PNQIN AIM
Opioid Use Disorder in Pregnancy Webinar Series

April 20th, 2021

Webinar 11

MPQC Massachusetts Perinatal Quality Collaborative

neoQIC

COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

PN QIN OF MASSACHUSETTS PERINATAL-NEONATAL QUALITY IMPROVEMENT NETWORK

BETSY LEHMAN CENTER for Patient Safety

MASBIRT Asking questions. Improving health.

MARCH OF DIMES

OUD in Pregnancy Webinars

Monthly Agenda Overview

12:00 - 12:05: Welcome/ Introductions

12:05 - 12:15: PNQIN & team updates

12:15 - 12:30: Brief QI teaching

- **Emily Reiff, MD – Scale and Spread Up**

12:30 - 12:55: Team presentations + discussion

- **Katherine Callaghan, MD – Pain Relief During Pregnancy, Labor, Surgery & Post-Op**

12:55 - 1:00: Closing/ Final Comments

Webinar Housekeeping

- We will take attendance in the chat box each month – please comment with your name and hospital
- Please mute yourselves unless you would like to contribute to the conversation or ask a question
- Utilize the "raise hand" feature or chat box to speak
- We will record this session and upload the recording and webinar slides to our website after the call
- We welcome feedback about the webinar content and structure!
- Please participate! We want this webinar to be helpful and collaborative!

PNQIN AIM Wave 2 - Who's on the Line?

Beth Israel Deaconess Plymouth
Beverly Hospital
Brockton Hospital
Cambridge Hospital/CHA
Charlton Memorial Hospital
Emerson Hospital
Good Samaritan Medical Center
Health Alliance Hospital
Heywood Hospital
Holy Family Hospital
Holyoke Medical Center
Lawrence General Hospital
Martha's Vineyard Hospital
Melrose-Wakefield Hospital
Mount Auburn Hospital
Nantucket Cottage Hospital
Norwood Hospital
St. Elizabeth's Medical Center
St. Luke's Hospital
Sturdy Memorial Hospital
Tobey Hospital
Winchester Hospital

Closed OB permanently
Closed OB temporarily

PNQIN AIM OUD Wave 2 **Targeted** Hospitals

- Beth Israel Deaconess Plymouth
- Beverly Hospital
- Brockton Hospital
- Cambridge Hospital/CHA
- Charlton Memorial Hospital
- Emerson Hospital
- Good Samaritan Medical Center
- Health Alliance Hospital
- Heywood Hospital
- Holy Family Hospital
- Holyoke Medical Center
- Lawrence General Hospital
- Martha's Vineyard Hospital
- Melrose- Wakefield Hospita
- Mount Auburn Hospital
- Nantucket Cottage Hospital
- Norwood Hospital
- St. Elizabeth's Medical Center
- St. Luke's Hospital
- Sturdy Memorial Hospital
- Tobey Hospital
- Winchester Hospital

PNQIN Perinatal Opioid Project Leadership Team

PNQIN

- Fifi Diop (DPH) – Grant Primary Investigator
- Audra Meadows (BWH)
- Ron Iverson (BMC)
- Munish Gupta (BIDMC)
- Kali Vitek (BMC)
- Allie Doyle (BIDMC)

Neonatal Folks

- Elisha Wachman (BMC)
- Larry Rhein (UMass)
- Rachana Singh (Baystate)
- Davida Schiff (MGH)
- Alan Picarillo (Maine)
- Eileen Costello (BMC)

Maternal Folks

- Katherine Callaghan (UMass)
- Leena Mittal (MCPAP for Moms)
- Laura Sternberger (Moms Do Care)
- Nicole Smith (BWH)
- Donna Jackson-Kohlin (Baystate)
- Linda Jablonski (Baystate)

Academic and Organizational Partners

- Patrice Melvin (BCH)
- Karla Damus (BU)
- Christina Gebel (Accompany Doula Care)

State Partners

- Fifi Diop (DPH and PI of PNQIN Grant)
- Griffin Jones (HPC)
- Michael Kelleher (OHHS)
- Debra Bercuvitz (DPH)
- Abby Taylor (AGO)
- Karen Pressman (BSAS)
- Julia Reddy (BSAS)
- Mary Lutz (DCF)
- Alissa Cruz (MassBIRT)
- Colleen Labelle (BMC)
- Julia Prentice (BLC)
- Natalia Ciesielska (BLC)

Families

- Patricia McDonnell (Baystate)
- Julie Maida
- Meghann Perry
- Cieara McManus (Moms Do Care)

Event Announcement

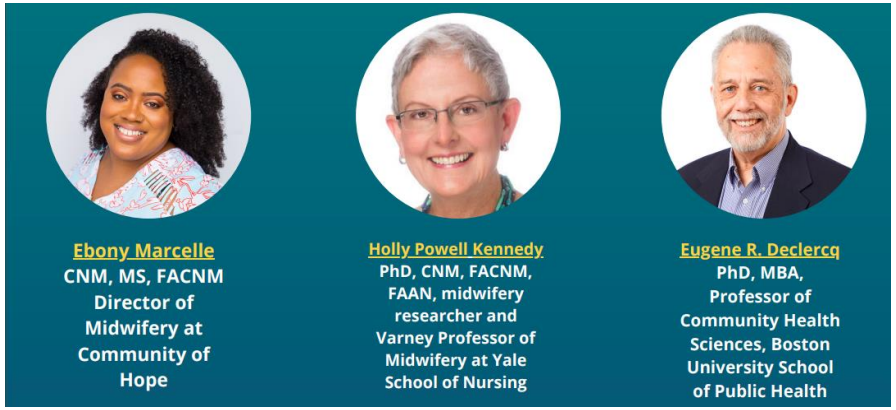
Perinatal Quality Collaboratives:
Supporting Opioid-Affected Maternal Infant Dyads

- April 28th, 1:00-4:30pm
- Symposium presented by the National Network of Perinatal Quality Collaboratives
- Participants will hear about best practices and initiatives on opioid-affected maternal infant dyads with a specific focus on opportunities, challenges/barriers, and successes.
- Register: https://nichq.zoom.us/meeting/register/tJYpceyqrDgoGdxVlYD32XmXNn6ScBn1YR6D

Event Announcement

Midwifery: An Evidence-Based Solution for Disrespect, Racism & Other Challenges in Maternity Care

- April 29th, 2021
- 12-1pm ET
- Co-hosted by Harvard. T.H. Chan School of Public Health and Boston University's Center of Excellent in Maternal and Child Health.
- Register: https://harvard.zoom.us/webinar/register/WN_21idiC4oQve_9-HZSL1_mQ



PNQIN Announcements

Available Trainings

1. *Free* PNQIN Online stigma, bias, and trauma-informed care training
   - Please note the different registration links for Nursing vs. CME/Social Work credit-seekers
   - Register here: https://www.mpqcma.org/trauma-informed-care-trainings

2. *Free* SPEAK UP Champions© Implicit and Explicit Racial Bias Education
   - May 18th & 25th, 12:30-4:30pm ET (both days)
   - 5.75 Continuing Education credits
   - Register here: https://www.perinatalqi.org/event/SPEAKUPMAMAY2021

AIM MOU – sent to your OB Chair and/or Nurse Manager via DocuSign!

- Allows for full participation in AIM bundle data collection
- These must be signed and returned to submit data to us
- Please send a private chat or email to Kali if need more information

Team Updates/Check-In

QI Webinar Topics for Next 12 months

Date/QI Topic	
7/21/20	OUD Bundle Components Overview & Stakeholders
8/18/20	Developing a Project AIM
9/15/20	Measures for Improvement
10/20/20	Key Driver Diagram
11/24/20	Developing Interventions
12/15/20	Understanding Run Charts
1/19/21	Understanding Data Control Charts
2/16/21	Using the PDSA Cycle
3/16/21	PDSA: Making Adjustments
4/20/21	**Scale and Spread Up**
5/18/21	Sustainability

PNQIN QI Teaching Series

Scale and Spread Up

Emily Reiff, MD

Brigham and Women's Hospital

What is scale and spread?

- Achieving change is a significant in any area – celebrate your wins!
- Another important and challenging aspect of QI is how to spread success to other areas/departments
- The ability of providers and institutions to rapidly spread change to others is **a key factor** in closing the gap between best and common practice

Source: IHI, Spreading Changes: http://www.ihi.org/topics/Spread/Pages/default.aspx

Scaling a QI project

- Taking an effective healthcare practice(s) from one setting and making them ubiquitous across a health care system, region, state, or nation
- Must consider and discuss the following prior to launching a large-scale improvement effort:
  - Motivations
  - Foundations
  - Aims
  - Interventions
  - Social systems
  - Methods for spreading change

McCannon CJ, Schall MW, Perla RJ. Planning for Scale: A Guide for Designing Large-Scale Improvement Initiatives. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2008. (Available on www.IHI.org)

6 Aspects of Scale - Motivations

The following questions **probe the motivations and ambitions of founding stakeholders.** High intellectual and emotional engagement is essential for scale, whereas uncertainty and hidden assumptions can sap energy and create tension.

1. Consider social/political movements and large-scale improvement initiatives that have drawn your attention and emotion. What about them inspired you?

2. What would anyone want to join your initiative? Is there a glaring gap in performance or an urgent need? Is this an easy place to build will (i.e. is it a "no-brainer?")

3. What is the scale of the proposed effort? Do you seek total transformation of the system, or spread of a best practice through an existing system?

McCannon CJ, Schall MW, Perla RJ. Planning for Scale: A Guide for Designing Large-Scale Improvement Initiatives. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2008. (Available on www.IHI.org)

6 Aspects of Scale - Foundation

The following questions **help stakeholders examine where they are in the narrative history of their shared work, explore the foundations of their effort, and ensure sound leadership is in place.**

1. Where does work fit in the larger narrative of change that you seek to effect? Is it a first step? A middle step? The last mile?

2. What is your theory about how change will occur? What sequence of events—including which stakeholders—will get you to your desired result?

3. Is there a charismatic leader, someone with a regional or national platform from which to speak?

4. How do relevant hierarchies (e.g. regulatory bodies) perceive the initiative? Will they actively support it (I.e. remove barriers, recognize success, change policies) or simply tolerate it?

McCannon CJ, Schall MW, Perla RJ. Planning for Scale: A Guide for Designing Large-Scale Improvement Initiatives. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2008. (Available on www.IHI.org)

6 Aspects of Scale - Aim

The following questions assist with **creating a bold, quantifiable aim that garners attention and urgency, drives the scale pace, and requires focus on outcomes.** However, an aim also increases scrutiny of the problem that the program seeks to solve and may draw failure into sharp relief

1. What is the explicit aim (outcome)?

2. What is the timeframe for achieving the aim?

3. Does the effort have embedded (tacit) aims?

McCannon CJ, Schall MW, Perla RJ. Planning for Scale: A Guide for Designing Large-Scale Improvement Initiatives. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2008. (Available on www.IHI.org)

6 Aspects of Scale – Nature of Intervention

The following questions **help stakeholders study the actions (e.g. best practice to reduce an adverse health outcome) they seek to spread.** Scholars have identified the following key attributes that increase the likelihood of intervention adoption: relative advantage, compatibility, simplicity, "trialability", and "observability".

1. Does the new practice have potential to make lives easier (in addition to being more efficacious for patients)?

2. Is there any controversy over the evidence base or implementation strategy? Will the intervention challenge the organizational culture?

3. How many components does the intervention have, and what are their varying degrees of complexity?

4. Are there successful pilots, ideally in influential organizations, that demonstrate successful implementation of the intervention (if not, is a large-scale program premature?)

McCannon CJ, Schall MW, Perla RJ. Planning for Scale: A Guide for Designing Large-Scale Improvement Initiatives. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2008. (Available on www.IHI.org)

6 Aspects of Scale – Nature of the Social System

The following questions **help stakeholders understand the context of the unique system in which you seek to spread the new or improved behavior/practice.** You can't force best practices into organizations that won't accept them, but you can ease the way by understanding sources of energy and dissent and appreciating the system's architecture.

1. What is the nature of the system into which you want to spread the new practice? Consider the types of facilities you seek to engage and relationships among them, as well as how external forces influence activity.

2. How busy do prospective participants feel?

3. What level of resource needs to be allocated in participating organizations? Can you remove "lack of resources" as an excuse?

McCannon CJ, Schall MW, Perla RJ. Planning for Scale: A Guide for Designing Large-Scale Improvement Initiatives. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2008. (Available on www.IHI.org)

6 Aspects of Scale – Network Building

The following questions **consider how to build a mechanism for distributed learning among participants that generates meaningful exchange on a daily basis.** The existence of a new, better practice is not enough to guarantee adoption.

1. What methods might you use to reach and support targeted participants?

2. How will your system for spreading change foster learning and create value for participants every single day? How will you collect and quickly redistribute insight from the front lines?

3. Will you need to collect new data in the project? How can you generate information that is useful to front-line teams?

4. What form of measurement and evaluation should be adopted for the initiative?

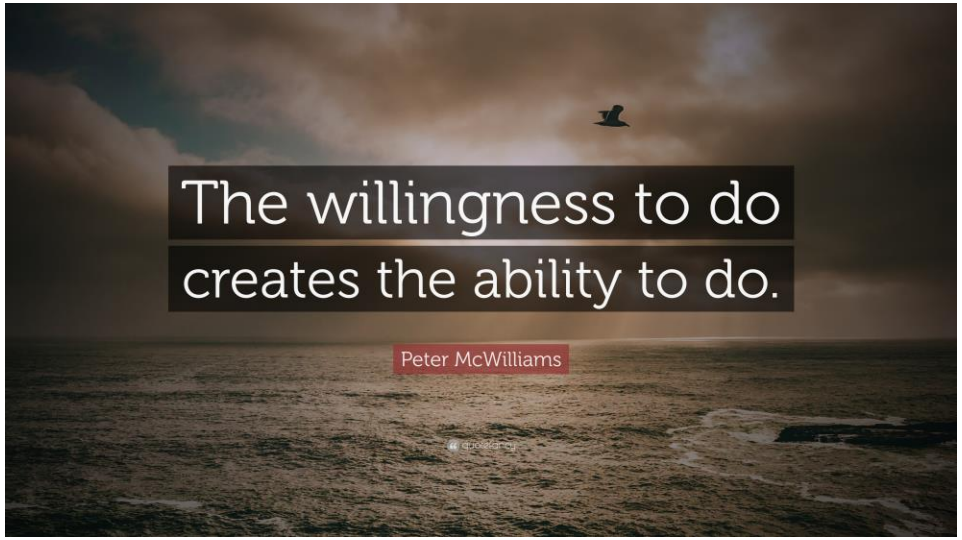
5. What form of recognition does each stakeholder value most? How can you provide that recognition at predictable intervals?

McCannon CJ, Schall MW, Perla RJ. Planning for Scale: A Guide for Designing Large-Scale Improvement Initiatives. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2008. (Available on www.IHI.org)

A Framework for Spread - Challenges

- Pockets of excellence exist in our health care systems and institutions, but often the ideas and practices are isolated in one area and unknown to and unused by others

- **Spread challenges:**
  - Characteristics of the innovation itself
  - Willingness/ability to try new ideas
  - Characteristics of culture and infrastructure to support change



Source: IHI, Spreading Changes: http://www.ihi.org/topics/Spread/Pages/default.aspx

Prepare for spread

- It's never too early to plan, but certain things should be in place before executing the plan
  - Designation of executive sponsorship and day-to-day leadership
  - Existence of successful sites that can source specific ideas for spread
  - Evidence that the ideas result in the desired outcome(s)

- **Most importantly: Leadership should acknowledge the QI project as a key strategic initiative of your institution and will be actively supportive once the spread plan is underway**
  - Make sure they…
    - Understand reasons for initiative
    - Are aware of improvements made at the successful site
    - Know how they can contribute to spread

Source: Massoud MR, Nielsen GA, Nolan K, Schall MW, Sevin C. *A Framework for Spread. From Local Improvements to System-Wide Change.* IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2006. (Available on www.IHI.org)

Establish a SMARTIE aim for spread

- This aim is an important outcome of the initial spread planning process
- Should address **Who, What,** and **Where**
- Additional components:
  - Population that is the target of spread activities (e.g. clinics, units)
  - Specific goals that are expected to be achieved
  - Specific improvements that will be made in the target population
  - Time frame

Source: Massoud MR, Nielsen GA, Nolan K, Schall MW, Sevin C. *A Framework for Spread: From Local Improvements to System-Wide Change.* IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2006. (Available on www.IHI.org)

IHI's Seven Spreadly Sins

Sin	Do THIS instead
Don't bother testing – just do a large pilot.	Start with small, local tests and several PDSA cycles.
Give one person the responsibility to do it all; depend on "local heroes".	Make spread a team effort.
Rely solely on vigilance and hard work	Sustain gains with an infratructure to support them.
Spread the success unchanged; don't waste time "adapting" because, after all, it worked so well the first time.	Allow some customization, as long as it is controlled and elements that are core to the improvement are clear.
Require the person and team who drove the initial improvements to be responsible for spread throughout a hospital or facility.	Choose a spread team strategically and include the scope of the spread as part of your decision.
Check huge mountains of data just once every quarter.	Check small samples daily or frequently so you can decide how to adapt spread practices.
Expect huge improvements quickly then start spreading right away.	Create a reliable process before you start to spread.

SOURCE: Institute for Healthcare Improvement. Used with permission.

Guest Speaker Webinar Topics for Next 12 months

Date	Guest Speaker Topic
7/21/20	OUD Screening Options
8/18/20	Plans of Safe Care
9/15/20	Caring for Patients with OUD
10/20/20	Linkages to Care
11/24/20	Equity Considerations in OUD care
12/15/20	Centering Patient Voice
1/19/21	Wave 2 Team Presentations (formerly OUD SMM Data)
2/16/21	OUD SMM Data (formerly Early Head Start)
3/16/21	SBIRT Check-in
4/20/21	**Pain Relief During Pregnancy, Labor, Surgery & Post-op**
5/18/21	Early Head Start

Guest Topics:

Pain Relief During Pregnancy, Labor, Surgery, and Post-op

Katherine M. Callaghan, MD

UMass Memorial Karen W. Green Clinic for Pregnancy and Recovery

UMassMemorial Medical Center

UMASS MEDICAL SCHOOL

Peripartum Management of Pain in the Patient with Opioid Use Disorder

PNQIN WEBINAR

APRIL 20, 2021

UMassMemorial Medical Center

UMASS MEDICAL SCHOOL

Disclosures

Director Karen W Green Clinic for Pregnancy & Recovery at UMass

RECOVERS – IIR with bayer pharm.

Overview

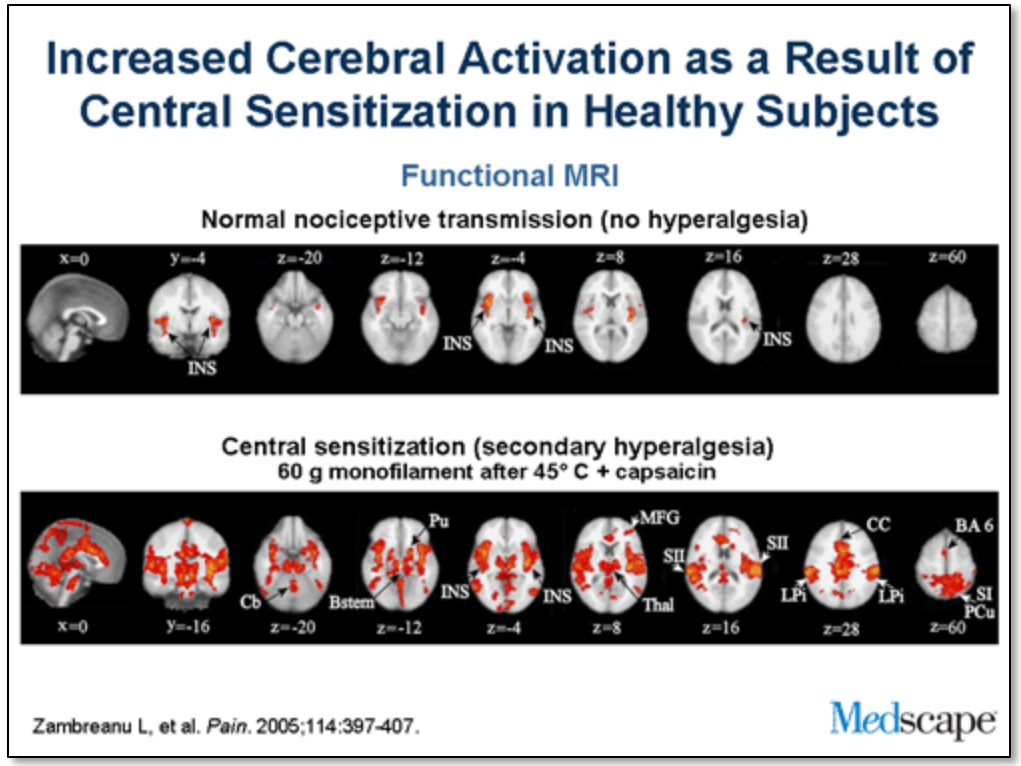
Learning objectives:

- Review challenges in pain control for the pregnant patient with OUD
- Gain comfort in treating pain in patients prescribed Medications for OUD
- Debunking Myths: buprenorphine products and pain control
- Local Obstetrical data: our experience

The Challenge: Central Sensitization

Chronic stimulation of opioid receptors →increased sensitivity to pain

- Central activation of NMDA receptors & protein kinase C
- Up-regulation of spinal dynorphin
- Apoptosis of spinal dorsal horn neurons

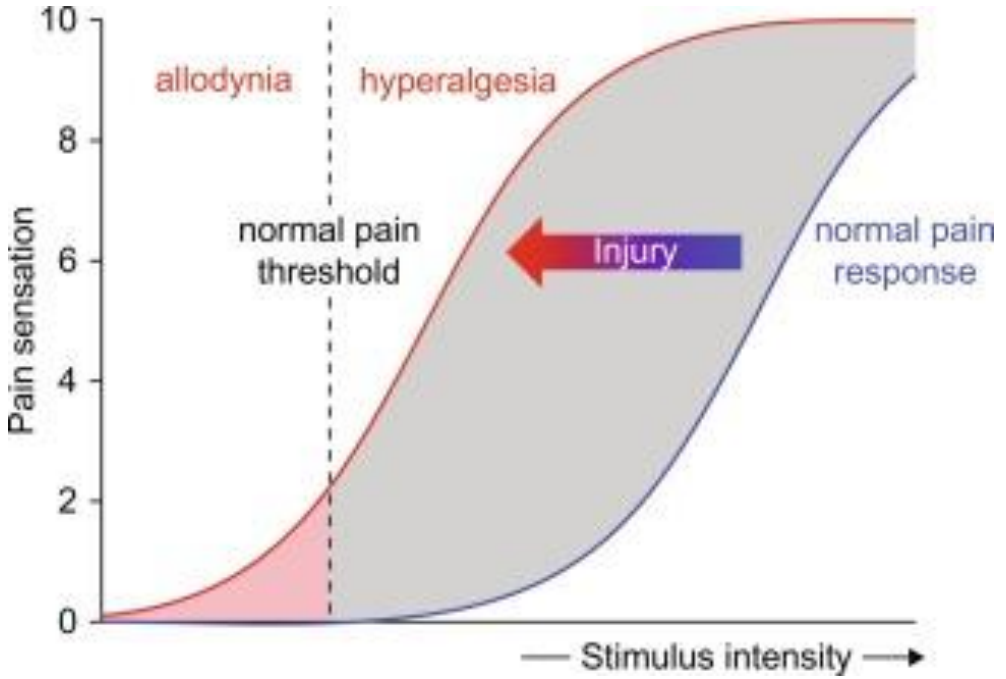


The Challenge: Opioid Induced Hyperalgesia

Increased sensitivity to painful stimuli

No well-established treatment

- Maximize non-opiate measures
- ?Opioid rotation



(Adapted from Cervero F, Laird JM (1996) Mechanisms of touch-evoked pain (allodynia): a new model. Pain 68: 13–23.)

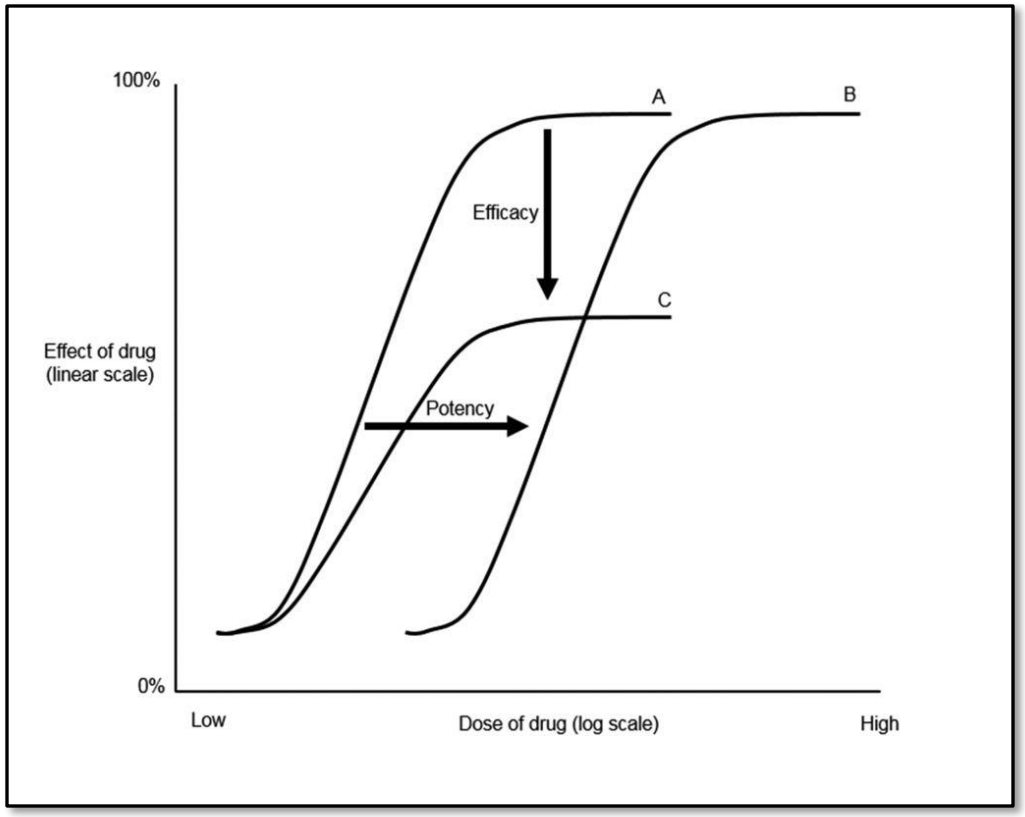
The Challenge: Tolerance

Diminishing effect over time

Higher doses needed to achieve the same effect

Extends to non-analgesic effects

- Sedation
- Respiratory depression



https://tech.snmjournals.org/content/jnmt/46/2/81/F5.large.jpg

The Challenge: Stigma & Trauma

Medications for Addiction Treatment

"MOUD" Medications for Opioid Use Disorder

- Treatment of withdrawal symptoms, cravings
- Part of a treatment program
- MUCH more effective than abstinence
  - Higher retention rate
  - Lower relapse rate
  - LOWER DEATH RATE

MOUD: Methadone

- Synthetic opioid **AGONIST**
- Half life – 22-59 hours (as little as 8 hours in pregnant women!)
- **Long** effect 24-36h (vs 4-6h for heroin)
- Levels **accumulate** over a few days

MOUD: Buprenorphine

Buprenorphine

- **PARTIAL agonist**
  - Ceiling effect – maximum mu activation never achieved
- Half-life 20-44 hours
- **HIGH affinity** for Mu receptor
  - Will displace a full agonist
- **SLOWER** dissociation from Mu receptor
  - Full agonist prevented from binding?

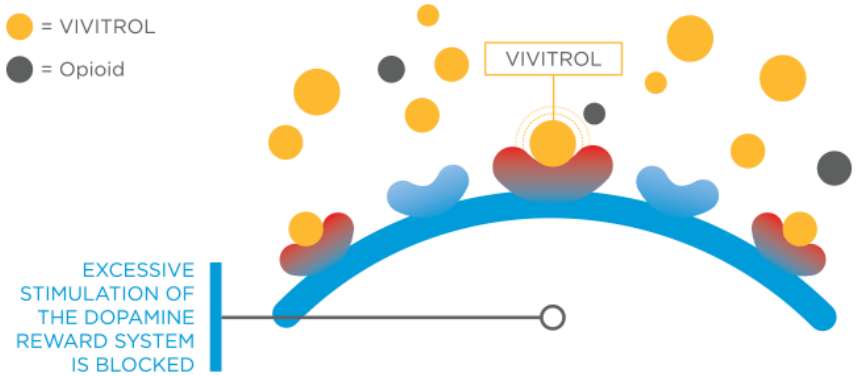
MOUD: Naltrexone

Naltrexone

- Opioid **Antagonist**
- PO: daily or EOD dosing
- Monthly injection – increases compliance

Initiation:

- Requires “washout” period from opioids
- Start with oral → depot injection after a few days



Perioperative MOUD: the basics

	Brand Name	Pharmocology	Dosing	Perioperative
Methadone		Full agonist	At clinic, usually daily	Continue, consider split dose
Buprenorphine	Subutex	Partial agonist	Office Rx q3 days - monthly	Continue
Bup + naloxone	Suboxone	Partial agonist + “blocker”	Office Rx	
Naltrexone	Vivitrol	Blocker	Office Admin q month	Change to PO, last dose 24h before surgery, restart 3-7 days after last opioid use

Perioperative MOUD: the problem with bup

The recommendation for discontinuation of buprenorphine products prior to surgery was made based on theoretical concerns, in vitro data, expert opinion (CSAT 2004) and case reports.

Clinical guidelines issued in 2004 by the Center for Substance Abuse Treatment, despite acknowledging lack of evidence, set into motion a misconception in the United States, widely quoted, that perioperative analgesia is difficult to achieve with standard opioids in buprenorphine-maintained patients and that buprenorphine in most cases should be stopped and converted to methadone preoperatively.

Harrison TK, Kornfeld H, Aggarwal AK, Lembke A. Perioperative considerations for the patient with opioid use disorder on buprenorphine, methadone, or naltrexone maintenance therapy. Anesthesio2018

Intrapartum Pain control

Regional Anesthesia is Safe & Effective

Full agonists are Safe & Effective

Beware the partial agonist!

Discontinuation of partial agonist vs continuation

Discontinue?

Wean to proc

Dis ge short-a g opiate

Re- te

Eliminates lockade

Continue

Higher doses of opiate will be needed

Minimizes risk of withdrawal

Minimizes risk of relapse

Pain control IS possible

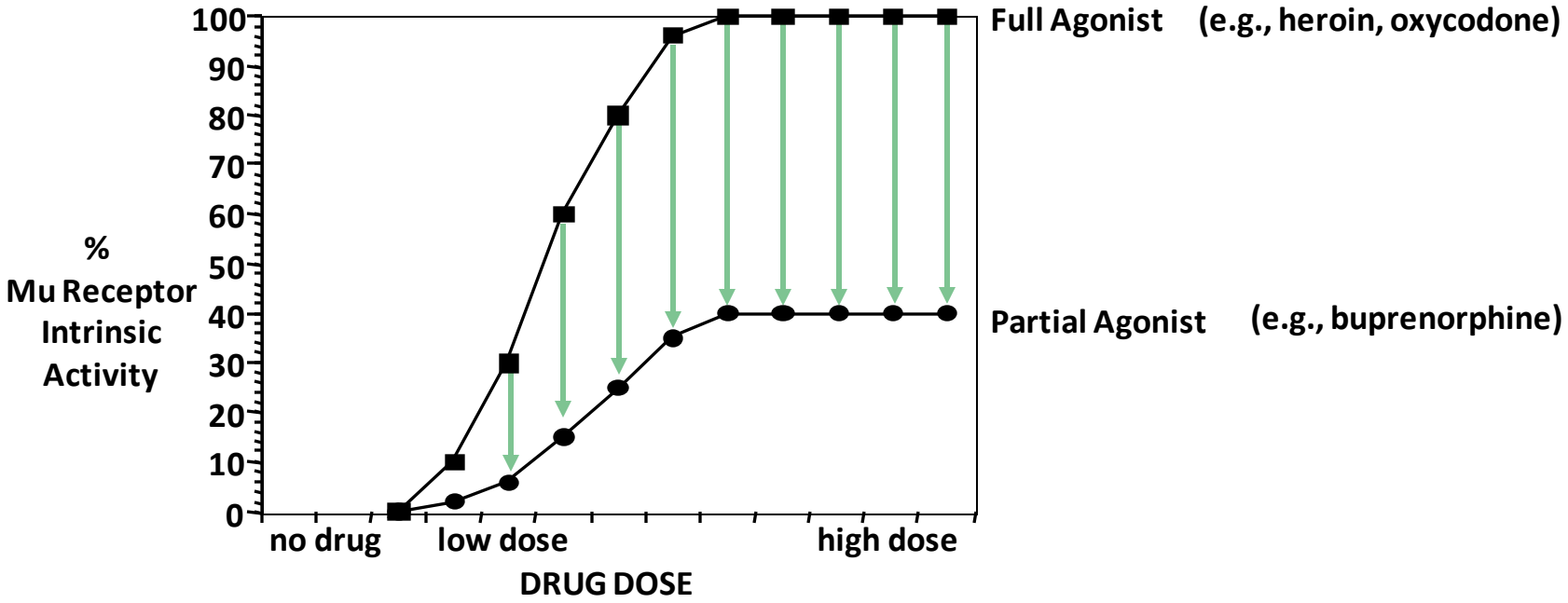
Sen “New Pain Management Options for the Surgical Patient on Methadone and Buprenorphine” Curr Pain Headache Rep (2016) 20: 16

Myth: continuing buprenorphine can precipitate withdrawal when used together with full agonists

The slow dissociation and high affinity of buprenorphine makes precipitated withdrawal unlikely for patients maintained on buprenorphine.

Precipitated withdrawal is a risk for patients who had buprenorphine stopped & then try to restart.

Precipitated Withdrawal



Buprenorphine can displace full agonist, vice versa does not precipitate withdrawal

Myth: the naloxone component of suboxone will block the effects of full agonists

Fact: the naloxone component is not active unless taken parenterally

Bioavailability:

- Oral –barely detectable
- Sublingual < 5%
- IV: 70%

Why the Naloxone?

Naloxone intends to prevent **misuse** and diversion

Poor oral and sublingual bioavailability

Rapid binding action precipitates a rapid opioid-withdrawal syndrome that deters IV abuse of Suboxone

NOT the reason for precipitated withdrawal with SL use

Myth:
Therapeutic levels of buprenorphine result in a “blockade” of mu receptors

Even at moderate to high doses, mu receptors remain available

mu opioid receptor (μOR) availability

Study Details	1-mg	2-mg	4-mg	8-mg	12-mg	16-mg	24-mg	32-mg
Comer et al. (2005); n=7 heroin vs. n=8 controls; maintenance for 14 days at each dose, with tests at 15-hr post-BUP/NAL		21 – 31%		11 – 22%				6 – 12%
Greenwald et al. (2003); n=5; maintenance for 12 days at each dose, with tests at 4-hr post-BUP	(71 – 85%)	53 – 72%	(36 – 55%)	(20 – 35%)	(13 – 24%)	9 – 20%	(4 – 15%)	2 – 12%
Greenwald et al. (2007); n=10; maintenance for 14 days minimum, with tests at: 4-hr post-BUP 28-hr post-BUP 52-hr post-BUP 76-hr post-BUP						27 – 31% 54 – 61% 65 – 75% 77 – 94%		

Greenwald MK, Comer SD, Fiellin DA. Buprenorphine maintenance and mu-opioid receptor availability in the treatment of opioid use disorder: implications for clinical use and policy. *Drug Alcohol Depend*. 2014;144:1-11. doi:10.1016/j.drugalcdep.2014.07.035

Pain control IS possible with continuation of buprenorphine

Concurrent use of opioid analgesics is effective for patients maintained on buprenorphine, similar to patients on methadone

Patients may need increased (but not excessive) opioid equivalents to achieve same pain control.

Macintyre PE, Russell RA, Usher KA, Gaughwin M, Huxtable CA. Pain relief and opioid requirements in the first 24 hours after surgery in patients taking buprenorphine and methadone opioid substitution therapy. Anaesth Intensive Care 2013; 41:222-230.

Kornfeld H, Manfredi L. Effectiveness of full agonist opioids in patients stabilized on buprenorphine undergoing major surgery: A case series. Am J Ther. 2010;17(5):523-528.

Harrison TK, Kornfeld H, Aggarwal AK, Lembke A. Perioperative considerations for the patient with opioid use disorder on buprenorphine, methadone, or naltrexone maintenance therapy. Anesthesio2018

J.C.G. Van Niel, J. Schneider, T.M. Tzschentke Efficacy of full μ-opioid receptor agonists is not impaired by concomitant buprenorphine or mixed opioid agonists/antagonists–preclinical and clinical evidence Drug Res (Stuttg), 66 (11) (2016), pp. 562-570

S. Mercadante, P. Villari, P. Ferrera, *et al.* Safety and effectiveness of intravenous morphine for episodic breakthrough pain in patients receiving transdermal buprenorphine J Pain Symptom Manage, 32 (2006), pp. 175-179

Intrapartum Pain control

Regional Anesthesia is Safe & Effective

Full agonists are Safe & Effective

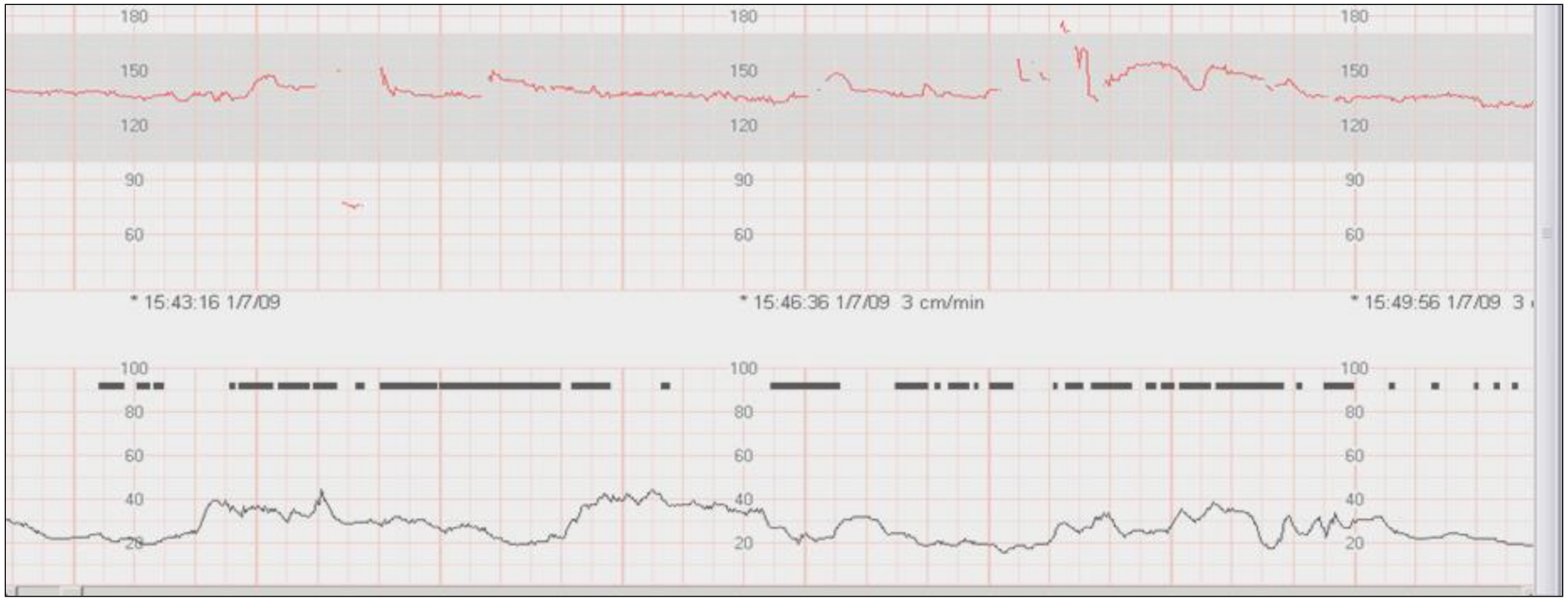
Beware the partial agonist!

Regional anesthesia is effective and safe

	Buprenorphine N=46*	Control N=45*	p
Pain before NA	9 (8, 10) N=39	8.8 (8, 10) N=42	0.74
Pain after NA	2 (0, 3.6) N=34	2 (0, 4) N=41	0.29
PCEA settings* (Stand Sol: 1/16% bupivicaine+2 mcg fentanyl/cc)			
Basal (cc/hr)	10.2±0.6 n=46	10.1±0.7 n=42	0.60
Delay	7.8±2.6 N=46	9.5±1.5 n=42	0.007
Bolus	6.7±1.6 n=46	7.4±1.3 n=42	0.02
1 hour max infusion	35.7 ±1.8 N=46	35.8 ±1.2 N=41	0.90
Extra bolus needed during labor**	19/46 (30.6)	8/43 (11.4)	0.04

Nubain / Stadol can precipitate acute withdrawal

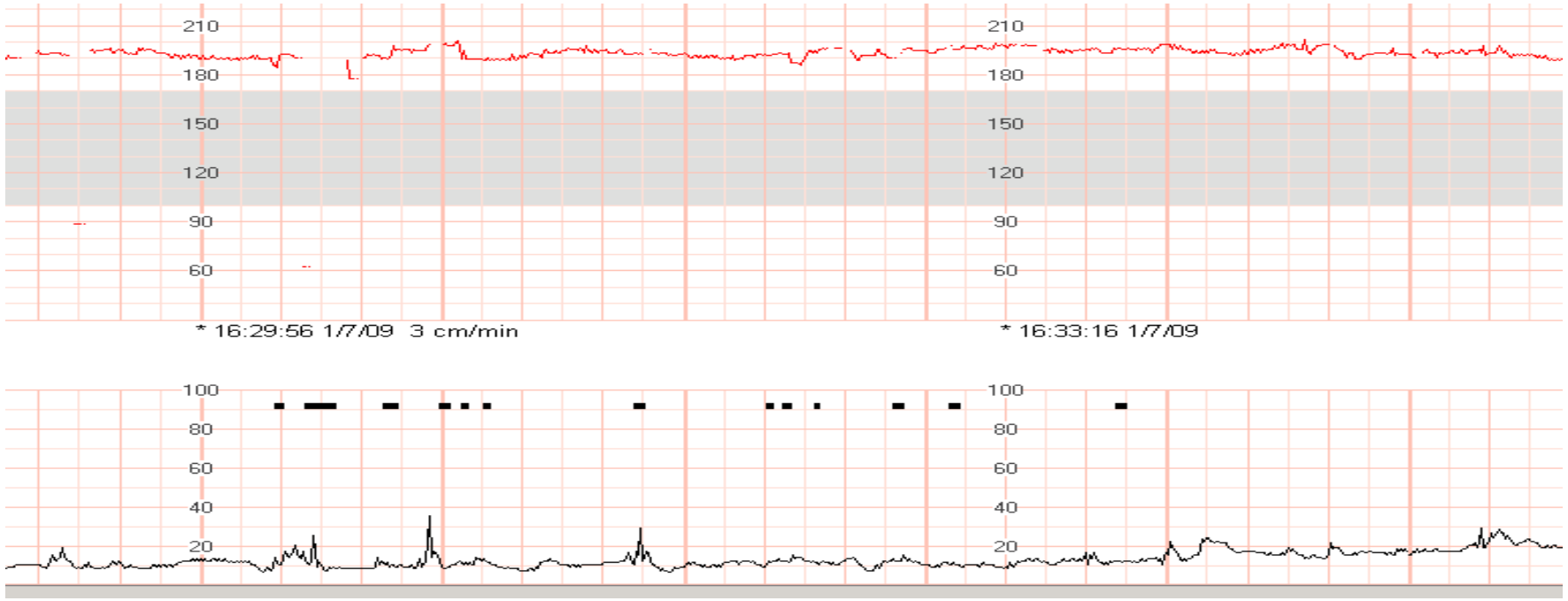
Patient maintained on methadone requested medication for pain



Received nalbuphine 10 mg IV

- Patient agitated, crying, c/o severe abdominal cramps, muscle cramps, cold w/ shaking chills, tremulous

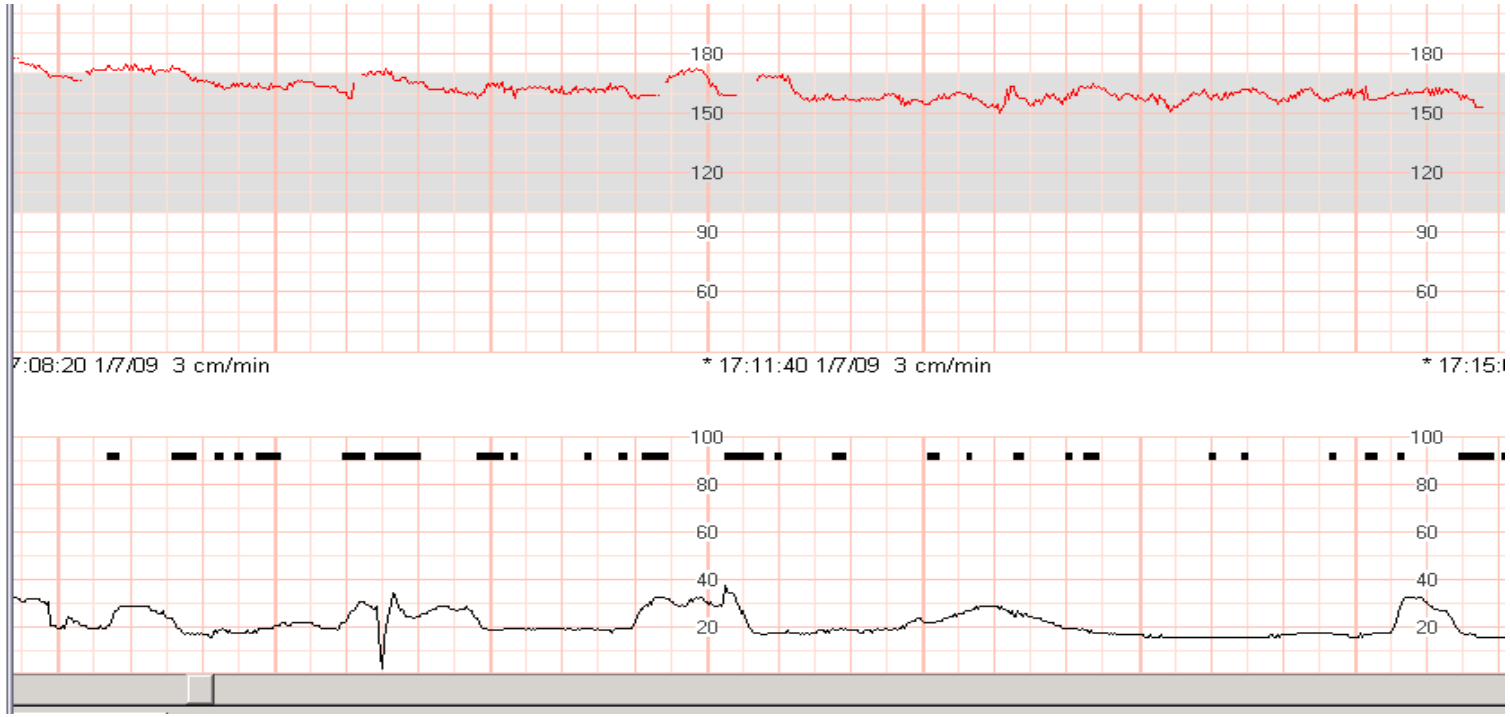
- Fetal Tachycardia



Received IV morphine

Fetal Tachycardia continued x 45min., with subsequent return to baseline

- No decelerations



Intrapartum Pain control

Regional Anesthesia is Safe & Effective

Full agonists are Safe & Effective

Beware the partial agonist!

Post Partum Pain Control

Vaginal Delivery:

- Routine postoperative pain control orders are in most cases sufficient

Cesarean Delivery:

- CONTINUE MAT
- ANTICIPATE an increased opiate requirement
- COUNSEL the patient her pain will be treated
- EDUCATE staff that an increased need for pain medicine is expected, as is decreasing use over time

MAT & Pain Control Post Partum

MAT patients require similar amounts of pain meds to controls after vaginal delivery

Increased amounts of pain meds after cesarean delivery

- Methadone pts require about **70% more oxycodone**
- Buprenorphine pts require about **50% more oxycodone**

Table 3. Oxycodone Equivalent Use and Pain Score Per 24 Hours Postpartum

	Vaginal (n=35)			Cesarean (n=33)		
	Methadone	Control	*P*	Methadone	Control	*P*
Oxycodone equivalents (mg)	12.7±32.1	6.8±12.7	.33	91.6±51.8	54.0±18.6	.001
Acetaminophen	1,611±930	2,039±987	.06	2,780±1,019	2,880±1,119	.72
Ibuprofen	990±533	1,189±643	.12	1,991±270	1,959±574	.76
Pain score	2.7 (1.9, 5.0)	1.4 (0.5, 3.0)	.001	5.3 (4.1, 6.0)	3.0 (2.2, 3.9)	.001

Data are mean±1 standard deviation or median (25th, 75th percentiles).
Oxycodone use was calculated by calculating the cumulative oxycodone equivalents (see Materials and Methods) and dividing by the duration of hospitalization after delivery (up to 72 hours; reported as per 24 hour increments).

Mmeyer et al, "Intrapartum and Postpartum Analgesia for Women Maintained on Methadone During Pregnancy" Obstetrics & Gynecology VOL. 110, NO. 2, PART 1, AUGUST 2007

Continue Buprenorphine

"There is no evidence to show pre-procedural discontinuation of buprenorphine products results in improved pain control."

NWarner "A Practical Approach for the Management of the Mixed Opioid Agonist-Antagonist Buprenorphine During Acute Pain and Surgery" Mayo Clin Proc. June 2020

Pain control IS possible with continuation of buprenorphine

"Opioid requirements were less in patients in whom BOST was continued perioperatively compared with those patients whose regular BOST was ceased, and therefore BOST should not be withheld in patients undergoing surgery…"

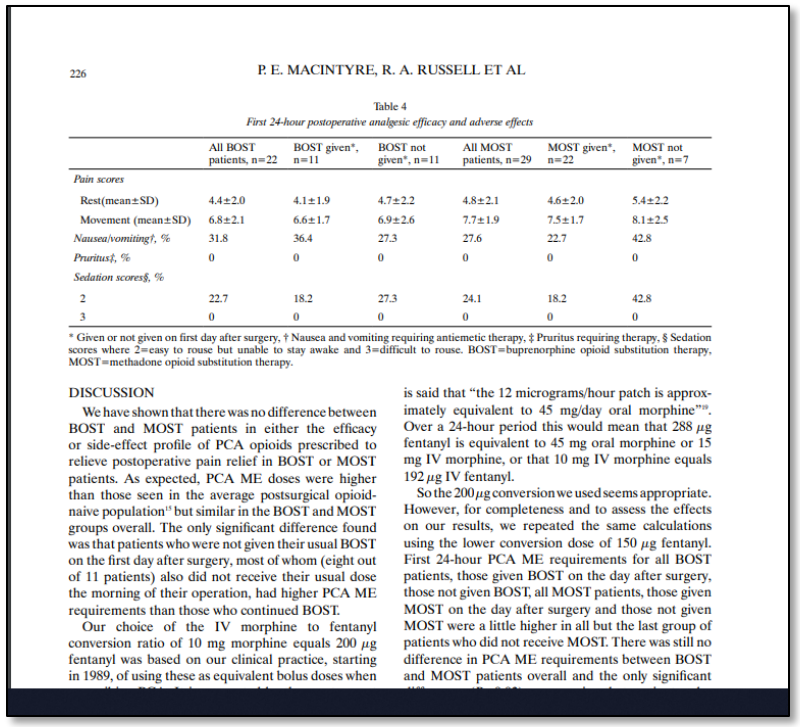


Table 4

First 24-hour postoperative analgesic efficacy and adverse effects

	All BOST patients, n=22	BOST given*, n=11	BOST not given*, n=11	All MOST patients, n=29	MOST given*, n=22	MOST not given*, n=7
Pain scores						
Rest(mean±SD)	4.4±2.0	4.1±1.9	4.7±2.2	4.8±2.1	4.6±2.0	5.4±2.2
Movement (mean±SD)	6.8±2.1	6.6±1.7	6.9±2.6	7.7±1.9	7.5±1.7	8.1±2.5
Nausea/vomiting†, %	31.8	36.4	27.3	27.6	22.7	42.8
Pruritus‡, %	0	0	0	0	0	0
Sedation scores§, %						
2	22.7	18.2	27.3	24.1	18.2	42.8
3	0	0	0	0	0	0

* Given or not given on first day after surgery, † Nausea and vomiting requiring antiemetic therapy, ‡ Pruritus requiring therapy, § Sedation scores where 2=easy to rouse but unable to stay awake and 3=difficult to rouse. BOST=buprenorphine opioid substitution therapy, MOST=methadone opioid substitution therapy.

DISCUSSION

We have shown that there was no difference between BOST and MOST patients in either the efficacy or side-effect profile of PCA opioids prescribed to relieve postoperative pain relief in BOST or MOST patients. As expected, PCA ME doses were higher than those seen in the average postsurgical opioid-naive population[11] but similar in the BOST and MOST groups overall. The only significant difference found was that patients who were not given their usual BOST on the first day after surgery, most of whom (eight out of 11 patients) also did not receive their usual dose the morning of their operation, had higher PCA ME requirements than those who continued BOST.

Our choice of the IV morphine to fentanyl conversion ratio of 10 mg morphine equals 200 μg fentanyl was based on our clinical practice, starting in 1989, of using these as equivalent bolus doses when

is said that "the 12 micrograms/hour patch is approximately equivalent to 45 mg/day oral morphine"[10]. Over a 24-hour period this would mean that 288 μg fentanyl is equivalent to 45 mg oral morphine or 15 mg IV morphine, or that 10 mg IV morphine equals 192 μg IV fentanyl.

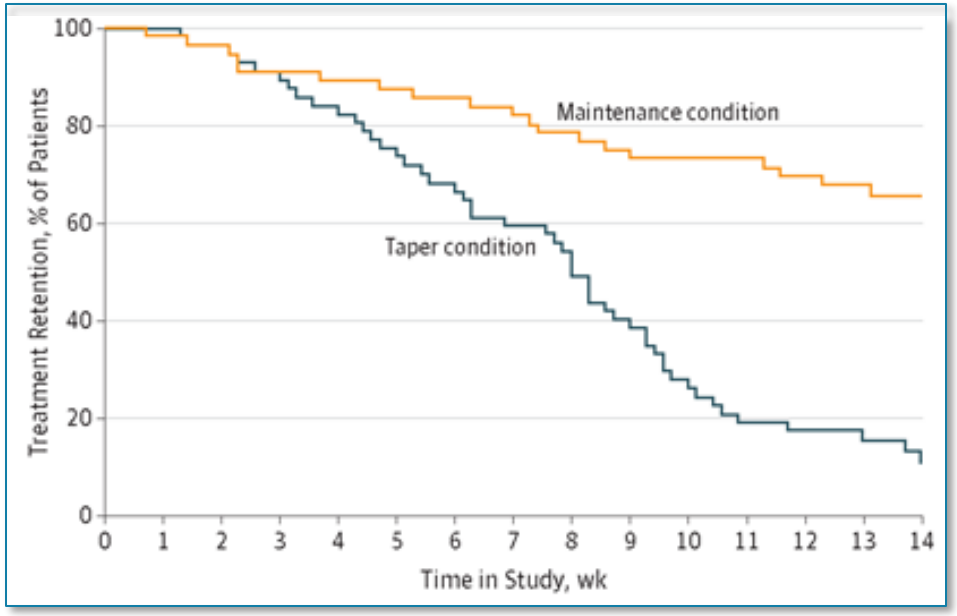
So the 200 μg conversion we used seems appropriate. However, for completeness and to assess the effects on our results, we repeated the same calculations using the lower conversion dose of 150 μg fentanyl. First 24-hour PCA ME requirements for all BOST patients, those given BOST on the day after surgery, those not given BOST, all MOST patients, those given MOST on the day after surgery and those not given MOST were a little higher in all but the last group of patients who did not receive MOST. There was still no difference in PCA ME requirements between BOST and MOST patients overall and the only significant

Macintyre PE, Russell RA, Usher KA, Gaughwin M, Huxtable CA. Pain relief and opioid requirements in the first 24 hours after surgery in patients taking buprenorphine and methadone opioid substitution therapy. Anaesth Intensive Care 2013; 41:222-230.

Risks of discontinuation

Pre-procedural discontinuation of buprenorphine comes with unacceptable risks:

- relapse (Briand LA. Brain Res. 2010)
- overdose (Greenwald Neuropsychopharmacology. 2003)
- Decreased retention in treatment
- Confounding of pain by withdrawal

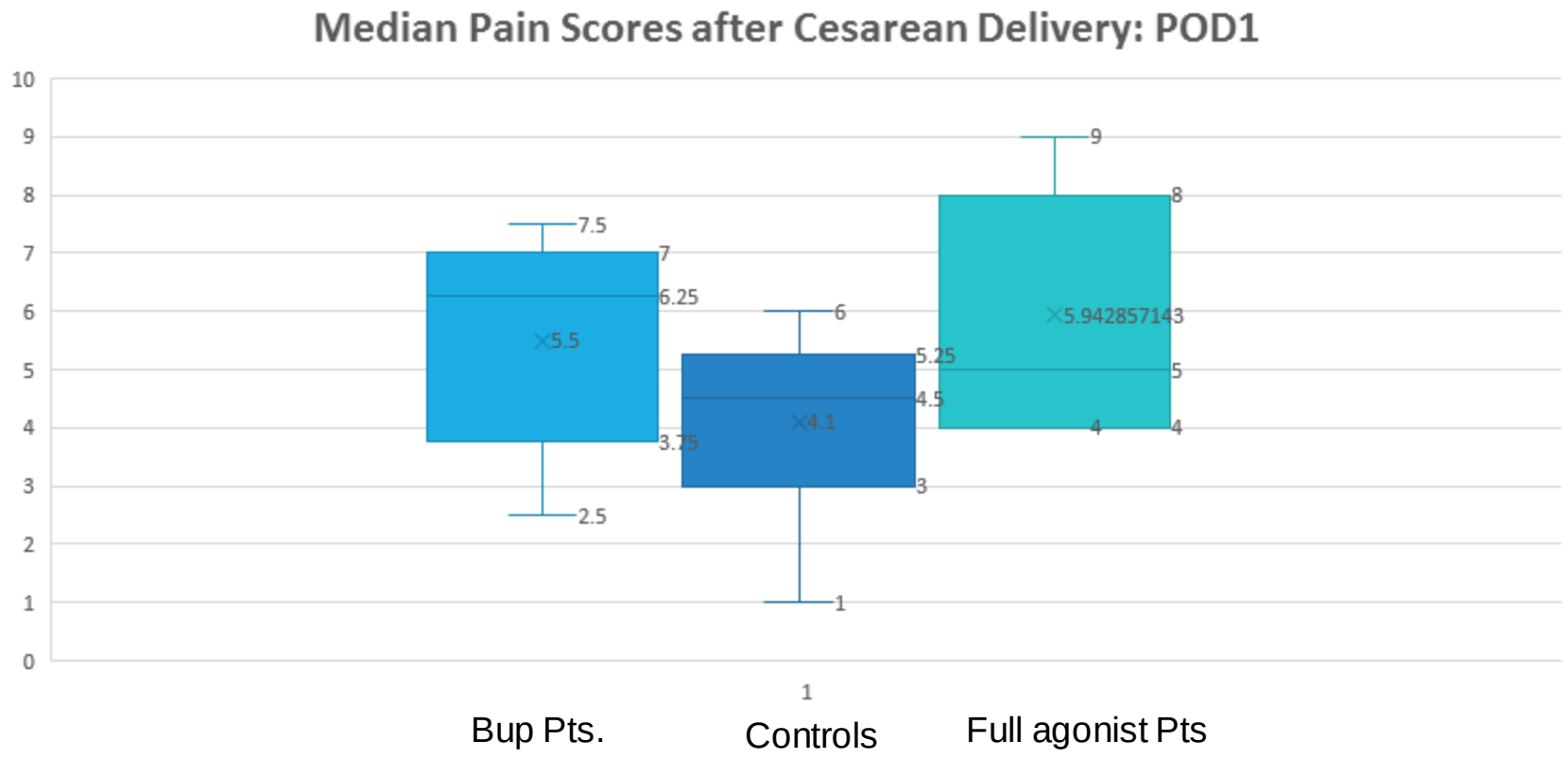


Fiellin DA, Schottenfeld RS, Cutter CJ, Moore BA, Barry DT, O'Connor PG. Primary care-based buprenorphine taper vs maintenance therapy for prescription opioid dependence: a randomized clinical trial. JAMA Intern Med. 2014 Dec;174(12):1947-54

In summary:

Routinely discontinuing buprenorphine is not evidence-based, is without a proven benefit and comes with significant risks.

UMass L&D Pain Scores: POD1

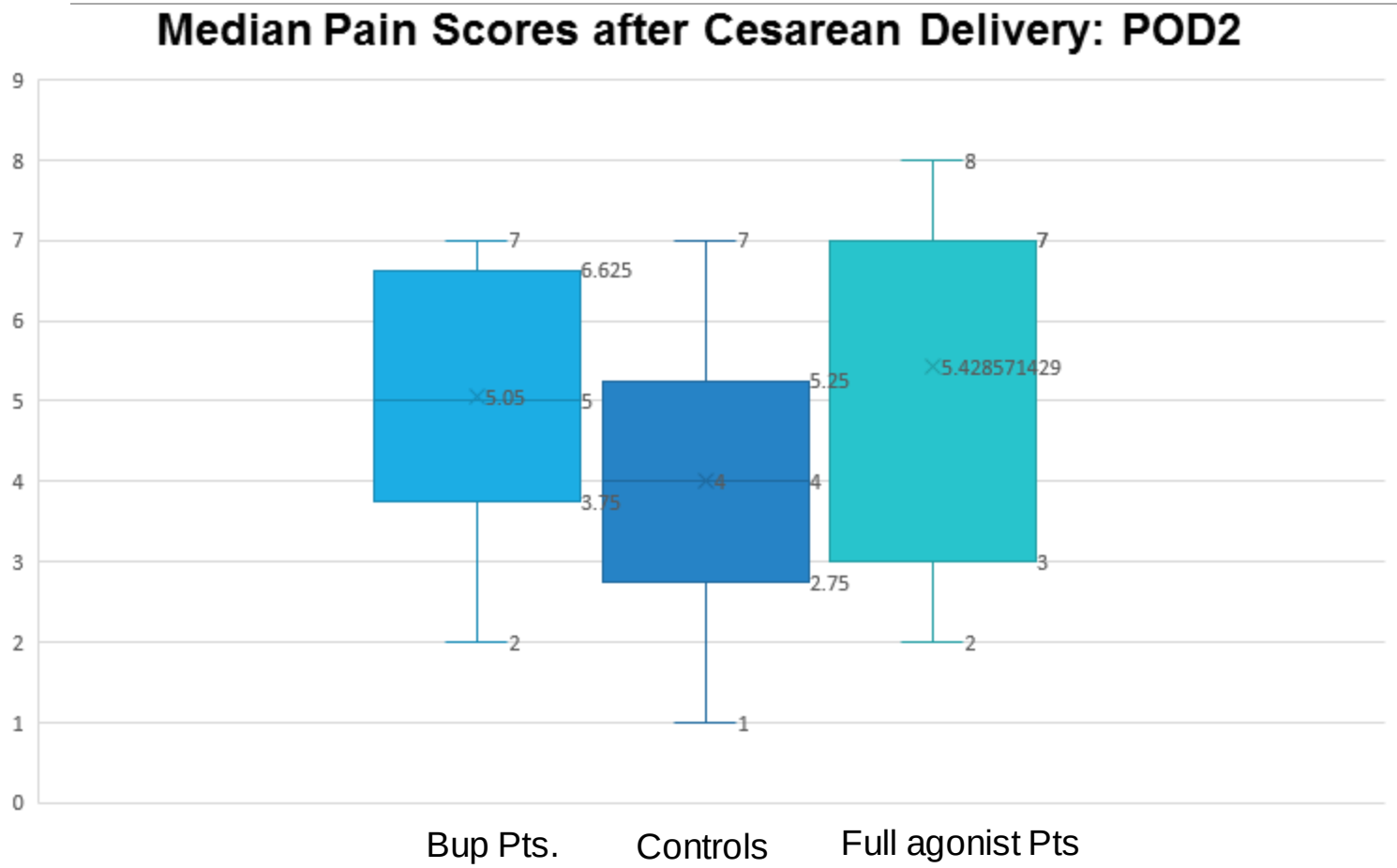


10 bup pts
4mg-32 mg daily
Average dose: 18mg daily
6 suboxone / 4 subutex
1 w/ illicit use at time of delivery

10 controls
Delivered 9/27-9/28

7 full-opioid patients
6 rx methadone
Dose range 20-150mg daily
1 street use only (fentanyl)
3 methadone + street use

UMass L&D Pain Scores: POD2

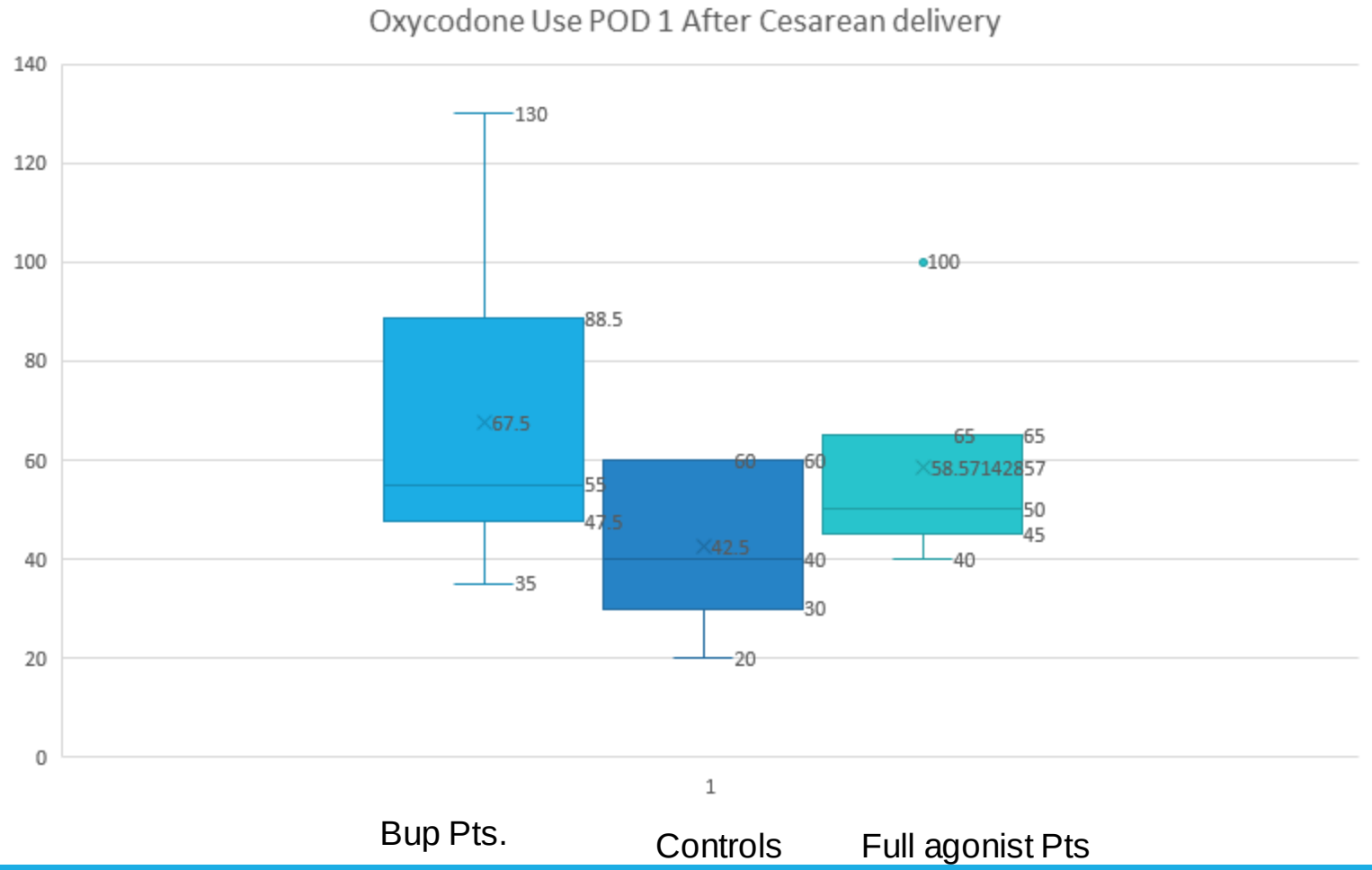


10 bup pts
4mg-32 mg daily
Average dose: 18mg daily
6 suboxone / 4 subutex
1 w/ street use at time of delivery

10 controls
Delivered 9/27-9/28

7 full-opioid patients
6 rx methadone
Dose range 20-150mg daily
1 street use only (fentanyl)
3 methadone + street use

UMass L&D Oxycodone Use POD1



10 bup pts
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Average dose: 18mg daily
6 suboxone / 4 subutex
1 w/ street use at time of delivery

10 controls
Delivered 9/27-9/28

7 full-opioid patients
6 rx methadone
1 street use only (fentanyl)
3 methadone + street use

MOUD & Pain Control Post Partum

Cesarean Delivery:

- CONTINUE MAT
- ANTICIPATE an increased opiate requirement
- COUNSEL the patient her pain will be treated
- EDUCATE staff that an increased need for pain medicine is expected, as is decreasing use over time

MOUD Pain Control Protocol* at UMass

PODX:

Order additional opioid pain medicine:

- Percocet 2tabs q4 ATC x24h
- 5-10 oxycodone q2h PRN breakthru
- LOW threshhold for PCA
- Continue toradol x48h

* Be flexible and customize for each patient's specific goals and needs

MOUD Pain Control Protocol* at UMass

POD1:

Continue additional opioid pain medicine:

- continue toradol 15 q6
- Percocet 2tabs q4 ATC (patient may refuse)
- Oxycodone 5mg 1-2 tabs q4h PRN breakthru pain

* Be flexible and customize for each patient's specific goals and needs

MOUD Pain Control Protocol* at UMass

POD2

- Toradol changed to motrin (600 q6 ATC)
- Percocet 2 tabs q4 PRN
- Oxycodone 5mg 1-2 tabs q4h PRN breakthru pain

POD3

- Standard pain control orders

* Be flexible and customize for each patient's specific goals and needs

MOUD Pain Control Protocol* at UMass

Before Discharge

- Identify patient's goals, concerns
- Set expectations
- If discharging with rx – identify a sober partner to assist with meds
- Short Rx with plan for frequent, short interval follow-up

* Be flexible and customize for each patient's specific goals and needs

Thank you!

"Opioid Use Disorder Market Size, Share & Trends Analysis Report By Drug (Buprenorphine, Methadone, Naltrexone), Competitive Landscape, And Segment Forecasts, 2019 – 2026" Jul 2019

National Academies of Sciences, Engineering, and Medicine 2019. *Medications for Opioid Use Disorder Save Lives*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25310.

Marsch LA "The Efficacy of Methadone Maintenance Interventions In Reducing Illicit use" Addiction April 1998

Johansson BA et al "Efficacy of Maintenance Treatment with Methadone: A MetaAnalysis" Nord J Psych 2007

McLellan, A.T. et al., "Drug Dependence, a Chronic Medical Illness: Implications for Treatment, Insurance, and Outcomes Evaluation " JAMA, Vol 284(13), October 4, 2000.

Kakko J, Svanborg KD, Kreek MJ, Heilig M. 1-year retention and social function after buprenorphine-assisted relapse prevention treatment for heroin dependence in Sweden: a randomised, placebo-controlled trial. Lancet. 2003 Feb 22;361(9358):662-8. doi: 10.1016/S0140-6736(03)12600-1. PMID: 1206177.

Greenwald MK, Comer SD, Fiellin DA. Buprenorphine maintenance and mu-opioid receptor availability in the treatment of opioid use disorder: implications for clinical use and policy. *Drug Alcohol Depend*. 2014;144:1-11. doi:10.1016/j.drugalcdep.2014.07.035

Macintyre PE, Russell RA, Usher KA, Gaughwin M, Huxtable CA. Pain relief and opioid requirements in the first 24 hours after surgery in patients taking buprenorphine and methadone opioid substitution therapy. Anaesth Intensive Care 2013; 41:222-230.

Kornfeld H, Manfredi L. Effectiveness of full agonist opioids in patients stabilized on buprenorphine undergoing major surgery: A case series. Am J Ther. 2010;17(5):523-528.

Harrison TK, Kornfeld H, Aggarwal AK, Lembke A. Perioperative considerations for the patient with opioid use disorder on buprenorphine, methadone, or naltrexone maintenance therapy. Anesthesio2018

J.C.G. Van Niel, J. Schneider, T.M. Tzschentke Efficacy of full μ-opioid receptor agonists is not impaired by concomitant buprenorphine or mixed opioid agonists/antagonists–preclinical and clinical evidence Drug Res (Stuttg), 66 (11) (2016), pp. 562-570

S. Mercadante, P. Villari, P. Ferrera, *et al.* Safety and effectiveness of intravenous morphine for episodic breakthrough pain in patients receiving transdermal buprenorphine J Pain Symptom Manage, 32 (2006), pp. 175-179

Mmeyer et al, "Intrapartum and Postpartum Analgesia for Women Maintained on Methadone During Pregnancy" Obstetrics & Gynecology VOL. 110, NO. 2, PART 1, AUGUST 2007

Macintyre PE, Russell RA, Usher KA, Gaughwin M, Huxtable CA. Pain relief and opioid requirements in the first 24 hours after surgery in patients taking buprenorphine and methadone opioid substitution therapy. Anaesth Intensive Care 2013; 41:222-230.

Fiellin DA, Schottenfeld RS, Cutter CJ, Moore BA, Barry DT, O'Connor PG. Primary care-based buprenorphine taper vs maintenance therapy for prescription opioid dependence: a randomized clinical trial. JAMA Intern Med. 2014 Dec;174(12):1947-54

Closing Thoughts

Our *LAST* webinar is **Tuesday, May 18th, 2021** from 12-1pm ET

- **QI Topic:** Sustainability
- **Guest Topic:** Early Head Start

Reminders:

Please email Kali with any questions for the EHS team – they want to tailor their talk to your needs!

We highly encourage your whole team (OBs, RNs, MFMs, neonatologists, social workers, midwives, doulas, lactation consultants, educators, etc.) to register for SPEAK UP training!

Thank you for being here!!

Questions or Concerns?

- EXTRA SLIDES

Topic ripeness

Source: IHI BTS College Topic Ripeness Worksheet

1. Identify the gap
   - Does current practice deviate from best available scientific knowledge?
   - Can you provide data to quantify the current gap?
2. Is there evidence the gap can be closed?
   - Have others closed the gap?
   - Do we have a list of changes we can use to get results?
3. Does this topic matter to others?
   - Patients/clients - is there a strong emotional pull to bring the team together?
   - Clinicians
   - Leadership
   - Is the topic linked to your institution's strategic plan?
   - Is there a strong business case (financial, clinical, or reputation-based)?

A Framework for Spread – Lessons Learned

- Prepare for spread;
- Establish an aim for spread; and
- Develop, execute, and refine a spread plan

Source: IHI, Spreading Changes: http://www.ihi.org/topics/Spread/Pages/default.aspx

Develop an initial a spread plan

- The spread aim is foundational to the spread plan
- The spread plan addresses the "how" of spread, including:
  - Communication methods and channels to engage the target population
  - Measurement system to assess spread goal progress
  - Anticipation of actions needed to embed changes in the system

<u>Questions to consider:</u>

1. Can the institutional structure be used to facilitate spread?
   - Existing systems for assigning responsibility, communication methods
2. How are decisions about improvement adoption made?
   1. Centralized, directed manner vs. Consensus-building

Source: Massoud MR, Nielsen GA, Nolan K, Schall MW, Sevin C. *A Framework for Spread: From Local Improvements to System-Wide Change.* IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2006. (Available on www.IHI.org)

Develop an initial a spread plan

Questions to consider, cont:

3. What infrastructure enhancements will assist in achieving the spread aim?
   - Some changes are dependent on individual decisions (e.g. prescribing medication) whereas others are tied to system-level change (e.g. rolling out a new computer system)

4. What transition issues need to be addressed?
   - Lack of knowledge around a certain tool or absence of a reliable communication system may delay adoption of spread plan

Source: Massoud MR, Nielsen GA, Nolan K, Schall MW, Sevin C. *A Framework for Spread: From Local Improvements to System-Wide Change.* IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2006. (Available on www.IHI.org)

Develop an initial a spread plan

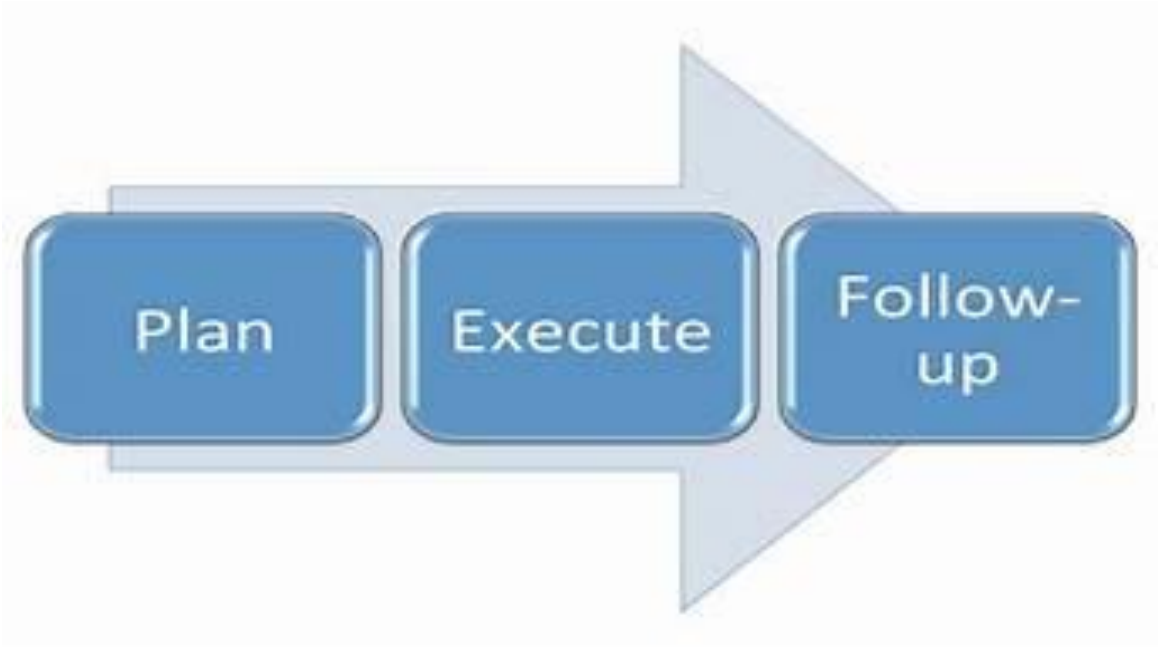
Questions to consider, cont:

5. How will spread efforts be transitioned to operational responsibilities?
   - **Spread is only successful when the innovation becomes "the way we do things"**
   - Utilize training and new skill development, support and reinforcement for new behaviors that reinforce practices, problem-solving, and assigning responsibility

Source: Massoud MR, Nielsen GA, Nolan K, Schall MW, Sevin C. *A Framework for Spread: From Local Improvements to System-Wide Change.* IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2006. (Available on www.IHI.org)

Execute and refine the spread plan

- Establish methods for collecting feedback on the spread process – ***this is essential!***
- Use data to assess progress and adjust the plan if needed
- Make changes in organizational responsibility to ensure gains are maintained



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More scaling tips!

- The end of planning is only the beginning of the improvement process!
- Limit time spent in contemplation
  - Rapidly and religiously get out into the field to support and learn from participants
- In the first 90 days, the program should establish rules for operation
  - Emphasize continuous learning and adjustment
  - Remain solution-oriented in the face of challenges
- **The most successful efforts demonstrate strength in logistics management** and relentless focus on the details of successfully running the program, as opposed to high-level planning or strategy

McCannon CJ, Schall MW, Perla RJ. Planning for Scale: A Guide for Designing Large-Scale Improvement Initiatives. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2008. (Available on www.IHI.org)