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Psychiatry and Addictions Case Conference
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MANAGING *ACUTE PAIN* in PATIENTS on *BUPRENORPHINE*

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Integrated Care Training Program
UW Psychiatry & Behavioral Sciences

project ECHO

GENERAL DISCLOSURES

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SPEAKER DISCLOSURES

- ✓ No conflicts of interest/disclosures
- ✓ Other disclosures: I'm an addiction psychiatrist, not a card-carrying pain specialist

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PLANNER DISCLOSURES

The following series planners have no relevant conflicts of interest to disclose:

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OBJECTIVES

For patients on buprenorphine MOUD requiring management of acute pain we will:

1. Acknowledge that pain is a complex phenomenon
2. Identify potential challenges related to buprenorphine.
3. Outline treatment strategies in different clinical contexts.

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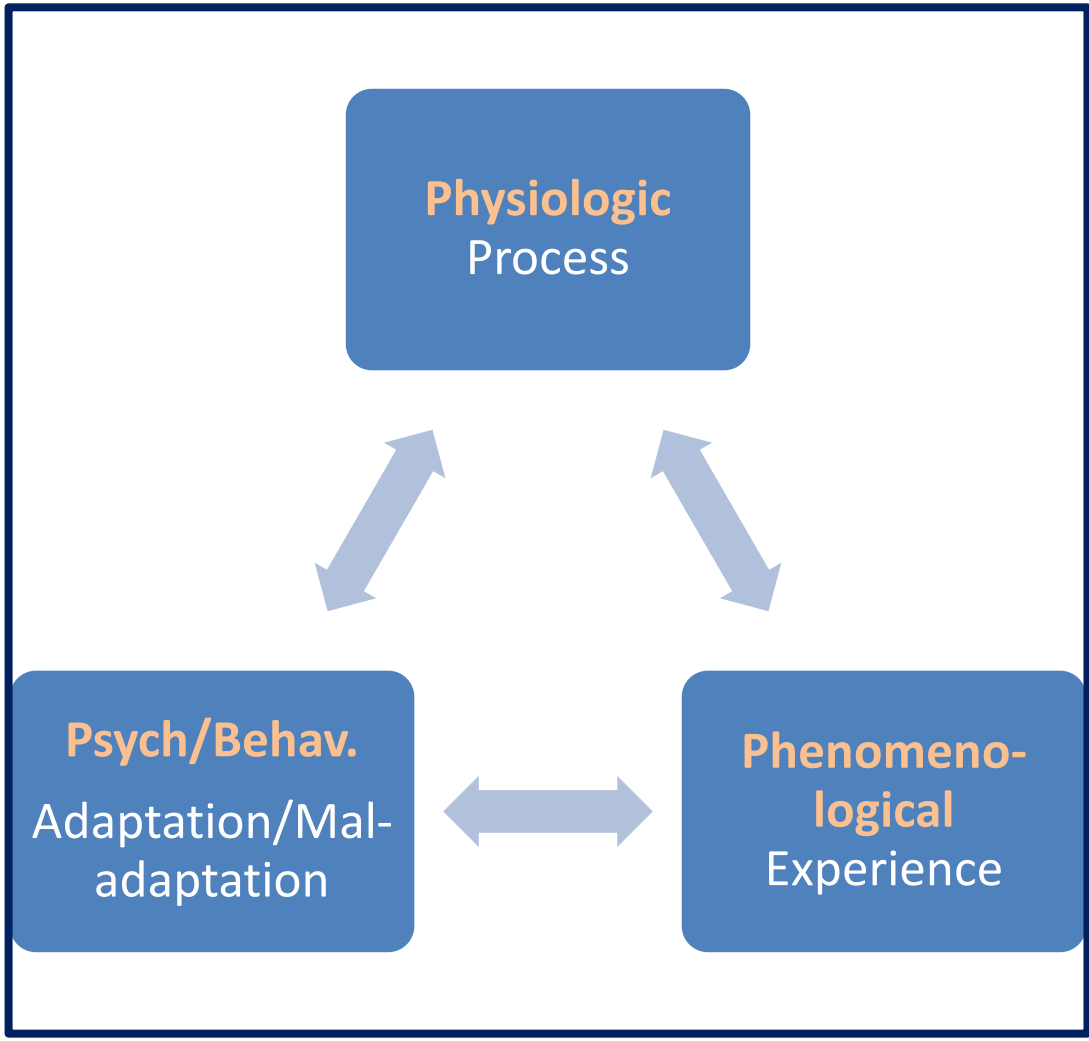
BACKGROUND

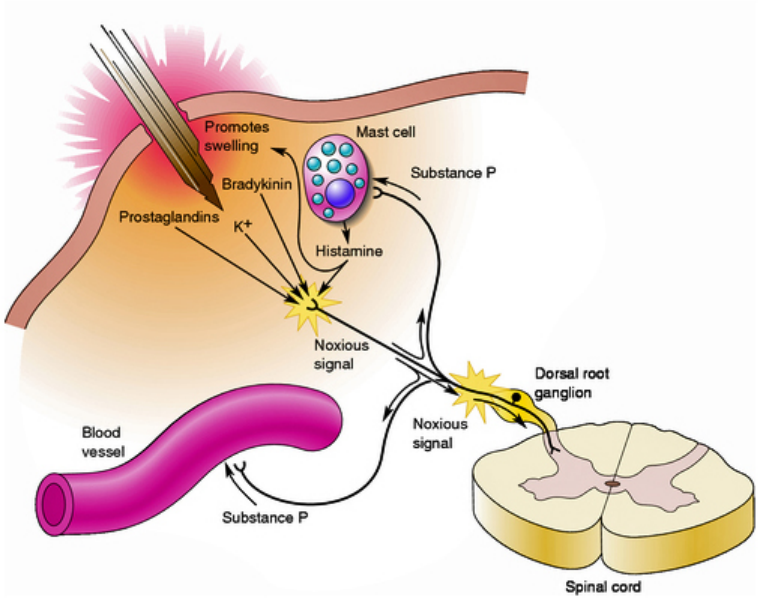
PAIN…IS COMPLICATED

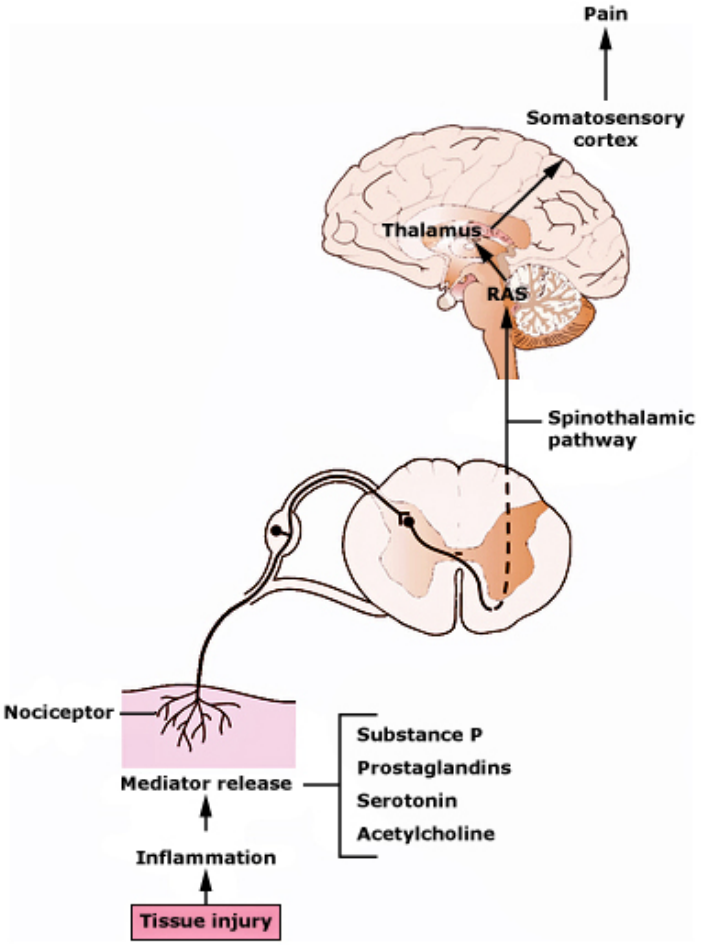
All pain's not the same!

- Etiology
  - Nociceptive
  - Neuropathic
  - (other?)
- Chronicity:
  - Acute
  - Chronic
- Severity, tolerability can be shaped by:
  - Central Sensitization Syndrome
  - Hyperalgesia (eg, w/chronic opioids)
  - Comorbid anxiety/affect



ACUTE NOCICEPTIVE PAIN





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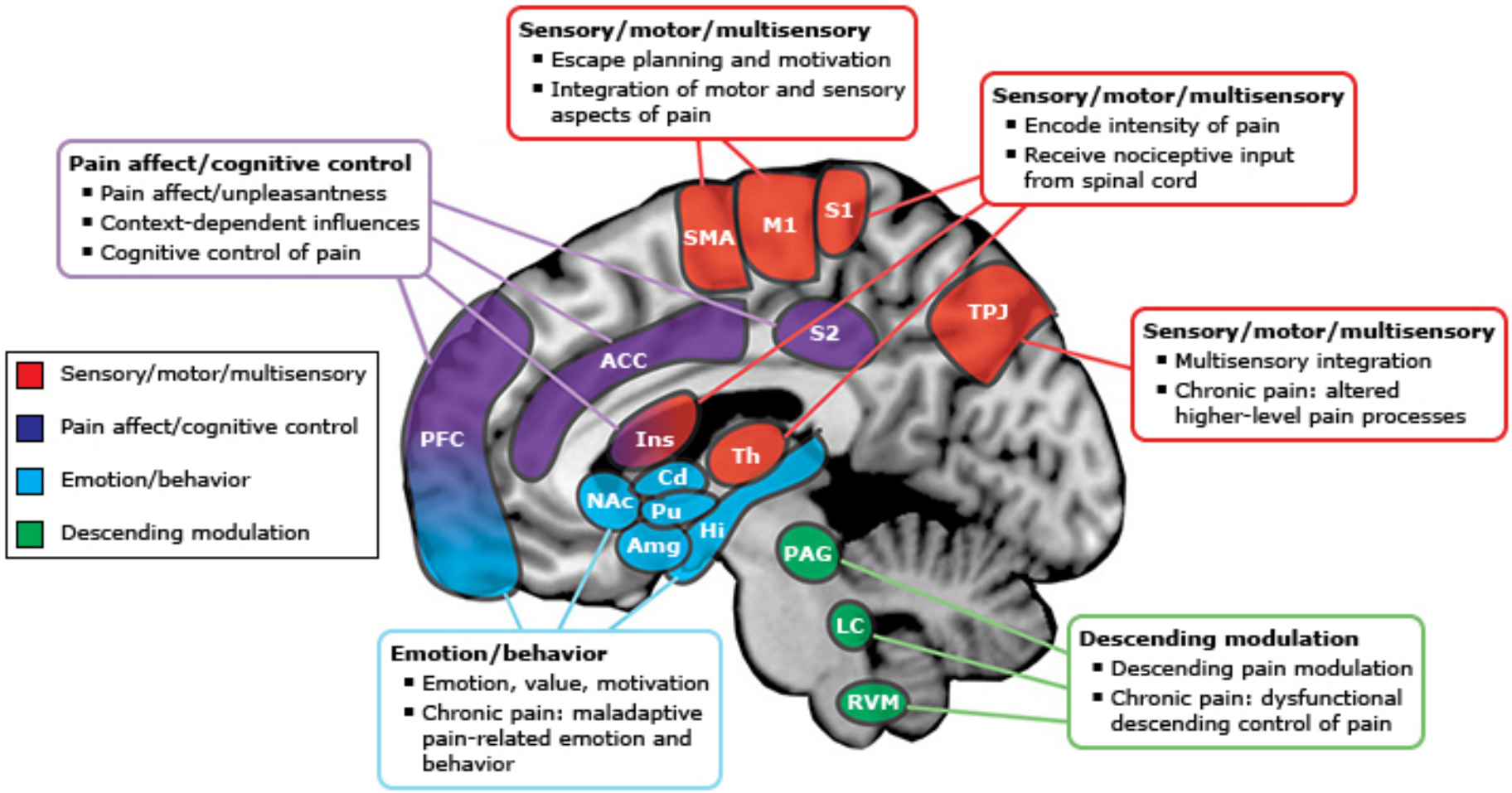

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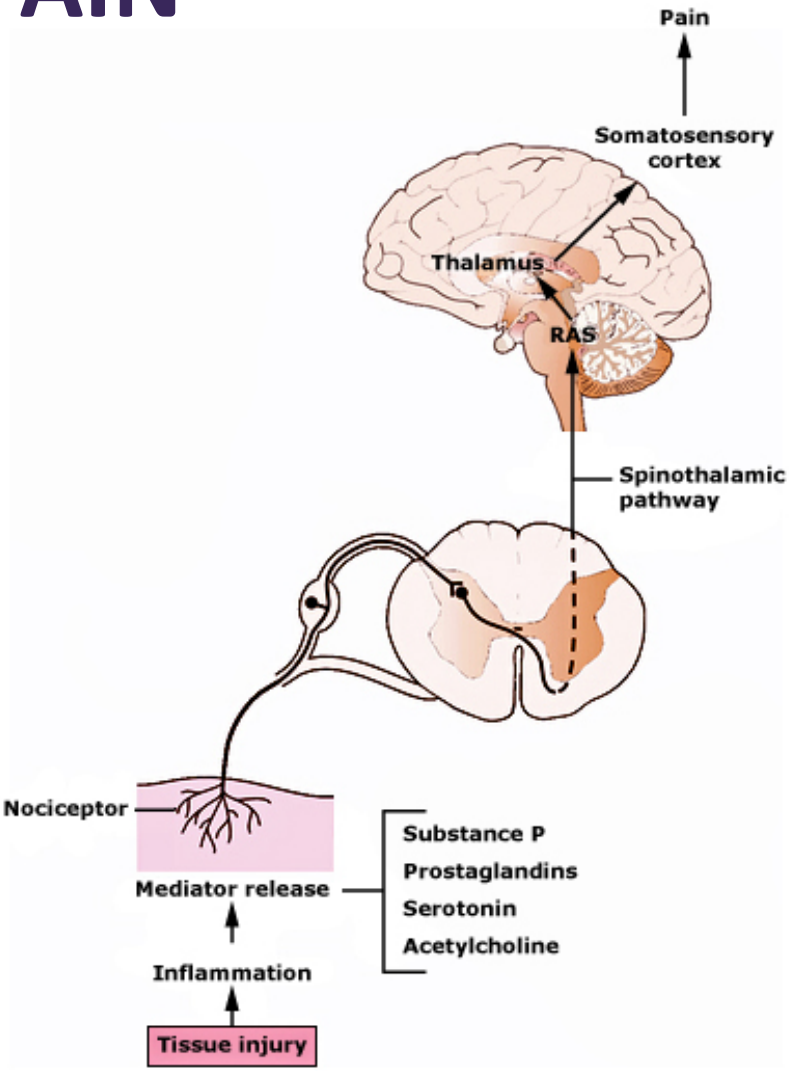
ACUTE NOCICEPTIVE PAIN

In Summary:

1. ***The hard truth***: Pain is complicated
2. ***A positive reframe***: Because it's complicated, there are multiple potential sites for intervention



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PAIN IN OPIOID USE DISORDER – A SPECIAL CASE

- Chronic opioid exposure:
  - Tolerance, physiologic dependence
  - Hyperalgesia, alterations in pain thresholds and experience
- Addiction's psychological and social valences
  - Patients' and Providers' prior experiences, preconceptions, & anxieties
- Impacts of treatment (e.g., Buprenorphine)

BUPRENORPHINE-NALOXONE as MOUD

-*Partial* mu agonist with high receptor *affinity*

- Ceiling Effect
- Blocks opioid receptor

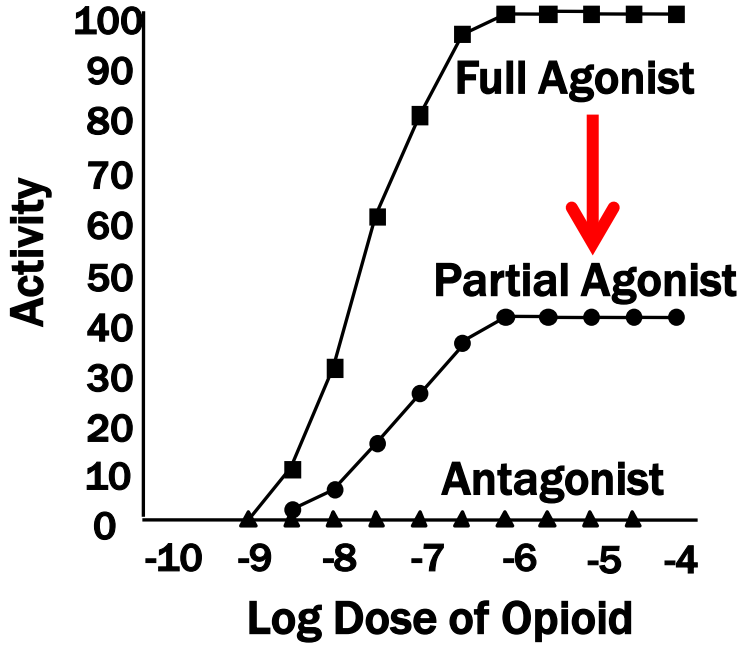
-Slower onset (Peak effects 3-6 hrs.)

-Long duration

- half-life ~20-70hrs)

-Dosing

- Avg dose ~16mg (8-24mg) Qday
- Range 4-32mg Qday



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BUPRENORPHINE & ACUTE PAIN

Common concerns:

- Partial agonist
  - Helpful for pain?
    - For what kind and severity of pain?
    - At what dose?
  - Do I stop, continue, modify buprenorphine dosing?
- High mu-receptor affinity
  - Will other opioids work?
  - Will we precipitate withdrawal if we use other opioids?

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ASSESSMENT

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ENGAGE, ASSESS, EDUCATE, COLLABORATE, COORDINATE CARE

- Empathetic, non-judgmental, and open approach
- Take patient's symptoms & concerns seriously
- Provide a thorough assessment
- Develop shared & reasonable tx goals, expectations
  - Pain management (not elimination)
  - Focus on function & recovery
  - Anticipate pain-illness course (reduce uncertainty)
- Review treatment options & their rationales
  - Outline the components and value of a multimodal approach
- Commit to ongoing coordination with patient and other providers

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PAIN ASSESSMENT

Pain (QISS-TAPED)

Q = Quality

I = Impact

S = Site

S = Severity

T = Temporal Characteristics

A = Aggravating & Alleviating Factors

P = Past Treatment & Response, Patient Preferences

E = Expectations, Goals, Meaning

D = Diagnostics, physical exam

Approach

- Establish rapport
- Listen to the patient's story
- Use open ended questions in non-judgmental fashion
- Anticipate anxiety, fear
- Discuss prior experiences
- Listen for & reflect concerns about bias, stigma, problems with medical care

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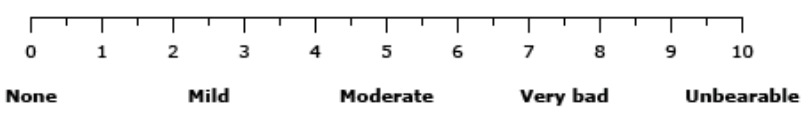
… AND ONGOING *RE-ASSESSMENTS*

A

B

What does your pain feel like?



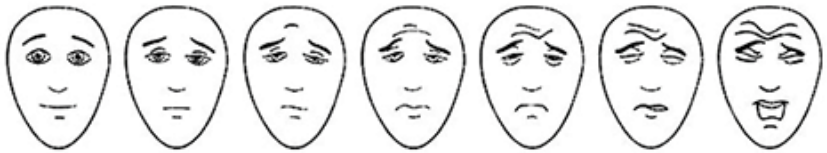
Date: _____

C

Choose the word that best describes your pain:

- None
- Mild
- Moderate
- Severe

D



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TREATMENT

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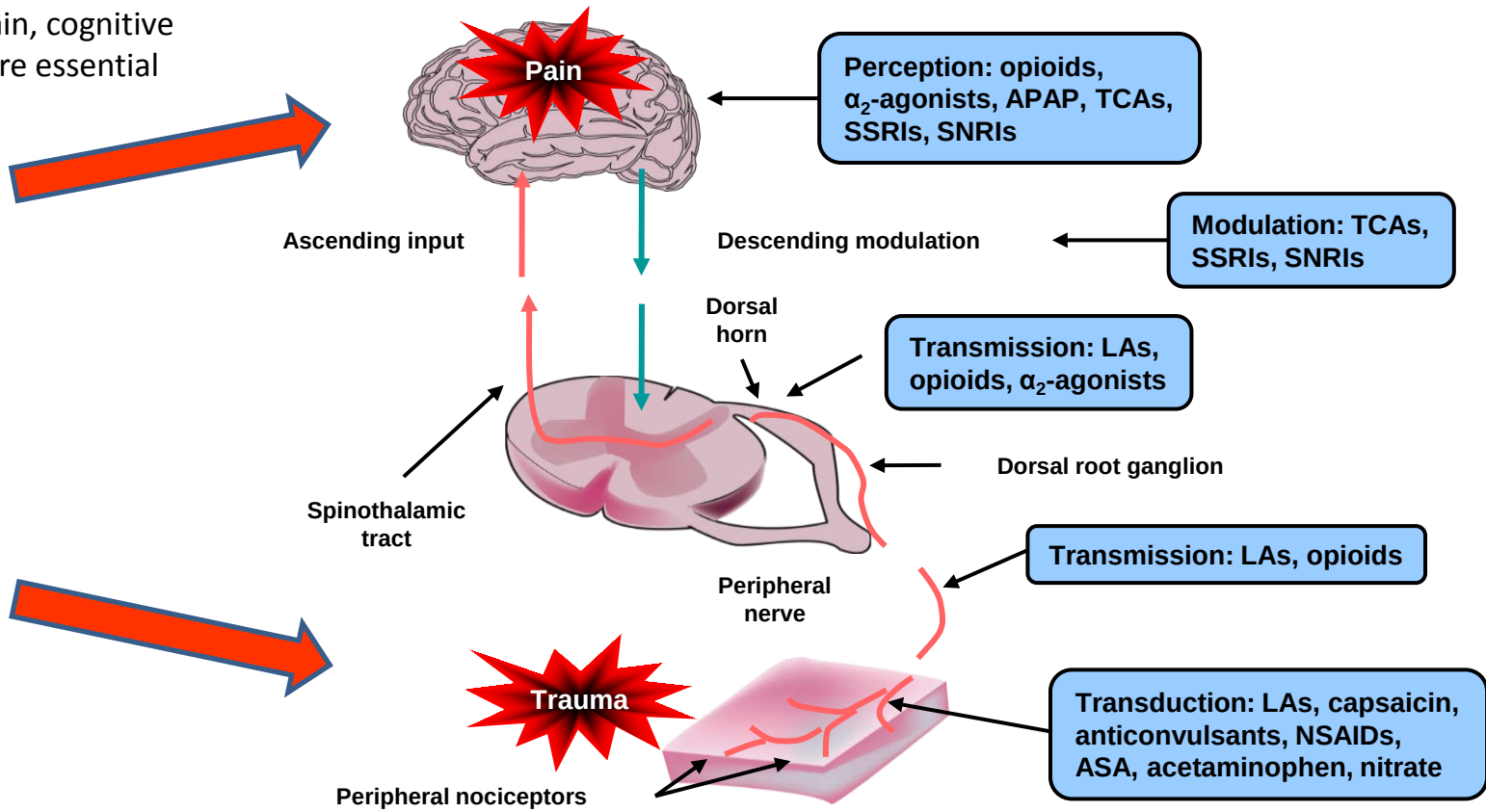
IN ALL CASES, AIM FOR A BALANCED, MULTI-MODAL ANALGESIA

Although analgesics are the mainstay for mod/severe acute pain, cognitive and physical strategies are essential

Cognitive
- Education/counseling
- Distraction
- Relaxation
- Music
- Hypnosis
- CBT…

Physical
- Cold
- Heat
- TENS
- Massage…



TCAs=tricyclic antidepressants; SSRIs=selective serotonin reuptake inhibitors; SNRIs=serotonin-norepinephrine reuptake inhibitors; LAs=local anesthetics; NSAIDs=nonsteroidal anti-inflammatory drugs; ASA=aspirin.

Slide adapted from presentation by Deb Gordon, DNP (Harborview Acute Pain Service)

Kehlet H, Dahl JB. *Anesth Analg.* 1993;77:1048-1056

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NON-PHARMACOLOGIC STRATEGIES

- **Treat underlying cause(s) of pain!**
- **Physical techniques** (e.g., Cold, Heat, TENS, Massage, PT):
  - Can provide comfort, reduce inflammation, correct physical dysfunction, and alter physiologic responses
- **Cognitive/behavioral** strategies (e.g., psychoeducation, distraction, relaxation, music, hypnosis, CBT-pain techniques):
  - Can help patients understand pain, alter pain behavior, enhance coping skills, change perception of pain

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BENEFITS OF NON-PHARMACOLOGIC STRATEGIES

- Reduced anxiety
- Improved mood
- Increased sense of control over pain
- Improved sleep
- Decreased fatigue
- Improved function
- Restored hope
- Improved quality of life

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ORAL PHARMACOLOGIC STRATEGIES (NON-OPIOID)

- **Acetaminophen**
  - APAP 325-1000mg PO Q4-6hr (max dose 4 g/day)
- **NSAIDs**
  - **Nonselective NSAIDs**
    - Ibuprofen (400mg Q4-6hr); Diclofenac (50 mg three times daily)
      - (Preoperative PO NSAIDs for elective minor surgery ↓ postoperative pain; post-op NSAIDs decrease PRN morphine requirement)
  - **COX-2 inhibitors** In Cochrane reviews of placebo-controlled randomized trials of postoperative pain control, use of
    - Celecoxib (200-400 mg PO), etoricoxib (120mg PO)
      - Delays and decreases the opioids for breakthrough pain
      - Several trail suggest have > analgesic effect & tolerability than opioids, were similar to nonselective NSAIDs for postoperative pain management
      - (Note: "black-box" warning regarding CV risk, appears associated with long-term use.)

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ORAL PHARMACOLOGIC STRATEGIES (NON-OPIOID), CONT.

- **Gabapentinoids**:
  - Gabapentin (300-600mg PO X1 pre-op) or Pregabalin (75-150mg PO X1 pre-op)
    - And can schedule and titrate as tolerated BID/TID for ongoing acute/subacute pain.
    - SEs: sedation and dizziness, possible respiratory depression in older pts or in combo w/other meds
    - Note: stronger evidence for chronic, neuropathic pain than acute pain; *may* reduce risk of chronic post-op pain, duration of PRN opioids (in **non-dependent pts)**
- **Alpha-2 receptor agonists**
  - clonidine 0.1-0.2mg BID, as tolerated (analgesic effect enhanced w/concurrent opioid)
  - tizanidine 2-4 mg TID-QID PRN
- **SNRI/TCAs:**
  - Early analgesic effects ~1wk, w/maximum benefit delayed weeks/months
  - Consider for pt's with comorbid anxiety/depression and/or pre-existing chronic pain
- **Muscle relaxants** (baclofen 5mg TID; methocabamol 750mg q8h prn)
- **Local/topical anesthetics** (lidocaine patches, capsaisin/other topicals)

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BUPRENORPHINE - GENERAL GUIDANCE

In most cases…

- Bup-Nal will ***not*** prevent adequate pain control

- Advisable to ***continue buprenorphine w/option for***:
  1. Utilizing standard **non-opioid** pain management
  2. **Buprenorphine: split-dose**, Q4-8hr, **titration**
  3. Concurrent **full agonist opioids** for breakthrough pain
     - Beginning w/standard dosing protocols, then w/option for escalated dosing insetting of altered tolerance, pain sensitivity, high-affinity partial agonist.

https://www.bridgetotreatment.org/resources
Anna Lembke, Einar Ottestad, Cliff Schmiesing, Patients Maintained on Buprenorphine for Opioid Use Disorder Should Continue Buprenorphine Through the Perioperative Period, *Pain Medicine*, Volume 20, Issue 3, March 2019, Pages 425–428, https://doi.org/10.1093/pm/pny019
Goel, Akash et al. Perioperative Pain and Addiction Interdisciplinary Network (PAIN) clinical practice advisory for perioperative management of buprenorphine: results of a modified Delphi process. British Journal of Anaesthesia, Volume 123, Issue 2, e333 - e342
Cooper R, Vanjani R, Trimbur MC. Acute Pain Management in Patients Treated With Buprenorphine: A Teachable Moment. *JAMA Intern Med.* 2019;179(10):1415–1416. doi:10.1001/jamainternmed.2019.3103

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BUPRENORPHINE AND ACUTE PAIN MANAGEMENT

- Limited existing high-quality research, growing clinical experience
  - Vilkins et al (2017):
    - Retrospective cohort study w/pts with OUD on MOUD who underwent C-section (Methadone vs. buprenorphine, n=185 & 88, respectively)
    - No difference in post-C section PRN opioid analgesic requirements, complications, LOS
  - Athanasos et al (2019):
    - small RTC w/12 Bup-maintained pts (dose 2-22mg/day) and 10 controls given IV morphine boluses and exposed to nociceptive (cold) and electrical stimuli to assess pain tolerance.
    - Bup-maintained subjects were hyperalgesic (cold pressor test) w/o antinociception despite higher morphine plasma concentrations (similar phenomenon see in pts maintained on methadone.)

Vilkins et al. Comparison of post-cesarean section opioid analgesic requirements in women with opioid use disorder treated with methadone or buprenorphine. J Addiction Med. 2017;11: 397–401
Athanasos et al. (2019) Buprenorphine maintenance subjects are hyperalgesic and have no antinoceptive response to a very high morphine dose. Pain Medicine 2019; 20: 119–128

A CASE:

35yo F with OUD on Buprenorphine-naloxone 16-4mg/day with left ulnar fracture and muscle pain (left leg) after fall during a sporting event.

Fx is non-displaced, stabilized with cast. She sees you the following day stating “my arm and leg still really hurt, what can I do?”

How do you manage her pain?

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SO…YOUR PATIENT'S IN THE ED OR HAS BEEN ADMITTED TO THE HOSPITAL?

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Continue Maintenance Bup+
Split dose q4-8hrs
(e.g for total daily dose of 16mg = 4mg Bup SL QID)

Promote calm and comfort
Anxiety, fear, depression are common: Instill sense of control, provide education on self-management techniques such as mindful meditation. Reduce noise, uncertainty, confusion. Positioning, splinting, and physical comfort should be maximized. Minimize unnecessary NPO status.
Use adjunctive meds to treat symptoms (ie. diphenhydramine, ondansetron, melatonin, baclofen, etc).

Acetaminophen and NSAIDs
Schedule both around the clock if not contrainidicated.

Non-opioid analgesia

Gabapentinoids	**Alpha-2 agonists**
SNRI/TCA	**IV Lidocaine**
Regional Anesthesia	**Ketamine & Magnesium**

Additional opioids

Additional Bup
OK to increase dose and frequency for acute pain usual dose 24-32mg/day.

Full agonist Opioids
Can be added to maintenance Bup to provide synergistic analgesia. Titrate to analgesia and side effects. This will NOT precipitate withdrawal.

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Gabapentinoids
Calcium channel inhibitors, gabapentin and pregabalin reduce postoperative pain and opioid consumption.

SNRI/TCA
Can help with neuropathic pain as well as anxiety/depression.

Regional Anesthesia
- Peripheral nerve blocks
- Spinal or Epidural anesthesia

Alpha-2 agonists
Clonidine and Dexmedetomidine are anxiolytic and analgesic with significant opioid sparing affects.

IV Lidocaine (Na channel antagonist)
Opioid sparing analgesic.

Ketamine & Magnesium (NMDA antagonists)
Ketamine is a potent non-opioid analgesic for opioid tolerant patients.
Magnesium also has analgesic and opioid sparing effects.

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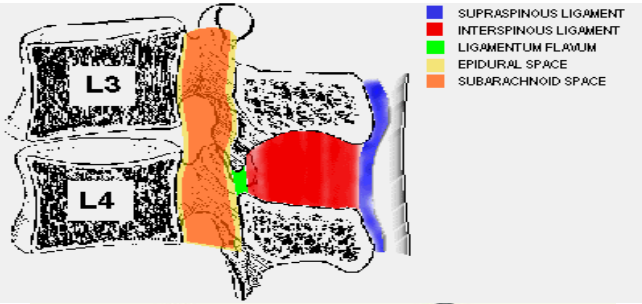
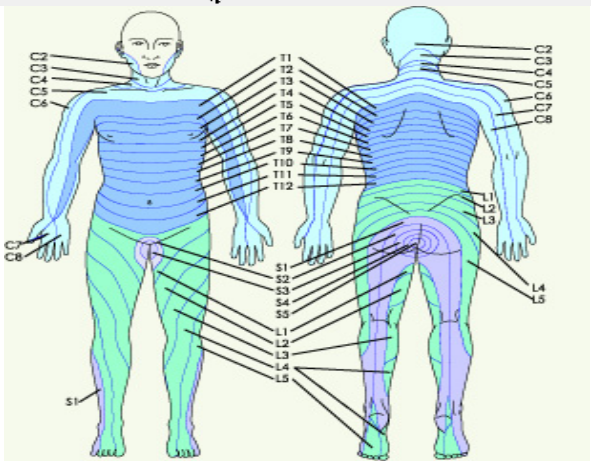
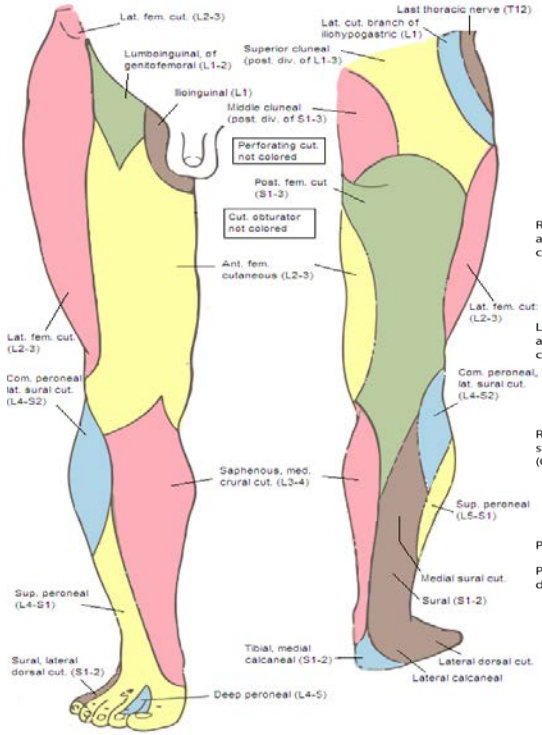
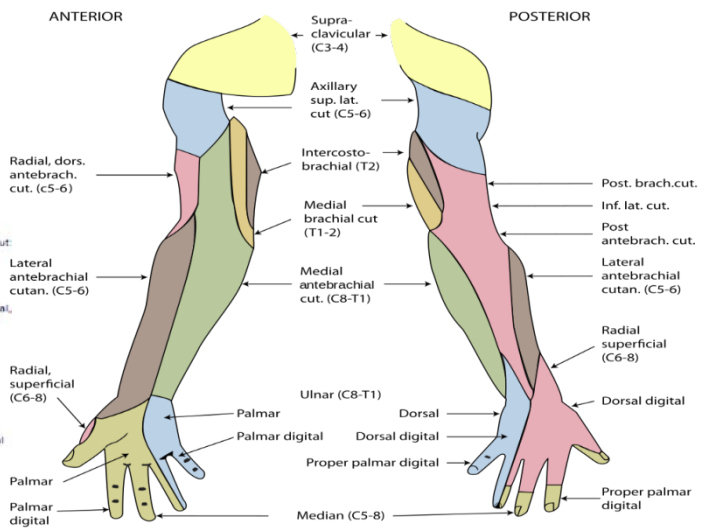
NEURAXIAL AND REGIONAL ANALGESIA

- Epidural
- Peripheral Nerve Block









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KETAMINE

- N-methyl-D-aspartate (NMDA) antagonist that can inhibit induction and maintenance of central sensitization ("wind-up") after painful stimuli
  - Pain Reduction
  - Analgesic opioid sparing (5-20mg MED/day)
- Concerns about mind-altering effects rarely problematic (RR 1.27)
- Bolus dose not to exceed 0.35mg/kg - infusions without ICU not to exceed 1mg/kg/hr

Snijdelaar DG et al, *Anaesthesia* 2004;59(3):222-228.
Unlugenc H et al, *European Journal of Anaesthesiology* 2003;20:416-21.
Wang L, et al, *Canadian Journal Anaesthesia* 2016;63(3):311-325.
Schwenk ES et al. *Regional Anesthesia and Pain Medicine* 2018;43(5):456-466

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FULL AGONIST OPIOID

- Can be added to maintenance Bup to provide synergistic analgesia.
  - Will NOT cause withdrawal if added to Bup.
- *Consider use of Higher-Affinity full agonist Opioids:*
  - Hydromorphone (PO/IV/PCA), fentanyl (IV/lozenge)
- Titrate to analgesia, monitoring for side effects.

4% LIDOCAINE SOLUTION PRE-DRESSING CHANGE

- Lidocaine 1mg/kg applied topically without impairment of healing
- Wound size limits volume used due to potential systemic toxicity
- Normal saline may dilute making less effective
- Apply 20-30 minutes prior
- >50% may report stinging
- Short half-life allows for reapplication

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Desai C et al, Burns 2014;40:106-112

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SO…YOUR PATIENT HAS AN UPCOMING PROCEDURE?

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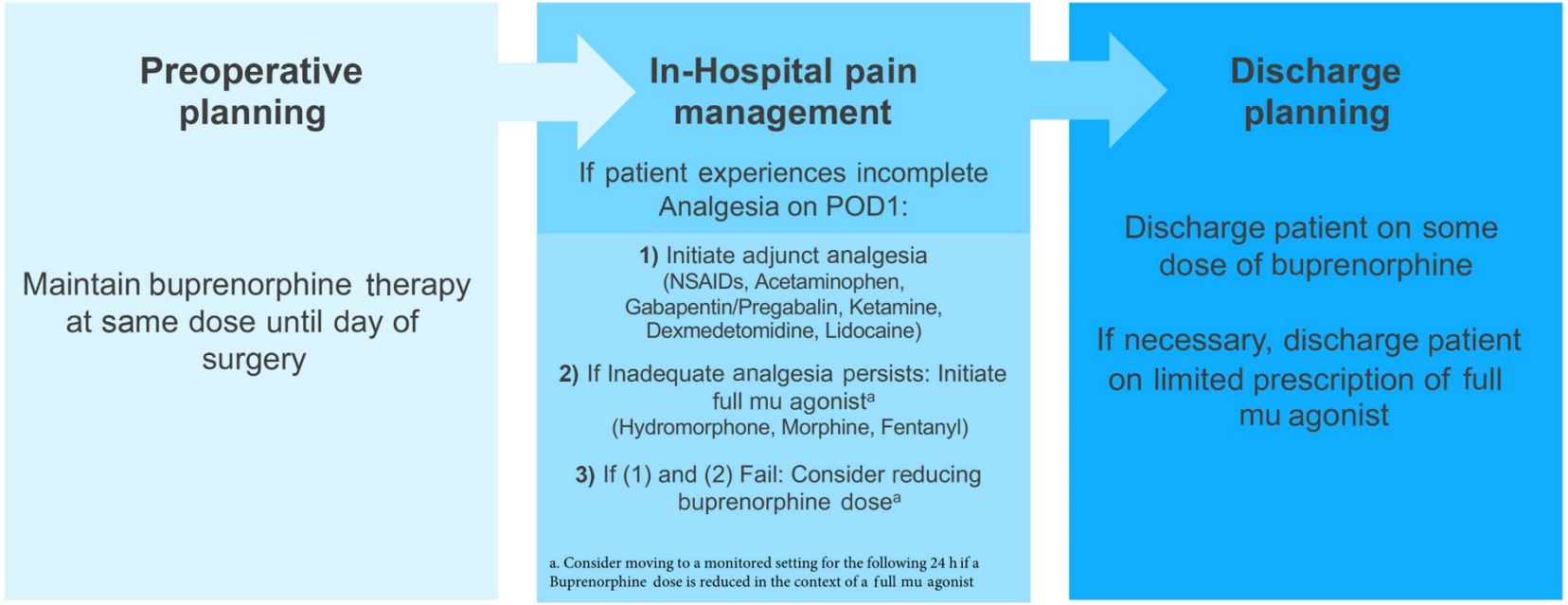
PERIOPERATIVE CARE– *COORDINATION IS KEY!*

For all surgeries (elective or emergent); for all doses and formulations of SL and TD buprenorphine; for all expected post-operative pain levels; for all risk category patients (with respect to OUD and/or PD)



P E R I O P E R A T I V E

1. OUTPATIENT PROVIDER INVOLVEMENT **2.** ENGAGEMENT OF PATIENT IN ANALGESIC CARE: SETTING AND MANAGING EXPECTATIONS **3.** CONSIDERATION OF REGIONAL ANALGESIA

Goel, Akash et al. 2019. Perioperative Pain and Addiction Interdisciplinary Network (PAIN) clinical practice advisory for perioperative management of buprenorphine: results of a modified Delphi process. British Journal of Anaesthesia, Volume 123, Issue 2, e333 - e342

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ANOTHER CASE:

55yo M admitted for non-emergent abdominal surgery. He has been stable on Buprenorphine-Naloxone 16mg/day for OUD for years prior to admission.

Hospital course:

- You had shared your thoughts regarding continuing buprenorphine through perioperative period, though his inpt team opted to stop buprenorphine for surgery and has now, post-op, started methadone 10mg Q8hr plus PO morphine.
- POD#2: you speak with the pt, who is stable but concerned about discharge and opioids. “I don’t want to be on methadone, and they said I’d only get 1-2 weeks worth of pain meds when I leave. How do I get back on suboxone and then manage my pain?”
- You speak to his inpt team, who anticipate that he will discharge in a week. They are open to advice regarding his pain and MOUD.

What would be a reasonable plan?

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...

55yo M on buprenorphine-naloxone 16-4mg/day admitted for non-emergent abdominal surgery, now with buprenorphine stopped and replaced with methadone 10mg Q8hr and PO morphine PRN. He will discharge in a week, and his inpt team, are open to advice regarding his pain and MOUD:

Goal: Get back on buprenorphine-naloxone by discharge

Plan:

- Optimize non-opioid pain management
- Methadone → Buprenorphine induction – when and how?
  1. Traditional induction:
     - 36-48hr methadone washout with 6-8hr morphine washout of morphine prior to buprenorphine-naloxone induction
       - Then, rapid titration of split dose Bup-Naloxone (+/- re-initiation of short-acting full agonist PRN (switch to HM) , for max 1-2wks)
  2. "Microdosing" Induction:
     - Cont methadone + PRN morphine, while titrating buprenorphine-naloxone from 0.5mg/day to 16-24mg/day over 7 days (stopping methadone, +/- cont PRN short-acting opioid (switch to HM) for brief duration.)

(INPATIENT) "MICRODOSING" BUPRENORPHINE INDUCTION

Modified Microdosing Protocol (adapted to this case)		
	Buprenorphine-naloxone	**Methadone** **+ PRN Morphine** (switch to Hydromorph.)
Day 1	**0.5mg Qday**	**Cont existing opioid agonist**
Day 2	**0.5mg BID**	**""**
Day 3	**1mg BID**	**""**
Day 4	**2mg BID**	**""**
Day 5	**4mg BID**	**""**
Day 6	**4mg BID**	**""**
Day 7	**4mg TID**	**Stop methadone; +/- cont PRN hydromorph.**
Day 8	**4mg QID**	**"**
Day 9+	**May titrate by 4mg/day, for residual withdrawal, cravings, sub-acute pain**	**"**

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DISCUSSION AND QUESTIONS

- What's been your experience with treating patients with acute pain who are on buprenorphine?

- What challenges & strategies for success have you run across (or might anticipate) for your clinic and patients?

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