

Foundations of Emergency Medicine**Foundations III: Guided Small Group Experience****Session 10: “Analgesia Stewardship”****Unit: Clinical Skills****❖ Agenda and Learning Objectives**

- Case Part I – The US Opioid Epidemic and Pain Control in the ED (15 min)
 - Gain a basic understanding of the US opioid epidemic
 - Epidemiology
 - The EDs role
 - Describe non-opioid pain control options in the ED
 - Discuss when opioid pain control may be indicated and best practices for prescribing these medications
- Case Part II – Communicating with patients with opioid use disorders (15 min)
 - How to identify opioid use disorders versus chronic opioid use
 - Discuss best practices for creating therapeutic alliances with these patients
- Case Part III – Opioid Withdrawal (10 min)
 - Identify opioid withdrawal in the ED
 - Discuss management options in the ED
 - Clonidine
 - Buprenorphine
- Case Concludes (10 min)
 - Review Session Teaching Points

❖ Note to Facilitators

This session addresses the United States’ opioid epidemic and specifically our current understanding of the ED’s role in the epidemic. The session discusses prescribing opioids through the ED as well as non-opioid analgesia options. It goes on to discuss how to identify those patients with opioid use disorders and how to start conversations about their disease and treatment options. Finally, the session concludes with a discussion of medication assisted therapy (MAT) for opioid withdrawal in the ED and ED based bridge programs to long term treatment.

To prepare for this session, please read the included materials. It may also be helpful to review your particular institutions resources for patients with opioid use disorders as well as those resources available in your community. The session is a large group question guided discussion and requires no additional equipment or materials except for a white/black board (optional).

❖ **Case Part I – The Opioid Epidemic and Pain Control in the ED (15 min)**

PA is a 45-year old female with a history of depression, anxiety, kidney stones and fibromyalgia who is on 2 mg PO hydromorphone (Dilaudid) q4 hours prn for chronic pain. She is presenting today with left sided flank pain consistent with previous kidney stone pain. She had a CT scan 3 months ago showing a 3 mm L sided kidney stone which you suspect is causing her symptoms. She has no symptoms that are unusual for her so you elect not to rescan her today. She is requesting pain control.

Of note, your hospital administrators have recently sent a memo to your group requesting you limit the use of opioids in your ED due to the “opioid epidemic”.

❖ **Discussion Questions with Teaching Points**

- **What is the “opioid epidemic”? What data do we have about the EDs role in the epidemic?**
 - In the last 20 years, the U.S. has seen a surge in opioid prescribing, up over 3x, along with increased ED visits for opioid-related overdoses and deaths (CDC data)
 - Although Emergency Medicine physicians prescribe a smaller portion of total opioids, we often introduce opioid-naive patients to controlled substances for the first time
 - Many addicts say their first experience was after a relatively minor injury such as an ankle sprain or laceration and opioids were prescribed

- **You decide to give your patient 15 mg of IV Toradol and one dose of IV hydromorphone (0.5 mg) but she refuses saying “that’s way less than I normally take and it isn’t working at home”. Is she right?**

Note to Facilitators: *It might be useful to write this table on the white board and have learners fill it in as you discuss.*

- Not really, most opioid conversion tables place IV hydromorphone in a 5:1 ratio to PO (ie 0.5 mg IV = 2.5 mg PO) but it’s not much more than she’s taking PO
 - See chart below for information about particular narcotics including their conversion and morphine equivalence (MME)
- Remember take into account a patient’s home medication doses when calculating their IV pain dosage requirements → this is especially important for your oncology patients and patients with diseases such as sickle cell who are often on high outpatient doses (See Session 8: Surrogacy, Goals of Care and End-of-Life Care)

Medication	Morphine Equivalence Dose (PO)	Conversion IV to PO
Morphine 1 mg	1 mg	1 mg IV = 3 mg PO
Hydromorphone 1 mg	4 mg	1 mg IV = 5 mg PO
Hydrocodone 1 mg	1 mg	N/A
Oxycodone 1 mg	1.5 mg	N/A

- **You increase her dose to 1 mg IV hydromorphone (equivalent to 5 mg PO) but the nurse returns again stating the patient is requesting IV Benadryl for the itching she gets with IV opioids. Is this likely a true allergy? Which medications most commonly cause itching? And what do you do about it?**

- True opioid allergies are rare (<2%), most skin reactions are simply an adverse side effect due to mast cell release of histamine rather than a true allergy
 - Codeine and morphine most commonly cause itching
 - The itching associated with opioids can be intense and limit their use in some patients → can consider using a structurally different medication such as Fentanyl
 - IV Benadryl is more effective for symptom management than PO as PO is only 50% bioavailable but IV also may have a euphoric effect that potentiates the action of opioids
 - Can consider giving IV Benadryl diluted in a 50 cc NS bag over 20 minutes as this will still give you the faster onset and better bioavailability of IV but likely without as much of the euphoria (this is not evidenced based but based on common practice and pharmacology)
- **The patient continues to be in pain even after her dose of hydromorphone, what other options might you consider?**

Medication	Class	Dose	Contra-indication	Data Supporting
Lidocaine (IV)	Anesthetic	1.5 mg/kg IV over 10 min (max 100 mg) - Consider cardiac monitoring - Make sure it doesn't contain epinephrine	Pregnancy, severe CAD, AV heart block, arrhythmias, liver or renal disease though no clear cutoffs (increases toxicity risk)	Data best for nephrolithiasis and cancer pain Most studies from Iran (no IV NSAIDs and high opioid abuse) RCT with 240 pts comparing lidocaine with morphine → 90% effective w/ lidocaine vs 70% w/ morphine but study limited by no NSAIDs, use of VAS score and many exclusions (Soleimanpour 2012)
Ketamine	Anesthetic	0.1 - 0.3 mg/kg IV infusion (sub-dissociative dosing) - IVPB over 15 min better tolerated than IVP (Motor 2017)	Pregnancy and lactation? (no data), h/o malignant hypertension	A work in progress Only very small studies but with some promise especially for neuropathic pain

- **What data is there for Ibuprofen and Tylenol for pain? What about patients with cirrhosis or CKD? What do we need to consider when prescribing to these patients?**
- These are good pain medications and should be used first line for home with supplemental small prescriptions for narcotics if needed
 - The combination of Tylenol and Ibuprofen together has been shown to be equally effective to one tablet Norco for acute musculoskeletal injuries → we should be encouraging the use of this combination for even moderate to severe pain when Norco is being considered
 - This has been shown in both adults and children

- Remember to dose these medications correctly → generally Ibuprofen 600 mg q6 hours or 800 mg q8 hours (10 mg/kg q6 for pediatrics) **plus** Tylenol 650 mg every 6 hours (15 mg/kg q6 for pediatrics)
- Long term NSAID use is contra-indicated in patients with significant CAD/CHF but short courses are generally tolerated → use caution in truly end-stage CHF, severe, medically non-optimized CAD or patients on oral anti-coagulant therapy
- Tylenol is still the preferred medication in cirrhosis though use is limited to 2 gm/day → remember the risk of encephalopathy with opioids and high risk of GI bleed with NSAIDs
- NSAIDs are still preferred in CKD stage 1 and 2 (limit dosing and duration) as well as patients on long-term HD → would avoid in patients with Stage 3 or 4 CKD (GFR 15-60 or < 15 not yet on HD)
 - See Tables below regarding pain control in patients with chronic kidney or liver disease

Analgesia in Cirrhosis

NSAIDs	Avoid or use shared decision. Risk of GI bleeding, drop in platelet count and renal dysfunction.
Acetaminophen	Clinician judgment must prevail but suggest limit to less than 2 gm/day. First line for pain.
Opioid	Use sparingly due to risk of encephalopathy. If using morphine or hydromorphone, decrease dose 50% due to a prolonged half-life in cirrhosis.

Analgesia in Chronic Kidney Disease

	NSAID Considerations	Opioid Considerations
CKD 1	First line, any NSAID, no dose change	Universal precaution
CKD 2 (GFR > 60)	Benefit > Risk. Transient effects on GFR. <i>Universal precautions:</i> Shortest duration. Avoid with ACE-I, elderly, hypotension	Universal precaution
CKD 3-4 (GFR 15-60)	Avoid NSAIDs, Shared decision with patient	Universal precaution. High risk. Limit to Hydromorphone 0.5 mg PO q 4h + 0.5 mg PRN q 2h for breakthrough Avoid morphine
Non-dialysis CKD 5 (GFR<15)	Avoid NSAIDs. Shared decision with patient	Universal precaution. High risk. Hydromorphone as above Avoid morphine
Dialysis CKD 5	Ibuprofen is dialyzable. No toxic metabolites. OK for Short term, low dose as not concerned about renal protective status in ESRD but avoid in AKI	Universal precaution. High risk. Hydromorphone as above. Morphine also is OK, as dialyzable but use smaller doses

❖ **Case Part II – Communicating with Patients with Opioid Use Disorders (15 min)**

After putting PA on continuous monitoring, you give PA 0.15 mg/kg of ketamine and 30 minutes later she feels much better. As you are discussing her discharge, she requests a prescription for breakthrough pain as “my home hydromorphone (Dilaudid) prescription is for my normal fibromyalgia pain but this is worse and different. It’s a kidney stone, not my fibromyalgia and I need more meds”.

❖ **Discussion Questions with Teaching Points**

- **How do you decide which patients should receive a prescription for narcotic pain medications from the ED? What do you give and how much?**
 - Obviously, a difficult question and many providers will feel differently
 - EDs do not appear to be contributing much to the total number of opioid pills in the US but we do start opioid naïve patients on opioid medications
 - We need to be opioid smart and only place patients on opioids for truly breakthrough severe pain where the combination of Tylenol and NSAIDs or other pain treatment is ineffective
 - Reasonable to give a small prescription, generally 3-5 days or <12 tablets, for acute (or some acute on chronic) painful conditions (ACEP guidelines)
 - A short acting opioid such as hydrocodone is the preferred first line unless the patient is already on something stronger
 - If the patient is on large doses or already working with a pain specialist, it is also reasonable to decline to refill the medications and refer them back to their PCP/pain MD → if they have lost access to that provider, consider their risk of withdrawal or escalation to street drugs and consider offering medication assisted treatment, long term treatment resources or even a small bridging prescription using a harm reduction argument (will discuss later in this session)
 - Your hospital, ED or group may give you guidelines for safe prescribing of opioids
 - As an aside, remember bowel regiment especially with new opioid prescriptions and especially in the elderly
 - As a final aside, remember the black box warning for codeine in pediatrics due to concerns for respiratory compromise and death → don’t prescribe kids codeine!
 - If narcotics are required, the preferred agents are morphine (0.2-0.5 mg/kg PO q4-6) or oxycodone (0.1-0.2 mg/kg PO q4-6)
- **What patients may be high risk for future addiction?**
 - Young patients, patients with a prior risk of addiction or current use of illegal drugs may be at higher risk for opioid addiction → consider that when prescribing new opioids in these patients though you may still decide the benefits outweigh the risks
 - May consider sharing your concern with the patient
 - If prescribing to children/adolescents, consider discussing addiction potential with parents and ensure the medications are regulated and disposed of properly when the painful condition has resolved

❖ Case Continues

Before writing her a prescription, you run her through your state-controlled substance database (PDMS) and find that she has received 10 prescriptions for opioids in the past 4 weeks from multiple different Emergency Departments. You are concerned she has an opioid use disorder and want to talk to her about it.

❖ Discussion Questions with Teaching Points

- **How do you differentiate chronic pain with opioid use from opioid use disorders including addiction?**
 - Chronic opioid use is the use of prescription opioids for at least 3 to 6 months
 - The presence of only tolerance and withdrawal, in the absence of other functional impairments related to opioid use, is not sufficient to support the diagnosis of an opioid use disorder
 - The critical distinguishing feature between chronic opioid use and an opioid use disorder is the presence of ongoing functional impairments directly related to opioid use, the continued use even in the setting of personal harm and a loss of an ability to self-regulate one's opioid use

- **What findings on a state-controlled substance abuse database report would make you concerned about PA's use of opioids? What factors make you worried that her use is more consistent with an opioid use disorder rather than simply chronic opioid use?**
 - Large number of prescriptions especially from different providers
 - Increasing doses or increasing strength of medication prescribed
 - In the ED, any patient using non-prescribed opioids more than 2 days a week or using heroin is considered in need of treatment
 - Visits for illnesses or injuries related to opioid use
 - Escalating visits for painful complaints
 - Disclosure of continued or escalating use in the face of negative effects of use

- **If you are concerned about a patient's opioid use, when might be a good time to have a discussion with them about their use (ie in what clinical scenarios?)**
 - You can assess readiness for change any time you'd like in a patient you are concerned has an opioid use disorder but particular times are likely going to be more fruitful than others
 - Times of acute illness due to opioid use (ie serious infection, withdrawal, trauma related to use) may be a good time to intervene
 - Instability in a patient's prescription source (ie loss of primary MD, insurance or being excused from a pain clinic) is also a high-risk time for patients on chronic opioids and especially those with opioid use disorders → this is often the juncture where patients turn to street drugs so think about intervening!

- **What are some best practices for having discussions with patients about a potential opioid use disorder? What can you say and questions can you ask?**
 - The best practice in the emergency department is to have an open and judgement-free attitude with curiosity about someone's experience with opioid use

- Once you have identified a patient you are concerned about, either due to their behavior in the ED, their prescription history or other factors, start the conversation with a statement of concern:
 - *“Based on X (your prescribing history, your behavior here in the ED today) I am concerned about your opioid use”*
 - Follow up by asking open-ended questions such as *“Do you feel in control of your opioid use?”*, *“Have you ever wanted to cut back or stop your opioid use?”*
 - These questions will help identify those patients who may be ready for intervention or at least may be ready to receive information about available resources
 - There is also a modified NIDA-Quick Screen protocol where EPs ask patients whether they've used an illicit substance or a prescription opioid for a non-medical reason within the past month
 - ACEP offers several instructional videos on various approaches to ED patients with a potential substance use disorder: <http://www.bu.edu/bniart/sbirt-in-health-care/sbirt-educational-materials/sbirt-videos/>
- **If someone screens positive with the previous questions, what can you do? What resources are available?**
- First of all, become familiar with resources in your area
 - Often, just providing the patient with resources to think through is the first step → don't underestimate the impact this can make!
 - Can also offer treatment center referral → social workers in many hospitals can assist with this
 - Finally, discuss medication assisted treatment as an evidenced based treatment for opioid addiction → this includes methadone, buprenorphine or naltrexone
 - We will discuss Buprenorphine for withdrawal in the ED in Part III of this session
 - Most opioid use disorder treatment is done as an outpatient → inpatient rehabilitation is often not recommended
- **What portion of our ED patients appear to be “drug-seeking” or “doctor-shopping” for opioids? What can we do for these patients? Does not prescribing to them help?**
- “Doctor shoppers” are a minute fraction of all total ED patients receiving opioids (Schneberk et al, Annals 2018)
 - Though we do see them regularly in our clinical practice, often due to their unstable social situations, we prescribe a minute fraction of their total opioid use (Schneberk et al, Annals 2018)
 - We see these patients at their most vulnerable time; due to instability in their primary prescribing source, loss of insurance or other factors, and this is a good time to intervene → generally not by refusing to prescribe to them but by starting the conversation about their use and evidence-based treatment options
 - Can consider giving patients a small prescription to bridge to new primary care based on a harm reduction argument → balancing the risks of ED overuse/abuse with the risks of withdrawal and potential transition to street drugs
 - Regardless of whether you decide to prescribe to these patients or not, the best thing you can do is assess their readiness for change and provide resources and information regarding treatment options
 - Treating the patient as if “they are trying to get something from me” is not only deadly to the patient-physician relationship but can also negatively impact physician wellness

- These patients are often very poorly treated by health care professionals → you have the power to change the culture from one of adversarial relationships to one that is patient-centered!

❖ Case Continues

The patient starts to cry during your conversation and says “I never meant it to get like this. I started taking Norco for my fibromyalgia and I’m not sure how I got here. You’re the first person that’s talked to me about this, usually I feel pretty bad after an ED visit because I feel like everyone thinks I’m a bad person. I’ll talk to my doctor about getting off the medications”.

You discuss referral to a substance use disorder treatment center but she declines at this time wanting to talk to her PCP

The patient leaves with instructions to continue her home hydromorphone (Dilaudid) for now as well as a prescription for a lidocaine patch, 3 days of PO Ibuprofen combined with Tylenol and you feel like you got a big win for the day!

❖ Case Part III – Opioid Withdrawal in the ED (10 min)

On your next shift a few days later, you see PA check back in for “anxiety”. You sign up to see her, hoping that she is doing better. You walk in the room and you see her pacing the room. She states she is nauseated and feels “very anxious” for the past few days. She states, “I really just don’t feel good”. Her VS show tachycardia but are otherwise normal. On exam you notice she appears agitated and has piloerection. She has an otherwise normal exam.

❖ Discussion Questions with Teaching Points

- **What is her diagnosis? What scoring systems are available in the ED to diagnose the severity of her condition?**
 - This is likely an example of opioid withdrawal → would need to confirm that she has stopped taking her hydromorphone to ultimately make the diagnosis but the symptoms are suggestive
 - Initial symptoms of opioid withdrawal include anxiety, agitation, nausea and irritability
 - In more severe cases, this is followed by nausea, vomiting, diarrhea, abdominal pain, piloerection, diaphoresis and mydriasis
 - Seen after cessation (or tapering) of opioids, usually within 24-72 hours
 - Unlike alcohol and benzodiazepine withdrawal, opioid withdrawal is not usually lethal but is the most common precipitant to a person starting to use prescription pills again or turning to street drugs
 - Opioid withdrawal or pending withdrawal may also lead to unnecessary ED visits with surreptitious pain complaints with the goal of receiving an opioid medication
 - The COWS scoring system (see attached references or available on MDCalc) can be used in the ED → this is similar to the CIWA scale to classify the severity of withdrawal
 - Similar to CIWA, this is a tool that is often used as one is learning the signs and symptoms of withdrawal but most experienced clinicians use gestalt

- **What options do you have for treating her opioid withdrawal in the ED? How do you administer these medications?**

Medication	Dose and Route of Administration	Side Effects	Monitoring
Clonidine	0.2-0.3 mg PO, may repeat x 1	Hypotension and bradycardia Can be given at any level of withdrawal as it will not precipitate withdrawal	Yes?
Buprenorphine	8mg sublingual (or 0.3 mg IV) test dose repeated after an hour if the patient improves to a maximum in the ED of 24-32mg	Acute withdrawal symptoms if patient was not in acute withdrawal → COWS should be > 6-8 with 1 objective symptom	No

- **Which of these treatment options is better in terms of symptom reduction, mortality reduction and engagement in long-term treatment?**
 - Clonidine is a potentially useful medication but only partially treats withdrawal symptoms → most patients will quickly return to opioid use
 - Patients started on buprenorphine in the ED have excellent outcomes with almost 80% engaged in treatment at 30 days given they are referred to care through an ED bridge program (Sordo 2017 BMJ) → more on that later
 - Even in high risk patients, treatment with Buprenorphine reduces mortality by 50% while clonidine has no mortality benefit (Sordo 2017 BMJ)
- **Is a special license needed give buprenorphine for withdrawal in the ED?**
 - No, any ED physician with a DEA can prescribe Buprenorphine to treat withdrawal symptoms
 - You do need a X waiver to write a prescription for it
- **Does a patient need to agree to enter into a treatment program before buprenorphine is administered?**
 - No, think of it like alcohol withdrawal → treat the withdrawal symptoms first then try to engage the patient in long term treatment
 - Treatment of opioid withdrawal with buprenorphine is a harm reduction intervention even if the patient is not interested in treatment
 - Once they feel better use motivational interviewing (as discussed in the prior section) to encourage engagement in long term treatment
 - Treatment for opioid addiction is often done as an outpatient → inpatient rehabilitation is not recommended for most patients
- **What are ED Bridge programs? How can I start one at my hospital and what resources are available?**
 - ED bridge programs connect people treated in the ED for opioid withdrawal with outpatient resources to begin long-term buprenorphine treatment
 - Some simple steps to start a program are:

1. Talk with your pharmacy director to be sure that buprenorphine is on the hospital formulary
2. Develop a connection with an outpatient facility who can receive patients referred from the ED
3. Train nurses and doctors how to assess opioid withdrawal severity and how to dose buprenorphine
4. Create or adapt a simple guide for providers for use in the clinical areas for real-time consultation
5. If possible, bring in a patient care navigator to help patients transition to outpatient care
6. Obtain patient education materials from outpatient partners that describe how to access their buprenorphine treatment options

For more information go to: <https://ed-bridge.org/>

❖ **Case Conclusion and Teaching Points (10 min)**

You give PA a 8 mg sublingual test dose of buprenorphine which she tolerates well. 45 minutes after the first dose, you give her another 16 mg and she feels much better. You have your social worker see her who provides her with local opioid use disorder treatment resources. On her way out, she gives you a hug and thanks you for your kindness and for having the tough conversation everyone else was too afraid to have with her.

❖ **Case Teaching Points Summary**

- **The Opioid Epidemic and Pain control in the ED**
 - Pain control in the ED is about picking the right medication, for the right condition at the right time
 - Opioids are sometimes the best option but there are other non-opioid options that appear promising → IV lidocaine and low dose ketamine
 - IV lidocaine (1.5 mg/kg max 100 mg) has been studied in kidney stone pain but use caution in patients with significant CAD, arrhythmias or liver/kidney dysfunction
 - Low dose ketamine (0.1-0.3 mg/kg) has also been studied and shows particular promise for neuropathic pain
 - Remember Tylenol and Ibuprofen are pain medications and there is significant data that they are effective especially in combination for musculoskeletal pain → these should be first line for home pain control but remind patients of appropriate dosing
 - If you dose opioids in the ED, dose them correctly → the starting dose of morphine is 0.1 mg/kg up to 10 mg IV
 - If your patient is on chronic home oral pain medications remember to take this into account when calculating IV doses → this is especially important for your oncology patients and other patients with long term painful conditions like sickle-cell disease
 - Consider IVPB Benadryl for less euphoria but better bioavailability and time to onset
 - Don't forget your bowel regiment for patients sent home with opioid prescription
 - Don't give kids codeine → morphine and oxycodone are the preferred PO medications!
 - Discuss addiction potential with high risk patients (previous addiction, mental illness, young patients)

- **Opioid Use Disorders**
 - Opioid use disorders can be differentiated from chronic use based on continued use in the face of negative consequences and an inability to regulate use
 - Drug seekers and doctor shoppers represent a TINY portion of your patients, even those with chronic pain, and when you come in contact with them it is often in their most vulnerable moments
 - During these vulnerable contact points, patients are often at risk of transitioning to street drugs → use this as an opportunity to intervene!
 - Don't hesitate to have a conversation with your patients about opioid use, dependence and abuse especially when you have a particular concern based on their behavior or PDMP report
 - Start the conversation with a statement of concern such as *"Because of X behavior, I'm worried about your opioid use"*
 - Continue the conversation with open ended questions like *"Do you feel you are in control of your opioid use?"*, *"Has your opioid use ever negatively impacted your life?"*
 - If the patient screens yes, offer them resources and evidenced based treatment including medication-assisted treatment (MAT) and referral to long-term treatment
 - Remember these patients often have suffered because of our attitudes towards them → show them kindness and make a difference
 - Don't set up an adversarial relationship with your patients → it's bad for you and bad for them

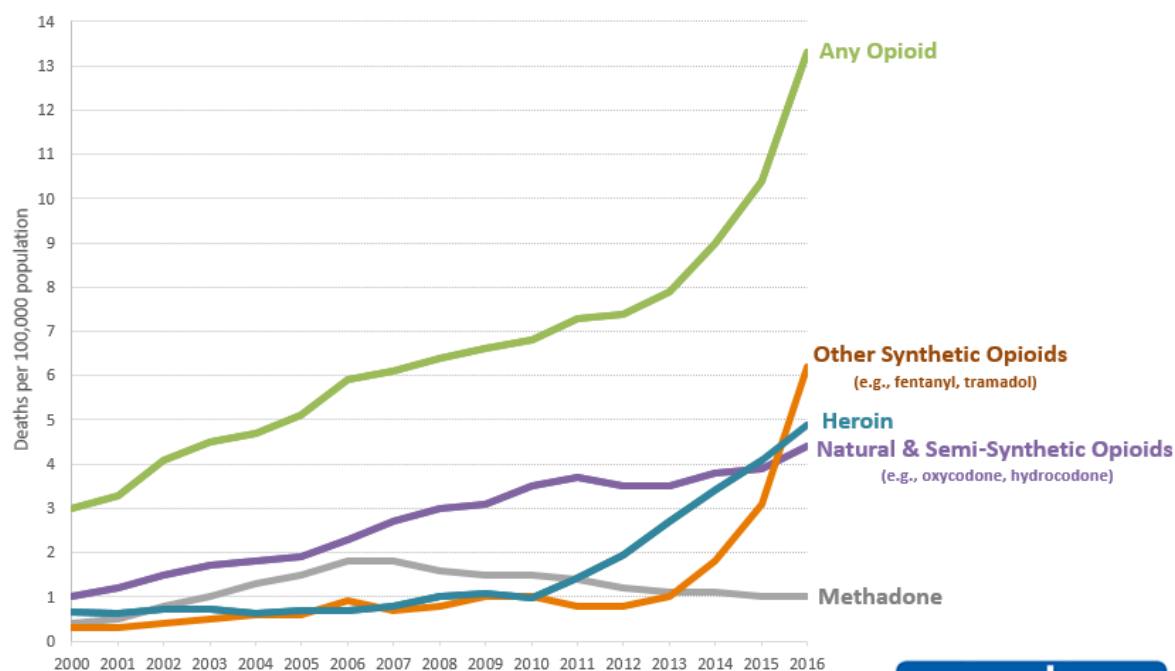
- **Opioid Withdrawal and treatment in the ED**
 - Opioid withdrawal is characterized initially by agitation, anxiety and nausea followed by vomiting, diarrhea, abdominal cramping, piloerection, tachycardia, hypertension and dilated pupils in more severe cases
 - It is rarely life threatening but is the most common cause for patients to use again or turn a cheaper option, heroin
 - Buprenorphine is preferred over clonidine for the treatment of opioid withdrawal symptoms in terms of both improvement in symptoms, increased likelihood of engaging with long-term therapy and decreased relapse rates
 - Even in high risk patients, treatment with buprenorphine has a mortality benefit
 - Use the COWS scoring system (available on MDCalc) to identify and rate the severity of symptoms when you are first learning to identify opioid withdrawal in the ED
 - COWS score should be > 6-8 with 1 objective finding to treat with Buprenorphine → otherwise you may precipitate acute, worsening opioid withdrawal
 - If this occurs, you can use alternative opioid withdrawal treatment (ie clonidine)
 - Buprenorphine can be given IV or sublingual
 - Initial test dose is 8 mg SL (or 0.3 mg IV) followed by another 8-16 mg after an hour if patient improves, monitor for 60 min after second dose and if doing well can discharge (see ACEP ED Bridge reference)
 - Make sure to offer your patients options for long term therapy through Social Work or other avenues developed by your ED
 - Remember that long-term therapy is often outpatient → inpatient treatment is not recommended for most patients with opioid use disorders

❖ Facilitator Background Information

Understanding the Opioid Epidemic and the ED's role

Over the past 15 years, opioid prescribing in the US has more than tripled and admissions for opioid related illness and overdose deaths have followed (CDC data). There are many theories as to the genesis of the epidemic including pharmaceutical company marketing, an increased focus on pain in the health care arena, higher reported pain rates among Americans and other societal influences.

Overdose Deaths Involving Opioids, by Type of Opioid, United States, 2000-2016



SOURCE: CDC/NCHS, National Vital Statistics System, Mortality. CDC WONDER, Atlanta, GA: US Department of Health and Human Services, CDC; 2017. <https://wonder.cdc.gov/>.



The nature of the response of the emergency provider to the epidemic should be based on a clear understanding of two things:

(1) Our contribution as emergency providers to the epidemic

and

(2) Our unique interactions with opioid use disorders (OUD) patients and the opportunities we have to intervene by adopting a harm reduction mindset and practicing EBM when selecting treatment options

First, some words on our contribution to the epidemic:

There are two particular groups of patients with which we have the most contact with and that therefore deserve a specifically tailored response:

(1) The opioid naïve patients

- There is evidence that ED prescribing does contribute to the development of a substantial amount of OUD and in particular, the way in which we prescribe (ie medication choice, dose, duration) matters (NEJM Barnet, Tafara tweet)
- There is data to suggest that exposure to ED physicians does lead to some long-term use but to a lesser degree than other specialties

(2) Chronic OUD users

- The ED provider comes into substantial contact with *all* use categories
- About 25% of encounters across all use categories result in a prescription for opioids (Schneberk)
- However, high morphine milligram equivalents (MME) consumers rely very little upon the ED to fuel their use as ED providers generally give very small total quantities meant for short term use
- Said another way, in giving a few Norcos to a potential OUD patient, you have made almost no contribution to their total use

“Doctor shoppers”, as a subset of this second group of patients, are a minute fraction of the total ED patients receiving opioids. By definition, this population receives a lot of prescriptions and among the chronic OUD group, tends to receive prescriptions of both higher quantity and with longer periods of use. During this long span of use, there is a mismatch between how many opioids we as ED physicians give to these “doctor shopping patients” and how likely we are to come into contact with them. That is to say, ED providers prescribe a minute fraction of these patients’ total opioid use while at the same time we see them regularly in our clinical practice.

Importantly, these “doctor shoppers” are often in contact with ED providers during times of instability; either in their primary opioid prescription source or otherwise in their lives. Instability in their primary opioid prescription source can be due to provider vacation, the provider cut the patient off, the patient got kicked out of their pain management clinic or their insurance changed. Our potential impact on these patients is huge if we choose to meet this vulnerability with an alternative option such as medication-assisted-treatment as opposed to the hostility we often exhibit towards these “doctor shopping” or “drug seeking” patients (see more below on communicating with patients with OUD).

Our greatest potential impact on the opioid epidemic as Emergency Physicians appears to be the following:

- (1) Prescription reduction focused primarily on opioid naïve patients or those patients with the highest risk for developing an OUD rather than focusing on cutting off high risk users

- Prior addiction or use increases rates of recurrent OUDs
 - Underlying psychiatric disorders likely confer additional risk of developing an OUD, however this remains very much a moving target)
- (2) Many now advocate for a harm reduction mindset for chronic high risk PDMP users displaying features of OUD rather than solely limiting their ED prescriptions. These patients are at high risk for dangerous sequelae of opioid use, including but not limited to overdose, transition to IVDU (up to 5% per the National Institute on Drug Use) and infectious diseases associated with IVDU. We now have therapeutic options available that allows for truly patient centered care. This is where the burgeoning referral programs established to provide transition options for medication – assisted treatment (MAT) become extremely powerful and where we can become an effective referral source for these clinics and rehabilitation centers because of our regular contact with these patients.

Many guidelines, including the ACEP clinical policy, encourages ED physicians to limit opioid prescriptions to short courses (3-5 days) and use the lowest possible MME when prescribing (generally hydrocodone). Counsel patients (or parents for minors, teenagers especially) about the addiction potential of opioids. Encourage patients to try Ibuprofen and Tylenol first (teach them appropriate dosing) prior to using opioids and encourage patients to stop taking opioids as soon as possible. Parents should limit children's access to opioids, closely monitor use and dispose of the medications as soon as possible. Finally, identify those patients at high risk for developing OUDs and have a candid conversation with them about your concerns. They may choose not to take a prescription after all.

Pain Management Options in the ED

Pain management options in the ED are many and varied. For some acute painful conditions, opioids are in fact the most effective treatment. When choosing opioids to treat acute pain, be aware of appropriate dosing (generally 0.1 mg/kg up to 10 mg IV) and pay attention to patients already on home narcotics to ensure you are dosing them appropriately in the setting of likely underlying opioid tolerance. Other pain control options include NSAIDs/Tylenol, both of which have good data supporting use in acute pain especially for MSK injuries, and newer options such as IV lidocaine (1.5 mg/kg up to 100 mg) and low dose ketamine (0.1 – 0.3 mg/kg). The data for both of these interventions is somewhat limited, IV lidocaine has mostly been studied for renal colic but in small studies that are limited by several factors. Ketamine at low doses has been studied in small populations both in the ED and outpatient settings and shows some early promise particularly in neuropathic pain. Consider giving Ketamine as an IVPB as opposed to an IVP as it is better tolerated.

Special care should be taken with several patient populations including patients with CKD, cirrhosis and the elderly. The charts below (also included in the teaching case), outline appropriate medication choices for those patients with cirrhosis and CKD.

Pain control in patients with Cirrhosis

NSAIDs	Avoid or use shared decision. Risk of GI bleeding, drop in platelet count, and renal dysfunction.
Acetaminophen	Clinician judgment must prevail but suggest limit to less than 2 gm/day. First line for pain.
Opioid	Use sparingly due to risk of encephalopathy. If using morphine or hydromorphone, decrease dose 50% as there is a prolonged half-life in cirrhosis.

Pain control in patients with CKD

	NSAID Considerations	Opioid Considerations
CKD 1	First line, any NSAID, no dose change	Universal precaution
CKD 2 (GFR > 60)	Benefit > Risk. Transient effects on GFR. <i>Universal precautions:</i> Shortest duration. Avoid with ACE-I, elderly, hypotension	Universal precaution
CKD 3-4 (GFR 15-60)	Avoid NSAIDs, Shared decision with patient	Universal precaution. High risk. Limit to Hydromorphone 0.5 mg PO q 4h + 0.5 mg PRN q 2h for breakthrough Avoid morphine
Non-dialysis CKD 5 (GFR<15)	Avoid NSAIDs. Shared decision with patient	Universal precaution. High risk. Hydromorphone as above Avoid morphine
Dialysis CKD 5	Ibuprofen is dialyzable. No toxic metabolites. OK for Short term, low dose as not concerned about renal protective status in ESRD Avoid in Acute Renal Injury	Universal precaution. High risk. Limit to Hydromorphone. Morphine is OK, as dialyzable.

Prescribing pain medications for the elderly is particularly difficult given concerns over medication interactions, poor medication metabolism due to underlying kidney or liver disease and other contraindications. Additionally, narcotics carry a risk of delirium and can cause other significant side effects in elderly patients including significant constipation. Efforts should be made to avoid narcotics in elderly patients and should only be used if other measures (NSAIDs, Tylenol, topical lidocaine and non-pharmacologic treatments such as heat/cold) have failed. If used, they should be in the smallest dose and for the shortest duration possible.

Communicating with Patients with Opioid Use Disorders (OUDs)

As ED physicians we regularly contact patients with chronic opioid use and being able to differentiate those with a true opioid use disorder from those simply on chronic opioids is important. The bottom line

in differentiating these patients is determining if they have continued use (or escalating use) *despite* negative consequences on their lives. When we encounter patients we are concerned about, either due to their behavior or after looking at their prescribing history in a state reporting database, we have a choice. We can either be frustrated at their use of the ED, often leading to an adversarial relationship with the patient and negative effects on us including burnout, or we can see this as an opportunity to intervene and truly make a difference. Our intervention at this point could potentially even save their life as opioid overdose deaths continue to skyrocket in the US.

If we decide to seize the opportunity and start the conversation, begin with a statement of concern, *"I'm concerned about your use of opioids based on X,Y, Z"* and follow that with open-ended question like *"Have you ever felt like your use of opioids is out of your control?"*, *"Do you want to stop using opioids?"*. This will help you assess how open the patient is to change. If they are open, continue the discussion and assess whether they are ready to talk (which is a big step), ready for resources or ready to cease use completely. If they are ready to cease use, consider discussing medication-assisted-treatment (see below).

Remember, we often see patients with opioid use disorders (or those on chronic opioids) in their most vulnerable times; when they have lost their primary provider, when they have lost their insurance, job or even their homes. This vulnerable time is when many (estimated up to 5% by the National Institute of Drug Abuse) of patients turn to a cheaper alternative, heroin. We can make a difference at these times by being open, non-judgmental and discussing evidenced based treatment options rather than engaging in arguments about prescriptions. Choosing a patient centered approach will not only benefit the patient but will benefit us as physicians, relieving a source of frequent frustration during our clinical work. Of course, this approach will not work for all patients, some (or even many) may not be ready to change but we can know we have done right by them. For those patients not ready to change, there may be potential to reduce harm by providing a small prescription but this must be balanced with frequent ED utilization. Each practitioner has to decide where they fall on this practice. We advocate spending time outside of work thinking about your approach and generally staying consistent with your approach.

Regardless of what you decide about providing prescriptions to high risk users, consider introducing more conversations about opioid use, abuse and treatment with your patients. EBM supports having these conversations, adopting a harm reduction mentality and treating opioid addiction with medication. Rather than simply relying on limiting prescriptions from the ED to high risk individuals, these interventions appear to be the best tools we have as ED physicians to combat the opioid epidemic. Employing these interventions will also lead to improved alignment with patients and consequently improve our satisfaction from these patient encounters; a win for both patient and physician.

Opioid Withdrawal in the ED

Opioid withdrawal is characterized initially by anxiety, agitation, nausea and can progress to vomiting, severe abdominal pain, diarrhea, piloerection and vital sign abnormalities including tachycardia and hypertension. Though not life threatening, opioid withdrawal is one of the most common reasons for

continuing to use opioids, transitioning to stronger formulations or even starting to use street drugs. There is an objective scoring system (COWS, available on MDCalc) that can help clinicians when first learning to identify opioid withdrawal though like CIWA, this system becomes less useful and clinical gestalt takes over as clinicians become more familiar with the withdrawal syndrome.

Treatment in the ED traditionally has been clonidine, 0.2 mg PO (up to 2 doses), but more recent data has shown that Buprenorphine, a partial opiate agonist, has significantly better outcomes in terms of compliance with treatment, abstinence and even mortality (Sordo et al, 2017 BMJ). The test dose is 4-8 mg SL or IV and can be dosed after 45 min up to 32 mg in the ED. It should only be given to patients in moderate withdrawal (COWS score > 6-8 and **one** objective finding of withdrawal), otherwise it can precipitate worsening withdrawal symptoms. ED providers do not require a specific license to prescribe Buprenorphine for withdrawal symptom treatment in the ED though an X waiver is required for long term prescriptions (similar to methadone). Think of treating opioid withdrawal in a similar way as to how we treat alcohol withdrawal; treat the symptoms first and then discuss long-term therapy options. ED Bridge programs, dedicated programs that help link patients presenting to the ED with opioid withdrawal to outpatient treatment options, can help facilitate long-term treatment. Many of these programs are outpatient and in fact, inpatient rehabilitation is not recommended for most patients with opioid addiction. And finally, remember that treating symptoms is a harm reduction intervention even in those patients not ready to engage in long-term therapy. Treating withdrawal symptoms in these patients will likely reduce their risk of transitioning to street drugs. These potential transitions are a real concern for our opioid addicted patients in the ED who are often in very vulnerable positions. We are in a position to make a difference in these patients' lives by adopting a harm-reduction based mindset and engaging in evidence-based medicine treatment options.

❖ References

- **Author:** Natasha Wheaton, MD
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- **References:**
 - Opioid Epidemic References:
 - Schneberk et al. The Supply of Prescription Opioids: Contributions of Episodic-Care Prescribers and High-Quantity Prescribers. *Annals of Emergency Medicine*. *In Press*.
 - Cantrill SV, Brown MD, Carlisle RJ, Delaney KA, Hays DP, Nelson LS, O'Connor RE, Papa A, Sporer KA, Todd KH, Whitson RR; American College of Emergency Physicians Opioid Guideline Writing Panel. Clinical policy: critical issues in the prescribing of opioids for adult patients in the emergency department. *Ann Emerg Med*. 2012 Oct;60(4):499-525. doi: 10.1016/j.annemergmed.2012.06.013.
 - Daubresse M, Chang H, Yu Y, Viswanathan S, et al. Ambulatory diagnosis and treatment of nonmalignant pain in the United States, 2000 – 2010. *Medical Care* 2013; 51(10): 870-878
 - K. Humphreys. Washington Post. Americans use for more opioids than anyone else in the world. Mar 15, 2017
 - Centers for Disease Control and Prevention. Vital Signs: Overdoses of Prescription Opioid Pain Relievers — United States, 1999—2008. *MMWR* 2011; 60(43);1487-1492.

- [Paulozzi L](#), Dellinger A, Degutis L. Lessons from the past. *Inj Prev.* 2012 Feb;18(1):70. doi: 10.1136/injuryprev-2011-040294. Epub 2011 Dec 30.
- AAEM Clinical Practice Statement: Emergency Department Opioid Prescribing Guidelines for the Treatment of Non-Cancer Related Pain, Nov 2013
- New York City Emergency Department Discharge Opioid Prescribing Guidelines , 2013
- Ohio Guidelines for Emergency and Acute Care Facility Opioid and Other Controlled Substances (OOCs) Prescribing, 2014
- Volkow, N, McLellan T. Opioid abuse in chronic pain- misconceptions and mitigation strategies. *NEJM* 2016; 374: 1253-1263
- Alam A, Gomes T, Zheng H, Mamdani M, Juurlink D, Bell C. Long-term Analgesic Use After Low-Risk Surgery. Aretrospective cohort study. *Arc Intern Med.* 2012; 172(5):425-430
- Baily CP, Connor M. Opioids: cellular mechanisms of tolerance and physical dependence. *Curr Opin Pharmacol* 2005; 5:60-80.
- Shah A., HayesC.J., Martin B.C. Characteristics of Initial Prescription Episodes and Likelihood of Long-Term Opioid Use — United States, 2006–2015. *MMWR Weekly / March 17, 2017 / 66(10);265–269*
- Centers for Disease Control and Prevention. National Vital Statistics System mortality data (2015). <http://www.cdc.gov/nchs/deaths.html>
- ACEP: Clinical Policy on Opioid Prescribing <https://www.acep.org/content.aspx?id=99153#sm.0000zimow5ckrf77z031f59uravus>
- Varney SM, Bebart V, Mannina L, et al Emergency medicine providers' opioid prescribing practices stratified by gender, age, and years in practice. *World J Emerg Med* 2016; 7 (2): 106-11

Opioid Adverse Events vs Allergic Reaction:

- Pharmacy Times. Opioid allergy: pseudo-allergy or adverse effect? March 2018 <https://www.pharmacytimes.com/contributor/jeffrey-fudin/2018/03/opioid-allergy-pseudo-allergy-or-adverse-effect>

Lidocaine References

- Soleimanpour H, Hassanzadeh K, Vaezi H, Golzari S, Esfanjani R, Soleimanpour M. Effectiveness of intravenous lidocaine versus intravenous morphine for patients with renal colic in the emergency department. *BMC Urol.* 2012;12:13

Sub-Dissociate Ketamine References

- “Sub-dissociative Dose Ketamine for Analgesia”. ACEP Clinical Policy: <https://www.acep.org/Clinical---Practice-Management/Sub-dissociative-Dose-Ketamine-for-Analgesia/#sm.000140jp7tkzmf9cy7o2pyvy7jskg>. Accessed: 04/12/18.
- Pourmand et al. “Low dose ketamine use in the emergency department, a new direction in pain management.” *American Journal of Emergency Medicine.* June 2017Volume 35, Issue 6, Pages 918–921
- Ahern TL et al. “The first 500: initial experience with widespread use of low-dose ketamine for acute pain management in the ED.” *American Journal of Emergency Medicine* 33 (2015) 197–201
- Motov S et al. *J Emerg Med.* Is There a Role for Intravenous Subdissociative-Dose Ketamine Administered as an Adjunct to Opioids or as a Single Agent for Acute Pain Management in the Emergency Department? 2016 Dec;51(6):752-757. doi: 10.1016/j.jemermed.2016.07.087. Epub 2016 Sep 29. Review.
- Motov S, et al. Intravenous Subdissociative-Dose Ketamine Versus Morphine for Analgesia in the Emergency Department: A Randomized Controlled Trial. *Ann Emerg Med.* 2015 Sep;66(3):222-229.e1. doi: 10.1016/j.annemergmed.2015.03.004. Epub 2015 Mar 26
- Motov S, et al. A prospective randomized, double-dummy trial comparing IV push low dose ketamine to short infusion of low dose ketamine for treatment of pain in the ED. *Am J Emerg Med.* 2017 Aug;35(8):1095-1100. doi: 10.1016/j.ajem.2017.03.004. Epub 2017 Mar 3.

Ibuprofen and Tylenol References

- Chang AK, Bijur PE, Esses D, et al. Effect of a single dose of oral opioid and nonopioid analgesics on acute extremity pain in the emergency department. A randomized clinical trial. *JAMA* 2017;318 (17): 1661-1666

Buprenorphine for opioid withdrawal

- Sordo L, Barrio G, Bravo MJ, et al. Mortality risk during and after opioid substitution treatment: systematic review and metaanalysis of cohort studies. *BMJ* 2017;357: j1550