Midwest Alliance FOR PATIENT SAFETY

MAPS PSO: Special Presentation

Alternatives to opioids ALTO℠

Mary Stankos, RN, MJ, CPHQ, CPPS,
Patient Safety Consultant, MAPS

Alexis M. LaPietra, DO
Medical Director EM Pain Management
St. Joseph's Healthcare System

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Patient Safety Listed PSO Organization

Midwest Alliance FOR PATIENT SAFETY

MAPS Patient Safety Organization

Promoting a Culture of Safety in a Protected Environment

Member Benefits:

- ✓ Supports health care providers across the continuum of care
- ✓ Certified by AHRQ since 2010
- ✓ Provides Legal privileges, confidentialities & PSES support
- ✓ Promotes peer learning & networking
- ✓ Delivers data analysis to members & RCA feedback
- ✓ Meets the required ACA Healthcare Insurance Marketplace mandate 42 CFR 3.20
- ✓ Member of the Coalition to Improve Diagnosis, and Alliance for Quality Improvement & Patient Safety

Patient Safety Listed PSO Organization

Welcome!

Housekeeping:

- Please place your phones on mute
- Feel free to ask questions via the webinar chat feature located in the lower left-hand portion of your screen
- Today's presentation will be recorded
- The presentation slides will be made available to all attendees
- A CE survey will be sent to all registrants by Tammy DeLeonardis following the event.

Midwest Alliance FOR PATIENT SAFETY

A Federally-Listed Patient Safety Organization

Midwest Alliance FOR PATIENT SAFETY

CE Info for Today's Webinar

By the end of today's webinar, participants will be able to

Learning Objectives:

- Discuss the current prescription opioid epidemic and the role providers play
- Review evidence-based alternatives to opioids for acute and chronic pain in the ED
- Evaluate the role of novel modalities

As the sponsor of this webinar, the Illinois Health and Hospital Association is authorized by the State of Illinois Department of Financial and Professional Regulation (license number 236.000109) to award up to **1.0 hours of nurse continuing education credit for this program**.

This program has been approved by the National Association for Healthcare Quality for 1.00 CPHQ continuing education hours.

This activity meets the criteria of the Certification Board for Professionals in Patient Safety for 1.0 CPPS CE hours.

Alexis M. LaPietra, DO
Medical Director EM Pain Management
St. Joseph's Healthcare System

ALTERNATIVES TO OPIOIDS
ALTO℠

- I have no financial disclosures

Objectives

- Discuss the current prescription opioid epidemic and the role providers play
- Review evidence-based alternatives to opioids for acute and chronic pain in the ED
- Evaluate the role of novel modalities

1.9 million

75%

51

18,893

Substance Abuse and Mental Health Administration (SAMHA) estimated

2.8 million seniors ABUSED opioids

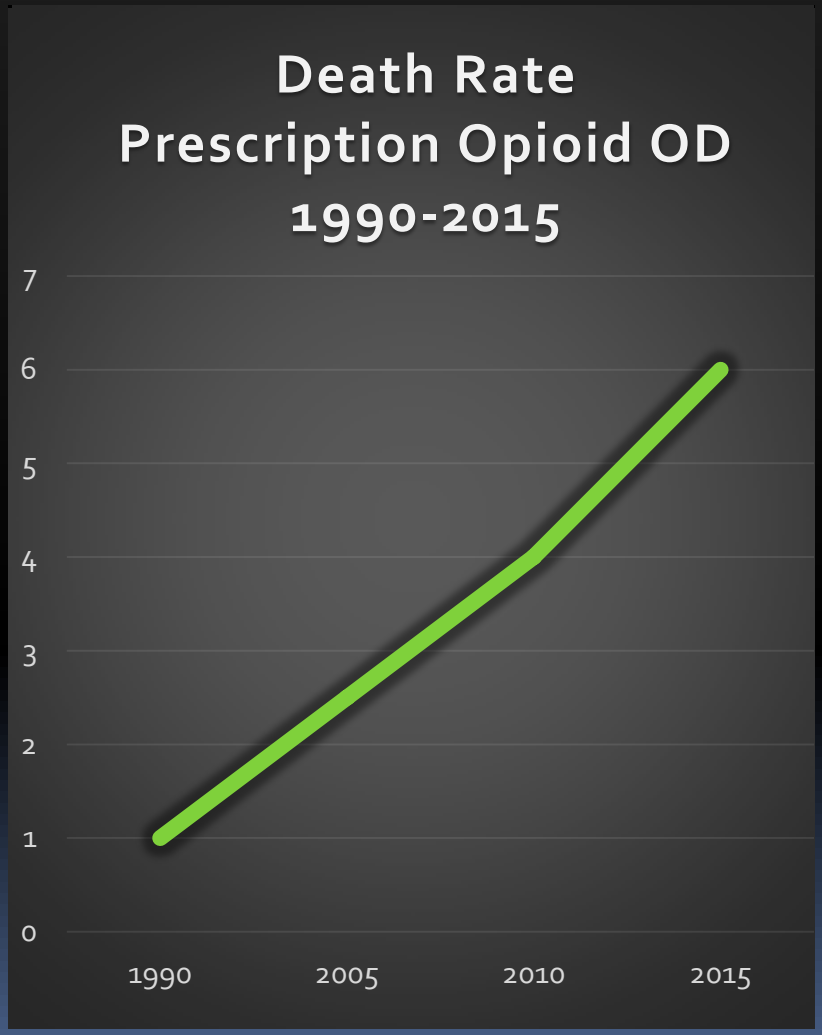
in the past year

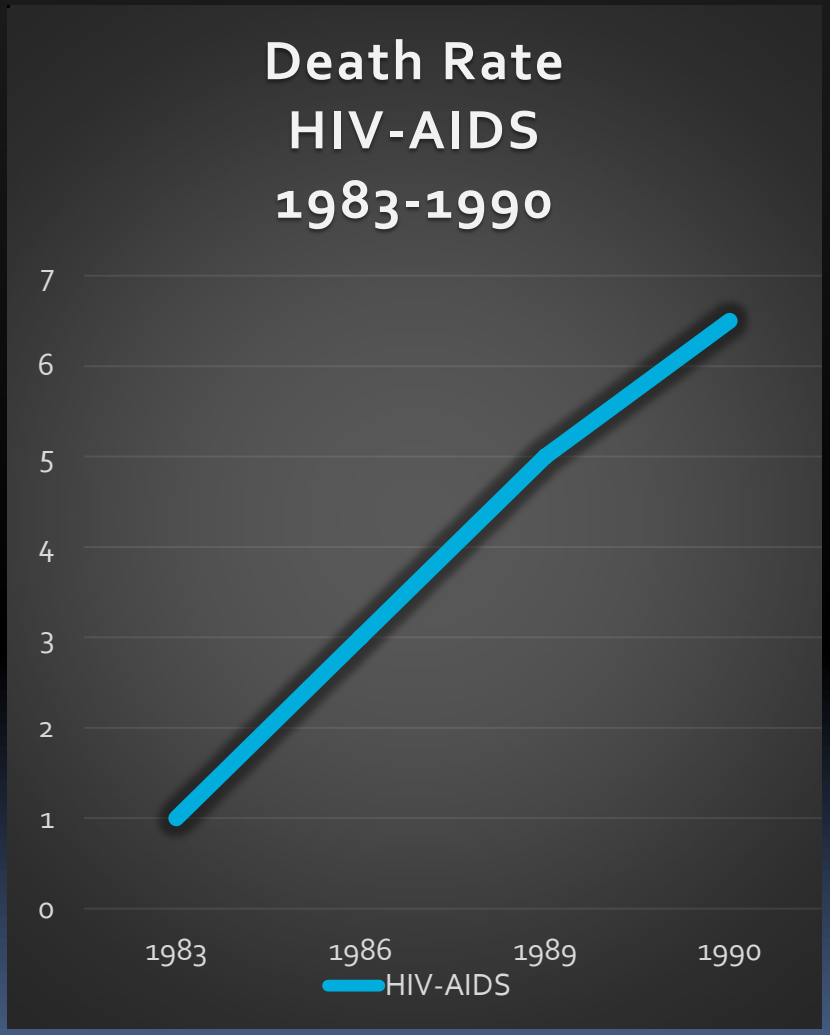
In 2014, **467,000 adolescents** were current nonmedical users of pain reliever,

with **168,000** having an addiction to prescription pain relievers

http://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf.

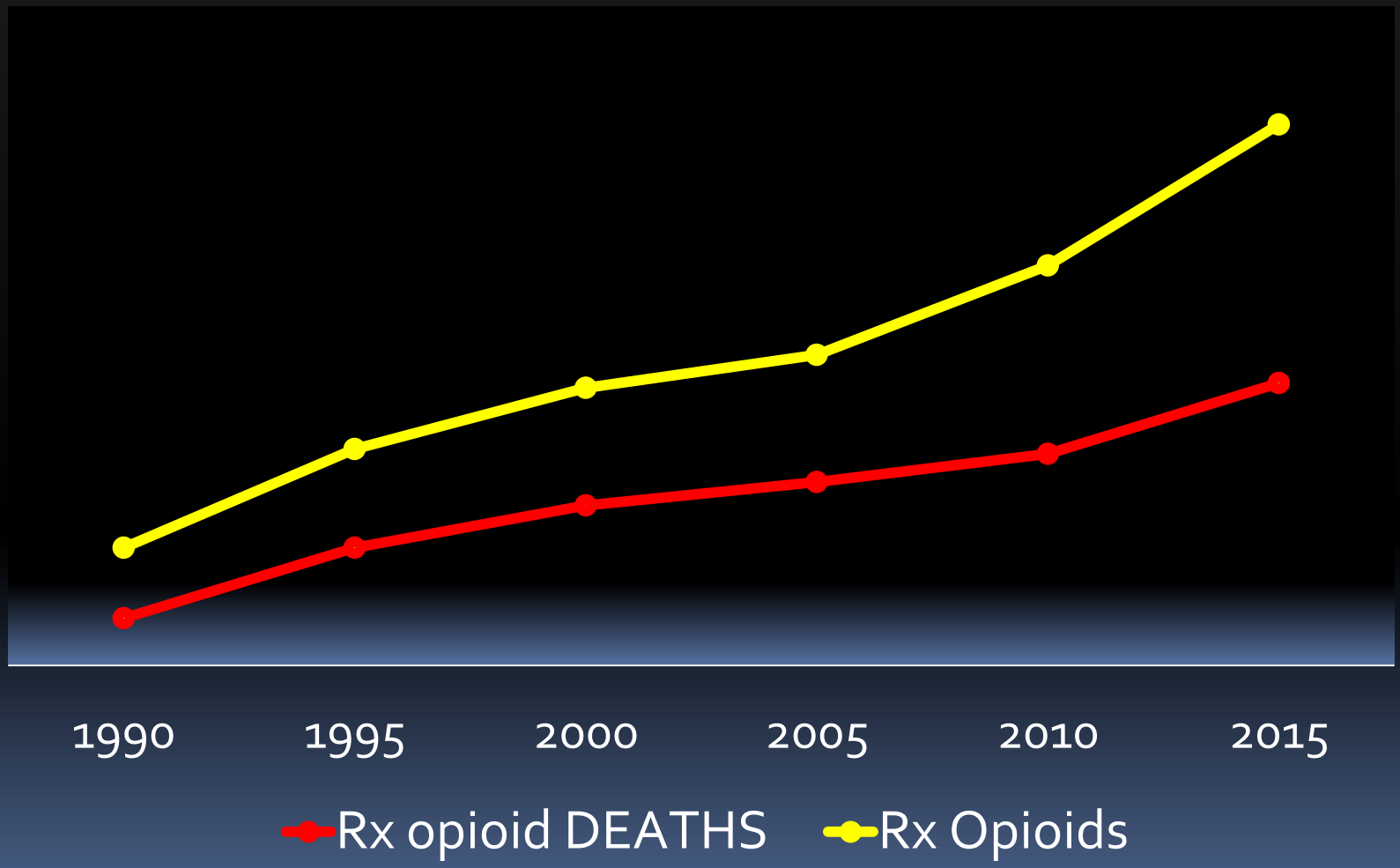
“Opioid overdose deaths in the US resemble a new infectious disease”

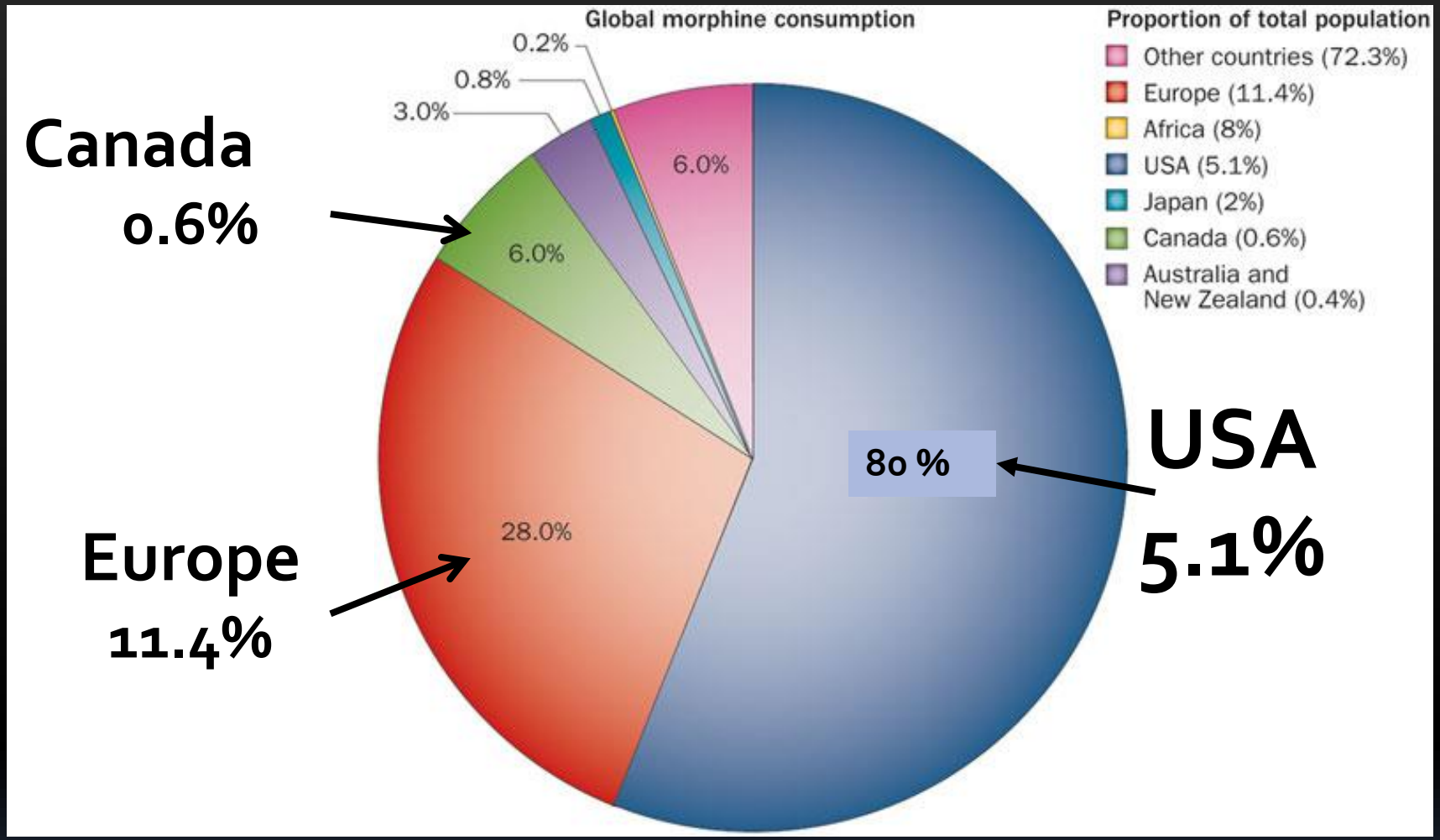




Newscientist.com 19Jan2016

Opioid Prescribing Habits vs. Prescription Opioid OD Deaths



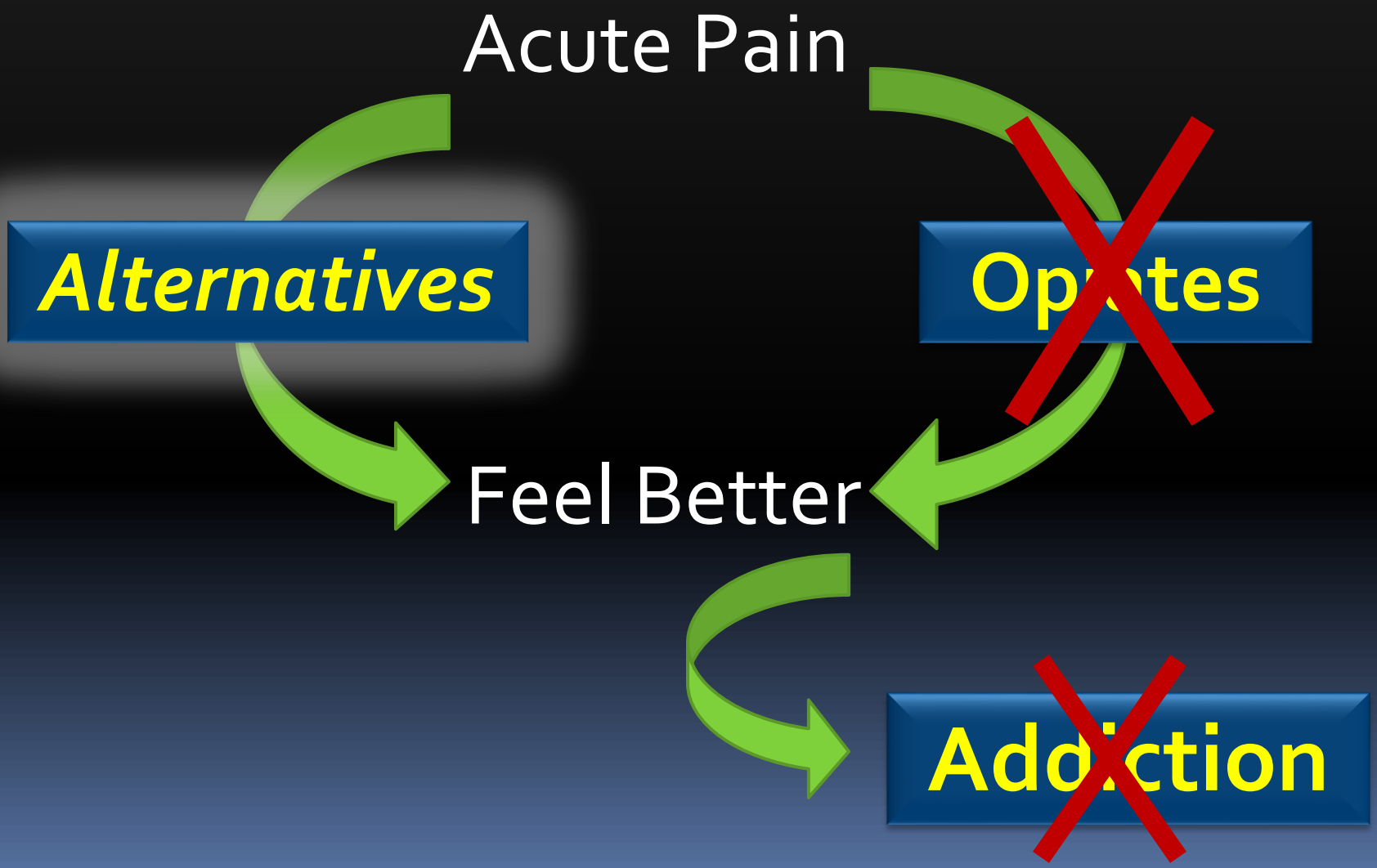


100% of the world's ***hydrocodone***

81% of world's ***oxycodone***

Dalal 2013

What can we do in the ER?



ALTO[SM]

Alternatives to Opioids

Acute Pain Protocols

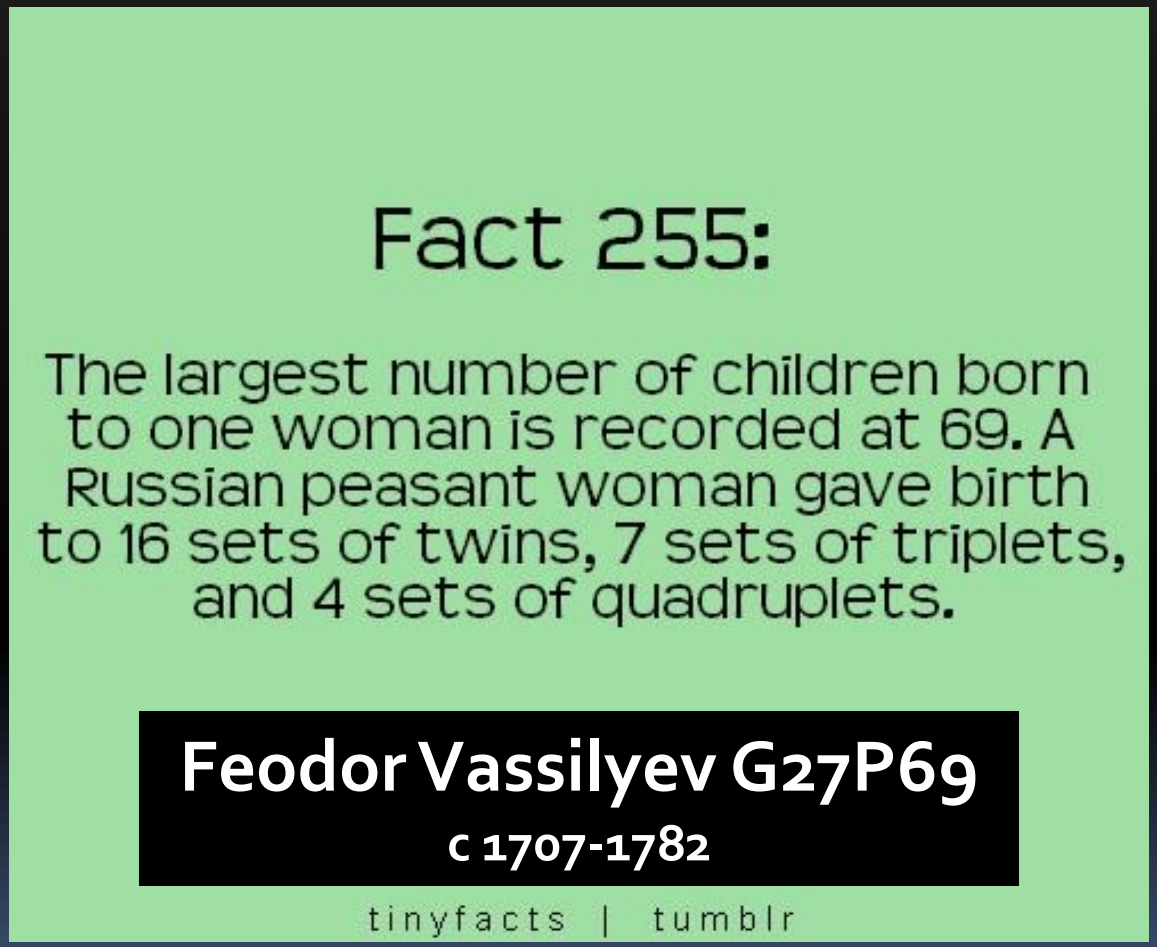
- Renal Colic
- Musculoskeletal Pain
- Lumbar Radiculopathy
- Migraine Headache
- Extremity Fracture/Dislocation

Opioids are necessary……

……but they are not the solution for all pain

- **THINK** before you prescribe
- **USE** alternatives whenever possible
- **CARE** about the patient

Talk about painful



Case 1

- MM is a 57 year old female who presents to the ED with severe LEFT flank pain and vomiting. She has h/o kidney stones in the past.
  - PMHx: none, PSHx: none, NKDA, No med prior to arrival

- Toradol® 30 mg IV
- 1 L NS
- Zofran® 4 mg IV

Case 1, continued

- MM reports minimal pain relief and is still in distress. Next line therapy?

- Morphine?
  - Patient received morphine 5 mg IV.
    - VERY minimal pain relief
  - She receives another morphine 5 mg IV + Zofran®
    - Pain is unchanged and she is vomiting

Case 2

- JA 28 year old male presents with severe kidney stone pain. He has a history of kidney stone pain in the past and is in recovery for heroin addiction, 7 months clean.

- Last time he has a kidney stone, he received morphine, he states it took him weeks to overcome the craving for heroin

Alternatives?

- He asks if there is an alternative to morphine, he states at another facility they said “no” and he was torn between pain relief and a potential relapse.

- Is there evidence to support the use of alternatives for kidney stone pain?

Intravenous Lidocaine

- Intractable oncological pain
  - Improved pain with fewer side effects, compared to opiates alone
  - Little to no toxicity
  - Improved quality of life
- Post-operative pain relief, meta-analysis
  - Reduced pain at rest, with movement, and with cough
  - No statistical difference in adverse events

Ferrini 2004
Vigneault 2011

Lidocaine for Post- Op Pain
Cochrane Review

- Immediately reduced pain lasting up to 24 hours
- Less opiates
- Decreased LOS
- Quicker bowel function return
- Less nausea

- No difference in rate of death, arrhythmia, toxicity, or other heart disorder
- ***Moderate evidence that intravenous lidocaine has an impact on pain scores compared to placebo***

Kranke 2015

Lidocaine vs. Morphine
RCT Renal Colic

- Lidocaine had lower pain scores compared to morphine at 5, 10, 15, and 30 minutes post-administration
- No difference in adverse events

Solemanipour 2012

Adverse Events

IV Lidocaine	Morphine
Perioral numbness 2.5%	Hypotension 2.5%
Transient dizziness 8.3 %	Vertigo 1.7%
Dysarthria 1.7%	Nausea/Vomiting 9.1%
Without side effect 87.5 %	**Without side effect 86.7 %**

Solemanipour2012

Mechanism of action

- Inhibits afferent sensory conduction
  - Analgesia
- Paralyzes the ureter
  - Quicker stone passage?

Intravenous Lidocaine

- Cardiac Monitor
- 1.5 mg/kg (200 mg/100 mL NS) over 10 minutes on a pump
  - MAX 200 mg
- EXCLUSIONS-
  - Seizure or malignant arrhythmia

Take Home Point #1

- Intravenous lidocaine is a safe and effective analgesic for renal colic.

Fastest Toilet
55 mph

Case 3

- 57 M presents with 2 days of acute low back pain after moving a sofa. Has tried ibuprofen once per day without much relief. He states oxycodone has helped him in the past.
  - PMHx- high cholesterol
  - NKDA
  - What's the best treatment for him?

Acute Low Back Pain

- Opioids are not first line, especially in the ED

- Early opioids prescribing
  - Increase rate of MRI
  - Significantly higher medical costs
  - 29% more likely to end up on chronic opioids

Friedman 2015
Lee 2016

Alternatives

- NSAIDS
- Tylenol®
- Topicals
  - Lidoderm®, Voltaren®, Flector®
- Trigger Point Injection
- Muscle Relaxants

NSAIDs and Tylenol®

- NSAIDs are effective
  - No better with Oxycodone/APAP
  - No better with Cyclobenzaprine
- Analgesic ceiling
  - ~400 mg/dose or ~1200 mg/day
- NSAIDs work better with Tylenol®
  - Tylenol® 1000 mg

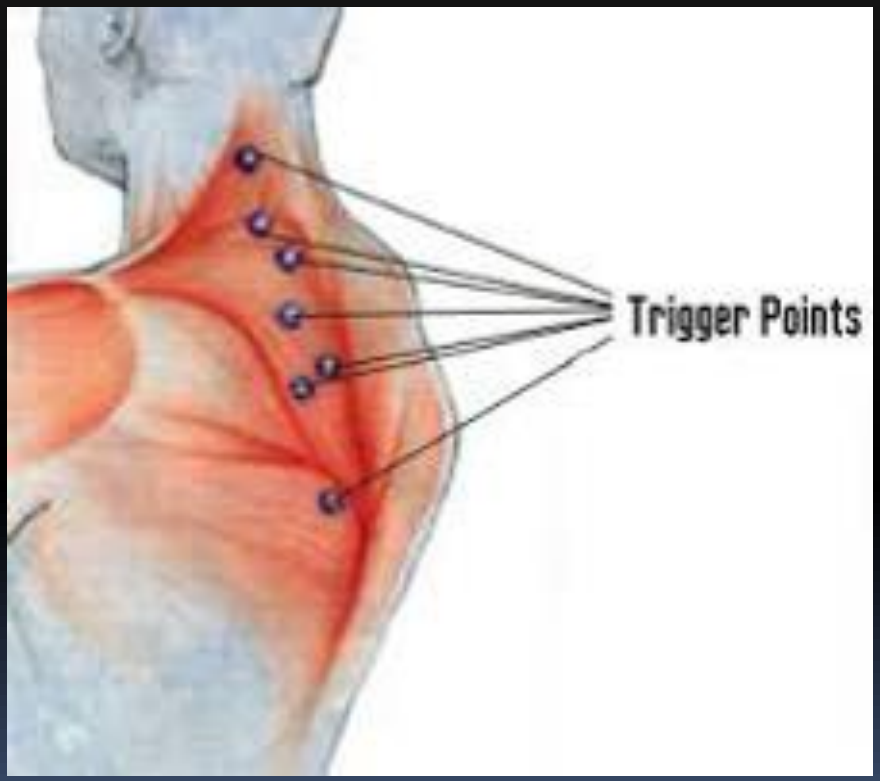
Friedman 2015
Derry 2013
McQuay 2007
Seymour 1996

Topicals

- Lidoderm® patches
- Diclofenac gel improves pain associated with OA of the knee and musculoskeletal injuries
  - **NNT 1.8**

Galer 2004
Wadsworth 2016
Baraf 2011
Barthel 2010
Cochrane 2015

Trigger Point Injection
Definition



Myofascial Trigger Points

- Tension Headache
- Tinnitus
- Temporomandibular joint pain
- Torticollis

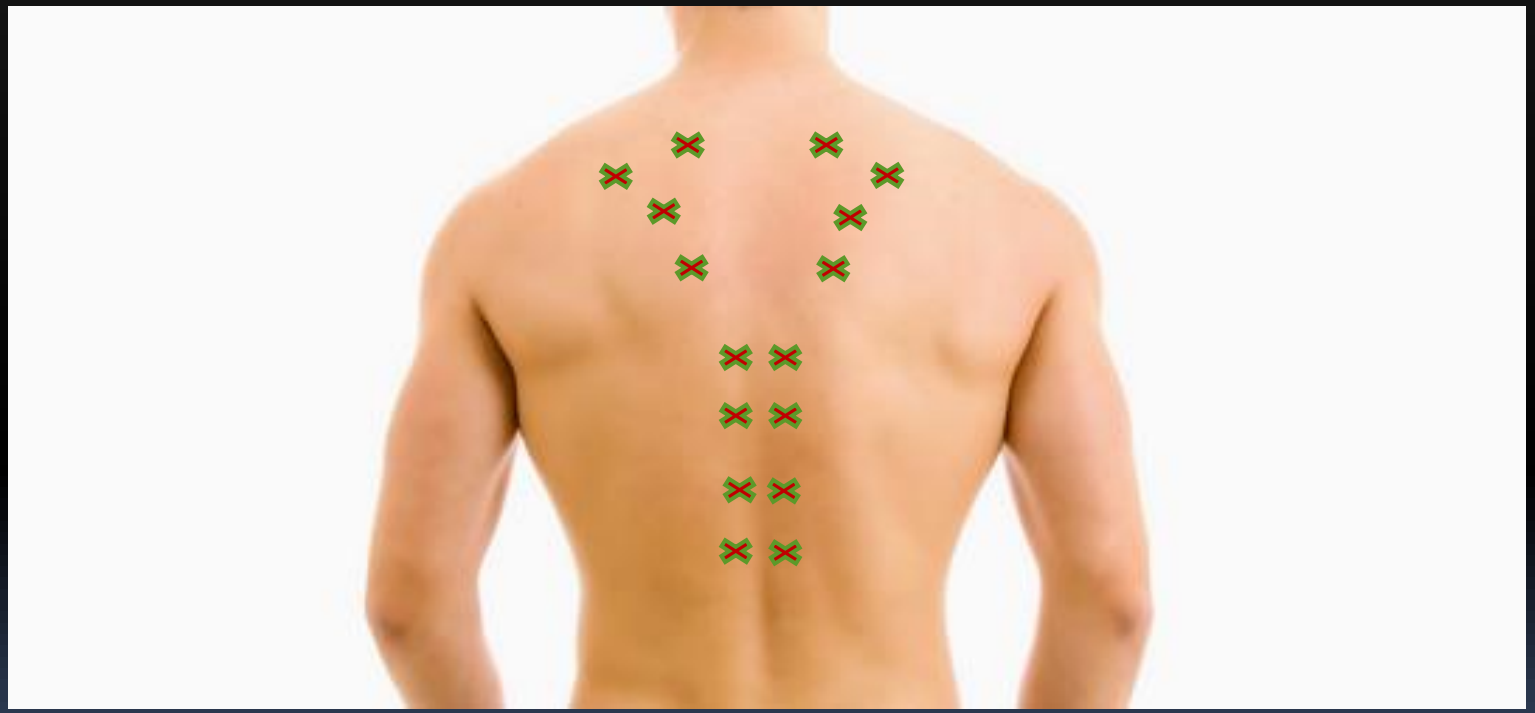
Dommerholt 2006

Myofascial Trigger Points

- According to the CDC in a 2009 report, myofascial pain of the back is the second most common cause of disability in working-age adults.
- Myofascial pain effects an estimated 10% of the US population and is typically underdiagnosed in the ED as a cause of pain

MMWR Morb Mortal Wkly 2009
Wheeler 2004

Most Common Trigger Point Location



Roldan 2015

Trigger Point Injection

Indications

- Palpable taunt band or nodule in skeletal muscle with referred pain
- Palpation reproduces pain
- Acute or chronic MSK pain

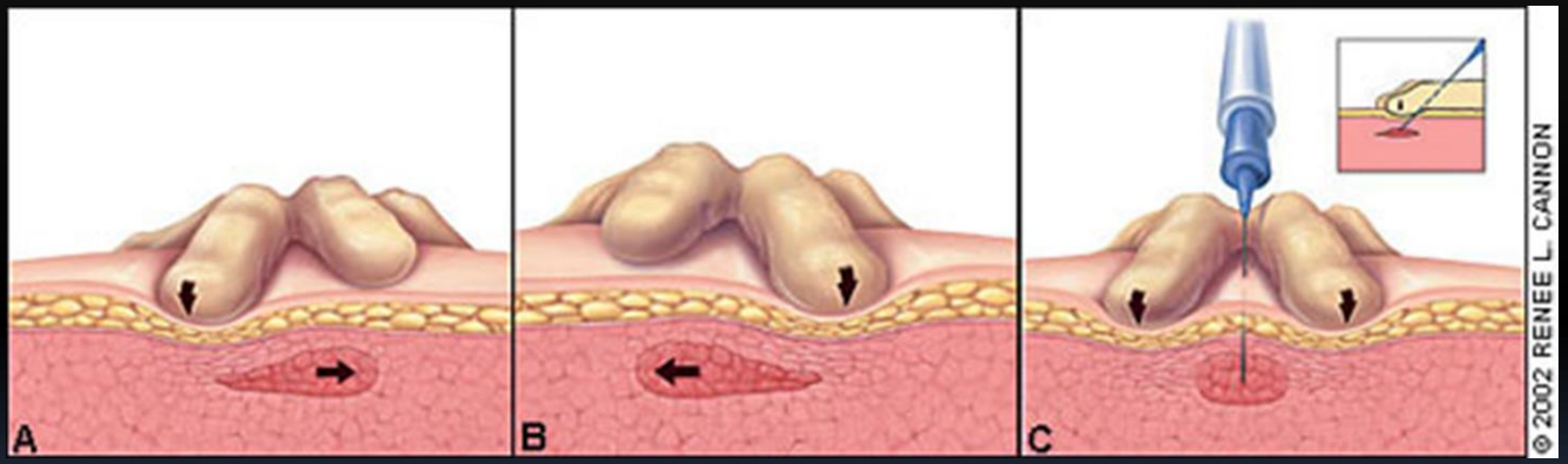
Contraindications

- Cellulitis over target area
- Anticoagulation
- Allergy to local anesthetic

Trigger Point Injection
Equipment

- 0.5% bupivacaine without epi- 1-2 mL
  - +/- steroids
- 25 gauge needle
- Alcohol swap
- Band-Aid®
- Consent
  - Infection, bleeding

Trigger Point Injection
Technique



Take Home Point # 2

- Most acute low back pain does not require opioids
- NSAIDs + Tylenol® + Topicals
  - Muscle relaxant may be necessary
- **Trigger Point Injections**
  - **It's a billable procedure**

2,583 unique rubber ducks!

Photo via guinnessworldrecords.com

Case 4

- 57 M with chronic pain due to lumbar radiculopathy presents with an acute flare. He takes MS Contin® 100 mg PO BID and oxycodone 30 prn.
- No focal neuro deficits but in severe distress.
- Management?

Your Brain on Opioids

- The neurochemistry of the brain changes when exposed to chronic opioids
- More opioids does not equal better relief
- Allodynia
- Hyperalgesia
- Chronic Pain

Opioid Tolerant Patients

- NSAID + Tylenol®
- Gabapentin 300 mg
- Diazepam or cyclobenzaprine
- Ketamine infusion + drip

Ketamine for Analgesia

- Antagonizes NMDA receptor
  - Sole agent for analgesia
- Sub-dissociative dosing
  - 0.3 mg/kg infusion
  - 0.1 mg/kg/hour drip
- Opioid sparing effect
- No vital sign changes, no additional monitoring

Galinski 2006
Motov 2015
Miller 2015

Ketamine

- Intranasal
  - Safe in children
  - 0.5 mg/kg MAX 50 mg/dose
    - MAX volume 1 mL/naris
  - No change in vital signs
  - Significant reduction in pain score
  - Easy to administer
  - Can re-dose
  - Works within 15 minutes

Andalfatto 2013
Yeaman 2013
Yeaman 2014
Shrestha 2016

Take Home Message #3

- Ketamine can be used in conjunction with opioids or as a sole agent for analgesia in the emergency department for acute and chronic pain.
- Intranasal administration is effective and easy.
  - Supported by ACEP and SAEM

Case 5
(last case)

- 23 M comes to ED for gluteal abscess. You are in the urgent care/fast track section. The abscess is LARGE. He has had them before and is pleading with you to "put me to sleep"!

- What do you do?

Nitrous Oxide

Nitrous Oxide

- Tasteless colorless gas administered in combination with oxygen via mask or nasal hood
  - Maximum concentration 70% N_2O
- Absorbed via pulmonary vasculature and does not combine with hemoglobin or other body tissues
- Rapid onset and elimination
  - <60 seconds

Becker 2008

Benefits of Nitrous Oxide

- Analgesic and anxiolytic agent
  - Use along with local anesthetic or other pain medications
  - Releases enkephalins, effects reversed with naloxone
- Only monitoring is pulse oximetry
- No NPO requirements, patient can drive after administration, no IV line needed

Babl 2015
Zhang 1999
Becker 2008
Champman 1979

Nitrous Oxide Evidence

- It indicated for any and every painful condition
- All ages

Laceration
Lumbar puncture
Peripheral and central venous access
I&D
FB removal
Burn/Wound Care
Fecal Disimpaction

Herres 2015
Klomp 2012
Furuya 2009
Ducasse 2013
Aboumarzouk 2011
Atassi 205

The Downside to Nitrous Oxide

- Abuse potential
- Mobile unit
- Patient or nurse must hold mask
- Patients may feel claustrophobic when using the facemask

Contraindications

- COPD or severe active asthma
- Severe vitamin B12 deficiency
- Otitis Media, Sinusitis
- Bowel Obstruction
- Altered level of consciousness
  - Psychiatric disease, EtOH, Head Injury
- 1st and 2nd trimester pregnancy

Take Home Point #4

- Nitrous Oxide is a fast acting easily administered analgesic, ideal for the management of acute pain

Summary

- Renal colic → **IV LIDOCAINE**
- Low Back Pain → **Tylenol®, NSAIDs, topicals and Trigger Point Injection**
- Opiate Tolerance → **KETAMINE**
- Procedures → **NITROUS**

ALTO^{SM} results

- N= 1600 patients
- ***47.6% reduction*** in opioids for acute low back pain, renal colic, and headache
  - p= 0.0001
- Pain scores pre-ALTO 8→ 1.9
- Pain score post-ALTO 7.9→ 2.0

Keep exposure to a minimum

- The use of alternatives for pain management decreases unnecessary exposure of potential harmful medications to our patients.
- Opioids are important but should not be reflexively prescribed
- Dr. Shroff says "I've gone 3 shifts without prescribing any Percocet®, people are happy and have had great pain relief"

ALTO℠ Partnerships

- Departments
  - Physical Therapy
  - Family Medicine
  - Psychiatry
  - Pain Management

ALTO^{SM} Partnerships

- St. Joseph's Opioid Overdose Prevention and Naloxone Distribution Program
- Opioid Overdose Recovery Program
  - 49% of patients approached enrolled in recovery
- Straight and Narrow Program

Coming soon…

- Suboxone® induction in the ED
- Acupuncture for pain management in the ED

EDUCATE

- Multidisciplinary approach
- Prevention is KEY! Keep opioid naïve patients opioid free
  - Utilize alternatives when possible
  - Collaborate with outpatient physicians
  - Reserve opioids as rescue medication NOT first line
- Support patients who suffer from the DISEASE of addiction

If you'd like to know more

Join the ACEP Pain Management Section

lapietra@sjhmc.org

THANKS

THANK YOU!

We look forward to seeing you at future MAPS PSO events.

For questions, contact MAPSHelp@team-iha.org or 630-276-5657