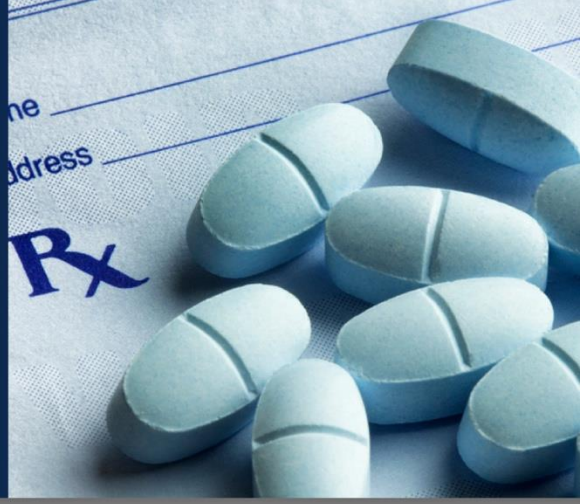
ALTO in the ED



Alternatives to Opioids

Rachael Duncan, PharmD BCPS BCCCP
Colorado ALTO Project Pharmacist Expert

July 9th, 2019

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Conflict of Interest Disclosure

Rachael Duncan has no financial relationships to disclose.

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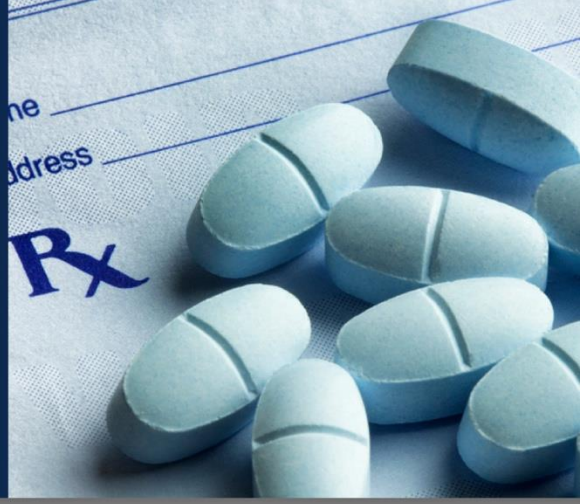
Learning Outcomes

- Discuss the use of ALTO medications in the ED
- Describe the novel use of ketamine, lidocaine, haloperidol, and ketorolac for the management of pain, along with cautions
- Explain the process and policy changes that need to occur prior to implementation of ALTO therapies



ALTO

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ALTO Pilot – Colorado ACEP Guidelines

- Non-opioid medications first
- Opioids as rescue therapy
- Multimodal and holistic pain management
- Pathways: Kidney stones, Low back pain, Fractures, Headache, Chronic abdominal pain

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ALTO Approach

- Multi-modal non-opiate approach to analgesia for specific conditions
- **Goals:** To utilize non-opiate approaches as first-line therapy and educate our patients:
  - Opiates will be second-line treatment
  - Opiates can be given as rescue medication
  - Discuss realistic pain management goals
  - Discuss addiction potential and side effects of opioids

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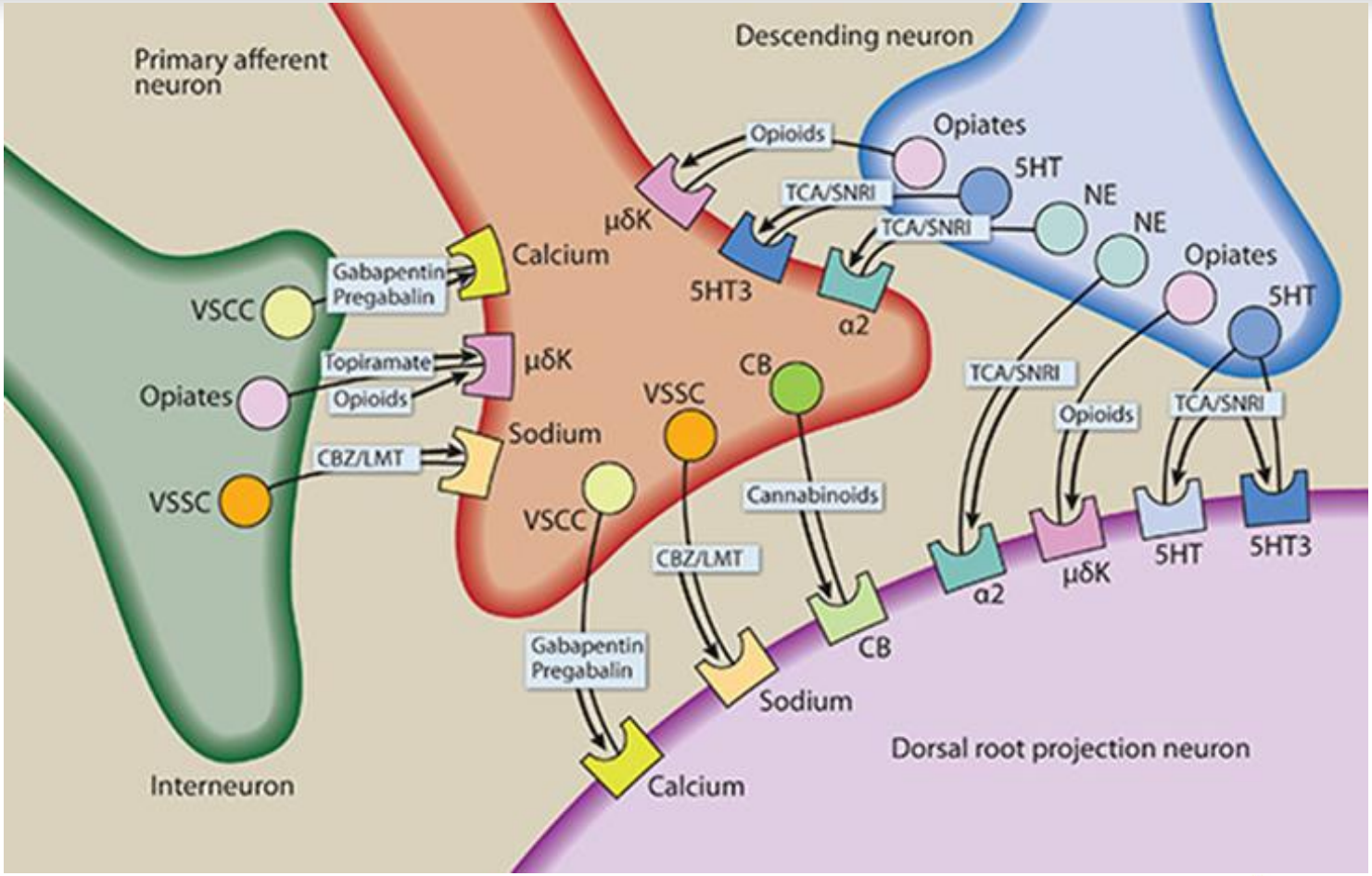
CERTA Approach



http://www.propofology.com/infographs/certa-concept-of-analgesia

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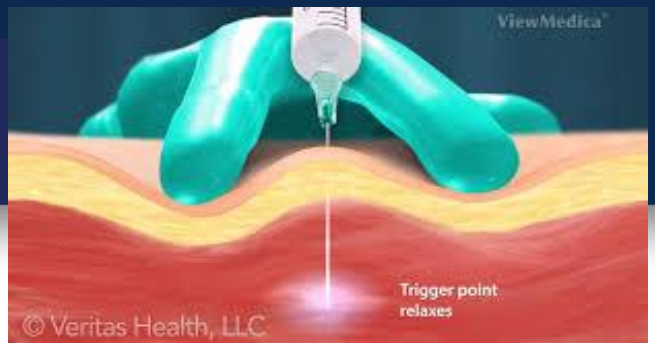
Examples

- **C**hannels:
  - Sodium (Lidocaine)
  - Calcium (Gabapentin)
- **E**nzymes:
  - COX 1,2,3 (NSAIDS)
- **R**eceptors:
  - MOP/DOP/KOP (Opioids)
  - NMDA (Ketamine/Magnesium)
  - GABA(Gabapentin/Sodium Valproate)
  - 5HT1-4(Haloperidol/Ondansetron/Metoclopramide)
  - D1-2(Haloperidol/Chlorpromazine/Prochlorperazine)

Lidocaine



- Acts on sodium channels and NMDA receptors
- Used **topically**, **intravenously** or as **trigger point injections**
- MSK, migraines, renal colic, abdominal, neuropathic
  - Lidocaine patches are great for MSK pain!
  - Lidocaine IV doses ≤ 1.5 mg/kg over 10-60 min
    may be given in non-ICU areas (max 200 mg/dose)
- Caution in patients with arrhythmia or severe card hx –
  reduce dose or get an EKG/put on tele

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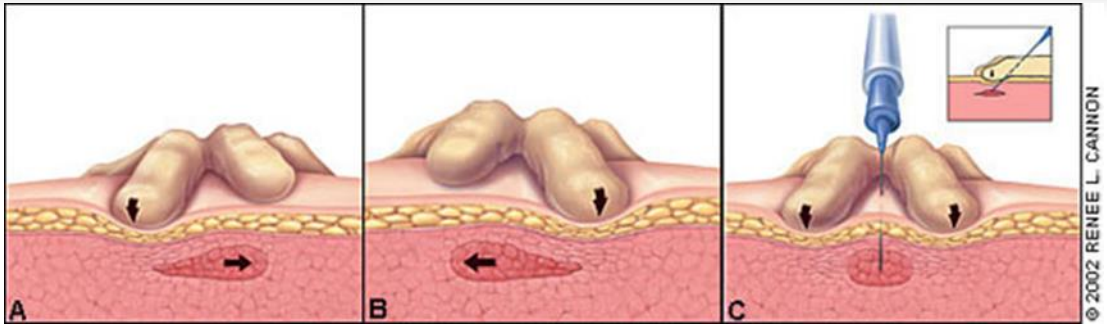
Studies

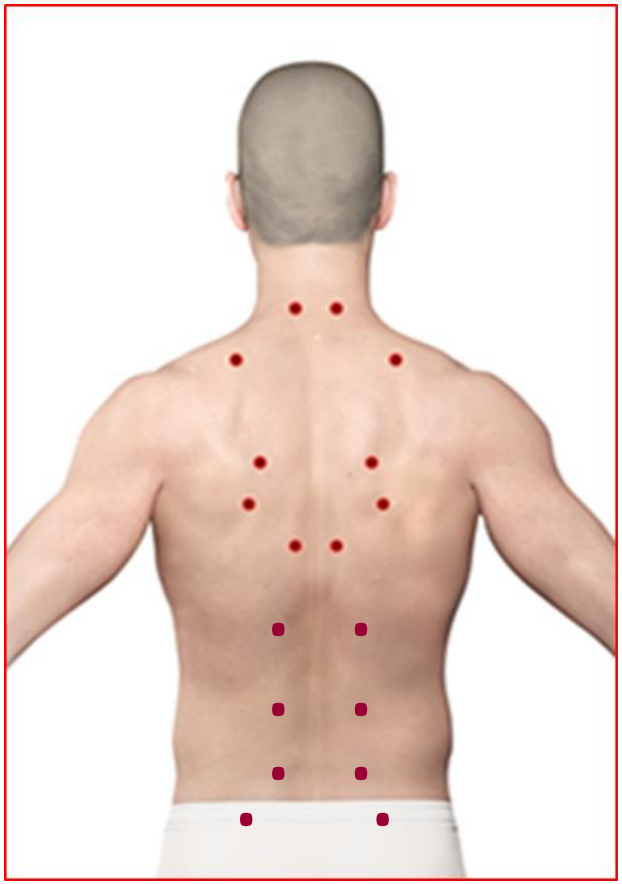
Author, Year Type of Study	Research Question	n	Comparator	Results
Soleimanpour, 2012 Randomized controlled trial	IV lidocaine vs morphine for ED patients with renal colic	240	Morphine	Pain score at 5 min lido vs morphine 65% vs 53% (p=0.0002) Successful treatment 90% vs 70% in lido vs morphine (p=0.0001)
Vahidi, 2015 Randomized controlled trial	IV lidocaine vs morphine in ED patients with critical limb ischemia	63	Morphine	At 15 and 30 min, the mean VAS score in the lido group was less than morphine group (5.7 vs 7, 95% CI 0.1 -2.4) and (4.2 vs 6.5, 95% CI 1.2 to 3.2)
Firouzian, 2015 Randomized controlled trial	Does lidocaine as an adjuvant to morphine improve pain relief in ED patients with acute renal colic?	89	Morphine+ NS	Median time to pain free in the lido vs NS group was 87 min vs 100 min (p=0.071) The median nausea free times in the lido vs NS group were 26 min vs 58 min (p<0.0001)

Trigger Point Injections



Indications:
- Myofascial Pain Syndrome
- Headaches - tension and migraines
- Musculoskeletal back pain
- Torticollis
- Trapezius strain

Concerns:
- Infection
- Hematoma
- Arterial injection (Bupivacaine)
- PTX on chest



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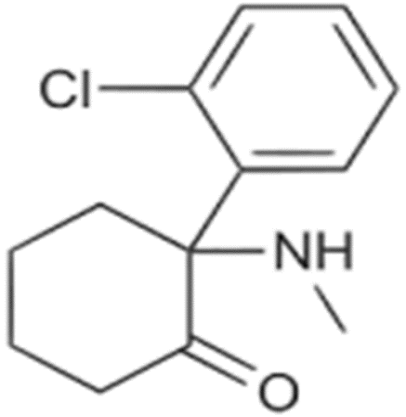
Ketamine

- Antagonizes NMDA receptors
- Can be used IV or IN, use is dose-dependent:
  - Analgesia = 0.2 mg/kg via slow IVP or 0.1 mg/kg/hr infusion
    - 50 mg IN if no IV access
- Should not be used in patients with PTSD; caution in patients with head injury
- Great in pediatrics



Studies

Author, Year Type of Study	Research Question	n	Comparator	Results
Motov, 2015 Randomized controlled trial	IV sub dissociative dose ketamine vs morphine for analgesia in the ED	45	Morphine	Change in mean pain scores not different in the ketamine vs. morphine (P=0.97) No difference in rescue fentanyl at 30 and 60 min
Shrestha, 2016 Cross sectional observational study	IN ketamine in the treatment of acute pain in the ED	39	None	IN ketamine 0.7 mg/kg = significant pain relief (>20 mm in VAS) at 15 min, which ↑ to 100% at 30 and 60 min
Lee, 2016 Systematic Review and Meta-Analysis	Effects of low dose ketamine on acute pain in the ED	6 trials n=438	None	Favorable effects of ketamine ≥ opioids Low dose ketamine = ↑ risk of neuro and psych events
Farina, 2017 Randomized controlled trial	IN ketamine vs IV morphine in pain reduction in ED patients w/ renal colic	53	Morphine	Difference in mean VAS score at 5 min, morphine > ketamine At 15 and 30 min, no difference between groups

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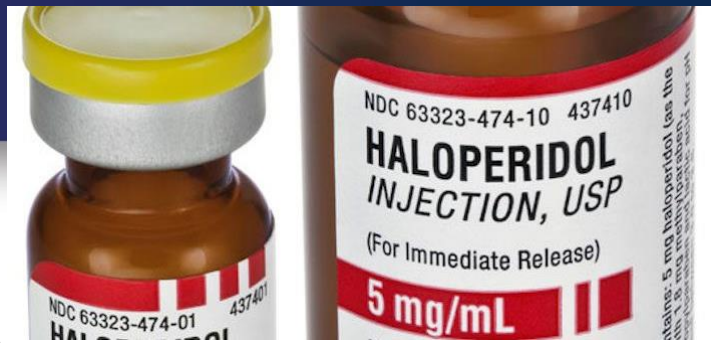
Haloperidol



- Low dose (1-2.5 mg IV or PO)
- Great for nausea and abdominal pain
  - Cannabinoid hyperemesis syndrome
- Caution in patients with QT prolongation or on other QT prolonging medications – consider EKG if concerned
- Watch for EPS symptoms – diphenhydramine

Ketorolac

- 7.5-15 mg for everyone!
  - No difference in pain reduction with 7.5 mg vs 15 or 30 mg
- Great for many pain indications including MSK pain, renal colic, migraine
- Caution: Pregnancy, CV hx, renal dysfunction, AC/AP therapy, fracture healing, future OR

Dicyclomine

- MOA: antispasmodic and anticholinergic agent that acts to alleviate smooth muscle spasms in the GI tract
- 20 mg PO/IM (NOT IV!)
- Great for abdominal pain (think cramps)
- Caution in elderly

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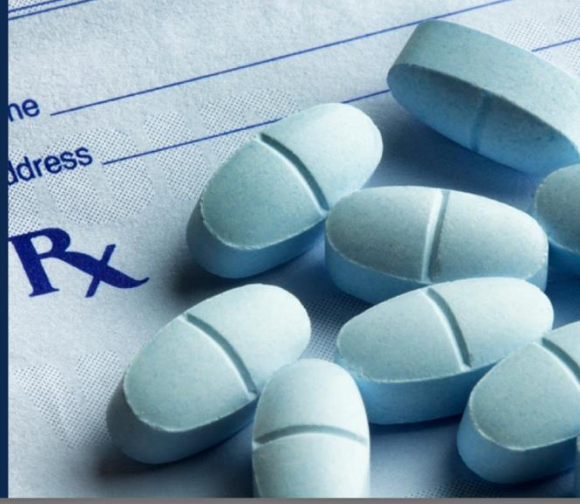

ED Pain Treatment Pathways

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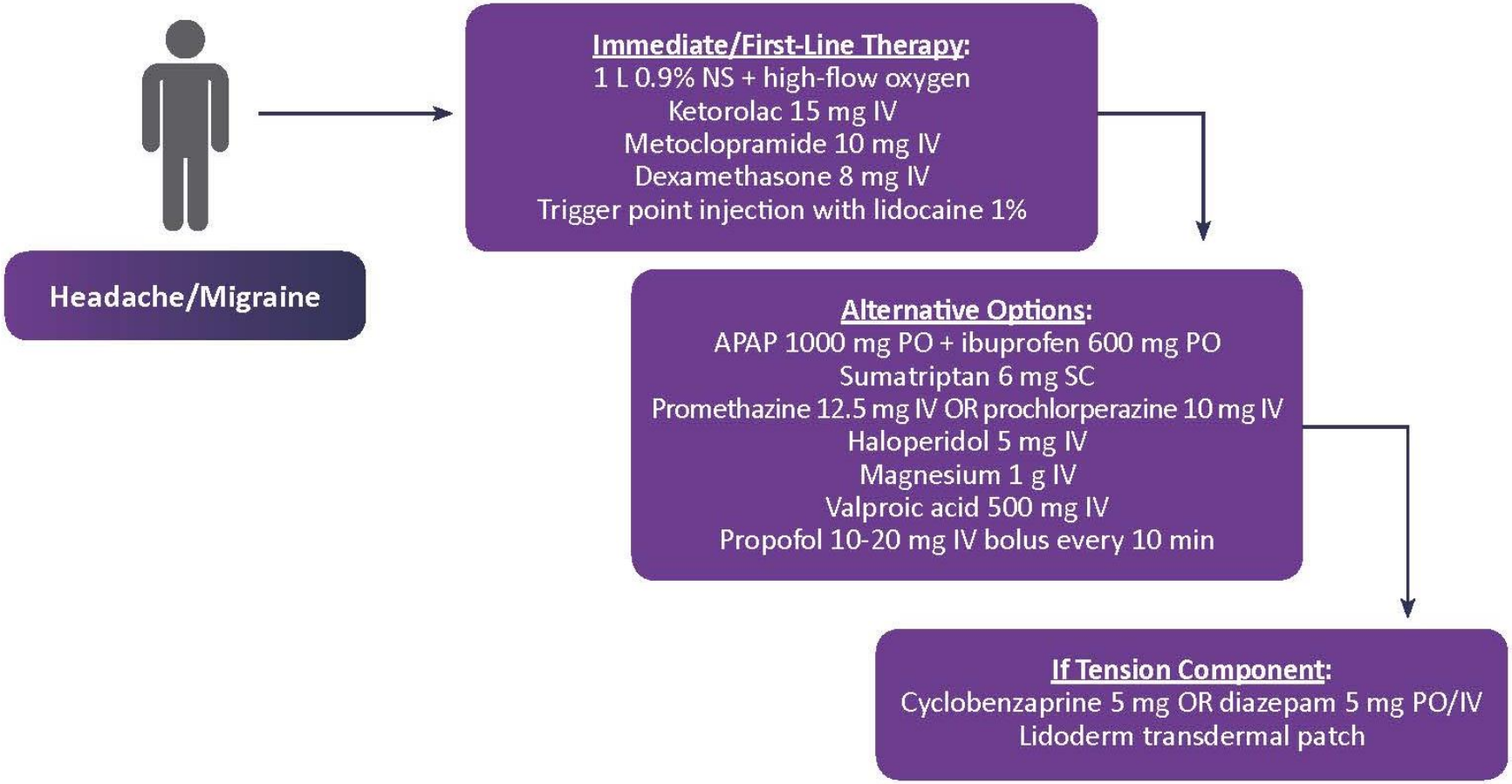
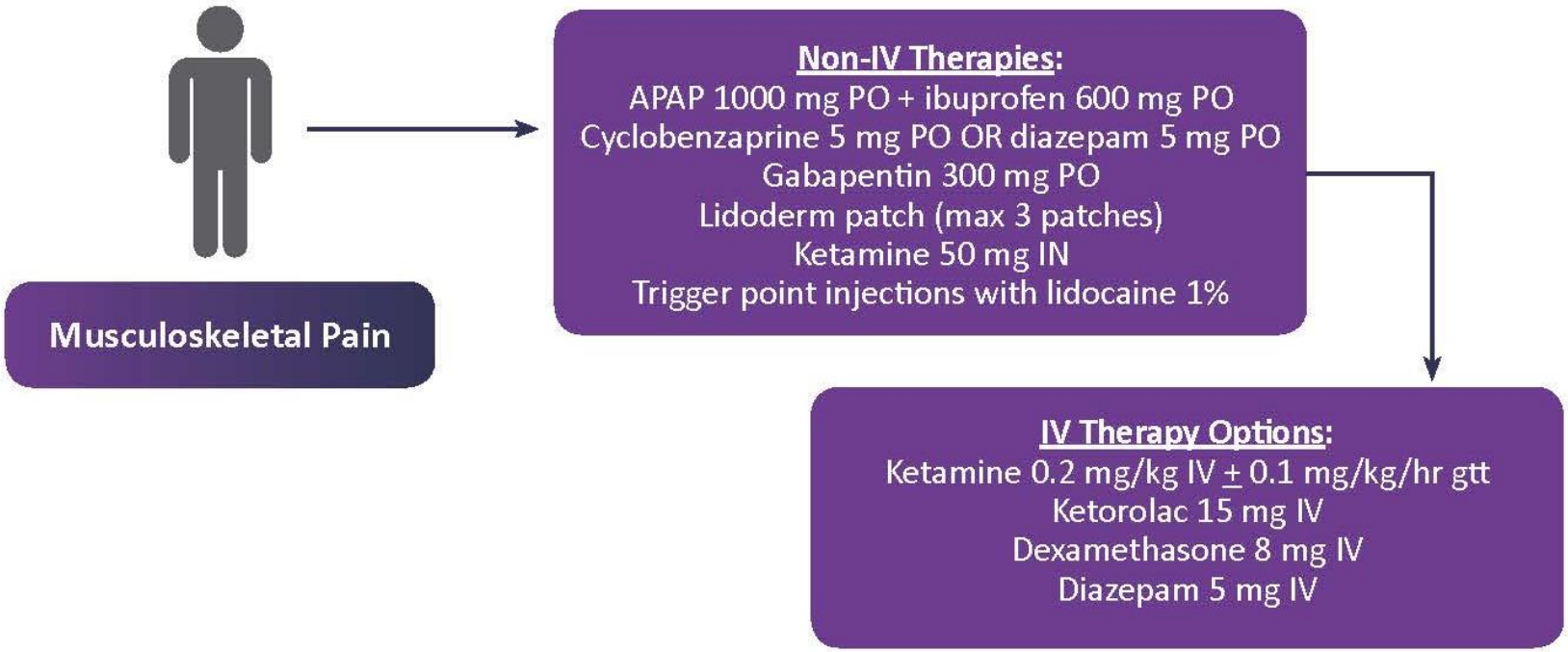
Headache/Migraine



Musculoskeletal Pain



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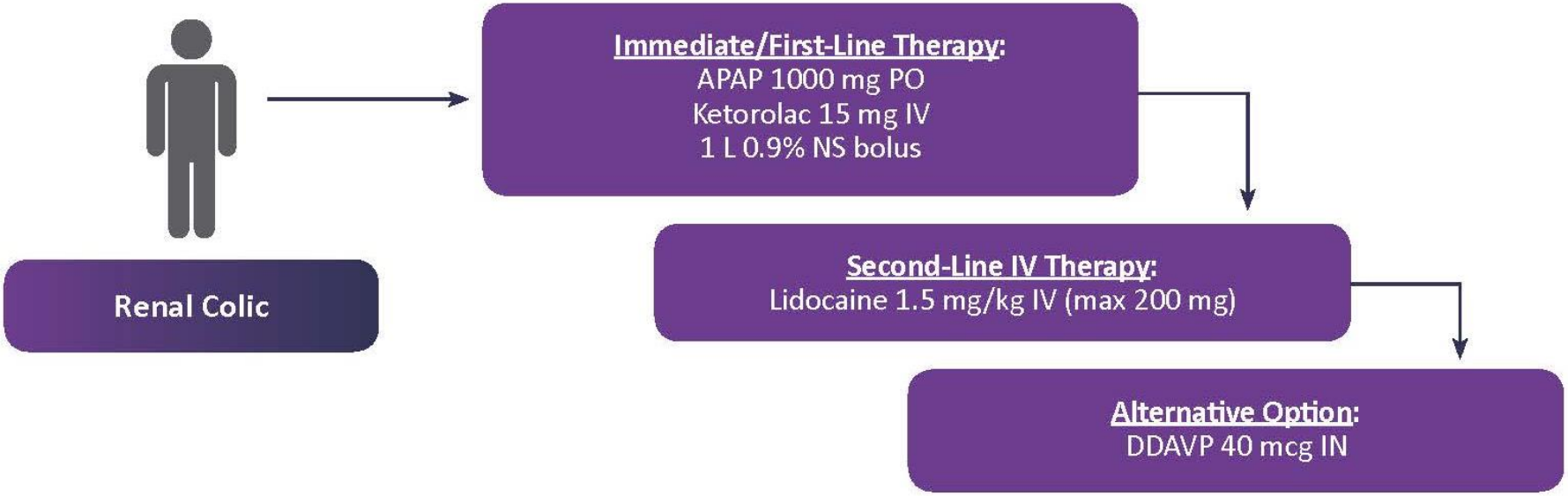
Renal Colic



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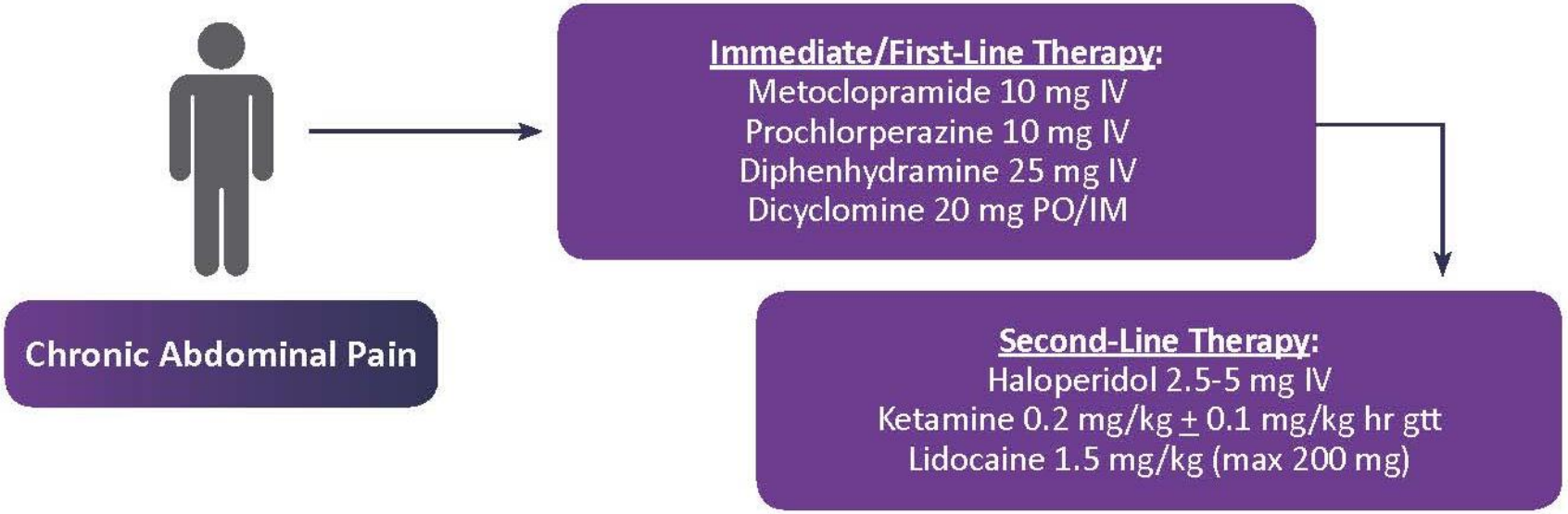
Chronic Abdominal Pain



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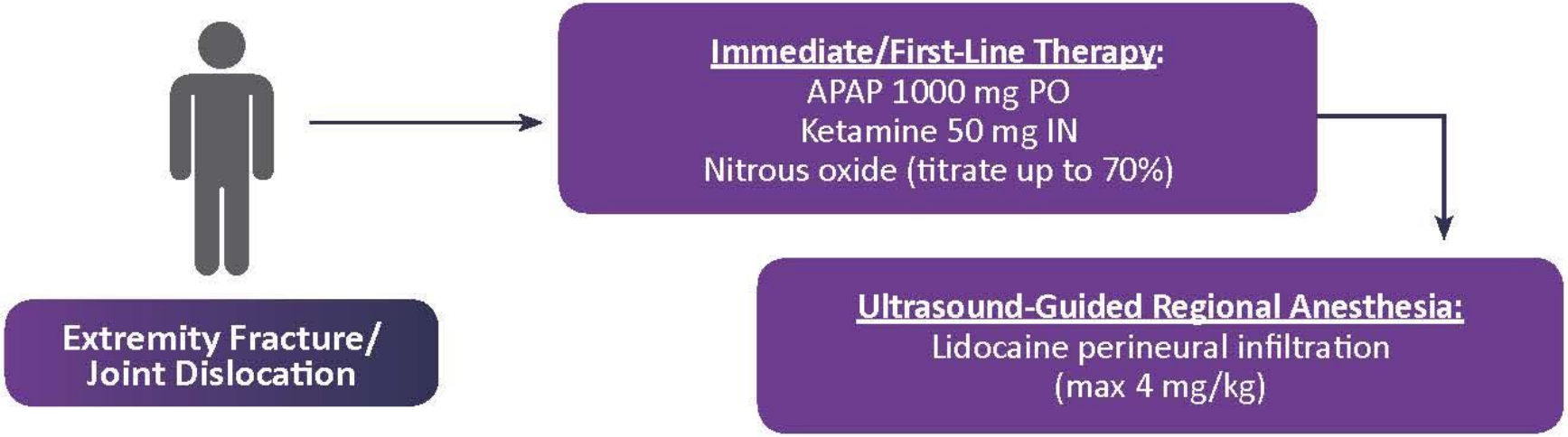
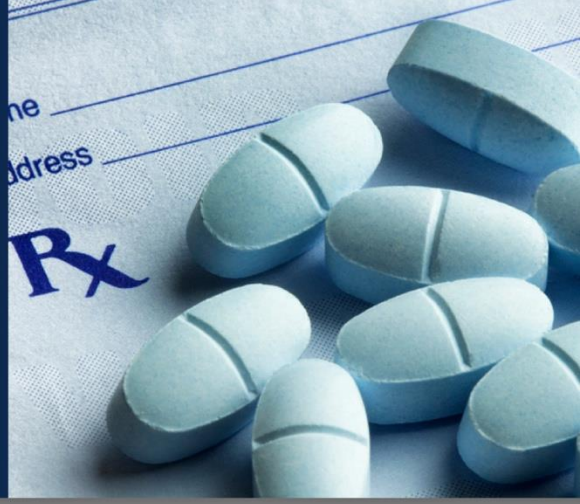
Extremity Fracture/Joint Dislocation





Implementation: The Details

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Project Champions

- ED Nursing
  - Director, charge RNs, staff
- ED Physicians
  - Director, staff
- Hospital Leadership
  - CEO, CNO, CMO
- Other Support
  - Quality improvement
  - IT/data support
  - Pharmacy
  - Communications/marketing

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Provider Education

- Physicians teach physicians
  - Training sessions on trigger point injections and nerve blocks; Scripting on how to manage up ALTO options
- Partner with pharmacy to create opioid-free pain management orderset
  - Organized by indication
- Utilization of outpatient prescribing guidelines
  - For when discharging patients home; Inclusion of many oral options for each indication
- Internal publication of opioid prescribing patterns

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Nursing Education

- Nurses teach nurses – teach the teacher model
  - Utilized annual “Skills Days” to train all staff
- Learn about the new multimodal, ALTO pathways
  - Education boards, weekly newsletters, podcasts and webinars, badge buddies
- Be proactive with patient and family concerns
  - Utilize AIDET-based scripting: “control” of pain versus “relief” of pain

Patient Education

- Patients
  - Educate patients and families on pain assessment tools
  - Provide non-pharmacologic alternatives to medication
    - Warm blankets, ice packs, dim lights, music
  - Handout educational pamphlets
    - ALTO approach to pain management
    - Risks of opioids
- Marketing
  - Reach out to community partners to promote the ALTO approach
  - Work with ED staff on creating educational boards, handouts, and signs to advertise ALTO and set expectations
    - Tell the “why”

Pharmacy & Committee Work

- Policy Changes
  - Procedural Sedation
    - Ketamine dosing – clearly define analgesia vs sedation doses
    - Appropriate education to allow RNs to administer
  - High-risk Medication Administration
    - Lidocaine administration – dose define
    - Ketamine administration – dose define

Pharmacy

- Stocking of ALTO medications
  - Readily available in the ADCs
- Smart Pumps
  - Addition of new medications – clearly label “for pain”
- Education
- Write order sets

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Drug Shortages

- Greatly effected practice since late 2016
  - Local anesthetics, anti-emetics, ketorolac, ketamine, IV lidocaine, IV diazepam . . . ie the new “normal”
- Strategies to communicate ongoing changes and updates to front-line staff – how do we keep up in CPOE?
- Which drug do you absolutely need to ensure success with ALTO implementation?

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IT & Data

- CPOE
  - Creation of ALTO-based pain management order set
  - Create order strings for unique entries – clearly label “for pain”
- Data Collection
  - Opioid and ALTO usage reports built in EHR
  - Other reports off the dashboard to characterize patient population

Timeline for Success

6 months prior

- Enlist project champions throughout hospital
- Work with IT to create ED ALTO order set

3 months prior

- Begin educating nurses and physicians on new medications, orders, and scripting
- Update high risk med and procedural sedation policies

1 month prior

- Stock medications in ED
- Program smart pumps for new medications
- Marketing push to the hospital and community

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Timeline for Success

4 months

- Read CO-ACEP 2017 *Opioid Prescribing & Treatment Guidelines*
  - Individualize to your facility
- Medication Supply
  - Formulary additions/changes
  - Automated dispensing machines in ED
    - Stock all ALTO medications that you can
    - Individualized medications STAT from IP pharmacy
- Collaborate for optimization of administration policies for ALTO medications
  - ALTO ketamine/lidocaine - medical unit
  - Procedural sedation cutoffs for ketamine

3 months

- Data
  - Organization/system IT champion and data champion create order entries
    - Clearly labeled individual entries
    - Order set(s)

2 months

- Secure medication approval and stock medications in ED
  - Ketamine
  - Lidocaine Patches
  - Haloperidol
  - Ketorolac
  - Capsaicin Topical
  - Gabapentin
- Update smart pump medication libraries
  - Standard concentration
  - Dosage/indication
  - Max dose limits
- Educate pharmacy staff on ALTO therapies

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Timeline for Success

1 month

- TEST RUN!!!
- All needed supplies/equipment ready
- Data Report
  - Run beta test report
  - IT/data champion look it over
  - Clinical Audit
    - Provider, pharmacist or nurse with great understanding of the ALTO medications and what should be appearing on the data report
    - Reporting only in mcg/mg/g?
    - No prepacks/discharge medications on report?
    - Note revisions/adjustments and work closely with IT/data champion to resolve

2 weeks

- Ensure smart pumps are updated and working
- Nurse education complete
- Provider education complete/questions answered
- Beta test data reports and audit again/issues resolved?
- Ensure stocking of medications is complete

1 week

- Final planning/quality meetings
- Check for and remove any remaining barriers
- Continue to refine data report if all issues not resolved

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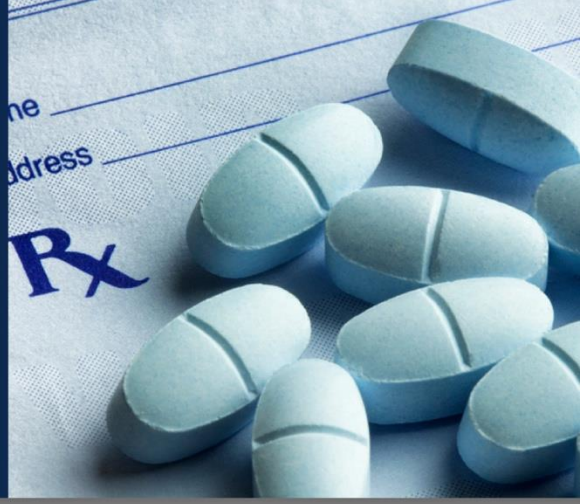

Results: Success in Action

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AJEM Publication

Alternatives to opioids for pain management in the emergency department decreases opioid usage and maintains patient satisfaction

Rachael W. Duncan, PharmD, Karen L. Smith, PhD, Michelle Maguire, PharmD[1], Donald E. Stader III, MD

PlumX Metrics

DOI: https://doi.org/10.1016/j.ajem.2018.04.043 | Check for updates

Article Info

Abstract | Full Text | Images | References | Supplemental Materials

Abstract

Objective

The objective of this study was to assess opioid use in an emergency department following the development and implementation of an alternative to opioids (ALTO)-first approach to pain management. The study also assessed how implementation affected patient satisfaction scores.

Methods

This study compared data collected from October to December of 2015 (prior to implementation) to data collected between October and December of 2016 (after the intervention had been implemented). Emergency department visits during the study timeframe were included. Opioid reduction was measured in morphine equivalents (ME) administered per visit. Secondary outcomes on patient satisfaction were gathered using the

- > 20% decrease in IV opioid administration
- Patient satisfaction scores remained the same
  - How likely are you to recommend this ED?
  - How well was your pain controlled?
- > 700 patient visits where opioids were avoided

Duncan RD et al. *Am J Em Med* 2019; 37 (1): 38-44.

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Overall Results from CO Statewide Pilot

36% ↓

in opioid administration

Measured in MEUs/1,000 ED visits across all 10 EDs

2017 vs. 2016

31% ↑

in ALTO administration

35,000

fewer projected opioid administrations during the pilot than during the baseline period

https://cha.com/wp-content/uploads/2018/01/CHA.090-Opioid-SummitReport_web2.pdf

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ALTO vs Opioid Use Over Time

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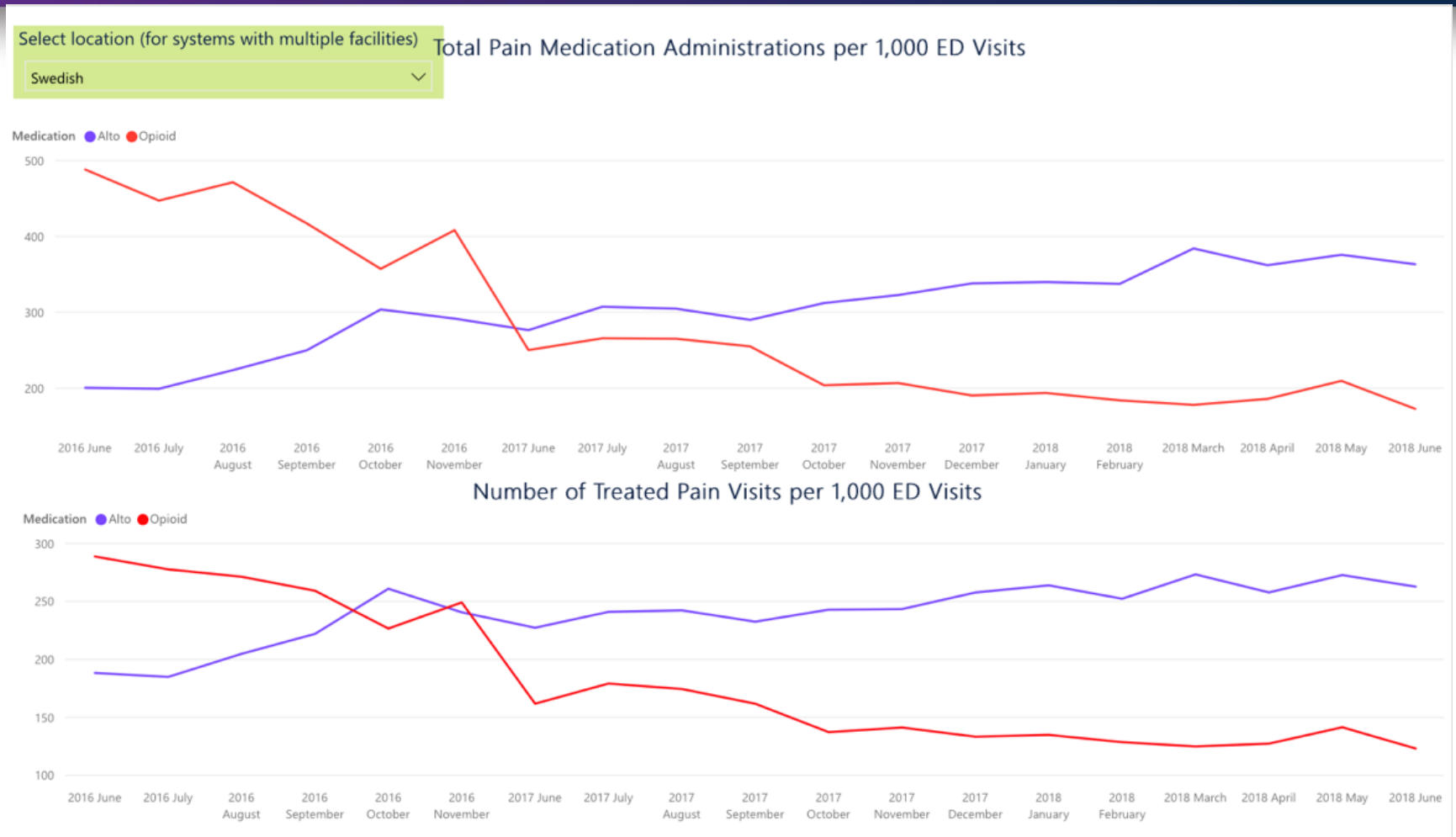
6 Months After the CO ALTO Project



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Lessons Learned

- Change is possible!!
- Collaborate – don't feel isolated; reach out to other facilities
- Tell the "why" – have all members take ownership of the opioid crisis
- Partner with your marketing department for messaging to community
- Have a communication plan for within the facility
  - ALTOs will trickle to the inpatient side!
- Do the little things to ensure success – prelaunch checklist
- Include patients when making decisions to manage pain
- Gather metrics to show if change is effective
- Share successes with department

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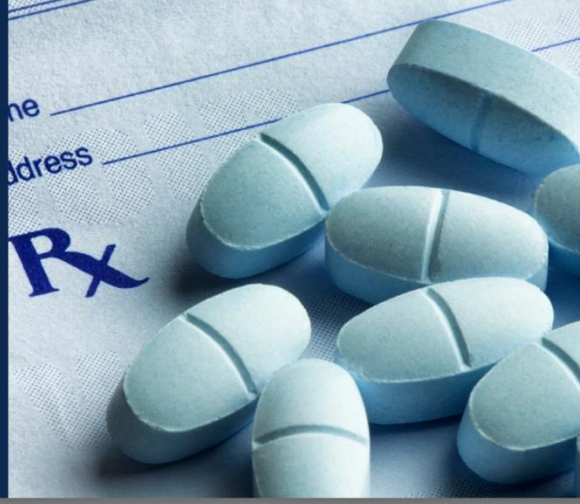

Questions?

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CONTACT INFORMATION

- Rachael Duncan, PharmD BCPS BCCCP
- rachael.waterson@gmail.com

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