PAIN MANAGEMENT INTRODUCTION

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Internal Medicine Clinical Pharmacists

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Objectives

- Distinguish the differences between the patient with acute pain, acute on chronic pain, and chronic pain.
- Understand the equivalent opiate dosages and how to convert one opiate to another.
- Select the appropriate dosing intervals for each of the most common IV and po narcotics, and how to avoid over and under-dosing.

What is pain?

- Derived from Latin *peone* and Greek *poine* meaning "penalty" or "punishment"
- Subjective
  - Clinician must accept pt's report of pain
- 50 million + Americans partially or totally disabled due to pain
  - High cost to society- estimated billions of dollars

Evaluation

- P: Palliative or Provocative factors
  - What makes the pain better or worse?
- Q: Quality
  - Describe the pain.
- R: Radiation
  - Where is the pain?
- S : Severity/Intensity
  - How does this pain compare with other pain you've experienced?
- T: Temporal factors
  - Does the intensity of the pain change with certain situations?

Other factors to consider

- Alteration of pain threshold
  - Lower
    - Anxiety, depression, fear, anger, fatigue
  - Raise
    - Rest, mood elevation, sympathy, diversion, understanding
      - Other therapies: dog, music, art, aromatherapy may be helpful and are available at BUMCP

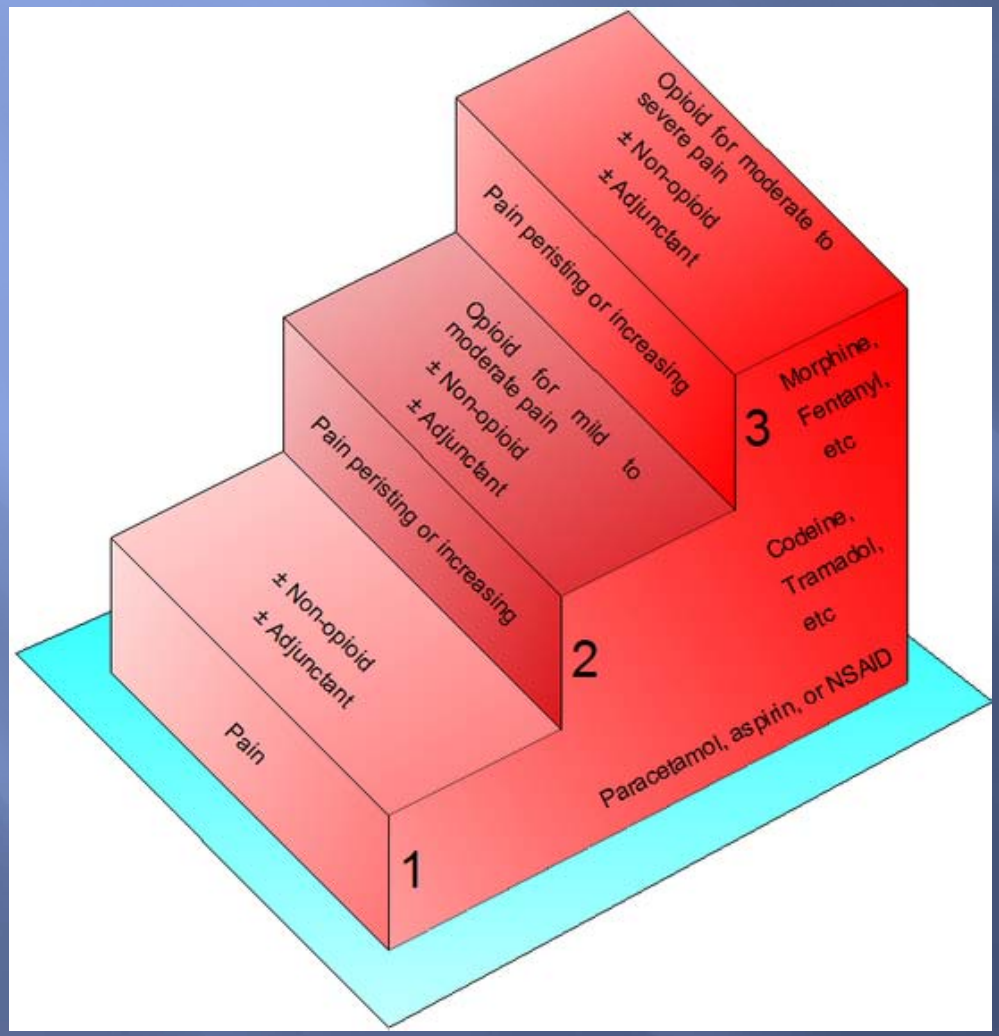
Vocab

- Acute pain
  - Try to manage with short acting narcotics
  - In high intensity pain situations, may need long acting opioids for a briefer time period
- Chronic pain
  - Appropriate for long acting narcotics
  - Pain that isn't expected to go away
- Acute on chronic pain
  - Notoriously difficult to control
  - Often need pain medications at higher doses due to tolerance

Vocab

- Tolerance
  - Larger doses to obtain the same effect
    - Expected for patients who chronically use opioids
- Physical dependence
  - Withdrawal symptoms with sudden discontinuation
- Addiction
  - Abnormal behavior where a person develops an overwhelming involvement in acquiring and using a drug despite adverse social, psychological, or physical consequences

WHO Pain Ladder



- Step 1: non opioids ± adjuvants
- Step 2: Weaker opioids ± adjuvants
- Step 3: Strong opioids ± adjuvants

WHO Pain Ladder

- What are some adjuvant therapy options??
  - Anticonvulsants
  - Antidepressants
  - Corticosteroids
  - Dermal analgesics
  - Muscle relaxants

Your selection- Oral medications

- Norco
  - Hydrocodone 5mg/APAP 325mg tablet
  - Hydrocodone 7.5mg/APAP 325mg liquid (15mL)
- Percocet (oxycodone 5mg/APAP 325mg)
- Oxycodone
  - Immediate release:
    - 5mg, 15mg tablets
    - 20mg/mL concentrate
    - 5mg/5mL liquid
  - Sustained release (Oxycontin): 10mg, 40mg

Your selection- Oral medications

- Morphine
  - IR: 15mg, 30mg, 10mg/0.5mL, 20mg/5mL
  - ER: 15mg, 30mg, 60mg, 100mg (MS Contin)
- Hydromorphone
  - IR: 2mg, 4mg, 5mg/5mL liquid

Opioids not carried

- If patients admitted with these medications, can continue under Patients Own Narcotic Medication policy
  - Opana (oxymorphone)
  - Exalgo (hydromorphone extended release)
  - Zohydro/Hysingla (hydrocodone extended release)
  - Multiple fentanyl dosage forms
    - Buccal film, liquid spray, lozenge ("lollipop"), intranasal solution, buccal tablet, sublingual tablet
    - Only carry IV and transdermal

What happened to Vicodin?

- Currently commercially available
- FDA mandating less APAP per dosage unit in an effort to decrease liver injury in overdose situation
- Drug manufacturers to be begin producing only 325mg acetaminophen/dosage unit products in 2014
- Banner has decided to utilize Norco as main hydrocodone based product in an effort to comply with this FDA mandate

Quiz

- How many tablets of Percocet or Norco are the absolute maximum allowable/day based on APAP component for normal hepatic function?

- A) 8
- B) 12
- C) 6
- D) Unlimited
  - 12 tablets= 3900mg PO APAP

Opioid Characteristics

Agent	Time to peak (hr)	Analgesic onset (min)	Analgesic duration (h)
Morphine	IV: 0.5-1	IV: 5-10 PO: ~30	PO: 4
Hydromorphone	IV: 0.16-0.33 PO: 0.5-1	IV: 5 PO: 15-30	IV/PO: 4-6
Oxycodone (PO only)	0.5-1	10-15	3-6
Fentanyl	IV: 0.17-0.33	Almost immediate	0.5-2

Opioid Side Effects

- Itching
  - More common with morphine (histamine release)
- Hypotension
  - More common with morphine (histamine release)
- Constipation
  - No tolerance to constipation
  - Prevention is key! Softener + stimulant laxative scheduled is ideal
    - Think Docusate/Senna, or docusate + miralax

Opioid Side Effects

- Nausea/vomiting
  - Narcotic rotation, anti-emetics PRN
- Sedation/Respiratory Depression
  - **Continuous pulse oximetry** for patients on basal rate PCA or anyone who is concerning to you for oversedation
    - Opioid naïve patients may be more susceptible
  - Consider hold order with long acting narcotics: HOLD for sedation or RR< 12 to avoid this problem

Naloxone

- Pure opioid antagonist: competes and displaces narcotics at opioid receptor sites
- Duration of action usually shorter than narcotic, so repeat doses may be needed
- Varying doses can be used for opioid reversal (0.04-0.4mg)

Naloxone

- If 0.8mg total dose given and no desired response, consider other causes of respiratory depression
- Naloxone ON CALL order prebuilt into PCA Careset:
  - For severe respiratory depression/somnolence (RR less than 8 or RASS -4 to -5)
    - 0.02mg every 2 minutes until patient is responsive to verbal stimulation and respirations acceptable

Special patient populations

- Elderly
- Renal impairment
- Hepatic impairment

Elderly patient considerations

- **START LOW AND GO SLOW**

- More likely to more sensitive to narcotics
- Consider starting at a lower dose and re-assessing for efficacy, and adjusting dose upwards if needed
  - Potential to use lower dose more often if pain more difficult to control

Elderly patient considerations

- Hydrocodone/APAP (Norco) may be a good starting option- lower potency narcotic
- Meperidine: caution in using in elderly due to accumulation of neurotoxic metabolites
  - Now only available at Banner for rigors

Renal impairment

- Concern: accumulation of renally excreted metabolites
- **Prudent to start with lower doses, less often and evaluate for efficacy**

- Which opioids do not have active metabolites?
  - Fentanyl and methadone

  - **Morphine** 6-gluruonide: more potent analgesic properties than parent drug
  - **Hydromorphone** 3 glucuronide: neuroexcitatory → agitation, confusion, hallucination
  - **Oxycodone** metabolite: multiple metabolites, increased half life in renal impairment
    - Unexcreted metabolites= longer duration/effect of opioid activity

QUIZ

- If a long acting drug was needed in a chronic kidney disease patient, what would some options be?
  - Oxycodone ER
    - - Has active metabolites, less so than morphine
  - Fentanyl transdermal
    - Need number of days to titrate to correct dose
  - Avoid:
    - Morphine--- accumulation of active metabolites in kidney disease

Hepatic impairment

- Liver responsible for metabolizing opioids either into active drug or inactive drug
- Reduction of metabolism= accumulation of parent body in drug with repeated administration
- ***Recommend lower doses and extending the dosing interval***

Hepatic impairment

- Avoid codeine: needs to be activated by the liver to active morphine metabolite
- Potential to use tramadol if wanting to avoid strong narcotics (works on opioid, norepinephrine, serotonin pathways)
  - 50mg PO q12H FDA approved dose, or titrate PRN
- APAP is usually permissible in doses less than 2000mg/day, check with hepatology

General Dose Potency

Conversion table

Drug	PO (mg)	IV (mg)
Morphine	30	10
Fentanyl	---	0.1
Hydromorphone	7.5	1.5
Oxycodone	20	---

QUIZ
How many micrograms in 1 mg?
1000mcg= 1mg
For example 0.1mg= 100mcg

Switching between agents

- Patients may be more sensitive to one narcotic than another due to differences in mu opioid receptor binding
- Calculate 24 hour usage
- Convert to one agent and reduce
- **"Incomplete cross tolerance of receptors"**
  - If converting from one opioid entity to another, the dose of the new opioid entity should be reduced by 25-50%
    - For cases, let's use 65% of the total (my personal %)

Brief conversion example

- Patient is stable on Oxycontin 60mg PO q12H.
  - No drug allergies, normal renal and hepatic function
- Prescriptions for discharge are faxed to Banner Family Pharmacy- copay for Oxycontin is beyond patient's means. Insurance company has MS Contin on formulary
- How do you convert?
- Oxycodone 60mg= $\frac{\text{oxycodone 20mg}}{\text{morphine 30mg}}$ = 90 mg PO morphine

Brief conversion example

- 90mg PO morphine at 100% conversion
- Multiple by 0.65 to account for incomplete cross tolerance
- 58.5mg PO morphine equivalents at 65%
- Closest dosage forms
  - MS Contin 60mg PO BID

Notes about Oxycontin

- Very expensive cash price
  - Oxycontin 30mg # 60= $422.60
  - May need prior authorization from insurance companies
    - Check with case management if new start in hospital
- High street value for illicit use
- New formulation introduced in 2010 to deter illicit use
  - Tamper resistant
  - Prevent from being cut, chewed, crushed, or dissolved
  - Harder to snort or inject

Oxecta

- Newer product from Pfizer
- Oxycodone immediate release formulation that cannot be crushed or dissolved
  - 5mg and 7.5mg doses (not stocked at BGSMC)
  - Not recommended to use in NG, gastric of other feeding tubes
- Technology utilized to discourage common methods of tampering that may decrease abuse/misuse
- Double-blind, active-comparative crossover study in 40 non-dependent recreational opioid users:
  - 30% of subjects who self administered Oxecta intranasally reported would not use again
    - Higher incident of nasophayngeal and facial adverse effects, decreased ability to completely inhale tablets
  - 5% of subjects who self administered oxycodone IR intranasally would not use again

Fentanyl patches

- Transdermal system: gradually absorbed for the first 12-24 hours, then constant absorption for remainder of dosing interval
- Inappropriate for acute pain management
  - Patients should be tolerating a stable dose of at least 30 mg of PO morphine or its equivalent per day before placing a 12mcg/hr patch OR 60 mg of PO morphine or its equivalent per day before placing a 25 mcg/hr fentanyl patch.

Fentanyl patches

- What are the dosing units of fentanyl patches?
  - A) mcg/patch
  - B) mcg/24 hours
  - C) mcg/hour
  - D) mcg/min

Fentanyl patches

- Potentially inappropriate patients include those at extremes of body weight, fevers
- What is the onset of action after initial application?
  - A) 1 hour
  - B) 6 hours
  - C) 17 hours
  - D) 36 hours

  - Peak effect within 12-24 hours and relatively constant release over next 72 hours.
  - Steady state reached by end of second 72 hour interval

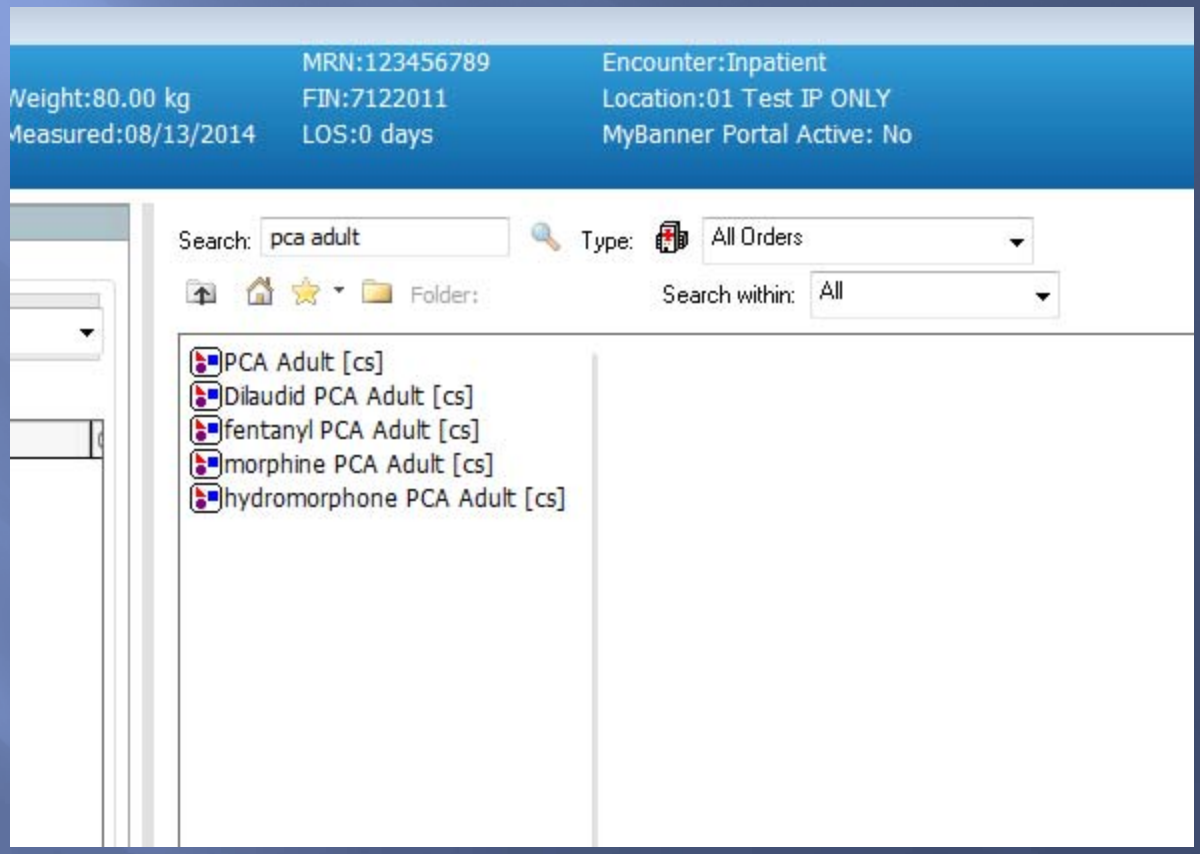
Fentanyl patches

- After discontinuation of a fentanyl patch, how long does it take for a 50% decrease in fentanyl levels?
  - A) 1 hour
  - B) 6 hours
  - C) 20 hours
  - D) 36 hours
- Considerations
  - Dose should not be titrated more often than every 3 days after the first initial dose, or every 6 days thereafter
  - Increased body temp >40C can increase serum fentanyl concentrations by 33% due to increased skin permeability

Methadone

- Should not be used for acute pain
- Avoided in opiate naïve patients
- Starting dose for pain: Methadone 5mg BID
- Monitoring; QTC, RR, mental status
- Half-life: 5-59 hours
- Methadone and Fentanyl may be first line for patients with hepatic and renal failure

PCA Order Entry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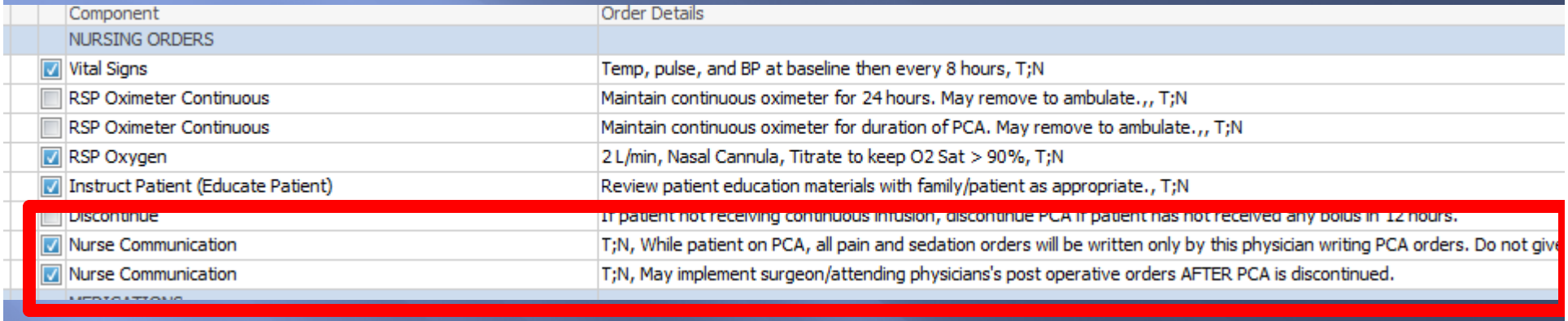

	Component	Order Details
	NURSING ORDERS	
☑	Vital Signs	Temp, pulse, and BP at baseline then every 8 hours, T;N
☐	RSP Oximeter Continuous	Maintain continuous oximeter for 24 hours. May remove to ambulate.,, T;N
☐	RSP Oximeter Continuous	Maintain continuous oximeter for duration of PCA. May remove to ambulate.,, T;N
☑	RSP Oxygen	2 L/min, Nasal Cannula, Titrate to keep O2 Sat > 90%, T;N
☑	Instruct Patient (Educate Patient)	Review patient education materials with family/patient as appropriate., T;N
☐	Discontinue	If patient not receiving continuous infusion, discontinue PCA if patient has not received any bolus in 12 hours.
☑	Nurse Communication	T;N, While patient on PCA, all pain and sedation orders will be written only by this physician writing PCA orders. Do not give
☑	Nurse Communication	T;N, May implement surgeon/attending physicians's post operative orders AFTER PCA is discontinued.

- Recommend to uncheck :
  - Nurse Communication

    -While patient on PCA, all pain and sedations only to be written by physician writing PCA orders (may interfere with cross cover or when teams switch) and

    -May implement surgeon's post operative orders after PCA is discontinued (likely doesn't apply)

	Component	Order Details
	NURSING ORDERS	
☑	Vital Signs	Temp, pulse, and BP at baseline then every 8 hours, T;N
☐	RSP Oximeter Continuous	Maintain continuous oximeter for 24 hours. May remove to ambulate.,, T;N
☑	RSP Oxygen	2 L/min, Nasal Cannula, Titrate to keep O2 Sat > 90%, T;N
☑	Instruct Patient (Educate Patient)	Review patient education materials with family/patient as appropriate., T;N
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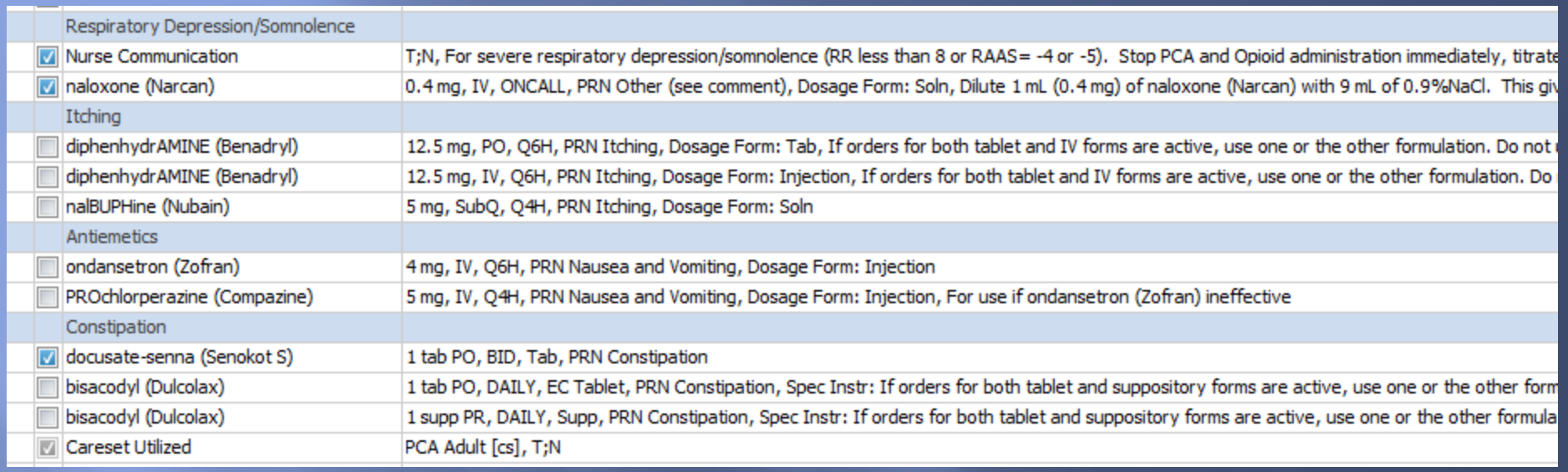
☑	Nurse Communication	T;N, May implement surgeon/attending physicians's post operative orders AFTER PCA is discontinued.

<u>Vital signs and RSP Oxygen are a good idea.</u>

- Continuous pulse oximetry is usually recommended, especially those with basal rates.

The order set contains **safety orders** for respiratory depression and somnolence.

Naloxone PRN as a safety order

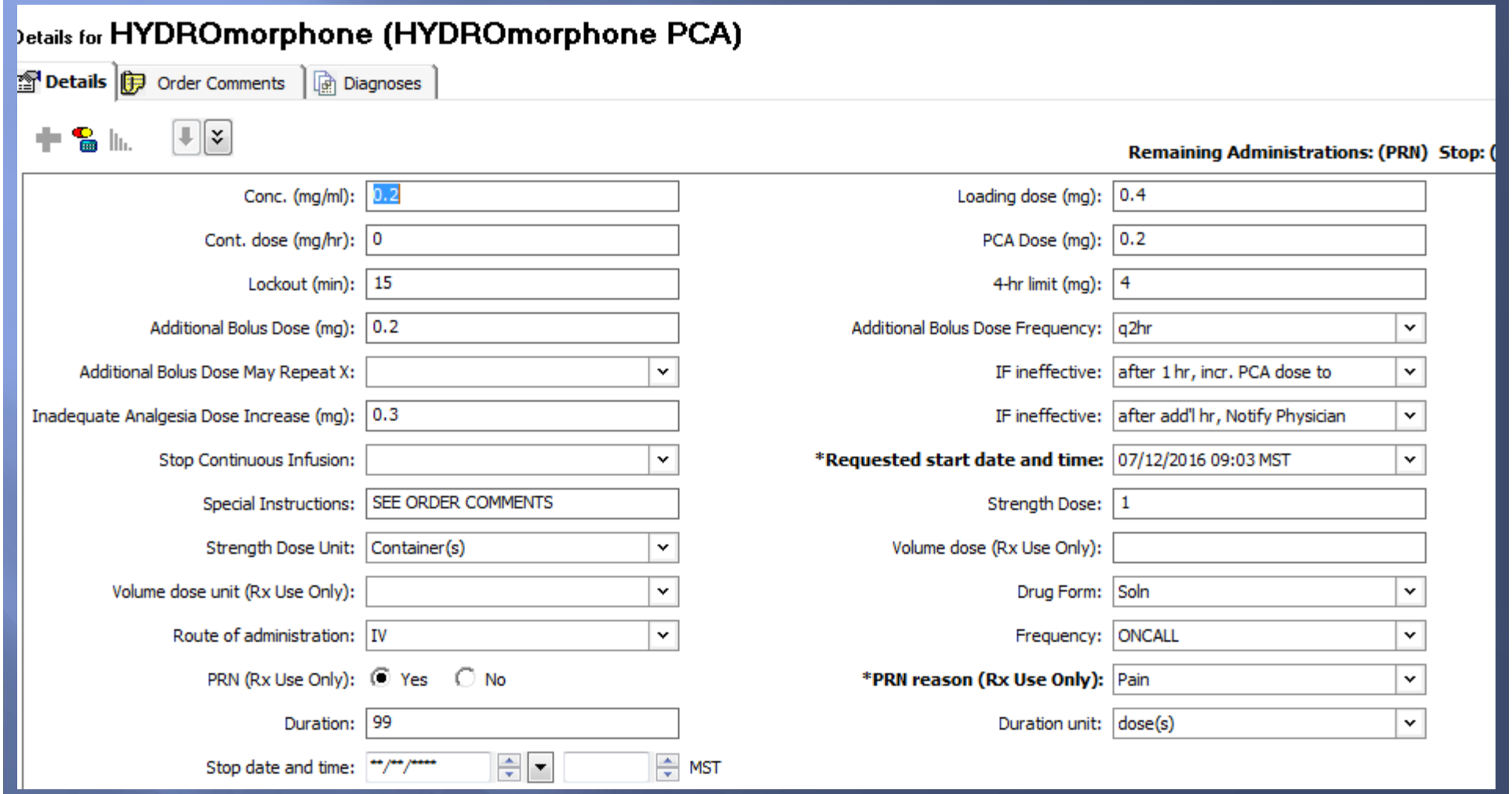


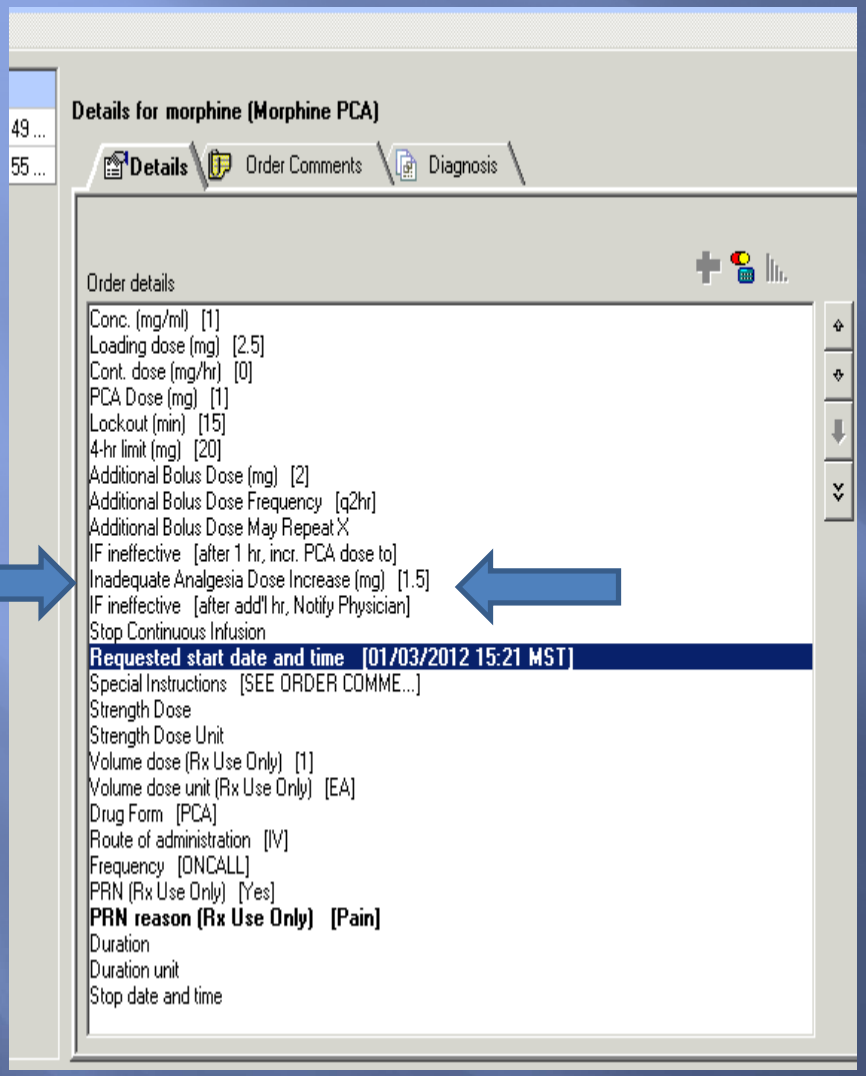
	Respiratory Depression/Somnolence	
☑	Nurse Communication	T;N, For severe respiratory depression/somnolence (RR less than 8 or RAAS= -4 or -5). Stop PCA and Opioid administration immediately, titrate
☑	naloxone (Narcan)	0.4 mg, IV, ONCALL, PRN Other (see comment), Dosage Form: Soln, Dilute 1 mL (0.4 mg) of naloxone (Narcan) with 9 mL of 0.9%NaCl. This giv
	Itching	
☐	diphenhydrAMINE (Benadryl)	12.5 mg, PO, Q6H, PRN Itching, Dosage Form: Tab, If orders for both tablet and IV forms are active, use one or the other formulation. Do not
☐	diphenhydrAMINE (Benadryl)	12.5 mg, IV, Q6H, PRN Itching, Dosage Form: Injection, If orders for both tablet and IV forms are active, use one or the other formulation. Do
☐	nalBUPHine (Nubain)	5 mg, SubQ, Q4H, PRN Itching, Dosage Form: Soln
	Antiemetics	
☐	ondansetron (Zofran)	4 mg, IV, Q6H, PRN Nausea and Vomiting, Dosage Form: Injection
☐	PROchlorperazine (Compazine)	5 mg, IV, Q4H, PRN Nausea and Vomiting, Dosage Form: Injection, For use if ondansetron (Zofran) ineffective
	Constipation	
☑	docusate-senna (Senokot S)	1 tab PO, BID, Tab, PRN Constipation
☐	bisacodyl (Dulcolax)	1 tab PO, DAILY, EC Tablet, PRN Constipation, Spec Instr: If orders for both tablet and suppository forms are active, use one or the other form
☐	bisacodyl (Dulcolax)	1 supp PR, DAILY, Supp, PRN Constipation, Spec Instr: If orders for both tablet and suppository forms are active, use one or the other formula
☑	Careset Utilized	PCA Adult [cs], T;N

Adjunct therapies for itching, nausea, and constipation PRN are options in the CareSet.

- Note that docusate-senna is auto-checked PRN, but **scheduled bowel care is not auto-checked**. This will have to be ordered separately from the CareSet.

	medication.	
	Morphine PCA - Concentration 1mg/ml solution IV	
☐	morphine (Morphine PCA)	Conc. (mg/ml) 1, Loading dose (mg) 2.5, Cont. dose (mg/hr) 0, PCA Dose (mg) 1, Lockout (min) 15, 4-hr limit (mg) 20, Add'l Bolus Dose (mg) 2
	Hydromorphone (DILAUDID) PCA - Concentration 0.2mg/ml solution IV	
☐	HYDROmorphone (HYDROmorphone PCA)	Conc. (mg/ml) 0.2, Loading dose (mg) 0.4, Cont. dose (mg/hr) 0, PCA Dose (mg) 0.2, Lockout (min) 15, 4-hr limit (mg) 4, Add'l Bolus Dose (mg 07/12/2016 09:03 MST, Spec Instr: SEE ORDER COMMENTS, Container(s), Soln, IV, ONCALL, Routine, PRN (Rx Use Only), Pain, 99 dose(s) -
	Fentanyl PCA	
☐	fentaNYL (fentaNYL PCA)	Conc. (mcg/ml) 10, Loading Dose (mcg) 25, Cont. Dose (mcg/hr) 0, PCA Dose (mcg) 10, Lockout (min) 10, 4-hr limit (mcg) 400, Add'l Bolus Dos


Details for HYDROmorphone (HYDROmorphone PCA)
Details
Order Comments
Diagnoses
Remaining Administrations: (PRN) Stop: (
Conc. (mg/ml): 0.2
Cont. dose (mg/hr): 0
Lockout (min): 15
Additional Bolus Dose (mg): 0.2
Additional Bolus Dose May Repeat X:
Inadequate Analgesia Dose Increase (mg): 0.3
Stop Continuous Infusion:
Special Instructions: SEE ORDER COMMENTS
Strength Dose Unit: Container(s)
Volume dose unit (Rx Use Only):
Route of administration: IV
PRN (Rx Use Only): Yes No
Duration: 99
Stop date and time: **/**/**** MST
Loading dose (mg): 0.4
PCA Dose (mg): 0.2
4-hr limit (mg): 4
Additional Bolus Dose Frequency: q2hr
IF ineffective: after 1 hr, incr. PCA dose to
IF ineffective: after add'l hr, Notify Physician
*Requested start date and time: 07/12/2016 09:03 MST
Strength Dose: 1
Volume dose (Rx Use Only):
Drug Form: Soln
Frequency: ONCALL
*PRN reason (Rx Use Only): Pain
Duration unit: dose(s)



- Note the loading dose is entered automatically (d/c if appropriate)
- Basal rate defaults to 0 mg/hr
- PCA Dose= dose patient receives when button is pressed
- Lockout= amount of time when availability of demand doses
- 4 hour limit= amount of drug available in 4 hour time span
  - Includes basal and demand doses, not bolus doses
- Additional Bolus Dose= to be used for pain unrelieved by demand doses
  - Given from PCA via nurse administration
- Decide if you'd like to use the "the IF ineffective automatic dose increases"
  - If deleted, a physician will need to evaluate if dose is to be changed

PCA Order Set Starting Doses

MORPHINE

- 2.5mg loading dose
- 1mg q 15 minute demand dose
- 20mg four hour limit
- 2mg q 2 hour additional bolus dose
- If ineffective analgesia after 1 hour, increase dose to 1.5mg

FENTANYL

- 25mcg loading dose
- 10mcg q 10 minutes demand dose
- 400mcg four hour limit
- 25mcg q 30 minute additional bolus
- If ineffective after 1 hour, may increase to 15mcg

PCA Order Set Starting Doses

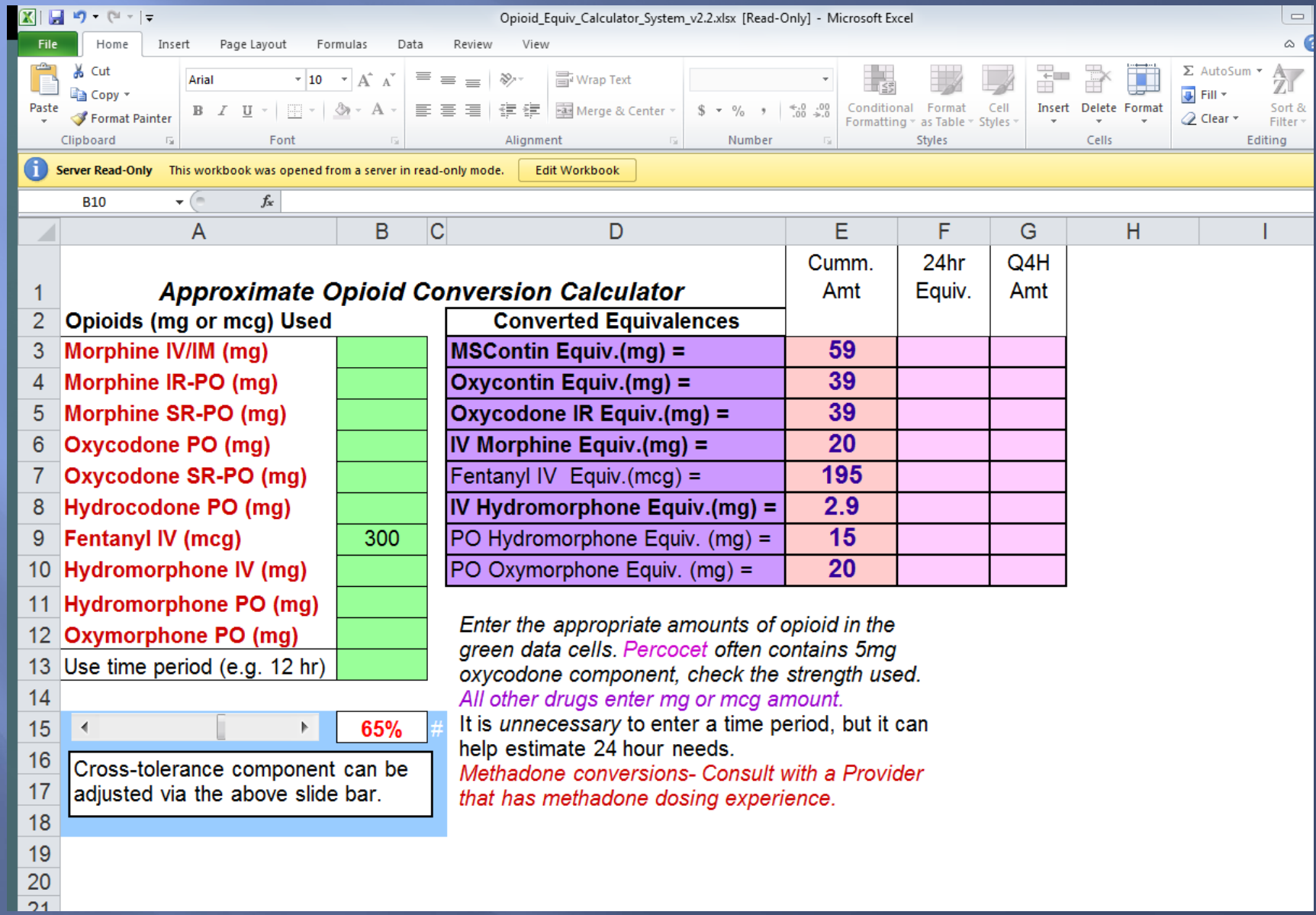
HYDROMORPHONE PCA

- 0.4mg loading dose
- 0.2mg q 15 minute demand dose
- 4mg four hour lockout
- Additional bolus dose 0.2mg q 2 hours
- If ineffective after 1 hour, increase PCA dose to 0.3mg
- Smaller bolus dose relative to other orders
- Consider increasing bolus dose to 0.3-0.5mg for adequate bolus dosing
- Can use "Cancel/Reorder" function on Order Tab to change elements of existing PCA order

Opioid Equivalency Tool

- Uploaded to Shared Documents on BGSMC Internal Medicine Residency website
- http://intranet10.bannerhealth.com/sites/AZ/BGSMC/BGSMCIM/Shared%20Documents/Forms/AllItems.aspx

- Created by pharmacy to help with opioid conversions
  - Cross tolerance adjustment bar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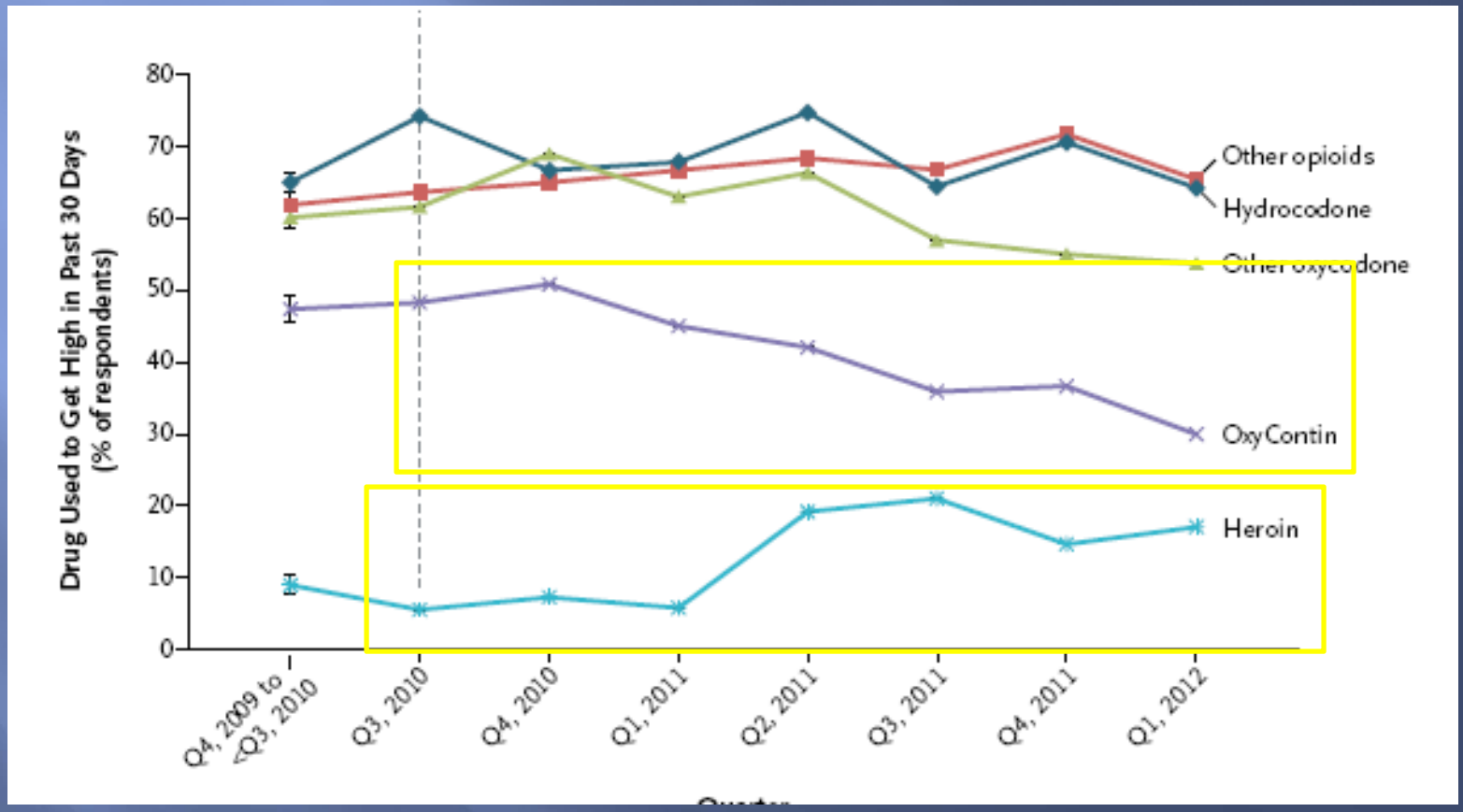
B10
Approximate Opioid Conversion Calculator
Opioids (mg or mcg) Used
Morphine IV/IM (mg)
Morphine IR-PO (mg)
Morphine SR-PO (mg)
Oxycodone PO (mg)
Oxycodone SR-PO (mg)
Hydrocodone PO (mg)
Fentanyl IV (mcg)
300
Hydromorphone IV (mg)
Hydromorphone PO (mg)
Oxymorphone PO (mg)
Use time period (e.g. 12 hr)
65%
Cross-tolerance component can be adjusted via the above slide bar.
Converted Equivalences
Cumm. Amt
24hr Equiv.
Q4H Amt
MSContin Equiv.(mg) = 59
Oxycontin Equiv.(mg) = 39
Oxycodone IR Equiv.(mg) = 39
IV Morphine Equiv.(mg) = 20
Fentanyl IV Equiv.(mcg) = 195
IV Hydromorphone Equiv.(mg) = 2.9
PO Hydromorphone Equiv. (mg) = 15
PO Oxymorphone Equiv. (mg) = 20
Enter the appropriate amounts of opioid in the green data cells. Percocet often contains 5mg oxycodone component, check the strength used.
All other drugs enter mg or mcg amount.
It is unnecessary to enter a time period, but it can help estimate 24 hour needs.
Methadone conversions- Consult with a Provider that has methadone dosing experience.

NEJM Letter July 2012

Cicero TJ, Ellis SE, Surratt HC. Effect of abuse deterrant formulation of Oxycontin. *N Engl J Med* 367;2: 198-9.

- Survey of 2566 patients in treatment with prescription opioid abuse (heroin acceptable, but not patient's primary drug)
  - 106 patients surveyed via telephone to give qualitative responses
- After release of new Oxycontin formulation, primary drugs of abuse changed
  - Oxycontin preference for abuse decreased from 35.6% to 12.8% ($p<0.001$)
  - Higher potency narcotic (fentanyl, hydromorphone) abuse increased from 20.1% to 32.3% ($p= 0.005$)

NEJM Letter July 2012

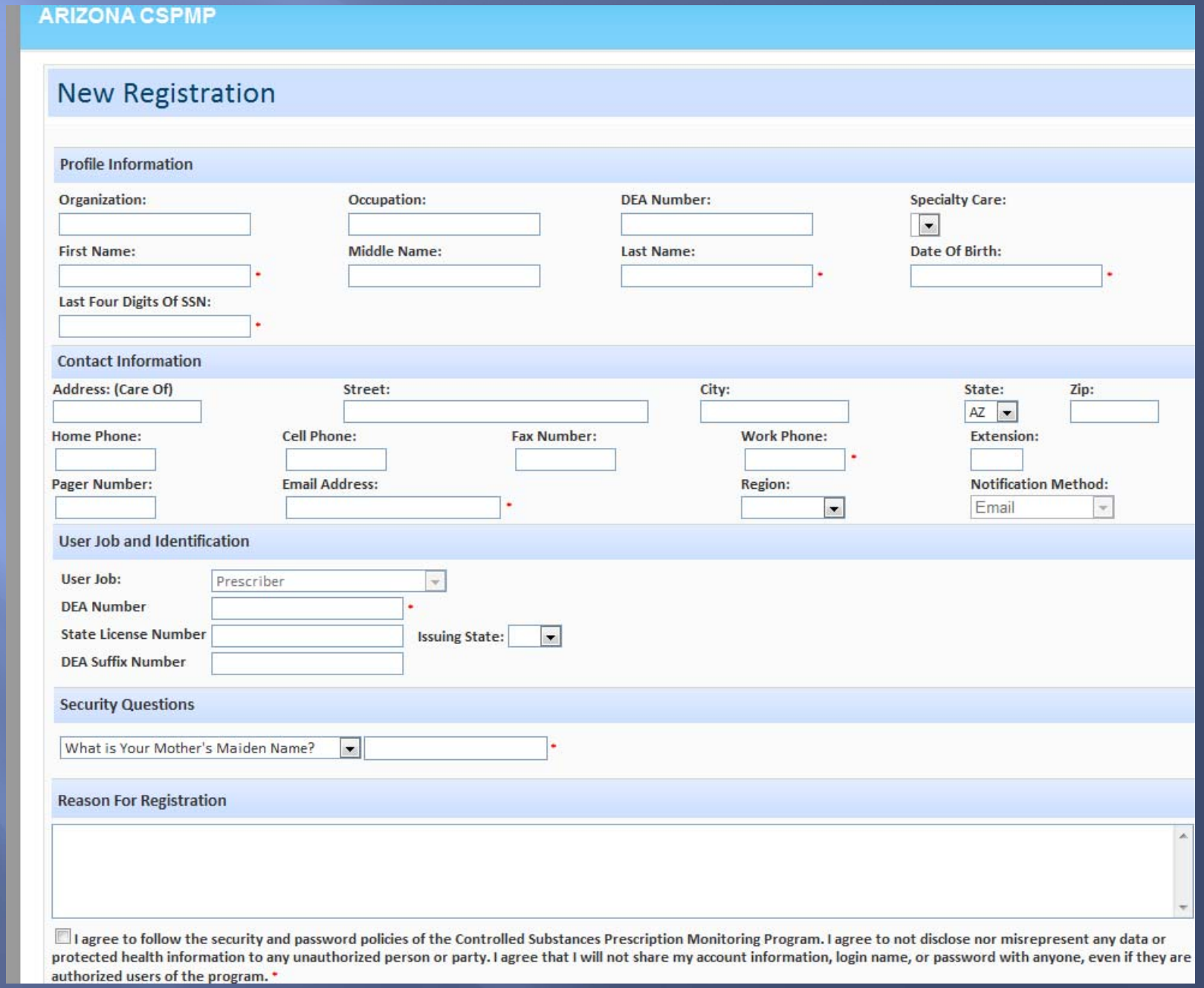


NEJM Letter July 2012

- Shifting abuse pattern?
  - 24% found a way to defeat tamper resistant Oxycontin properties
    - Unfortunately many ways to defeat new formulation available via internet
  - 66% switched to another opioid
    - Heroin most common response
      - Easier to use, cheaper, easily available per survey responses

AZ Controlled Substances Prescription Monitoring Program

- Much easier to register
- www.azrxreporting.com
- Register as prescriber to get login to run reports to assist with verification of prior regimen, red flag behaviors
- If you don't have your own account, most pharmacists can assist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Middle Name:
Last Name:
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Contact Information
Address: (Care Of)
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Prescriber
DEA Number
State License Number
Issuing State:
DEA Suffix Number
Security Questions
What is Your Mother's Maiden Name?
Reason For Registration
I agree to follow the security and password policies of the Controlled Substances Prescription Monitoring Program. I agree to not disclose nor misrepresent any data or protected health information to any unauthorized person or party. I agree that I will not share my account information, login name, or password with anyone, even if they are authorized users of the program.

How Pharmacy Can Help with Pain

- Check your conversions (just call or page ☺)
- Informal following with your team if opinions/double check conversion/phone recommendations needed
- Formal consults available – full visit with patient, following for as long as needed
  - If this is intended, please state exactly what is needed in the consult notes when placed
  - Goal for AMS to be comfortable with pain management and use pharmacy as a resource for guidance or backup

Situation **Please describe what is happening at the present time.**	**Situation:** • **The pharmacy department currently provides pain consults upon request** • **Weekend coverage does not always allow timely completion of these consults (e.g. "stat")** • **Clinical pharmacists would like to continue to provide this service, but focus time on patients who can truly benefit from the consult**
Background **Please describe the circumstances leading up to this situation.**	Background: • Based on data gathered December 2014: ▪ ~7 active pain consults/day which takes approximately 4-5 hours of time ▪ New consults are significantly more time consuming than follow-up consults • Pain consult coverage on weekends is provided by two pharmacists (one specialist and one resident). In the summertime this coverage is further reduced. Other weekend responsibilities include monitoring and completing consults for all of the ICUs.

Assessment **What do you think the problem is?**	**Assessment:** • **Limited resources are available on weekends (and weekdays during the summer) to complete these consults** • **Clarification of appropriate use of weekend pharmacy resources for pain consults could prove beneficial** • **Providers are encouraged to leave additional information in the consult request to help direct pharmacy resources (e.g. "please convert off PCA to PO opioids" or "Opioids titrated today. Ok to see tomorrow for additional recommendations")**
Recommendation **What should be done to correct the problem?**	Recommendation: • Ideal candidates for pharmacy pain consults: o Inadequate pain control despite PCA on typical settings o Weaning a patient off high utilization PCA or high doses of IV narcotics o Methadone management/initiation o Inadequate pain control despite titration of opioids • Consider telephone consult only in the following situations (please specify in consult request, we are working on an IT solution to this issue): o Clarifying home doses of narcotics o Transitioning from IV to PO medications o Recommendations regarding heroin withdrawal (or withdrawal from other medications o Brief questions regarding withdrawal from other medications (baclofen, etc) • It is recommended that providers specify that the pharmacist should see the patient the following day if changes to pain regimen have already been made that day by the provider placing the consult.

Case 1

- 24 year old female admitted with nephrolithiasis and severe pain. No renal or hepatic dysfunction, previously narcotic naïve.
- Current regimen: fentanyl 50mcg IV q3H PRN pain; achieving pain scores of 7 at best, asking for drug prior to 3 hour mark
- What are the options?
  - Change dose
  - Change interval
  - Change agent

Case 1

- What are the options?
  - Change dose
    - Typically dosed in 25mcg duration
      - Add 75mcg for pain score >7, or give 75mcg x 1 to assess pain control
  - Change interval
    - Fentanyl relatively short acting compared to other narcotics
      - q2H interval appropriate for floor patient

Case 1

- Change agent
  - Consider change to equivalent dose of morphine/hydromorphone given lack of relief with fentanyl 50mcg
    - Longer effect from morphine/hydromorphone
  - Fentanyl 50mcg/? Morphine = fentanyl 100mcg/10mg IV morphine
    - Equal to 5mg IV morphine
      - Consider trying 4-6mg dose
  - 5mg IV morphine/? Hydromorphone= 10mg IV morphine/1.5mg IV hydromorphone
    - Equal to 0.75mg IV hydromophone
      - Consider trying 0.5-1mg dose

Case 2

- A 62 year old female is admitted s/p GLF and subsequent pelvic fracture. After repair by orthopedics, IM is consulted for medical management.
- Patient information
  - Weight: 65kg
  - Scr 0.55
  - LFTs within normal limits
  - No chronic narcotics at home

Case 2

- Current regimen morphine 2-4mg IV q3H is not providing effective pain relief- pain score 1 hour after administration is an 8/10. Patient has utilized 8mg in 6 hours.
- How do you adjust the patient's regimen?
  a) Increase dose range to 6-8mg IV q3H prn pain
  b) Change to hydromorphone 1-1.5mg IV q3H prn pain
  c) Give fentanyl 25mcg IV q3H prn pain.
  d) Change morphine order to 2-4mg IV q2H prn pain.

Case 4

68 year old male patient admitted with fluid overload 2/2 systolic heart failure has chronic pain that has been controlled with a 50mcg/ hour fentanyl patch q 72H and minimal breakthough MSIR 15mg. The patient is convinced that a pill will be more effective for his chronic back pain and will be a lower copay and requests a change to MS Contin while he is hospitalized.

- Where do you start?
  - Although 50mcg/hour patch= 135-224mg morphine per day, that is only conversion TO a fentanyl patch
  - It would be prudent to give patient PRN morphine to determine the patient's narcotic requirements, then begin using SR morphine
    - MSIR 15mg PO q3H prn pain (ample amount)

Case 5

24 hours after the fentanyl patch was removed, the patient has utilized MSIR 15mg x 6 doses, and reports pain is somewhat controlled.

- What is your next step?
  - Start long acting morphine using 24 hour requirements
    - 24 hour requirement= 90mg PO morphine
      - Remember fentanyl patch half life 17 hours, so some fentanyl still on board during MSIR use
    - For long acting-
      - MS Contin 30mg PO BID
      - Breakthrough MS IR 15mg PO q4H PRN
      - When to start?
        - Try to dose in morning and late evening (0900/2100) so patient is getting opioid when they are awake– watch dosing intervals!

Case 3

56 year old male s/p hip arthroplasty. Normal liver and renal function, no bleeding complications post operatively. Home medications:

MS Contin 60mg PO q12H

Oxycodone IR 5mg PO q6H prn

After surgery, how do you adjust his pain medications for acute pain- rated 9/10 post operatively?

- A) Adjust MS Contin to 90mg PO q12H
- B) Adjust oxycodone to 10-15mg PO q4H prn pain
- C) Add hydromorphone 0.5-1mg IV q3H prn pain
- D) Add ketorolac 30mg IV q6H x 48 hours (after checking with surgeon and labs)
- E) B, C, D
- F) A, B, C, D

Case 3

Two days later, patient is ready for discharge but still only using IV hydromorphone for breakthrough pain (average 4mg /24 hours) . What do you do?

- Convert IV hydromorphone to PO oxycodone to estimate patient's needs
- IV Hydromorphone to IV morphine = 27mg
- IV morphine to PO morphine= 81mg
- PO morphine to PO oxycodone = 53mg
- PO oxycodone x 65% = 35mg
- Can we make this up in oxycodone 10mg PO q4H PRN?
  - YES
  - Decrease availability of IV hydromorphone and ask RN to use PO oxycodone first

Questions or comments?

Thank you!