuous basal of 0 with hourly limit of 1.2mg

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Patient Case 2

- DM, 70 year old male, seen in the outpatient clinic for treatment of neuropathy due to spinal stenosis in preparation for L2-L5 Laminectomy. DM has no known drug allergies. BMP and LFTS are WNL. He takes lisinopril 5 mg daily, omeprazole 20 mg daily, fluoxetine 30 mg daily, and metformin 500 mg bid. You check PDMP, DM takes no opioids. Which medication would be best to start for neuropathic pain in DM?
- 1) Oxycodone 10 mg tid prn pain.
 - 2) Tramadol 100 mg tid prn.
 - 3) Gabapentin 600 mg QID.
 - 4) Gabapentin 100 mg tid, titrate up based on tolerability and response up to 600 mg tid

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